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Roberto Herrera

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Roberto A. Herrera

*Candidate*

Anthropology

*Department*

This dissertation is approved, and it is acceptable in quality and form for publication:

*Approved by the Dissertation Committee:*

James L. Boone, Chairperson

Garth Bawden

Louis Scuderi

John Hoopes

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**SOCIAL AND RITUAL DYNAMICS AT EL CHOLO:  
AN UPPER GENERAL VALLEY FUNERARY VILLAGE OF  
THE DIQUÍS SUBREGION, SOUTHERN COSTA RICA**

by

**ROBERTO ALEXANDER HERRERA**

B.A., Religion, Hunter College, CUNY, 1998  
M.A., Anthropology, University of New Mexico, 2002

DISSERTATION

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

**Doctor of Philosophy  
Anthropology**

The University of New Mexico  
Albuquerque, New Mexico

**July 2015**

**©2015 Roberto Alexander Herrera**



*I dedicate this manuscript to my wife, Victoria Eng, and my son, Tayo Alexander Eng-Herrera, and to the people of El Cholo.*

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**ABSTRACT**

This dissertation details the results obtained from investigations conducted at an Aguas Buenas (300 BC-AD 800) to early Chiriquí phase (AD 900-1550) site known as El Cholo (SJ-59ECh), a mound complex located in the Upper General Valley of southern Costa Rica. Using data from surface collection along with horizontal and stratigraphic excavations, this investigation analyzed site formation and associated behavioral processes underlying the construction of a set of interconnected mounds comprising the architectural core of El Cholo. Previous research suggested that mounded sites in the Upper General area were likely seats of emergent elites with monumental constructions occupying a central position within a two-tiered settlement hierarchy. I therefore set out to identify patterns that would support or falsify this assertion, additionally proposing alternative hypotheses utilizing social models involving corporate/network dynamics and heterarchical, practice-based social processes.

Evidence suggests that the mounds at El Cholo, as opposed to being residential spaces, were rather likely accretional mortuary structures, with successive funerary behavior consisting of a ceremonial mixture of interment, fire ritual and deposition of fragmented

ceramic and lithic artifacts. This pattern, identified throughout the site and at different times, yielded a multi-stage occupational profile. Radiometric data suggests that activity ranged from as early as the 2nd century AD to as late as the 11th century AD. The modest nature of offerings and the diffuse and relatively uniform nature of mortuary ritual and attendant ceremonial material have implications for previous assumptions of hierarchy in the mid to late Formative in the Upper General Valley, supporting the likelihood that El Cholo may have been a manifestation of collective, corporate, heterarchically based groups rather than the result of centralized managerial processes.

As such, this study re-evaluates the prevailing thinking regarding sociocultural change in the Upper General Valley with implications for the Diquís subregion, as well as its encompassing area of Greater Chiriquí. It suggests there may be a greater level of social variability in the Isthmo Colombian Area even though regions may be in close proximity to each other and despite the large-scale uniformity of an apparent long-term mid-range social stability. It thus holds implications for how we view interregional interaction and social complexity in general, especially as to how these social dynamics articulate within heterogeneous or homogeneous social landscapes.

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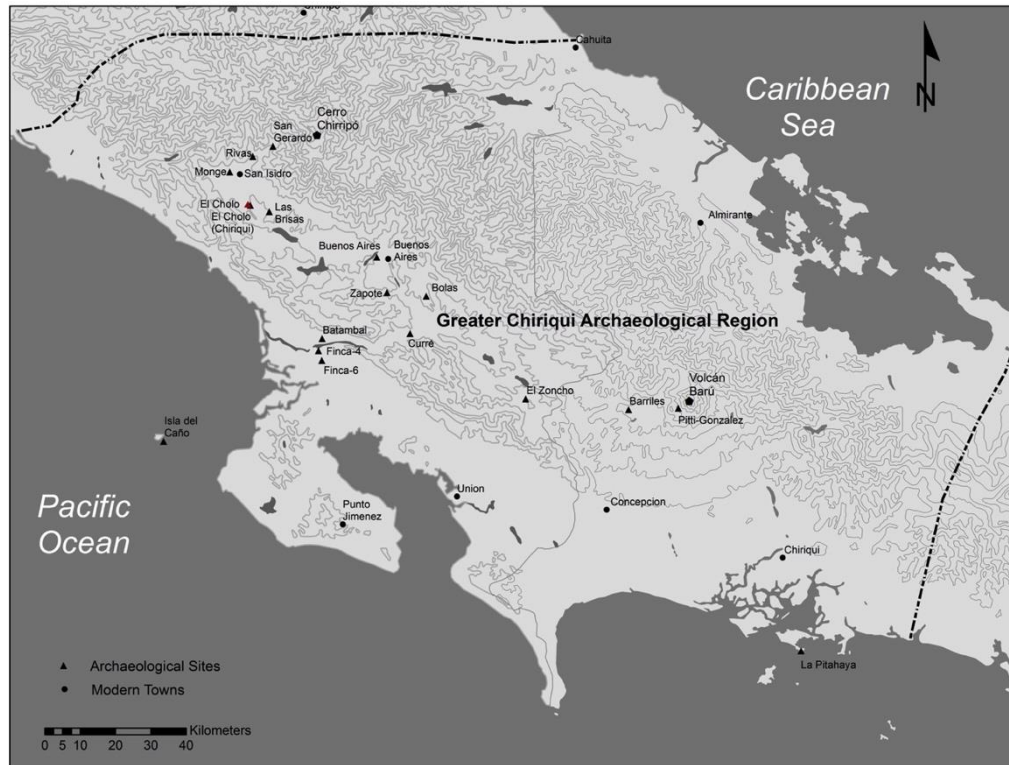
## **Chapter 1 : INTRODUCTION**

This study details the results obtained from investigations conducted at an Aguas Buenas to early Chiriquí phase (Table 1.1) site known as El Cholo (SJ-59ECh), a mound complex located in the Upper General Valley of southern Costa Rica. The Upper General Valley is located in the Diquís subregion: a part of the Greater Chiriquí archaeological region (Figure 1.1) El Cholo is one of the few well-preserved examples of Formative period architecture in the region that has been subject to systematic excavation and analysis. It is therefore one of the first substantial units of evidence to be retrieved from Formative period contexts that can be used to examine several important and debated issues concerning the development of social complexity within southern Costa Rica. This dissertation uses data obtained from surface collections and excavations carried out at the site of El Cholo during the summers of 2003, 2005 and 2007, as well as subsequent salvage excavations by the Museo Nacional de Costa Rica (Badilla 2007), to re-evaluate the prevailing thinking regarding sociocultural change in the Upper General Valley, the Diquís, and its encompassing area of Greater Chiriquí. The study raises questions regarding how we view interregional interaction, especially between areas such as the Atlantic Watershed and Greater Chiriquí (Figure 1.2). It also holds implications for the ongoing debate regarding the ways anthropologists view social complexity in general.

		<b>Diquís Subregion Periods</b>	<b>General Valley</b>	<b>Middle Terrabá Basin</b>	<b>Diquís Delta</b>	<b>Coto Brus Valley</b>	<b>Coto Colorado</b>		<b>Chiriquí Highlands</b>	<b>Chiriquí Plains</b>	<b>Chiriquí Coast</b>	<b>Bocas Del Toro</b>
<b>1500 AD</b>	<b>southern Costa Rica</b>	Palmar						<b>Western Panama</b>	Chiriquí	Chiriquí	Chiriquí	Bocas
<b>800 AD</b>		Chiriquí	Chiriquí	Chiriquí	Sierpe	Chiriquí	Chiriquí		Bugaba	La Concepcion	Burica	Aguacate
<b>0</b>		Aguas Buenas	Aguas Buenas	Quebradas	Camibar	Aguas Buenas	Abrojo		Bugaba	Bugaba		
<b>300 BC</b>									Barriles			
<b>1500 BC</b>		Sinancra		Curré	Curré		Darizara					

**Table 1.1: Subregional Chronology of the Greater Chiriquí Archaeological Region**

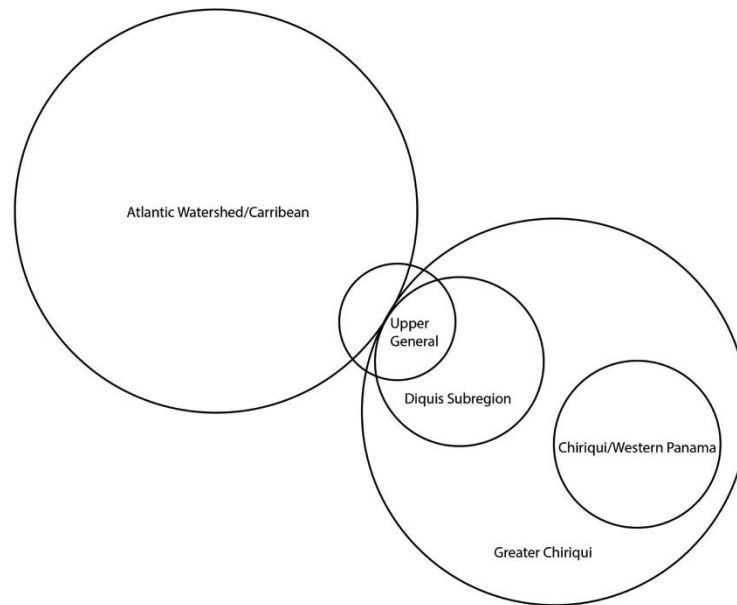
Greater Chiriquí, spanning southern Costa Rica and western Panama, represents an area with a growing, but still relatively poor understanding of its earlier periods. It is only a portion of a larger area alternately known as Lower Central America, Southern Central America, a portion of the Isthmo-Colombian Area and most commonly, as a portion of the Intermediate Area (Cooke 2005; Hoopes and Fonseca 2003; Hoopes 2005). For the purposes of this study, I use a more current and arguably geographically accurate term of Isthmo-Colombian Area (ICA) (Hoopes and Fonseca 2003; Hoopes 2005; Palumbo 2009; Sol Castillo 2013). This deceptively large area, encompassing eastern Honduras to northern Colombia and western Venezuela (Figure 1.3) presents anthropologists with a distinct perspective for studying social complexity and the development of inequality. The ambiguity inherent in regional site definition, rather than a methodological handicap, may arguably underscore a social landscape relatively unique from its immediate neighbors, one that demonstrates a particular variability in human responses and decision-making processes.



**Figure 1.1: Greater Chiriquí archaeological region with El Cholo and contemporary sites**

For over a hundred years, researchers working in the ICA were challenged to interpret a social environment significantly different from that observed for its neighbors to the north and south (Cooke 2005; Hartman 1901; Hoopes and Fonseca 2003; Lothrop 1934, 1941; Quilter and Frost 2007), with efforts to understand these differences often hampered by the spotty attention paid to the region in general. Like much the rest of the ICA, research began tentatively in the Diquís and the Greater Chiriquí region, consisting mainly of excavations of mortuary complexes with the occasional investigation of possible house structures (Hartman 1901, 1907; Mason 1945; Pittier 1891b). These efforts began the arduous process of outlining the sociocultural dynamics of the region, which at even an early stage contrasted with the better-studied areas of Mesoamerica and the Andean region. When compared to these two areas of so-called high civilizations, the

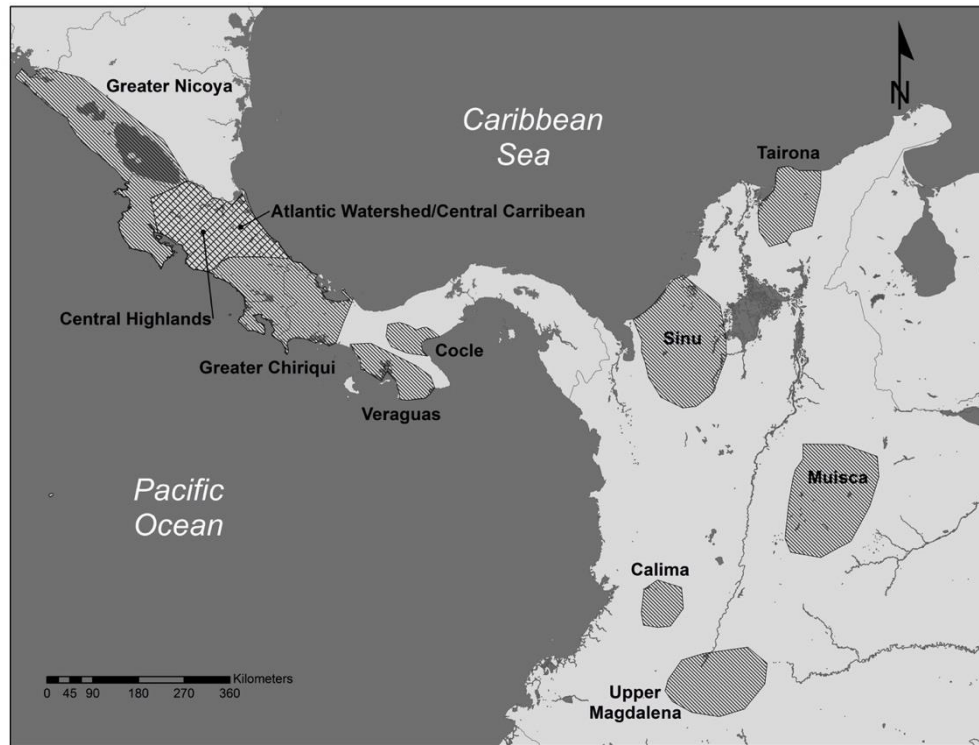
archaeological patterns emerging from the ICA appeared intriguingly unique to the area (Aguilar 1972; Corrales 1988; Drolet 1980; Ferrero 1987; Hoopes 1991).



**Figure 1.2: Schematic of the overlapping areas that are investigated in this dissertation. The Upper General Valley is hypothetically placed at the juncture between the Atlantic Watershed and Greater Chiriquí**

The early attempts to understand the behavioral processes and detail the specific dynamics underpinning this seemingly distinct material evidence developed intermittently. Only in recent decades has the research infrastructure in Costa Rica reached the level as to develop the systematic program it has now, thanks in large to the research and recovery efforts of the University of Costa Rica and the National Museum of Costa Rica (Aguilar 1972; Arias and Sanchez 2003; Baudez, et al. 1996; Corrales 2002; Fonseca 1979). However, while increased in scope and more sophisticated in its methodology and theory than its predecessors, the current research program has only

started to develop what is still a basic understanding (Murillo Herrera 2009; Palumbo 2009; Sheets 1992; Sol Castillo 2013).



**Figure 1.3: The Isthmo Colombian Area (ICA) with culture areas**

Situated between Mesoamerica and Andean South America; two regions which developed state-like societies, the ICA initially led researchers to conclude that only non-state-like social structures developed prehistorically (Creamer 1987; Quilter 2004; Sheets 1992). This interpretation derived from research findings that routinely yielded evidence demonstrating an enduring pattern of simple to middle-range social systems. These less complex systems appeared to last throughout the Early Formative period up through European contact (Cooke 2005; Guardia 1978; Hoopes 1992, 2005; Linares and Ranere 1980; Sheets 1992; Vazquez Leiva 2014). Paradoxically, evidence also suggested that

within this generally stable social framework, the ICA, including southern Costa Rica, sustained a diverse internal differentiation of social organization, evidenced by the various site patterns recorded for the region (Hoopes 1991). Cultural veneers (Stone 1972, 1977) originating from Mesoamerican or Andean influences, argued by some to regularize the patchwork nature of the ICA, still had to integrate with what appeared to be highly localized cultural expressions. Societies that seemed to reflect northern and southern trends at specific time periods did so in unique ways with social expressions seemingly varying between relatively short distances. This variability also informed the way to view social formation; evident in the manner in which investigations handled the social category commonly known as “chiefdom” (Creamer and Haas 1985; Feinman and Neitzel 1984). ICA societies were ostensibly seen to inhabit chiefdom or tribal categorizations. This typological difficulty underscores the possibility that the region seemed to contain a range of contemporaneously diverse groups. The implications of this nested set of phenomena –the presence of internal variation within a relatively stable societal dynamic- have yet to be fully explored let alone explained; as the data can be frustratingly equivocal.

One result of combatting this dilemma has been an inadvertent reification of ideas where researchers have employed social categories such as complex tribes or simple chiefdoms to try and explain the observed pattern (Creamer and Haas 1985; Drennan 1991, 1996; Hoopes 1989). Some researchers propose that in many cases, the sociocultural configuration observed for the ICA resembled chiefdom structures with individuals in these societies assuming uncontested primary leadership (Drennan 1991, 2000; Drennan and Uribe 1987; Drolet 1988, 1992; Haberland 1984; Lothrop 1963; Palumbo 2009; Sol



Castillo 2013). However, the chronological accuracy and understanding of the initial conditions for the emergence of chiefdoms are as yet unclear. Others have questioned this adherence to typological definition, both in the ICA and further afield (Arnold 1996; Arroyo Wong, et al. 2010; Beliaev, et al. 2001; Bender 1978, 1985, 1990; Cobb 2003; Crumley 1987; Crumley, et al. 1995; Demarest 1992; Gómez Belmonte and Soto Solórzano 2001; Hayden 2001b, 2001c; Joyce and Hendon 2000; Lange 1992b), arguing instead for the existence of alternative forms of complexity and a more nuanced view on the emergence of inequality complete with a call to understand earlier, initial conditions without relying too much on semi or direct historical approaches (Lyman and O'Brien 2001; Ramenofsky and Steffen 1998). These modeled conditions that sustain acephalous, communal decision-making systems such as those seen in *cofradía* and *allyu* societies of Central and South America (Christenson 2008; Earle 1990; Mallon 2014; Taylor 1933; Wonderley 1986) with no fixed leadership are possible alternatives to explicate how precontact societies maintained dynamic social environments. In these scenarios, individuals and groups participate within more fluid social contexts. Within these expanded parameters, participants in society maintain community relations by contesting and/or countermanding attempts at centralization rather than simply acquiescing to an inevitable hierarchization (Anderson 1996; Bawden 1982; Bender 1990; Blanton, et al. 1996; Carballo 2013; Crumley 2001; Feinman 1995, 2000a, 2000b, 2002; Hayden 2001b, 2001c; Hayden and Gargett 1991; Hoopes 1996; Joyce and Hendon 2000; Kowalewski, et al. 1992).

Methodologically speaking, while complex political hierarchies known as *cacicazgos*<sup>1</sup>, are recorded for the Isthmo-Colombian Area during proto-historical and contact periods (Guardia 1978), the further back one goes into the archaeological record, the less compelling the data become to support the form of social complexity such as that seen at contact. Archaeological signatures such as ceramic assemblages and architectural configurations simply become sparser and more variable the further one goes back in time. Moreover, the available evidence suggests that the *cacicazgos* recorded for the protohistorical and contact periods reflect conditions developed over the course of only a few centuries (Lange 1992b; Quilter 2004; Sheets and McKee 1994; Sheets 1992). When one compares the available information supporting complex chiefdom social structures to the temporal depth of occupation for the ICA, the confidence with which one can propose a centralized model such as the one recorded for the late period chiefdoms of Panama and Costa Rica decreases.

The likelihood for any direct historical comparison becomes more problematic when one considers that the established knowledge, particularly in Costa Rica, is gleaned largely from recent prehistoric and contact period data (Bozzoli de Willie 1966; Drolet 1986,1988,1989; Frost 2009; Haberland 1984; Hartman 1901; Quilter and Frost 2007). Earlier periods are underrepresented, thereby weakening the effectiveness of any historical retrodiction. A review of the literature demonstrates how, especially in southern Costa Rica, research focuses largely on the Chiriquí (AD 800-1550) period. By comparison, Formative period (300 BC-AD 800) archaeology is less well known.

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<sup>1</sup> *Cacicazgos* are a term first used by Spanish upon first contact in the Hispaniola. The term generally refers to the complex chiefdoms encountered by them. However, it should be noted that it was not an indigenous term in Costa Rica, nor as will be discussed, does the term *Cacicazgo* or Chiefdom encompass the socio-political spectrum expressed in the region.

Therefore, sociocultural models for the Formative period that invariably draw from later, better-supported observations potentially suffer from being overly influenced by said models, begging for a more detailed scrutiny with higher resolution data from relevant time periods. Simply put, more independent data is required. Only until now has this really been possible.

The central objective of this dissertation involves reevaluating current theories that apply Contact Period social models to Formative period archaeological sites. These models entail a combination of separate features such as incipient inequality, sociocultural monopolization and centralization (Aguilar 1972; Drennan 1991, 1996; Fonseca 1981; Haberland 1984; Haller 2004; Palumbo 2009; Snarskis 1981, 1987, 2003) that are not necessarily interrelated. Moreover, these hypotheses rest most of their assumptions on interpretations gleaned from large-scale survey as well as a heavy reliance on ethnohistoric sources. While surface analysis is a necessary methodology for our understanding of any region, research in other parts of the world has shown that time and again, subsurface indications often disagree with survey results (Johnson 2014; Santley 1983). Any assertions drawn from surface data begs corroboration from excavations whenever possible. Therefore, the investigations at El Cholo employ a more intensive excavation-based strategy to achieve a more in-depth analysis. Furthermore, we can make the analogy that the use of ethnohistoric data to retrodict behavioral patterns into the deep past represents a superficial exploration of dynamics that may be significantly deeper and different.

The issue in question is not whether social complexity existed within the region from a relatively early time; this is clearly evident from the archaeological record. The central

issue is ultimately one of scale. Are surface indications enough to confidently determine what the social scale of operation and organization was in a region, particularly as one reaches further back in time? This is essentially why this study focuses on one specific case. A lack of temporal depth and the variety of patterns associated with surface finds continually produce seemingly contradictory scenarios. Thus far, research indicates an Isthmo-Colombian sociocultural environment that accommodated various levels of interacting groups within a larger-scale social stability. If this is the actual situation, the anthropological implications are significant. It is therefore essential to explore this apparent contradiction.

This study utilizes alternative hypotheses constructed from various sources to compare and contrast to the extant models and test their existing propositions. The alternative models contain several sub-hypotheses, which are based on a general framework of corporate/network theory (Feinman 2000a, 2000b) integrated with other concepts that, I argue, better encapsulates the variable type of Isthmo-Colombian social patterning that is often noted for the Greater Chiriquí (Cooke 2005; Hoopes 2005). Additional theoretical components such as social heterarchy, cycling and practice theory (Anderson 1996; Crumley, et al. 1995) as well as human-landscape interaction (Ashmore 2004; Ashmore and Knapp 1999; Crumley 1994; Thomas 2001) can provide an interpretive framework that takes into account the material as well as ideological importance of the surrounding physical environment. I argue that such an integrative approach (Wylie 1993, 1999, 2000) has a better chance at explaining the variable archaeological record of the Isthmo-Colombian region, and its paradoxical combination of high site diversity and long-term middle-range social stability.

If El Cholo did indeed contain a community-level social dynamic within its borders while arguably more ambitious, self-serving dynamics occurred to the south at sites such as Farm 6, Murcielago or Barriles in Panama (Corrales Ulloa and Badilla Cambronero 2007, 2011; Drolet 1988, 1989; Ichon 1968), then it would seem that heterogeneous site and social patterning for the ICA in general is tenable. One can then use the data from El Cholo to examine the expectations underlying models of centralization, monopolization as well as alternatives associated with acephalous group and corporate community systems. This does not explicitly reject the possibility that social centralization occurred in the region. Rather, as mentioned above, the social milieu suggests that various social strategies were likely employed, especially during the Formative period, a time when social stability may have been driven by an undercurrent of experimentation.

The above framework presents somewhat of a departure from standard explanations for many of the salient processes that anthropology holds important, such as the development of social stratification, social hierarchies and social inequality. However, it would seem that at the local level, Isthmo-Colombian culture does not fit standard social-evolutionary patterns of behavior that are ascribed to its Mesoamerican and Andean neighbors. What transpired within the Isthmo-Colombian Area seems to be particular not only to the immediate study area of the Upper General, but also arguably to the subregions populating it. Even slightly divergent developmental processes at sites such as El Cholo, when compared to its immediately surrounding regions, may suggest that a social plurality existed.

As others have also suggested (Anderson 1994; Beck Jr. 2003; Crumley 1995; DeMarrais, et al. 1996; Nassaney 1992; Pauketat 2007; Pauketat and Alt 2003), social

categories such as chiefdom, tribe, polity or community are not mutually exclusive. Rather, these categories must be seen as overlapping (and interacting), and the archaeological signatures observed may be products of iterative social processes. These processes can be described by an expanded formulation of corporate network dynamics, one that uses competing hypotheses as part of a complementary theoretical spectrum.

While this research does test theoretical viability through the generally qualitative theoretical umbrella mentioned above, the propositions in this study are operationalized through a combined quantitative analytical structure embodied in standard collection and excavation practices as well as statistical, geo-spatial analysis. These analyses comprise the backbone of the study: where geoarchaeological and geostatistical analyses of El Cholo are used to examine the above ideas to link higher order theoretical concerns with manageable and falsifiable mid-tier hypotheses.

By comparing data from El Cholo to previous and current research, this study evaluates the social “noise” that seems so apparent in the Isthmo-Colombian Area. It begins the process of examining whether there is indeed an overwhelming level of social variability in the sampled region, whether previous models satisfactorily capture or obscure that variability, or if definitional parameters require modification to accept newer social formulations. The expectation is that these various analytical passes can pare down the possible explanations of social dynamics occurring in the area to a manageable set. As such, part of the aim of this study is to compare disparate data and anchor them within a more comprehensive perspective. I review previous and current research on the Formative period in Greater Chiriquí and submit data obtained from survey, excavation

and lab analysis to develop this broader perspective concurrent with recent thought on human interaction in this region.

A clearer understanding of how the Isthmo-Colombian Area achieved and maintained such apparent stability is of central importance to current researchers, especially when one considers the potential for variability within the region. Why and how society developed as it did in the Isthmo-Colombian Area and why that sociocultural pattern held for millennia is a subject that has been expanded in recent years to include newer, refined questions concerning the inner mechanisms of regional middle-range societies. While the initial claim of a long-lasting socially stable area continues to be debated, new data and social models now exist that allow researchers to discern more rigorously the finer details as to why and how social complexity developed as it did. This should then be able to expand upon the limitations of earlier models proposing more standard, centralized social models (Drolet 1984a, 1984b; Haberland 1984).

Over the course of its relatively short history, Isthmo-Colombian archaeology has demonstrated that the regional sociocultural variability observed within its boundaries exceeds the models presently available to explain them. If they are not adjusted accordingly, we may only detect something resembling statistical noise. This arguably has occurred so much over the years as to lead some to see informative variability as near-chaotic signatures of poorly developed and organized social structures (Sheets 1992; Stone 1977), with the strategy used to control this variability being one of containing and classifying it within typological models used in other regions. In contrast, this study echoes the sentiments of other researchers (Hoopes 1991; Hoopes 2005; Palumbo, et al. 2013) who argue instead that the region represents an extraordinary laboratory requiring a

more nuanced perspective consisting of a more robust model with various complementary forms of theoretical and methodological analyses.

This study takes up the challenge of that more-nuanced analysis, representing one of the newer attempts to address the current debate by taking one site-scale case and comparing its findings to existing data in order to obtain a more refined picture of Formative period society as it manifested in the Upper General Valley of southern Costa Rica. Most of the models developed for the area depend on broader and coarser scale investigation, utilizing survey and occasional excavations to bolster certain components of their models. However, this study constitutes one of the first systematic excavations of a site from this time period, contributing a detailed data set to the growing effort among current investigators to build a more robust understanding of the social dynamic of the immediate Upper General River area and the its encompassing regions (Palumbo, et al. 2013; Sol Castillo 2013).

Where evidence may lend support for the existence of hierarchical societies in the southern portions of the region, less-entrenched, acephalous social structures can likely coexist just north of them. This possibility has interesting implications for our understanding of the degree of interdependence of networked communities across varied landscapes. Whether the pattern is applicable, extendable or identifiable to the Greater Chiriquí beyond southern Costa Rica is considered within this study by evaluating, within a limited scope, whether models for neighboring areas such as Panama are valid given the above proposition. Is social stability in Greater Chiriquí a scalar issue, tending to appear homogenous at a regional level but revealing, with more data and analysis, an increasing local heterogeneity? If applicable, the overall thesis holds interesting implications not



only for the test area of the Upper General Valley, but could extend to the Greater Chiriquí and possibly the ICA in general.

My contribution will be in the evaluation and refinement of the interpretation that suggests that prehistoric Isthmo-Colombian society maintained high degrees of variation in social configurations at local levels. What constitutes a village, a community or district given the current understanding of site formation processes? Subsurface investigations such as that conducted at El Cholo will ideally help clear up local settlement patterns, obscured in their particulars by the presence of the large scale, long-standing social equilibrium attribute to the ICA. If the proposed model holds, then we may be able to understand if and how inhabitants of the northern portion of Greater Chiriquí configured their communities differently from their neighbors based on local factors rather than general, regional ones. This would help to explore further whether heterogeneity and scalar variability are indeed a sociocultural hallmark of Greater Chiriquí and by extension Isthmo-Colombian cultures.

### **Organization of the Dissertation**

The following chapter will briefly describe the physical and natural setting of the area. This will include a description of the site, the environmental dynamics of the Upper General Valley, and to a lesser degree, the Greater Chiriquí subregion. The chapter will also touch upon the way environmental and topographical diversity may have contributed to the general social dynamic and how this diversity may have been an efficient if not ultimate cause for patterns observed.

The third chapter covers past archaeological research in the Upper General Valley and the Diquís subregion. It summarizes work conducted in the encompassing subregion of Greater Chiriquí along with the debates generated from their resulting conclusions, which served as the inferential basis for the existence of social hierarchies of this region that are explored in more detail in Chapter 4.

Chapter 4 presents the theoretical background and structures that are used in this study. As mentioned, this background will largely be framed by corporate network theory (Blanton, et al. 1996; Feinman 2000a, 2000b, Feinman, et. al 2000). However, as described by the authors themselves, this analytical tool is more a dynamic continuum (Feinman, et. al 2000) rather than an intractable analytical matrix. Therefore, by its own design, the use of corporate network theory will take into account other theoretical components. The flexibility of this structure will permit me to detail the way other social theories associate and complement each other within it. Concepts such as those concerned with non-hierarchical complexity, including heterarchy (Crumley 1987), will be used in this dissertation to trace out a general model for how groups in Costa Rica could have interacted with each other on a variable social landscape. The tracing of these dynamics should then be able to supply a rudimentary framework for why some groups maintained seemingly middle-range societies (Feinman and Neitzel 1984) during the Formative even when nearby polities exhibited far more hierarchical social dynamics.

The dynamics behind the formation, maintenance and interaction of acephalous groups and incipient hierarchies will then be linked to hypothetical formulations that model space not as isomorphic neutral areas but as multivocal aggregation points (Ashmore and Knapp 1999; Bender 1990, 2002; Bender et al. 1997; Bloch 1971; Bloch and Parry 1982).

I argue that the idea that people gather at points to negotiate matters ranging from basic biological needs to perceived ideological necessities is key to evaluating how Upper General and potentially Greater Chiriquí social groups could have erected monumental architecture without permanent centralized figures to direct their construction, even if, and especially if, these groups interacted with more centralized communities. I draw from a variety of sources to demonstrate these ideas, but mainly employ concepts from work conducted in the ICA, Mesoamerica and the United States American Bottom in constructing the theoretical framework. For these studies, landscape is seen as the active context within which people construct boundaries, identities and territories: a forum for the continual development of social complexity or the maintenance of a *status quo* (Bernardini 2004; Buikstra and Charles 1999). This inherently fluid nature of human-land relations will also provide useful linkages between concepts of landscape archaeology, multivocality and the model of cycling behavior that is employed in this study. As such, the section will also elaborate and link key features of landscape theory (Anschuetz, et al. 2001) with what is described as the underlying power of non-hierarchical social structures to competitively negotiate between invested parties (Anderson 1996).

While Chapter 4 focuses largely on sociocultural theory, Chapter 5 describes the analytical theory underlying Geographic Information Systems (GIS) and geostatistical analysis utilized for this study and connects them to the social model employed in this study. The geographic tools will, in effect, bridge theoretical ideas with quantitative and qualitative methods and integrate the questions generated from theory into a more quantitative form through the spatial study of artifacts obtained through survey and excavation (Wheatley and Wheatley 2002). Detailed descriptions of the theory along with

expectations are laid out in order to effectively compare them with previous theoretical formulations. This helps to clearly outline any discernable patterns such as potential commensal behaviors (Dietler and Hayden 2001; Roe and Siegel 1982). Special care is taken to address feasting as it is argued to have had a central role in promoting and/or maintaining social complexity in the regions. As such, it is a key component in most of the models presented for the area (Hoopes 1996). Following this explanation will be a formal stipulation of the implications linking these conceptual structures into various hypotheses.

Chapter 6 details the findings from surface collections and excavations of the site describing what was encountered, as well the geomorphologic settings of each operation as they conformed to or differed from generalized descriptions laid out in Chapter 2. The chapter will describe the methodological processes carried out at El Cholo as well as the underlying reasons for choosing each method, its context and the inevitable challenges and changes that resulted from actual implementation.

Chapter 7 will describe results obtained from material, statistical and geospatial analysis. This section will report on the various tests employed to analyze the data, along with their implications and how they fit within the synthesis and conclusions of the following chapters. For the statistical methodology, relative strengths of the tests used and the reasons for their use in light of the nature and limitations of the recorded data will be highlighted.

Chapter 8 evaluates findings and statistical results in light of the hypotheses and theoretical arguments laid out in Chapters 4 and 5. This chapter comprises a

comprehensive section of the dissertation, taking into account not only the case of El Cholo but incorporating information from contemporaneous sites in the Upper General Valley (Drolet 1992) as well as information published from representative sites in Panama (Linares and Ranere 1980) in order to establish any significant differences or similarities among these purportedly similar sites. Additionally, this section will compare the results/patterns obtained from this study to select sites found within the area dating to the later Chiriquí phase.

While this later period in its latest expression appeared to have evidence for established ranking and hierarchy, variability in expressing this complexity existed, with “lower” ranking groups exhibiting less stratified or exclusive spatial layouts (Quilter 2004; Quilter and Vargas 1995). A comparison of patterns from these two arguably distinct time periods will be beneficial to bring into focus any possible distinctions between sub regional Diquís and Greater Chiriquían prehistory. Chapter 8 will thus contain the preliminary conclusions drawn from this study, connecting the quantitative aspects covered in the results section with the overall qualitative description.

Chapter 9 will discuss the broader implications and applications of the results and conclusions chapters to the overall debate. These findings will detail the overall model gleaned from the investigation and propose the new directions that are suggested by them. It will also address the implications this study has in establishing a more comprehensive sense of stewardship for archaeological sites in the region.

## **Chapter 2 : ENVIRONMENTAL SETTING**

### **Summary of the Greater Chiriquí Archaeological Region**

The Greater Chiriquí Archaeological region covers the southern portion of Costa Rica extending from the southern contact of the Cordillera Central and the Talamanca mountain range to the Western extent of Panama covering the Bocas del Toro region (Figure 1.1), extending as far southeast as the Bahía de los Muertos region. Split roughly along national boundaries, Greater Chiriquí divides into two archaeological subregions: the Costa Rican Diquís and the Panamanian Chiriquí. However, questions remain whether areas such as the southern Caribbean sector of Costa Rica can be called part of Greater Chiriquí, and its geographical extent continues to be debated (Corrales 2000; Hoopes 1991; Lange 1996; Quilter 2004; Snarskis 1981).

The region as a whole covers a range of landscapes. Subtropical lowland environments and colder montane rainforests characterize both the Diquís and Chiriquí.

Topographically, Costa Rica presents a slightly more rugged and compactly varied environment, while further south Panama offers a slightly gentler transition from rainforest slopes to riverine terraces. While the Panamanian Chiriquí is quite rugged, with various 3000-meter peaks (Linares, et al. 1975) a distinct llanos alluvial plain borders the southern extension of the Talamanca mountain range unfolding into the plains of Chiriquí.

Both the southern sector of the Diquís and the Chiriquí archaeological regions contain relatively extensive alluvial terrace systems (Bergoeing 1998). The southernmost portion of the Costa Rican Diquís is comprised of the eponymous Diquís Delta, the terminus for

several large rivers. The resulting floodplain contains a rich biotic diversity and raw material availability exploited by its inhabitants for subsistence as well as construction at various scales of intensity from at least the Formative period and most intensively during the Chiriquí time periods (Corrales 2000; Corrales Ulloa and Badilla Cambronero 2007, 2011; Frost 2009; Herrera 2006; Kennedy, et al. 2006; Quilter and Vargas 1995). The alluvial terraces become more expansive as one moves further south into the Panamanian part of the Greater Chiriquí. Here the subtropical climatic regime affects a distinctly riverine context in contrast to the highlands (Linares 1968; Linares and Ranere 1980). These varied topographical environments exhibit distinct dry and rainy seasons lasting between December through April and May through November respectively, with increased rainfall occurring during the months of September and October (Coates 1999; Linares, et al. 1975). Adjacent from these bottomlands, across the Osa Bay, lay Costa Rica's wettest region, the Osa Peninsula, which, with its combination of steep grades and high biological diversity, provides another distinct niche within the Diquís, with much of the resource exploitation in this area consisting of marine biomass (Hoopes 1996).

Both subregions of the Greater Chiriquí share a diversity of environmental characteristics that appear to resemble the heterogeneity of its archaeological signatures (Drolet and Markens 1981; Haberland 1984), but are marked by a particularly local variation in topography and mICAO-environmental contexts. While not the sole contributing factor towards the social diversity of these culture areas, the environmental diversity expressed in the various parts of this archaeological region appears to parallel the varied lifeways that various peoples expressed as they inhabited different topographic and topological niches. The differences between the montane versus southerly alluvial environments

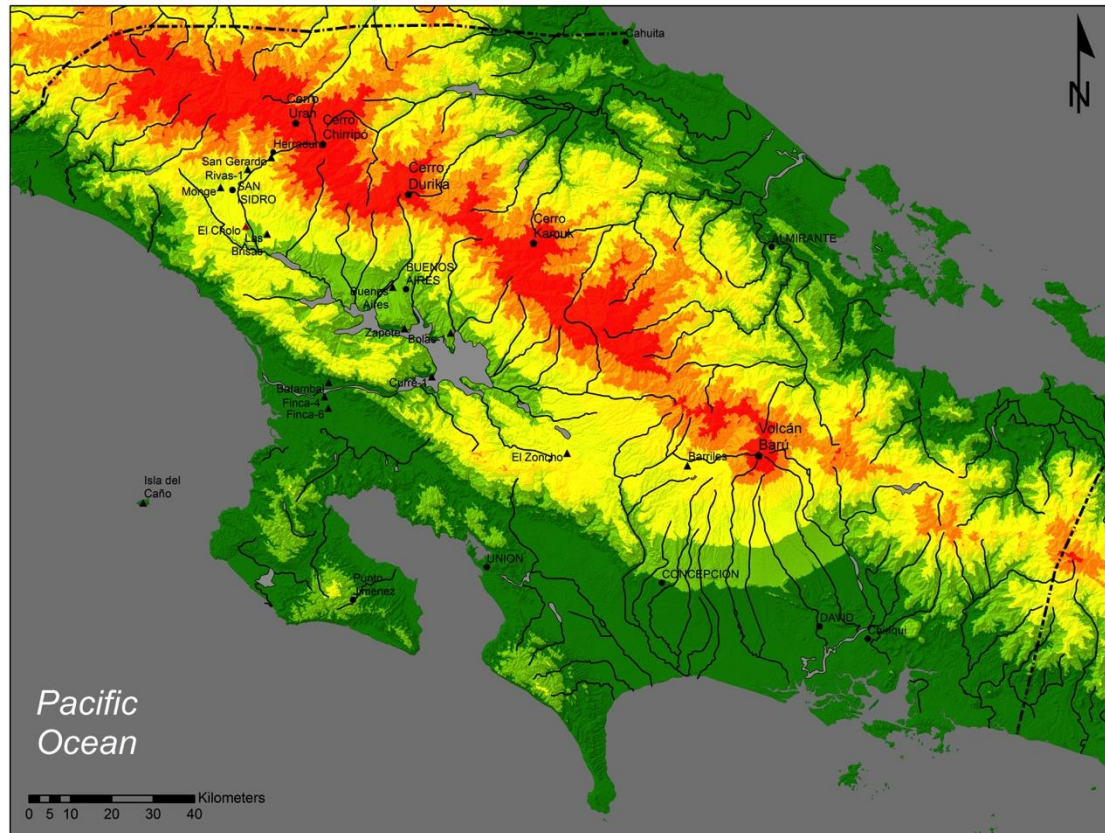
likely contributed to the manner and degree to which populations aggregated and developed into stratified groups with environmental and topographic diversity, preceding the development of equally diverse social trajectories.

A good example of this topographic diversity is observable at sites such as El Cholo and its neighboring sites in the northern Diquís. Situated in the Upper General Valley of southern Costa Rica, the settlements inhabited a different environmental and topographical context than those groups located just a few kilometers to the south. I describe the environmental setting of the Upper General with the intention of highlighting the particular context in which El Cholo resided, with emphasis on its differences from those regions just immediately south, such as the Diquís Delta Region within Costa Rica and the Chiriquí in Panama.

### **Natural Setting of the Upper General Valley, Southern Costa Rica**

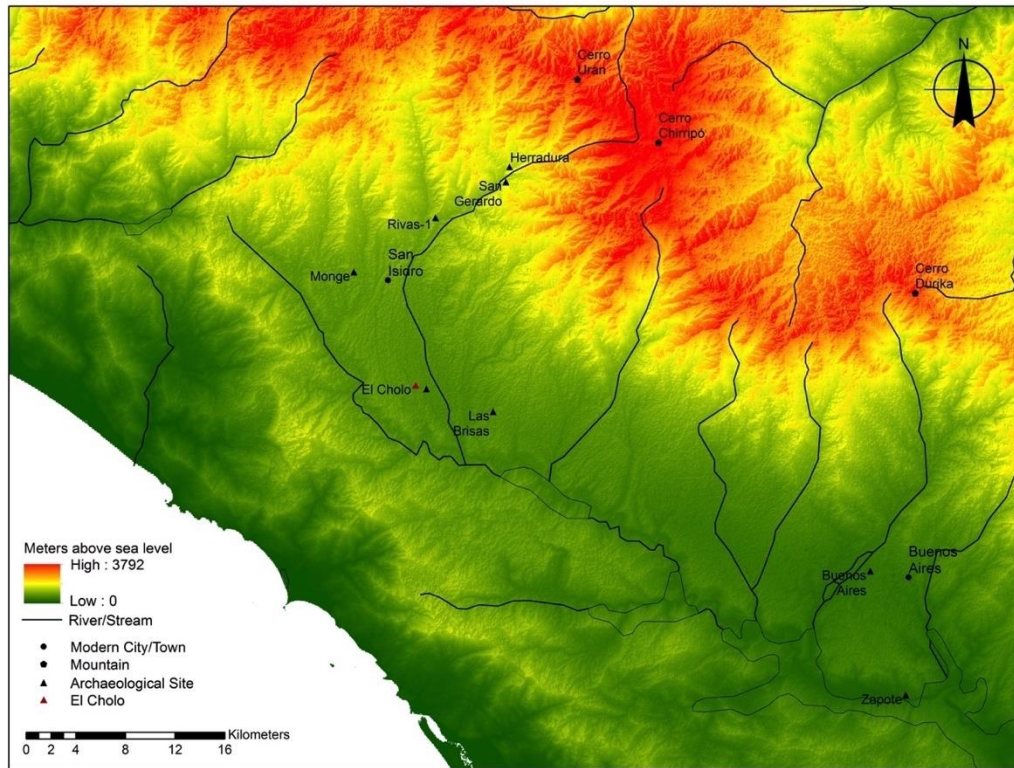
The northern portion of southern Costa Rica is composed of highly diverse topography ranging from the densely forested uplands of the western Talamanca Mountains to the emerging floodplains of the Diquís delta (Figure 2.1 and 2.2). The Upper General watershed surrounding El Cholo encompasses a transitional area within a general Southern topography of alluvial floodplains with access to the more rugged uplands of the Talamancan foothills to the north and east, the steep and relatively tall coastal range to the west and the rolling hills of the Terrabá floodplain (Bergoeing 1998; Corrales 2000; Drolet and Markens 1981; Drolet and Siles 1988; Drolet 1992). From the site of El Cholo itself one has a clear view of Cerro Chirripó, the highest peak in Costa Rica (3,819 m) as well as its neighboring peaks, Cerro Uran (3,800 m), Cerro Kamuk (3,549 m) and Cerro Durika (3,280 m).





**Figure 2.1: Greater Chiriquí with highest elevations represented in red and lowest in green**

In contrast to the more volcanic soil composition of Panamanian llano (Linares and Ranere 1980; Linares, et al. 1975), the Upper General Valley is largely composed of quaternary alluvial fans eroded from the tectonically formed Talamancan and Coastal ranges (Bergoeing 1998). Runoff from the flanking cordilleras formed to create the major mountain tributaries of the rivers Chirripo, Pacifico and Buena Vista. These and other minor tributaries created a steep watershed network that joined at lower elevations to form the River General. Millennia of alluvial incutting and aggrading resulted in a sequence of abandoned alluvial terraces, upon which numerous Formative sites have been located (Haberland 1955, 1984).



**Figure 2.2: Close-up of Upper General (in light green), the Talamanca Range (in red) and part of the Diquís Lowland**

The same general topographic and climatic patterns described for the Diquís and the Chiriquí hold for the Upper General but in a more compact setting. As in the rest of the Diquís, the Upper General is subject to distinct dry and rainy seasons, with the heaviest rains occurring from September to October. The dry season is especially notable and responsible for the drying up of the numerous small quebradas that crisscross this area.

The compact nature of the Upper General and topographic diversity is also reflected in the manner in which its biomass is distributed. Again, while this area shares the same biogeographic patterning as the areas to the south, the relative close proximity of a variety of micro ecological zones indicate a landscape conducive to exploiting natural resources (Kantner 1988). With regard to subsistence, a small-scale form of verticality

(Murra 1956) is evident in the way that biomass is distributed and physical movement could be directed. The relative abundance and ease of access to resources ranging from game to arboreal/silvicultural resources to root-based comestibles is suggested by area's topographic density. Moreover, the landscape of the Upper General region is compact in a way that it can facilitate inter-group communication as well as access to natural resources. As such, the natural setting of the Upper General, while reflecting similar patterns to the rest of the Diquís and Chiriquí, also demonstrates potentially advantageous geographic settings amenable to a variety of social configurations.

### **Chapter 3 : PREVIOUS RESEARCH: ARCHAEOLOGY AND CHRONOLOGY OF THE GREATER CHIRIQUÍ ARCHAEOLOGICAL REGION**

While research in the ICA has existed since the late 19<sup>th</sup> century, the majority of that work has occurred in Panama (Haberland 1976; Ichon 1968; Lothrop 1919, 1934). Little systematic work was done early on in southern Costa Rica, less so in the Upper General region. Out of those few ventures into the Costa Rican Diquís, only a handful of projects have concentrated on sites from the earlier part of the Diquís chronology (Haberland 1955, 1984). Extensive, systematic investigation into earlier time periods such as the Formative period of the Chiriquí and Diquís has been restricted largely to the Lower Terrabá floodplain in Costa Rica and the Chiriquí plains and the Bocas del Toro region of western Panama. A few exceptions are the work conducted by Corrales at the early Formative type-site of Curré and to a lesser degree the sites of Quebradas and Aguas Buenas.

Beyond the initial explorations of Perez Zeledon in the early 19<sup>th</sup> century, Costa Rican archaeology first benefitted from the work carried out by the likes of Karl Hartman (1907) and Henri Pittier (1891a, 1891b). Their efforts provided a sketch of a southern Costa Rican and Panamanian archaeological landscape populated largely by richly appointed burial mounds. The focus on these mortuary complexes centered on confirming local reports of architectural sites with the hope of recording and retrieving any ostentatious grave goods said to exist within the complexes. Those sites famous for their abundance of goods such as gold and quality pottery, such as Panteón de la Reina, La Pista El Chiricano, Jalaca and Brisha Cra, to name a few (Frost 2009), became prime

examples for social stratification and rank in the Diquís. These sites, along with a majority of others rumored for their conspicuous consumption, were identified as late period Chiriquí sites. Any Formative period component was not to be definitively identified as such until the middle of the 20<sup>th</sup> century (Haberland 1955, 1976).

Early work pioneered by Doris Stone and Samuel Lothrop in the 1920s and 1930s was augmented and systematized by Wolfgang Haberland in the 1950s. With surveys and excavations throughout Panama and parts of southern Costa Rica and Nicaragua, Haberland added to the work of Stone and Lothrop, parsing out the massive and largely synchronic material record from fundamental ceramic units such as Zoned Bichrome (Coe and Baudez 1961), and Fish and Alligator wares (Holmes 1888), to delineate an earlier Formative component. The temporal component as laid out by Haberland filled in some of the blank area between the few instances of Paleo-Indian occupation and the much better known Late Polychrome or Chiriquí phase.

The 1960s saw a further elaboration as well as confusion of the Haberland chronology, with debate developing over the regional variation and nomenclature of Chiriquí ceramic complexes. Working somewhat contemporaneously with Haberland, Stirling (1964) and Ichon in Panama, Olga Linares was one of the first to propose an alternative ware typology over the types and varieties that Haberland utilized. Collaborating with Sheets, Rosenthal (Linares, et al. 1975) and Anthony Ranere, Linares went beyond chronological issues to address the question of adaptive response to the diverse ecological conditions of tropical-montane environments (Linares and Ranere 1980). This marked a period of informational exchange between others working in the Chiriquí and the Diquís. The likes of Haberland, Stirling, Ichon, and the Minellis (Laurencich de Minelli and Minelli 1966)

continued to record the architectural and mortuary configurations of the Chiriquí.

Focusing on the labor investment and sumptuary goods, they proceeded with various tacit and explicit operating assumptions regarding hierarchy and rank in place. While some of these assumptions did not entirely fit the existing data, they were nonetheless asserted and promoted within an overall interpretive schema of social hierarchization. In some key cases this assumption was strong.

Such a case can be made for the Panamanian site of Barriles. The implications for sites such as Barriles were virtually indisputable. Both Ichon and Stirling documented what was arguably the clearest example of monumental and likely elite behavior in the region. That this and some other sites in Costa Rica, most notably Bolas, and Finca 6 in the Diquís Delta would serve as the architectural and—most importantly—social model for researchers is not difficult to envision given the data for most of these sites (Drolet 1988, 1989, 1992; Lothrop 1963). Examples such as the large central mound at the site of Barriles, its architectural and sculptural complexity and iconography, along with the large spheres of the Diquís Delta, provided reasonable evidence of a burgeoning if not established inequality and exclusivist residence pattern.

Prevailing consensus depicted the Chiriquí as a landscape divided by those interred in ostentatious mound systems, lesser mounds or modified natural features or a common non-architectural mortuary configuration. Evidence largely from Panama and Finca 6 in Costa Rica bolstered a social model of nobles and commoners, if not masters and slaves (Haberland 1984; Hoopes 1996). That notwithstanding, questions regarding chronology and the sociocultural nature of the inhabitants of the Chiriquí, not yet fully understood, continued to be of central concern. Excavations were too few and too sparse to accurately

depict a comprehensive settlement or social pattern with which one could model social behaviors. Moreover, the precise temporal span and function of elite or non-elite sites remained tenuous owing to the few radiometric dates available at the time.

Extensive surveys and stratigraphic excavations carried out by Drolet (Drolet and Markens 1981; Drolet and Siles 1988) and Baudez (Baudez, et al. 1993, 1996) attempted to address these issues. Working in the Terrabá River Basin and the Diquís Delta region respectively, Drolet promoted a more developed and comprehensive social model based on his work with Siles and Markens on the findings of the Boruca Hydro-Electrical project. Baudez in turn concentrated on refining the chronology of the Delta region. Both succeeded in contributing new ceramic types and varieties to the existing record, augmenting some of them with radiometric dates. The Boruca Dam project yielded extensive data, allowing Drolet to propose a robust settlement pattern that would begin to delineate with more precision which sites were Formative over which sites were later. His initial efforts identified architecturally complex sites, designated as central place settlements, surrounded by less complex, ephemeral sites he would define as domestic hamlets. This suggested a two-level settlement configuration of “socio-ceremonial” centers and domestic hamlets. Drolet attributed the centers to the aims of aspiring elites. Moreover, he proposed that the abundance of material at the centers, relative to the non-architectural sites, suggested a form of attached craft specialization (Drolet 1988, 1992). Following the established social interpretation, Drolet suggested that this craft production required the centralized organization of higher status individuals. As such, chiefs or ritual/political specialists were offered as the likely residents of the ceremonial centers.

Other work surrounding the Boruca Hydro-Electric project continued to evaluate the assertion of chiefdom level complexity. Work conducted by Jeffrey Quilter and Aida Blanco (1995) at the juncture of the General Valley and Chirripo highlands, as well as upland data obtained by graduate students of the University of Colorado (Kantner 1988; Rago 1988), significantly increased the existing data set available for analysis; the ability to evaluate the social complexity of the region rose accordingly. Work carried out by the National Museum of Costa Rica, University of Costa Rica researchers, as well as extensive investigations sponsored by new public works projects, also allowed for a more in-depth exploration of the potential social variation argued for the region (Corrales 1988; Gómez Belmonte and Soto Solórzano 2001). ICE (Instituto Costarricense de Electricidad) archaeologists are currently uncovering a bewildering array of sites that routinely underscore the question of social variability and interaction in the Upper General (Arroyo Wong, et al. 2010).

Most recently, archaeologists Scott Palumbo and Felipe Sol Castillo are currently exploring hypotheses suggesting that Formative period development traced a similar pattern to that seen in the Chiriquí region of Panama. Dissertation research carried out by Palumbo (2009) argued for an association between special social status and concentrations of specialized artifact classes and architectural features within centralized areas, focusing on his findings from the Panamanian sites of Sitio Barriles and La Pitahaya. Evidence gleaned from surface collections and shovel test probes from these sites in the Chiriquí demonstrated that concentration of luxury goods, such as higher quality variants of Chiriquí ceramics and stone tools like waisted and ground axe heads,



strongly suggested elite attempts at centralization of social power and its attendant management of craft production.

This tendency towards centralization, in conjunction with what is ostensibly ostentatious and labor-intensive architecture, is very similar to patterns attributed to sites in the Diquís region such as Sitio Monge, Sitio Las Brisas and Bolas (Drolet 1992). The latter site, Bolas, is currently under investigation by Palumbo in an attempt to evaluate its potential for elite occupation (Palumbo, et al. 2013). These investigations offer the argument that the concentration of such goods and high construction costs required the consolidation of control by local elites. Similarities in artifact classes such as pottery and stone axes found in both the Diquís and the Chiriquí offered some support, suggesting a possible network for the distribution, promulgation and maintenance of social, political and religious concepts through the network of goods that represent them. Most recently work conducted by Sol Castillo (2013) explored whether these political changes were the result of control of religious ideologies. Surface surveys confirmed patterns identified by Drolet in the 80s suggesting two-tiered settlement hierarchies. The prevailing interpretations from this investigation tended to agree with the previous assumption that stone tool manufacture likely served a mostly utilitarian purpose and was reflected in the mortuary and ceremonial practices of the region.

In contrast, work conducted by the UCR and ICE also identified mortuary complexes and settlements with high concentrations of stone axes. The predominance of these artifacts discovered in tomb and cache contexts, many consisting of substandard raw material, suggested to the investigators that they were interred for ritual rather than utilitarian purposes. As such, recent investigations into the second decade of the 21<sup>st</sup> century

continue to wrestle with the fundamental typological identification of social stratification and its attendant signatures, with current research presenting a patchwork of strategies instead of a unified model.

## **Chapter 4 : THEORETICAL BACKGROUND**

### **Managers vs. the Managed: Getting Past Centralization**

Short of designing a comprehensive Isthmo-Colombian perspective with chronological depth, ICA scholars have often looked to research on non-local, state-like groups and late-period social configurations to understand the ICA archaeological record (Diehl and Coe 1996; Sanders and Webster 1988; Sharer 1974; Snarskis 1981, 2003; Willey 1964). The use of these studies, which generally propose an early development of hierarchy and political centralization (Drennan and Uribe 1987; Drennan 2000; Drennan, et al. 2010; Haberland 1984; Snarskis 1978, 1992, 2003) has been criticized as relying too much on interpretations derived from what are likely very different social and environmental conditions (Hoopes 1991, 1994, 2005). This dependence on outside theoretical sources, however, is justifiable when one considers the relative dearth of information available to most researchers in the ICA, especially as one attempts to study earlier time periods such as the Formative and Tropical Archaic periods in areas such as Costa Rica.

In the Costa Rican portion of the ICA, extensive study on periods prior to the second millennium AD has been confined to a few large projects, mostly in the Caribbean region and the Guanacaste Nicoya region (Sheets and McKee 1994). For areas such as the Diquís subregion and the Upper General Valley, this has been less so. As mentioned in Chapter 3, the majority of large-scale evidence useful for theoretical development originates from two hydroelectric projects in the Terrabá watershed and one long-term investigation in the Diquís Delta (Arroyo Wong, et al. 2010; Corrales Ulloa and Badilla Cambronero 2007; Corrales Ulloa and Cambronero 2011; Drolet 1984a). While these and smaller scale projects have made the effort to identify earlier Formative period structures

and patterns, comprehensive research is often hampered by the unintended but disproportionate attention given to more visible, late period architectural sites (Drolet 1989; Laurencich and Minelli 1973; Lothrop 1963) and a reliance on salvage archaeology and surface collection as a means of acquiring data. As a result of these research conditions, theoretical development has generally skewed toward the later end of ICA chronology. So while there have been nascent steps to analyze Formative Period data in the ICA and form some kind of theoretical understanding (Coe and Baudez 1961; Corrales 1988, 2000; Drolet 1984b, 1988, 1989, 1992; Drolet and Markens 1981; González and Miranda 2005; Graham 1992; Hoopes 1991, 1996; Lange 1992a; Linares and Ranere 1980; Palumbo, et al. 2013; Rago 1988; Sheets and McKee 1994; Snarskis 2003; Vazquez Leiva 2014), a broad synthesis is lacking, especially when we consider areas such as the Upper General Valley, the Pacific, the Caribbean and the mountainous Talamanca region linking all of these areas of Costa Rica. In many of these areas, basic site formation processes remain a mystery.

It is understandable why social complexity in Formative Greater Chiriquí would be predicated on competitive domination and a pre-established, ranked societal infrastructure (Drolet 1988, 1992; Haberland 1984; Snarskis 1987). Explanations for Formative period sociocultural development have often been bundled within larger scale multi-component interpretations, unable to effectively chronologically separate late Formative transitional phases from later periods such as the Aguas Buenas period in the Upper General and Diquís from the later Chiriquí phase. While the general chronological layout assumes some division between these two time periods (Table 1.1), key factors such as the inception and the transition of earlier Formative components into the latter

periods are simply not yet known. While this lack of a clear chronology for the Formative and its shift to the later Chiriquí phase is lamentable, there has been some success modeling the sociocultural dynamics of the later time periods using hierarchical chiefdoms as the interpretive baseline (Hoopes and Fonseca 2003; Quilter and Vargas 1995; Quilter and Hoopes 2003). Unfortunately, the surfeit of later period data has had the inadvertent consequence of projecting ideas and inferences backwards in time, where models based on the more visible, late period signatures are superimposed onto the earlier, more ambiguous patterns of Formative period ICA (Drolet 1983a, 1983b, 1984a, 1984b).

These centralization models and managerial hypotheses, which historically include the gamut of “middle-range” social types such as tribal, big man and chiefdom scale social categories, present a social environment where unequal access to goods and social privilege are the status quo (Creamer and Haas 1985; Feinman and Neitzel 1984). They set up an epistemological structure in which exclusive or near-exclusive control of resources, manipulation of political and social capital by emergent or established elites, and factionalism function as the prevailing conditions in which group dynamics were played out (Brumfiel 1994; Clark and Blake 1994, 1996, 2000; Haberland 1984; Lothrop 1966; Stone 1977).

Nonetheless, the power of such an interpretive structure is evident. Centralization and elite-dominated factionalism and competition is well documented with considerable time depth in other parts of the hemisphere and world, and the impression that aggrandizers take over reigns of power from a more egalitarian base does find substantial support in numerous instances in the archaeological record (Cowgill 1992; Demarest 1992; Hayden

1990, 2000; Kolata 1992). In fact, one would be hard pressed to argue against the reality that the outcome of established inequality is not often the ultimate effect of social complexity. Evidence such as complex infrastructure, monumental-style architecture in a variety of forms ranging in scope from classic hydraulic projects in parts of South America and Asia (Willey 1964; Wittfogel 1956), to congregations of large scale temple complexes in Mesoamerica (Fox 1977; Sanders and Webster 1988) or to a varying extent, the Sarsen stone configurations in the British Isles and continental Europe (Renfrew and Cherry 1986; Renfrew, et al. 1974)<sup>2</sup> all seem to point towards a centralized leadership, and core decision-making bodies assembled to effectively mobilize labor leading to an enduring level of social hierarchization and control (Clark 2004).

The assumptions behind centralization, labor mobilization and nucleation, modified from these models (Carniero 1970; Gilman 1975, 1984; Kristiansen and Rowlands 1998; Rowlands, et al. 1987), propose that individuals, through an effective use of persuasion, coercion or some combination thereof, almost inexorably establish themselves as the primary authority within a group, with the means behind this path to power often manifesting in some form of embodied capital. This leverage takes multiple forms, be it physical resources such as raw material, subsistence surpluses or less tangible social capital such as long distance trade items that function as proxies for connections to powerful far-off lineages or mythological sources of power (Helms 1980; Price and Feinman 2010).

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<sup>2</sup> This latter example, while an indicator of sorts of chiefdom control, exhibits characteristics that I will elaborate on when considering alternative configurations for complexity in the Isthmo-Colombian Area.

The example often cited for the ICA is the study of the sociopolitical landscape of Contact Period, Panamanian chiefdoms. Here, perceived sacred power from distant lands served to consolidate ritual and political authority for aspiring elites, cementing their statuses and leading to the paramount chiefdoms observed in ethnohistoric accounts (Helms 1979, 1980, 1992, 1994, 2007). This compelling perspective has been used as a template for interpreting much of the archaeological record in the ICA, suggesting that allusions to poorly known lands served to create a means to dominate the market of ideas within which others were actively competing. But what was this market of ideas? And is this market tilted towards insiders from the outset?

A key assumption underlying aggrandizement strategies was that they occur within a backdrop of nascent inequality and factional competition (Clark and Blake 1994; Hayden 1990, 2001a, 2001b, 2001c). But it also follows that the previous and likely overlapping group dynamic was likely more equally distributed and focused more on coalitions of individuals cooperating for their survival (Canuto and Yaeger 2000; Feinman, et. al 2000; Hoopes 1991; Saitta and Keene 1990). It is in this emergent and mutable state of developing complexity that inferential models can lose perspective of the potential range of formative conditions prior to successful aggrandizement and consolidation of power. It is this segment within the history of the development of inequality that is most difficult to deconstruct, and often dominance is attributed to a single point rather than a shared reaction (Boehm 1993, 2000).

While the tendency for inequality and stratification is observable in many cross-cultural cases, there still remain important questions regarding the degree and scale of variation in sociocultural developmental trajectories. Is centralization of power the default conclusion

for the growth in variables such as population, labor input and degree of ostentation? These factors are often taken as indicators leading to complexity, but do they inevitably lead to centralized authority (Arnold 1996)? The outcome of uncritically accepting baseline assumptions of centralization, especially as it pertains to interpreting possible "monumental" architecture, is that any pattern potentially produced by other processes such as those linked to initial social conditions or early emergent complexity are inadvertently or heuristically overshadowed by similar patterns expressing the actions of "emerging" elites (Arnold 1996a, 1996b; Hoopes 1991; O'Shea and Barker 1996). Rather, acknowledging the possibility for alternative strategies in the development of social complexity is recognizing that boundaries between the various types of social configurations are porous and dynamic, and that transition between a relative egalitarian social structure and one where power is undisputed is not hard and fast.

For example, for many working in the ICA, nucleation has often served as a customary starting point (Haberland 1984; Lange 1971; Lothrop 1934, 1963; Snarskis 1984; Stirling 1964; Stirling and Pugh 1964; Stone 1943). While useful from a heuristic perspective, the use of this theoretical anchor often results in inferring hierarchy from anything resembling a central place-like settlement pattern such as loose clustering of smaller sites around some form of architectural node. In the Upper General, this is represented by a pattern of refuse concentration, identified as the remains of ephemeral hamlet sites roughly centered around more permanent architectural sites, built into the existing topographic features or constructed as independent mounds (Drolet 1984b). Following a hierarchical and centralization-based epistemological structure, the settlement pattern, coupled with relatively high quantities of artifacts such as stone axes and ceramics,



strongly suggests the existence of extraordinary persons who by extension, managed the construction of monumental structures with privileged access to the resources produced or brought there.

The assumption is that control and exchange of differential resources, item exchange as well as their influence on ideological dynamics generally function to empower self-serving (Marcus and Flannery 1996; Santley 2005, 2007), aggrandizing individuals. It is a compelling hypothesis, and as already mentioned, has been used to great effect. But when it comes to the ICA it is not the only applicable one. Rather, the data presents a variable landscape, one where there is a case for centralization and hierarchy and one where neither ostentatious goods, monumental construction nor nucleation is strongly correlated with hierarchy (Briggs 1993; Graham 1990; Norr 1982). Thus, a key point that deserves closer scrutiny is how would-be aggrandizers often appear to be able to position themselves with seemingly little effort into the primary decision-making roles of their community (Blake and Clark 1999; Clark and Blake 1996, 2000; Hayden and Gargett 1991). Are centralized mounds and structures normally the locus for aggrandizement, or are there prior conditions leading up to the consolidation that are less understood? This dilemma confounds the identification of what is still an ambiguous site and settlement pattern in the Upper General, let alone Greater Chiriquí or the ICA. How to even-handedly interpret this source of equifinality in the archaeological record is the aim of this dissertation, and the use of multiple interpretive alternatives when investigating cases is crucial.

Counterbalancing the argument for social hierarchy and aggrandizement are examples where social systems express distinct alternative social configurations. These cases

contain some form of ranking; but rather than accepting the conditions underlying this ranking as an inevitable progression to gross inequality, any overt attempts at the accumulation of wealth such as hoarding and other ambitious strategies are instead counteracted through oppositional social forces (Ames 2010; Boehm 2009; Boehm, et al. 1996; Boone 1992; Hayden 2001b, 2001c; Kristiansen 1982; Nassaney 1992; Roscoe, et al. 1993). In various parts of the world there are examples of this form of sustained relative egalitarianism existing alongside highly complex social structures (Anderson 1994a, 1994b; Dietler 1998; Fox 1994; Jefferies 2004; Nassaney 1992; Pauketat 2007; Peregrine 2001; Saunders, et al. 2005; Thomas 2001). Such social structures managed to exist, if not thrive, until various conditions drove that system to move in one direction or another (Hayden 2001b, 2001c; Kristiansen and Rowlands 1998; Thomas 1999). What these conditions were and how they played out in varying social settings is still being explored in current theoretical debates, and for the Upper General Valley if not Greater Chiriquí, is arguably a crucial part of our understanding that has yet to be figured out.

Some have derided such efforts as a form of typological navel gazing, leading to far too many social categories to be usefully implemented (Arnold 1996; Feinman and Neitzel 1984). However, the conundrum of whether to split or lump does not preclude the reality of observable phenomena, as there is ample evidence that various types of societies did indeed exist contemporaneously. Moreover, the very attempt to describe the variation in social configurations, shoehorning them into a set of dichotomous variables, conflates and further complicates the issue (O'Shea and Barker 1996). The ICA reflects this analytical quandary as conditions that affected regional change or stability remain ambiguous.

For, while there exists good cases for centralization and hierarchy in the ICA, and one has to accede its correlation with demographic, material and architectural centralization, the strength of that relationship varies considerably. For example, within the Caribbean region of Costa Rica, evidence for interconnected road systems linking mound complexes has suggested an extensive polity network and inter-elite communication (Vazquez Leiva and Chapdelaine 2008). However, although these elite networks have been argued by some to extend into deep antiquity (e.g. Ibarra Rojas 1990), data shows that key evidence argued as evidence for rank date roughly to the 11<sup>th</sup> century and do not have a demonstrable chronological depth beyond its noted time period. Projecting them onto the larger region is tenuous at best. The same can be said for other parts of the ICA said to contain chiefdoms or elite networks (Sheets 1992). In the Upper General Valley itself, the correlation between mound structures, specialized lithic production and hypothesized specialized residence remains tenuous owing to the variability inherent in site function from later period structures to earlier, late Formative period constructions (Drolet 1992).

We can then see how confidence in these models can falter when we are investigating earlier time periods. Direct ethnohistoric comparison and any associated models cannot fully take into consideration the chronological depth encompassed in the archaeological record, nor, with its highly synchronic design (Peregrine 2004), account for the level of variability inherent in highly adaptable interacting populations. As such, the underlying assumptions underlying ICA social environments beg further evaluation. If these issues are left analyzed only at a coarse scale, interpretations of data under centralized competitive models skew to centralization and hierarchy as an ultimate cause and end, resulting in a shift from heuristic usage to theoretical principle, unsupported as it were.

## **ICA Archaeology and Corporate/Network Theory: Expanding on an Integrative Approach**

Southern Costa Rican sites, and specifically Formative to Contact Period Upper General Valley sites, are a microcosm of the interpretive problems inherent in the ICA. Evidence in some cases appears to support the idea that centralization and hierarchy are linked to exclusive settlement configuration, the perceived effort needed to construct mounds and fabricate stone spheres, as well as the organization and potential underwriting of craft specialization in the Diquís and Greater Chiriquí (Cooke and Ranere 1992; Cooke 2005; Corrales Ulloa and Cambronero 2011; Drolet 1992; Haberland 1984; Hartman 1901; Linares and Ranere 1980; Linares 1980a, 1980b; Lothrop 1963; Skinner 1920). This seems plausible if we consider that initial interpretations of settlement patterning for several parts of Greater Chiriquí ostensibly suggest a network pattern of monumental sites (Drolet 1980, 1984b, 1992; Haberland 1984), indicating some type of cooperation and direction of labor resources across a relatively large region. The question is: what is the nature of the cooperation, and how was labor directed?

Although it would seem that competition is an incontrovertible part of the development of social complexity, there is often a tacit assumption of an inevitable social progression towards hierarchy. This has been shown to be a limiting factor when trying to understand past social environments (Kristiansen and Rowlands 1998; Thomas 2001) and temporal/spatial variability and non-directional nature of societal trajectories are often overlooked (Crumley 1987, 2007; Crumley, et al. 1995; Peregrine 2004).

Archaeological signatures found in the ICA are in fact much more variable than what the often dichotomous structure of a managerial hypothesis allows to express (O'Shea and Barker 1996). The use of labor mobilization as a line of evidence for centralized decision-making processes has been questioned for a significant period now across both hemispheres (Hayden, et al. 1995; Kowalewski, et al. 1992; Kristiansen and Rowlands 1998; Kristiansen 1982; Pauketat 2001, 2007). The assumption that construction events require direction from individuals or paramount groups is unnecessary as ethnographic and archaeological data have shown how large construction events are as likely the result of community-based efforts as they are the result of compliance to a central authority. Examples such as the periodic deposition of fill into accretional mound structures point to the cumulative effects of pooled labor, indicating another way that seemingly large projects were facilitated (Abrams and LeRouge 2008; Canuto and Yaeger 2000; Norr 1982, 1996; Ortmann and Kidder 2013; Saunaluoma and Virtanen 2015; Tourtellot 1989).

Given the ambiguity of available data for many parts of the ICA, and its effect on the development of applicable sociocultural theory, it is imperative that we pursue all potential lines of enquiry to increase our understanding (Chamberlin 1965). Theoretical robustness derives from a diversified set of sources that can help account for particular, if not unique, cultural manifestations within an area as well the broader general patterns that are so often sought after (Peregrine 2004; Wylie 1993, 1999). How then can we account for such apparent variability in social configuration without appealing to a central authority?

Ironically, some of the geographic sources for many of the models we use to explain centralizing tendencies within the ICA are also where we can draw at least some components for alternatives. Examples from Mesoamerica, South America, the American Bottom of the United States, as well as parts of the southwestern United States, are used here to provide additional perspectives to an existing integrative model, namely, the model of corporate network dynamics (Feinman, et al. 2000; Feinman 2001). This interpretive system has the utility of being an inferential spectrum, or as Feinman himself calls it, a continuum. It directly confronts the dilemma inherent in studying variable social complexity. When applying the methodology to traditionally non-hierarchical Puebloan societies, Feinman notes:

" ...when discussing such formations, we apply another conception of *hierarchical* variation, the continuum of corporate and network strategies of political action (Blanton 1998; Blanton et al. 1996; Feinman 1995, 1998). This continuum, which draws on Lehman's (1969) discussion of different forms of power, as well as previous references to chiefdom diversity (Drennan 1991; Renfrew 1974), also expands traditional evolutionary models through the recognition that an *unequal distribution and ostentatious display of wealth does not always correlate tightly with the concentration of power or proscribed inheritance rules*. It also recognizes a *wide range of power wielding strategies*, which in themselves have marked organizational and integrative implications." (Feinman, et al. 2000, emphasis added)

Following earlier uses of Feinman's concepts for the ICA (Hoopes 2005) I suggest that in the corporate/network continuum, we have a variable scale that is appropriate for studying the social environment of the Upper General Valley, Greater Chiriquí and ICA society. However, there are differences in the way this study utilizes the corporate/network continuum. Whereas Feinman speaks of potentially *hierarchical* variation or *chiefdom* diversity, I propose a more general diversity of complexity that includes the potential for heterarchical structures as well as hierarchical relations, following components of several other theories that I suggest are complementary and are

well suited as parts of an expanded corporate/network interpretive system. The component of heterarchy and the power of communal practice to influence and control power strategies (Bender 2002; Crumley, et al. 1995; Joyce and Hendon 2000) is something that has already been used to a variable degree (Saunaluoma and Virtanen 2015; Torres 2012) in recent years and reflects the importance in applying the principle of non-directionality to the corporate/network scale by adding in the above elements as well as historical and behavioral ecology.

### **Integrating Community Practice with Corporate/Network Theory**

Central to understanding the dynamics of corporate/network dynamics in this study is the idea that the power of reputation, tradition along with biological and perceived psychological benefits all factor into the struggle to cooperate or dominate between the individual and the overall group (Bliege-Bird and Smith 2005; Boone 1992, 2000; Cronk 2005; Froese, et al. 2014). Tradition or practice, once criticized as "normative" (Binford 1962, 1965), is useful insofar as we expand the original concept of practice: individual agency, history and traditional context (Bourdieu 1977, 1990; Ortner 1984, 2006) to include the behavioral parameters that embody the dominant aggregate responses of a community. Thus from an evolutionary perspective, practices are community-scale thresholds in decision-making processes that reflect social constraints requiring circumvention (Bowles and Gintis 2002; Bursey 2006; Froese, et al. 2014; Garfield 2012; Henrich 2004, 2009, 2011). These cultural consensuses are capable of flouting individual attempts to overcome or modify them, transforming them theoretically from epiphenomenal psychological dispositions to the components of aggregate constructions

that are encoded and expressed in everything from topographic locations in the landscape to the social and ceremonial structures that inhabit their boundaries.

In contrast to centralized managerial models, society is instead understood as sets of aggregate social dynamics in constant tension, of which centralization is but one outcome. These "sets" are expressed within coalitions of communities and must constantly acknowledge multiple actors within the decision-making apparatus of a society rather than limit them to a select few individuals. That these actors join together to keep some from taking advantage is not "group" think in the coarse sense, but the reasonable majority decision made in the best interest of individuals. This adaptation of practice theory, expressed as community, can also be seen to be a fundamental part of heterarchical dynamics (Crumley 2001, 2005; Crumley, et al. 1995). There is an overlapping nature to community traditions, practice and horizontal dynamics that has been explored by authors (Bender 1990; Canuto and Yaeger 2000; Crumley 2005; Joyce and Hendon 2000; Pauketat 2000a, 2000b, 2000c; Torres 2012) that suggest the utility of this social scale of analysis.

Community is not a new concept (Fried 1967). Archaeologists have in the past, referred to the aggregate claims on society as a difference between self-serving and system-serving modes of a society (Flannery 1972; Santley 2007). However, even the dichotomy of a self- and system-serving dynamic, like that seen within managerial models, does not fully take into account the inherent variability that exists, not only in places such as the ICA but across the planet. This inherent variability within group interaction implies that the dynamics of social complexity, whether in an established hierarchical structure or some alternative form, are ostensibly always developing. Anthropologists working within



more dialectically humanist traditions noted this early on (Appadurai 1995; Giddens 1984, 1991; Levi-Strauss 1965; Marx 1904; Saitta 2005). This continual development of social complexity, is after all, the definition of historical process. But the modern variant that I allude to in this study is more of a historically particularist and evolutionary perspective, where causal events are inherently non-directional. References to any stage of nascent complexity are heuristic and do not imply any type of teleological or stepwise unilineal progression (Sahlins and Service 1960). Instead of a beginning stage of complexity, complex social interaction in this case emphasizes the *potentiality* within social structures.

That is, a set of initial conditions can proceed in a myriad of directions, especially with regards to social conditions. Situations can evolve whereby incipient social structures can continue on to increasing complexity and more rigid stratification, or they can break down or maintain themselves (Kristiansen 1982), facilitated or hindered by forces such as environment, physical resources and population pressure as well as a litany of other factors, not least of all the perceived needs of groups (Buikstra and Charles 1999; Lefebvre 1990; Rappaport 1999) and their collective expression. Non-directionality of complexity notwithstanding, competition and negotiation are fundamental components, with the competitive and resistive dynamic existing in the simplest as well as the most complex hierarchies (Saitta 2005; Brumfiel 1994). But where less complex or established contexts exist, within incipient and middle-range societies, group participation and interactions likely have a more dynamic character as rules are being negotiated in a more fluid manner (Boehm 2000, 2009; Gintis, et al. 2005).

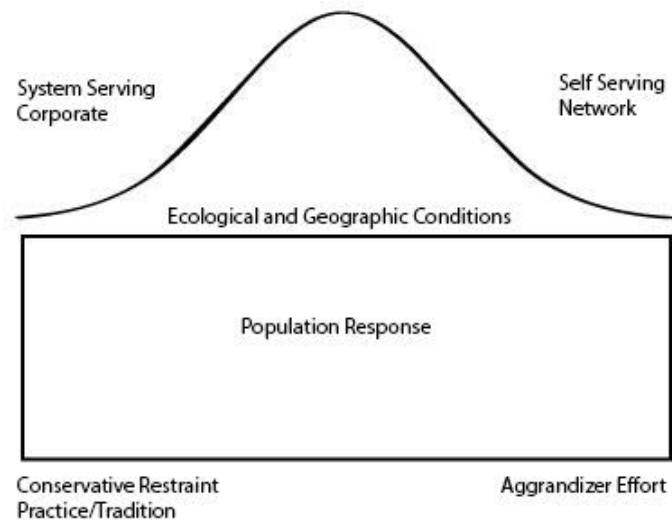
Thus, “Formative” period cultures are just that: truly formative. Emergent or “formative” complexity can instead be understood to be a pre-existing dynamic condition in all societies from which a variety of possibilities arise, whether they are egalitarian or more complex (Hayden, et al. 1995), and variability is built into the social system at all levels (Feinman, et al. 2000; Flanagan 1989; Flanagan and Rayner 1988; Roscoe, et al. 1993). Even at state-like levels the possibility for negotiation and change is inherent, just generally not dominant after social strictures have become entrenched (Demarest 1992; Kolata 1997). What neither managerial hypotheses or dichotomous structures capture is this inherently fluid nature of decision-making (O’Shea and Barker 1996).

Therefore, rather than solely revealing top-down hierarchies asserting their dominance, community network theory can be used to explore the potential for contexts whereby lateral and bottom up processes unfolded (Carballo, et al. 2012; Crumley 2007; Feinman, et al. 2000; Feinman 2000a, 2000b), at times even co-occurring among other hierarchically organized outcomes. These non-hierarchical, heterarchical or horizontal and “bottom-up” level processes have been demonstrated to exist particularly at the juncture of a level of social complexity that is neither egalitarian nor classically “chiefdom” (Sahlins and Service 1960), let alone a state apparatus (Hoopes 1991; Joyce and Hendon 2000), but it hinges upon the power of social groups or communities to effectively resist the aims of aggrandizers.

For a group to remain cohesive, some degree of consensus—tacit or explicit—must be reached. This scenario seems better facilitated when one is not physically circumscribed (Cowgill 1997; Drennan 1995, 1996), although even this factor has been shown to have its limits. In areas and population levels where groups can essentially “vote with their

feet,” decisions are, for the course, made as a group. Thus, decisions from accepting a leader to building a mound, fall under a rubric of collective bargaining, a concept that has already been utilized in the archaeology of egalitarian groups with regard to decision-making strategies (Johnson 1978, 1982). Expanding the social decision-making spectrum to include community adds an interpretive tier to address the problem of equifinality when reviewing archaeological signatures, something that remains a challenge even within corporate/network dynamics. What may then seem apparent as products of centralized labor mobilization or appear to be a singular decision made at the head of a society could in all likelihood be an aggregate response, a community level choice, mediated and negotiated within an open-ended community-level system.

This "aggregate response" acknowledges a key component that managerial models lack as they minimize or discount the existence of variably effective checks on aggrandizement (Feinman 2002; Hayden 2001b, 2001c). Within a theoretical system that includes collective checks, emergent elite behavior has to come about under a set of extraordinary conditions, especially in environments with abundant or redundant resources and areas that exhibit a high level of niche construction (VanValkenburgh and Osborne 2012). Rather than acquiescing to the strategies of individual ambitions, community, often underscored by resource abundance and territorial flexibility, instead hampers attempts to contravene established practice or tradition. Again, people can retreat and vote with their feet, utilizing their mobility as a means to contravene any attempts claim power (Hoopes 1991), or simply dominate the potential bullying leader into submission (Boehm 1993). When these options are included into corporate/network dynamics, one achieves a more adaptable system.



**Figure 4.1: Idealized view of Corporate/Network dynamics with distribution curve representing the collecting threshold requiring circumvention**

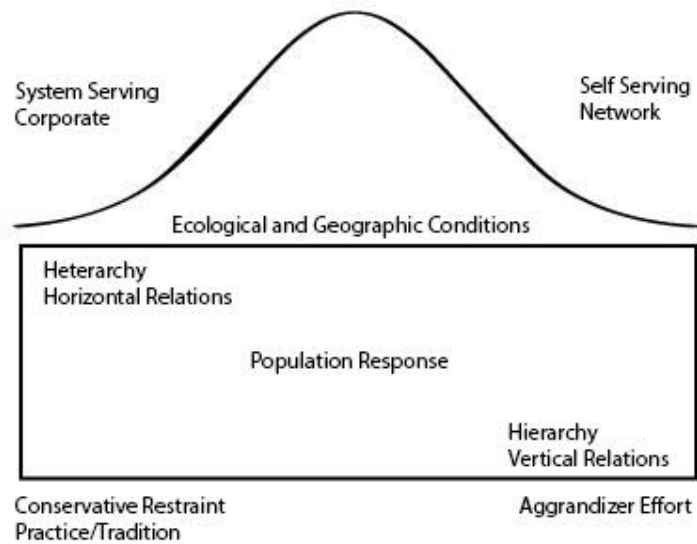
We can see this diagrammatically where the space between the Corporate and Network ends of the spectrum become more inclusive, allowing for the more or less egalitarian end of the corporate spectrum to accommodate behavior that, while directed by individuals at some scale, prioritize the collective good over that of the claims of an outlying voice (Figure 4.1). When we see this in graphical form, modified from an earlier conception by Feinman (Feinman, et al. 2000), we see that the general structure of the model is unchanged, only that its internal parameters have been retooled to consider corporate configurations as a unified coalition of like-minded individuals. Instead of the more obscured individualistic tendencies that more duplicitous corporate structures may in fact have, the retooled corporate parameter allows for practice-oriented positions to contribute to a multivocal forum (Bender 1985, 1992; Rodman 1992) and for the potential for what Boehm has called "reverse dominance" (Boehm 1993). "One person" or "one mind" is essentially the group consensus on the social rules; although a result of

an individual choice, it remains essentially the single-minded contract of tradition and customary practice that prohibits someone outside of the popular opinion from gaining any leverage (Boehm 1993, 2000, 2012; Bourdieu 1977; Ortner 1984, 1995).

As is evident above, the ideas underlying my adaptation of corporate/network continuum is supported by various arguments both quantitative and qualitative in nature, where in recent years considerable research has been conducted in game models and the effects of group altruism and collective bargaining (Balliet, et al. 2011; Barr, et al. 2009; Boehm 1997, 2000, 2009, 2012; Bowles and Gintis 2002; Burnham and Johnson 2005; Gintis, et al. 2005) on would-be aggrandizers, demonstrating the difficulty in which these self-serving persons need to operate. This argues strongly against inherent monopolization and centralization in large part due to an obstinate body politic. This evolutionary perspective on practice-based conservatism also reflects past research on adaptive peaks whereby rational and possibly better adaptive responses are often unheeded by groups too steeped in prior “traditional” conditions (Bettinger and Baumhoff 1982).

Nevertheless, the persistence of a group, the ability of a community to subvert power, presented in the past as “leveling mechanisms” (Boehm 1993; Cashdan 1980; Fried 1967) and more recently as practice theory, I argue, now have more depth due in part to theoretical regimes such as behavioral ecology which has found common ground in the ways they explain behavioral variation. Generally working at a finer scale than practice or heterarchical studies, behavioral ecological models are getting better at refining the scope of activity in power relations to include responses of providers to potential free riders, “bullies” or aggrandizers in the distribution of shared resources and benefits, and are potentially helpful for identifying conditions where custom might check ambition or

where ambition trumps tradition (Atran, et al. 2002; Bliege-Bird and Smith 2005; Boehm 1993; Boehm, et al. 1996; Bowles and Gintis 2002; Fehr and Gintis 2007; Henrich, et al. 2001; Hill 2002). Evolutionary ecological research has added a significantly enhanced dimension to the larger-scale theoretical body of social complexity that is historical ecology, practice theory and at its most inclusive scale, corporate network dynamics. Its utility rests in its ability to demonstrate how individuals (and their potential conspirators) with dominant aspirations will at many times be fettered by the general tendency for group cohesion, stability and survival (Boehm, et al. 1996; Wiessner, et al. 2002). It bolsters the idea of a dynamic tension introduced at a slightly coarser scale through practice and the corporate/network continuum, detailing the manner in which that practice is wielded. In this way, interaction, cooperation, reputation and ambition are understood as interdependent components testing the limits of majority consensus. Given the scale of interaction between groups and the idea that checks will be made on attempts to achieve vertical dominance, it makes sense that heterarchical relations would be one of the means to level any overly ambitious efforts.



**Figure 4.2: Corporate/Network dynamics with heterarchical and hierarchical dynamics included**

Thus a model that combines community dynamics with heterarchical alternatives is useful as it interacts with the functions described within corporate/network models.

Combining heterarchical, historical ecological and corporate network models accounts for the diversity of positions individual agents and groups take when negotiating power (Figure 4.2) (Boehm 1993, 2000, 2009; Boehm, et al. 1996; Roscoe, et al. 1993). Given that top-down elite perspectives are often a default (Ames 1995; Clark and Blake 1996, 2000; Drennan 1991; Earle 1996; Feinman 1991; Freidel and Schele 1988; Helms 1979; Kirch 1990; Kowalewski, et al. 1992; Lange 1992b; Larsen 1979; Lekson 1999; Rosenswig 2007; Smith 1992; Urban and Schortman 2004), the above arrangement illuminates the obscure segments of corporate/network theory by detailing the possible ways that corporate or network level communities behave, particularly when dealing with variable social conditions.

As mentioned, the evidence for hierarchical social structures is in some cases highly convincing. However, rather than propose one model, the suggested corporate/network and heterarchical spectrum allows for multiple hypotheses to be employed. This multivalent perspective seems especially suited to the amorphous social conditions recorded for the ICA. Accordingly, while some of the observations made for the ICA may trend to the hierarchical and more centralized part of the social continuum, another portion possibly maintained community-scale heterarchical processes (Hoopes 1991, 2005). This latter end of the spectrum can now be more effectively represented and more identifiable in the region. Arguably, this model also has better fit with the overall dynamics of southern Costa Rica, which along with the rest of the ICA exhibit an elusive level of social complexity. Clear evidence is lacking for social differentiation or ranking, and explicit evidence of standardized control, if not established bureaucratic centralization, assumed hallmarks of state societies, is not clear in earlier periods. Therefore, the above formulations, simply put, offer more inferential lenses for the investigator.

Few have argued for a mixture of mathematical game theories and more humanistic models working in tandem, but I suggest that these quantitative theoretical attempts at describing human interaction actually share much in common with historical ecological models and practice-based theories. Others have made similar calls (Chabot-Hanowell and Smith 2012). Practice theory primarily concerns itself with the historical traditions that define the cultural environment individuals inhabit (Boyer and Liénard 2007; Love 1986; Pauketat 2001; Roscoe, et al. 1993), where certain behavioral ecology and evolutionary approaches investigate how traditional mores are produced and maintained.



Both are expressed culturally as tradition, morality or simply custom, but important for this study, practice manifests materially and geographically. The articulation of practice with its geographic aspect is most often expressed as habitus (Bourdieu 1990; Foucault 2007; Lefebvre 1990; Rapoport 1990a, 1990b) when speaking of its spatial character, and in this theoretical formulation is the character of practice as it pertains to geography, space and place. Tradition is the ideological structure that ambitious persons find themselves up against routinely. Social mores, strategies and customs comprise the existing rule-set that inhibit non-traditional strategies. The rules require an arena in which they are played out.

### **Landscape and Its Articulation with Complexity**

When attempting to explain the development of complex systems, this study looks not only at the corporate/network core model, but its association with the physical landscape. This study suggests that the scale of community dynamics described by Feinman and colleagues have to operate at a level that incorporates the landscape at a fundamental level. Corporate/network theory suggests that social forces within groups often oscillate between network modes—emphasizing hierarchical structures with established leaders and lineages—and more corporate manifestations emphasizing heterarchical social configurations. While studies seem to suggest that the network side of the spectrum is more amenable to the development of state-like societies, the corporate side—with notable exceptions such as Teotihuacan notwithstanding (Feinman 2001)—is often seen as the more amorphous, acephalous arena, an arena that, as mentioned above, is heavily influenced by tradition and consensus. This arena, or forum, is played out in space and is prevalent in both modes if more emphatic in the corporate arena (Lefebvre 1990).

Whether negotiated between established leadership structures with fixed roles or in more fluid contexts, both sets of relationships are literally grounded in a material referent that paradoxically connotes more than material needs. How this actual physical ground of being articulates with practice, aggregate responses and corporate network tensions begs exploration.

As mentioned, people have physical and perceived needs that are encoded into and extend beyond the surrounding environment (Binford 1965a, 1965b; Boone 1992, 2005; Charles and Buikstra 1983, 2002; Rappaport 1999). This includes the geographic landscape and how one perceives it from a survival/biological standpoint and survival/psychological perspective. While many models, including managerial versions, prioritize material influences, there are some powerful factors that blend biological realities such as the need for ecological niche behavior with more psychological effects such as attachment to constructed and projected meaning. These meanings, themselves the likely result of positive reinforcement of past biological/psychological successes are imbued into material goods, geologic landforms and architecture (Ashmore 2004; Basso 1996a, 1996b; Bender 2002; Buikstra and Charles 1999; Crumley 1999; Grove 1999; Ingold 1993; Knapp and Ashmore 1999; Preucel 1999; Staller 2008; Tilley 1994). These physical manifestations of positive psychological associations become in themselves loci of concern and maintenance for any given population.

Meetings, councils, ceremonies, initiations, etc., require points on the landscape to imbue them with their power: social, spiritual or otherwise (Barrett 1999; Basso 1996a, 1996b; Bender 2002; Bender, et al. 1997; Buikstra and Charles 1999; Charles and Buikstra 2002; Christenson 2008; Crumley 1999; Grove 1993; Ingold 1993; Sheets and Sever 2007;

Thomas 2001; Tilley 1994). It is what distinguishes them from ordinary residences, although there is obvious difficulty in demarcating interpretive boundaries (Adler and Wilshusen 1990). Debates on whether to call these focal points sacred places or not abound (Gilman and Stone 2013; Hrynck and Betts 2014; Inomata and Coben 2006; Smith and Thompson 1990). What is evident is that there exists the need for references to the land for a variety of reasons ranging from basic material resupply in far-ranging territories for mobile groups (e.g., Kilby 2008) to more complex iterations such as information and mate exchange, and social aggregation (Buikstra and Charles 1999; Buikstra, et al. 1998; Charles and Buikstra 2002; Feinman 1999a; Feinman 2000a, 2000b; Hegmon 2000; Schachner 2001; Thomas 2001). This need for converging on places has a decidedly evolutionary character to it. Over time, spaces or places that are key to survival at early stages impress themselves into the life history of groups in a manner that becomes internalized. The landscape shapes the practices and traditions that communities use to guide decisions.

Landscape therefore, is not an isotropic backdrop but the dynamic medium through which meaning is constructed and negotiated. This negotiation of meaning through symbols and language, bartered within a variety of social contexts, generate arrays of ideological structures that vary from group to group within a society. As such, the aggregate responses of individuals played out through social processes such as territorial demarcation and mate and information exchange can be seen as a social and ideological currency: one that is agreed upon in a group consensus. This consensus is influenced in part by the traditional forum found within the landscape. Currency is used here as defined by Friedman, Kristiansen, Rowlands (Friedman and Rowlands 1982; Kristiansen and

Rowlands 1998) and others (Bliege-Bird and Smith 2005; Bowles and Gintis 2002) when outlining social capital theory, but is not limited simply to the monopolization of social power by aggrandizing elites. Rather, ideological currencies manifest themselves from the basic cognitive elements in the way humans shape their world. They are the ideas that sway a person to consider or even hold fast to an irrational or even magical concept as bond for their psychological well-being. This world is psychological and physical; and in this manner, landscape reflects the way human beings interact with the land, forming part of a basic template for how they interact with each other and utilize those cognitive elements to facilitate communication and survival (Rappaport 1990, 1999).

Using landscape as a functional qualitative suggests that people, while fundamentally biological, have taken an evolutionary feature and adaptation—language and the symbolism derived from it—to create a unique cognitive universe that inverts biological reality into a world where the ideational and psychological share similar if not equal priorities for survival. Concepts and ideas are perceived to be tangible requirements for survival (Rappaport 1999). This behavioral feature cannot be disregarded. White (1949), Binford (1962) and others (Flannery 1972) debated and often minimized, if not dismissed, its import, giving short shrift to the extra-somatic side of the adaptationist equation (White 1947, 1959). While not new in its formulation (Durkheim and Fields 1995; Lawrence and Low 1990), the understanding of the central role of space in forming and mediating the cognitive and social dynamics has increased in recent years with respect to archaeology and anthropology (Anschuetz 2005; Anschuetz, et al. 2001; Bernardini 2005; Crumley 2002; Crumley and Marquardt 1990; Dillehay 1990, 2004; Duwe and Anschuetz 2013; Hastorf 2003; Ingold 1993; Joyce 2004; Kirk 1993; Kuijt and

Goodale 2009; Lawrence and Low 1990; Renfrew 1977; Snead 1999; Staller 2008; Wells and Davis-Salazar 2004; Whallon and Renfrew 1973). More research is showing that space or place is quite literally the fertile ground on which corporate and network activities unfold.

### **Community Dynamics within a Context of Landscape**

The importance of landscape along with the concepts of practice and community have been already usefully employed in a variety of ways in the work carried out by researchers in the American Bottom (Brown 1997; Buikstra and Charles 1999; Buikstra, et al. 1998; Buikstra, et al. 1999; Charles and Buikstra 1983, 2002; Knight, Jr 1986, 1990; Pauketat and Kelly 2002; Pauketat and Alt 2003), the United States Southwest (Potter 2000a; Varien and Potter 2008), as well as Mesoamerica and the Andes (Canuto and Yaeger 2000; Joyce and Hendon 2000; Yaeger 2003). Scholars working in the Southeastern United States have often faced the challenge of delineating the boundaries of control between larger social groups such as the Mississippian chiefdoms of Moundville and Cahokia, often finding that territories of smaller polities in fact favored less ostentatious and less stratified forms of culture over their more elaborate neighbors (Nassaney 1992, 2001; Nassaney and Sassaman 1995; Pauketat 2000a, 2000b, 2000c). This phenomenon is observable going back into Hopewell periods and earlier in the Archaic, where mound building was seen less as a means of promoting individual status than a way to embody and materialize a group claim on land and resources (Brown 1981; Buikstra and Charles 1999; Buikstra, et al. 1998; Charles and Buikstra 2002). The suggestion is that constructions embodied collective claims, material and ideological, establishing the manner in which mounds likely were built and regarded well into the

Hopewell and arguably still into the Mississippian, even amidst the obvious ostentatious expressions found at Cahokia and Moundville. That more "communal" expressions of constructed landscapes existed contemporaneously with the great Mississippian states suggests a strong counteracting force of community, one with considerable time depth.

Large sites such as Poverty Point, Watson Brake and Serpent Mound (Dancey and Pacheco 1997; Sassaman 2005; Saunders, et al. 2005) all showed significant investments in labor, but no significant settlement of individuals or even groups. Rather, mound construction appears to have been a landscape marker. A point or node in a continuous social landscape that was first contested by the semi-sedentary groups of the Archaic period, then by the less mobile Hopewell groups and finally, arguably with less success by some, by the more established Mississippian populations. The abundance of grasses and alternative foods relative to cultivated corn during the Mississippian may have allowed for greater flexibility in population movement and configuration (Anderson 1996; Anderson, et al. 2007; Nassaney and Sassaman 1995; Pauketat 2000a), a factor that is very relevant to the situation investigated in this study.

Similar conditions in the Southwest have called for an analysis of the variability in sociocultural dynamics. Leaders of larger communities, whether the Great Houses of the Chaco Sphere or the large Rio-Grande towns of the later Coalition period in Central New Mexico have less often been called chiefs, in part due to the lack of significant evidence for entrenched and ascribed status (Bernardini 1999; Feinman, et al. 2000; Feinman 2000a, 2000b; McGuire and Saitta 1996; Potter 2000b; Varien and Potter 2008).

Research has shown a complex social configuration entailing reciprocity and cooperation, ameliorated by periodic ceremonial rituals whereby collective identity is re-affirmed

through feasting. This powerful social facilitator has been seen as the means of control by select individuals and state apparatuses (Dietler and Hayden 2001; Hayden 2001a, 2001b, 2001c; Kolata 1991, 1992, 1997). However, the signatures at Puebloan towns suggest potluck-style participation (Blinman, et al. 1989; Potter 1997, 2000a), a decidedly collective strategy rather than more individualistic underwritten efforts. These include potlatch or large standardized state-sponsored alcoholic events as seen in other areas such as Huanaco Pampa in the Andean region.

Thus the social landscape of the Southwest US was arguably still a negotiated landscape, with leveling mechanisms embodied in ritual and in the constructions such kivas, which, great or small, evoked traditional values that kept outright chiefs from developing. Arguments similar to the Puebloan case above have been suggested within the ICA where less hierarchical groups remained free of singular control (Hoopes 1989, 1991).

Even within areas known for their state-like infrastructure, there are examples of communities countermanding elite efforts; where work by Rosenswig (2007) has brought up the impetus for feasting as means of commemorating gatherings and the locations that these gatherings occur, at least in their initial manifestations. He and others (Crumley 1995, 2001, 2003; Joyce, et al. 2001; Joyce and Hendon 2000) note that especially in the earlier time periods, hierarchical tendencies had less foothold, and congregational or integrative space (Adler 1989; Adler and Wilshusen 1990), while co-opted by elites at many locations, still maintained a tenuous grasp on the reigns of power, even in areas where hierarchy was most pronounced (Demarest 1992). Thus, even on what would seem an established elite theatre, high-status actors required accession from the surrounding audience, and the theatre, the space and the contextualized actions of those elites are

understood to be the domain of the group. The underlying consensus is based in a meaning imbued by more than just one elite, but the body politic overall. This dynamic is volatile and the outcome of power is never assured.

It has been suggested that the initial configuration for ICA societies may have been a mixture of horticultural, agricultural and less sedentary societies, slowly and inconsistently transitioning from earlier Archaic forms of subsistence to a mosaic of strategies (Hoopes 1991, 1994). It has also been proposed that territorial flexibility likely served as a variable in the strength that groups had in flouting aggrandizement. Cross-cultural studies such as those conducted in the American Bottom, the Southwestern US as well as in the UK, continental Europe, Africa and Asia show a significant pattern whereby semi-sedentary groups in the Archaic or Formative periods of their respective time ranges generally had points on the landscape that were meaningful to them in various ways. These periodic aggregation points (Adler and Wilshusen 1990; Bernardini 2004; Bloch 1971; Bloch and Parry 1982; Buikstra and Charles 1999; Buikstra, et al. 1998; Buikstra, et al. 1999; Byrd 1994; Charles and Buikstra 2002; Clayton, et al. 2005; Potter 2000a, 2000b; Schachner 2001) in their preliminary historical instances are rudimentary in nature and often served as simple points where territories were demarcated and resources intentionally circumscribed through negotiation (Renfrew and Cherry 1986).

In Africa, Bloch (1982) used modern ethnographic examples to demonstrate that mortuary centers were in fact socially meaningful places for the living. For the people of this region, the houses of the dead not only served as reminders of the ancestors, but acted as a council houses whereby the descendants of the ancestors could carry out social



rituals that assured their livelihoods, spiritually as well as biologically. This blurry distinction between mortuary centers and meeting places for the living seem to be shared across several areas. For example, we find in various cases that sites with large mounds in the American Bottom that had no explicitly formal mortuary function took on funerary functions as time went on, at first seemingly ad-hoc in manner but becoming increasingly formal as time went on (Buikstra and Charles 1999; Buikstra, et al. 1998; Charles and Buikstra 1983, 2002). In other cases, mortuary centers were not integrated with meeting places but were indirectly associated (Renfrew and Cherry 1986).

Spaces in these above instances increasingly become places of importance. They become the mortuary sites, the charnel houses, the council houses, the churches of societies, the socio-ceremonial centers of prehistoric cultures. Sacred, ritual, or informational, site functions in many cases are not mutually exclusive (Adler 1989; Adler and Wilshusen 1990; Bernardini 1999; Blinman 1989; Gilman and Stone 2013; Smith and Thompson 1990). In sites attributed to middle-range societies as opposed to state societies it is especially important for places to allow for multiple voices of the community to be heard (Bender 1985, 1990, 2002; Joyce, et al. 2001; Love 2002; Rodman 1992). This seems to suggest that at this level of complexity, the needs of groups are more closely intertwined and less demarcated, with kinship affiliations stronger than those of alliances formed in the hopes of achieving dominance. This dynamic, played out in these places, are more amenable to multi-vocality (Bender 1990, 2002; Rodman 1992) for a number of reasons. In some cases where we see claims being contested, negotiated and mediated groups are semi-sedentary. Though not a requirement for multi-vocal places, with semi-sedentary groups the classic models of resource control (Sanders and Webster 1988; Sanders and

Nichols 1988) and circumscription (Carniero 1970) do not factor as much into the mode of control that people are able to employ (Demarest 1992). However, in other cases, it is a matter of social negotiation, where aspiring factions are simply not able to muster enough physical, social or symbolic capital to break the consensus of the overall community (Blanton 1998; Boehm 1993; Bursey 2006; Ember 2001; Flanagan 1989; Flanagan and Rayner 1988; Garfield 2012; Nassaney 1992). This situation is also often attributed to a group's inability to monopolize some form of community currency, i.e. tradition, such as the prevailing community symbolic system, valuable to the whole.

Ideas, as products and complements to biological necessities, drive individuals and groups to behaviors that may not benefit themselves from a biological standpoint, but from a psychological one. They are incorporated as practice, as the background behavioral rule set in game theory and, as conditions warrant, heterarchical community. In a model that incorporates landscape as a variable, these ideas are materialized in the space one inhabits (Lefebvre 1990) and the environments one builds to capture augment or redefine as habitable space (Blanton 1994; Bourdieu 1990; Rapoport 1990a, 1990b). Space as mentioned is not isotropic but is rather the immediate context of physical and psychological conditions from which individuals construct their identities (Bender 2002; Bernardini 2004, 2005; Foucault 1982; Thomas 2001; Turner 1977). Space and landscape share distinct but complementary functions, expressing the body politic and the whole of the psychological universe of its inhabitants, replete with genotypic and phenotypic demands. This view shares many similarities in site description methodology already espoused by some Costa Rican archaeologists (Sanchez Pereira, et al. 2004; Sanchez Pereira and Rojas Hernandez 2002). In this case, the fluidity of landscape is

operationalized in a “siteless” archaeology, eschewing the artificial imposition of established sites (Ashmore 2004; Ashmore and Knapp 1999; Buikstra, et al. 1999; Crumley and Marquardt 1990; Gillings, et al. 1999; Knapp and Ashmore 1999).

Archaeologists are hardpressed to measure this perception in groups, more so in mobile or semi-sedentary populations. The thinking has often been that any enduring or meaningful demarcations on the landscape were lacking due to a nomadic lifestyle. Most efforts at utilizing landscape as a variable occur where the environment has already been significantly modified. In many cases, these modified landscapes have erased or built over the earlier manifestations left behind by earlier phases of occupation. Interpreting material signatures for mobile, semi-sedentary or newly sedentary groups has been a thorn in the side of many researchers (Kelly 1992; Rowley-Conwy 2001), forcing them to admit futility and classify landscape perceptions as too vague. However, there are examples that have demonstrated the utility of pursuing this line of enquiry, yielding insight into how significant landscape and meaning were to semi-sedentary or mobile groups (Dillehay 1990, 2004; Kilby 2008; Moore 2010). For example, with regard to the formation of Mapuche ceremonial landscapes and social structure, Dillehay notes:

"As viable social place, these monuments do not just emerge temporarily out of a local group, go out of use, collapse, and, after their abandonment, become part of past lineage history. They contribute to local history in a specific spatial and temporal context through the perpetual and intergenerational creation and utility of particular geographical and ceremonial locations. Participation in group activities at these locations leads to the reinforcement of pan-Mapuche social, economic and religious institutions (e.g. alliances, public ceremony, ancestral worship). This, in turn, results in the emergence and persistence, of lineage-specific historical and social contexts at the same time that it contributes to an uninterrupted development of Mapuche architectural ideology that is etched across the landscape in the form of fields and mounds. The material and spatial continuity of this architecture and of the ceremonial activity associated with it are vital to the social and cultural persistence of lineages because it contributes to the integration and continuity of these institutions." (Dillehay 1990: 226-227).

Like the Mapuche, Formative period sites in the ICA inhabit an interpretive middle ground, but instead of perceiving landscapes of mobile and semi-sedentary groups as limiting, taking into account the role of landscape can aid in the understanding of the potential multiplicity of claims made upon sites.

I argue that this multiplicity is likely why mounded structures in the ICA vary. As the diversity of landscape and ideological perception informs and forms cultural and architectural/built contexts, it is re-invigorated and re-negotiated on a continual basis, contending with the advances of would-be primary leaders and the resolve of traditions ingrained through the generations into the ground upon which the claims are made. Perceptions of the landscape contribute in a significant manner to the way that social groups handle their everyday interactions. Landscape is a direct result of the iterative social processes between people. Indeed, this perceived landscape often has a porous boundary between all these spheres and not the binary categories so often inherited to them or their architectural expressions (Adler 1989; Adler and Wilshusen 1990). Therefore, when viewing inter-site or intra-site spatial patterning, it is imperative to note that the site itself is a place where historical processes develop (Bender 2002). Landscape, and all its included physical variables, therefore maintains an ideational component which functions as a structural component and an influential variable in tandem with fundamental biological material factors (Ingold 1993, 2000).

However, for archaeologists, this compounds the problem of equifinality. What is the dynamic of factions gaining power in these middle-range societies? Are they held back by the larger communal will? With the importance of place established, the emphasis central to this dissertation is in discerning how these inferential patterns are applicable to

southern Costa Rica. Previous investigators saw Formative period, Aguas Buenas society as composed of nobles and commoners. Haberland asserted that, "Aguas Buenas was certainly a class society, containing at least a nobility and/or chieftain class, commoners and slaves" (Haberland 1984). Settlement pattern analysis posited that the observed two-tiered settlement pattern most accurately fits a "special residence" pattern (Drolet 1988, 1992), and current work has taken this territorial model and expanded on it, offering a district model with mounds serving as central places (Sol Castillo 2013). However, it remains to be seen whether individuals actually resided at these purported centers. Determining what is "special" versus what constitutes elite and whether there was any residence at all is contingent upon an accurate assessment of this often-equivocal data. The abundance of material found at the architectural nodes of these proposed settlement models were taken as two lines of evidence for labor investment that could be associated with domestic behavior fitting of a habitation. However, its exact function is arguably unclear. Special residence, given the state of evidence, can arguably be redefined more accurately as specialized occupation or special function that does not require elite occupation or high social status. Previous research alluded to this (Drolet and Markens 1981; Drolet 1984a). In an alternative explanation, specialists are not so much chiefs as specialist artisans attached to chiefs, echoing a model used in the Maya region (Hirth 1984; Santley 1984). However, given the patchiness and ambiguity of evidence for habitation at the central architectural sites in the Upper General Valley, even this proposed system is unclear. While there is evidence of craft specialization at centralized sites, such as Sitio Monge and Sitio Las Brisas seem to suggest, is this a consistent phenomena, and is this the result of elites? This is the underlying reason for expanding

the theoretical interpretive model to include heterarchical and community scale processes. The same questions underlying mound construction can reasonably be applied to craft specialization, especially when the degree of that specialization is still debatable. While some multi-component sites with a large Chiriquí phase component do have evidence for social stratification (Drolet 1989), in the absence of compelling Formative period evidence for high status, one must reasonably entertain alternative explanations for Aguas Buenas settlement and social dynamics (Hoopes 1991, 1994). We can therefore design different models and expectations for the patterns observed for Aguas Buenas and even early Chiriquí settlement and social dynamics. But in this iteration, the models include landscape and multivocality as central tenets.

Defining central locations within the proposed site hierarchy, be they ceremonial centers, seats of power, or community cemeteries, is a daunting challenge, especially for someplace such as the ICA. If indeed these central nodes functioned as socio-ceremonial centers (Drolet 1992), we can say that at their most fundamental level they are integrative structures (Adler 1989). These spaces and built environments gather groups into congregations of one or more joined communities. Whether one uses emic categories based on ethnographic sources (Bozzoli de Willie 1975; Frost 2009) or etic categories such as clans, moieties or social unit to set the parameters of a community event, the underlying function of integrative structures is to facilitate and mediate behavior that exceeds small groups. But whether they were led in any established way, at least in the Formative, remains an important unanswered question.

Integrative facilities and concomitant integrative behaviors have been documented throughout the world, often appearing in relative Formative contexts (Adler and

Wilshusen 1990; Blanton, et al. 1996; Flannery 2002; Potter 1997). In cases, such as in the Upper General, no compelling evidence exists for high status or overt social stratification during the Formative Aguas Buenas Period. These sites, at early initial periods are arguably facilitating group social relations and cohesion. With any significant growth in population or social aggregation, social scalar stresses will increase pressures and tensions (Adler 1993; Johnson 1982). Integrative structures would have developed when relatively low populations surpassed the bearable levels of those scalar stresses (Johnson 1972, 1982). Incidentally, these stresses can occur at levels far lower than population pressure theories often estimate. Arguments proposing excessive carrying capacity as the stimulus for social stratification and centralization often fail to take this key point into consideration (Brush 1975; Dewar 1984; Fearnside 1990; Read and LeBlanc 2003; Zubrow 1971). Social ceremonial centers should then be expected to appear on the landscape well before aspiring elites or aggrandizers can begin to co-opt them. The stage can be set for them, but their presence is not a requirement. Following the ideas laid out above, a key factor manifest in the development of complexity and socially integrative facilities is the perceptions of the group as it is defined by their negotiation, competition and resistance to social pressures such as aggrandizement. It is their multi-generational, traditional ideas of space as special, sacred and ultimately integrative that arguably pre-date and spur on the existence of built environments (Bender 1985, 2002; Bernardini 2004, 2005; Low 1995).

Given the historicity of place, the positioning and modification of an area in question is not one where a group suddenly chooses to imbue it with some special ideological or functional meaning. Meaningful locations, "profound" spaces date to as far back as the

Mesolithic (Bender 1992, 2002; Bender, et al. 1997; Feld and Basso 2003; Saunders, et al. 2005). Following this, integrative locations are simply further consolidations and reifications of previous perceptions, of practice and social traditions imbued into the material and psychological landscape of the population, passed on—barring invasion or migration—through generations. Inhabitants or users of the site inherit a rich life and landscape history of practices and traditions that are subject to continual negotiation, from a physical and psychological perspective (Bender 1990, 2002; Crumley 2001; Lefebvre 1990; Rapoport 1990c, 1999). Importantly, this landscape affects the resident population, affecting the mindsets of the inhabitants, reflecting the perceived psychological/ideological and associated biological necessities of the people themselves. Thus, the built environment takes on the properties spoken of by Rapoport (1990b, 1990c) in the sense that the architectural context delineates space and directs meaning. But this idea of habitus (Bourdieu 1990), at once produced also produces, in many cases, the means of reproduction and social structure (Lefebvre 1990).

This is not a form of either cultural or biological/environmental determinism. Rather, the cultural residues that we as archaeologists register in our studies are a result of an intersection of various effects with mutually modifying variables. Biological needs interdigitate with those of the perceived needs of the population, which are real in every sense to the groups in question and affect more objective aspects of the overall social dynamic. Whether seen as an oscillation of social considerations in a larger corporate network social framework (Blanton, et al. 1996; Feinman, et al. 2000; Price and Feinman 2010) or simply as non-equilibrium dynamics, it is vital to acknowledge that these factors support and disable each other, depending on historical and societal contingencies (Ortner



1984, 2006). These contingencies are contextualized within the cultural perceptions, the definitions of individual, of group and of place as they relate to each other. This is how we can speak of social phenomena such as communities actively interacting with the landscape. The meanings behind a practice or tradition of a group are inseparable from its location, from its context; it stands as the definitive benchmark from which opinions and decisions are made. As such, the participation of people within a particular place provides the factors that are dealt within corporate/network dynamics. Thus, landscape and its influence is felt and is vital to the construction of a community and its attendant customs. Landscape is part of the social fabric that essentially must be rent apart by those that would establish new orders and new customs.

This human-land relationship, as mentioned, is often expressed using the actual land as a reference point. Alternatively, one can build up and manipulate the environment to augment the referential nature of that landscape. But ostensibly, existential meaning is derived from the combination of the landscape and humanity's perception of it, without which neither it nor its attendant manifestations such as architecture and material goods would hold any value. With regard to all but possibly the simplest social units at the beginning of humanity's time on the planet, the surrounding environmental and topographic context was always a forum or influential venue where individuals had to cooperate or compete with their fellow humans. Again, this was not a cooperation or dissent in a vacuum but group dynamics contained within an underlying structure of inherited concepts imbued in the land and structures that preceded them (Dillehay 1990). These traditions, these practices, inscribed on the landscape, function on a multiscale

level, where traditions/complexes have import on a millennial or generational level and are almost always a significantly influential variable.

The use of the above concepts in this thesis is less an analysis of anthropogenic modification of natural resources or biota but more an exploration of the other side of the environmental spectrum: the physical terrain and its integration with the overall social geography. Landscape in the General Valley is rugged and varies in short distances from small valleys, broad flood plains, mountain benches and plateaus, to river terraces. This diversity of the landscape had an indelible influence on the individuals that interacted within and with it. As such, we see early in the Formative development of the Upper General Valley, the Diquís subregion and Greater Chiriquí a plethora of architectural configurations of mounds and causeways, rectilinear and circular constructions, partially as a result of stylistic temporal changes but also, I argue, as a function of the diversity of social perceptions and interactions with the landscape. Consequently, the social memory of the landscape, both natural and built, influences the ways in which individuals engage with it. This is applicable to shrines, temples and most, if not all, constructions, whether on the scale of pyramid or circumcision hut (Turner 1969).

The mounds at El Cholo as well as other terrestrial modifications throughout the General Valley and the Chiriquí, it needs to be stressed, may not have been built for the needs of a few, but an extension of a previous cultural rule set, one which was variably reworked to the success of a few in some locales and maintained by a collection in others. As in some locations in other parts of the Americas, Formative period mounds dot the landscape in a seemingly heterogeneous manner, with graves intermittently and almost opportunistically placed within them at various times in its history (Drolet 1988; Hartman 1901;

Laurencich-Minelli and Minelli 1966, 1973). Although data on their formation is still undergoing, one alternative to elite or specialist centralization that should be considered is that these mounds may instead reflect the chronological development of the territorial limits and landscape claims of social groups.

Landscape, as an anchor to social memory and territorial marker, is key to how groups related meaning to themselves as individuals and as a group and not an inert point on the landscape. Mounds, especially in earlier time periods where aggrandizement may have been better checked, functioned as contractual spaces for the group and at least initially entailed multiple claims that were contested at times but mediated by a common practice. How one breached and compromised this common ground, within what could likely have been a more inclusive social landscape, constitutes the crux of understanding where Formative period groups fell within the corporate/network continuum.

Although scholars characterize the ICA as one of longstanding social and environmental stability, the diversity of the region presents an ideal setting for both biological and extra-biological niche construction that would have led to the development of distinct social territories (VanValkenburgh and Osborne 2012). With respect to some recent attempts to parse out territoriality on a broad scale (Sol Castillo 2013), the processes underlying the Formative social landscape remain undefined.

It would thus be sensible to consider a more rounded social environment that incorporates the above ideas, particularly in the ICA. Factors such as the abundance of diverse and redundant resource patches in a variety of niches consisting of root, grass and arboreal/silvicultural resources, alongside the more-often modeled agricultural products

of corn, suggests that in the ICA, aggrandizers are not going to break from tradition through simple resource surplus. Moreover, there is evidence of a relatively free availability of symbolic capital, even in the later periods of the ICA. The dubious restriction of costly goods, be they ceramics, jade-like blue stone or even gold, suggests that exotics are also not necessarily the prime impetus for established centralization of entrenched hierarchization (Briggs 1993; Graham 1990). Consequently, the possibility for a more diffuse and inclusive community-level form of control of valuables and inalienable items can be reasonably incorporated into this larger interpretive schema (Hoopes 1991).

Therefore, acknowledging a model with a community alternative proposes utilizing managerial concepts as one of several components within an overall model of emerging complexity. Rather than the default condition, it is one of a range of possible, proximate conditions. When applied to the ICA, I argue that it is more effective in articulating theory to material record. It accomplishes this by implementing new variables into the existing explanatory model where before, only a central axial variable—the elite, emergent or otherwise—was posited among previously undefined archaeological noise. Instead of noise, we see the process of an evolving community in constant engagement with its surrounding, and the meaning the engagement embodies (Bender 1990, 2002; Bender, et al. 1997; Low 1995, 1996).

The probability for high degrees of niche construction in such rich environments as Costa Rica warrants a study into the variability of material and ideological correlates underlying these constructions. The articulation of humans with their environment, often called human-landscape interaction (Anschuetz, et al. 2001; Knapp and Ashmore 1999), details

the human biological and psychological relation to the physical environment as an arguably vital factor fundamental to the formation of social identity and human survival (Balée and Erickson 2006; Basso 1996a, 1996b; Bender 2002). The diversity of the ICA is arguably more extreme in the Upper General Valley, where high topographic relief and abandoned alluvial terraces give way to floodplain, magnified by steeped coastal mountains which descend into the Diquís Delta swamplands and mangrove zones (Coates 1999). Understanding the manner in which Formative groups coped and thrived in this area is fundamental to explaining how they resembled or differed not only from the later Chiriquí phase social structures they supposedly evolved into, but from adjacent territories within the bounds of the Diquís subregion and Greater Chiriquí, and I suggest that the above expanded theory may help refine that mode of enquiry.

## **Chapter 5 : MODEL**

### **Analyzing Complexity Using a GIS Approach**

As is evident in Chapter 4, issues of equifinality have the potential to hinder interpretation of middle-range sites. Likewise, the line between network modes of social activity and corporate or heterarchical modes can be equally ambiguous (Blanton, et al. 1996). Various researchers propose that differences in social configuration might be discernible through consolidation or dispersion of various artifact classes at different sites (Blinman, et al. 1989; Blitz 1993; DeMarrais, et al. 1996; Feinman 1991, 1999; Nassaney and Sassaman 1995; Nassaney 1992; Pauketat and Emerson 1999; Pauketat, et al. 2002). Aside from intra-settlement house-size hierarchies (Blanton 1994; Blanton, et al. 1996; Kowalewski, et al. 1992; Santley 1983), factors such as intra-site organization and associated artifact distributions have often been used to argue for social hierarchy or a lack thereof. Saxe (1970) and Binford (1971), among others (Peebles and Kus 1977), explored the issue of rank as it pertained to a funerary setting. In these cases, individual grave construction and differential grave goods offered support to hierarchical and centralized social political models. Along with others in the ICA, I used these basic settlement and habitation/occupational configurations to construct a basic template to identify patterning at El Cholo.

Similar to early Formative settlements throughout parts of Mesoamerica and Northern South America, the Upper General Valley appears to display a centralized pattern of small habitation surrounding architectural centers that provisionally suggest community-wide (that is, beyond one or two hamlets) centralization of socio-ceremonial behavior (Drolet 1984b). The initial impressions were that the sites are centers of political control.

Since these sites show relatively high levels of artifacts and at least some instances of burial, the level of internal differentiation in artifact classes, grave goods and location of said variables can be a viable means of delineating the above ideas of corporate/network centralized or acephalous group dynamics. This has been presented as such in earlier work; albeit with a relatively dispersed data set, the general pattern is very weak (e.g. Drolet 1992; Stirling 1964; Stirling and Pugh 1964).

That said, select variables such as the distribution of mortuary features, lithic raw material, artifact type, form and dimension might be strongly correlated with differentiated spatial organization at Formative period sites. This correlation may favor clustered patterning, suggesting exclusive use of space or a more diffuse layout. There have been examples dating to the Chiriquí that suggest differential access to goods. Sites such as Murcielago and the Rivas-Reina complex have both demonstrated a spatially significant organization of access or placement of goods. In the former case, this is generally understood as differences in habitation size and domestic raw material quality (Drolet 1988), whereas at Rivas-Reina this is marked roughly along a vertical axis, with abundance of high cost goods concentrated for the most part in hilltop mortuary contexts instead of lower, terrace-level village funeral contexts (Frost 2002, 2009; Quilter 2004; Quilter and Vargas 1995; Quilter and Frost 2007). Several examples attest to a general distinction of space at sites with an abundance of Chiriquí material, with some examples suggesting that this extended into earlier Aguas Buenas contexts (Drolet 1992; Palumbo, et al. 2013). This spatial relationship, along with the presence of specialized lithic reduction and fine pottery throughout mound structures, is fundamental to the assertion that these sites were forums for emergent or established elite socio-ceremonial behavior

(Drolet 1988, 1992; Snarskis 1984). Explicit delineations of the trajectory of this emergent complexity and identifications of emergent specialist, aggrandizing persons, entrenched or otherwise, have never been exhaustively explored. Still under evaluation are definitions of who was interacting at Upper General, Chiriquí and ICA sites, with attempts to determine whether power dynamics were fixed or fluid and whether mounds reflect such social forces.

To assess these problematic issues I employ a spatial framework, using spatial and statistical measures to get at site use and potentially, social function. In doing so through a quantitative GIS approach, I can evaluate whether concentrations of material reflect or fail to reflect general patterns proposed for surrounding sites, to further evaluate whether the assumption of settlement hierarchy represents a regional trend. These simple tests assess whether factors such as relative positions of architectural features, potential mortuary features and artifact distributions reflect any outstanding concentrations relative to the differentiated access of goods proposed for other comparable sites (Table F 1). Analysis of artifacts such as utilitarian and decorated ceramics, groundstone implements and exotic, high cost goods in relation to the architectural layout of sites such as El Cholo, placed within a geo-statistical base-map, can demonstrate similar patterns within the site as well as between it and contemporaneous sites. If the sites in question are to be understood as higher status residences, following assumptions of centralized and hierarchical dynamics, one would expect to see high production cost items, generally understood as high status goods, to be found around and within mortuary contexts and features adjacent to habitation areas, if not within specific funerary mounds (Laurencich de Minelli and Minelli 1973; Lothrop 1919, 1963; Stone 1943).



Special care needs to be taken, however, when parsing differences in mortuary complexes, as it has been demonstrated that later period Chiriquí sites reflect eclectic occupational strategies, with habitational sites and mortuary zones sometimes separated into distinct sectors in some instances and other, less clear contexts suggesting single use mortuary mounds (Hoopes 1991, 2005; Quilter 2004). Temporal control is still lacking for many examples, but some cases are clear. For example, at Rivas-Reina, lower tier funerary placements were often found within the habitations, while upper tier placements were located above at the hilltop Reina complex (Frost 2009). Thus, some mixing of domestic and spatially distinct mortuary placement occurred, which may be reflective of such sites being periodic congregational residences rather than consistently occupied population-dense villages. Such mixing of strategies notwithstanding, a general separation of mortuary placement is evident, with clan and status divisions manifesting themselves along at least incipient vertical lines, at least for the Chiriquí phase circa AD 1000 to 1300. But before this time divisions are not clearly demarcated, and it appears that aggregation stays cohesive at the mortuary level with groups constrained to the limits of one mortuary complex without gross spatial distinctions (Drolet 1988). Interacting communities of the Formative period, rather than congregating at ceremonial villages and ascending/passing a threshold to another nearby location, may have conducted joint activities, mortuary and otherwise, at one locale. The evidence attesting to this general pattern can be found in the hilltop and terrace locations of presumed Aguas Buenas cemeteries (Drolet 1984a, 1988, 1992; Kantner 1988), which present a central location for the surrounding area, but as of yet show no adjoining or adjacent preparatory component as those posited for later sites such as Rivas. This separation of functions in

space is tentative, but does seem to be at least a heuristic marker between Formative and Chiriquí components.

It may be that Aguas Buenas cemeteries were uniquely built for a subset of the general surrounding community. However, there is no pervasive evidence to support this. As populations are estimated to have been relatively dispersed and low during the Formative, the location and dispersion of Aguas Buenas mound sites very likely represent cemeteries containing a small combination of several possibly semi-sedentary groups (Hoopes 1991, 1996). The relative lack of substantial permanent Aguas Buenas habitation sites with interments attests to this. Previous researchers, when identifying habitation deposits, have been hard pressed to identify them in no more than two forms: isolated refuse associated with ephemeral hamlets or concentrations associated with mound contexts (Drolet 1983b, 1984a, 1988, 1992; Drolet and Markens 1981). Thus, following the theoretical lines mentioned earlier, there is a likelihood that Formative populations were gathering together at collectively recognizable points on the landscape to bury their dead, both as socially coherent points joining separate groups within an area and as a means to delineate territory. This is a pattern that may be a holdover from earlier semi-nomadic archaic strategies, as it is logical to infer that mutually beneficial exchanges would have occurred at these overlapping territorial points over time. These potential social dynamics parallel the systems posed for Archaic and Formative societies of the American Bottom, which had similar distributions of resources and population. Indeed, as mentioned, mounds also appear in that region during the Archaic, delineating territories and facilitating inter-community identity and communication/exchange of material and

information resources. Therefore, mounds found in the Upper General and possibly more southern latitudes may reflect a complete areal population rather than one family or clan.

Operationalizing this analysis involves parsing out artifact variability and distinguishing different classes of occupation based on domestic and non-domestic refuse as well as any potential mortuary features encountered in the excavations. This is carried out using a comparative density analysis of artifact classes and its association with architectural features, which in order to be consistent with past research will use previously utilized artifact classes (Table F 1). The basic frequency of one artifact variable over another may be subject to spatial autocorrelation, randomly distributed or contingent on individual placement decisions. This latter pattern may hold some potential for delineating quality of resource use through space and thus specialized zones (Binford 1982; Kent 1990; Linares 1980b; Roe and Siegel 1982; Siegel and Roe 1986). In any case, the general patterns can be analyzed using spatial interpolation to generate a predictive surface indicating the probable distribution of artifacts in a collected sample Universe (Baron and Aldstadt 2002; Bevan and Conolly 2009; Craig, et al. 2006; Evans, et al. 2006; Fargher 2009; Lloyd and Atkinson 2004; Logan and Hill 2000; Wheatley and Wheatley 2002). While the general recording methodology for the project amounted to nominal counts of instances, these surfaces are calculated using number of artifact class per square meter. Following Tobler's law of spatial autocorrelation, this allows for continuous surfaces to be generated. However, in order to shore up the spatial surfaces, Chi-square statistics of proportions and correspondence analyses are also calculated, thereby allowing for cross-validation and inspection of residuals that can explain where any significant differences

may be located. Following the general observations made by investigators in southern Costa Rica, one can present a set of hypotheses of no difference as such:

- **Ho: Intra-site concentrations of artifacts should be randomly distributed throughout sampled operations of the case site El Cholo.**

Where the site would likely suggest a random accumulation of non-specific refuse, likely associated with a village site and domestic use.

- **Ha: Intra-site concentrations of artifacts are non-random.**

This simple formulation takes into account the likelihood that artifacts will be auto-correlated to the origin points, i.e., the mounds upon which they are located. However, the variation between the mounds could suggest a variety of outcomes, and it is here that interpolation and frequency analysis may parse out variability.

- **Ha1: Intra-site concentrations of artifacts are non-random with select concentrations of artifacts associated with high rank or status concentrating in a non-random manner.**
- **Ha2: Intra-site concentrations are non-random with select concentrations of domestic artifacts clustering in a non-random manner.**
- **Ha3: Intra-site concentrations are non-random with select concentrations of production material clustering in a non-random manner.**

The above measures are necessarily simple and should help to determine the various spatial arrangements of artifact and feature classes identified at El Cholo. The above hypotheses demonstrate the range of occupational configurations argued for in the Upper General Valley Formative Period. However, comparison of site data will have to be qualitatively compared to estimates acquired from previous work. This is largely due to

the lack of available quantitative data. Only estimates are available for contemporary sites. However, they are still comparable if only non-parametrically. In order to achieve this I will compare internal site interpretations proposed by past researchers for the Upper General. This should give us a sample of subregional variation. Assuming that artifact densities exhibit distinctions that can be linked to distinct site classes (Hodder and Orton 1976), differences should be observable at least on a visual level. This analytical framework should begin to distinguish significantly different units among the variability in site types, unless of course they are random. Thus, the geostatistics employed here along with more conventional statistical tests should start to facilitate the identification of site complexity through evaluation of the differences between the spatial attributes of artifacts and feature classes (Conolly and Lake 2006; Crawley 2002, 2005) at the case site and comparison of its results to other excavation results in the area. Following this basic intra-site analysis, a simple inter-site regional hypotheses can be stated:

- **Ho: There is no difference in mound site type and function between the case study and contemporaneous sites.**
- **Ha: There is a significant difference in site type and function.**

If we falsify the above null hypotheses we may be able to obtain a clearer view into whether social patterns for the region are homogenous or heterogeneous. Significant spatial variation among and within sites will suggest that further analysis of Formative period settlement patterning is required, and that alternative hypotheses regarding the source of the variation is viable. Alternatives to the current “special residence” settlement pattern may well then follow structures laid out in Chapter 4, where community-oriented

behavior, or cohesive community-wide activities dictated mound construction, likely through mass ritual interaction.

Owing to the overlap in some Formative sites with later period occupation, it will be vital to compare results from the spatial analysis with later Chiriquí phase ceremonial sites.

This may help ascertain some of the processes and signature behind the shift in populations from upland to alluvial contexts to see if occupational patterns within sites show a significant change in morphology. While refining the chronological control between these two periods, comparisons with later material culture will be helpful by establishing an additional baseline for comparison. Any demarcations of rank similar in structure (but not style) to later periods would go far to support special residence in the Formative, whereas differences in use would increase the validity of a hypothesis of no difference for the Formative. This depends on the scale at which the test is used, of course. But the degree to which later Chiriquí settlement is differentiated varies given the study (Drolet 1989, 1992; Quilter 2004; Quilter and Vargas 1995).

Therefore, a basic social model can be rudimentarily tested through spatial analysis, incorporating the spatial and temporal data retrieved from the case study and contemporaneous sites to see if a more heterogeneous social process may be present and if it is likely that alternative forms of social configurations were at play. It would represent a first foray into seeing whether diffuse and relatively indistinguishable use of sites alternated with exclusive access or if a homogenous social pattern, whether strictly elite-oriented or community-oriented, was evident. Importantly, if these patterns are compared to the greater Chiriquí region, the results may support the possible alternative

hypothesis that heterogeneous processes are occurring at the regional scale, functioning within the aforementioned stable and large-scale middle-range social context.

## **Chapter 6 : SUMMARY OF EXCAVATIONS AND PRELIMINARY ANALYSES AT EL CHOLO**

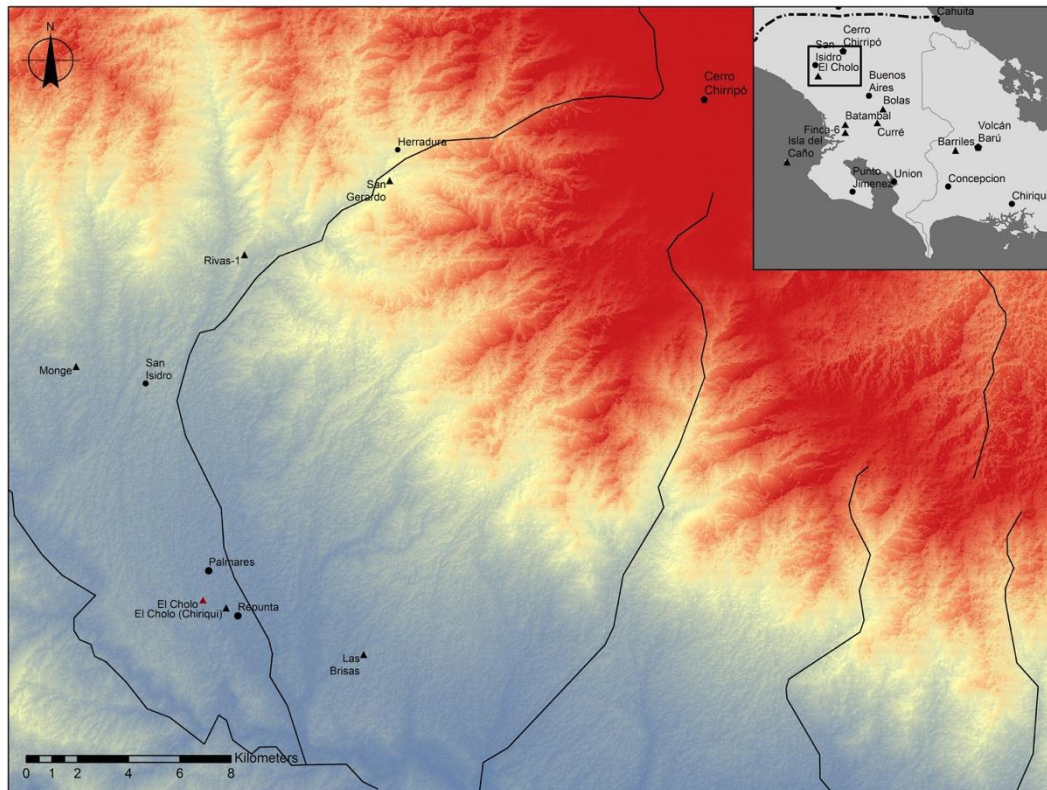
### **Site Layout and General Description**

The architectural core of El Cholo is located on a tertiary alluvial terrace immediately flanked to the west by an unnamed seasonal *quebrada*. It resides on farmland owned by the Fonseca family, who have cultivated a variety of crops ranging from plantains and cacao to coffee since the early 1940s. At the time of the investigation, the southern half of the site was planted in coffee while the northern half was planted in a mix of pineapple, chilies and plantains. Approximately 1.8 kilometers downslope and to the east is the General River (Figure 2.2) which joins the Pacuar and Peñas Blancas rivers to become the Térraba River, eventually emptying into the mangrove swamps and riverine estuaries of the Diquís Delta (Bergoeing 1998).

The site consists of modestly elevated and connected platform mounds that were initially thought to be ovoid in nature (Corrales 1996). However, results from the investigation as well as later salvage projects (Badilla 2007) showed that the majority of the site is rectilinear. Only one exception—a circular mortuary structure—was noted in both my and Badilla's investigations. The architectural core is approximately 1 ha in size (Corrales 1996), and a peripheral area has also been estimated in part by rescue excavations carried at the southern extent of the site and post excavation surface survey at anywhere from 5 to 25 ha (Corrales 1996; Sol Castillo 2013). Upon review of the earlier salvage operation (Corrales 2000) in the southern, non-architectural sector of El Cholo, it is more likely that this area comprised a distinct occupational component (Figure 6.1). This is supported by the contrast in Chiriquí material to the abundance of surface and subsurface material found at the architectural core of El Cholo that almost exclusively



dates to the Formative Aguas Buenas period. Overall site size therefore remains ambiguous, since the funerary features located by Corrales likely suggests a late-period addition onto an earlier phenomenon rather than a continuation of an earlier component. This has been noted in other parts of the Upper General Valley (Frost 2009) and is discussed in more detail later in this dissertation.



**Figure 6.1: Location of the Formative architectural core of El Cholo and the Chiriquí cemetery to the southeast with contemporary sites in the Upper General Valley**

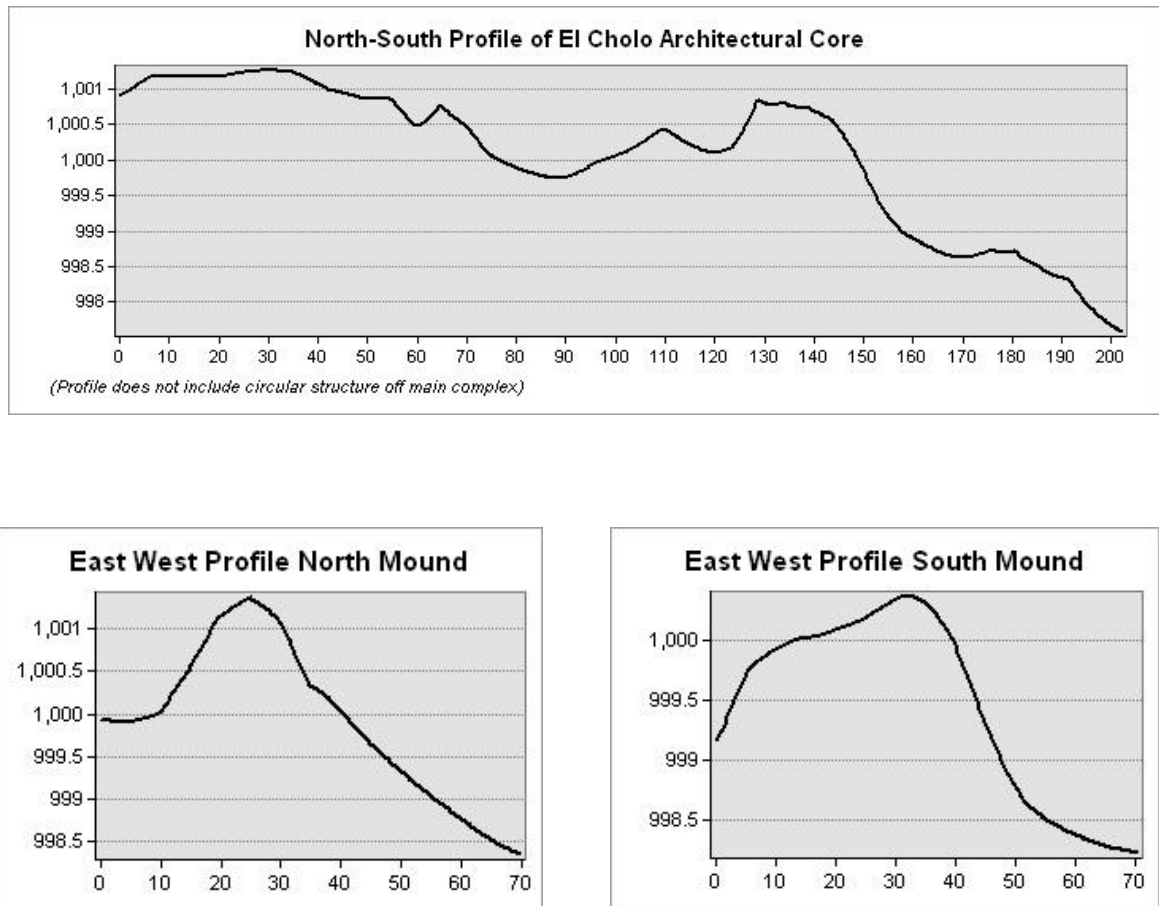
Architectural features were constructed from smooth, ovoid river cobbles, likely ported from the Rio General and arranged in a manner forming contiguous pavements. These pavements formed the floors for mound tops and were also initially thought to form causeways linking mounds into a serpentine pattern (Corrales 1996). A review of the sections excavated by the author and later salvage archaeologists indicates that these contiguous pavements can be more accurately described as clusters of independent

alignments (Badilla 2007, 2009) and not one causeway (Figure 6.2). Whether these groupings were mortuary markers or actual graves remains inconclusive in the salvage report. However, it is clear that these architectural elements ultimately formed a link to the taller mounds. They range from 5 meters to nearly 20 in overall length and width, thus giving an overall appearance of a causeway.

Dimensions for the mounds are somewhat ambiguous owing in part to their initial interpretation as circular in nature. Original diameter measurements taken in previous sketches have been revised as the rectilinear nature of the structures became apparent. Instead of large 20m diameter structures dominating the mound complex, a collection of rectilinear alignments and multi-course masonry structures defined the interior organization of the mounds, with the dimensions measured by this investigation only reflecting the partially defined boundaries between the highest mound elevation and adjoining rectilinear structures. These measurements reflect the general dimensions of these collections of structures for the purposes of estimating mound layout. They do not effectively describe any absolute measurement of room or structure layout beyond what was excavated. That degree of measurement was necessarily limited to immediately uncovered areas.



In general, mound heights at El Cholo exceeded no more than 1m in elevation. Two mound areas did manage to reach an elevation of approximately 2m (Figure 6.3). The location of these high points provided the investigation with clear reference points, dividing the site into northern and southern zones, aided by the lower area between north and south mounds that exaggerated their elevations. The implications of such a physical layout are discussed later in this thesis.



**Figure 6.3: North-South and East-West profile graphs of El Cholo (Elevations are based off arbitrary 1000 point)**

Unlike many sites throughout Costa Rica that have been extensively looted (Frost 2002; Kantner 2004); the architectural core of El Cholo was relatively undisturbed. This state of

preservation is attributable to several factors, some of which led to initial insights as to the nature of the site itself. Informal interviews with landowners informed previous investigators and me (Corrales 1996) that El Cholo was partly looted, as evident from the looter pits identified during this study. However, the notable absence of gold led local *huaqueros* to conclude that El Cholo was worthless, especially when other sites in the area were known to yield the prized metal. El Cholo therefore displayed characteristics that saved it from extensive looting such as those seen at the nearby Panteón de La Reina (Frost 2009; Hoopes and Fonseca 2003; Quilter 2004; Quilter and Frost 2007; Quilter and Hoopes 2003). This also suggested that El Cholo originated during the Formative period. Finds by the owner of the property on which El Cholo sits, such as greenstone or jade-like pendants (Figure 6.4) corroborated the initial impression (Corrales 1996).



Figure 6.4: Jade-like pendants found by owner at El Cholo (Photo: Corrales 1996)

Further inquiry into past modern-era activity yielded information of several instances of site disturbance prior to the partial destruction of the site. Agricultural activity has

occurred at the property since its purchase in the late 1930s. This was obvious as stunted plantains and a variety of other crops dotted the northern half of the site, and coffee covered distinct sectors. The northernmost section of the site was truncated by the owner's residence (Figure 6.2). I observed cobblestones as part of the interior driveway of the house compound, and residents reported intermittent finds during the construction of the buildings. Moreover, further accounts tell of people from the nearby town of Palmares passing by the site to mine its cobble pavements for building materials used in the construction of several town features, most notably its church. The degree to which this stripping occurred was never fully divulged, but it appears that what was taken off was very likely the cobble facing of the portion of the site truncated by the construction of the owner's residence. Vandalism notwithstanding, this study managed to identify structural cobble masonry that remained relatively undisturbed. Combined with the consistent and massive structure of the interior mound fill, it appears that damage to El Cholo was largely confined to the extreme northern half.

While the hard clay soil encountered at the site made for poor plantain crops, it aided in identifying post-occupational, modern impact. Changes in soil composition yielded evidence of several looter's pits at El Cholo. These did not include superficial scraping/stripping of surface features but those post-depositional disturbances constituting tunneling and the significant alteration of the subsurface. Overall, El Cholo exhibited an intact subsurface context for an area that is known to be plagued by looting. Initially, efforts by investigators from the Nacional University (UNA) and the Museo Nacional de Costa Rica (MNCR) persuaded the owners of El Cholo to maintain the site. Even so, in 2007 the site ultimately suffered severe impacts from earth-moving

machinery due to an attempt by the owner to develop the property for modern subdivisions (Badilla 2007, 2009; Herrera 2007).

### **Initial Depositional Setting**

Based on the samples obtained from the various operation units within the site, as well as roadcut profiles immediately adjacent to it (Figure 6.5), El Cholo generally appears to be geomorphologically homogenous throughout its architectural core, with a few areas suggesting different soil formation processes.

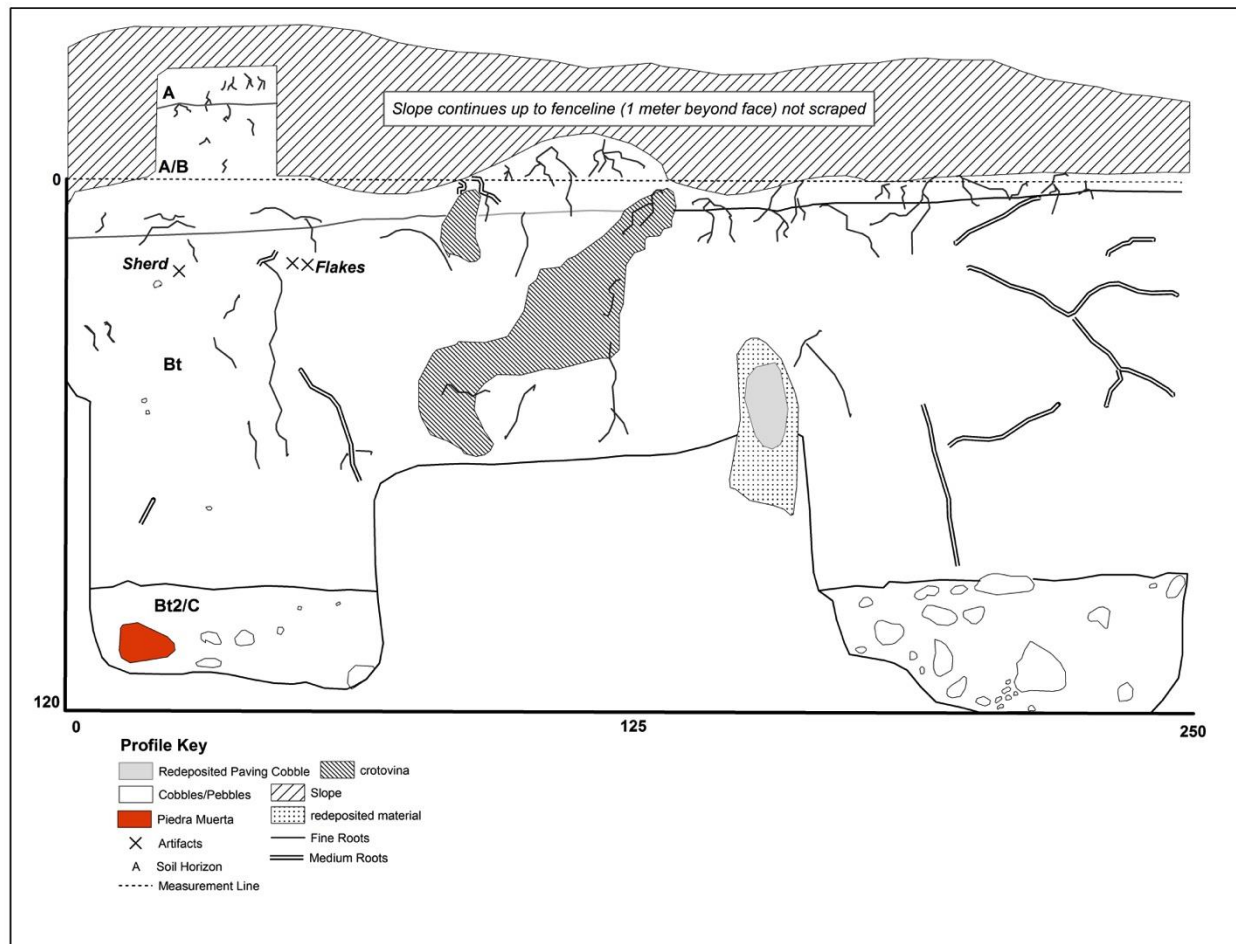


Figure 6.5: Roadcut profile southeast sector of El Cholo (996.6 N/1016.37 E). Units are in centimeters





A clean profile of a roadcut created by the adjacent Inter-American highway provided an opportunity to examine the terrace geomorphology. While it did not capture any mound stratigraphy, it provided a much-needed example of natural soil formation processes upon which the mounds of El Cholo were presumably integrated with and built upon. The profile matched a general Orange-Brown (Munsell color code) color, with massive argillic structure characteristic of abandoned alluvial terraces in the area and sub-tropical environments (Bergoeing 1998). Sediments were found to be in keeping with a generally lateritic clay-rich (ignimbrites and kaolinites) sediment structure associated with abundant rainfall and aggrading sediment accumulation of abandoned alluvial terraces in the region. However, there are key differences in the composition of the site stratigraphy that suggest various alternatives for site depositional and, by extension, occupational history. First and foremost is the existence of thermal activity and ubiquitous carbon deposition at various sectors throughout the site as well as down along its stratigraphy. While some of these thermal and carbon deposits were initially seen as products of coffee and other agricultural processes that utilized burning, it became increasingly clear through the discovery of features close to the surface (<20 cmbsd) and concentrations occurring at lower depths that these modern disturbances or natural processes were in fact pre-Columbian in origin (Figure 6.6).



**Figure 6.6: Profiles of Operations D and F showing organic levels views west and east respectively**

Most notable of these sedimentary characteristics was the ubiquitous presence of a dark brown to black layer, initially understood to be an organic rich humic horizon or alluvial depositional event. Noted throughout all but one operation at El Cholo, this layer, occurring consistently at approximately 60 to 90 cmbsd, holds several implications. Initially understood as flooding or pedogenesis by some archaeologists, the composition and level of deposition suggested otherwise. The high organic content, along with carbon content, suggested the layer instead was a product of intensive occupation, or as some suggest (Sheets, et al. 1991; Sheets and McKee 1994; Vazquez Leiva 2014; Vazquez Leiva and Chapdelaine 2008), the result of floor or site-wide preparation. Some evidence from Caribbean lowlands sites such as Las Mercedes suggest similar patterns, such as: 1) continuous but intensive occupation with a waning intensity in the latter stages of the occupational history or 2) early occupation followed by site-wide clearing and construction of the site.

The discovery of rectilinear architecture, likely prehispanic thermal activity as well as possibly distinct chronological components at El Cholo, suggested that a more intensive

field methodology needed to be implemented. Below follows a brief summary of the methods that were used and the modified field strategy from the initial pilot to final excavations.

### **Field Methods: Site Assessment and Field Strategy**

Various field methods were used over the course of four seasons to capture the data used in this study: topographic mapping, pilot excavation, pedestrian survey and surface collection, horizontal and vertical excavation and profiling. I conducted the first three activities during the summers of 2003 to 2005, culminating in investigations during the spring and summer seasons of 2007.

During the summers of 2003 and 2004, I completed a topographic mapping of El Cholo. One hundred percent of the site's architectural core was mapped during this time; grid stakes were placed as well rebar datums and sub-datums in anticipation of multi-season work. A primary datum point was established at 09 18' 44.97" N by 083 39' 50.01" W (Lambert coordinates N500136.74/E362313.28). The resulting map provided a five-meter resolution grid system and spatial baseline for all recorded material that was then entered into a computerized geographic information system (GIS) for analysis.



**Figure 6.7: Oblique view west of pilot test Unit N1034/E993 showing organic horizon and subsurface features**

The winter 2005 field season saw the completion of a pilot study composed of two 1x8 units subdivided into 4 1x2 meter excavation units within the central section of Sitio SJ-59-Ech. Ceramic data obtained from these test units supported previous evaluations (Corrales 1996) that suggested the architectural core largely consisted of Quebradas and Aguas Buenas material. The study also confirmed the existence of low densities of later Chiriquí phase ceramics as well, a pattern that increased further south of the architectural center of the site (Corrales 2000; Herrera 2005).

The 2005 pilot study also yielded subsurface deposits within the mounds and deposits up to one meter in depth located between mounds (Figure 6.7). Since the working assumption was that El Cholo was a habitational structure, units were placed between mounds with the expectation that there would be accumulations in these areas due to systematic site cleaning, a pattern proposed for southern parts of the Chiriquí (Dahlin 1980; Hayden 2005); Linares and Ranere 1980; Siegel and Roe 1986; Spang 1976; Spang and Rosenthal 1980).

The apparent lack of architectural or mortuary features encountered at the time, coupled with the abundance of ceramic and lithic material, initially gave no reason to disagree with the aforementioned suggestion that El Cholo was a house mound system with intramural midden deposits. In fact, the discovery of the distal end of a greenstone pendant in what was then seen as a non-mortuary context suggested some level of artifact curation or craft-production (Figure 6.4).

As such, a stratified proportional sampling design was chosen in order to efficiently capture mound and non-mound surface contexts with the expectation that occupational house floors would be identifiable (Allison 1999; Moore and Gasco 2008; Orton 2000; Wendt 2005). Having noted similar elevations peaks at mounded areas in two separate areas of the site, research design was centered over these two sectors in the hopes that it would be able to capture equal proportions of each topographic half of the site.



**Figure 6.8: Jade-like (likely serpentine) ground axe fragment found during pilot excavations**

One of the first actions carried out was systematic surface collection of the site architectural core in order to assess previous walkovers, surface indications from the 2005 pilot study, and the proposed locations for excavation units. Previous informal

walkovers (Corrales 1996) had collected artifacts at a 20m-unit scale and succeeded in generating a preliminary sketch map of El Cholo. The 2007 surface collection consisted of running 50-meter tapes along the north south lines of the previously established grid system and collecting material in alternating 5x5 meter square units. While surface collection is vital and informative, limitations of surface cover and post-abandonment environmental impacts underscored well-documented problems on how survey can provide only so much information on time depth or population (Kowalewski, et al. 1983; Santley 1983). To counter these limitations, 7 4x4-meter excavation units were mapped out, spanning mound surfaces and intramural areas throughout the site. These 4x4 units were designated Operations A through G. These 4x4 meter units were chosen in order to accommodate the needs of a systematic but exploratory investigation, straddling the middle ground between horizontal exposures and vertical excavations that would allow for detailed profiles, yielding the most information within permit, budgetary and time constraints yet minimizing impact for later investigation.

As already mentioned, approximately 10% of the mounds at El Cholo were planted in coffee. The rest of the site was being cultivated with a variety of crops throughout the various field seasons, ranging from plantain to chili pepper and pineapple. Fortunately, the dispersed nature of the crops immediately around the mounds due to poor growing conditions allowed for us to place units between clusters of plants as well as within stands of poorly producing coffee. Spaced out throughout the site core in a stratified proportional design, these units were ample enough for assessing fundamental spatial

relationships between architectural features and artifact patterning (Blanton 1993; Flannery 1976, 2002; McKee 2000).

Each operation was initially excavated in 10-centimeter arbitrary levels owing to the massive nature of previously recorded levels. Aside from the features identified, in which we excavated in cultural levels, there were only occasional exceptions to this method.

The project employed a mixed excavation strategy comprised of shovel skimming and hand trowelling in order to maximize efficiency, a method proven productive in cultural resource contexts in the United States. Excavators were told to skim with an eye for any significant features. Owing to the depth and unknown nature of the natural/cultural levels, I chose to continue excavating downwards in this manner to sterile soil unless otherwise suggested. As reliable Formative period chronological stratigraphy is still under development in southern Costa Rica (Baudez, et al. 1993, 1996; Corrales 1985, 1988, 2000; Corrales Ulloa and Badilla Cambronero 2011), the resulting units were excavated in the expectation that we would be able to capture vertical stratigraphy for the site. Whereas some areas of each operation demanded trowel work and horizontal expansion, excavations of many operations resulted in a stair step structure with deep columns available for recording and analysis.

Sediment was screened through ¼ inch screens. Soil samples were obtained at select occasions when the expectation of retrieving organic (macrobotanical, pollen or mortuary) material for flotation appeared high. Previous work in the immediate area has yielded very little (Cooke 2005; Hoopes 2005), and my 2005 pilot study at the site



yielded only one questionable seed (Herrera 2005). Nonetheless, more than twenty 20 oz. bags of sediment were collected for analysis.

With regards to the potential for mortuary components and other features, while it was suggested that El Cholo represented a residential complex (Corrales pers.comm) and although osteological remains are rarely preserved in this region, previous work in the area did suggest that there might be mortuary features (Corrales 2000; Drolet 1984a, 1988, 1992). Moreover, discussions with the landowners in the summer of 2004 and winter of 2005 also supported the possibility of intact burials. Owing to its great potential for gaining insight into ranking and status and evaluating the special residence model, any alignments encountered during the course of the project were flagged for evaluation. The main difficulty would be whether features were actually mortuary or architectural in nature and Formative in age. Previous work in the Rivas area northeast of El Cholo suggested that this ambiguity might exist (Quilter 2004; Quilter and Frost 2007b). Therefore, shovel excavations as described above were halted and replaced by hand trowelling following natural and cultural levels when any potential features were identified.

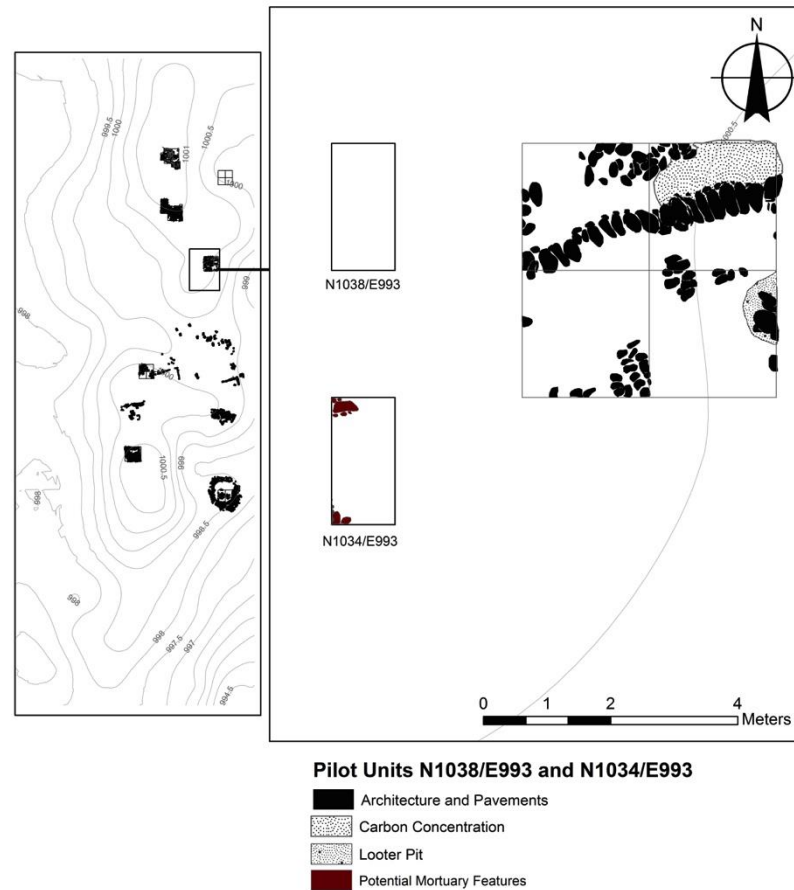
During the primary stages of the project, these potentially confounding factors made themselves apparent when dealing with features. Owing to the paucity of knowledge of the Pre-Columbian time period in this area, potential mortuary features were at times identified to be stand-alone non-mortuary stone features. These stone configurations, determined not to be ecofacts or natural features, were often located adjacent to more obvious mortuary features. At other times they were also set within clusters of architecture for as-of-yet unknown reasons. This interesting and puzzling phenomenon of

what is ostensibly a sharing of morphological attributes required me to make key choices as to which features would be isolated as mortuary, architectural, relict architectural or isolated features. As will be described below in more detail, some features that upon initial identification appeared to be only isolated stone features or pavements turned out to be later additions to earlier mortuary features uncovered at significant depth. As such, shovel-skimming methods were continued through what were seen as massive deposits below said features until other indications suggested suspension of such actions. Below, I summarize the salient findings for the 2005 pilot units and detail 2007 surface collections and excavations, with description of outstanding features.

### **Summary of Pilot Excavations**

Preliminary walkovers of the architectural core conducted by Corrales strongly suggested a Formative period occupation for El Cholo, going back at least as far as Aguas Buenas. Efforts in 2005 focused on ascertaining the nature of subsurface deposits to see if they corroborated earlier assessments. Two 1x8 meter units were placed in the northern and southern halves of the site (Figure 6.9). These units were labeled Trench 1, located in the northern half of the site, and Trench 2 located in the southern half. Both trenches were subdivided into alternating 1x2 meter units. The northern unit was placed within an area of the site populated with dispersed plantain plants in an area of visible elevation change with the expectation of collecting potential intramural refuse and activity areas. Located within the southern sector of the site and densely planted in coffee, Trench 2 followed the same layout as Trench 1, measuring 1x8 and subdivided into two alternating 1x2 meter units. The trench bisected the western edge of the tallest mound in the complex dropping

down slope with the aim of capturing mound stratigraphy as well as any refuse accumulation deposited on the mound slopes from the top of the structure (Figure 6.16).

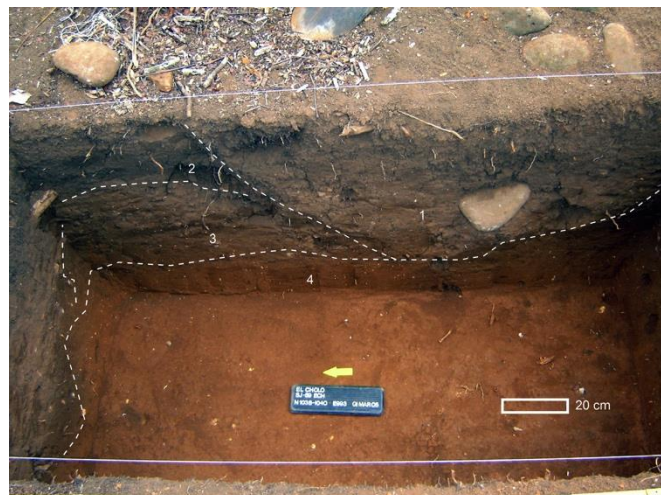


**Figure 6.9. Location of 2005 Trench 1 pilot excavations units showing subsurface features. Operation C is also shown**

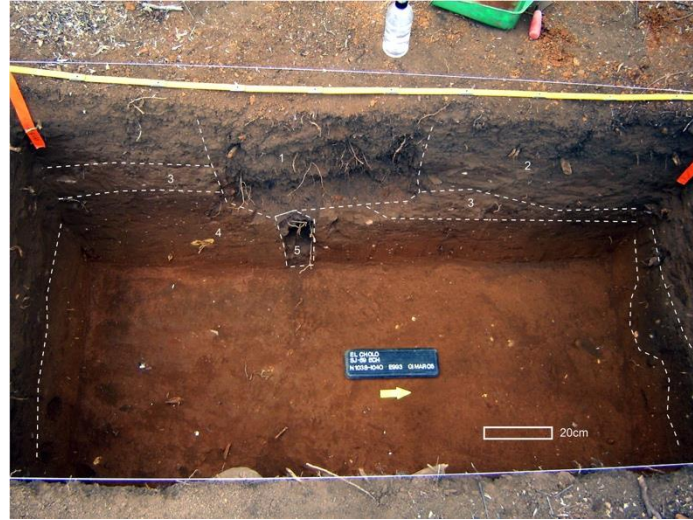
### **Trench 1 Unit N1038/E993**

Sediments for this unit were characterized by dark reddish brown (Munsell 5YR 2.5/2) sediment, grading to dark brown (7.5 YR 3/1) at around 20cm. This pattern of dark organic soil continued from levels 4 to 5 with soil consistently dark brown/brown 5YR 3/3 to 7.5 YR 3/3. At levels 6 and 7, a change was apparent in the northern half of the unit with reddish brown-to-brown colored soils (10YR 4/3; 5YR 4/6). Soil color

registered a slight change into reddish brown, which remained consistent in this unit until level 10, where the soil resembled silty yellowish red compact clay (5YR 5/8). The unit also revealed mottling and carbon flecking suggestive of some bioturbation (Figure 6.10). Evidence of filled pocket gopher (*Orthogeomys cavator*) tunnels as well as insect casts indicated that this bioturbation likely occurred during the prehispanic period, and it is possible that it may have mixed some of the levels connected by these tunnels. As excavations proceeded, it became apparent that modern looting likely produced the dark sediments as the form of a pit became visible on both west and eastern walls of the unit (Figure 6.10).



**Figure 6.10:** Oblique view of east wall of Unit N1038/E993 showing 1. Possible looter pit. 2. Likely Modern carbon concentration. 3. Remains of precontact deposits. 4. Intact precontact deposits



**Figure 6.11: Oblique view west of Unit 1038/993 showing 1 and 2. Root or looting disturbance. 3 and 4. Intact deposits. 5. Rodent burrow**

Modern looting impacts notwithstanding, the apparent mix of organics within a clay matrix at the deeper levels suggested movement of clay fill—possibly from floor contexts—from the adjacent mound surface and mixing with organics from human activity. The relative abundance of ceramic and lithic material, along with the unit location, initially suggested a process of artifact accumulation brought on by a combination of anthropogenic and natural erosional processes; and artifact sizes were on the whole smaller than 3cm, suggesting repeated impact in this intramural area.

The dark soil composition and associated artifact frequencies suggested accumulated organic deposition over time; and the manner in which the artifacts accumulated was one of the first instances indicating that there may have been at least two periods where artifacts were deposited. This seemed to support the existence of a pronounced organic horizon in the unit just to the north, although initial observations did not seem to indicate for this unit in any clear way.

Artifact types from the unit were composed almost entirely of middle to late Formative period Quebradas and Aguas Buenas material. Only a few instances of Corral v. Corral and Corral v. Coronado were noted amongst the general trend of Moravia and Quebradas sherds (Figure 6.12). Only a few of other varieties were noted, such as Cerro Punta or Bugaba Engraved. Importantly, these varieties were found at or below level 5 (~50-60cmbd), a fact that would coincide with later excavation results. Also interesting was the occurrence of a negative black on red tripod support at level 8 (Figure 6.12), which at first glance suggested some affinity with Caribbean and Southern Panamanian styles. However, its unknown method of execution precluded it from any definitive classification. The lower levels of this unit also yielded fragments of solid plate-like vessels with reduction on its flat side that may suggest a platen for serving or cooking. This discovery, at level 7 along with a possible fragment of groundstone (Figure 6.13) in the following level, was one of the first indications for food production and consumption at the location.



**Figure 6.12: Clockwise from upper left: Corral, Quebradas, Moravia and Bugaba Engraved ceramics as well as unknown type from Level 5 and lower Unit 1038/993**

In addition to ceramics, the discovery at level 5 (59 cmbds) of a fractured greenstone axe pendant (Figure 6.13) was of particular interest in that it tentatively placed the immediate area within a time period where the use of such media was popular, predating the Chiriquí period when gold manufacture was adopted in lieu of greenstone production (Snarskis 2003). The broken condition of the item, along with associated debitage such as chert, added further support to the idea that this area was a refuse accumulation of seemingly non-local material.



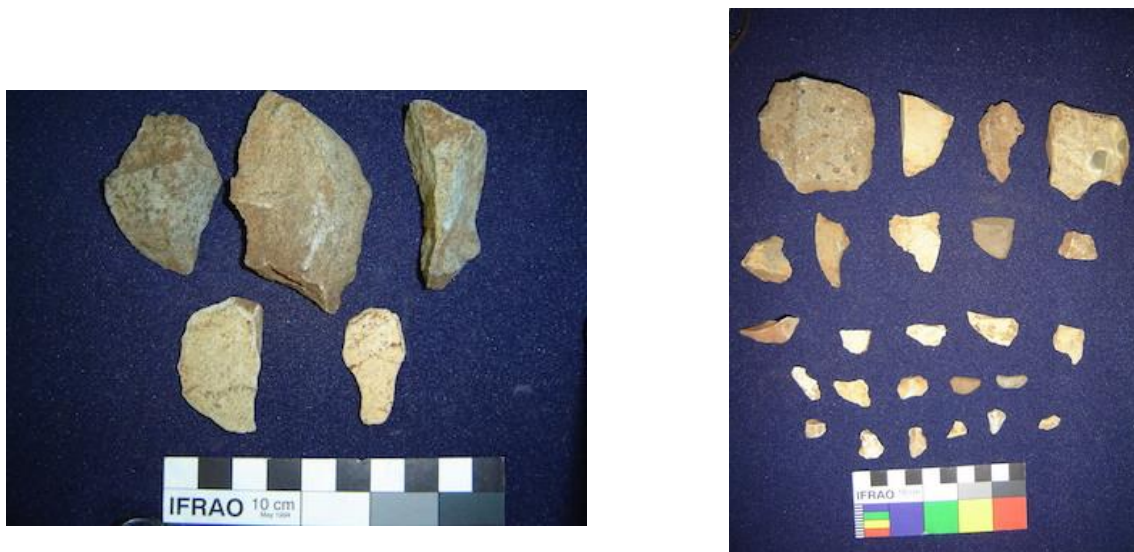


**Figure 6.13: Plate sherd along with possible groundstone fragment. Also shown are the greenstone axe fragment along with other siliceous debitage including black chert on right**

Overall, the accumulations of lithic artifact refuse suggested curation of lithic artifacts with a possible emphasis on expedient use as evidenced by bi-polar reduction strategies (Flenniken 1984; Flenniken and Raymond 1986). Instances of choppers, possible burins and thinning flakes (Figure 6.14) supported the idea that the site was the location of preparatory activities, although the possibility that the area was used for funerary purposes could not be ruled out.



Sediment in the southern half of the unit, initially dismissed as parent material, when compared to other clearer defined configurations from later phases of the investigation, were found to be similar to patterns associated with funerary activity. So while it is possible that the darker soil composition is a peripheral accumulation of refuse associated with food production, ceramic use and the production or curation of lithic artifacts, it is also possible the refuse was the by-product of funerary activity discovered in either an informal or disturbed setting possibly associated to activities at Operation C (Figure 6.9).

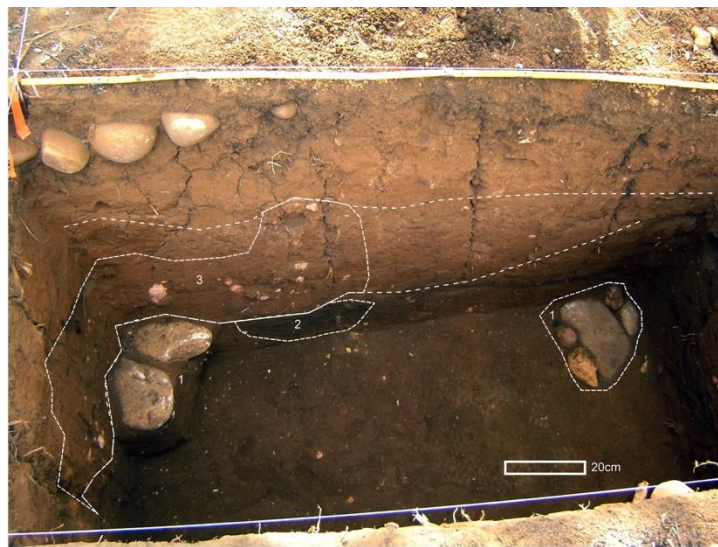


**Figure 6.14: Lithic artifacts located in Unit N1038/E993**

### **Trench 1 Unit N1034/E993**

This unit differed from its northern counterpart in soil composition and artifact size. Soil color at the surface through level 3 ranged from dark brown (10YR 3/3) to dark reddish brown 5YR 3/4. The relatively dark loamy clay transitioned to yellowish red silty clay (5YR 4/6) on through level 8 with very sparse ceramics—Aguas Buenas and Quebradas—

and little to no lithic artifacts. In general, artifact sizes averaged 3cm. This pattern changed at level 9 returning to darker reddish brown soils (5YR 3/4-3/3) and a marked increase in the amount and size of artifacts. Soil color changed soon after level 9, lightening as 30cm-long granitic rocks were discovered. Ceramic types consisting of Aguas Buenas and Quebradas did not change. Lithic artifacts, however, did appear to increase at this level and were confined to interior flakes, suggesting production and curation of lithic artifacts.

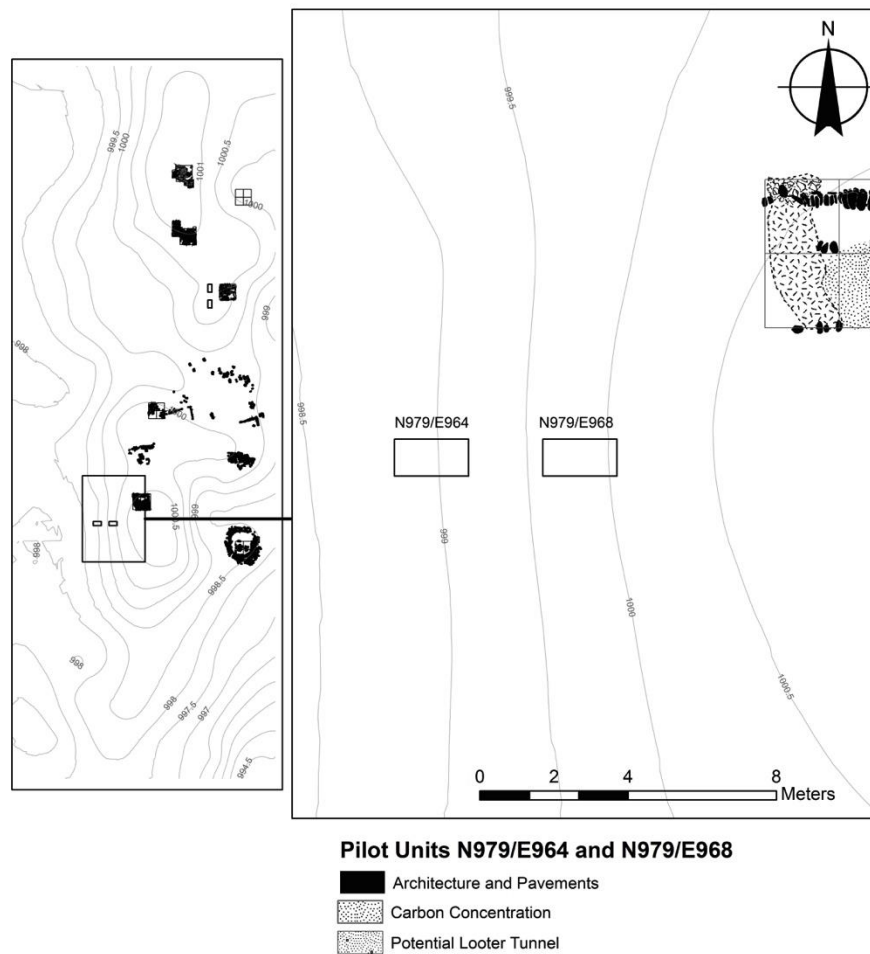


**Figure 6.15: Oblique view west of pilot test Unit 1034/993 showing: 1. Possible mortuary features. 2. Carbon concentration. 3. Piedra Muerta concentration**

Initially, the granitic rocks alongside highly lateritically weathered stone called “Piedra Muerta” (Quilter and Vargas 1995) was suggested to be the result of alluvial transport. This initial interpretation conformed to the general idea that disarticulated sequences of cobblestones were likely the remains of mound pavements, possibly related to domestic village architecture and not mortuary features. However, later comparison of the configuration of stones with findings from the 2007 excavations suggested otherwise. The stone configurations found at 137 cmbsd, upon review, were found more likely to be the remnants of older mortuary features, obscured at the surface by later disturbance or

forgotten by later sequences of occupation or construction (Figure 6.15). As will be discussed later in this study, there is a possibility that the feature was one of the older internments within the structure identified in Operation C. Importantly, the mortuary feature was associated with a distinct organic horizon a meter below sub-datum—one of the first observations of its kind during the study and also identified at Operation C. Although no intact offerings were recorded within the unit, the gradual decrease and eventual resurgence in artifact frequency from surface to level 9 (Figure A 1), associated with darker soil color, would be the first instance of a consistent pattern suggesting successive stages of use and interment at El Cholo.

## Trench 2 Unit N979/E968



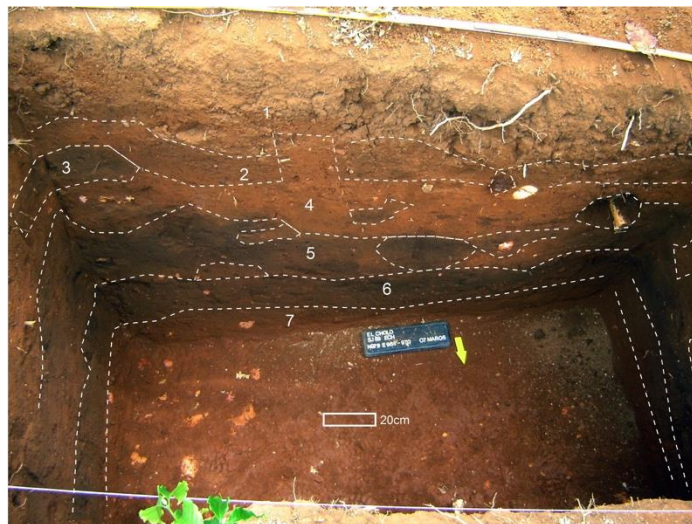
**Figure 6.16. Location of Trench 2 units with Operation F visible to the east**

This unit and trench was located closest to the top of the mound in the southern sector of the site cutting into the western flank of the mound complex (Figure 6.16). Soil color and composition immediately confirmed our initial assumptions of modern agricultural impact. Initial surface indications were negligible, consisting of yellowish red sandy loam (5YR 4/6) at the surface and transitioning from darker grey to brown soils (2.5 YR 3/2) in the first and second levels. The darker level, associated with only a few artifacts, changed back to yellow red clay loam soils, remaining consistent for Levels 3 to 7. Artifact frequencies remained low within the loamy yellow red clay sediments. Soils darkened to

dark grey/brown (7.5 YR 3/2), with an observable increase in artifacts beginning at Level 9. This darker level, associated with larger-sized ceramics and carbon flecking at Levels 9 through 10, transitioned back to lighter yellowish red soils at the base of Level 11. In all, the unit yielded 12 levels, with the highest concentration of artifacts associated with deeper organic levels (Figure 6.17, Figure 6.19).



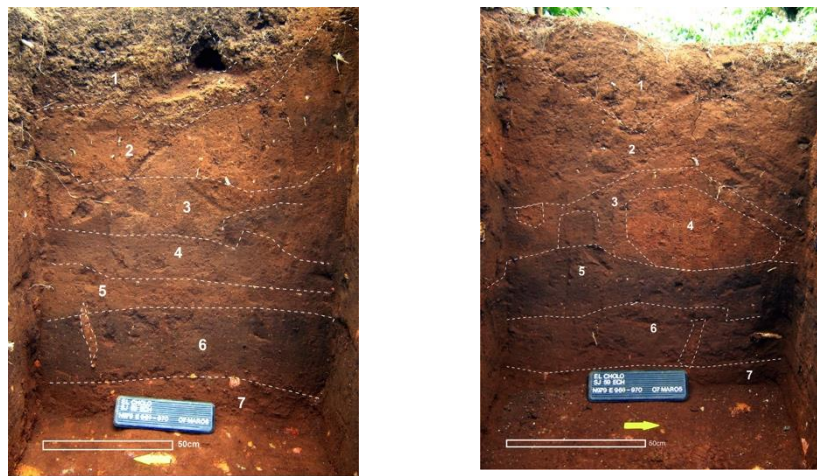
**Figure 6.17: Oblique view north of Unit N979/E968, showing strata with clear organic horizons at (5) and (6), interspersed with (4) Piedra Muerta rich sediment and (7) lateritic parent material**



**Figure 6.18: Oblique view south showing the organic levels (5 and 6) interspersed with Piedra Muerta fill. (4). Concentrations such as those seen at (3) are likely the result of bioturbation from root and rodent disturbance.**



While initial indications suggested some measure of modern disturbance, the lower levels demonstrated evidence of possibly interspersed organic and laterite-rich horizons associated with prehispanic occupational debris. This organic deposition, accompanied by deposits of Piedra Muerta sediment, reflected patterns observed for the units in the northern part of the site. In this instance, the unit appeared to demonstrate at least three successive depositional events (Figure 6.18). However, the presence of filled rodent burrows and clear root disturbance hindered any definitive interpretation.



**Figure 6.19: Eastern and western views of Unit N979/E968 demonstrating the possible sequential depositional nature of the southern mound**

### **Trench 2 Unit N979/E964**

Unit N979/E964 was the westernmost unit in the trench, located on the lower slope of the mound. Sediments suggested that the unit was impacted by modern agricultural activities for at least the upper half of the profile (Figure 6.20). Soil composition at the surface consisted of loamy clay with a brown color of 7.5YR 4/4. The soil color transitioned from yellow brown to yellowish red and dark reddish brown soils in two distinct zones at around the 30 cm mark, with the western section of the unit dark reddish brown (5YR 3/3) and the eastern portion yellowish red (5YR 4/6). This soil pattern transition with

sections of lighter and darker soils along east-west division down through the 5th to final 9th level suggested erosional or anthropogenic movement and accumulation of organics settling along the western edge of the mound. However, artifact frequencies were sparse throughout the the unit, with only a slight increase in artifacts in the eastern portion at Level 6.



**Figure 6.20.** Oblique view northwest showing the upper horizon above a darker organic level and laterite-rich sediment.

The sediment composition, along with artifact scarcity, suggests that these levels were dark humic soils, possibly associated with prehispanic organic refuse but likely impacted by modern agricultural activities associated with the modern planting of coffee and surrounding shade trees. This would have contributed to the high degree of decomposed leaf litter and high organic content in the profile. However, the color division of soils and the more compact clay consistency noted towards the eastern mound-top did indicate a division between more resilient mound sediments and post construction deposition. This apparent contrast in sediment raised a salient issue: while the evidence presented in the pilot units tentatively suggests a possible sequence of intentional deposition and construction, the possibility that they are the result of post-depositional erosion and mound

surface clearing is a tenable alternative. However, later evidence would appear to support the former scenario.

As previously mentioned, owing to the preliminary nature of the 2005 pilot studies, only the most salient observations were presented above. Below, I present the more detailed observations from the 2007 surface collections and excavations.

### **Summary and Preliminary Findings of Surface Collection**

As noted above, surface collection consisted of north-south transects along a 5-meter grid established by previous site mapping. Artifact collection followed an alternating pattern, recording features and collecting artifacts at every other 5-meter square. The selected areas were completely collected, with several exceptions. Areas that exhibited abundance in vegetation were collected to the best of the surveyor's abilities. However, owing to our obligation to minimize impact on the farm, and the size of some of the trees encountered, some areas were deemed impossible to collect from. We therefore chose to stagger our collection method and skip over the heavily vegetated areas.

The area most affected by this constraint lay in the southwestern portion of the architectural core (Figure 6.21), where coffee, Guayabo and Poró trees had grown to a relatively large size. However, when taken in combination with the remainder of the architectural core, this area constituted less than 5% of overall area surveyed. Surface collection was ultimately extended to reach past architectural boundaries to the unnamed quebrada flanking the western side of the site. In this manner, we were able to record artifact patterning from the site core to its western periphery. It was not possible to conduct a survey of the eastern flank of the site, owing to the fact that the Intra-Americana highway cut through it.



Both ceramic and lithic artifacts were recorded. Ceramics consisted mainly of Aguas Buenas phase sherds spanning the entire range of the phase. Chiriquí phase artifacts were absent from surface deposits, with the exception of one instance of what appeared to be Ceiba-Rojo Brown (Table 6.1). Importantly, the utility of this ceramic type as a temporal indicator has been called into question, as certain forms of said type appear to overlap temporally with late Aguas-Buenas phase material (Corrales, pers.comm). Nevertheless, there were no clear indications of Chiriquí material outside of the single instance.

Ceramic Type	Count	Percentage
Quebradas (Plain)	190	33.69%
Quebradas Incised	54	9.57%
Aguas Buenas	67	11.88%
Moravia	9	1.60%
Cerro Punta Orange	2	0.35%
Cerro Punta v. Cotito	1	0.18%
Guarumal Incised	1	0.18%
Bugaba Engraved	1	0.18%
Chiriquí General	1	0.18%
Undetermined	238	42.20%
<b>Total</b>	<b>564</b>	<b>100.00%</b>

**Table 6.1: Surface Ceramic Frequencies and Percentages**

Both incised and plain varieties of Quebradas were abundant, representing 43% of the surface assemblage. Aguas Buenas material amounted to 12%. As mentioned, no significant concentrations of Chiriquí material were apparent, with only one sherd recorded. The survey also recorded isolated occurrences for both Bugaba engraved and Guarumal incised.

<b>Vessel Form</b>	<b>Count</b>	<b>Percentage</b>
<b>Bowl</b>	13	2.30%
<b>Olla/tazon</b>	59	10.46%
<b>Plate</b>	4	0.71%
<b>Small jar</b>	18	3.19%
<b>Large jar</b>	50	8.87%
<b>Cylindrical cup</b>	1	0.18%
<b>Small bowls</b>	18	3.19%
<b>Shallow bowl</b>	5	0.89%
<b>Small globular jar</b>	1	0.18%
<b>Jar</b>	32	5.67%
<b>Large globular jar</b>	6	1.06%
<b>Unknown Tripods</b>	8	1.42%
<b>Tecomate</b>	2	0.35%
<b>Undetermined</b>	347	61.52%
<b>Total</b>	<b>564</b>	<b>100.00%</b>

**Table 6.2: Surface Vessel Form Frequencies and Percentages**

Large jar and olla sherds yielded relatively high quantities, comprising 20% of the overall surface assemblage represented larger vessel forms. Vessel forms associated with earlier periods and food preparation were also recorded in the form of two tecomate sherds, while smaller vessels were also present in the form of small jars and bowls. When counted together, these smaller forms amounted to 15% of the overall assemblage. These assemblage percentages compare favorably with the initial assessments made by Badilla in later rescue excavations (Badilla Cambronero 2009). Describing the site as multicomponent, the ceramics recorded in his report suggest a mid to late Formative period occupation with an early Chiriquí terminus.

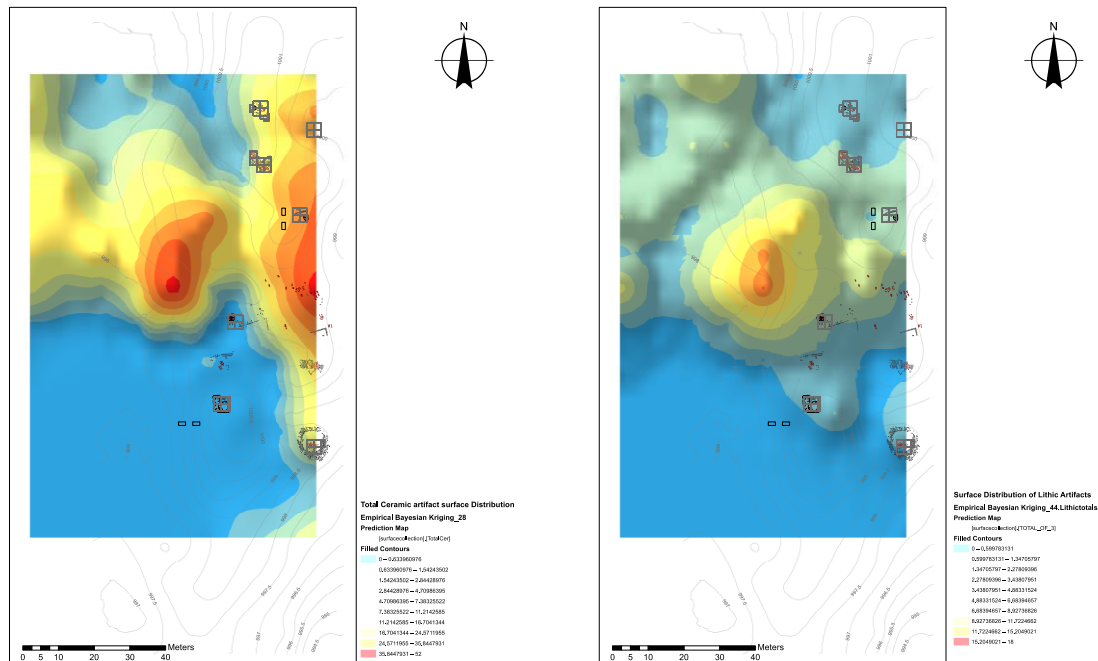
<b>Lithic Artifact Type</b>	<b>Count</b>	<b>Percentage</b>
<b>Primary</b>	27	15.17%
<b>Secondary</b>	9	5.06%
<b>Interior</b>	51	28.65%
<b>Thinning</b>	11	6.18%
<b>Core</b>	12	6.74%
<b>Core fragment</b>	5	2.81%
<b>Flake fragment</b>	15	8.43%
<b>Tool</b>	21	11.80%
<b>Tested cobble</b>	9	5.06%
<b>Other</b>	11	6.18%
<b>Biface fragment</b>	3	1.69%
<b>Uniface fragment</b>	4	2.25%
<b>Total</b>	<b>178</b>	<b>100.00%</b>

**Table 6.3: Surface Lithic Artifact Counts and Percentages**

Lithic artifacts on the whole appeared to be made of locally available granitic and sedimentary material although positive identification was difficult owing to surface patination. Debitage consisted primarily of interior flakes. Primary flakes followed at 15%. Cores and core fragments comprised 9.4%, which along with later stage reduction refuse constituted approximately 19% of the lithic artifact surface assemblage. This relatively high percentage, when combined with the recorded occurrences of complete tools (n=21, ~12%) suggested that there was a significant degree of lithic reduction indicating production at the site. Tools comprised a catchall category at the site, consisting mainly of expedient flakes, occasional occurrences of probable hammerstones/spherical groundstone as well as a small number of waisted unifacial and bifacial axe fragments littering the surface.

While the quantities of lithic artifacts and reduction refuse suggested a fair amount of production and curation activity, artifact frequencies did not exhibit any significant mound-centric focus. This is evidenced by the distribution of most types of material on the western flank of the site core, adjacent with the seasonal quebrada (Figure 6.21). Any

clustering tended to concentrate around the central western portion of the site, between operations C and E, although this was skewed by the survey method used. Other variables, such as vessel form, also resulted in this particular patterning (Figure 6.21). This seems to suggest that post-depositional factors such as hydrologic erosion exacerbated by looting and previous survey/collection efforts likely contributed the significant part in transporting material into this area. While artifact data obtained from a moderately impacted surface may be helpful in testing hypotheses supporting the existence of refuse areas or spatially differential access to goods, the additional factor of previous surface collection confounds interpretation, strongly suggesting that one must view such superficial measures with special consideration. At best, the utility of assessing surface artifact frequencies at El Cholo would be to evaluate the degree to which modern anthropogenic and erosional processes impact the site or reveal intact subsurface deposits.



**Figure 6.21: Showing distribution of surface ceramic and lithic material as well as the southwestern sector obstructed by dense vegetation**

Despite the above caveat for surface survey, the abundance of Aguas Buenas and Quebradas material appears to uphold the previous impressions that the architectural core of El Cholo—in contrast to the extreme southern extension of the site—consisted largely of Formative period material. This difference is enough to suggest that a southern component excavated by Corrales in 2000 and located across the Inter-American highway was probably spatially discrete. The more expansive excavations, detailed below, would further support this impression, suggesting that the Corrales excavations from 2000 at most represented efforts to maintain affiliations with earlier Formative period populations, a topic that is explored in more detail at the end of this study.

## Summary of Excavations and Preliminary Analysis Operations A through G

### Operation A

This operation was the most expansive area excavated. Initially set as a 4x4 meter quad, the area eventually consisted of six 2x2 meter units in total (units 1-4, 17 and 18). These units yielded a significant amount of cultural material, and architectural patterns such as the remains of mound pavements as well as seven distinct mortuary features were identified. Excavations of the entire operation yielded various patterns relating to these features including interment of material alongside graves, intensive periodic thermal activity as well as concentrations of lithic reduction refuse predating and lasting throughout site augmentation.

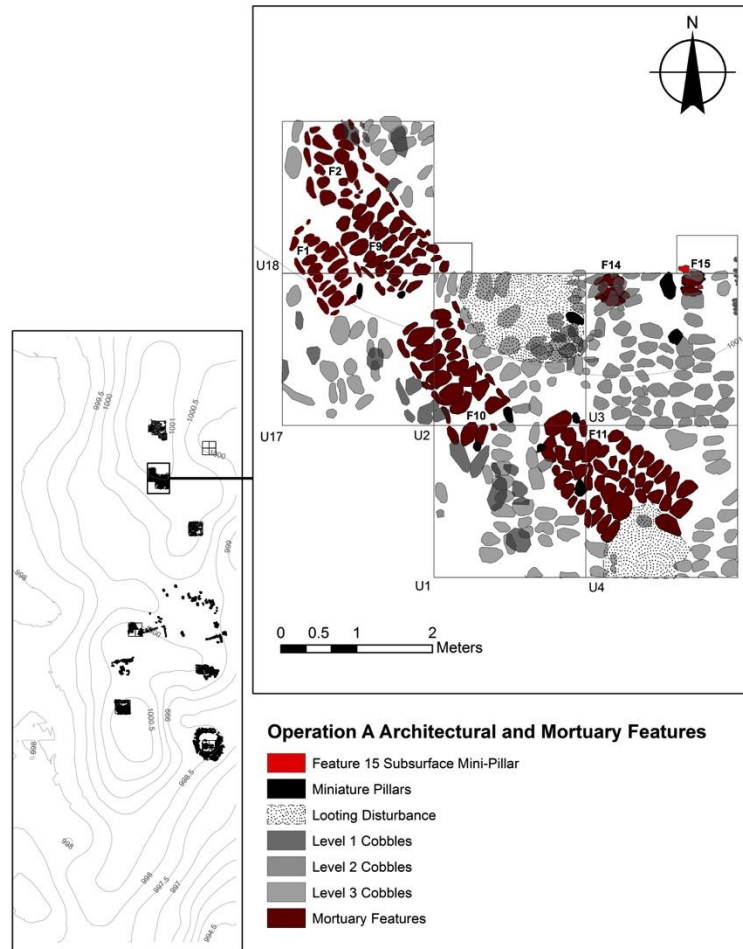


Figure 6.22: Operation A oblique view northwest

Soil profiles for the operation demonstrated patterns similar to those previously described in pilot units. Upper level sediments revealed dusky red (2.5 YR 2.5/2) to very dark brown (7.5 YR 2.5/3; 3/4) silt loam with evidence for modern agricultural impact evident

by the presence of surrounding plantain plants, an avocado tree located to the immediate west of the operation, as well as looting activity to the southwest and northeast (Figure 6.23, Figure A 3). Despite surface appearances, modern activities were less disruptive than initially thought. Rather, as observed in recent years for many parts of Costa Rica and Panama (Frost 2010; Palumbo 2009; Quilter 2001), intact prehispanic cultural features resided close to the surface. Architectural and mortuary features were visible after only the first or second levels of sediment were removed (Figure 6.22). This was associated with consistent amounts of material comprising mainly of Quebradas and several varieties of Aguas Buenas period ceramics (Table 6.4) along with lithic artifact material (Table 6.6). As Units 1 through 4 were cleaned, sections of features became apparent in the northwest corner of Unit 2. This prompted the opening of two additional features (17 and 18), which yielded three more mortuary features clustered closely together.

With the exception of mortuary profile features, units within Operation A demonstrated a gradual change from dark reddish brown/reddish brown sediments (5YR 3/4-4/4) to more yellowish red clay-rich sediments (5YR 5/4-5/6). This clay-rich sediment continued with some mottling (5YR 5/6-4/4) apparent at around Level 7. Changes in soil color and texture occurred at Levels 8 through 10, suggesting concentrations of organics and carbon. Dark reddish brown sediments in Level 8 graded to much darker soils in Level 9 (5YR 2.5/2) and 10 (5YR 3/3), transitioning back into the clay-rich sediment observed for the upper levels at Levels 11 through 13 (5YR 5/6-4/6).



**Figure 6.23: Operation A plan view with mortuary features shown as well as looter's pits**

Several general trends were apparent during excavation. Following a similar pattern to that observed during the pilot study, Operation A exhibited an overwhelming abundance of Formative period ceramic material as well as a variety of lithic debitage. The majority of material consisted of Quebradas ceramics, both plain and incised varieties. Ceramics identifiable as Moravia Red/Aguas Buenas General were also abundant in all units of operation A, with several instances of Cerro Punta Orange and Bugaba Engraved also present.



<b>Ceramic Type</b>	<b>Count</b>	<b>Percentage</b>
<b>Moravia General</b>	58	4.97%
<b>Quebradas Plain</b>	46	3.95%
<b>Aguas Buenas General</b>	73	6.26%
<b>Bugaba</b>	10	0.86%
<b>Sangria Red Fine</b>	1	0.09%
<b>Cerro Punta Orange</b>	13	1.11%
<b>Bugaba Engraved</b>	39	3.34%
<b>Guarumal Incised</b>	5	0.43%
<b>Quebradas Incised</b>	227	19.47%
<b>Corral Red v. Coronado</b>	6	0.51%
<b>Corral Red v. Corral</b>	20	1.72%
<b>Cerro Punta v. Cotito</b>	45	3.86%
<b>Cerro Punta v. Cerro Punta</b>	14	1.20%
<b>Guarumal v. Guarumal</b>	3	0.26%
<b>Guarumal v. Cebaca</b>	2	0.17%
<b>Undetermined</b>	604	51.80%
<b>Total</b>	<b>1166</b>	<b>100.00%</b>

**Table 6.4: Operation A Ceramic Type Frequencies**

When compared by excavation level, ceramic type frequencies followed a bimodal pattern (Figure 6.26). As the operation reached 60 cmbds, material tended to decrease in quantity, suggesting that the excavation was approaching sterile soil. However, this was not the case, as peak frequencies were encountered with a corresponding intensification of dark organic content at deeper levels (Figure A 3).

Excavations also yielded indications that ceramics were deposited alongside or on top of adjacent mortuary features. For Operation A, these examples were highly fragmented, impacted by bioturbation and likely modern looting activity. Nevertheless, the presence of ash concentrations surrounding large fragments of coarse brown olla fragments at Levels 3 and 4 (Unit 3 Figure 6.24) as well as the presence of oxidized soils above and below restricted ash lenses (Figure 6.30) suggested at the minimum, an example of intense thermal activity associated with subsequent interment of ceramic vessels or possibly perishable offerings.



**Figure 6.24:** Oblique view north of Operation A Unit 3 showing carbon concentration west of Feature 15, which yielded the fragments of a large olla with carbonization



**Figure 6.25:** Carbonized olla remains associated with ash feature

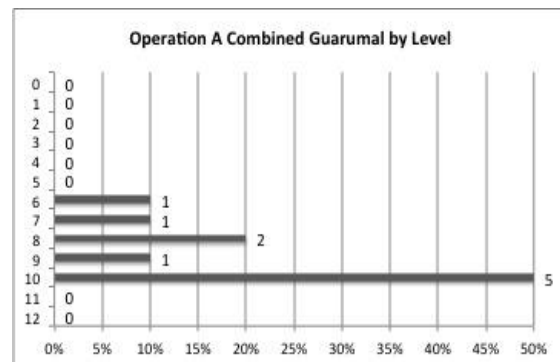
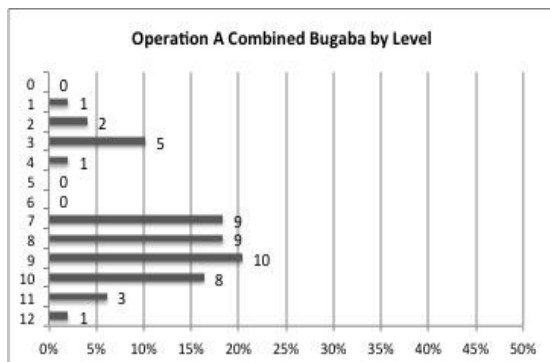
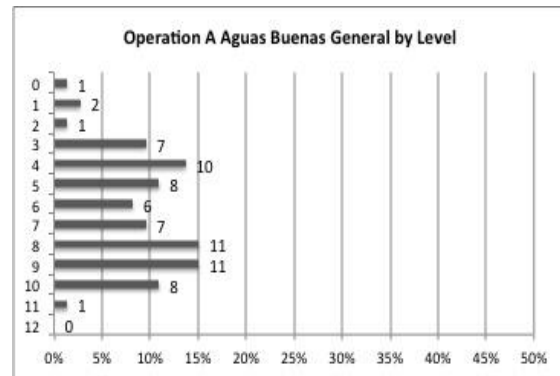
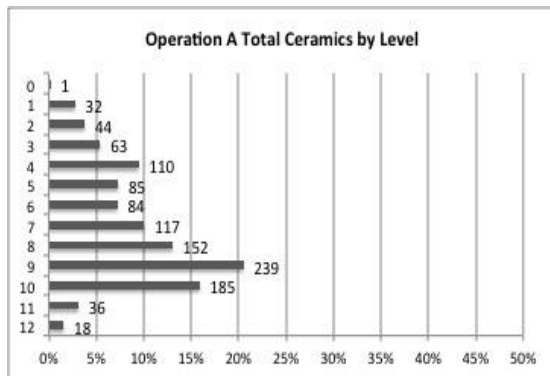
This prompted a preliminary analysis of ceramic vessel forms in order to see if it could help divulge any patterns associated with the observed depositional context. Discounting the unidentifiable sherds from the distribution, the highest percentage of sherds found at Operation A were olla or tazon sherds. This was followed by general jar and bowl sherds with everted escudilla and globular jar sherds registering above 3% of the assemblage. The pattern of olla/tazon sherds was comparable to the equally high percentages of Quebradas ceramic types, a type that was typically associated with the tazon/olla vessel form. This matches patterns noted in past research (Drolet 1992), where it has been

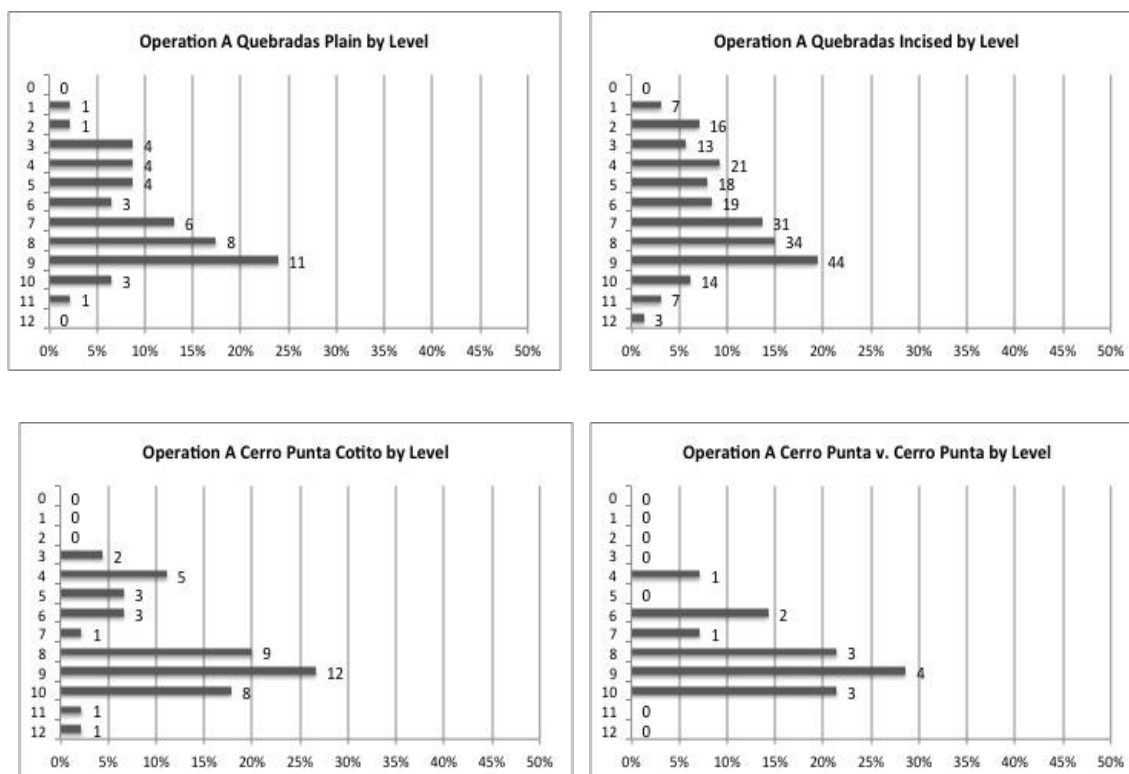
proposed for Aguas Buenas phase sites similar to El Cholo that the presence of such vessel forms as large tazones/ollas indicated domestic utilization.

However, given the depositional context and presence of mortuary features within Operation A, it appears that rather than a domestic household context there was likely a possibility that some of these vessel forms were fragmented in advance or during the process of interment. Unfortunately, the lack of complete vessels and difficulty in definitively identifying vessel form from fragmented sherds was evident, making any statements about vessel function tentative at best. As is detailed in the general and feature descriptions, in addition to the possibility of intentional fragmentation of artifacts, there was also a definite presence of rodent bioturbation that further obscured identifying complete vessels in all but a few cases for Operation A. Due to the difficulty in identification, vessel form frequencies were not tallied on a level basis and are utilized herein as an ancillary measure.

Vessel Form	Count	Percentages
Bowl	89	7.63%
Olla Tazon	363	31.13%
Plate	1	0.09%
Small Jar	3	0.26%
Large Jar	15	1.29%
Cylindrical Cup	6	0.51%
Undetermined	336	28.82%
Small Bowl Seed Jar	7	0.60%
Shallow Bowl	16	1.37%
Small Globular Jar	7	0.60%
Jar	137	11.75%
Large Globular Jar	1	0.09%
Tripod Escudilla	15	1.29%
Unknown Tripod	53	4.55%
Tecomate	2	0.17%
Pedestal Based Bowl	4	0.34%
Globular Jar	37	3.17%
Disc Shaped	1	0.09%
Escudilla	61	5.23%
Annular Base	5	0.43%
Pedestal Base	7	0.60%
<b>Total</b>	<b>1166</b>	<b>100.00%</b>

Table 6.5: Operation A Vessel Form Counts and Percentages





**Figure 6.26: Examples of major ceramic types found at El Cholo demonstrating frequency throughout levels (continued from previous page)**

Lithic artifact percentages for the operation were characterized by a high proportion of interior flakes relative to other types of debitage (Table 6.6). That said, other stages of reduction were accounted for as well, suggesting a robust and seemingly continuous process of lithic reduction interrupted only by a slight decrease around Level 6 (Figure 6.27). This observation was supported in part by what appeared to be at least two distinct depositional peaks marked by relatively sparse intermediate levels. The bimodal nature of the frequencies seemed to parallel the patterns observed for the ceramics in this operation. However, rather than decreasing in frequency into the latter part of the occupational sequence, evidence seemed to suggest a steady level of reduction activity into the later history of the site. This was exemplified by the presence of an igneous celt

sharpening waste flake. Identified by Ricardo Vazquez at the Museo Nacional, the celt that would have produced such a flake are generally found during the Chiriquí phase.

<b>Reduction Stage</b>	<b>Count</b>	<b>Percentage</b>
<b>Primary Flakes</b>	37	7.34%
<b>Secondary</b>	18	3.57%
<b>Interior Flakes</b>	221	43.85%
<b>Thinning Flakes</b>	24	4.76%
<b>Core</b>	4	0.79%
<b>Core Fragments</b>	11	2.18%
<b>Flake Fragments</b>	39	7.74%
<b>Tool</b>	29	5.75%
<b>Tested Cobble</b>	20	3.97%
<b>Other</b>	49	9.72%
<b>Biface Fragments</b>	13	2.58%
<b>Uniface Fragments</b>	23	4.56%
<b>Biface</b>	2	0.40%
<b>Shatter</b>	14	2.78%
<b>Total</b>	<b>504</b>	<b>100.00%</b>

**Table 6.6: Operation A Lithic Artifact Counts and Percentages**

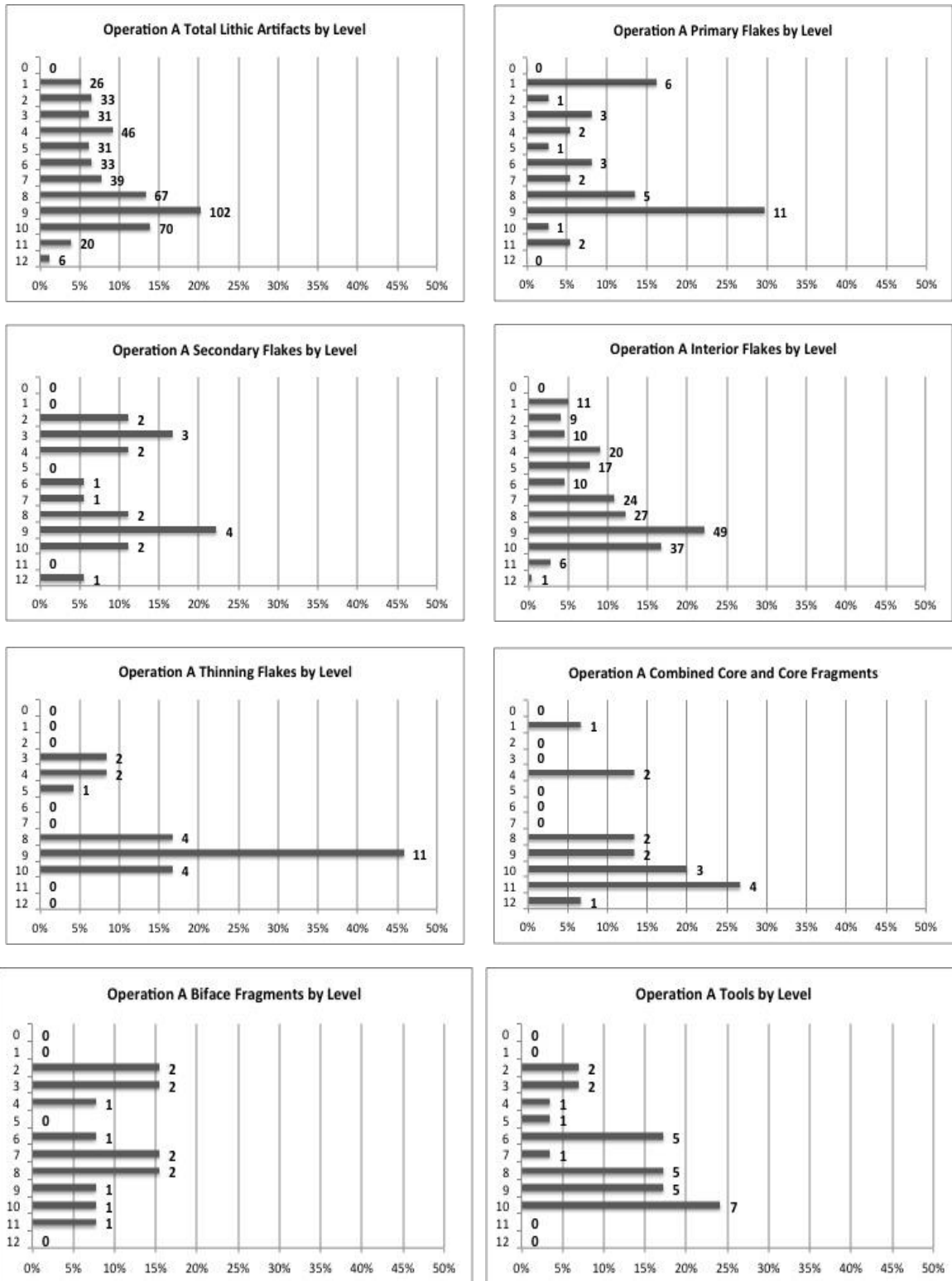


Figure 6.27: Distribution of key lithic artifact classes

This increase in lithic artifact frequency could possibly be linked to production or preparatory activities conducted prior to interment of any individuals or an interpretation of the organic horizon, not as a general concentration of organics due to ritual behavior, but rather an accumulation of habitational debris associated with a more domestic setting, predating the use of El Cholo as a ritual and mortuary space. This question was brought into focus when attempting to discern and separate the concentrations of lithic artifacts located south of mortuary features within levels 9 and 10 of Unit 1. Here, the concentration of lithics could be interpreted as an activity floor or possibly a ritual deposition of lithics, something that was not uncommon for the site nor for the region. However, identifying the concentration as ritual deposit or activity area was problematic. If the concentration was indeed an activity area, was it focused on mortuary preparation? This issue is revisited in the description for Feature 10, which was due north of the highest and most visible concentration.

Operation A also displayed indications of formalized deposition of stone tools such as waisted axes alongside mortuary features (Figure 6.28), also mirroring patterns observed for ceramic deposition. Occasionally, axe fragments were gathered from screened sediment within close proximity to mortuary features at lower and correspondingly older mortuary events, indirectly suggesting an association with the nearby feature. Most notable was the presence of what was termed a “baby” axe in Unit 1 of Operation A (Figure 6.29). Found within Level 3, at only 5x3cm, the axe appeared to be crafted out of poor quality raw material, with its presence suggesting either a significant case of meteorization/weathering or the ritual production of a seemingly utilitarian item for



mortuary use. This phenomenon is discussed in more detail in the section describing preliminary observations encountered while excavating mortuary features.



**Figure 6.28: Oblique view north of Operation A Unit 2 showing axe located at the southeast corner of mortuary feature**



**Figure 6.29: Small "baby" axe of poor quality raw material, located in Unit 1 Level 3 of Operation A**

Operation A exhibited a variety of features, which at first presented a novel interpretive challenge. Very little previous work documenting Aguas Buenas period architecture had been carried out to date; therefore, defining boundaries of mound pavements as opposed

to potential grave markers or non-mortuary features required working backwards from known Chiriquí period patterns (Frost 2009; Quilter and Frost 2007; Quilter and Vargas 1995). Architecturally, Operation A resembled a sector of paving with indications that the area had been likely been periodically augmented with mortuary features placed at different times of the site occupation. Aside from surrounding clusters of cobbles suggesting demarcation of space (Figure 6.23), seven distinct mortuary features were identified. Based on their positioning and stratigraphic profile, two appeared to be intrusive into the existing mound, while the remaining five suggested multiple stages of mortuary behavior/later modification of earlier interments.

In all but one excavated mortuary feature, organic soil staining could be definitively identified among the lowest strata of the mound. The evidence of soil staining, especially those in excess of three feet long, strongly suggested that these were likely "shadow corpses" (Quilter 2004), or decomposed bodies indicated only by stains. Some of the mortuary features also indicated differences in morphology that might have been based on time of interment, a phenomena explored across the site in the latter part of this study. This seemed to suggest that there was significant effort to integrate mortuary features with earlier interments, as units that were seen to reach the base level of the mound were interspersed between what appeared to be earlier phase features. In other cases, the units encountered suggested the placement of smaller interments, possibly associated with secondary burials, albeit lacking in clear evidence due to poor preservation. Below is a summary of the general characteristics and impressions of the features recorded for Operation A, with further analysis such as morphological and stratigraphic comparison detailed in the results and discussion section of the dissertation.

### **Feature 1:**

Identified at 53cmbsd, the dimensions for this feature measured at 126cm by 65cm with an 25 degree SE-NW orientation. The feature was composed of river cobbles averaging 20x10 cm and bordered around its edge by flatter cobbles, positioned upright to form a narrow border (Figure 6.30). The pattern resembled grave features noted by archaeologists working in the region at multicomponent sites such as Rivas (Quilter 2004; Quilter and Frost 2007). The presence of dusky red silty loam sediment (2.5 YR 2.5/2) just above the capstone cobbles reflected a composition associated with the mixing of prehispanic sediments with modern agricultural practices. Sediment below the capstones was loose and dark red (2.5 YR 2.5/3), with bioturbation evident in the form of insect casts, root disturbance and rodent tunnels. The unconsolidated sediment yielded Quebradas, Aguas Buenas, Cerro Punta Orange and Bugaba ceramics with no intact ceramic vessels evident (Table F 2). However, the presence of heavy bioturbation suggested that the ceramics encountered could be in situ ceramics placed within the feature, or as noted by other investigators, the result of shattered ceramics deposited atop interments (Hoopes and Chenault 1994; Linares 1977a). Evidence of thermal activity on the eastern flank of the feature seemed to support the general inference for ritual behavior, placing the feature in the company of other interments found with similar patterning.





**Figure 6.30: Feature 1, view northwest showing sequence of capstone pavements, thermal lenses and oxidation adjacent secondary pavements and soil stain at depth**

The dark reddish loose sediment continued uninterrupted until a second 50cm long by 26cm wide cobble feature was identified at 80 cmbsd. The position directly below the upper cobbles initially suggested that this may have been the original resting position of an individual or an offering. The dark color of the sediment, along with evidence for oxidized ceramics throughout the feature profile, suggested that Feature 1 was a relatively shallow mortuary feature. However, upon continuing downward below the second series of cobbles, several new observations modified the previous assumptions.

The features below the capstone extended further northwest, with more mid to late Formative period ceramics discovered within a much lighter clay-rich matrix (5YR 3/2) and an increase in lateritic rock or “Piedra Muerta.” This sediment continued on to a darker sediment (5 YR 4/4) at 110 cmbsd, indicating organic content. This soil staining, referred to by other investigators in the region as a “shadow corpse” (Quilter 2004), was bounded by harder, lighter-colored sediments (5 YR 5/6), again suggestive of interment of organic content within an existing fill matrix. Associated slightly above the soil stain was the presence of a flat stone cobble, dubbed an “almohada” or pillow, owing to speculation that this may have been the position of the head, although in this instance the cobble was observed above, suggesting that there may be an even earlier capstone below the one discovered. Incidentally, variants of this almohada cobble feature were observed in all but two of the 12 mortuary features recorded at El Cholo, ranging in size and shape. Further excavation did not yield any new data, with the yellowish red sediment continuing into sterile sediment.

As mentioned, ceramic material associated with the feature largely consisted of Aguas Buenas period material, with Bugaba and Cerro Punta material evident within the

confines of the mortuary feature. Lithic artifacts were most abundant in the first level (53-64 cmbd), with axe fragments (listed as tools during excavation) found within the confines of the tomb as well as in surrounding sediments (Table F 3). The presence of debitage as well as fragments of unifacially and bifacially worked lithic material in this context, along with the apparent spread of fragmented ceramics, parallel observations made as far north as Arenal and south as Panama (Linares 1977a, 1977b; Lothrop 1934; Mason 1942; Sheets and McKee 1994).

### **Feature 2:**

This feature followed a similar pattern to Feature 1, composed of a series of flat ovoid river cobbles and ringed by vertically placed cobbles. Measuring 108x70 cm at its upper limit of 64 cmbd, sediment was loose and ranged from dark brown (7.5 YR 3/3) above the cobblestones to dark reddish brown (5 YR 4/4) just below. The feature did not yield any complete vessels and was impacted by the same bioturbation observed in adjacent Feature 1. Most ceramic material was of Quebradas and Aguas Buenas origin, with Bugaba Engraved and Cerro Punta Orange also present (Table F 4). Much of the material showed indications of burning and smudging on the sherd surfaces.

Sediments remained loose in the first level, grading in color to dark reddish brown and marked by an increase in Piedra Muerta. Soil color and consistency then graded to 5 YR 3/3 at 133 cmbd, coming into contact with a dense organic horizon noted throughout the site (Figure A 1 and Figure A 2). Unlike Feature 1, no lower cobble pavement structure was identified in Feature 2, nor was any trace of a headstone or “almohada” apparent (Figure 6.31). Soil coloring and texture lightened to a more yellowish red (5YR 5/6), with a more compact consistency at 167 cmbd and a yield of few artifacts. It was at this depth

that the southern boundary of this mortuary unit came in contact with what was identified as the northern extension of the soil staining of Feature 9. As is mentioned in the summary for Feature 9, two stones within darker sediments reminiscent of almohadas were identified, lending to some ambiguity as to its spatial assignment. The more overlapping nature of the Feature 2 capstone relative to Feature 9, as well as the change in soil color at 167 cmbds, suggested that the upper Feature 2 pavement and interred materials may have been placed at a period later to adjacent features, possibly when adjacent tombs were also revisited and “repaved” with morphologically similar pavements. This periodic re-visitation, renovation and augmentation of earlier interments is another pattern suggested for Chiriquí phase funerary practices (Quilter and Vargas 1995; Quilter and Frost 2007).

Excavations revealed very few lithic artifacts, with only 11 artifacts recorded (Table F 5). Of those 11, one tested cobble and one bifacially worked fragment suggested ritual interment of lithic refuse, similar to that observed in the eastern portion of the operation in Feature 15.





**Figure 6.31: Operation A Feature 2 showing variation in "headstone" as well as the darker sediment found at depth**

### **Feature 9:**

Significantly larger in dimension than its adjacent features, Feature 9 measured 138 cm long by 97 cm wide. Sediment was loamy and mottled, with dark reddish brown to reddish brown coloring (5YR 3/4, 4/4). At 51 cmbsd, the sediment became looser and softer, grading to an even darker red (5YR 3/4, 3/3). The grading of the soil into consistently darker sediment (5YR 3/3), along with the relative position of 83 cmbsd,



appeared to conform to the organic horizon identified previously; however, the overall character of the profile to this point was already that of a generally organic-rich nature.



**Figure 6.32: Operation A view north of Feature 9. Note the presence of "almohada" stone feature. The depression in the north-central section of the features may indicate a ritual fire.**

Most if not all of the features in this sector of Operation A were likely impacted by the root structure of an adjacent avocado tree, evident by the abundant roots throughout the profile of the mortuary feature. Nevertheless, given patterns identified at other parts of the site, the dark patterning in the central sector of the capstone feature may be attributable to thermal activity associated with the interment. Overall, the character of the feature suggested significant bioturbation, and interestingly seemed to affect the texture

of the sediment, darkening it with what was likely an intrusion of organics from the root structure of the nearby tree. The abundance of roots likely facilitated the entry of rodent and insect disturbance also noted in adjacent features. However, soil color did change to yellowish red (5YR 5/6) at 117 cmbds, with composition consisting of clay loam, similar to the rest of the operation.

Apparent in adjacent features but represented in slightly higher quantities in this feature was the presence of Piedra Muerta throughout the deposit. This Piedra Muerta was accompanied by Quebradas and Aguas Buenas material, with the instances of Guarumal Incised, Cerro Punta v. Cerro Punta, Cerro Punta v. Cotito, as well as Bugaba Engraved found at approximately 68 cmbds (Table F 6). The presence of these ceramic fragments within the mixed context again suggested fragmentation and mixing of relatively contemporaneous ceramic types. Additionally, various unifacial and bifacial axe fragments were identified among a collection of lithic debitage primarily consisting of interior flakes (Table F 7).

Artifacts continued to appear throughout Feature 9, as it yielded two cobbles at 126 cmbds, suggesting the presence of another almohada. Soil color was recognizably distinct from higher levels, grading to reddish brown (5 YR 4/3) and bounded by slightly lighter reddish brown to yellowish red sediment (5YR 5/4, 5/6). The soil patterning suggested a concentration of organic content possibly associated with that of soil staining attributed to burials. The location of this possible soil stain at depth, in conjunction with the fragmented material evidence and cobble almohada was equivocal, as with surface indications, the northerly overlap of this feature with Feature 2 could not be definitively separated and the largely dark soil could not at the time be sufficiently determined as

consisting of two phases. The presence of a mixture of Formative period ceramics to almost sterile levels also confounded the interpretation as to whether Feature 9 was intrusive or multi-stage in nature.

#### **Feature 10:**

This elongated mortuary feature exhibited several elements that tied it to the potential multi-stage features at El Cholo as well as possibly intrusive features. Initial clearing of surface sediment yielded a pattern of lithic artifact deposition that was subsequently recognized throughout the site. Consistent with previous interpretations of sites throughout the Upper General Valley (Drolet 1983b, 1988; Drolet and Siles 1988), El Cholo yielded a relative abundance of waisted stone axes. However, the initial impression gleaned from investigating the space surrounding mortuary features such as Feature 10 and 11 suggested that, rather than utilitarian use of axes, placement of these lithic artifacts may have been used instead for ritual purposes, evident by the location of axes at points alongside and between mortuary features, a pattern also observed at the site of Zapote further south (Arroyo Wong, et al. 2010).



**Figure 6.33: Oblique view north showing placement of stone axe at the SE corner of Feature 10, as well as the presence of small pillars within Feature 10 and adjacent 11**

Similar to Features 1, 2 and 9, Feature 10 became visible at a relatively shallow depth of 33 cmbsd. The dimensions of the upper cobblestone pavement measured 190 cm long by 74 cm wide. Like the other pavements in the immediate area, Feature 10 was composed of river cobbles laid flat in two rows and bordered by other cobbles positioned vertically. Like the other cobbles noted in Operation A, the corners of Feature A displayed the presence of small pillars. Surface sediment was consistent with the general pattern within the operation, consisting of silty loam with a reddish brown color (5YR3/4). Root and rodent disturbance was also evident within this feature, although not as prevalently as in other features. As with the other features, due to the massive nature of the sediment, excavations were conducted in natural levels, proceeding from 33 cmbsd to 94 cmbsd. In total, 3 natural levels bearing artifacts were excavated before reaching a 4<sup>th</sup> level of sterile sediment.





**Figure 6.34: Operation A Feature 10 north and south views showing the contact of the feature with the organic horizon as well as the presence of Aguas Buenas support and lithic debitage. Note carbon lensing in the Western wall of the feature and laminated profile in the north profile.**

While upper levels revealed small quantities of Quebradas and Aguas Buenas as well as Bugaba Engraved, Cerro Punta Cotito and possibly Valbuena (Table F 8), the lower levels exhibited fewer materials, changing dramatically in sediment composition and color, becoming darker (7.5 YR 3/2) and richer in organics (94 cmbsd). This coincided with a presence of ash lenses within the walls of the feature. Additionally, a Quebradas support was retrieved at the contact with the darker levels.

In the following level soil color graded to darker (5YR 2.5/2) but mottled sediments at 102 cmbsd. This sediment yielded 39 lithic artifacts, with a concentration evident in the lower third level of the feature (Table F 9) that appeared to match concentrations noted for parts of the surrounding excavation unit. Whether this suggested a concentration associated with the possible burial or with the general depositional sequence of the surrounding unit/operation remained in question, exacerbated by the lack of any clear organic soil staining observed in other mortuary features.

However, two notable characteristics for this feature stood out. The western wall of the feature yielded a clear carbon concentration, suggesting an ash lens consistent with similar patterns noted in adjacent mortuary Feature 1. Its location below the capstones (~50 cmbsd) as well as its oxidized nature suggested, like the other features, that fire ritual might have been conducted during the interment or prior to the installation of the capstones. Moreover, within the surrounding sediment of Unit 17, a complete axe was located at the southern “foot” of the grave feature. This tentatively suggests that interment and preparation may have also been multi-stage for this feature, although no apparent color change, intermediate architectural feature such as a secondary capstone or "almohada," was located. Additionally, the remnants of the Aguas Buenas support was located in the southern sector of the site, an observation that may have implications for this feature's articulation with other sectors of El Cholo.

As mentioned in the general description for Operation A, the increase, rather than decrease, in lithic artifacts at the lower levels of Feature 10 raised an important question regarding the identification of domestic floors versus mortuary components. This is exemplified by a relatively high number of lithic artifacts found with the lower levels of

Operation A south of Feature 10 (Figure 6.35 and Figure 6.36). The presence of axe and core fragments as well as debitage, specifically in levels 9 and 10 of Unit 1, could be the result of preparatory activities associated with earlier mortuary events, or the remains of an older activity area. This possibility remained an open question regarding whether one could classify this part of the operation as "domestic" or "ritual" in nature. However, given the presence of lenses of ash in the sidewall of mortuary features, it appears that the associated concentrations might have been part of the preparations for burial, be they disarticulation of bodies or the manufacture of axes for accompaniment with select burial. Overall, the impression was one of reduction activity associated with the initial stages of interment. Whether the refuse was left as midden or expedient cache is unclear.



**Figure 6.35: View west of lithic artifact concentrations found south of Mortuary Feature 10 in Levels 9 and 10 of Unit 1**



**Figure 6.36:** Close-up view west of lithic artifact concentrations found south of Mortuary Feature 10 in Levels 9 and 10 of Unit 1

### **Feature 11:**

This feature demonstrated clear signs of modern looting activity (Figure 6.23 and Figure 6.37). Measuring 246 cm by 115 cm, the layout of this tomb followed the basic pattern observed for adjacent tombs, but on a much larger scale. Consisting of 5 rows of cobbles, Feature 11 was marked by several small pillar cobbles in its northwestern half, accentuating a larger cobble at what appeared to be the head of the tomb features. Previous looting activity had removed a section of the southeast corner of the feature. This obvious source of disturbance prompted an alternative method.





**Figure 6.37: Feature 11, view north showing looters pit cutting into the southeast corner of the feature**

Where the other features had been excavated into their interiors, Feature 11 was excavated in sections in order to provide a profile. Excavation revealed dark brown (7.5 YR 3/4) loamy surface sediments that continued throughout the profile with very little differentiation. The massive nature of the dark sediment became clearer as it was divided, becoming apparent that Feature 11 was an intrusive shaft, clearly cutting through a band of dark organics (Figure 6.38 and Figure A 3). This narrow shaft extended down to 160 cmbsd, bounded at the lower half of the profile by a yellowish red (5YR 5/6, 4/6) clay loam matrix, and yielded a cobble almohada. Overall, the feature appeared undisturbed, although attempts at looting at its southern end of the feature were apparent in the surrounding Unit 1, which yielded a concentration of cobbles deposited within a pit (Figure 6.38). No clear demarcations or sequences such as those identified in adjacent features were observable.



**Figure 6.38: Operation A Feature 11 showing the intrusive nature of the interment**

Sediment from this apparently intrusive feature yielded Quebradas Incised, both Corral Red varieties, as well as Bugaba Engraved, Cerro Punta v. Cerro Punta and Guarumal Cebaca (Table F 10), the presence of the Guarumal hinting at the likelihood of this feature being a slightly later addition. Similar ceramics were identified within the surrounding sediment of Unit 1, strongly suggesting an association to Feature 11, but no intact vessels were identified, and lithic artifacts within the feature itself consisted largely of interior flakes. No clear indications of thermal activity were noted. However, as mentioned, complete tools and cores were located in the surrounding unit, possibly associated with this feature or Feature 10. Unfortunately, the clear evidence of looting impacted the confidence with which we could interpret findings from the feature. Nevertheless, we could glean some basic information from it.



**Figure 6.39: Showing "almohada" headstone and evidence of looting in the south wall**

Overall, the intrusive nature of the interment, the presence of Guarumal ceramics among the usual Quebradas and Aguas Buenas types, and the abnormal morphology of the tomb itself suggested that Feature 11 was one of, if not the latest, feature recorded for this operation. The presence of an almohada in what seemed to be a later addition to this cluster of mortuary features was puzzling; what seemed like a possibly earlier behavior now seemed to possibly span generations. While possibly older mortuary features had

almohadas, some seemed to be missing or never placed within the features at all. Later analysis of this phenomenon would shed more light on this puzzle.

#### **Feature 14:**

Feature 14 presented characteristics differing from the adjacent capstones in Operation A. as it displayed no clear surface indication. Only a likely looter pit west of the feature and a uniform set of cobbles were present near the surface. The feature did not become apparent until several levels had been excavated. The simple cobble feature at 93 cmbsd at first did not appear to share any affinities with other graves. However, upon review, cobbles found at angles just off of vertical did suggest that these were, in fact, small pillars (Figure 6.23).





**Figure 6.40: Views north and south of Features 14 and 15 demonstrating multiple levels and deposition of PMF among organic horizon**

Sediments did not vary much from previous observations. Surface sediments were soft silt, with a reddish brown grading to dark reddish brown as we approached the lower

cobble capstone (5YR 4/3-4/4). The loose composition initially suggested that the looting behavior noted in Unit 2 might also have occurred in Unit 3. However, profiles (Figure 6.40) of the unit showed a darker sediment horizon close to surface, initially interpreted as either the formation of an O horizon or the result of modern agricultural impact. Leaf litter from the neighboring avocado tree likely contributed to the darkening of the soil, but prehispanic thermal activity was also a possibility, considering the shallow nature of deposits. The feature appeared to be in contact with a dark red/reddish brown horizon already noted in other parts of the operation, but yielded no diagnostic ceramics, with only 6 retrieved overall (Table F 11). This is likely due to the fact that material was not collected directly for this feature until it was discovered at depth. As with Features 7, 8 and 11, these features were not definitively identified as grave features until further down in the excavation sequence. As such, a precursory evaluation of the artifacts from Unit 3 as a whole was used as means to infer any possible artifact depositional patterning related to the feature.

A quick review of the ceramics for the surrounding sediments show Quebradas as the most represented (Table 6.4). However, Bugaba Engraved as well as Cerro Punta Cotito was represented in the lower levels (7 through 9), which could be associated with Feature 14 (Figure 6.26). The feature yielded no lithic artifacts, but Unit 3 yielded a waisted axe found at the southwest foot of the feature at Level 5, as well as tools and uniface fragments at the levels associated with the capstone that may suggest preparatory use or interment of lithic artifacts (Figure 6.41).



**Figure 6.41: Lithic artifacts associated with Unit 3 and Feature 14 Levels 5 and 8, respectively**

The association of the axe fragments, in addition to the presence of Bugaba and Cotito ceramics at the same levels, may have been related to the subsurface feature, and may be similar to the patterns observed at other features in Operation A. The overall spatial patterning will be discussed in a later section in more detail.

### **Feature 15:**

As with Feature 14, Feature 15 was discovered during the course of excavation, operating under the assumption that the unit consisted of non-mortuary mound deposits owing to the lack of any diagnostic mortuary features. However, the feature was located directly below a cobble paving stone located at 30 cmbsd, suggesting that the upper stone was the remains of a preexisting pavement impacted by modern agricultural or looting activities. This was corroborated by lines of cobbles of varying color, in some cases with a slight green coloring that at first sight suggested a multi-course set of pavements. The sediment surrounding the cobble and the alignments was comprised of very dark brown, grading to dark reddish brown loam (7.5 YR 2.5/2- 2.5 YR 3/3) consistent with that observed throughout the unit (Figure 6.42). The feature itself, located at 63 cmbsd, yielded lighter



yellowish red sediment (5 YR 4/6). While sediment above the feature seemed heavily bioturbated, the level of disturbance lessened below the feature.



**Figure 6.42: Feature 15 excavation sequence showing the presence of a large "almohada" as well as an axe core. Note the carbon concentration below.**



Further exploration of the cobble feature indicated a need for an extension of its north end, as the expansion unit revealed a loose collection of cobbles and one small pillar still in situ. This pillar was similar to the one identified within the cobble feature itself and suggested the possibility of a sloped surface for the immediate area. Owing to the complexity of the alignments and the multi-course nature of the find, this possibility was not definitively resolved, although the possibility of it being an intentional step-like structure was considered.

However, the prevailing impression was that the pattern suggested a succession of events involving interment, with deposition of fill and marking in the form of cobbles and pillars above an original feature placement. Review of the soil profile supports this assessment, as the darker sediments corresponding to the upper cobbles demonstrate a distinct contrast to the redder soils just below. This is interpreted to suggest the possibility of a fill event prior to the upper strata and after the placement of the lower cobble mortuary feature.

Upon removal of the upper cobble markers, the full extent of the feature was measured at 70 cm by 50 cm. The feature yielded an aggregation of cobbles, with a small upright pillar feature located in the southeast sector and cobbles of Piedra Muerta a part of its internal organization. While sediment accumulation at contact with the features remained reddish brown, below it was marked by yellowish red (5 YR 4/6) sediment. Further clearing of the features yielded a peculiar combination of an unexhausted core alongside a large cobble, suggesting an almohada feature. The core showed indications of having had one large flake removed of a size similar to those noted for axe preforms. Below these features, after approximately 20-25 cm of sediment with significant amounts of

Piedra Muerta and yellowish red fill, there appeared two distinct concentrations of darker (5 YR 3/2) sediments, with suggestion of surrounding oxidation measuring 25cm and 5cm, respectively.

Artifacts were not abundant within the boundaries of the feature, although a few significant finds were noted. Ceramic material recovered consisted of Quebradas Incised, Corral v. Corral, Cerro Punta Cotito and Guarumal v. Guarumal, among other unknown sherds possibly associated with Guarumal Cebaca and Quebradas Incised ceramics (Table F12). Lithics were also spare, with only the aforementioned core of significance among a total of only five lithic artifacts (Table F13). The discovery of concentrations of coarse brown ceramic sherds among carbon rich sediment to the west of the feature strongly indicated that ritual burning and deposition of ceramics had also occurred alongside features found in this sector of the unit. Although the concentration was found directly beside and at the level of Feature 15, there is the possibility that the potential offering was meant for the adjacent Feature 14.

### **Operation B**

Operation B yielded relatively little information. Originally thought by previous investigators to be a plaza area (Corrales pers.comm), this sector was largely devoid of any archaeological material. Evidence of Aguas Buenas and Quebradas material was the most prominent in the overall ceramic frequencies, with one possible Panamanian ceramic type present in the form of Isla Valbuena Palenque Maroon (Table 6.7). This ceramic, tentatively identified in only a couple of other instances, did not yield any associated sherds, although large jar and olla sherds were present in the deposit (Table

6.8). Lithic artifacts were equally sparse throughout, although the presence of cores, biface and uniface fragments were found along with interior flake fragments, the most abundant lithic artifact representing over half of the lithic assemblage on the site overall (Table 6.9). A large boulder, uncovered within the first 30 centimeters of excavation (Figure 6.43), was thought to be site furniture possibly used as a milling or sharpening tool (Linares 1977; Linares and Ranere 1980). However, evidence of ground surfaces or sharpening groove marks on the boulder was absent.



**Figure 6.43: Operation B showing organic concentrations in the upper levels and boulder**

Consistent with the overall site pattern, Operation B did bear dark sediments, thought to be anthropogenically produced carbon deposition (Figure 6.43). The final excavation depth compared to other areas was relatively shallow, reaching sterile soil at approximately 70 cmbsd, suggesting several possibilities. The abundance of modern agricultural impact may indicate that the dark horizon immediately encountered at operation B was a product of modern processes. Alternatively, when compared to other operations within the site and coupled with the presence—however light—of prehispanic material, the area may have been a borrow pit for the construction of the mound

platforms adjacent to it rather than a plaza area, touching upon the dark organic horizon that was observable in other operations.

Ceramic Type	Count	Percentages
Moravia general	1	1.75%
Quebradas plain	15	26.32%
Aguas Buenas general	11	19.30%
Cerro Punta orange	1	1.75%
Quebradas incised	13	22.81%
Valbuena Isla Palenque Maroon	1	1.75%
Unknown	15	26.32%
<b>Total</b>	<b>57</b>	<b>100.00%</b>

**Table 6.7: Operation B Ceramic Type Frequencies**

Another suggestion made during the initial stages of the investigation was that the dark horizon suggested a flooding event. The presence of features within and below the level in other operations, however, strongly discounts this possibility and instead lends support to the likelihood that the area represented a preserved location, either kept clean as a de facto plaza or utilized as a borrow pit after the initial thermal event occurred.

Vessel Form	Count	Percentages
Bowl	1	1.75%
Olla/Tazon	7	12.28%
Small Jar	1	1.75%
Large Jar	4	7.02%
Undetermined	28	49.12%
Small Bowl Seed Jar	1	1.75%
Shallow Bowl	1	1.75%
Small Globular Jar	1	1.75%
Jar	9	15.79%
Tripod Escudilla	1	1.75%
Unknown Tripod	3	5.26%
<b>Total</b>	<b>57</b>	<b>100.00%</b>

**Table 6.8: Operation B Vessel Form Counts and Percentages**

Overall, the paucity of material retrieved from this operation yielded no conclusive patterns upon which to build. The small size of the area, lack of distinguishing features, and its isolated character does suggest intentional cleaning or excavation from either

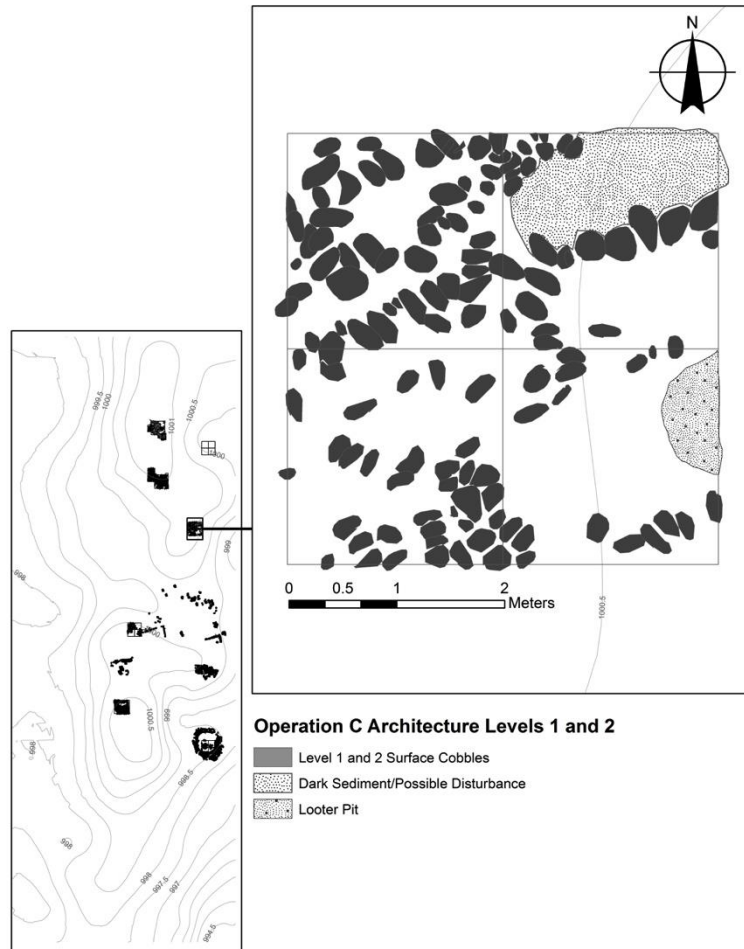
prehispanic, contact or modern populations, but the lack of any other areas similar to it decreases the likelihood that it was a solitary plaza. Moreover, the overall mortuary pattern for the site suggests that a plaza was unnecessary.

Reduction Stage	Amount	Percentages
Primary	11	12.36%
Secondary	1	1.12%
Interior	48	53.93%
Bifacial Thinning Flakes	3	3.37%
Core	2	2.25%
Flake fragments	6	6.74%
Tool	1	1.12%
Tested cobble	4	4.49%
Other	2	2.25%
Biface fragment	5	5.62%
Uniface fragment	2	2.25%
Shatter	4	4.49%
<b>Total</b>	<b>89</b>	<b>100.00%</b>

**Table 6.9: Operation B Lithic Artifact Counts and Percentages**

## **Operation C**

Operation C yielded multi-course architecture: a possible divisional marker in the form of a crude pillar and high quantities of ceramic and lithic material, differing from other operations (other than Operation B) by a lack of mortuary features. The operation was roughly bisected at a slight angle by an alignment of stones that would in time be revealed as a retaining wall composed of 3 courses (Figure 6.44, Figure 6.45). Surface indications on the northern side of the wall suggested non-fill accumulation, as indicated by the slightly darker and loamier texture of sediments. Generally speaking, sediments within Operation A fit the pattern observable in other operations throughout the site (Figure A7 to A9).



**Figure 6.44: Plan view of Operation C showing wall and associated features**

Surface sediments for this operation consisted of dark reddish to strong brown clay loam (5YR 4/3; 7.5 YR 4/6), possibly produced by variable prehispanic use within and outside of the wall boundary but very likely impacted by modern agricultural and looting activity. As excavations deepened, sediments transitioned into red to yellowish red clay, (5YR 4/6; 2.5YR 4/8), appearing massive in nature. Artifacts steadily decreased in number until interrupted at around 70 cmbsd by 20 to 30cm of darker organic rich sediment (5YR 4/4; 5YR 5/8; 7.5 YR 4/4). This organic rich layer corresponded with an increase in cultural material that continued in steadily decreasing amounts (Figure 6.48) until reaching sterile

sediments at around 140 cmbsd, repeating a pattern in artifact frequency noted throughout the site.



**Figure 6.45: Operation C view southeast and north respectively, showing the cobble wall and remains of possible pillar**

Structurally, Operation A was marked by a roughly east-west oriented retaining wall, with the indication of a corner at the eastern end of the wall, as well as the presence of a broken boulder resembling a squat pillar. The large rock was deposited into the remains of a looter pit on the southeastern flank of the operation (Figure 6.46). Initially thought to be a modern artifact, the boulder, though broken in two, showed evidence of having been shaped at the both ends, one end shaped into a more pointed form and the other in a manner as to suggest that it was used as a tenon to be secured into the ground. The object was roughly similar to pillars recorded for Chiriquí phase sites such as Panteón de La Reina, but of a thicker variety. It measured approximately 1m in length and 60cm thick. Its large and cumbersome nature precluded precise weighing, but definitely exceeded 200 to 300 pounds in total. It stood in marked contrast to other pillars noted in the area, appearing to be very crude and possibly prototypical in form. The looter pit, while impacting the sidewall of Unit 12, appeared to be constricted to a small area and did not



adversely affect the remainder of the Operation A as is evidenced by profile and artifact concentrations.



**Figure 6.46: Operation C, Unit 12 oblique view north showing looter pit and pillar in the foreground**

Cultural material retrieved from Operation A shared the same general pattern seen in most of the other operations, barring Operation B and to some extent, Operation G. As in other operations and pilot units, artifacts appeared to decrease to almost nothing as excavations approached Level 6. This changed as the lower levels began to reveal the now ubiquitous dark organic horizon. Both Incised and plain varieties of Quebradas, along with Aguas Buenas material such as Moravia Red and both Corral varieties, were evident from the surface throughout the profile of the unit, representing the majority of ceramics identified at the operation (Table 6.10). Other types such as Guarumal, Cerro Punta and Bugaba were also present in minute amounts.



<b>Ceramic Type</b>	<b>Count</b>	<b>Percentage</b>
<b>Moravia General</b>	69	8.91%
<b>Quebradas Plain</b>	84	10.85%
<b>Aguas Buenas General</b>	120	15.50%
<b>Bugaba</b>	3	0.39%
<b>Sangria Red Fine</b>	1	0.13%
<b>Cerro Punta Orange</b>	29	3.75%
<b>Bugaba Engraved</b>	4	0.52%
<b>Guarumal incised</b>	3	0.39%
<b>Quebradas incised</b>	207	26.74%
<b>Corral red Coronado</b>	6	0.78%
<b>Corral red corral</b>	11	1.42%
<b>Cerro Punta Cotito</b>	8	1.03%
<b>Cerro Punta Cerro Punta</b>	3	0.39%
<b>Guarumal Cebaca</b>	2	0.26%
<b>Valbuena Isla Palenque Maroon</b>	1	0.13%
<b>Unknown</b>	223	28.81%
<b>Total</b>	<b>774</b>	<b>100.00%</b>

**Table 6.10: Operation C Ceramic Type Counts and Percentages**

However, during excavation, there was no clear evidence of localized thermal activity or interment like that noted at Operation A. Rather, the structural organization of the mound as well as the presence of a single pillar presented the impression of a focal point, conspicuously devoid of funerary activity. Vessel forms predominantly consisted of olla/tazon and jar forms, initially suggesting either a large-scale form of consumption or even storage at the area (Table 6.11).

Vessel Form	Count	Percentages
Bowl	48	6.20%
Olla/Tazon	209	27.00%
Plate	8	1.03%
Small Jar	13	1.68%
Large Jar	18	2.33%
Cylindrical Cup	6	0.78%
Undetermined	215	27.78%
Small Bowl/Seed Jar	26	3.36%
Shallow Bowl	18	2.33%
Small Globular Jar	9	1.16%
Jar	92	11.89%
Large Globular Jar	8	1.03%
Tripod Escudilla	24	3.10%
Unknown Tripod	65	8.40%
Tecomate	4	0.52%
Pedestal Based Bowl	1	0.13%
Annular Based Bowl	2	0.26%
Pedestal Based Jar	1	0.13%
Sarten/Pan	1	0.13%
Globular Jar	4	0.52%
Small Shaped Ceramic Disk	2	0.26%
<b>Total</b>	<b>774</b>	<b>100.00%</b>

Table 6.11: Operation C Vessel Form Counts and Percentages

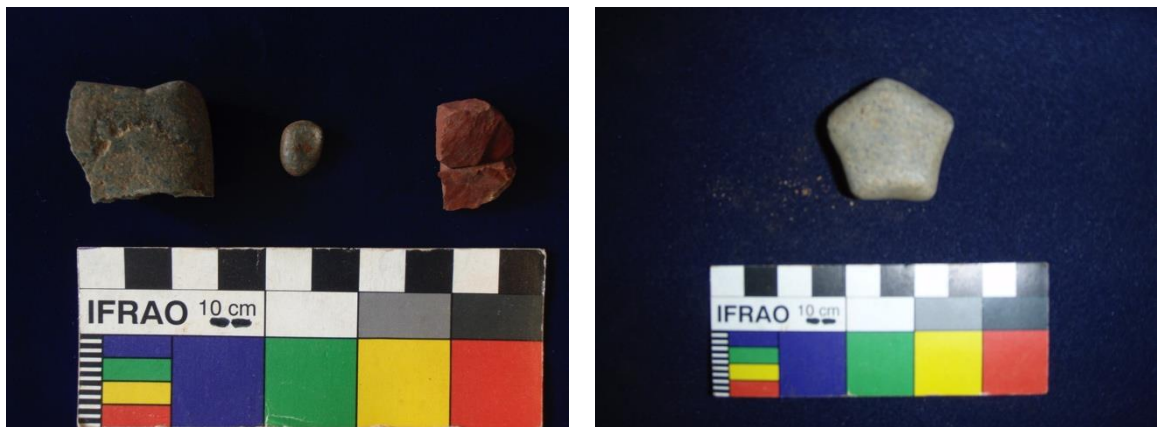
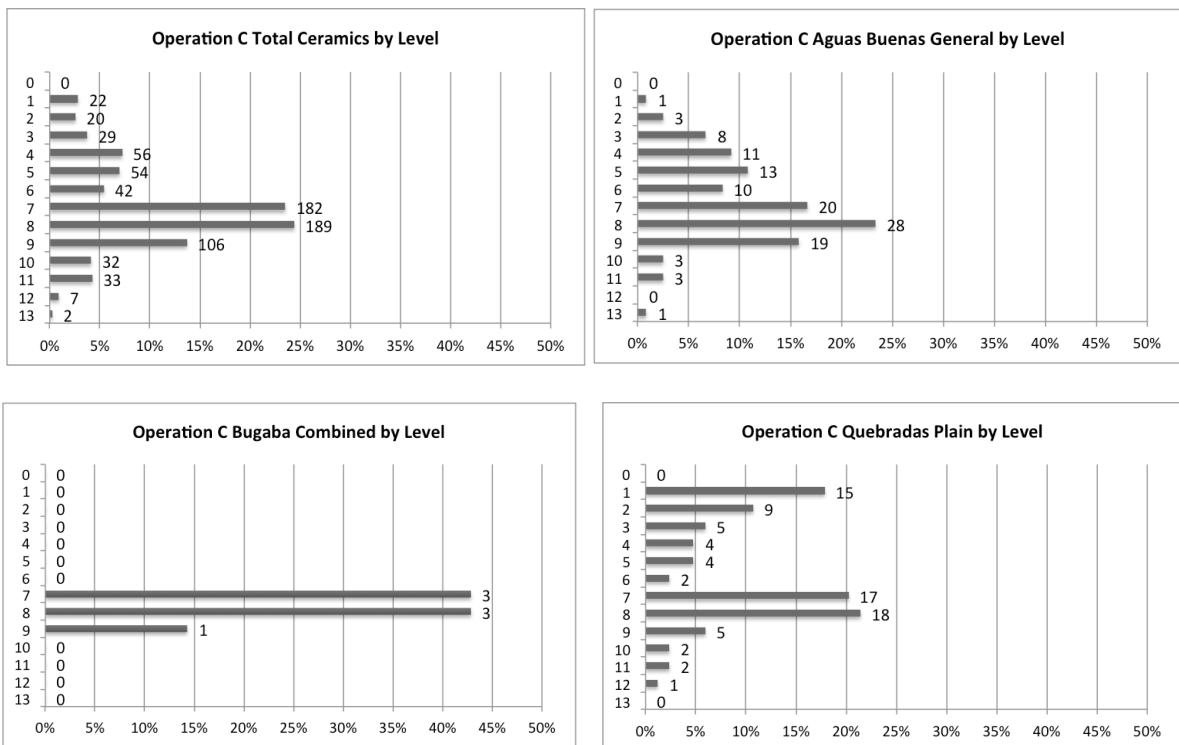


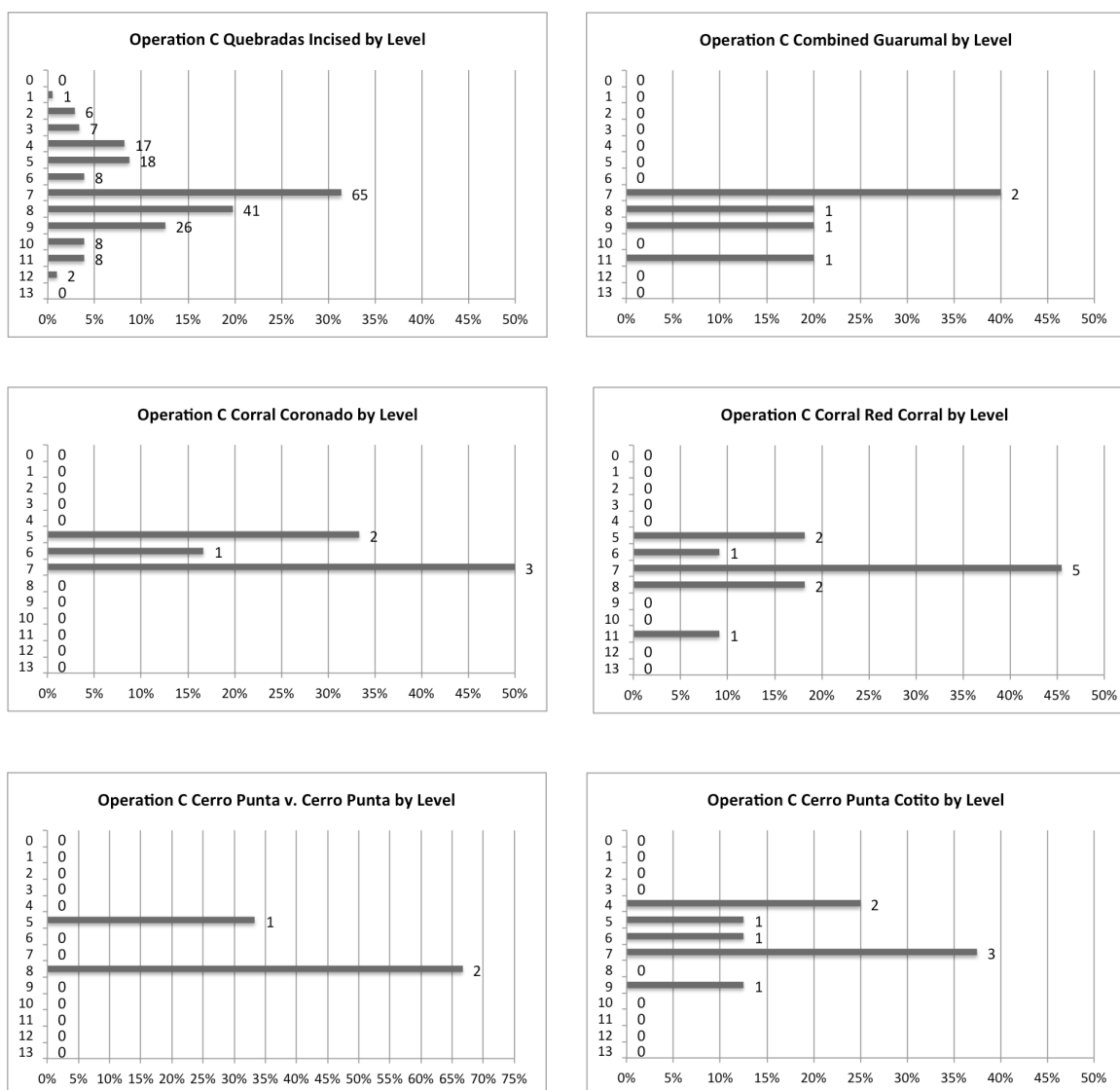
Figure 6.47: Red Jasper exhausted micro core, serpentine pebble, broken polisher and star-shaped grinding/sharpening stone found at Operation C, Levels 8 and 6 respectively

Considerable evidence for lithic reduction and production was apparent at Operation C with evidence of higher-quality raw materials such as a polished serpentine pebbles, a red jasper micro-core as well as star-shaped polishers (Figure 6.47) that were suggested to be the remains of an axe polishing stone (Guerrero pers. comm.). The possibility that

polishing was being carried out at this location was bolstered by the high frequencies of lithic artifacts at upper levels (Figure 6.49). The lithic artifacts, found at varying depths, contrasted the general lithic artifact pattern of coarse medium to low quality siltstone lithic debitage (Table 6.12).

The sparse nature of the surface of Operation C, along with the lack of any indications for tomb capstones, suggested three key possibilities. Firstly, it suggested that the paving for the structure had been severely impacted. In fact, local informants note that church associated structures in the center of the town of Palmares were largely constructed from cobbles obtained from the site. Despite this apparent abuse, it appeared that intact deposits were left largely unscathed, with only the surface paving and the southeast wall significantly impacted.

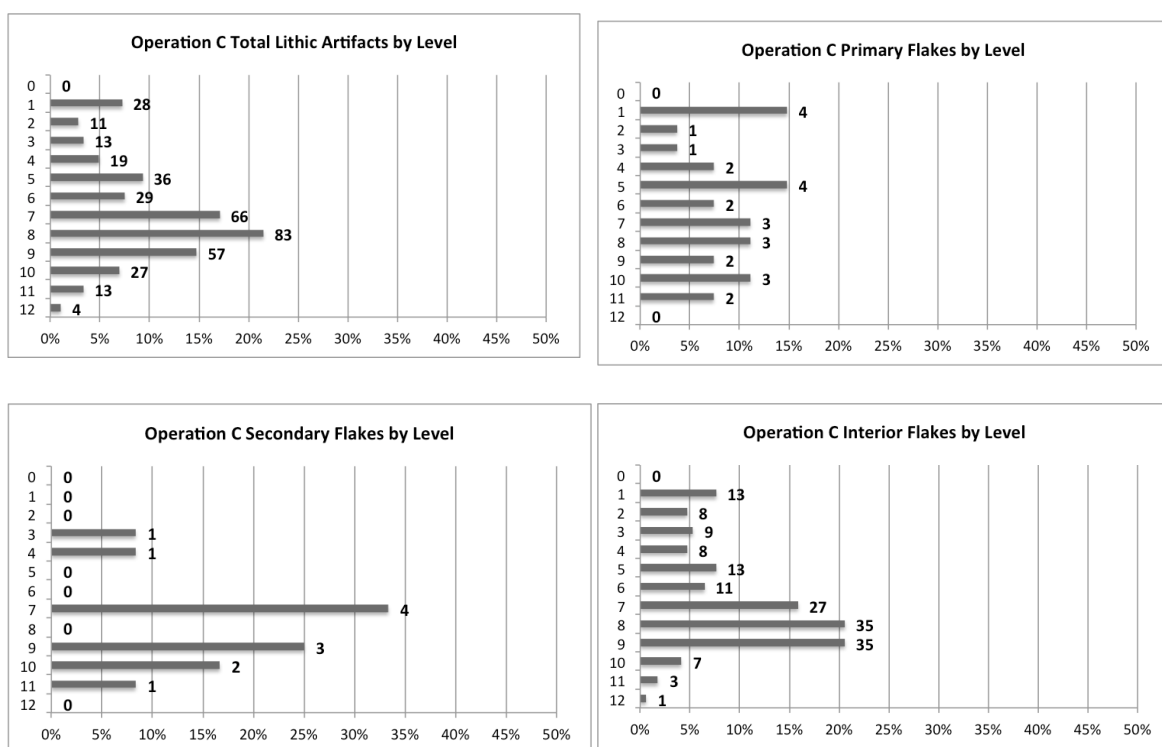


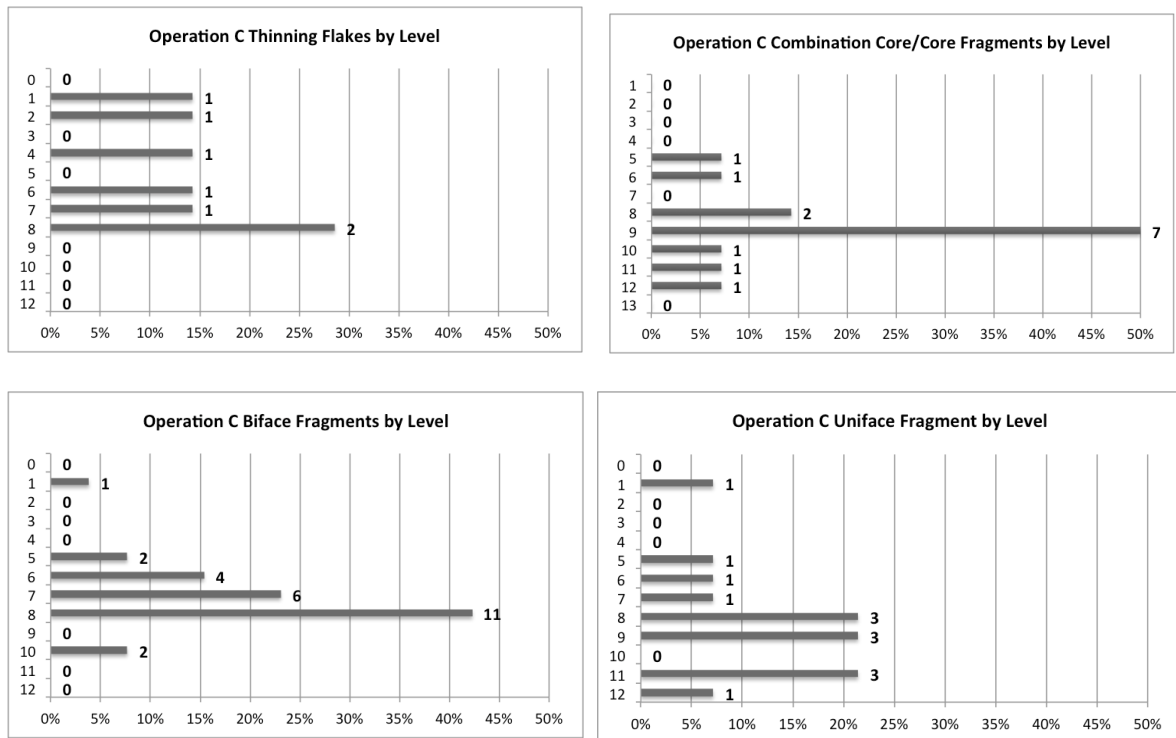


**Figure 6.48: Operation C ceramic frequencies by level (continued from previous page)**

The lack of mortuary features could therefore be the result of adverse impacts to the operation. However, the lack of tomb features, marked as it was by the presence of a large stone pillar, was conspicuous in its location. Discussed later in this study, the initial impression of the discoveries at Operation C was either one of a house mound (the initial hypothesis) or one of a central node, an axis that oriented two distinct mound sectors. While the possibility that the sector was actually a house mound remains open, standard

indicators suggestive of such structures were absent. Features such as postholes, site furniture and hearth features were not present (Figure 6.44). The division between the northern and southern sectors of El Cholo has already been mentioned, having been apparent even at the survey stage of the investigation. Therefore, discovering an area devoid of features but possessing a monumental marker such as pillar suggested at minimum the possibility of a staging area central to both the northern and southern zones of El Cholo. It should be noted that discoveries made near the periphery of Operation C during pilot excavations did yield possible mortuary features at depth (Trench 1 Unit N1034/E993). The presence of the nearby feature, bordering a location devoid of any clear funerary markers, may suggest that the mound, retaining wall and possible pillar were constructed on top of an earlier mortuary component (Figure A9).





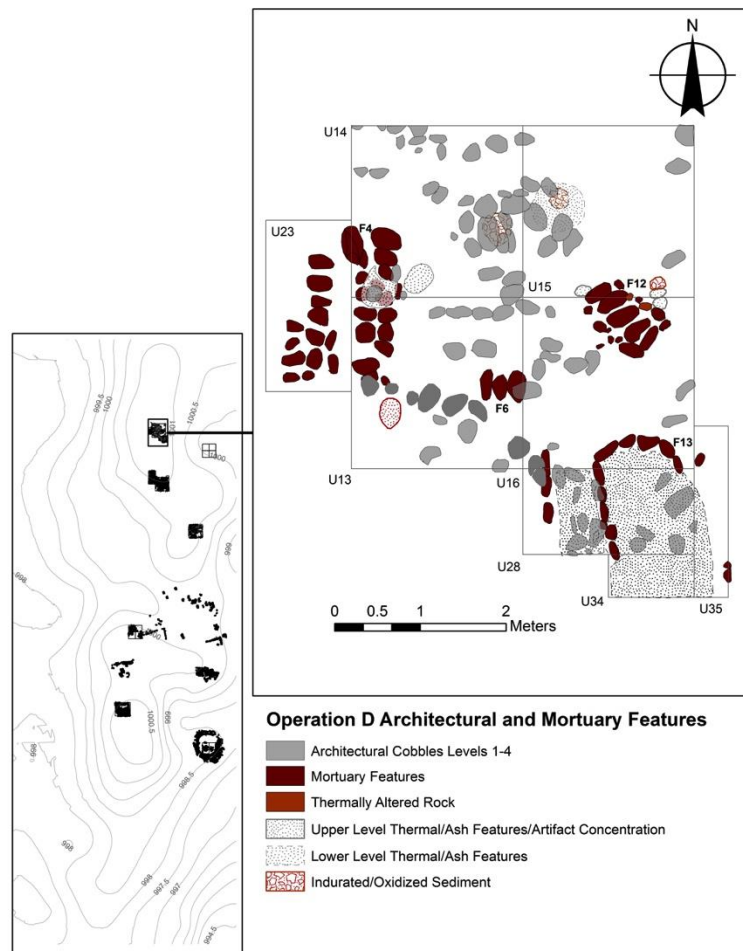
**Figure 6.49: Distributions of select lithic artifacts by level (continued from previous page)**

Moreover, the bimodal nature of artifact accumulation at Operation C (Figure 6.46) supports at minimum the likelihood for multiple depositional events that may be linked to a sequence of building, initial fill, then gradual accumulation of occupational debris atop the newly constructed/expanded mound, a pattern that roughly matches the one observed in Operation A and in subsequent operations.

<b>Reduction Stage</b>	<b>Amount</b>	<b>Percentages</b>
<b>Primary</b>	27	6.99%
<b>Secondary</b>	12	3.11%
<b>Interior</b>	170	44.04%
<b>Bifacial Thinning Flakes</b>	7	1.81%
<b>Core</b>	6	1.55%
<b>Core fragments</b>	8	2.07%
<b>Flake fragments</b>	48	12.44%
<b>Tool</b>	14	3.63%
<b>Tested cobble</b>	24	6.22%
<b>Other</b>	10	2.59%
<b>Biface fragment</b>	26	6.74%
<b>Uniface fragment</b>	14	3.63%
<b>Shatter</b>	20	5.18%
<b>Total</b>	<b>386</b>	<b>100.00%</b>

**Table 6.12: Operation C Lithic Artifact Counts and Frequencies**

## Operation D



**Figure 6.50: Plan view of Operation D showing surface and subsurface features**

Patterns identified at Operation D yielded some of the first lines of evidence connecting disparate sections of El Cholo through the presence of funerary ritual as well as more potential evidence for commensal behavior. Initial impressions of the operation indicated a severely impacted surface and likely looted subsurface, but were soon revised upon the discovery of relatively intact subsurface remains in shallow contexts (<20 cmbds). The operation produced a variety of features ranging from near surface stone alignments suggestive of a wall feature (Figure 6.50) to mortuary features and associated functionally unknown features detailed in the following section. Owing to the limitations



of the excavation permit, one of the mortuary features was left unexcavated for a later date (which never occurred due to its eventual razing).



**Figure 6.51: Operation D, view north showing presence of funerary features, artifact and carbon-rich sediment concentration as well as near-surface alignment of stones (Feature 4 is to the west) located under 10-20 cm of sediment**

Surface indications for a majority of the operation revealed dusky red to dark reddish brown to dark brown loamy sediment, ranging in scale from 7.5 YR 3/2 to 5 YR 2.5/2 and 2.5 YR 2.5/2. In general, the sediments encountered in the first 50 cm indicated some thermal activity initially thought to be the product of modern agricultural activities (Figure 6.51). However, several discoveries within the next two excavation levels (Levels 3 to 5) suggested that the dark red color of the sediments in the upper levels of Operation D was likely related to carbon-rich concentrations found in conjunction with several shattered vessels in the northwest sector of the operation. This strongly indicates that the thermal activity was likely associated with in situ or post-depositional fragmentation of said vessels, an activity noted in other operations.

Initial observations also suggested that upper level artifact concentrations were bounded by a wall feature identified within the second and third levels to the southeastern section of Unit 13. The wall was later found to be a surface alignment of stones, similar to alignments found in sectors such as Operation F but not of the same nature as the more

substantial, three course retaining walls located at Operation C and Operation F. The presence of the stone alignment just above other features instead seemed to indicate an attempt to delineate space some time after the conclusion of mortuary events. This was based on the observation of a shallow deposition of soil between the location of the alignment and lower features.



**Figure 6.52: Profile photo view west of Operation D**

It was not definitively clear that the near-surface alignment was associated with the concentrations of artifacts. However, the sequence of artifact deposition within the first four excavation levels gave the impression that thermal activity and vessel fragmentation was likely a part of a penultimate phase of occupational/ritual activity associated with a sealing and demarcation of space. This became evident as excavation continued, and the aforementioned collection of artifacts and the associated carbon feature were found to be resting a few centimeters above an alignment of stones resembling a mortuary feature (Figure 6.50 and Figure 6.51). The alignment presented a form similar to those observed

at different parts of the site but lacked some key features such as upright cobble borders and any subsurface indications of "almohada" features noted in other operations.

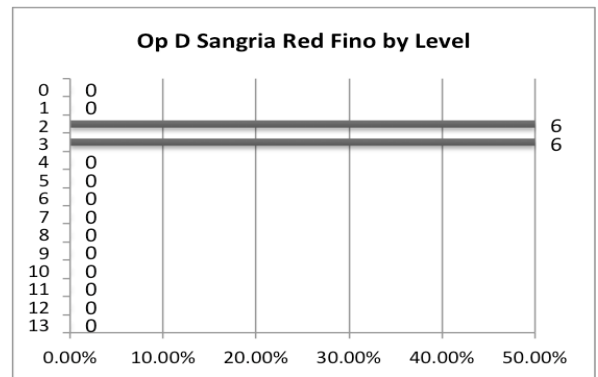
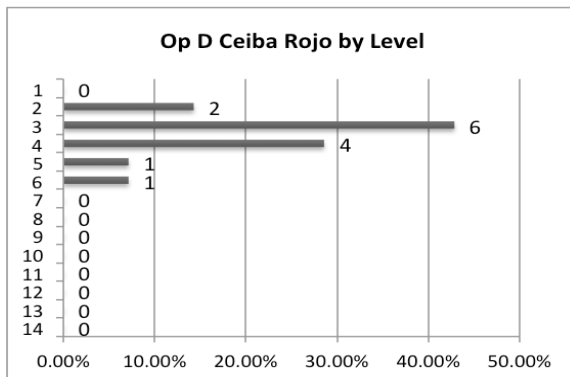
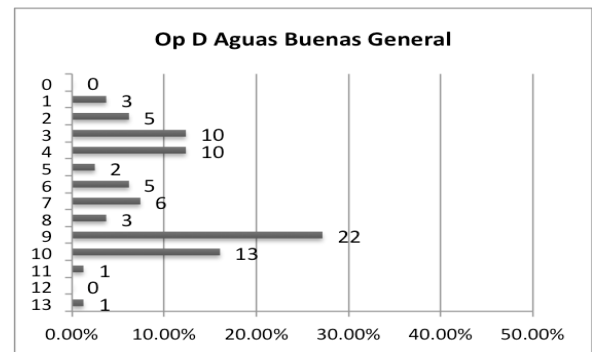
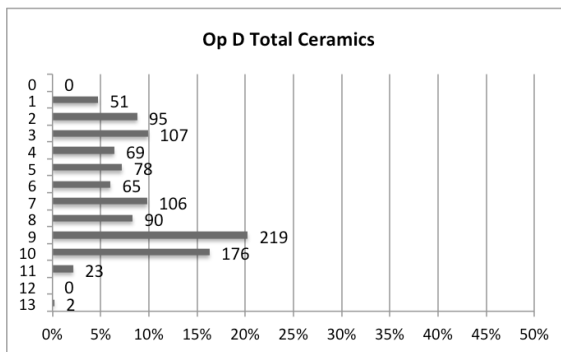
Nevertheless, a concentration of artifacts and carbon could be identified resting above the northeastern corner of what was to be labeled Feature 4 and is detailed in the feature section below.

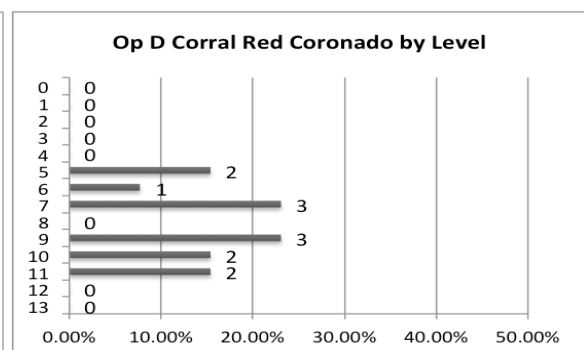
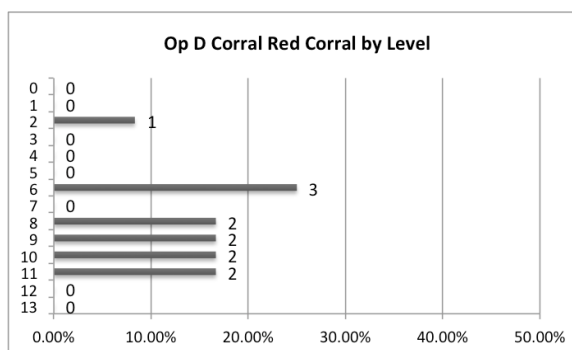
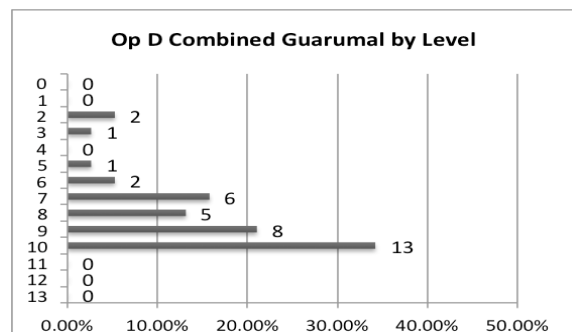
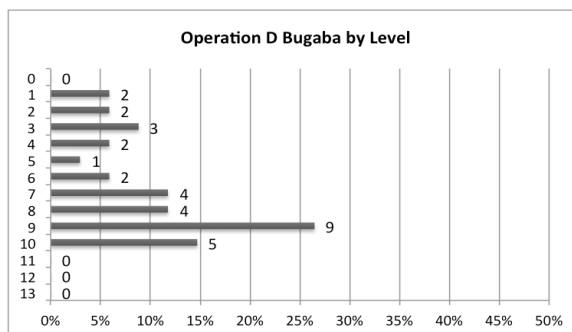
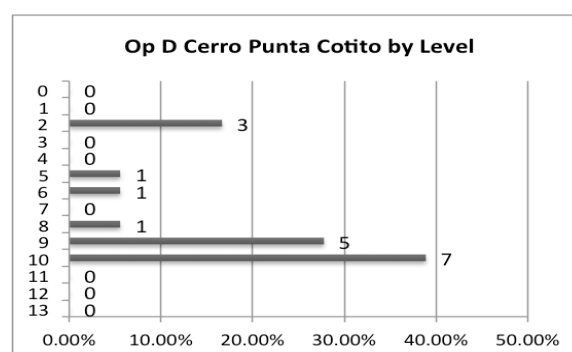
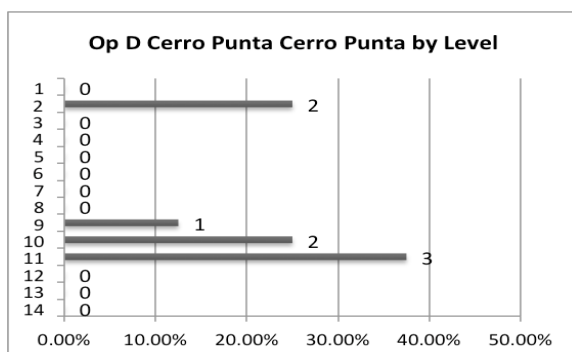
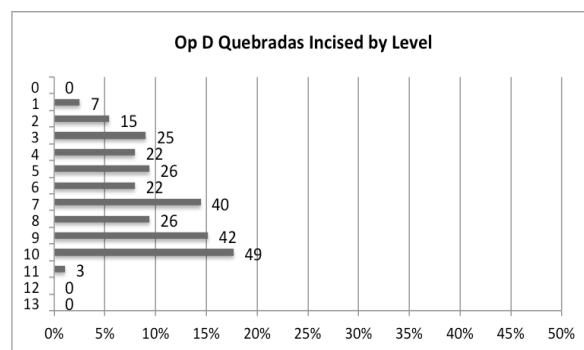
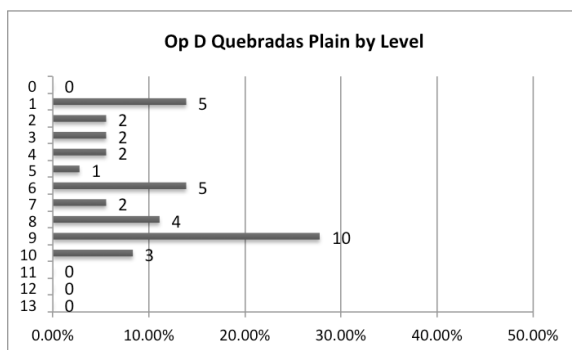
<b>Ceramic Type</b>	<b>Count</b>	<b>Percentage</b>
<b>Moravia General</b>	130	12.03%
<b>Quebradas Plain</b>	36	3.33%
<b>Aguas Buenas General</b>	81	7.49%
<b>Bugaba</b>	3	0.28%
<b>Chiriquí general</b>	5	0.46%
<b>Ceiba Rojo</b>	14	1.30%
<b>Sangria red fine</b>	12	1.11%
<b>Cerro Punta orange</b>	20	1.85%
<b>Bugaba Engraved</b>	31	2.87%
<b>Guarumal incised</b>	19	1.76%
<b>Quebradas incised</b>	277	25.62%
<b>Corral Red Coronado</b>	13	1.20%
<b>Corral Red corral</b>	12	1.11%
<b>Cerro Punta Cotito</b>	18	1.67%
<b>Cerro Punta Cerro Punta</b>	8	0.74%
<b>Guarumal v. Guarumal</b>	1	0.09%
<b>Guarumal v. Cebaca</b>	18	1.67%
<b>Unknown</b>	383	35.43%
<b>Total</b>	<b>1081</b>	<b>100.00%</b>

**Table 6.13: Operation D Ceramic Type Counts and Percentages**

From the second and third level on, sediments yielded concentrations of artifacts at varying levels throughout the operation, suggesting a sequence of periodic deposition of artifacts at different times likely associated with the different features described in this section. This was strongly reflected in the artifact patterning, which as seen in most other operations, demonstrated a multi-modal pattern associated with the multi-phase nature of the construction and behavior in the operation (Figure 6.53).

Sediments for Levels 3 to 5 demonstrated a gradual mottling predominantly characterized by dark brown deposits (5 YR 3/3) and punctuated by red and orange zones (2.5 YR 3/4) (Figure A 10). These mottled sediments at approximately 60 cmbsd yielded the only example at El Cholo of a legged metate fragment (Figure 6.54), and began to reveal concentrations of indurated reddened sediments in association with concentrations of ceramics and lithics at Levels 4 and 5 (Figure 6.55). These reddened sediments were also associated with another concentration of artifacts close to the center of the operation in Unit 15 as well as a new feature that began to emerge at Level 4 and was fully defined by Level 5.

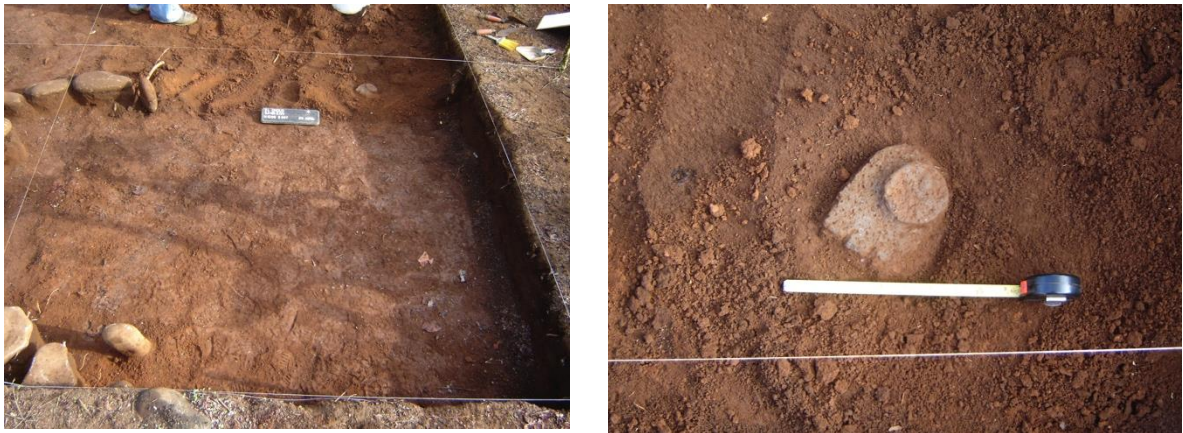




**Figure 6.53: Operation D ceramic type distributions by level (continued from previous page)**



This feature, labeled Feature 12, which is described in fuller detail below, was notable in that it was surrounded by small loci of red-orange indurated soils containing several small cobbles of thermally altered rock similar to other patches interpreted to be thermal events. Feature 12 was found 20 cm directly below the previous discovery of the metate fragment as well as Aguas Buenas rim sherds and various zoomorphic applique figurines (Figure 6.55). Whether indicative of ritual offerings above Feature 12 or a later activity zone above it, the sequence observed for Feature 12 seemed to fit a general operation-wide trend demonstrating an almost stepwise descent into lower and older instances of a related funerary/ritual practice.



**Figure 6.54: In situ find of legged metate fragment above approximate location of Feature 12**

The sediment around Feature 12 graded from mottled reddish deposits (2.5 YR 3/6) with dark and orange patches (5YR 3/3, 2.5/2; 2.5YR 3/6) to darker sediment (5 YR 4/3-3/3) at approximately Level 7 continuing through Level 10 and becoming consistent throughout the operation. At Unit 16, Level 10, these dark sediments yielded Quebradas ceramics with carbon attached, which provided an early 3<sup>rd</sup> to 4<sup>th</sup> century radiometric date for the strata (Table C1). Excavations also recorded the presence of a three-stone feature

(Figure 6.56), which, like Feature 12, rested at the contact of the lower dark sediments and the higher mottled dark orange and red sediments. No indications of disturbance were apparent within and around the three-stone feature. Rather, it appeared to be one of a class of features that would be designated "cairns," as they seemed to demarcate space with no specific domestic or mortuary function directly attached to them.



**Figure 6.55: Oblique view northwest showing indurated and reddened sediments at middle levels**

After this puzzling find, another configuration of stones was subsequently identified as another mortuary feature at 100 cmbsd. Feature 13 was one of the deepest features found at the site and yielded the second radiometric date for the operation, obtained from a Quebradas sherd located at the contact of the dark sediment within the arrangement of cobbles. The dates from this sample overlapped with the one recorded for adjacent Unit 16, ranging from early 3<sup>rd</sup> to 4<sup>th</sup> century. The feature did not contain an interior configuration of cobbles noted for other mortuary features but was associated by a dense organic and carbon concentration as well as a slightly deeper standing cobble feature on

its western flank (Figure 6.56). Once again, the feature had no definitive function. Found beside a mortuary feature, and within a dense concentration of carbonized sediments, the feature appeared to be fire-related. It was placed within the "cairn" class, though it did seem to be associated with the interment to its east.

<b>Vessel Form</b>	<b>Count</b>	<b>Percentages</b>
<b>Bowl</b>	64	5.92%
<b>Olla/Tazon</b>	376	34.78%
<b>Plate</b>	6	0.56%
<b>Small Jar</b>	8	0.74%
<b>Large Jar</b>	22	2.04%
<b>Cylindrical Cup</b>	2	0.19%
<b>Und</b>	234	21.65%
<b>Small Bowl/Seed Jar</b>	8	0.74%
<b>Shallow Bowl</b>	27	2.50%
<b>Small Globular Jar</b>	28	2.59%
<b>Jar</b>	136	12.58%
<b>Large Globular Jar</b>	7	0.65%
<b>Tripod Escudilla</b>	39	3.61%
<b>Unknown Tripod</b>	56	5.18%
<b>Tecomate</b>	4	0.37%
<b>Pedestal Based Bowl</b>	12	1.11%
<b>Annular Based Bowl</b>	6	0.56%
<b>Sarten/Pan</b>	1	0.09%
<b>Globular Jar</b>	35	3.24%
<b>Small shaped ceramic Disk</b>	1	0.09%
<b>Figurine</b>	2	0.19%
<b>Esc</b>	6	0.56%
<b>Pedestal Base</b>	1	0.09%
<b>Total</b>	<b>1081</b>	<b>100.00%</b>

**Table 6.14: Operation D Vessel Form Counts and Percentages**

Compared to other features located within Operation D as well as the presence on the near surface of early Chiriquí phase ceramics, Feature 13 and the lower dark sediments seen at Levels 7 through 10 seemed to present the earliest stages of funerary and occupational behavior among a periodically and continuously used mortuary area. The complexity in grave location and behavior encountered in the operation was comparable to Operation A but demonstrated a greater variation in the form and size of features as



well as in the uniqueness of some of the forms to the operation. Like Operation A, this suggested that Operation D exhibited changes in mortuary features form over time.



**Figure 6.56: View west and south of Operation D showing Feature 13 and emerging Feature 20 with ash concentration and artifact concentration**

The artifact patterning, thermal alteration and ceramics fragmentation present at Operation D shared many similarities with the other sectors of El Cholo. All Formative period ceramic types were represented in the operation, with the addition of Sangria Red Fine and Ceiba Incised located at the uppermost levels of the operation and associated with Feature 4. Aside from these near-surface early Chiriquí phase deposits, Quebradas and Aguas Buenas were the predominant types represented within the levels at Operation D (Table 6.13).

As with other operations, ceramic frequencies demonstrated a bimodal distribution strongly suggesting a pattern associated with multiple depositional events associated with funerary ritual, construction or augmentation of the mortuary zone. Throughout

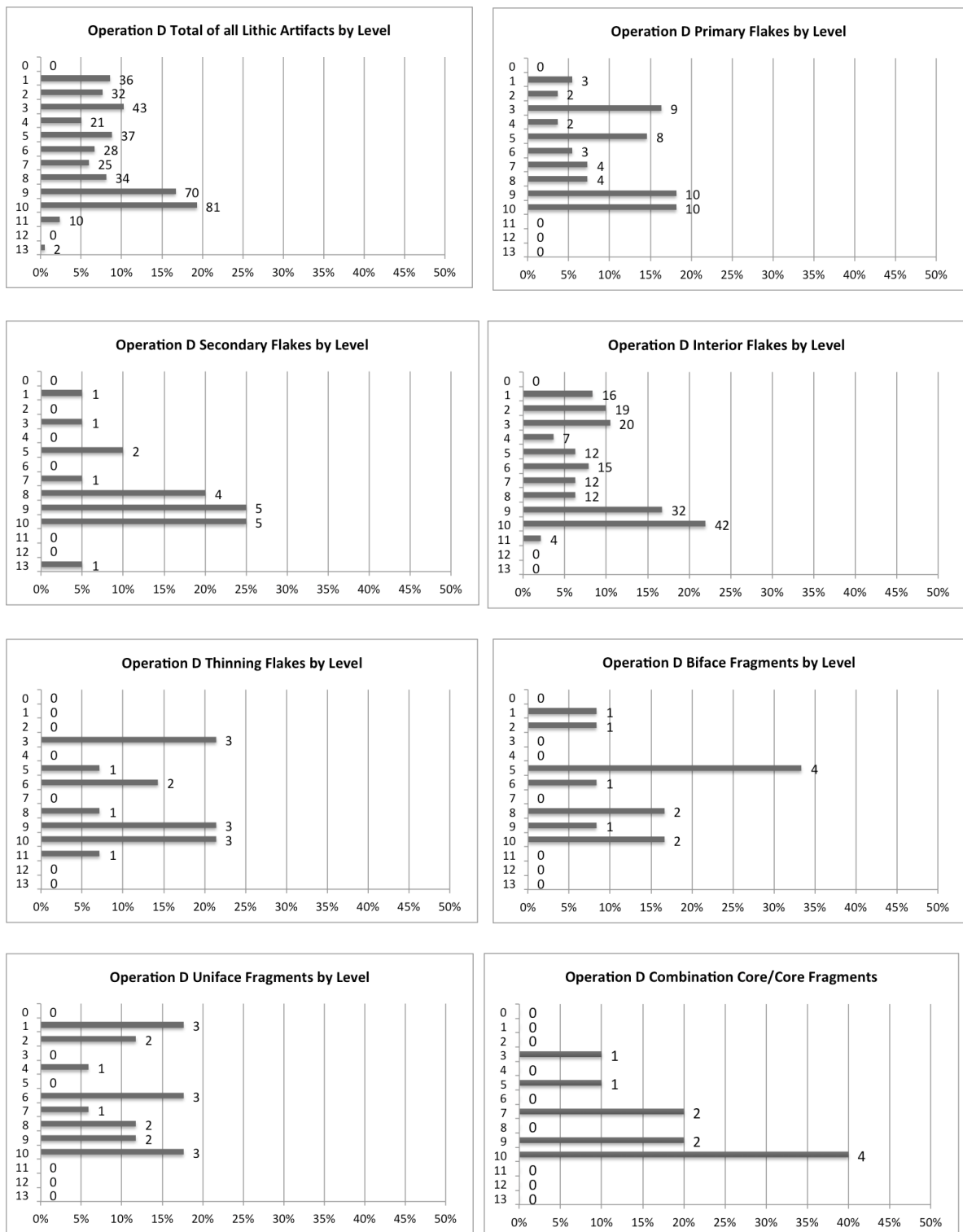
excavation and preliminary analyses, ceramic forms seemed to indicate a mixture of behaviors including ritual deposition of funerary vessels as well as the production and distribution of comestibles possibly associated with funerary commensal behaviors (e.g., Blinman 1989; Blitz 1993). This was borne out by vessel form distributions (Table 6.14) that demonstrated high percentages of olla/tazon ceramics followed by jar and bowl frequencies.

The question regarding house deposits versus ritual deposits, raised when analyzing Operation C, were also applicable at Operation D; however, the pervasive nature of the organic concentration, and the location of indurated and oxidized spots throughout the operation, looked less like burned postholes or the midden-like refuse concentrations of habitation activities and more like the intentional placement of censers and ceramics, whose heated nature would have thermally altered the floors beneath them. This non habitation scenario became more compelling in the field, as some of the best preserved examples of just such behaviors became visible at Operation D, corroborating other direct indications observed at Operation A and later at Operation G as well as indirect markers at Operations E and F.

<b>Reduction stage</b>	<b>Count</b>	<b>Percentage</b>
<b>Primary</b>	55	13.13%
<b>Secondary</b>	20	4.77%
<b>Interior Flakes</b>	191	45.58%
<b>Thinning flake</b>	14	3.34%
<b>Core</b>	4	0.95%
<b>Core fragment</b>	6	1.43%
<b>Flake fragment</b>	51	12.17%
<b>Tool</b>	4	0.95%
<b>Tested Cobbles</b>	19	4.53%
<b>Other</b>	16	3.82%
<b>Biface fragment</b>	12	2.86%
<b>Uniface fragment</b>	17	4.06%
<b>Biface</b>	0	0.00%
<b>Uniface</b>	0	0.00%
<b>Shatter</b>	10	2.39%
<b>Total</b>	<b>419</b>	<b>100.00%</b>

**Table 6.15: Operation D Lithic Artifact Counts and Percentages**

Excavations also revealed a multi modal lithic artifact presence throughout (Figure 6.57) the stratigraphic sequence, although some finds, such as a waisted axe in the southeast quadrant above Feature 13, are thought to be part of a post-funerary offering directly related to it. Nevertheless, lithic artifact patterns paralleled ceramic distributions with fluctuating frequencies marked by a general decrease in intensity as levels approached Levels 5 and 6 followed by a marked increase roughly corresponding to the emergence of darker organic rich levels beginning at Levels 7 and 8 (Figure 6.57). Relatively high quantities of interior flakes, thinning flakes and cores suggested a constant process of lithic reduction and curation, similar to that seen in the other operations. Their presence alongside and throughout multiple levels of funerary activity seems to point to a possible combination of commensal and mortuary ritual preparatory activity at multiple points throughout the history of the area.



**Figure 6.57: Operation D lithic artifact distributions by level**

Below is a summary of the general characteristics and impressions of the features recorded in the field for Operation D, with further analysis detailed in the results section of the dissertation.

#### **Feature 4:**

Located on the western flank of Operation D, Feature 4 exhibited characteristics consistent with features found in other operations. As mentioned in the general description, during excavation, prehispanic activity became apparent within 10-20 cmbsd. However, the cobblestones of Feature 4 were located at 50 cmbsd (Figure 6.51) under what appeared to be the remains of offerings. Lacking some characteristics noted for other mortuary configurations, the feature was set apart morphologically, and based on the artifacts found directly above it, may have been one of the latest period manifestations of mortuary form for El Cholo.

Interestingly, excavations identified a large cobble with three clearly ground faces resting on top the northwest sector of the feature, actually straddling Feature 4 and the unexcavated feature adjacent and west of it (Figure 6.59). This cobble, resembling grinding patterns reminiscent of axe sharpening grooves in the Americas and Africa (David 1998; Nelson and Lippmeier 1993), was thought possibly to be part of a lithic production toolkit and possibly part of the site and ritual furniture that was used to curate lithic artifacts. Carbon concentrations were identified straddling the northeastern boundary above several centimeters of sediment above the cobble feature. The shattered remains of Quebradas pottery as well as a Sangria Red fine shallow tripod vessel and Buenos Aires Incised globular jar accompanied the carbon concentration, displaying a

depositional pattern observed in profile sections and subsurface deposits in other operations.

The Sangria Red and Buenos Aires vessels were able to be reconstructed and yielded clear evidence of burning and intense fire clouding from the interior of the Sangria Red vessel, seemingly used as a form of censer (Figure 6.58). Both the Sangria and the Buenos Aires vessels were smashed and pressed into the sediment in a manner that suggested only slight movement of sediment through post-depositional activity. Despite the impact of modern activities over the centuries, the relative positions of the ceramic vessels and the ash concentration strongly suggested this to be a relatively well preserved example of fire ritual utilizing ceramics, possibly fragmenting them upon termination of the activity.



**Figure 6.58: Sangria Rojo pedestalled bowl with evidence of burning on the interior**

The positioning of the material within sediment just above the feature initially suggested two possibilities: ritualized behavior conducted immediately after the initial covering of the cobble feature, or as the slightly later period ceramics may suggest, a revisiting of said feature at a later time period. However, as discussed in the later analytical section,

there is debate over the actual temporal placement of the two Chiriquí vessels identified above Feature 4.

Aside from the darker ash concentration in the northeastern sector of the feature, sediment just above Feature 4 consisted of dark reddish brown (5 YR 3/2) silty clay with bioturbation present in the southern portion of the feature as capstones were removed (Figure A 10). Underlying soils appeared massive in structure, exhibiting the same reddish brown color and texture observed throughout the feature profile. The sediments below the capstones yielded very little material, producing Quebradas plain and Incised as well as Corral Red and Corral Red v. Corral. These were found in relatively small quantities and dispersed through the level (Table F 14). Sediment color became mottled and crosscut by filled-in rodent tunnels as excavations approached 65 cmbsd, but remained reddish brown overall (5YR 3/3). Level 2 yielded no intact ceramic vessels, although the presence of Corral Red v. Corral at both levels suggested movement of ceramics through rodent tunneling. The mottled sediments eventually culminated at 65 cmbsd in a concentration of fragmented artifacts consisting of quebradas ceramics, one unidentifiable ring-shaped ceramic item thought to be a pot stand, an El Bosque rim sherd as well as a complete waisted chipped stone axe (Figure 6.59).





**Figure 6.59: Feature 4 showing concentration of artifacts in upper levels in the northern sector and subsequently in the lower level with waisted axe and ceramic sherds**

These artifacts rested at the boundary of the lighter reddish brown sediment and a darker organic layer similar to the organic layer noted at the same level for other operations.

Field review suggested that the interment may have dated to an older phase of activity and was revisited at a later time period coinciding with the deposition of the sangria red and Buenos Aires ceramics. This was suggested by the presence of older ceramics such as El Bosque, as well as the presence of early 3<sup>rd</sup> and 4<sup>th</sup> dates obtained from Feature 13 across operation within the same organic horizon.



The stratigraphic position of the organic concentration, coeval with the placement of the lower axe and ceramic concentration, tentatively supports the assumption that this was the location of an extended burial and offering, albeit modest in quality. Whether the feature was intrusive or revisited remained in question, but the paucity of offerings matched that of those observed for other mortuary features in this study. Underlying levels (107 cmbsd) yielded fragments of Aguas Buenas phase cylindrical vessels, although these artifacts may in fact have been associated with a prior period of activity and not Feature 4. The presence of a figurine fragment found below the waisted axe may suggest otherwise.

As mentioned, on the surface, Feature 4 was paired alongside another possible mortuary feature, which was not excavated due to time constraints. This feature did not exhibit any signs of ritual offering above the capstones, although the two complete vessels may well have been for both interments. Unfortunately the feature was unable to be excavated at a later date due to the eventual destruction of the sector of the site that contained it.

Regardless, it remains an open question whether Feature 4 represented an intrusive burial with older artifacts strewn within it or if it represented an older interment, contemporaneous with a stratigraphically related feature southeast of it. The lack of any subsurface capstones would suggest the former, with the older El Bosque ceramics indicating a form of heirloom item or cultural "calling card" (Crown and Bishop 1994). However, given the artifacts within the lower features, especially in contrast with the later period ceramic vessels found on the surface, deposition may indicate re-visitation; albeit the length of time between these events is not entirely clear.

### **Feature 6:**

As mentioned above, Feature 6 presented a puzzle, as it did not display the typical characteristics of mortuary features found thus far (Figure 6.60). Rather, it struck an isolated figure, composed of three stones resting within a pervasive organic-rich layer at approximately 60 cmbsd. Interestingly, the feature paralleled a similar set of three stones located due south within Operation F, the only other mound of equal if slightly taller height, raising a question of symmetry and duality that has been brought up by some scholars working in the area (Frost 2009). Sediments leading up to this feature matched the surrounding clayey, dark brown to dark reddish brown (7.5 YR 3/2; 5YR 2.5/2; 2.5 YR 3/6), somewhat mottled sediment noted for the operation as a whole. The thick layer of darker sediment (7.5 YR 3/2), in which the feature rested, was consistent throughout the entire unit, and with the exception of two operations, was consistently found at approximately 70-90 cmbsd throughout all operations.



**Figure 6.60: View north and south of three-stone feature at Operation D in association with ash concentration, Features 4 and 12 and an emerging Feature 13 in the southeast**

However, sediments immediately beneath the feature were markedly lacking in any archaeological material, yielding only 15 ceramics and 10 lithic artifacts in sum. While samples were taken from the sediment underlying Feature 6, there was no indication of offerings, nor any changes in sediment composition that would have suggested interment. The position of the feature at the contact of the organic horizon might suggest, as seen at surface level, that the stones represented another slightly older form of spatial delineation or demarcation. This possibility and the prospect of a homologous feature in Operation G will be discussed further within the analytical and discussion section of this study.

#### **Feature 12:**

This feature fit the general profile for mortuary features recorded throughout El Cholo but differed significantly in its dimensions. At 95 cm by 71 cm, Feature 12 was smaller by a significant margin. However, it exhibited features most similar to those encountered in Operation A (Figure 6.61). Composed of a rectangular border of cobbles with a single interior row of larger cobbles, Feature 12 yielded a chipped cobble reminiscent of a groundstone mano, embedded in its western flank (Figure 6.62). The chipping on the artifact as well as an associated pebble near the lithic artifact, however, suggested that the cobble might in fact have been a crude pestle or unexhausted core rather than a groundstone item.



**Figure 6.61: View north of Feature 12 showing indurated deposits in the surrounding sediment**

Unlike the majority of other features, this feature did not exhibit any clear indications of soil stains, nor did soil texture vary in any way to suggest interment below the feature. As mentioned in the operation-wide summary, reddish and indurated sediments were associated with the feature, highlighted by a central zone of carbon deposition within these areas. These soils showed a significant shift from the reddish brown soils of the upper levels to the mottled and patchy indurated deposits just as Feature 12 emerged at approximately Level 5. The patterns around the feature strongly suggested burning and oxidation of soils at or just above the level of contact with the feature. The presence of a legged metate fragment approximately 20 cm above this feature, mentioned in the general operation summary and roughly corresponding with the oxidized sediments, suggest that it may have part of the depositional sequence.



**Figure 6.62: Chipped stone artifacts found at the side of Feature 12**

Aside from the potential for material above Feature 12, material culture was moderately present. However, relative to the other features encountered at El Cholo, Feature 12 exhibited no clear indication of fragmented ceramic offerings. Quebradas Incised variety was the most abundant, with several instances of Bugaba Engraved suggesting an affinity with the rest of the site (Table F 16). The positioning of these artifacts just below the feature, however, begs the question as to whether it represented an interred offering affected by bioturbation or if it represented a subfloor beneath a feature designed as platform for rituals conducted at the surface, as suggested by the indurated carbon zones around it.

Lithic artifacts were well represented (Table F 16), yielding a relatively high percentage of interior and thinning flakes as to suggest production and curation of artifacts, an increasingly common pattern throughout the occupation of El Cholo. However, in the case of Feature 12, no clear axe offering, such as that seen at other mortuary features, was evident. Rather, the only indication we have of intentional activity aside from the

construction of the feature was the placement of the cobble in the wall of the feature as well as the burn zones flanking the unit. Given previous research indicating the ritual deposition of lithic refuse in areas such as Arenal (Sheets and McKee 1994), one cannot discount the possibility that this smaller feature represents a cache.

### **Feature 13:**

Feature 13 proved to be the deepest mortuary feature in Operation D, and as in some other cases throughout El Cholo, there were no clear surface indications suggesting its presence. However, despite examples of good preservation at Operation D, there were indications that the surface and flanks of the operation suffered impact from modern era looting and agricultural activities (Figure 6.63). Regardless, the excavation managed to hit upon what at first appeared to be a circular feature but subsequently was identified as a grave feature upon its expansion.



**Figure 6.63: View north of Feature 13 showing Feature 20 on its western edge and evidence for looting on the southern and eastern sectors**

As noted above, the feature did not become apparent until 100 cmbsd. Sediments above Feature 13 were characterized as reddish brown (5YR 3/3) with orange and black mottling (5YR 2.5/1), but graded into a more consistent dark level at 5YR 3/3 past 100 cmbsd. The dark sediments from the northwest section of the features produced ceramics with carbon dated to the early 3<sup>rd</sup> century AD (2 sigma). Additionally, excavations of Feature 13 revealed a peculiar upright feature (Feature 20) on its western edge. The upright feature was found embedded deep amid a concentration of dark sediments, suggesting a similar mortuary behavior seen in later occupational phases (Figure 6.64).

As was the case for most units and operations at El Cholo, the darker sediments from Levels 7 to 11 generated a significant number of artifacts. These strata were the contact point for the mortuary cobbles composing Feature 13. The feature presented only a rectangular border and did not contain any interior cobble paving, distinguishing it from Features 12 and 4. It did yield a considerable concentration of ceramic and lithic artifacts, suggesting—as with Feature 12—either the cumulative refuse of a floor or fill at the contact of the feature or the remains of offerings.





**Figure 6.64: Close-up of Feature 20**

Ceramics were composed predominantly of Quebradas Incised (Table F 17). However, there were also indications of Bugaba Engraved as well as possible El Bosque ceramics, although as opposed to the instance found in Feature 4, there was less confidence identifying the El Bosque sherds. Alternatives to El Bosque in this case may be La Selva or even Bambito. Sherds of Cerro Punta Cotito as well as both Corral Red varieties were also represented in the first level of an expansion unit south of the main operation, with only Quebradas and Aguas Buenas varieties represented in the second level. The third level yielded only one unknown sherd, suggesting the excavation had approached near sterile or at least the termination of any deposits associated with the feature at approximate 184 cmbds.



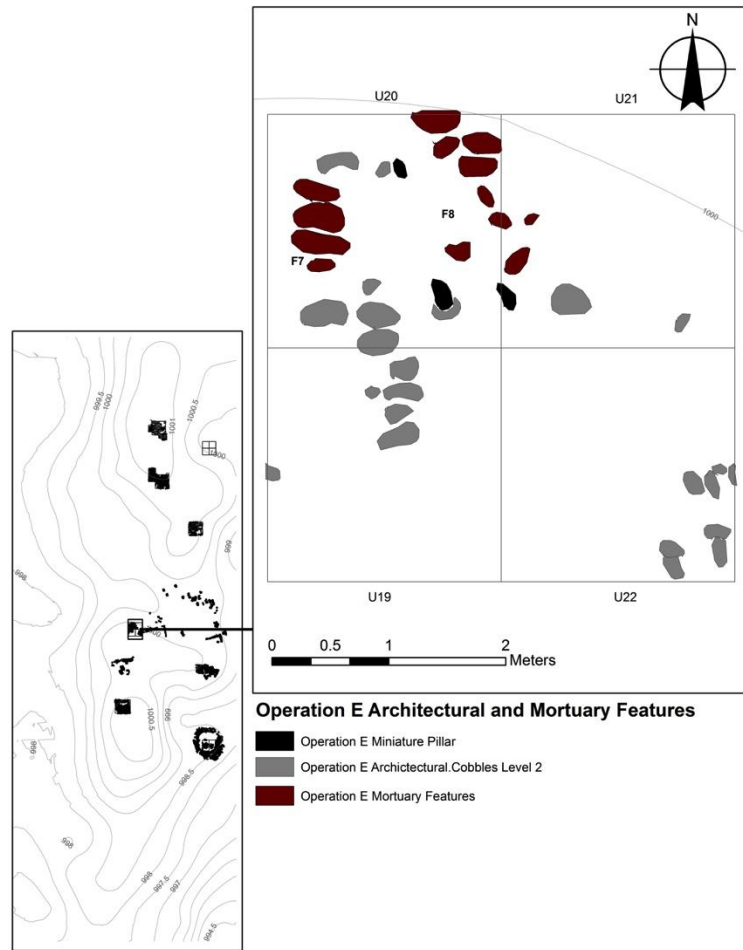
The majority of artifacts were found just above an even darker patch of sediment that was identified as a soil stain or “shadow corpse” (Quilter 2004). Within several centimeters of excavation of the stain, a familiar sight of an almohada emerged associated with carbonized ceramics and axe fragments at 147 cmbds (Figure 6.65). A similar pattern was observable at this deeper level, with potential fire ritual and ceramic fragmentation as well as lithic offerings made in the form of lithic axe fragments apparently interred within the grave feature. The pattern evident in the lithic artifact distribution, if not found in the context of a mortuary feature, might suggest that the refuse area was the result of an intensive activity zone focused on production, given the presence of core fragments and associated debitage. However, given that core fragments were found in grave or cache contexts at areas such as Operation A, the possibility that this instead represented ritual interment was indeed likely. That it was also associated with thermal events linked Feature 13 to the other operations as well.

The allusion to fire ritual was strengthened by the aforementioned presence of an intense concentration of carbonized sediments beside the features and completely encompassing Feature 20. This standing feature or cairn, as mentioned, may have been a form of fire reflector or retention feature, although its structure did not seem to contain or reflect any fire that would have produced such a heavy carbon residue. However, the heavy concentration of carbon beside the feature suggests a continuity with places such as Rivas, noted for its fire ritual in the 14th century going back to at least the 3<sup>rd</sup> century AD (Frost 2009), suggesting that El Cholo may have been a precursor to the behaviors seen at the later period mortuary location.



Figure 6.65: Near base of Feature 13 showing the "almohada" stone in the northern sector

## Operation E



**Figure 6.66: Plan view of Operation E showing upper level features**

Located on the northern flank off of one of the two highest points at El Cholo (the other being at Operation D), Operation E presented surface conditions initially thought to be nearly completely impacted by modern agricultural activities. Sparse distributions of cobbles found on the surface were interpreted to be the disturbed remnants of mound pavements, and ash concentrations were interpreted as the remains of root burning of coffee plants, chilies or other crops observed throughout the finca. After some excavation, sediments seemed to suggest that if these sparse cobble features were

complete, they were only shallow sub 60 cmbsd features. As with other operations, it was only after piercing through several consolidated layers of sediment that a resurgence in artifact-producing strata became apparent. Consequently, the interpretation of these strata as superficial or disparate was replaced with the conclusion that this section of mound, as with other sectors at Cholo, consisted of a variable series of depositional events, likely linked through a ritual continuity throughout the site.



**Figure 6.67: Operation E view southeast and west showing exposed upper Features 7 and 8 as well as remains of possible retaining wall/abutments. Note the "pebble" offering for Feature 7 as well as the upper ash concentration and lower oxidized levels below Feature 8.**

Surface sediments consisted of dark brown loam (7.5 YR 3/4-4/4) for the first five levels of the operations, with some mottling present in the northern sector (Figure 6.65 to 6.67).

The relatively sparse presence of surface features was punctuated by a few cobbles resembling small pillars within the first three levels. Their presence suggested that they may be the remains of the same form of small corner pillars such as those found at Operation A, and at first bolstered the supposition that there were disturbed pavements and that features like those found at Operation A had been stripped from the surface.

We continued with this operating assumption, although two possible stone alignments had been located in Unit 20 of the operation. These alignments did not come into full

view until approximately 30 cmbsd. A combination of factors such as the relatively unconsolidated and humic nature of surface sediments, the lack of knowledge of Formative period grave features and the initial supposition that El Cholo represented a habitation site prompted the investigation to proceed conservatively. As such, potential alignments were initially noted as pavement remnants until further evidence dictated changes in classification.

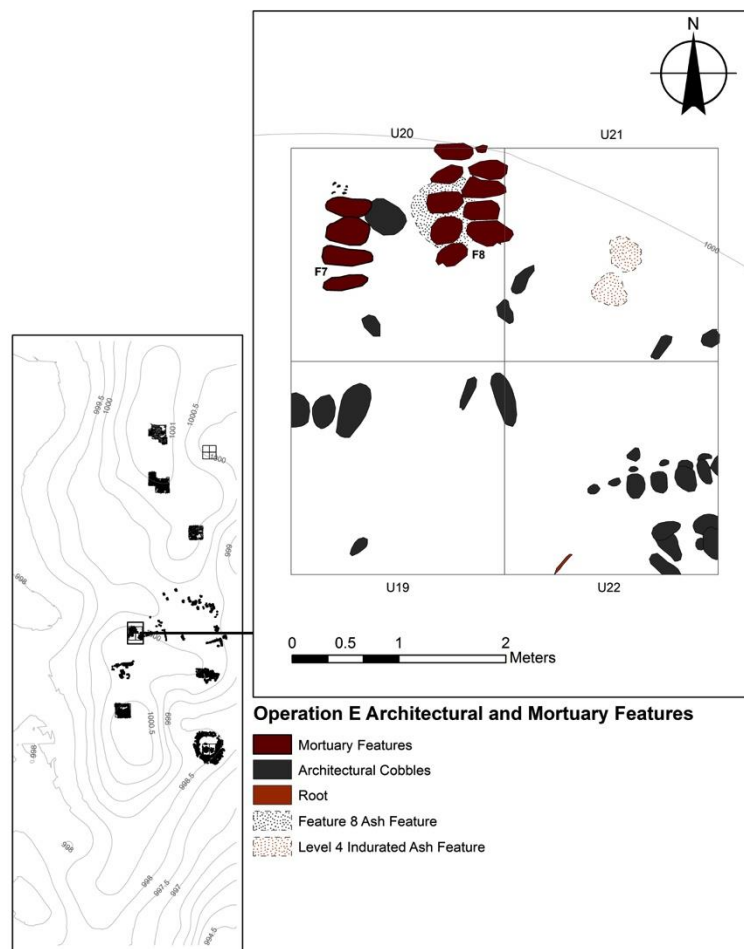
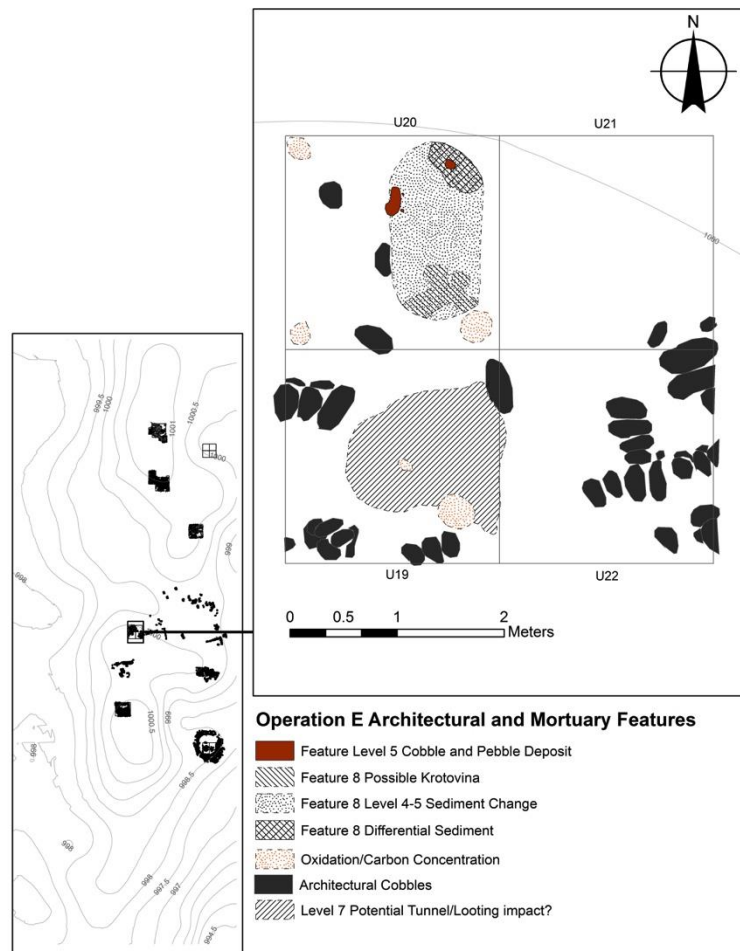


Figure 6.68: Plan view of Operation E showing exposed mortuary features

Regardless, the two surface alignments did provide some indication that they were possibly mortuary features, characteristics that are detailed in their own separate descriptions later in this section. However, although initial surface patterns seemed promising, clear grave wall boundaries and sediment texture never exhibited the composition that is generally associated with burial. To the contrary, at around 50-60 cmbsd, soil color shifted from darker sediments to reddish brown clay loam (5YR 3/3-3/4; 7.5 YR 3/4) suggesting that excavations had reached mound fill. These developments suggested that the surface features were indeed shallow and prompted a provisional interpretation that they were mound markers, or even “false” tombs much like those observed in later Chiriquí phase sites (Frost 2009; Quilter and Frost 2007; Quilter and Vargas 1995) and observed by Badilla in his rescue excavations (Badilla Cambronero 2009).



**Figure 6.69: Plan of lower level (4-7) features**

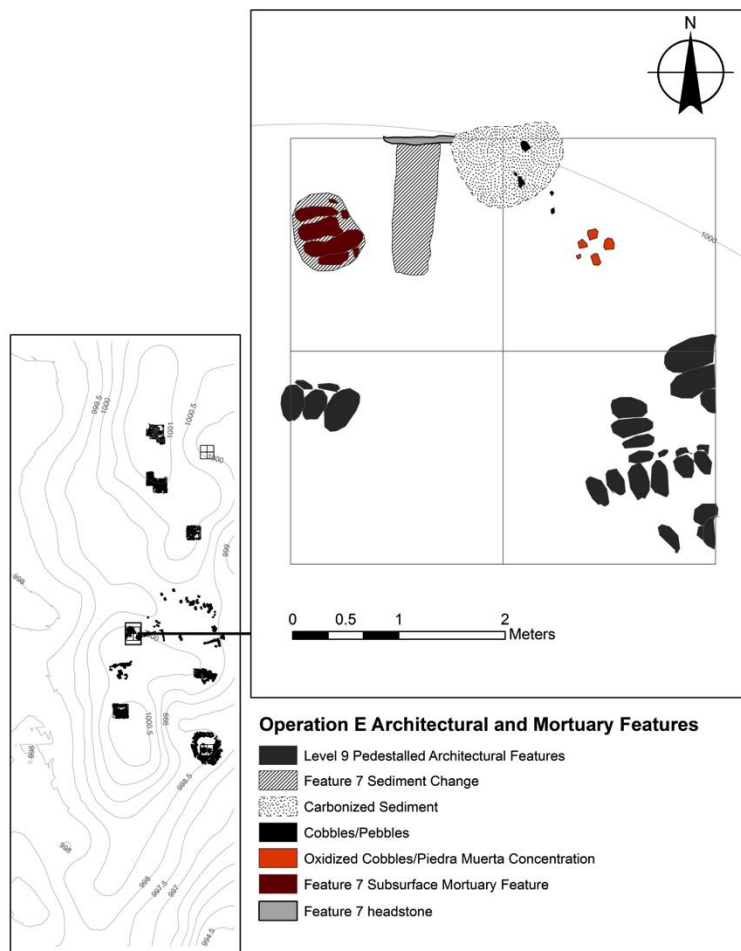
Southern units 19 and 22 of Operation E also yielded what appeared to be the disturbed remains of a retaining wall, appearing within the first 40 cm of excavation (Figure 6.68). Review of the profile for this section of the operation strongly suggested that modern looting activity had occurred (Figure A 12), effectively bisecting the wall and complicating interpretation. The gap in the wall and the apparent mixing of sediment seemed to support that the entire operation was disturbed. Artifact distributions and deeper excavations throughout the operation, however, did not seem to reflect this, instead following a now well-established site-wide pattern of interment behavior.

<b>Ceramic Type</b>	<b>Count</b>	<b>Percentage</b>
<b>Moravia general</b>	43	5.64%
<b>Quebradas plain</b>	38	4.99%
<b>Aguas Buenas general</b>	45	5.91%
<b>Bugaba</b>	2	0.26%
<b>Cerro Punta Orange</b>	7	0.92%
<b>Bugaba engraved</b>	8	1.05%
<b>Guarumal incised</b>	9	1.18%
<b>Quebradas incised</b>	166	21.78%
<b>Valbuena Isla Palenque Maroon</b>	1	0.13%
<b>Corral Red Coronado</b>	8	1.05%
<b>Corral red corral</b>	15	1.97%
<b>Cerro Punta Cotito</b>	10	1.31%
<b>Cerro Punta Cerro Punta</b>	15	1.97%
<b>Guarumal v. Guarumal</b>	2	0.26%
<b>Guarumal Cebaca</b>	13	1.71%
<b>Unknown</b>	380	49.87%
<b>Total</b>	<b>762</b>	<b>100.00%</b>

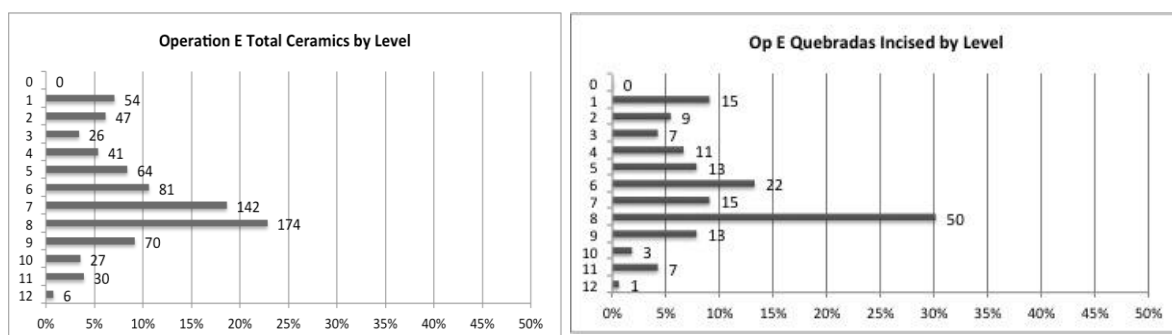
**Table 6.16: Operation E Ceramic Type Counts and Percentages**

Quebradas Incised, Aguas Buenas and Moravia varieties were predominant in the operation-wide ceramic assemblage (Table 6.16). Several instances of Bugaba, Guarumal and Cerro Punta were also present in small amounts but not restricted to any one strata. When compared by level, ceramic distributions once again presented a bimodal pattern, with increases and decreases to near sterile levels paralleling patterns observed for the majority of the operations at El Cholo (Figure 6.71). Excavations identified the near-sterile level at around the 60 cmbsd mark, corresponding with a relative lightening of sediments and a shift to a more clay-rich matrix. Subsequent increases in artifacts corresponded to a gradual darkening of sediments and the presence of a more organic-rich horizon. As noted at other operations at around this level, these peak artifact frequencies corresponded to the dark strata, although in this case there was more evidence of mottling and mixture due to looting and bioturbation.





**Figure 6.70: Operation E base level showing subsurface Features 7 and 8 and lateritic concentration to the east**



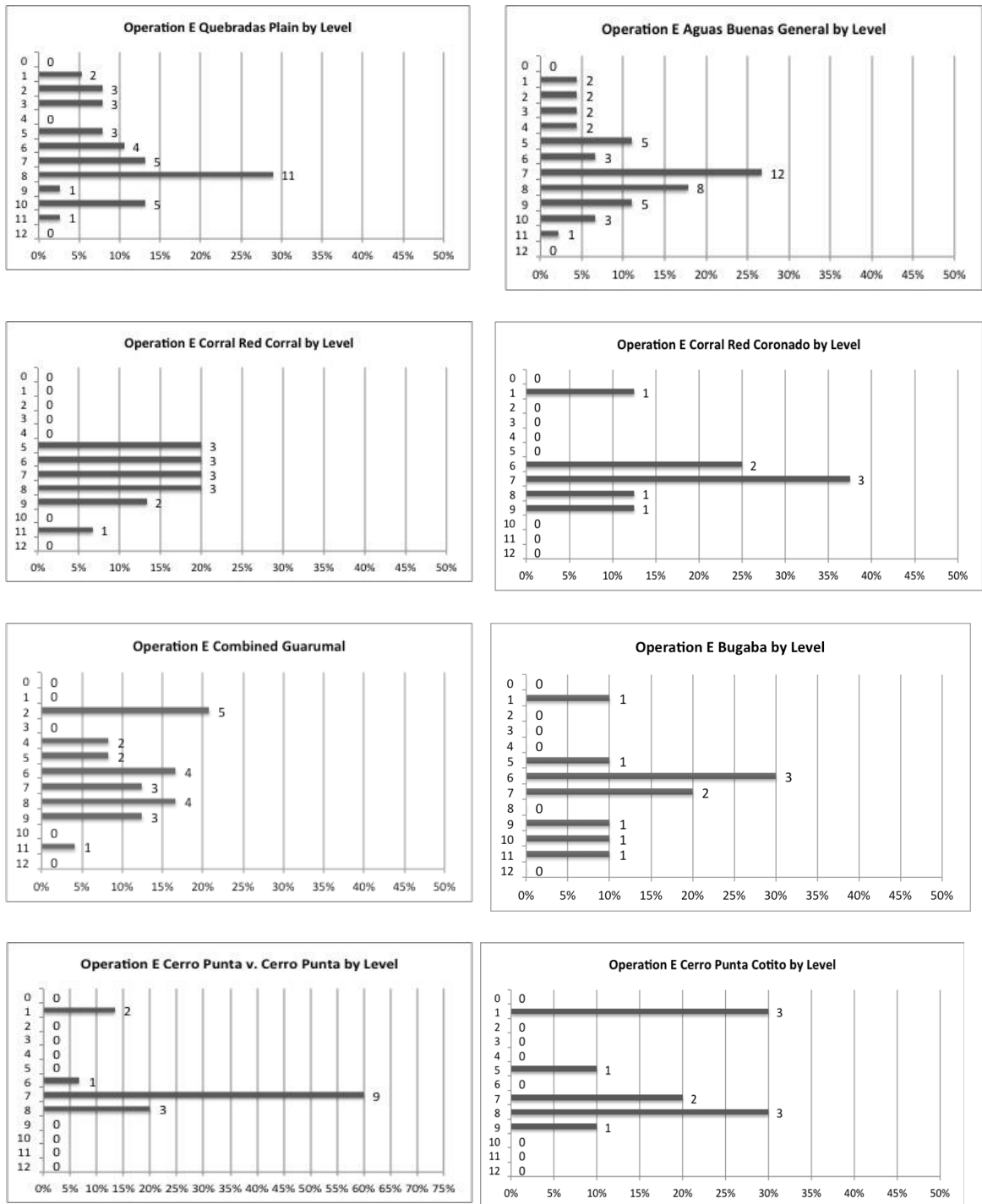


Figure 6.71: Select ceramic distributions by level at Operation E (continued from previous page)

Excavations of adjacent units within the operation were performed in a staggered manner in order to obtain temporary side profiles. These profiles allowed the investigation to

identify several processes, likely related to the potential grave features located in Unit 20 (Figure 6.72 and Figure A 12). Profiles of the north wall revealed a distinct concentration of carbon on the western sector of Unit 21. Analyzing it concurrently with Feature 8 revealed that the carbon concentration was likely an ash concentration placed beside Feature 8. Further review of the profile suggests a process whereby an individual or packet was interred, a headstone or cobble feature was placed above, a subsequent layer of Piedra Muerta and clay fill was laid above the interment, and adjacent space was used as a fire pit, likely during the process of laying down the Piedra Muerta fill. The depositional process revealed by this profile, detailed in the synthesis section of this dissertation, seemed to share several patterns with other operations, suggesting that the process was replicated in varying form and at various times throughout the site.



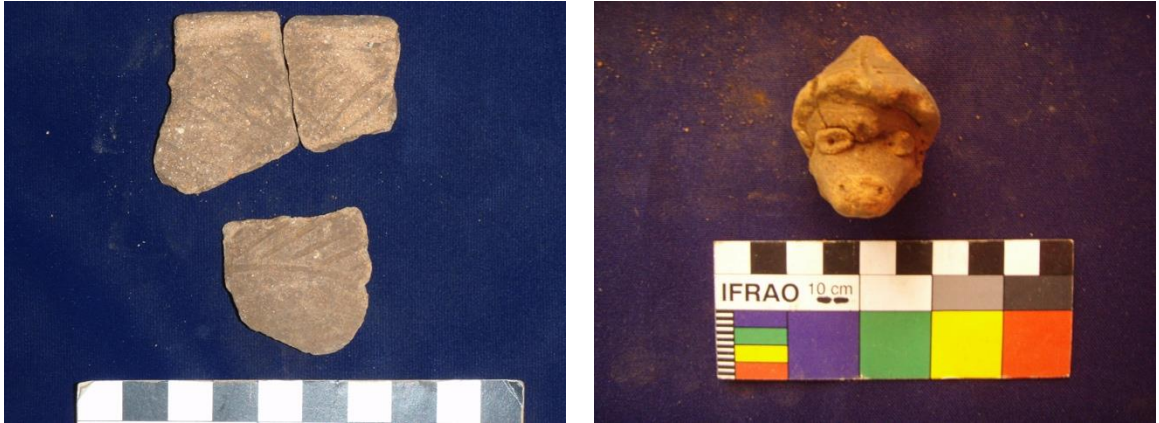
**Figure 6.72: Views west and north of profile of Operation E with grave features and features beneath them**

<b>Vessel Form</b>	<b>Count</b>	<b>Percentages</b>
<b>Bowl</b>	26	3.41%
<b>Olla/Tazon</b>	316	41.47%
<b>Plate</b>	9	1.18%
<b>Small Jar</b>	1	0.13%
<b>Large Jar</b>	4	0.52%
<b>Und</b>	185	24.28%
<b>Small Bowl/Seed Jar</b>	3	0.39%
<b>Shallow Bowl</b>	30	3.94%
<b>Small Globular Jar</b>	6	0.79%
<b>Jar</b>	56	7.35%
<b>Tripod Escudilla</b>	3	0.39%
<b>Unknown Tripod</b>	33	4.33%
<b>Tecomate</b>	3	0.39%
<b>Pedestal Based Bowl</b>	3	0.39%
<b>Annular Based Bowl</b>	5	0.66%
<b>Annular Based Jar</b>	1	0.13%
<b>Sarten/Pan</b>	3	0.39%
<b>Comal</b>	1	0.13%
<b>Globular Jar</b>	25	3.28%
<b>Figurine</b>	1	0.13%
<b>Escudilla</b>	42	5.51%
<b>Annular Base</b>	1	0.13%
<b>Pedestal Base</b>	5	0.66%
	<b>762</b>	<b>100.00%</b>

**Table 6.17: Operation E Vessel Form Counts and Percentages**

As in other operations, olla and tazon forms dominated vessel form assemblages (Table 6.17), as would be expected with high amounts of Quebradas ceramics. Interestingly, there was also a relatively high number of everted "escudilla" bowls and one of the first clear figurine discoveries. This pattern of vessels, associated with a high presence of possible tripods, admittedly based on tenuous vessel identification, may be chronological in nature, as evidence from different operations suggest that a later period cache may have introduced later stylistic elements to a preexisting interment profile. The operation also yielded another example of a Quebradas "tazoncito," a small Quebradas Incised vessel less than ten centimeters in height (Figure 6.73). The presence of this small vessel strikes an interesting picture when taken with its association with a small conically capped figurine head found in Level 8 Unit 19. This type of Quebradas is not known, and

unusually small vessels, argued by some to be used for mixing entopic substances, may be indicative of the associations that ritual officiates, as expressed by the conical capped individuals, had with the observances undertaken in this area.



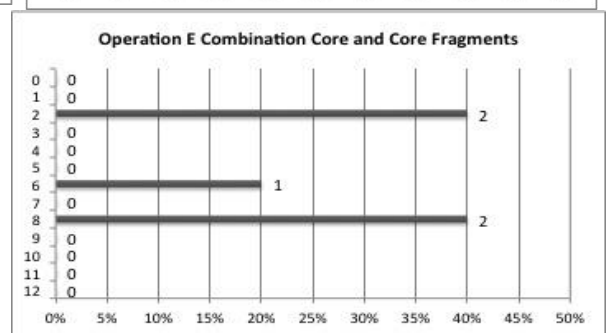
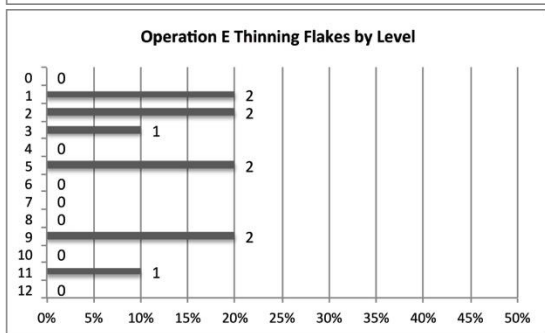
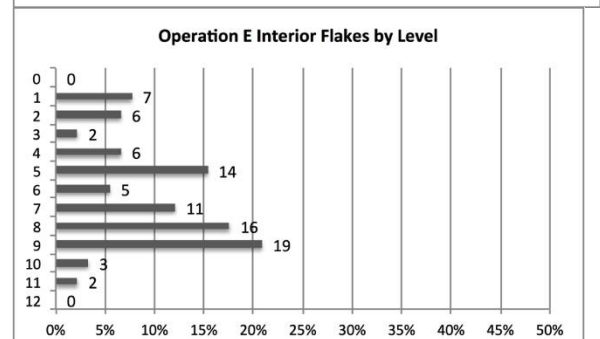
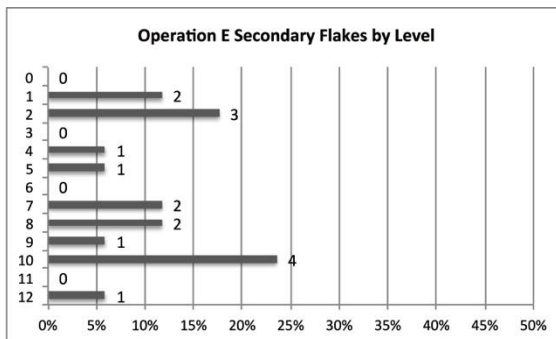
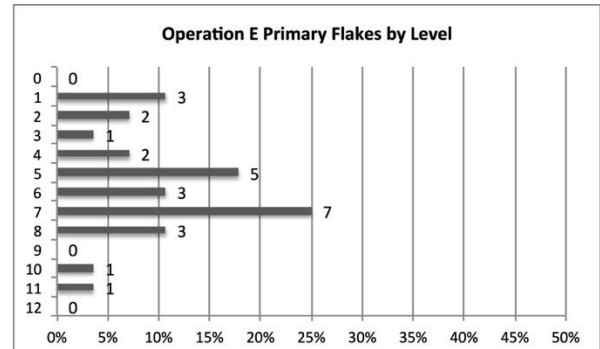
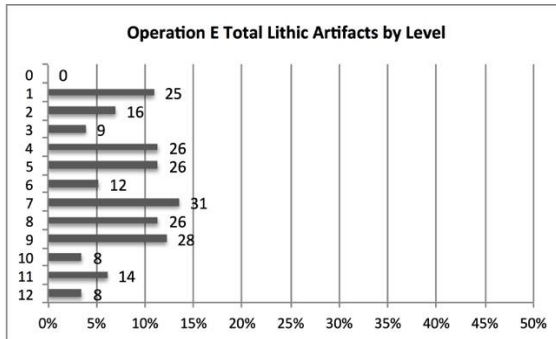
**Figure 6.73: Tazoncito and conical capped individual found at Operation E**

Reduction stage	Count	Percentage
Prim	28	12.23%
Secondary	17	7.42%
Interior Flakes	91	39.74%
Thinning Flakes	10	4.37%
Core	2	0.87%
Core fragment	3	1.31%
Flake fragment	15	6.55%
Tool	6	2.62%
Tested Cobble	10	4.37%
Other	31	13.54%
Biface fragment	3	1.31%
Uniface fragment	8	3.49%
Biface	0	0.00%
Uniface	0	0.00%
Shatter	5	2.18%
<b>Total</b>	<b>229</b>	<b>100.00%</b>

**Table 6.18: Operation E Lithic Artifact Distributions**

Lithic artifacts suggested similar site-wide processes, with interior flakes the most abundant followed by primary and secondary flakes. The presence of cores and core fragments amidst the debitage would seem to attest to production of lithic artifacts, but

given the context within the grave concentrations, suggests an expedient form of production and not one associated with intentional craft specialization. Whether this changed in scale at later time periods or even with the occupational history of El Cholo is an open question.



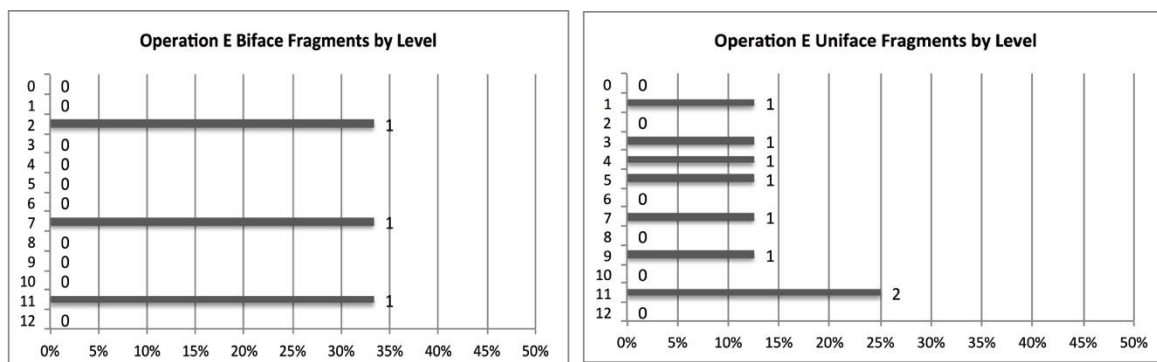


Figure 6.74: Operation E select lithic artifact distributions by level (continued from previous page)

### Feature 7:

The connection between near-surface and deeper manifestations of this feature was not fully identified until deeper in the stratigraphic sequence. As mentioned above, indications appeared near surface (20-30 cmbsd), suggesting that a grave or pavement feature was present in the general area. The initial indicators consisted of two stone configurations, one of which consisted of an alignment of 4 large river cobbles measuring approximately 45 cm by 25 cm (Figure 6.67 and Figure 6.68) as well as the close proximity of small pillar stones. The impacted nature of the deposits constrained our initial interpretations. However, the accumulation of evidence soon demonstrated that this indeed was a feature, if only a shallow one.

Upon excavating the boundaries of Feature 7, we discovered a concentration of small, apparently hand-shaped spherical pebbles (Figure 6.67). This form of "offering" was unknown for the area, with the possible exception of smaller polished gemlike stones interred in the Linea Vieja regions of the Caribbean/Atlantic Watershed region (Vazquez Leiva 2014; Vázquez Leiva and Weaver 1980). We initially assumed that this was a peculiar form of funerary caching particular to El Cholo or to the Upper General Valley. The pebbles were found just under the northwest corner of one of the cobbles, a pattern

of deposition noted for grave features at El Cholo and elsewhere (Frost 2009) but generally restricted to ceramic offerings, fire ritual and the placement of stone axes or other lithic artifacts at the “head” of the interred. Therefore, while there is some precedent for the caching of stones in grave contexts, the form of this collection of small stones was unique, recalling other enigmatic preoccupations with stone and rock discovered throughout the investigation.

Registering a humic dark brown (7.5 YR 3/4), the surrounding sediment provided ambiguous support as to whether the alignment was a grave feature or some type of surface cache. Our initial conservative approach seemed justified as sediments lightened in color and became more consolidated in texture, suggesting that the feature, if actually one, had terminated and we had proceeded to reach a near sterile level of clay fill. This near sterile level, importantly, is a phenomenon also noted during later salvage excavations that occurred in the immediate vicinity, whereby local archaeologists reached near sterile levels of sediments at approximately 60 cmbsd (Badilla Cambronero 2007) and determined surface features to be shallow and empty grave features. As mentioned, due to the perceived disturbance of the surface context, the apparent lack of cultural material encountered at approximately 60 cmbsd, and the distinctive change in sediment type immediately below the cobble alignment, the alignment was termed a surface feature and recorded as part of the overall unit and operation. It was not until discovery of another set of cobbles at depth and retrospective analysis that we were compelled to revisit the issue and confidently link the upper cobble alignment to the deeper subsurface component.



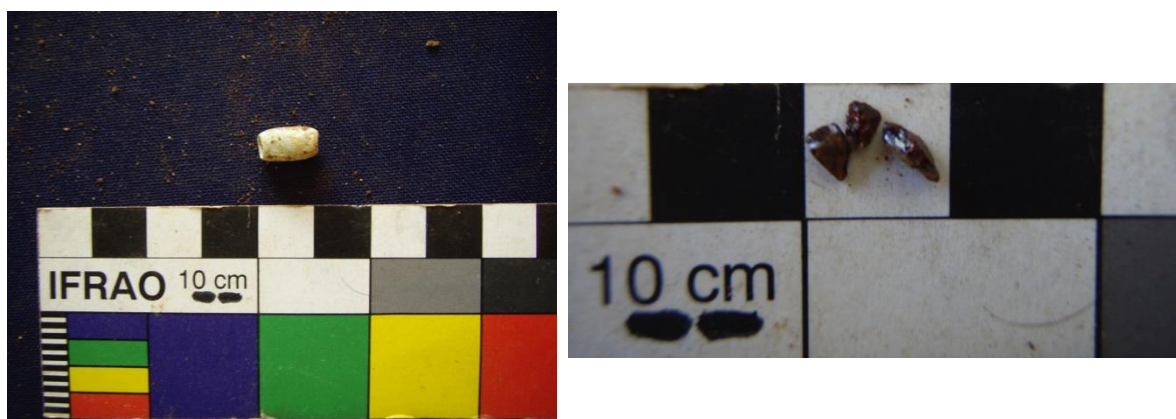


**Figure 6.75: Subsurface Feature 7**

Positioning of the upper alignment of cobbles to the lower feature was remarkably accurate, with only a slight deviation of a few centimeters east-west between upper and lower features. Sediments immediately above the lower component of Feature 7 were reddish brown and orange mottled soils, suggesting clay fill impacted by the ubiquitous presence of rodent tunneling. Fully uncovered at 135.5 cmbsd, the lower arrangement of cobbles consisted of 4 large stones forming a base upon which 3 smaller cobbles rested. These cobbles were made up of a blue-tinged cobble and orange lateritic, Piedra Muerta cobbles (Figure 6.75). This use of Piedra Muerta cobbles within mortuary features is a configuration previously identified at various parts of the site and associated with multi and single tiered mortuary features.

Cultural material was sparse but did yield a handful of significant finds. Although no ceramics were recorded at or below Feature 7, four other forms of artifacts were

identified in the sediments surrounding the feature. Chief among these finds was the presence of a highly weathered sedimentary tubular bead and remains of material suggested to be the remnants of resin artifacts noted in interments in this part of the region (Figure 6.76). Additionally, upon inspection, the blue colored stone recorded within the alignment was identified as having both faces reduced, albeit crudely. Once again, a variant on an increasingly common behavioral pattern was observable, whereby lithic artifacts, bifacially reduced or otherwise, were positioned within or beside mortuary features. Another possibility, also noted at Operation A in Feature 15, was that the shaped stone was used as an in-feature pillar. Whether a "proper" biface or reduced stone pillar, it was clear that the item was intentionally set within the features. The size of the feature suggests that it did not hold a fully extended burial but may have held a packet or simply a cache of material. Sediments within and below the feature were recorded at 5YR 4/6, eventually merging with the overall sediment color of 5YR 5/6, and unlike other features in the area, soil darkening, suggesting soil staining, was not present below it.



**Figure 6.76: Artifacts located in the vicinity of Feature 7**

### **Feature 8:**

As with Feature 7, Feature 8 did not become immediately apparent until excavations reached Levels 10 and 11. Prior to this, the massive nature of upper sediments had suggested that near surface features were restricted to the first 40 cmbsd. As with its neighboring feature, the upper component of Feature 8 consisted of a collection of river cobbles, only in this instance configured in a familiar two-rowed pattern (Figure 6.77). Artifacts identified for the first three levels of the encompassing Unit 20 were not plentiful, but suggested late Formative ceramic deposition as well as axe or groundstone production and curation above both Features 7 and 8 (Table 6.16 and Table 6.18). Cobbles that resembled small pillars were noticed in a scattered position in close proximity to the feature, but were not definitively associated with any feature. Most notable was an ash concentration recorded in the northwest sector of Feature 8 (Figure 6.77). Initially thought to be root burn, further inspection suggested that it was rather another instance of thermal activity above a mortuary pavement.



**Figure 6.77: View south with ash concentration within Feature 8 with surface cobbles on the left**

Levels immediately above and within this near-surface ash feature yielded Quebradas, Cerro Punta Cotito and incised ceramics possibly Guarumal in nature. These ceramics, in association with the uppermost levels of this section, suggest a later Formative or transitional Chiriquí phase component, consistent with distributions observed at locations such as Operation D. As mentioned in the above operation summary, sediment color at surface registered a dark brown (5YR 3/3), but shifted to mottled dark brown to brown sediments at Levels 5 and 6 (7.5 YR 4/3; 4/6). This mottling then gave way to a more consolidated darker soil (5YR 3/3), characteristic of this depth throughout the site. Within these sediments, a peculiar configuration of spherical stones was once again identified, although not as shaped as the ones identified within the Feature 7 capstones. Rather, these were found within the darker layer and recorded at each corner of a darker sediment patch. Upon review, this suggests a delineation of a tomb that was to be identified much lower in the profile (Figure 6.70 and Figure A11) and may be indicative of successive commemorative stages of ritual deposition.



**Figure 6.78: View northwest of unexcavated subsurface Feature 8.**

As excavations continued, we identified small ceramic supports at Level 8 just above the discovery of the soil staining of lower Feature 8 (Figure 6.78); and overall, Levels 8 through 11 exhibited a relative increase in artifacts. Located at 158 cmbsd, the dark soil stain was accentuated by a long river cobble that looked convex on one side and planed on the downward-facing side (Figure 6.79). This cobble was not removed, owing to time constraints, but appeared to fit the same pattern of headrest/head covering or almohada recorded in varying form in other parts of the site.

Measuring 67 cm east-west by 6 cm north to the unit wall, the headstone bordered the north end of a soil stain approximately 125 cm by 42 cm. Registering a color of 7.5 YR 3/4, the stain contrasted sharply with the surrounding clay matrix at 5 YR 5/6. Within the darker soil, fragments of Piedra Muerta were apparent and associated with artifacts consisting of Quebradas and Moravia sherds. Several incised and red-orange ceramic fragments were also identified and thought to be Cerro Punta Cotito and Guarumal. However, these were ultimately classified as “unknown,” owing to their inconclusive nature. The presence of a drilled blue serpentine bead found at Level 11 of Unit 20 was not identified within the immediate boundaries of Feature 8 (Figure 6.80). However, the overlapping depth of said level with Feature 8, in conjunction with the observation of a lack of such artifacts associated with the upper portion of neighboring Feature 7, strongly suggests that the bead was possibly a component of the interment.



**Figure 6.79: Cobble almohada within Feature 8**

Along with the unanticipated discovery of two possible interments, later excavations at Operation E revealed a novel perspective into depositional processes and more information into intensive and periodic ritualized thermal activity at El Cholo. As mentioned in the methodological section of this dissertation, operations were excavated using a variety of techniques, with units within one operation excavated at staggered rates. This allowed for the temporary registering of usually unobtainable profiles if standard horizontal excavations were utilized. In the instance of Units 20 and 21, the previous deep excavations into Unit 21 allowed a view into the sediments adjacent to Unit 20 and consequently Feature 8 (Figure 6.72). The profile data bolstered the previous inferences made through horizontal excavation, revealing instances of thermal activity restricted to small pockets of carbon and oxidized soils similar to that seen beside Feature 2, Operation A. An additional potential feature just east of Feature 8 presented another



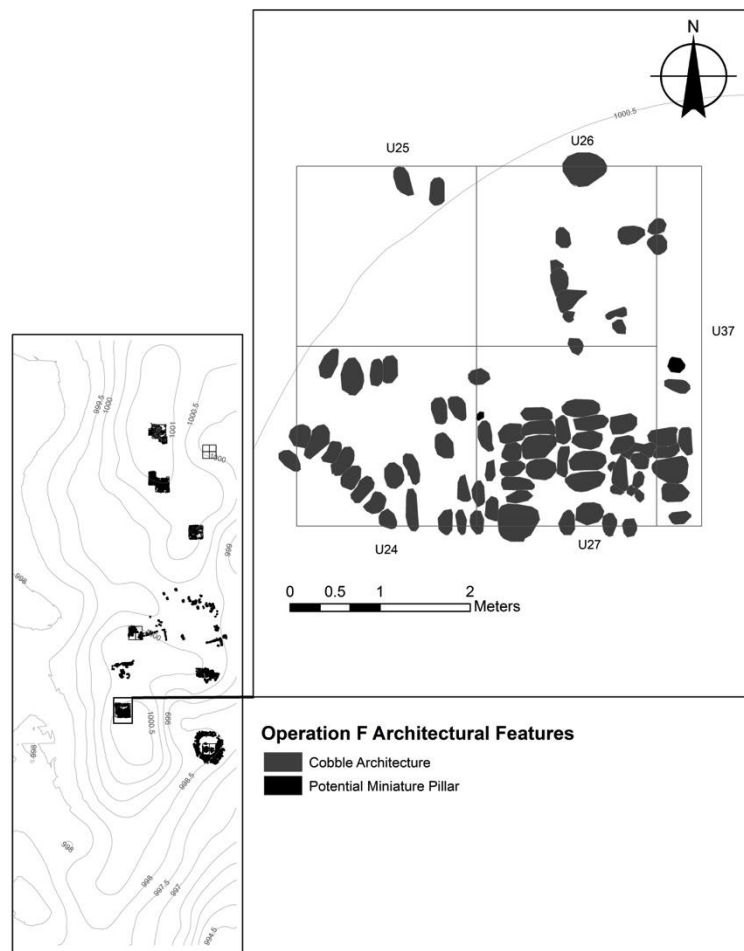
point of evidence suggesting that Piedra Muerta was used in conjunction with mortuary ritual.



**Figure 6.80: Serpentine bead found in Feature 8 contexts**

In what was likely a later manifestation and continuation of this practice, anthropogenic deposition of PMF was noted in the northeast corner of Unit 21 (Figure 6.70). Carbon associated with this feature yielded a late 9th, early 10th century date. Given its depositional nature, it appears that the feature represented a later intrusive cache involving the placement of PMF in a shaft-like feature. While inconclusive, the profile of this potential feature appears to differ from its adjacent neighbor, potentially representing a significant difference in age within a very close proximity to artifacts and features that may predate it. This mixed method of interment was also noted in Operations A and D, with differing sectors of an area receiving later treatment.

## Operation F

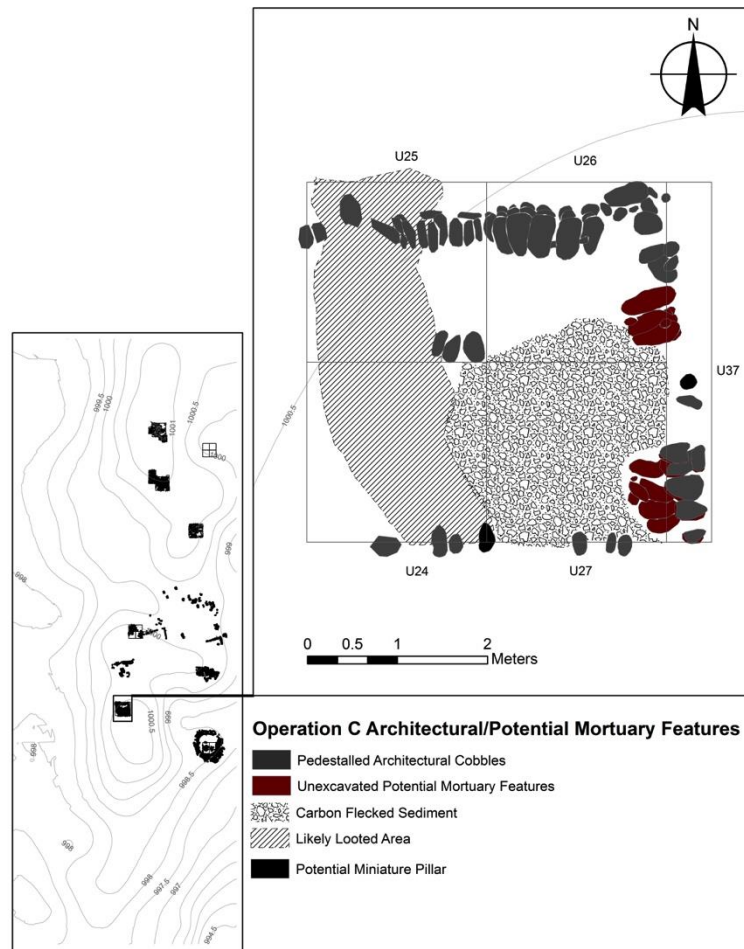


**Figure 6.81: Plan view of Operation F showing diagonal linear feature (U24) and potential mortuary feature (U27)**

This operation yielded signs of interment, but from the outset was identified as having been severely impacted (Figure 6.81 to 6.82). Nevertheless, excavations managed to identify cobble clusters with evidence of carbon concentration suggesting thermal activities (Figure 6.83) similar to those found at other operations. This hinted at the possibility that there were more mortuary features to be found. However, as excavations proceeded, it was apparent that at least the southwestern section of the operation was previously excavated in the attempt to access subsurface grave deposits. As anticipated,



as excavations proceeded, modern disturbances as well as precontact bioturbation obscured potentially informative patterns, contributing to a complicated sediment profile (Figure A 14).



**Figure 6.82: Plan view of lower levels of Operation F showing retaining wall to the north, three-stone feature in the center of the operation, and potential mortuary markers on the east flank of the operation**

Out of the five operations noted for having mortuary features—Operations B and C being the exceptions—Operation F was the only one that did not yield clear patterning that suggested connections of features found at depth to surface pavements. This was likely attributable to the looting as well as bioturbation evident within the operation. Therefore,

although there were some hints of features being present, no feature designations were given. I instead assigned temporary mortuary designations (i.e., “Potential Feature X”).

Enough of the mound did remain, however, to provide reasonable inferences regarding depositional and possible behavioral processes. General patterns found throughout the unit and operational profiles suggest that Operation F did likely contain one to three distinct grave features, obscured by the aforementioned looting attempts and what appeared to be a protracted sequence of periodic ritual depositional activity. In addition to the pavement located early in the excavation sequence, two cobble alignments were also identified in the latter stages of excavation, but left unexcavated in order to try and obtain a stratigraphic profile of their west flanks. Due to time constraints, these potential features remained unexcavated, and were later destroyed by road-grading activity.



**Figure 6.83: Operation F view south demonstrating carbon and oxidation concentrations at multiple levels**

Surface conditions on through approximately Level 5 consisted largely of brown humic loamy clay, (7.5 YR 4/4); this rich dark layer likely derived from the leaf litter from the abundant coffee plants and Poró (*Erythrina Poeppigiana*) shade trees. For the first 40 to 50 cmbsd, soil consistency throughout the operation remained relatively consolidated, albeit the southwest sector noted less compact sediments and darker color (7.5 YR 4/4; 3/4). Several rock alignments were noted within the first four levels of excavation.

Within the first two levels, the southwest sector of the operation at Unit 24 yielded what appeared to be a section of wall oriented approximately northwest-southeast (Figure 6.81). This alignment—similar to a lineament recorded at Operation D—turned out to be a surface feature, and not multi-course; and as suggested for Operation D, it may have been associated with spatial demarcation in the latter part of the occupational sequence at El Cholo. Subsequent levels yielded cobble pavements within the southeastern Unit 27 at 30 to 40 cmbsd, with indications of carbon deposition apparent in the southeast corner and an associated darker sediment color (7.5 YR 3/2) likely influenced by the presence of carbon.

Sediments immediately below the cobble concentration registered as compact and mottled, with red brown patches (7.5 YR 3/4; 5YR 3/3) eventually transitioning to a consistent reddish brown (5 YR 3/3) at approximately 50 cmbsd. To the west, sediments registered as looser and dark reddish brown (5YR 3/4). This sediment change suggested that a significant part of the southwest sector of the operation was the subject of human tunneling, interrupting a general pattern of reddish dark brown soils, which were punctuated by reddened ash concentrations through to Level 5.

The presence of axe fragments, crude knives and Quebradas vessel supports at this level, associated with Unit 27 and the cobble cluster, along with the mounting evidence of thermally oxidized soils, suggests that there may have been instances of ritual deposition of said artifacts in conjunction with fire ritual, and further suggests that the upper pavement, levels of ash and sediment deposition, as well as what appeared be small pillar stones were all related to an interment at Unit 27 (Figure 6.81 and Figure 6.82). In fact, the patterns of indurated concentrations of oxidized sediments matches a similar profile to that found at Operation D, where spots of ash and oxidized soil were discovered around features.

While attributes were found that linked Operation F processes to that of Operation D, there were architectural features present that connected this operation to Operation C and E. Present at Level 5 in the northern half of the operation was a partially intact multicourse retaining wall (Figure 6.84) constructed in exactly the same manner of that observed at Operations C and E, with three courses eventually uncovered between Levels 5 to 7. This positioning corresponded to the relative positioning for all multicourse walls located at El Cholo. Consistent with the evidence of tunneling to the south, the wall displayed signs of modern disturbance on its eastern side. While there was evidence of some root disturbance, it was more likely that the major impact was looting-related.

Sections such as the northwest Unit 25 showed more evidence of looting. When taken in conjunction with the disturbed areas in Unit 24, this suggested that looters had followed a NW-SE course parallel to the surficial wall noted near surface. Despite these impacts, patterns were still discernable, with sediments at Level 5 becoming more clay-rich, maintaining a dark reddish brown coloring but becoming more compact.



**Figure 6.84: Operation F views south and northeast of multi-course wall, three-stone feature and disturbance**

It was at Level 5 that another three-stone feature, almost identical to the one found at Operation D, emerged. The feature was fully defined at Level 6, and, like its mirror to the north, showed no indication of being impacted, nor did it articulate with other features in the operation. This anomalous feature, along with the others, is discussed in fuller detail in the analysis and synthesis section, but warrants additional mention here, as its stratigraphic and horizontal positioning mirrored that seen at Operation D, the location of the next highest elevation at El Cholo. As in Operation D, the feature also rested just above what would be two bands of dark strata. However, whereas at Operation D the dark horizon was operation-wide, in this instance, the strata were more varied, appearing to constitute several sequences of dark banding (Figure 6.85). Overall, Operation F exhibited a more fluctuating sediment profile, varying in the lower levels from 7.5 YR 3/4 to 4/6 (Levels 6 through 9, Unit 25) to even more consistent darker levels at around Level 12 (7.5 YR 3/4), lightening as the carbon-rich sediment transitioned once again to more compact clay at Level 14 (5YR 4/4).





**Figure 6.85: East profile photo of Operation F**

Operation F was the deepest excavation carried out in this investigation, reaching to 215 cmbsd. Even at this level (Level 15), sediments continued to bear artifacts and fluctuate between 7.5 YR 3/4 and 4/4. The presence of material culture at the deepest parts suggest that this may have been one of the first utilized areas of the El Cholo complex, subject to repeated interment and depositional events over the duration of occupation. Indeed, the deepest strata retrieved an anomalous radiometric date of 1600-1500 BCE. The association of this date with a few examples of high-quality lithics, as well early-looking ceramics, presented the tantalizing possibility that this represented a far earlier component (Figure 6.87). However, the anomalous date and artifacts as detailed below could not compare to the bulk of the ceramic data that suggest a younger time period, albeit possibly older than other parts of the site.

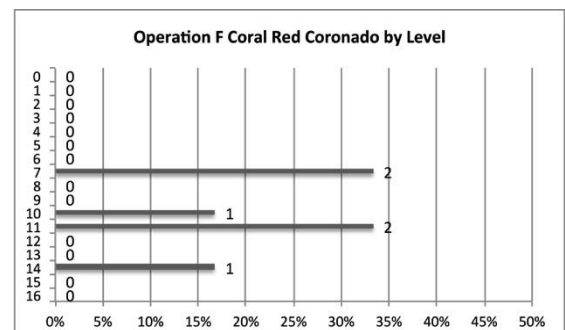
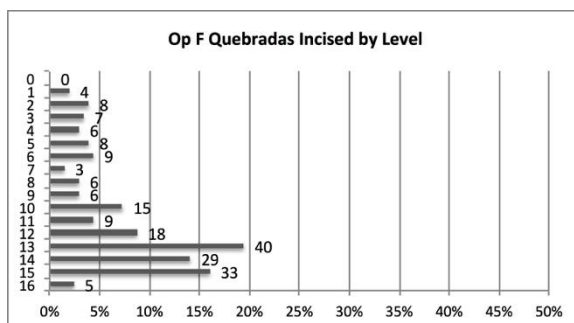
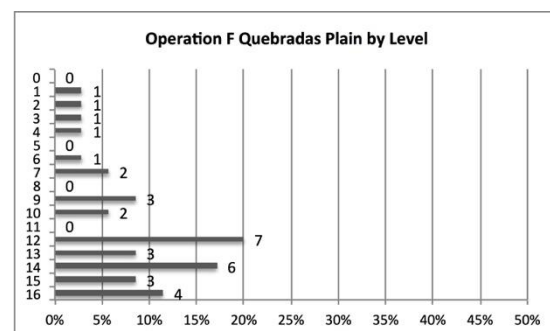
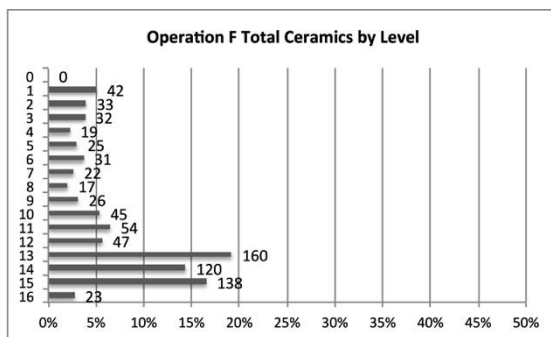
Ceramic type	Count	Percentage
Quebradas plain	35	4.20%
Aguas Buenas General	64	7.67%
Chiriquí General	1	0.12%
Sangria Red Fine	1	0.12%
Cerro Punta Orange	4	0.48%
Bugaba engraved	11	1.32%
Guarumal incised	8	0.96%
Quebradas incised	206	24.70%
Corral Coronado	6	0.72%
Corral Red Corral	7	0.84%
Cerro Punta Cotito	16	1.92%
Cerro Punta Cerro Punta	5	0.60%
Guarumal v. Guarumal	2	0.24%
Guarumal Cebaca	11	1.32%
Mora Polychrome	1	0.12%
Unknown	408	48.92%
Moravia general	48	5.76%
<b>Total</b>	<b>834</b>	<b>100.00%</b>

**Table 6.19. Operation F Ceramic Type Counts and Percentages**

Although more varied in its stratigraphy than other parts of El Cholo, the same types and varieties of ceramics were represented throughout the operation at all levels (Table 6.19 and Figure 6.86), consistently yielding Late Formative period artifacts throughout its depositional sequence in a bimodal pattern. Quebradas Incised variety was predominant among ceramics, with Aguas Buenas, Moravia and Quebradas Plain varieties following in lower frequencies. Two instances of Early Chiriquí ceramics were also present: restricted to the upper 3 levels of the operations. Overall, the pattern was one of a long depositional sequence, which, while bimodal, skewed very heavily towards the deeper levels. On the face of it this may suggest an earlier habitational component with a deep midden at the base of the mound.

The interpretation of the mound as a habitation site may be supported by the abundant amount of olla/tazon vessels and jar forms found in the operation (Table 6.20). However, when one considers the depositional sequence and the series of levels with small,

localized thermal features within the mound itself, it shifts towards a sequence better resembling that already seen throughout the site: namely that the high counts of olla/tazon sherds represent repeated breakage within a commensal context. The height and depth of the mound, along with potential indication of older temporal components, may prove the mound at Operation F to be the oldest of the group. However, it is possible that the deeper levels of carbon concentration at Operation F correspond with the intensity of the levels found at Operation D; but with the one radiometric date for the operation being so far out of the remaining cluster of dates for the site, one can only currently surmise as to this possibility.





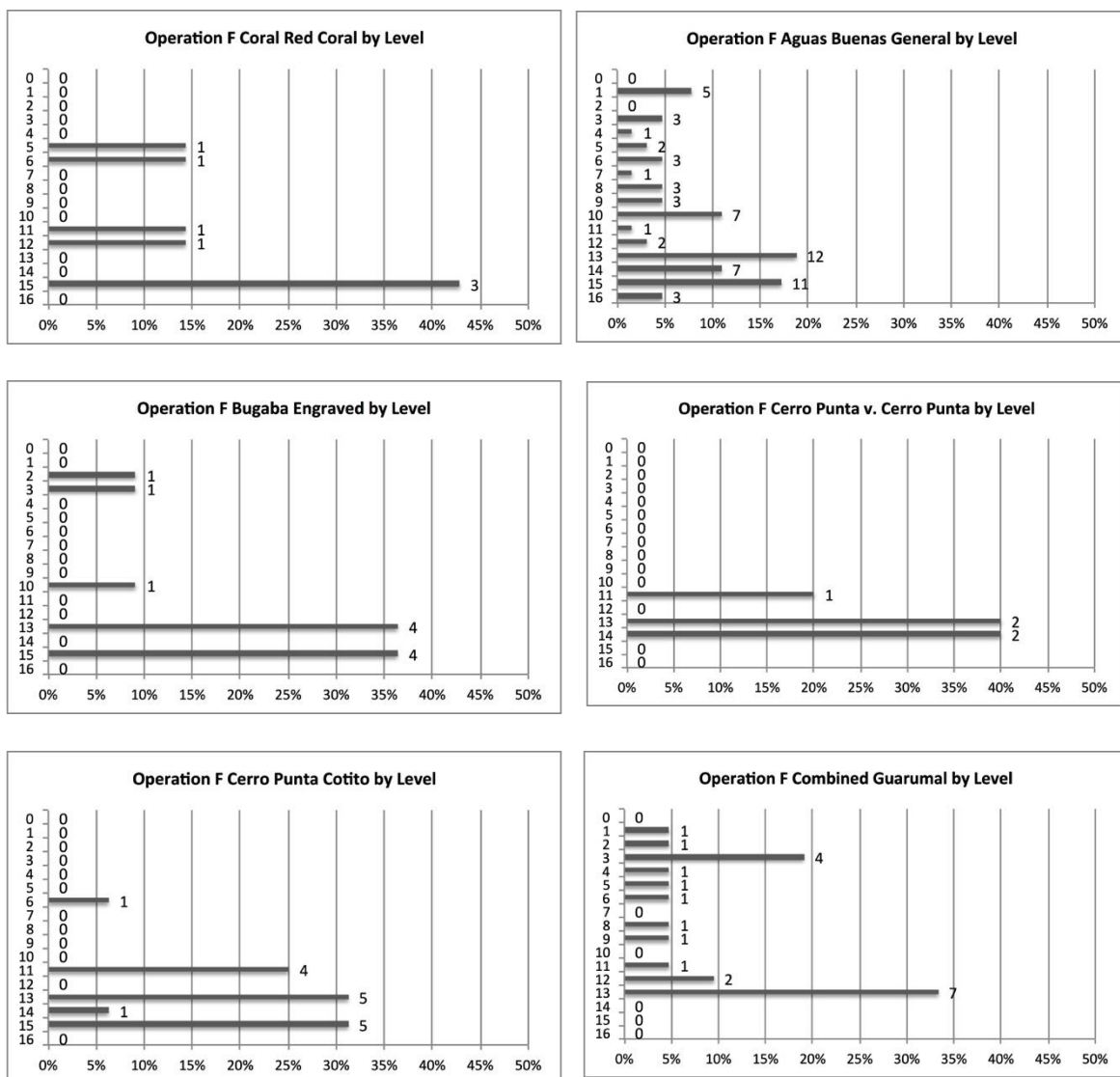


Figure 6.86: Operation F ceramic distributions by level (continued from previous page)

Several confounding observations were apparent within the general recorded pattern. Notably confusing was the presence of a Mora Polychrome ceramic sherd amid the earlier unknown ceramics found within Level 10 of Unit 27 (Figure 6.87). The location of late period ceramics at depth was thought to be associated with the possible interment processes noted on the surface. This would be in keeping with patterns observed at Operations A, D and G. However, the profile recorded did not definitively suggest intrusive burials. Rather, looting in adjacent units likely had a significant impact,

contributing to the mixing of sediments. Thus, the 11th century Nicoya/Guanacaste ceramic found may well have been part of younger depositional events located at the top of the mound that were severely impacted by looting. Further analysis of the deeper layers of the looted area in the westernmost part of Unit 27 yielded a mix of ceramics, such as crude Bugaba Engraved and possible varieties of Quebradas Incised not previously recorded (Figure 6.87). The quality of the ceramics, although affected by modern impact, prompted the question as to whether some of these ceramic types were locally produced rather than imported items, an issue that has bearing on the interaction of El Cholo with its contemporaries near and far.



**Figure 6.87: Ceramics and lithic artifacts from lower levels of Operation F. The upper two photos show Aguas Buenas Ceramics, a crude axe along with a Mora Polychrome Bowl Rim (ca. 800AD) The bottom 2 rows show red on black ceramics and unknown incised and high quality chert graver (actual size at 2.5 cm) found at Levels 14 and 15 of U24**

The presence of familiar ceramics varieties throughout the depositional sequence was accentuated by a considerable amount of lithic artifacts (Table 6.21). Several instances of waisted axe fragments in various stages of reduction and breakage were recorded throughout the levels, as well as numerous amounts of expedient knives and choppers. Conversely, there was a conspicuous lack of thinning flakes as compared to other areas at

El Cholo that suggested late-stage production or curation. Interestingly, the singular presence of a high-quality chert burin/graver along with other burins and graters (Figure 6.87) at the deepest levels of the mound initially suggested that there may be a lithic technology closer to Curré period assemblages at Operation F.

<b>Vessel Form</b>	<b>Count</b>	<b>Percentages</b>
<b>Bowl</b>	43	5.16%
<b>Olla/Tazon</b>	376	45.08%
<b>Plate</b>	2	0.24%
<b>Large Jar</b>	14	1.68%
<b>Undetermined</b>	153	18.35%
<b>Small Bowl/Seed Jar</b>	3	0.36%
<b>Shallow Bowl</b>	19	2.28%
<b>Small Globular Jar</b>	6	0.72%
<b>Jar</b>	83	9.95%
<b>Large Globular Jar</b>	3	0.36%
<b>Tripod Escudilla</b>	5	0.60%
<b>Unknown Tripod</b>	49	5.88%
<b>Tecomate</b>	2	0.24%
<b>Pedestal Based Bowl</b>	1	0.12%
<b>Annular Based Bowl</b>	1	0.12%
<b>Pedestal Based Jar</b>	2	0.24%
<b>Sarten/Pan</b>	1	0.12%
<b>Globular Jar</b>	36	4.32%
<b>Small shaped ceramic Disk</b>	1	0.12%
<b>Escudilla</b>	28	3.36%
<b>Annular Base</b>	4	0.48%
<b>Pedestal Base</b>	2	0.24%
<b>Total</b>	<b>834</b>	<b>100.00%</b>

**Table 6.20: Operation F Vessel Form Counts and Percentages**

Whether an early or later component, the sheer number of these types of lithic forms tentatively suggested an association with woodworking or even local-level ceramic engraving (Corrales pers. comm.). The presence of a probable Bugaba Engraved ceramic sherd at more than 160 cmbsd, crude when compared to familiar Bugaba forms, provided fodder for this alternative production strategy. More likely, however, the sherd suggested that the associated lithic technology was only as old as the 2<sup>nd</sup> or 3<sup>rd</sup> centuries AD, and that looting and mixing of sediments in the center of the mound had been extensive and

deep indeed, moving older sections of the mound into younger sediments. That the gravers and burins were used for wood or ceramic engraving remains an open question to be explored.

<b>Reduction Stage</b>	<b>Amount</b>	<b>Percentages</b>
<b>Primary</b>	36	15.13%
<b>Secondary</b>	10	4.20%
<b>Interior</b>	93	39.08%
<b>Bifacial Thinning Flakes</b>	4	1.68%
<b>Core</b>	6	2.52%
<b>Core fragments</b>	9	3.78%
<b>Flake fragments</b>	18	7.56%
<b>Tool</b>	11	4.62%
<b>Tested cobble</b>	13	5.46%
<b>Other</b>	14	5.88%
<b>Biface fragment</b>	3	1.26%
<b>Uniface fragment</b>	17	7.14%
<b>Shatter</b>	4	1.68%
<b>Total</b>	<b>238</b>	<b>100.00%</b>

**Table 6.21: Operation F Lithic Artifact Counts and Percentages**

Even so, we can propose some cautious possibilities, not least of which is the chance that mound processes at this sector of El Cholo involved the extensive production of lithic and possibly ceramic artifacts, including forms of ceramics that have been dated in more southern contexts to the latter centuries AD (Baudez, et al. 1993, 1996). Moreover, the presence at depth of a red slipped sherd with runny black paint similar to Caribbean forms (Figure 6.87) offers up more support for the likely interaction and influence of the inhabitants at El Cholo with the Caribbean part of Costa Rica. Expansion of the southern portions of this mound complex is key to understanding these connections.

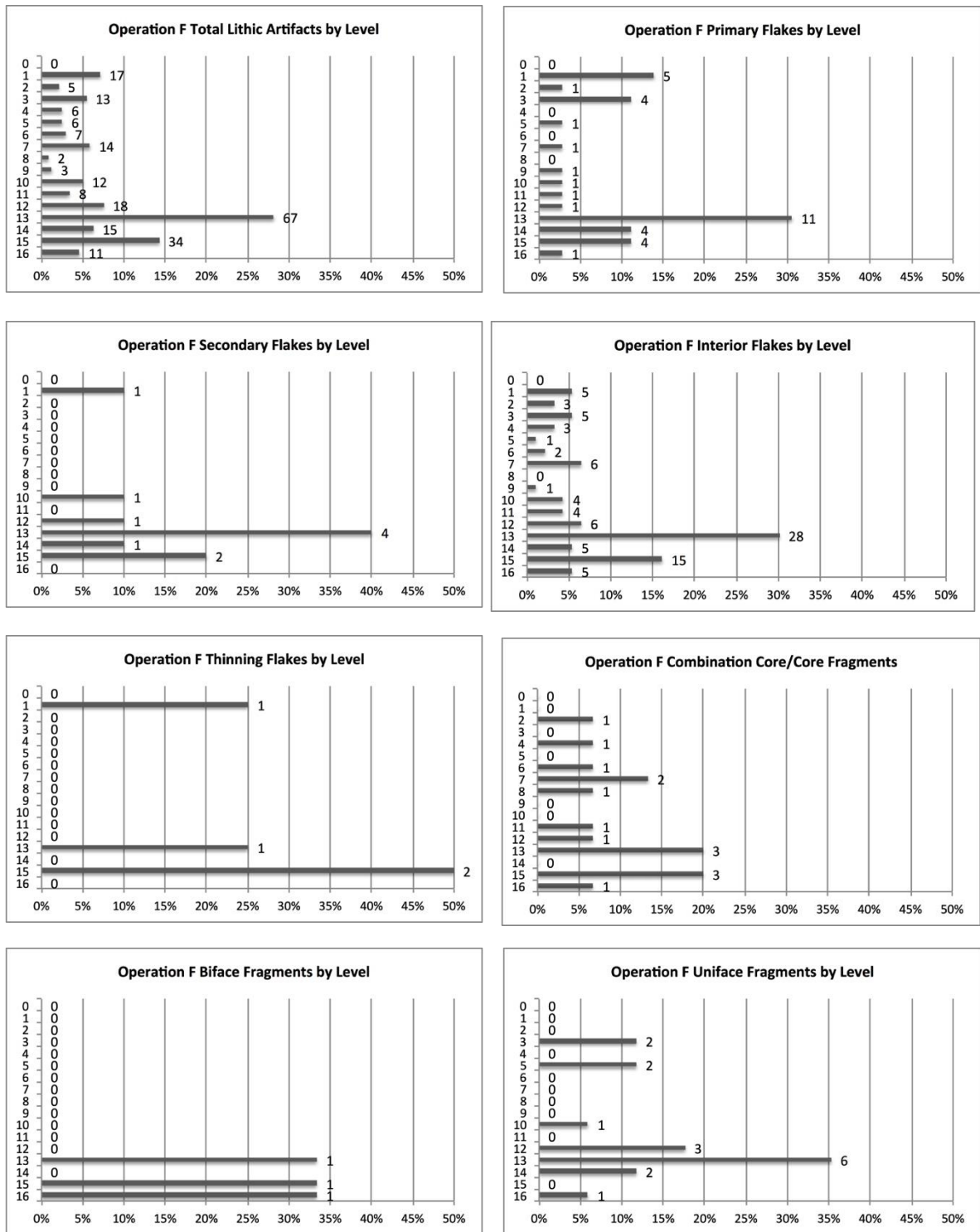
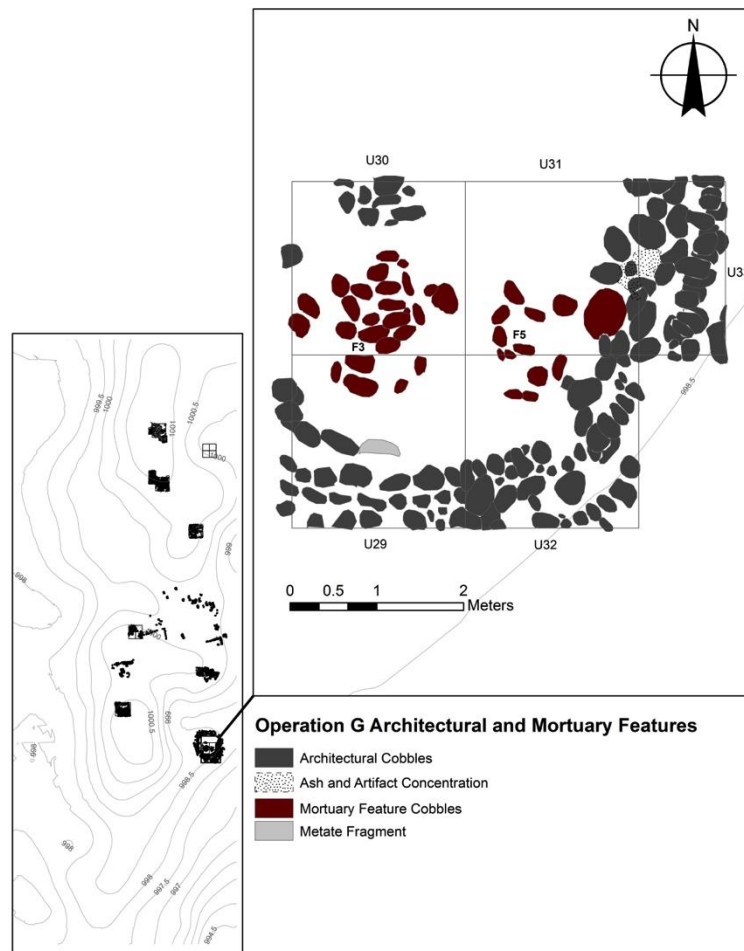


Figure 6.88: Operation F select lithic artifact distributions by level

## Operation G



**Figure 6.89: Plan view of Operation G showing features and overall circular structure**

Excavations at Operation G revealed several findings that set the area apart from the rest of the site. Located to the southeast and off of the main mound concentrations (Figure 6.89), Operation G excavations uncovered circular multicourse architecture with evidence of variation in architectural and spatial utilization amid mortuary ritual activity. The initial 4x4 excavation, expanded to include an additional northeastern unit, revealed a robustly built structure consisting of three courses of river cobble masonry, incorporating earlier site furniture such as slab metates within its courses (Figure 6.90). Post-abandonment slumping appears to have occurred, likely due to the erosion of softer

sediments within the structure, producing a horizontal configuration with one vertical/canted middle course to cobbles that were likely originally vertical.

Two funerary features were located centrally within the architecture, and later salvage excavations noted a south-facing portico attached to the circular structure (Badilla Cambronero 2007). The combined result demonstrates the only example of a circular house-like structure recorded at El Cholo to date, with its form resembling Chiriquí phase houses. This presents an interesting pattern. Funerary structures have been said to mimic rectangular house forms in the Atlantic Watershed (Snarskis 1981, 2003), and it is possible that the rectilinear structures seen at the other operations at El Cholo reflect just such an orientation. Similarly, the circular house structure most recognizable as Panamanian and northern South American in nature appears to be used as a mortuary feature, copying the concept already seen at El Cholo but updating it to reflect a newer architectural orientation.





**Figure 6.90: View south of Operation G with slab metate fragment located within the multicourse architecture in the southwest unit south of Feature 3 showing three miniature pillars. Feature 5 is also visible, with the large cobbles with underlying offerings on its east flank.**

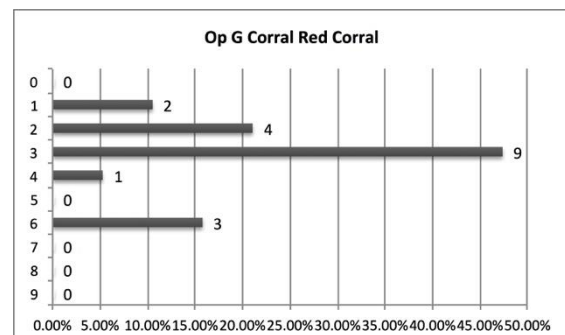
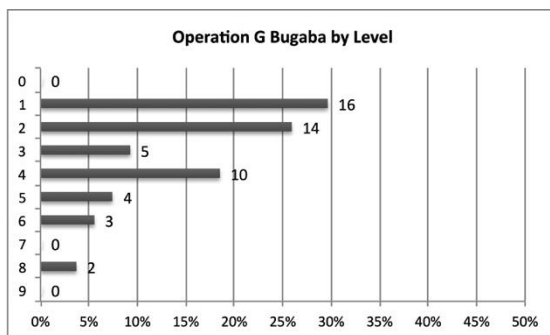
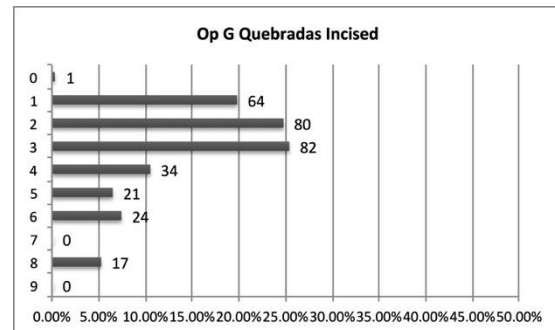
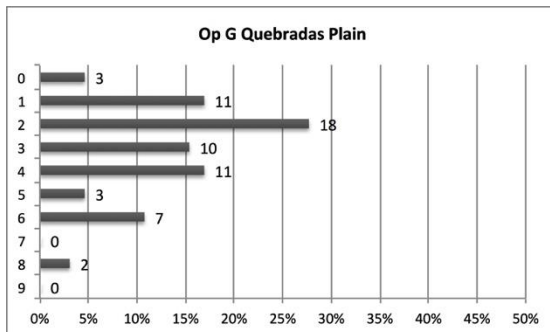
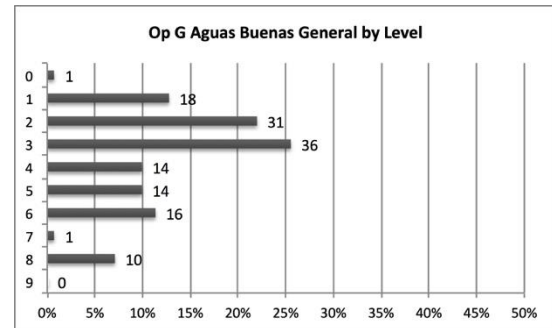
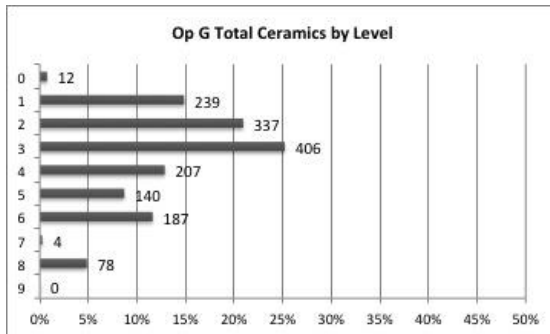
Operation G also differed significantly from other operations in that only 9 levels were excavated. In general, Level 8 was the last artifact bearing strata before reaching sterile sediments (Figure A 15). Although varying from the general 12 to 15-level-deep units elsewhere at the site, the shallow nature of the operation was not entirely unexpected, as its location was positioned within one of the lower-lying areas relative to the rest of the site. Relative depths notwithstanding, surface indications suggested a depositional context similar to the rest of the site. Surface units yielded subsurface features such as small pillars and protruding cobble alignments (Figure 6.89), in the same general pattern to that seen elsewhere at the site. These features, initially invisible, became more apparent within the first 10 cm of excavation.

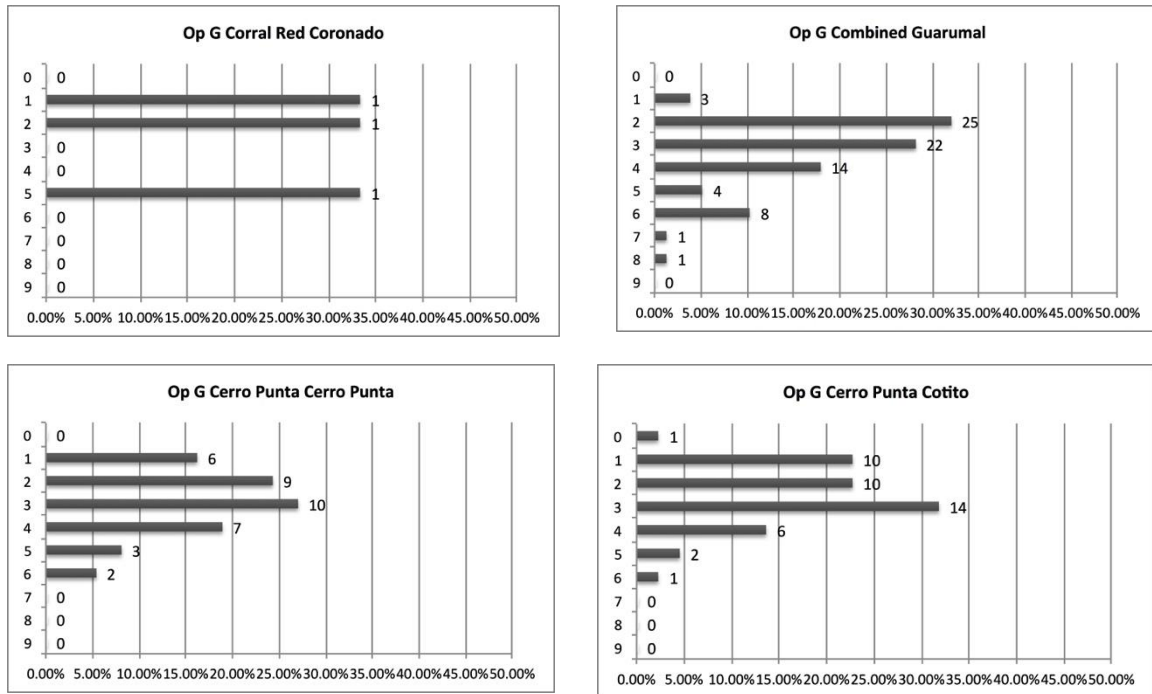
Sediments for the surface and the initial three levels registered as loamy clay with color ranging from dark reddish brown (5YR 3/4) to very dark brown (7.5 YR 2.5/3). By Levels 1 and 2, we were able to identify the curvilinear nature of the multi-course structure and the two mortuary features. As mentioned, the features took up a central position, both oriented lengthwise along a north-south axis. Each feature was separated by approximately 73 cm, roughly occupying one half of the operation area. We divided the area within the structure into eastern and western sections. The western concentration of cobbles, labeled Feature 3, was found to be in a better state of preservation than the eastern grouping, labeled Feature 5. The two features were pedestalled and separately excavated and analyzed as units independent from the rest of the operation. However, there were strong indications that deposition of surrounding artifacts was likely related to these two features.

<b>Ceramic Type</b>	<b>Count</b>	<b>Frequency</b>
<b>Quebrada Plain</b>	65	4.04%
<b>Aguas Buenas General</b>	141	8.76%
<b>Bugaba</b>	5	0.31%
<b>Cerro Punta Orange</b>	19	1.18%
<b>Bugaba Engraved</b>	49	3.04%
<b>Guarumal Incised</b>	19	1.18%
<b>Quebradas Incised</b>	323	20.06%
<b>Valbuena Isla Palenque Maroon</b>	2	0.12%
<b>Corral Red Coronado</b>	3	0.19%
<b>Corral Red Corral</b>	19	1.18%
<b>Cerro Punta Cotito</b>	44	2.73%
<b>Cerro Punta Cerro Punta</b>	37	2.30%
<b>Guarumal v. Guarumal</b>	17	1.06%
<b>Guarumal Cebaca</b>	42	2.61%
<b>Moravia General</b>	102	6.34%
<b>Unknown</b>	723	44.91%
<b>Total</b>	1610	100.00%

**Table 6.22: Operation G Ceramic Distributions**

Excavation of the area surrounding the features yielded several concentrations of artifacts (Table 6.22) that strongly suggested an intentional formal deposition of ceramic and stone artifacts along with intentional thermal alteration of ceramics and associated stones used to support them. Numerous ceramics were recorded within the first 4 levels of excavation within a central area of Unit 29 adjacent to Feature 3 (Figure 6.91). Consisting of Aguas Buenas period ceramics, this concentration was also associated with a variety of figurine and adorno fragments ranging from feline and simian effigies to examples of individual heads with conical hats as well as headbands (Figure 6.95 and 6.100).





**Figure 6.91: Operation G select ceramics by level (continued from previous page)**

The proximity of this concentration of ceramics within the southeast sector of Feature 3 suggested an association with mortuary features, and it was soon realized that both features incorporated large cobbles on their western flank, under which artifacts appeared to be spilling out. Bioturbation was evident in the form of small tunnels approximately 5-7 cm in size, suggesting rodent disturbance and movement of artifacts. Excavations recorded relatively high numbers of lithic debitage as well as waisted axes in various stages of reduction. The location of these artifacts concentrated largely on the southeast flank near Feature 3, occupying Units 29 and 32 (Figure 6.89).

<b>Vessel Form</b>	<b>Count</b>	<b>Percentage</b>
<b>Bowl</b>	80	4.97%
<b>Olla/Tazon</b>	665	41.30%
<b>Plate</b>	8	0.50%
<b>Incensario</b>	3	0.19%
<b>Small Jar</b>	11	0.68%
<b>Large Jar</b>	26	1.61%
<b>Cylindrical Cup</b>	1	0.06%
<b>Undetermined</b>	300	18.63%
<b>Small Bowl/Seed Jar</b>	4	0.25%
<b>Shallow Bowl</b>	40	2.48%
<b>Small Globular Jar</b>	11	0.68%
<b>Jar</b>	120	7.45%
<b>Large Globular Jar</b>	6	0.37%
<b>Tripod Escudilla</b>	5	0.31%
<b>Unknown Tripod</b>	109	6.77%
<b>Tecomate</b>	8	0.50%
<b>Pedestal Based Bowl</b>	3	0.19%
<b>Annular Based Bowl</b>	6	0.37%
<b>Annular Based Jar</b>	1	0.06%
<b>Sarten/Pan</b>	1	0.06%
<b>Globular Jar</b>	87	5.40%
<b>Small shaped ceramic Disk</b>	1	0.06%
<b>Figurine</b>	2	0.12%
<b>Escudilla</b>	92	5.71%
<b>Annular Base</b>	9	0.56%
<b>Pedestal Base</b>	11	0.68%
<b>Total</b>	1610	100.00%

**Table 6.23: Operation G Vessel Form Counts and Percentages**

The eastern half of the operation at Units 30, 31, and 33 mirrored the above pattern with waisted axes, and Aguas Buenas phase ceramics were abundant, with avian and saurian figurine fragments as well as anthropomorphic adornos present. Unit 31 and Expansion Unit 33 yielded one of the best-preserved examples of mortuary ritual involving ceramic breakage and fire, with a complete but fragmented Guarumal v. Guarumal vessel identified alongside other Guarumal and Quebradas vessels. The evidence clearly shows a shattered vessel resting on top of three thermally altered stones and subsequently partially covered by a large “capstone” cobble. As mentioned above and in the mortuary feature descriptions below, both features exhibited the same configuration of a large

cobble located on the northeastern side of each feature with the remains of several vessels below them, and both appeared to be the locus of offerings when compared to the minimal amount recorded within the features themselves.

As excavations progressed downward, sediments remained relatively unchanged, transitioning slightly from 5YR 3/4 and 7.5 YR 2.5/3 to 7.5 YR 5/6 while maintaining a strong brown to dark reddish brown color. From surface to approximately Level 6, sediments remained loamy clay with some redder friable sections that were attributed to thermal alteration (Figure 6.92). Overall, the soils appeared to be subject to heat treatment at several junctures, contributing to a general impression of intensive use of fire. Ceramics with large amounts of smudging also supported this assessment.



**Figure 6.92: Evidence for breakage and thermal activity at Operation G**

Apart from the evidence suggesting mortuary deposition of artifacts, discoveries along the southern perimeter suggested curation and preparatory activities. Abundant lithic debitage was identified within the courses of the curvilinear wall and throughout the southern portion of Operation G. Consisting of core and axe fragments as well as various flakes from differing reduction stages, this area appeared oriented less towards the two central mortuary features and more towards the south. It was not until the later salvage

work carried out by Badilla did it become apparent that it was a portico area that was likely a locus of activity, possibly focused on lithic reduction of waisted axes.

<b>Reduction stage</b>	<b>Count</b>	<b>Percentage</b>
<b>Primary Flake</b>	68	10.76%
<b>Secondary Flake</b>	26	4.11%
<b>Interior Flake</b>	330	52.22%
<b>Thinning flake</b>	39	6.17%
<b>Core</b>	8	1.27%
<b>Core fragment</b>	10	1.58%
<b>Flake fragment</b>	32	5.06%
<b>Tool</b>	22	3.48%
<b>Tested Cobble</b>	23	3.64%
<b>Other</b>	21	3.32%
<b>Biface fragment</b>	15	2.37%
<b>Uniface fragment</b>	21	3.32%
<b>Biface</b>	1	0.16%
<b>Uniface</b>	1	0.16%
<b>Shatter</b>	15	2.37%
<b>Total</b>	632	100.00%

**Table 6.24: Operation G Lithic Artifact Counts and Percentages**

This possible locus of activity underscores the significant number of lithic artifacts found at Operation G in general, which, along with numerous tools, cores and reduction debitage, seemed much like a repository for a large number of bifacial and unifacial axes (Table 6.24). As mentioned, a segment of metate was also found in the south central portion of the wall as part of the actual masonry and not, ostensibly, as any type of site furniture or offering. Below follows a more focused description of the two mortuary features identified within the operation.



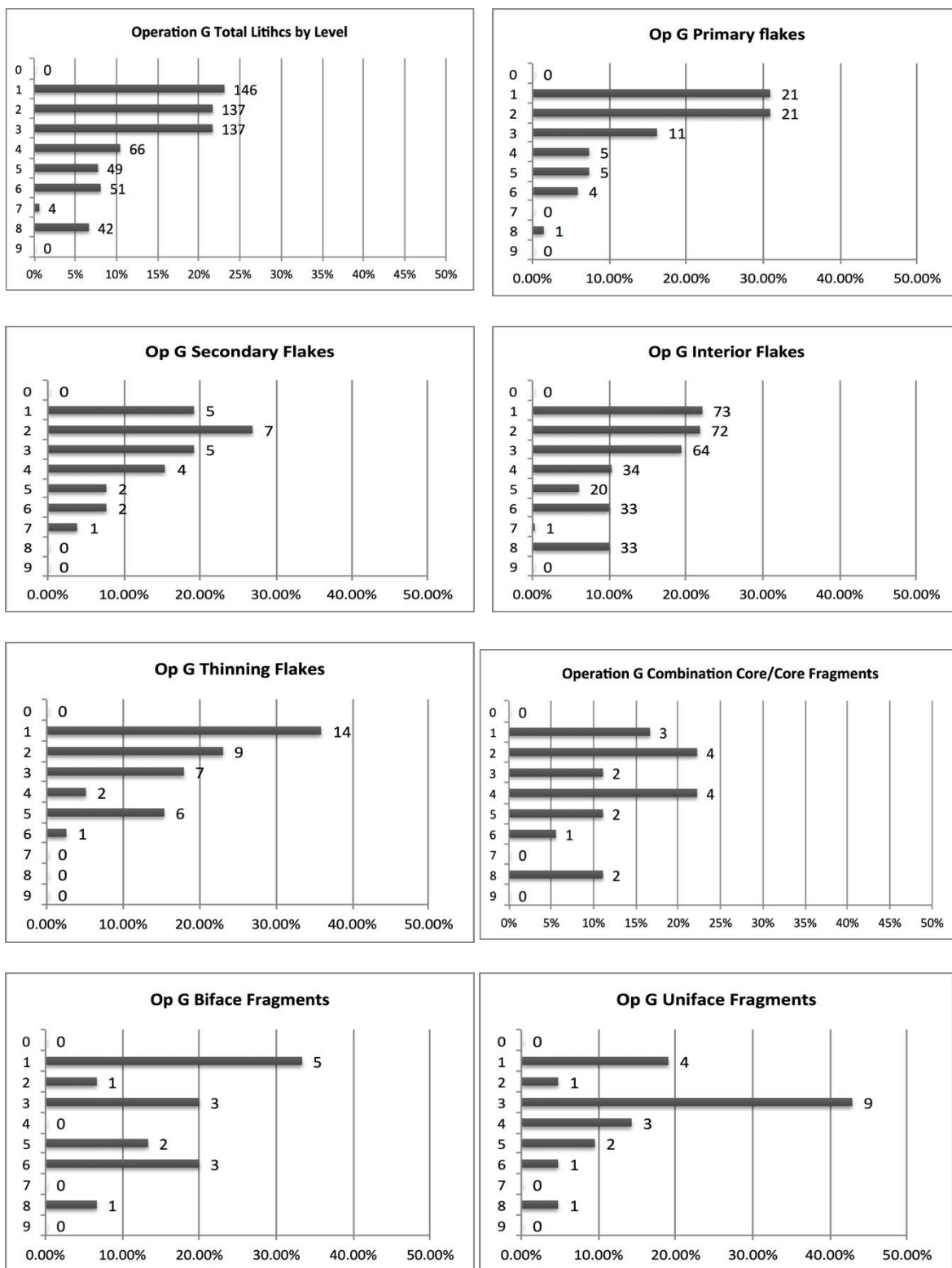


Figure 6.93: Operation G lithic artifacts by level



### **Feature 3:**

As mentioned, Feature 3 was discovered within the western portion of Operation G in a relatively good state of preservation. Impacts from modern agricultural activities appear to have only stripped a few cobbles, and approximately 10 centimeters of sediment was all that separated modern strata from that of prehispanic deposition, which lies in stark contrast to more southern deposits in the Diquís and speaks to the general stability of upper tertiary river terraces (Figure 6.94). The feature itself was measured at approximately 36 cmbds, and like the rest of the operation surrounding it, consisted of dark reddish brown clay loam (5YR 3/4) sediments. The feature was excavated in natural levels with high-density concentrations of artifacts evident from just below the cobble features, peaking in frequency between 60 and 75 cmbds, terminating at 92 cmbds. Transition in soil texture and color from dark clay loam (5YR 3/3) to more orange clay-rich sterile substrate (5 YR 4/6) occurred at approximately 101 cmbds.



**Figure 6.94: Feature 3 view north**

Several artifacts were point provenienced, such as a small avian figurine/adorno with a drilled hole as well as an owl adorno, discovered at 60 cmbds, resting underneath the large cobble just east of the feature (Figure 6.95). The aforementioned concentrations of ceramic artifacts were largely concentrated on this eastern edge, but were also located in the center of the feature. One in particular, a large plate fragment found at 75 cmbds, was accompanied by other ceramics, trending westward within the boundaries of a 5 to 10 centimeter rodent tunnel. The tunnel demonstrated the obvious bioturbation present within the softer soil and was filled with ceramics and looser sediment. Generally speaking, the western portion of the feature was more consolidated, suggesting the majority of the disturbance was due to the identified rodent tunnels.

Notwithstanding, the disturbance appeared limited to within the confines of the feature, nominally moving the artifacts in a vertical direction, contributing to an east-west displacement of approximately 50 cm. Therefore, we inferred that the artifacts, whether whole upon placement, or shattered in process, were likely further displaced by post-interment bioturbation. However, the relative position of the ceramics indicated the presence of modest offering within the tomb itself.



**Figure 6.95: Owl adorno from Feature 3**



**Figure 6.96: View south of Feature 3 showing artifact concentration and rodent burrow**

The soil within this concentration was flecked with carbon and produced several instances of soil staining that, in the field, appeared to be associated with the numerous soot stained and smudged ceramics. On the whole, general impressions from in-field analysis of the evidence suggest that Feature 3 likely represented interment of a package associated with burning. Unlike other tombs noted at El Cholo, however, Feature 3 lacked any clear soil stain, instead revealing a collection of smaller concentrations of dark sediment.

The material collected from Feature 3 was largely comprised of Aguas Buenas period ceramics consisting of Quebradas Incised but also including Guarumal and Cerro Punta ceramics as well as one instance of Bugaba Engraved (Table F 20). Additionally, an extensive lithic assemblage was present (Table F 20), suggesting that the surrounding sediment used for preparatory activities was possibly utilized during the time of interment. Interestingly, no complete or fragmented bifacial or unifacial waisted axes

were identified within the feature, with axes only noted for the sediment surrounding the feature.

Interestingly, the high number of thinning flakes within the mortuary feature begged the question as to whether there hadn't been intensive lithic production occurring while interment rituals were in process, as such as relatively high number of later-stage debitage suggests that occupants were focusing on creating unifacial and bifacial objects. That there were no actual unifaces or bifaces within the features prompted the consideration that there was possibly an overlap in activity floors and burial: an interesting mix of craft production and mortuary ritual seemingly prevalent at El Cholo.

#### **Feature 5:**

Feature 5 was significantly less visible than its western counterpart. Cobbles were encountered within the first 10 cm of excavation, but the boundaries of the feature itself were not definitively established until approximately 63 cmbsd. When initially uncovered, only a sparse cobble boundary was discernable (Figure 6.97), with what appeared to be another fragmented metate found within it. Like its adjacent feature, sediments consisted of a dark reddish brown (5YR 3/4) poorly consolidated clay loam. These sediments yielded no clear soil staining, but similar to Feature 3, exhibited evidence of carbon flecking and small scale carbon staining. However, cultural material retrieved from a large cobble to the east of the feature was identified, and some ceramics retrieved from within the boundaries of Feature 5 appeared to be similar or identical to the ceramic sherds found under and between the large eastern cobble and the feature (Figure 6.92).



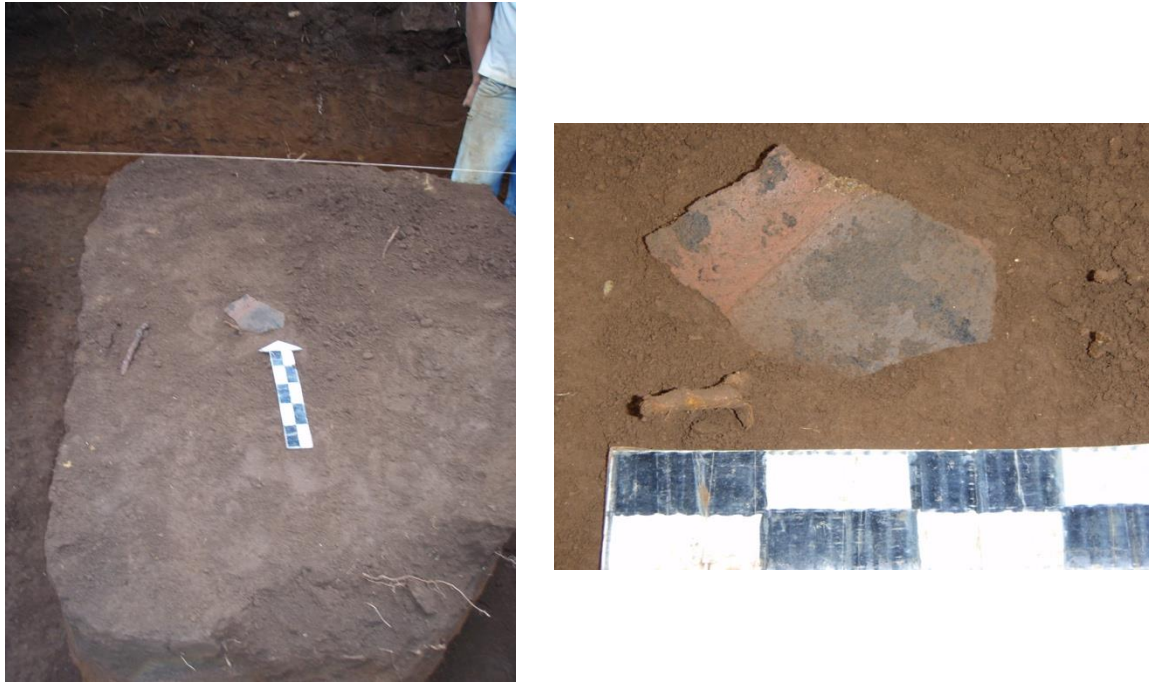


of which fragments were also located underneath the eastern flank of the feature. As seen throughout the operation, various insect and rodent tunnel casts were evident (Figure 6.99), indicating the limited movement of artifacts and possibly contributing to the dismemberment of the post-depositionally shattered vessels.



**Figure 6.98: Excavated Feature 5 view north and south showing lithic offerings and lower almohada headstone. The location of shattered ceramics was located to the southeast by the oxidized Piedra Muerta on the right edge of the picture.**

Another notable find within Feature 5 was the positioning of ceramic and stone items at the corners of the probable boundaries of the grave within Feature 5. This positioning of artifacts paralleled that observed for Operation E at Feature 8. The four corners of the feature yielded 4 stone pebbles/small cobbles and interestingly was accompanied by a large “almohada” feature located approximately 53 cm below the remains of the cobble capstones (Figure 6.98).

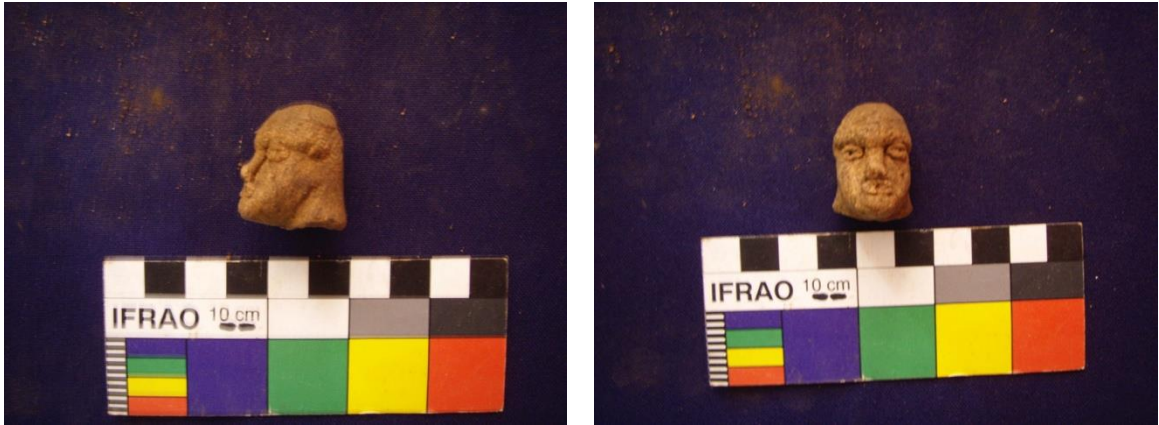


**Figure 6.99: Feature 5 showing burnt Guarumal sherd and bioturbation**

Interestingly, the western shoulder of the grave next to the almohada feature yielded a small bifacially worked lithic artifact. Resembling an axe, it was nevertheless better worked and of better raw material quality than the majority of waisted axes recovered within the operation and throughout the site. The biface was not waisted, and along with the central position of a highly smudged/sooted Guarumal fragment at approximately 110 cmbsd (Figure 6.99), suggested that burning of a ceramic offering was carried out prior or simultaneous to the placement of the biface and stone “offering.”

Like its neighbor, sediments within Feature 5 also yielded figurine fragments, including within the tomb itself. We identified the remains of a helmeted head (Figure 6.100). The bottom part of the figurine suggests that actual figurines and not adornos were in use at the site and deposited, as was assumed, within mortuary ritual contexts. Interestingly, while the surface preservation of Feature 5 was lacking in comparison to Feature 3, it

nevertheless yielded evidence more in line with what had been observed elsewhere on the site overall.



**Figure 6.100: Figurine fragment found in Feature 5**

The frequencies of artifacts are summarized in the index and agree with the artifact patterning observed in other mortuary features and throughout the site in general. Mostly composed of Aguas Buenas and Quebradas Incised, there was a significant presence of Bugaba Engraved as well as a possible Zoned Incised and Black Paint on Red examples (Table F 21). Within the feature, it appeared that ceramics from earlier phases and different geographical regions were represented. The presence of Panamanian ceramic types along possible El Bosque ceramic brings up a variety of issues.

Along with the presence of in-architecture site furniture such as fragmented metates, the presence of El Bosque may suggest the modification of earlier structures in order to construct the arguably newer circular structure. It could also suggest the use of older pottery as heirlooms or a continuation of the use of cultural calling cards seen at Operation D. If the latter case were valid, Feature 5 would truly represent the intersecting nature of El Cholo, a crossroad for northern and southern cultural influences. However, this particular example of El Bosque is suspect and was not as compelling an example as



the one found at Feature 4. Another notable observation lay with the high number of interior flakes as well as other sundry lithic artifacts found associated with the mortuary feature (Figure 6.98). From the positions of finished artifacts, consisting of possible hammerstones and pecking/polishing stones located in specific areas within Feature 5, it would seem that the waste products of the lithic reduction process served just as much as a ritual offering as the finished ritual product. This is borne out in other parts of El Cholo such as Operation A Feature 15, where an axe core was found buried within a mortuary feature. Overall, this suggests the need to evaluate the modern delineation between what constitutes a domestic tool kit from a mortuary assemblage.

Lastly, the relatively high quantities of Panamanian style ceramics, found within a circular structure with evidence for intensive axe production, is particularly salient considering the late 6th, early 7th century date retrieved from associated sediments within the operation. The date of the structure, later than some of the other structures at El Cholo, seemed to suggest drastic departure from the previous pattern, and while it may be that the behaviors observed at Operation G resembled others at El Cholo, it also may represent an attempt to further integrate more southern forms of expression into an pre-established and already accommodating sociocultural system. This at least seems to be the case based on the presence of Greater Chiriquí artifacts throughout all levels and all areas of El Cholo. Nonetheless, the unmatched concentration of artifacts such as stone axes, Bugaba and Guarumal ceramics amid what seems to be a new architectural addition to the site raises important questions as to whether the mortuary events at Operation G constituted something more than acculturation or assimilation into a status quo.

## **Chapter 7 : LABORATORY METHODS AND MATERIALS ANALYSIS**

Excavations at El Cholo yielded over 30,000 artifacts consisting mainly of ceramic and lithic items. Only a few cases of macrobotanical, faunal and other types of organic residues were present due to the poor conditions for the preservation of organics.

Anticipating this situation, the analysis prioritized artifact and carbon analysis over macrobotanical soil sediment samples.

Laboratory analyses of all materials save carbon 14 samples were carried out at facilities at the National Museum of Costa Rica in Pavas, San Jose. A selection of carbon samples that were retrieved during the investigation were prepared at the Museum and then submitted to University of Arizona laboratories for dating. Soil samples were partitioned into subsamples for flotation analysis at the museum. The other portion of carbon and soil samples were resealed and stored for future phosphate or flotation analyses. Priority of soil sample choice was given to potential mortuary features. With the assistance of museum archaeologist Maritza Gutiérrez, I was able to conduct a preliminary qualitative analysis of a subset of floated soil samples, results of which are detailed in the following section on flotation results below.

All artifacts were retrieved sequentially from bags labeled with respective lot numbers from numbered boxes. Ceramic and lithic artifact data were then entered into their corresponding data sheet in Microsoft Access, with lot numbers serving as a prime identifier. For ceramics, attribute columns were comprised of vessel type, form, length, width, thickness, temper, paste, firing treatment, and in the case of measurable rim sherds, orifice diameter. Lithic artifacts differed with the inclusion of material type and

reduction stage. Comments were also recorded in a separate column for each artifact datasheet to note any extraordinary observations. Using the lot number-key identifiers, all data were subsequently exported into an ArcGIS geodatabase holding the spatial coordinates for each lot and its corresponding operation, unit and level information as well as locational and shape information.

Artifact measurements were recorded with digital calipers. For ceramics, artifacts entailed rim sherds, support/legs, handles, bases and body sherds with any decoration. Initially, body sherds were recorded if significant amounts of carbon deposits were observed, with the intention of parsing out potentially meaningful patterns regarding thermal activity at El Cholo. Rims were also measured against a rim template to acquire diameter. Overall, approximately 7023 sherds, 25% of a total of 28,095 ceramics, were analyzed in the laboratory.

In contrast to the ceramic artifacts, 84% of collected lithic material was analyzed in the laboratory, the difference in the proportion of analyzed artifacts likely a function of preservation and the recording of very small bifacial and pressure flakes relevant for inferring stages of reduction (Crabtree 1972; Flenniken and Raymond 1986). Along with various chipped stone artifacts, the investigation recorded a handful greenstone axe fragments, beads, groundstone, polishing/sharpening stones and pebbles found in clustered non-geomorphologic contexts. For the purposes of efficiency, these artifacts were grouped into the lithic artifact database.

While great effort was made to record as many relevant variables for thorough artifact analysis, due to time and budgetary constraints, only a fraction of them were used within

this study. The hope is that the data can be revisited at a later date to refine the preliminary analyses that were carried out in this dissertation. The remainder of this section summarizes the laboratory and statistical analysis of ceramic and lithic artifact data for operations and mortuary features, followed by a summary of results of the analysis of soil and carbon samples and their depositional context.

### **Basic Statistical Methodology for Artifact Analysis**

The following analyses broadly examined the issues mentioned in the theoretical section regarding status, standardization of production and attached specialization as well as basic temporal problems in an initial attempt to describe the variation present at El Cholo. The aim was to test the hypothesis of no difference: be it no significant concentration, aggregation or some factor suggestive of special residence or consumption. Judging whether this was due to elites or specialists would depend on whether differences in artifact concentrations consisted of sumptuary goods, exclusive/restricted use of objects and/or space. As mentioned in the Chapter 5, if sections of the ceremonial complex were to display any significant disproportion from the expected values within the mound complex, it may lend support to the prevailing idea that cultural deposits were dictated by differential use of space and whether that use of space was function of status or a broader sense of community identity. I proposed using the combination of field and statistical methods to explore whether I could falsify the prevailing hypotheses. Given the nature of the data, I chose simple but robust methods such as contingency table frequency analysis along with graphical spatial interpolation models for their complementary utility.

As mentioned above, I recorded gross counts of several artifacts types as well as their metric data such as length, width and thickness. I then calculated summary statistics for each artifact class at its coarsest level (type, form etc.) and general attributes (orifice diameter) and then explored relevant subsets such as orifice diameters for each vessel type/variety. I followed the typological system initially laid out by Haberland (1984) and Drolet (1992) and refined by Corrales (2000), but chose not to divide my ceramic samples into modes as this level of inference is still under development and debate (Baudez, et al. 1993; Corrales 2000; Linares 1968; Sol Castillo 2013). Frequencies for each level of each unit were summed within each unit and subsequently summed and averaged across each operation. The results of the operation level scale frequencies were summarized in the Chapter 6 excavation summaries as well as the appendix.

I carried out several exploratory statistical analyses in order to acquire some initial impressions about El Cholo that would assist in evaluating the  $H_0$  of no difference for special residence among the general artifact distributions throughout the site. I looked at gross counts of artifacts by operation as well as the data retrieved from the sample of 12 mortuary features. Coefficients of Variation were computed for rim diameters of all recorded vessels as well as for dimensions of the combined set of axes and axe fragments located throughout the site. These measures were employed in order to ascertain if there was any significant indication of standardization, which has often been used to determine specialized craft production, and potential attached specialization (Crown 1994; Santley 1984). I also carried out a Chi-square analysis of proportions to evaluate whether there were any statistically significant differences from expected proportions of artifacts at El Cholo.

The idea behind all of these analyses was to achieve a general baseline from which other studies could depart. As El Cholo marks the first systematic excavation of a socio-ceremonial Formative period site, there are few contemporary sites to which it can compare. However, with the use of exploratory techniques such as the Chi Square, as well as the more recently utilized Correspondence Analysis, one can begin to frame questions regarding the differential use of the site.

With Correspondence Analysis, artifact measures, already grouped into contingency tables for the Chi-square analysis, were subjected to matrix calculation, essentially an extension of the Chi Square analysis of proportions. However, the analysis extended the computation to determine which proportions of row attributes to column attributes correspond in a statistically significant manner to a number of previously undetected dimensions (VanPool and Leonard 2011). The strength of the deviations from statistically random events are expressed in eigenvalues (Drennan 2010; Greenacre 2010), with variates potentially grouping along underlying dimensions or, as termed in the related Factor and Principal Components Analyses, underlying factors or components.

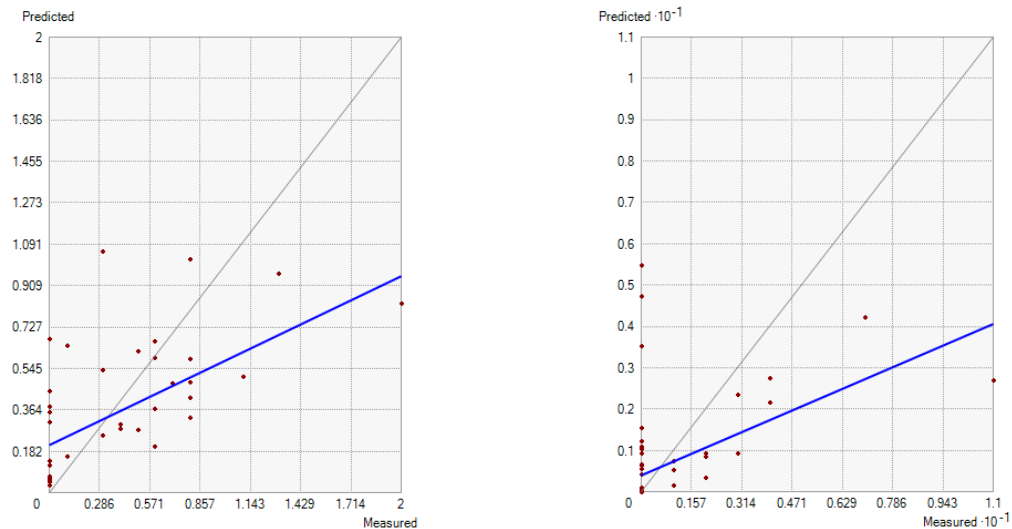
Correspondence analysis extracts possible underlying determining factors that account for the highest amount of variation. Ranges of dimensions are generated from those that explain the most “inertia” or variation to those that explain the least. Dimensions are ultimately chosen at the investigator’s discretion, and have often been reduced to two but sometimes expanded to as many as four dimensions if the level of variation is explained more evenly throughout multiple dimensions (Alberti 2013a, 2013b; VanPool and Leonard 2011). Subsequent plotting along the axes of two dimensions allow investigators to analyze if any clustering is present and determine whether the results are spurious or

meaningful. For this study, I was able to test the generated patterns against an independent set of radiometric dates.

Geostatistical analyses were also carried out in order to see if any meaningful patterns corresponded to those gleaned from the matrix analyses and carbon-14 assays. As evident in the excavation summary, few artifacts were point-provenienced during the project. Rather, for the majority of the investigation, bulk attribute measures were grouped into each 2x2m sample unit and computed to a centroid to facilitate spatial representation. From this centroid point data, several basic analyses were computed using ESRI ArcGIS geostatistical analysis. Upon processing excavation data, it was assumed that the area in question was actually auto-correlated, owing to the fact the site was an area of similar activity, namely interment and preparatory activities associated with either commensal or domestic activity. Auto-correlation statistics were evaluated within each geostatistical test in order to determine whether the data were randomly distributed or auto-correlated. The strength of the autocorrelation would then help to evaluate the generated predictive trend and evaluate any significant concentrations or directionality to the data. This would assist in the overall analysis with regard to the Ho and provide additional insight into the results provided by the analysis of frequencies.

Using the ArcGIS geostatistical package, I generated several varieties of interpolation maps. The idea behind the spatial interpolation—as mentioned with the discussion on autocorrelation—is that one could reasonably predict the distribution of artifacts across unknown areas of a site based on the amounts recorded from the actual excavation units (Aldenderfer and Maschner 1996). The product of these interpolation tests is essentially a form of an isopleth map. I generated several forms via different models in order to

ascertain which best predicted the data with the least amount of error (Figure 7.1). Again, autocorrelation was determined by the amount of fit with the observed regression statistic and line. Goodness of fit was also determined by inspecting the root mean square error and standard error statistics for each test.



Quebradas Plain L7 to Sterile Empirical Bayesian Kriging  
**Figure 7.1: Example of ArcGIS output demonstrating root mean square (RMS) and standard errors for interpolation models**  
 Quebradas Plain Level 8, Inverse Distance Weighting

Although less robust, inverse distance analysis was initially chosen owing to the fact that it corresponded directly with the data. However, the model, being a deterministic model upon which points are fitted to a preexisting plane, does not include probabilities. As a result, I also carried out several probabilistic interpolations ranging from simple Kriging to Bayesian statistical Kriging. Unfortunately, when analyzed at every 10 cm level, artifact counts proved to be too low to adequately calculate means for a valid probability curve. However, field observations, combined with detailed review of stratigraphic analysis, suggested that I could group artifact data that was previously sorted by each level into two heuristic phases corresponding to the organic horizon encountered after Level 6 (approximately 60 cmbsd). This allowed for an averaging of artifact abundances



and allowed for the interpolation methods to be carried out. I ultimately opted to use Bayesian Kriging where it was possible. This form of statistical interpolation allows for multiple predictions to be averaged together and create a more inclusive and comprehensive predicted universe with the potential for meaningful interpretation (Pilz and Spöck 2008). Interestingly, I observed that simple Inverse Distance weighting analyses generally fit with the results of the Bayesian Kriging. This supported my choice to proceed with Inverse Distance weighting when Bayesian methods were not available. The levels of correspondence between these spatial tests with the other tests are displayed and discussed below.

### **Ceramic Distributions: Analysis of Non-Mortuary Context Ceramic Type Frequencies**

As detailed in the excavation summaries, ceramics were identified using the range of types largely established by Haberland and Corrales (Corrales 2000). The intention was to perform a set of statistical analysis that would effectively distinguish type frequencies throughout the sampled portion of the site. However, in several cases, such as later Chiriquí phase types, there were simply not enough examples present throughout the site to conduct valid analyses (VanPool and Leonard 2011). This was also the case to a lesser degree for varieties of Aguas Buenas period ceramics such as Corral Red, Cerro Punta, Bugaba and Guarumal ceramics. These classes produced lower frequencies within the contingency tables. I therefore chose to proceed conservatively and lump these classes together. Others types such as Aguas Buenas General and Moravia General were also grouped by the minimum number of attributes that would qualify it as part of a type or variety creating a “general” category. This was deemed acceptable, as broad attributes

such as red slip under the rim as well as the bichrome nature of body sherds were considered when more detailed options were unavailable. This categorization would thus allow them to be used within the analysis. The separation of Aguas Buenas General from Moravia was often a difference of not putting Moravia varieties into the Corral Red Category class owing to a lack of attributes such as the characteristic groove under the maroon lip of Corral Rims or the presence of applique.

As a result, in order to facilitate the Chi-square analyses, types were collapsed into more inclusive classes (Table 7.1), with the assumption that the general characteristics of these types warranted grouping. Aguas Buenas and Moravia General were kept separate, as totals for these types did not violate assumptions. Moreover, it seemed that Moravia constituted a more specific variation of the more General Aguas Buenas category, and collapsing it into a broader category may unnecessarily reduce variation.

In addition, while the Unknown category was grouped into various subclasses in the laboratory and eventually collapsed into a general Unknown classification, I chose to omit it for the initial contingency analysis. The idea behind the omission stems from the fact that the initial goals of the investigation was to look for any concentration of chronologically and functionally sensitive ceramic types that could be associated with different locations at El Cholo. If certain types were dependent on certain sectors of El Cholo they may indicate domestic, ritual or some other function. Unknown ceramics would thus serve no purpose given these goals. I do, however, include unknown types in follow-up correspondence analyses.

Simply put, chi-square testing served as the base analysis upon which more detailed interpretations would be built. The following contingency table of consolidated ceramic types was entered into the R statistical package (Table 7.2). As is evident in the table, not all operations were analyzed. Operation B had little to no artifacts and therefore would have violated several assumptions, invalidating the chi-square analysis. I decided to omit it from the analysis for the first iteration. The lack of artifacts in this operation, as has been mentioned in previous sections, was initially attributed to a cleaned plaza area (Corrales 1996). Since I was unable to collapse Operation B ceramic categories with low frequencies into any sizable sample, I omitted it at this stage. However, like the unknown category, I chose to include it in later correspondence analysis in order to see if Operation B presented other.

The resulting Chi Square test rejected the hypothesis of no difference with a X-squared of 235.8485, 35 degrees of freedom and a p-value of  $< 2.2e-16$ . Subsequent analysis of adjusted residuals demonstrated significant differences at 1.96-confidence levels across several ceramic types at several operations (Table 7.2). Quebradas Plain ceramics were disproportionately abundant at Operation C and disproportionately lacking at Operation D, with the incised variety showing significant differences at Operations F and G. Aguas Buenas and Moravia categories demonstrated opposite tendencies at Operation D, with disproportionate lack and abundance of this type respectively. Aguas Buenas General, lacking at Operation D, was abundant at Operation C, which demonstrated a lack of Bugaba and Guarumal ceramics. Guarumal overall showed a significant concentration at Operation G, contrasting with a relative paucity at Operation A. Bugaba ceramics yielded concentrations at Operation A and Operation G, but showed very little at Operations C, E

and F. Cerro Punta also showed a significant concentration at Operation A, with little representation at Operation F. Finally, Corral Red was overrepresented at Operation E with very little evident at Operation G.

Operation	Quebradas Plain	Aguas Buenas	Quebradas Incised	Moravia General	Guarumal General	Cerro Punta General	Bugaba General	Corral General
A	46	73	227	51	10	78	49	26
C	84	120	207	50	5	48	7	17
D	36	81	277	112	38	50	34	25
E	38	45	166	32	24	32	10	23
F	35	64	206	41	21	27	11	13
G	65	141	323	86	78	82	54	22

Table 7.1: Condensed Ceramic Classes at El Cholo

	Quebradas Plain	Aguas Buenas	Quebradas Incised	Moravia General	Guarumal	Cerro Punta	Bugaba	Corral
A	-0.6828321	-1.7349357	-0.4937424	-1.5465098	<b>-3.9762076</b>	<b>4.0721286</b>	<b>4.673392</b>	1.2678595
C	<b>5.882074</b>	<b>4.79017</b>	-1.539366	-1.3590484	<b>-4.8583416</b>	-0.372703	<b>-4.190903</b>	-0.7445293
D	<b>-3.4385358</b>	<b>-2.4017797</b>	0.5453031	<b>5.6214269</b>	0.8044358	-1.6547706	0.448671	0.1678781
E	0.9292077	-1.8576213	1.4022494	-1.5158351	1.1893297	-0.4916551	<b>-2.050022</b>	<b>2.6926054</b>
F	-0.4542216	-0.0883229	<b>3.4602269</b>	-0.8137632	-0.1651657	<b>-2.1687323</b>	<b>-2.26864</b>	-0.7003649
G	-1.5684823	1.0364414	<b>-2.408021</b>	-0.935768	<b>6.0377591</b>	0.3296056	<b>2.315608</b>	<b>-2.0163845</b>

Table 7.2: Adjusted Residuals with Significant Cells ( $\pm 1.96$ ) in Bold

The initial impression of the analysis of residuals suggest a distinct intra-site grouping of artifacts with the arguably “local” ceramics such as Quebradas Incised demonstrating abundance at the Operation F, which yielded the deepest deposits. Speculated to be one of the first if not most extensively occupied mounds, the high proportions of Quebradas incised at Operation F contrasted markedly with the low proportions of Cerro Punta and Bugaba ceramics: both possibly related to later time phases in the use of the mound.

Other regional varieties such as Quebradas Plain interestingly yielded very high proportions at Operation C, thought to be a staging area due to its lack of mortuary features. Interestingly, Quebradas Plain was less represented at Operation D. Variates falling in the General Aguas Buenas Category paralleled Quebradas Plain with disproportionate abundances at Operation C and a relative infrequency at Operation D. Quebradas Plain an ostensible utility ware, might have been used less at Op D as either a ritual function or simply temporal distinction.

Again, the initial impression of Op C during excavation, with its central position as well as potential lone pillar was that it might have marked a “neutral zone” or staging area relative to the rest of the site. Operation D favoring decorated wares (or rather, *not* favoring plain wares) might possibly explain why Moravia varieties deemed as more decorated than the others even in its general classification may have been favored.

The disproportionate amount of Guarumal at Operation G in relation to the paucity at Operations A and C support impressions supported by absolute dates obtained in the field that suggest Operation G was indeed a later construction, although built well within the occupational history of the site overall. Additionally, Operation G, with its emphasis on

Guarumal, may indicate a link that the ceramic type had with intrusions of later internments into other areas such as Operation A.

If we look at the ceramic proportions, it could be that Guarumal indicates later 7<sup>th</sup> century or later features, mixed in along with earlier tombs. This is supported stratigraphically with the likely intrusive mortuary feature 11 and is tentatively supported by the negative proportions of 6<sup>th</sup> or 7<sup>th</sup> century Guarumal Vessels at earlier areas such as Operations A or Operation C where later populations placed their deceased within the existing tomb structure.

The abundance of Cerro Punta at Operation A and less so at Operation F may also be linked to temporal differences, supported to some degree by the similar pattern observed for Bugaba. For this arguably non-local import, proportions were significantly higher at Operations A and G, linking the supposed Panamanian types together in what initially appears to be an overlapping sequence of occupation for both mounds. Corral Red only showed an increased concentration at Operation E with considerably less representation at the later Operation G. The complex nature of these intriguing patterns suggested by this analysis of residuals perfectly qualified them for a more robust method to extract more information.

### **Correspondence Analysis of Ceramic Data across Operations**

Several iterations of correspondence analysis were implemented for the above data set with the aim of expanding upon patterns identified for the aforementioned ceramic groupings. The contingency table used in the previous Chi Square analysis was entered into R and analyzed using a script compiling several analytical and graphical packages

built around Principal Components Analysis, Factor analysis and Correspondence analysis (Alberti 2013a, 2013b; Greenacre 2010; Lê, et al. 2008). This first analysis was performed on the consolidated data set with the intention of expansion where warranted.

As in the previous tests, related ceramic categories were consolidated and Operation B was omitted from the first stage analysis. If any significant groupings were to become apparent after the first round, this would then warrant further exploration. However, for the first phase a simpler lumping of the types would suffice to see if any significant concentrations were evident on a coarse scale.

The correspondence analysis entailed the initial implementation of A Chi-square followed by a calculation of factors underlying significant groupings. These explanatory factors in correspondence analysis are described as explanatory dimensions describing overall inertia/variation. As expected, the F statistic matched that of the previous independent Chi-square test confirming that there was some form of dependent relationship between operation and ceramic type. Based on matrix math equations of similarity for rows and columns and goodness of fit equations utilized to best fit the resulting point cloud (Lê, et al. 2008), orthogonal axes best fitting the distribution cloud of operations to ceramics were described as principle inertias or eigenvalues. These were also expressed as percentages of explainable variation/inertia listed beside the eigenvalues (Table 7.3). The following figure displays the various dimensions generated for ceramic categories across 6 of the 7 operations at El Cholo. In addition, the square root of the total inertia was computed at 0.264. This number is interpretable as a correlation coefficient whereby values greater than 0.20 suggest a significant dependency



within the contingency table (Alberti 2013a, 2013b; Greenacre 2010), supporting the Chi-square analysis.

<b>Principal Inertias (eigenvalues)</b>				
<b>Dim</b>	<b>Value</b>	<b>%</b>	<b>Cumulative %</b>	<b>scree plot</b>
<b>1</b>	0.031976	46	46	*****
<b>2</b>	0.017403	25	71	*****
<b>3</b>	0.011281	16.2	87.2	*****
<b>4</b>	0.006696	9.6	96.8	****
<b>5</b>	0.002216	3.2	100	5
<b>Total:</b>	<b>0.069572</b>	<b>100</b>		

**Table 7.3: Principle Inertias of Explanatory Dimensions for Ceramic Types across Operations**

The above table demonstrates that the first two dimensions account for 46% and 25% of the total ceramic variation throughout the operations respectively, with the third dimension accounting for 16.2%. Subsequent dimensions account for less than 10% of the value. I therefore chose to explore the ceramic variability along three dimensions since it cumulatively explained nearly 90% (87.2%) of the total variation in ceramic frequency throughout Operations A, C, D, E, F and G.

Past archaeological research using correspondence analysis has demonstrated the utility of using symmetric bi-plot maps to demonstrate the co-occurrence of row and column variables to detail the eigenvalue proportions of variation in relation to one another (Potter 2000a). Indeed, not only was the bi-plot able to replicate groupings observed in the Chi-square analysis, demonstrating significant nonrandom groupings, it was further able to distinguish directionality in the distributions that could provide more meaningful results.

The bi-plots shown below (Figure 7.2 to Figure 7.4) comparing the first and second dimensions showed a close association between Operation C, Quebradas Plain and Aguas Buenas General. Operations E and F showed closer associations to the Quebradas Incised variety, with Operations G and D clustering around Moravia General. All four operations

however, can justifiably be said to share affinities with both ceramic types. Operation A, while most closely associated with Cerro Punta, also demonstrated an association with Corral Red also shared by Operations E, F, G, and D, albeit to a lesser degree.

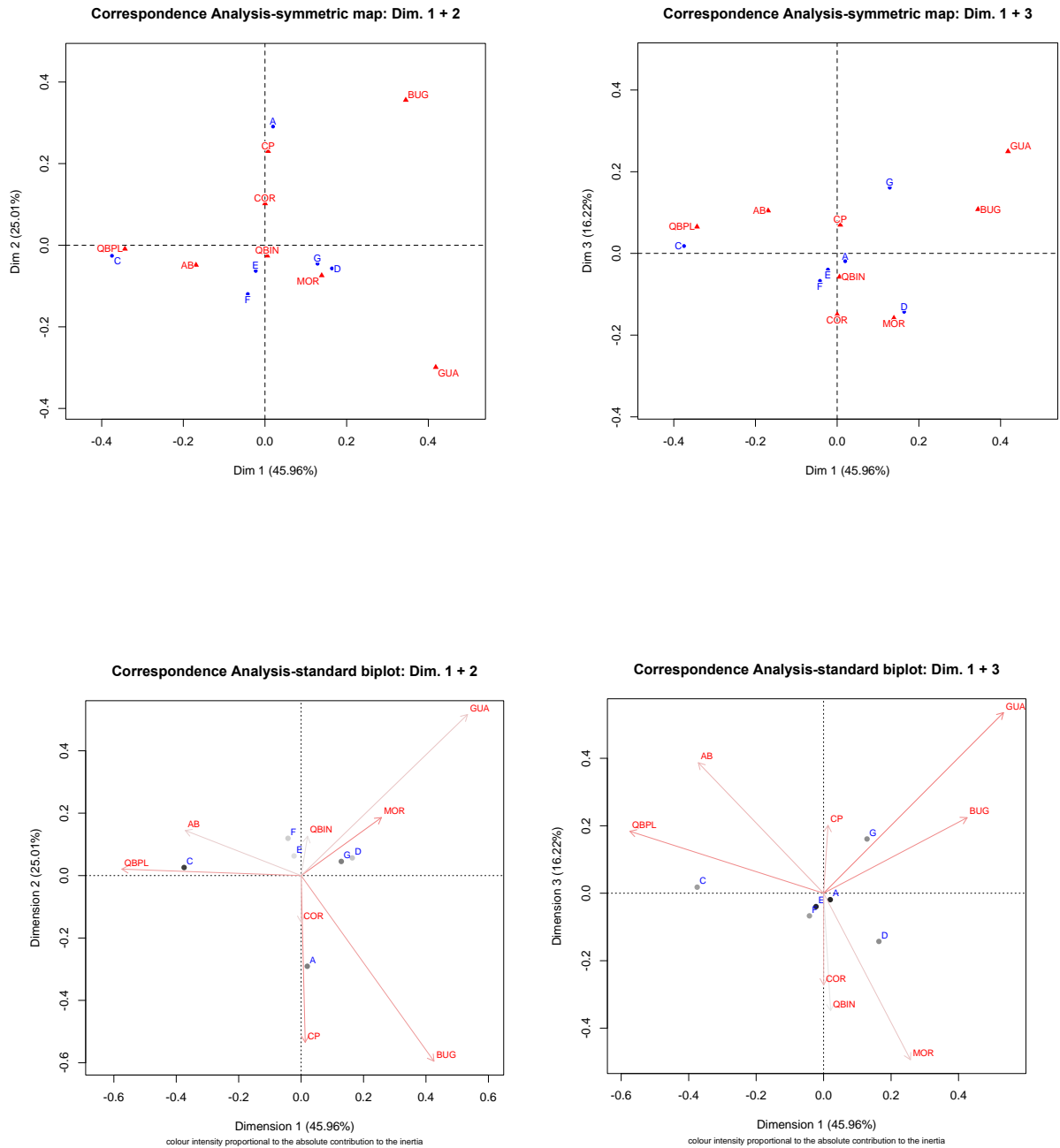
Bugaba and Guarumal, while extremely dispersed due to extremes values/ proportions, still demonstrated connections to certain operations. Bugaba showed the strongest/closest relation with Operation A, and to a less significant extent, with Operations G and D.

Guarumal was most closely linked to Operations G and D. These patterns were already somewhat observable if we review the residual tables, but with regards to dimensionality and direction, if we look at the first dimensional X-axis we can see a sequence and negative values that may correspond to either temporality or quite possibly decoration/surface treatment. This axis appears to demonstrate a trend from negative values for Quebradas and Aguas Buenas, associated with Operation C, to the more relatively elaborate Quebradas Incised, Moravia General, Cerro Punta and Corral Red clustering around E, F, G, D. Operation A overlaps somewhat with the previously mentioned operations but was more closely linked with Cerro Punta and Bugaba ceramics. Moreover, along the first dimension there seems to be significant differences between Guarumal and Bugaba and the remaining types, again possibly showing Guarumal to be the latest introduction to the ceramic sequence.

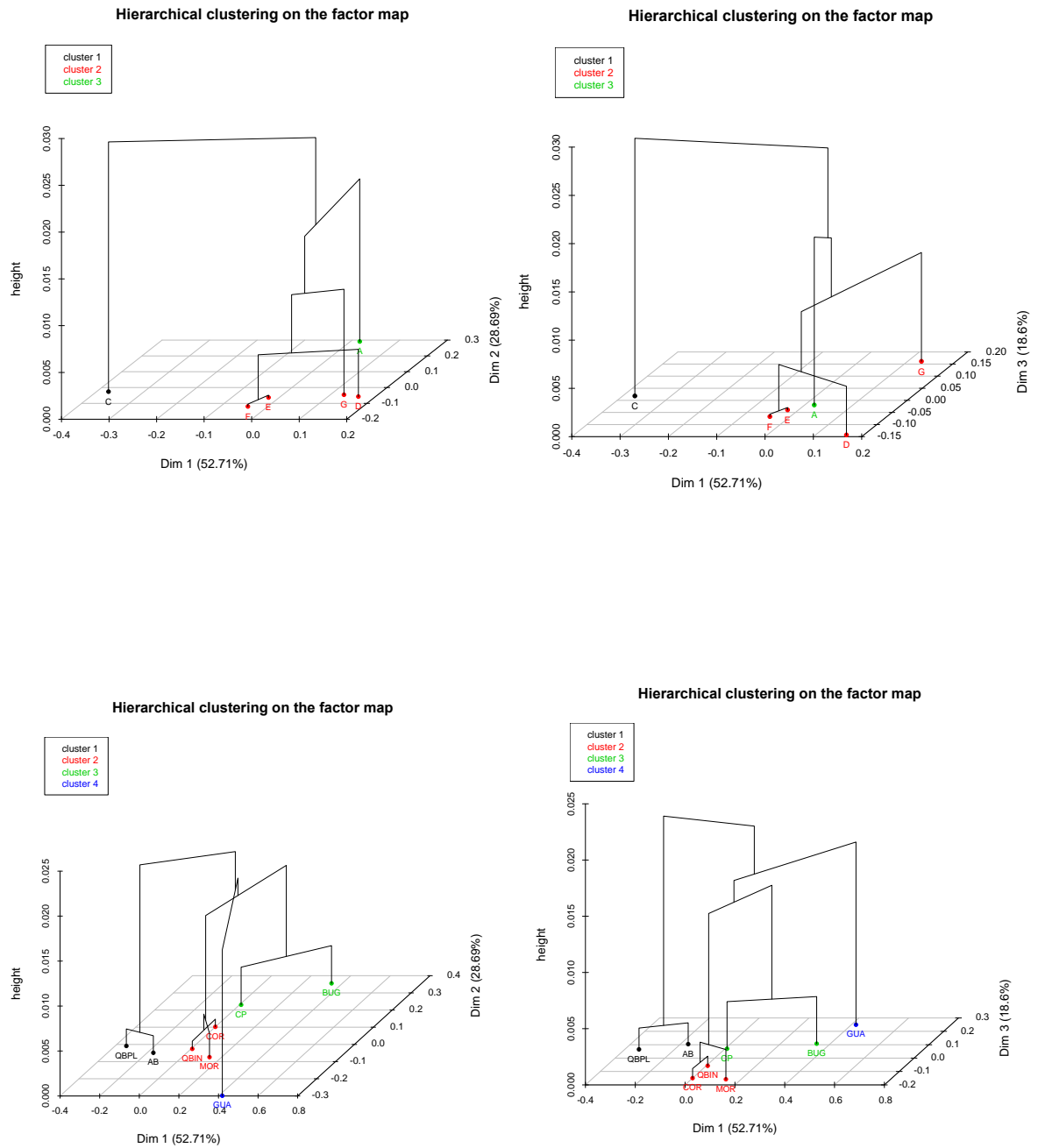
While sharing similar positive first dimensional space, along the second dimension there are notably extreme differences in negative and positive values between Guarumal and Bugaba. If one refers to the analysis of residuals for these two types, one notes that Bugaba is significantly underrepresented at Operation G in contrast to the relative overabundance of Guarumal. Both Operations A and G however, show a significantly

high proportion of Bugaba. This contrast on the second dimension seems to more strongly support the idea that the dimension represents proportions tied to locality.

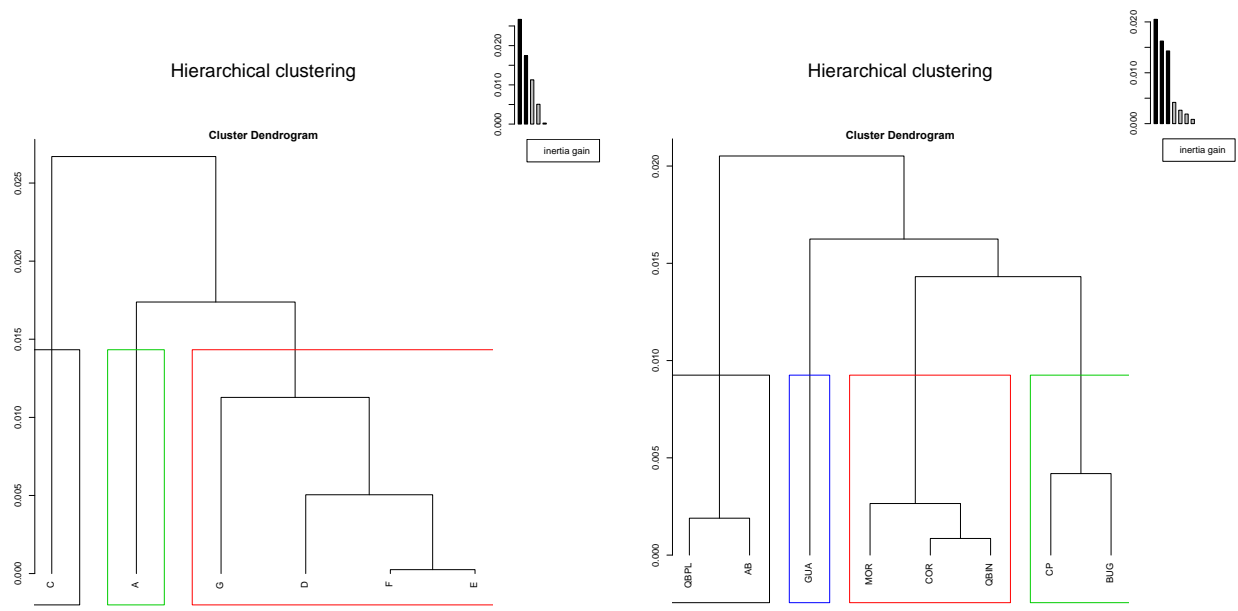
This temporality seems more evident when viewing the bi-plot comparing dimensions one and three. Here we see the same progression along dimension one from least to most decorated, but we can observe that the proportions for dimension three cluster spatially and temporally, indicating time of occupation. Here we see a significant overlap between most operations, bracketed by Operations D and G. Importantly, when we compare dimension three to radiometric dates, we get a similar distribution. From this we can tentatively trace out series of patterns that coincide with what may be a chronologically sensitive degree of ceramic decoration, how it was distributed, and consequently independently seriate different sectors of El Cholo. Thus we see clustering possibly based on decoration/quality that could denote artifact use/function as a primary dimension underscored by length of occupation/chronological position.



**Figure 7.2** Symmetric maps, bi-plots and cluster dendograms demonstrating potential temporal and functional differences between operations across the first dimension and chronology along the second and third (continued below)



**Figure 7.3** Symmetric maps, bi-plots and cluster dendrograms demonstrating potential temporal and functional differences between operations across the first dimension and chronology along the second and third (continued from previous page)



**Figure 7.4 Symmetric maps, bi-plots and cluster dendrograms demonstrating potential temporal and functional differences between operations across the first dimension and chronology along the second and third (continued from previous pages)**

A follow-up cluster analysis based on the above eigenvalues replicated the suggested associations (Figure 7.3 and Figure 7.4). Looking at the resulting dendrogram, we see that the operations seem defined along the relative presence of the aforementioned proportions of ceramic types, with Guarumal being a factor that ties Operation G, D, F and E together. However, it should be noted that if one more branch were included, that Operation G would be separated as well, clearly showing its high proportion of Guarumal and refining the temporal explanation.

### Expansion of Ceramic Type Categories

In order to further explore these results, I chose to revert back to a slightly more expansive version of my original ceramic categories to see if these patterns deviated in any significant way from the condensed analysis. The resulting scree plot demonstrated

that there were up to four explanatory dimensions (Table 7.4). Regardless, when three explanatory dimensions were chosen, the results roughly matched the general patterns established with the coarser scale analysis with some interesting additional results (Figure 7.5 and Figure F 2).

Extreme outlying values were evident, with Operation B lying outside of the shared dimensional space. This appears to fit the pattern as the extreme eigenvalue was very likely due to the lack of occupational evidence. As seen in the condensed correspondence analysis, Operation C held strong associations with Quebradas Plain and Aguas Buenas General, but also showed an affinity with unspecified Cerro Punta Orange. Overall, the first explanatory dimension showed a more detailed version of that observed in the first iteration of the analysis.

There was an expected proportion of Bugaba, Unknown Reduced, Corral Red Corral and Coronado, Cerro Punta Cotito, Quebrada Incised, and Moravia Red General throughout Operations A, D, E, F and G. Operation D did show more of an association with Corral Coronado, Moravia General and unspecified Guarumal Incised, but this only seems to support the assertion informed by the first analysis, pulling the occupation of Operation D in line with the majority of the site, supporting the argument for a long occupation and contemporaneity with the other mortuary mounds.

Operations A, E and G showed a very strong association with Guarumal v. Guarumal and Cebaca, Bugaba unspecified and Engraved, Cerro Punta v. Cerro Punta and Cotito. But Operation G showed the strongest associations of the specifically identified Guarumal

Varieties, Bugaba Engraved and interestingly, Cerro Punta Cotito. This may or may not relate to temporal differences in the Cerro Punta Varieties.

<b>Principal Inertias (eigenvalues)</b>				
<b>Dim</b>	Value	%	Cumulative %	scree plot
<b>1</b>	0.087509	49.0	49.0	*****
<b>2</b>	0.042323	23.7	72.7	*****
<b>3</b>	0.021727	12.2	84.9	*****
<b>4</b>	0.014303	8.0	92.9	***
<b>5</b>	0.007446	4.2	97.1	*
<b>6</b>	0.005224	2.9	100.0	
<b>Total:</b>	<b>0.178532</b>	<b>100</b>		

**Table 7.4: Principle Inertias for Expanded Ceramic Type Categories**

When parsed out along these more detailed lines, the decorative/functional element aspect seems weaker, with chronology seeming to be more prominent. However, the abundance of different varieties of Unknown seems to cause the majority of the operations to cluster, thus causing a bias towards the presence of unknown categories. Nevertheless, the extreme values shown along the first dimension could still suggest activity/functional zones tied (as expected) to chronology. The cluster of transitional Aguas Buenas and Chiriquí ceramics demonstrates this most clearly, as the remainder of artifact types cluster close to the central axis, further demonstrating how the outlying values influence the overall spread. Thus, chronology is made very clear and the underlying functional aspect is perhaps obscured. The duration/intensity of occupation also seems reflected along the second dimension.

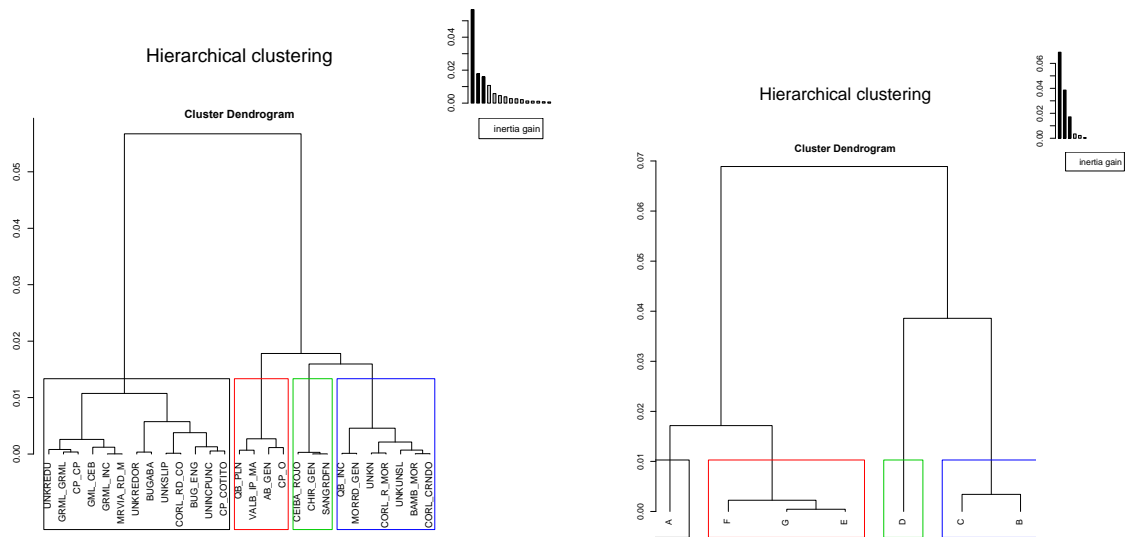
Operation B is clearly an outlier, with the lack of evidence for occupation separating it from the cluster of other values into extreme negative space. As in the condensed analysis, Operations A, E, F and G occupying close dimensional space, and bracketed by Operations C and D, appear to show what is apparent in the absolute dates: that the majority of the occupation of these areas is Aguas Buenas in nature with extreme



differences in values reflecting the varying proportions of shared artifact types across the two contemporary mounds, which, as argued for above, may be suggestive of neutral preparatory areas compared to designated mortuary spaces.

When we look at the 1<sup>st</sup> to 3<sup>rd</sup> dimension bi-plot, we get a pattern showing the relation of the amount of deposition/relative amounts to the intensity of occupation, with the Chiriquí phase cluster underrepresented overall but present at its highest degree at Operation D. This corroborates the fact that complete vessels of Sangria Red Fine, Ceiba Incised were identified at this operation and nowhere else to such a level of completeness. In contrast, Guarumal, Cerro Punta, and Bugaba show a disproportionate amount at Operation G, again agreeing with the condensed analysis and corroborated by the presence of complete vessels at this operation compared to the more fragmented examples discovered at other locations.

The dendrogram clusters show a similar pattern observed for the condensed analysis as well, with Operation A and Operation B displaying significant differences. This likely may be due to the introduction of the unknown and essentially empty categories into the analysis, demonstrating a slightly different pattern from that in the simpler analysis. It could be said that ceramic types on the whole break along general chronological lines, with an interesting split in the association of Corral Red Corral clustering separate from Corral Red Coronado and the rest of purportedly Panamanian imports. However, the potential for error with the introduction of "unknown" variates are less interpretable than the previous efforts on the condensed categories and simply serve an exploratory purpose. Overall, the patterns gleaned from the expanded data suggest that the original decision to collapse categories was justified.



## Interpolating Ceramic Type Data across Non-Mortuary Contexts

The final iteration of the analysis involved use of spatial interpolation in order to visually inspect the data and corroborate it with the other analyses. I produced several forms of interpolation in order to assess any patterns. Based on in-field observations, the generally consistent bimodal distribution of ceramic data mentioned in the excavation summaries in Chapter 6, and the collapsed data set used for correspondence analysis, I decided to interpolate data based on collapsed sets of ceramic categories as well as of levels (e.g. Levels 1 to 6 and 7 to sterile).

The justification for the collapsed set of ceramic categories was explained above, but the idea behind the collapsing of levels is multi-fold. First, in several instances, quantities retrieved from the 10 cm excavation levels were inadequate for valid statistical analyses. Very low as well as null values within single level data sets could only be calculated

using the basic Inverse Distance Weighting (IDW) method. While useful as an initial exploratory interpolation method, more robust interpolation methods such as Bayesian Kriging were attempted when quantities did not violate assumptions. However, they were generally limited in their applicability due in part to the limitations of the data as well as practical aspects such as processing ability, as Bayesian maps are more data-intensive. I therefore present the majority of data below using Inverse Distance Weightings as an exploratory tool and a valid estimator unless otherwise indicated. It must be noted that on the whole, there was a consistent agreement between the deterministic IDW method and the probabilistic Kriging, suggesting that the patterns reflect real trends in the data (Figure 7.6).

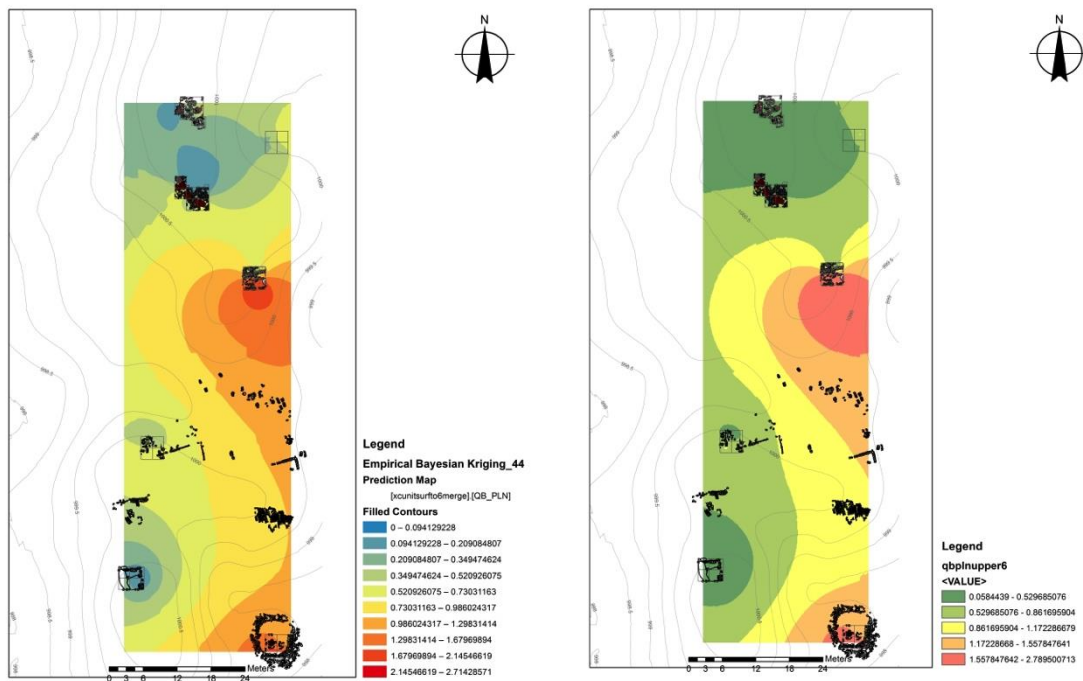


Figure 7.6. Comparison of Bayesian Kriging and IDW

Collapsing levels would thus provide ample data in order to fulfill the basic assumptions required by the interpolation methods and also fit what appeared to a real depositional

pattern: accumulation of artifacts were roughly bounded by a surface that roughly corresponded to Early Chiriquí phase, and the organic horizon at approximately Level 6 (for all but Operation G) and sterile sediment was roughly datable to the 3rd to 5th century. Although a very coarse scale, this was supported by the ceramic distributions as well as radiometric data and seemed a heuristic dividing point at the very least, considering the decreasing amounts of artifacts encountered leading down to the dark organic horizon.

The strength of the interpolation was evaluated via validation statistics built into the Geostatistical Analyst extension in ArcGIS. The level of autocorrelation was measurable by the fit of the data to an expected value regression line and with few exceptions showed a significant degree of autocorrelation. This, of course, was expected, owing to the fact that previous frequency and correspondence analyses showed a non-random relation between variates and their locations, the similarity of variates to those closest to them is the very definition of autocorrelation set forth in Tobler's Law. As initially observable in the Chi-square and correspondence analysis, a lack of autocorrelation would suggest relatively random distributions.

### **Levels 1-6**

Ceramic spatial patterning reflected results from preceding correspondence analysis. Both Quebradas Plain and Aguas Buenas General ceramic densities were highest at Operation C (Figure 7.7 and Figure 7.8) and Operation G for the first 60 cm. These levels also showed weak densities at Operations A and E, with very weak to negligible amounts at Operations D, F and B. The upper levels showed the highest concentrations of Quebradas Incised at Operation G, with relatively weaker densities also evident at Operations A, C,

D and E. Operations F and B once again showed negligible densities (Figure D 1). Moravia Red General was most represented at Operation G, with Operations A and D also displaying a relatively high concentration of the type. Operations E, F, C and B showed very light to no presence (Figure D 2). Interpolation of Guarumal ceramics was, as expected, most represented at Operation G, followed by Operations D, E and F, with a slightly less dense concentration at Operation A and none at Operations B or C (Figure D 3). The condensed Cerro Punta ceramics also concentrated at Operation G, followed by operations A and D. Operations E and C also displayed some of this type (Figure D 4). Similarly, Bugaba demonstrated high densities at Operation G, A, and to a lesser extent, Operations E and D. Very little was evident at Operation F and none were present at Operations B or C (Figure D 5). Finally, the upper levels showed a high concentration of Corral Red at Operations G then E, with lesser amounts at Operations C, A and D. Very few to none was present at Operations B or F (Figure D 6).

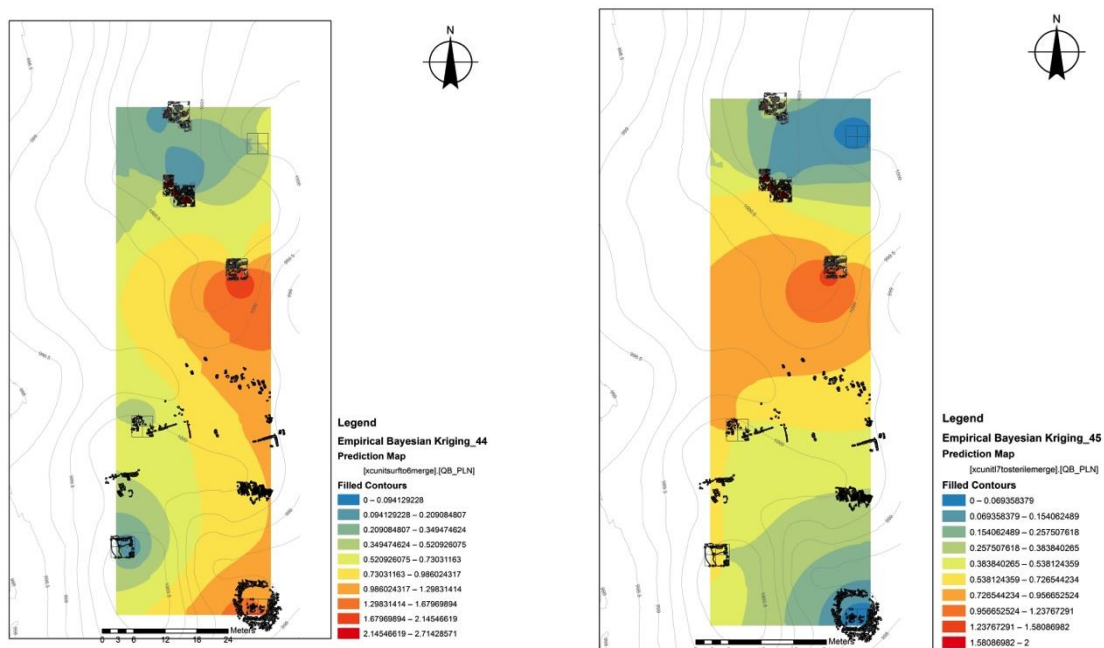
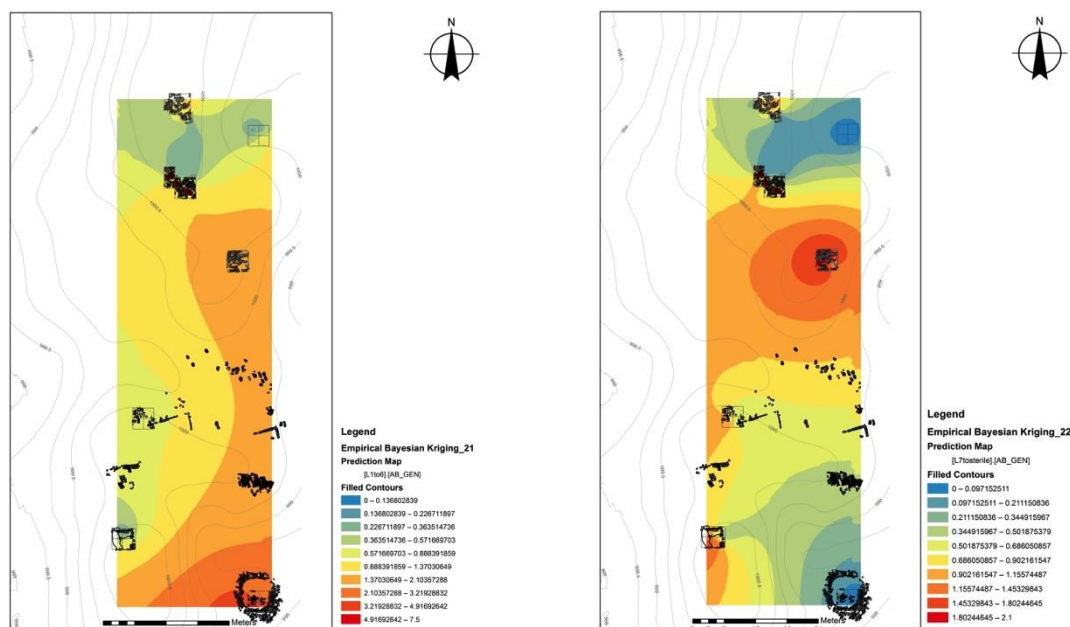


Figure 7.7. Quebradas Plain ceramic spatial interpolation Levels 1-6 and 7 to Sterile



**Figure 7.8: Aguas Buenas general ceramic spatial interpolation Levels 1-6 and 7 to Sterile**  
**Levels 7 to Sterile**

Level 7 ostensibly marked the beginnings for the rich organic level for most operations barring Operations B and G. This level, all the way to sterile soil, saw the same general patterns detailed above minus Operation G, likely due to the late 6<sup>th</sup> century construction. Interestingly, high densities of Quebradas Incised were apparent at Operation F, followed by Operation C (possibly because this may have been the first “decorated” ware on the scene) (Figure D 1). All other operations except B and G also showed a moderate amount of this ceramic type. Quebradas Plain was most prevalent at Operation C but was also present in more modest amounts at all operations barring Operations G or B (Figure 7.7).

Aguas Buenas General, like Quebradas Plain, was most represented at Operation C, with decreasing densities from Operations E, F, D to the least at Operation A (Figure 7.8). Moravia General was most prevalent at Operations D and C and less dense at Operations A, G and F (Figure D 2). Guarumal was most represented at Operation D, followed by E,

F, C then A (Figure D 3). Cerro Punta interestingly showed a highly diffuse pattern across all operations except Operations B and G (Figure D 4). The validation statistics of the latter ceramic type were reviewed, and demonstrated a highly non auto-correlated distribution, suggesting a near random and independent distribution for this type.

Without Operation G as a possible location, Bugaba ceramics were highly represented at Operation A, followed by Operations D, F and E (Figure D 5). Interestingly, none were present at Operation C. In contrast, Operation C saw the highest densities of Corral, followed by Operations E, D. Operations A and F showed very weak concentrations of Corral (Figure D 6).

Overall, the patterns observed in the spatial interpolation for ceramic types parallel that observed in the frequency and matrix analyses. Separating out the distributions into two distinct temporal groups, albeit coarse in scale, also seemed to clarify the spatial-temporal nature of occupation at El Cholo, as the densities generally fit the dependencies listed by the Chi-square and the correspondence analyses.

### **Analysis of Vessel Form Frequencies**

Although the limitations of identifying vessel forms from sherds have been detailed earlier in this study, I chose to run an analysis for its investigative value. Vessel form analysis was initially recorded using 29 categories. This was carried out in part to try and parse out the variation encountered during the laboratory analysis. However, as was the case for ceramic types, many categories proved to be poorly populated, and basic frequency analysis was only feasible if I collapsed categories (Table 7.5). I therefore ran a series of tests on the collapsed categories and subsequently ran expanded categories

where further exploration seemed warranted. While the 29 categories were collapsed to 6, I also chose to omit Operation B from the analysis owing to its paucity of data.

Operation	Bowl	Tazon	Shallow Bowl	Combined Tripod	Escudilla	Jar
A	89	363	16	68	137	308
C	48	209	18	89	24	226
D	64	376	27	95	51	289
E	26	316	30	36	87	141
F	43	376	19	54	61	174
G	80	669	41	115	198	264

**Table 7.5 Condensed Table of Ceramic Vessel Forms at El Cholo**

The resulting Pearson's Chi-squared test yielded a value of 278.5709, ( $df = 25$ ,  $p\text{-value} < 2.2e-16$ ), suggesting that there was a highly dependent relationship between operations and vessel forms. Analysis of residuals showed the concentrations throughout all operations (Table 7.6). Bowls were overrepresented at Operation A and underrepresented at Operation E, with tazones (usually associated with Quebradas types) surprisingly highly underrepresented at Operations A and C and overabundant at Operations E, F and G. Shallow bowls were generally present throughout the site, albeit less abundant at Operation A and overly abundant at Operation E. The highly collapsed combination tripod bowls were poorly represented at Operation A and E but high at Operations C and D. Escudillas, which for the purposes of this study consisted of shallow everted rim composite bowls, were abundant at Operations A, E and G but very low at C, D and F. Jars on the whole were highly represented at Operations A, C and D, with lower than expected proportions at Operations E and G, closely followed by Operation F.



Operation	Bowl	Tazon	Shallow Bowl	Combined Tripod	Escudilla	Jar
A	<b>3.30390520</b>	<b>-5.01849900</b>	<b>-2.60978934</b>	<b>-2.22849340</b>	<b>3.70246000</b>	<b>3.58802000</b>
C	1.18357060	<b>-5.38340500</b>	0.06732171	<b>5.37126410</b>	<b>-5.77975100</b>	<b>5.94502100</b>
D	0.52750150	-1.65507500	0.20599810	<b>2.09123520</b>	<b>-5.36871900</b>	<b>3.88842300</b>
E	<b>-2.80764840</b>	<b>2.98630300</b>	<b>2.93705843</b>	<b>-2.93674250</b>	<b>2.61764600</b>	<b>-2.82583200</b>
F	-0.90831810	<b>4.41508900</b>	-0.47775060	-1.35313290	<b>-2.15000000</b>	-1.89448600
G	-1.45238990	<b>4.12819100</b>	0.28364561	-0.50338540	<b>5.30693300</b>	<b>-7.29313300</b>

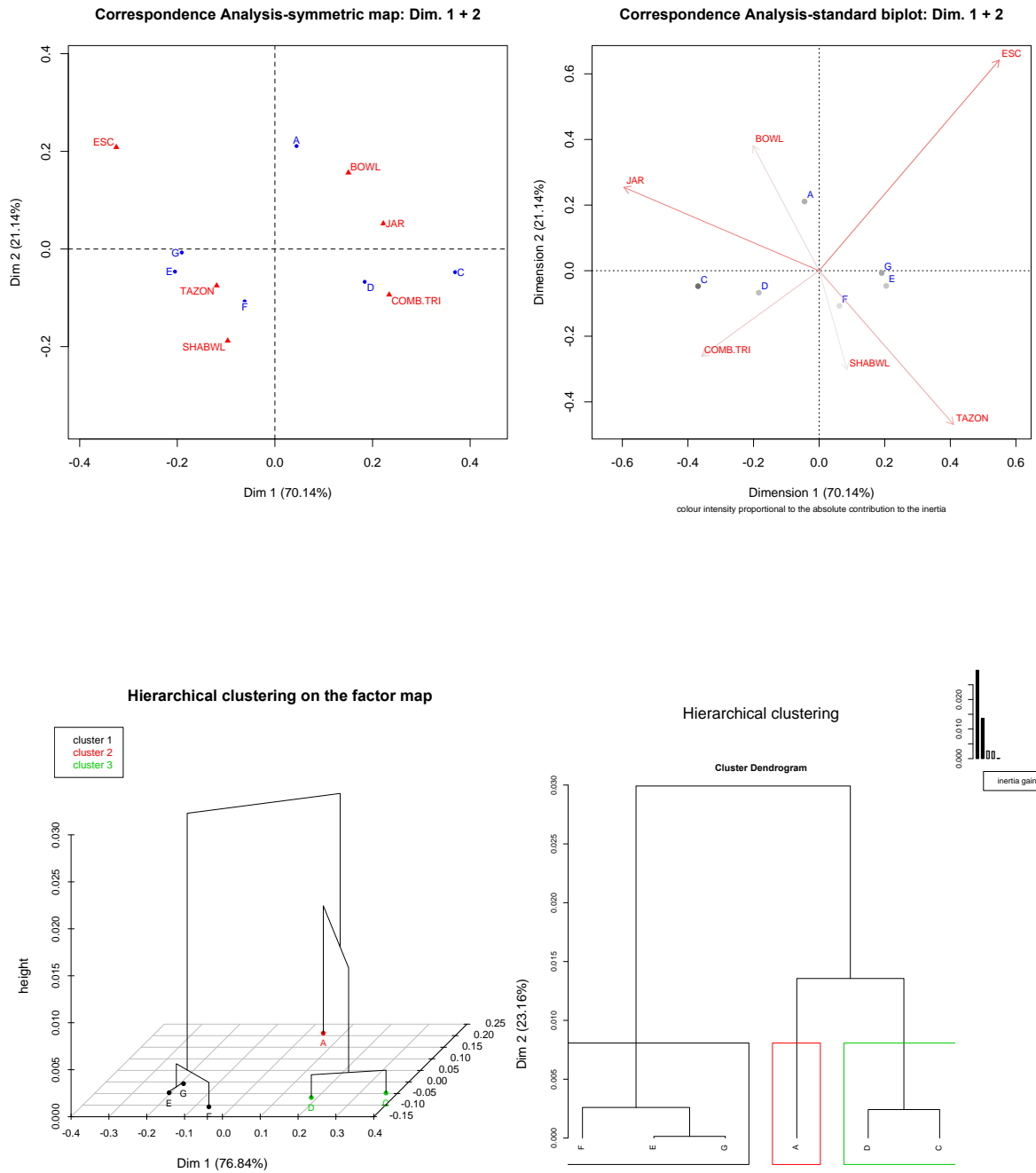
Table 7.6 Adjusted Residuals with Significant Cells ( $\pm 1.96$ ) in Bold

### Correspondence Analysis of Vessel Form across Operations

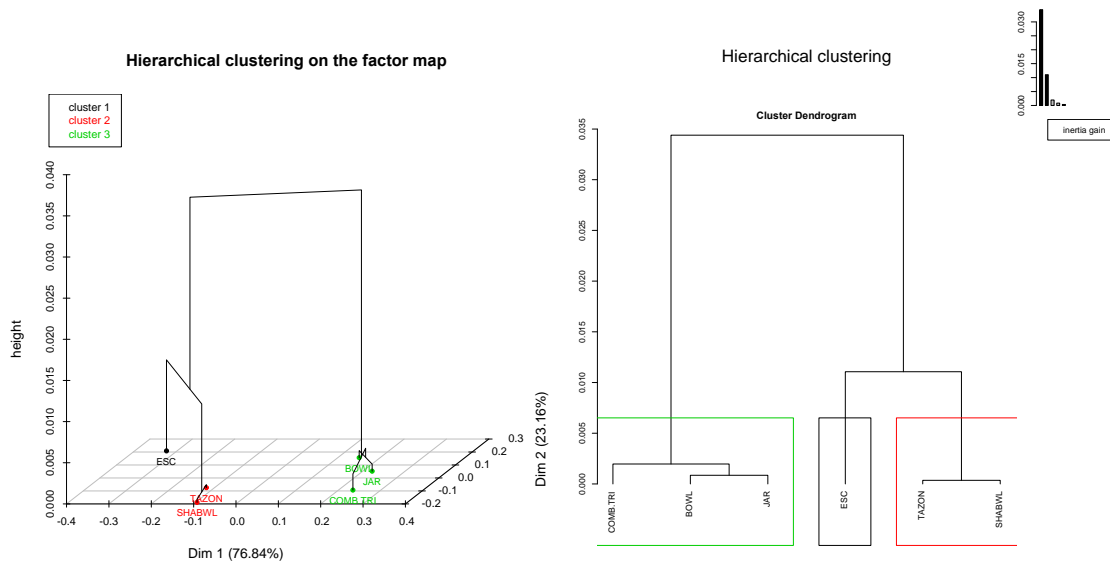
The following correspondence analysis demonstrated that over 90% of all inertia or variation was reducible to two dimensions (Table 7.7), with the square root of the total Inertia equaling 0.231. The corresponding bi-plot (Figure 7.9 and Figure 7.10) showed what the Chi-square residuals demonstrated, with tazones and shallow bowls clustering around Operations E, F and G, bowls and jars roughly shared by Operations A, D and C and the highly outlying escudilla class sharing a midpoint between Operations A and G.

Principal Inertias (eigenvalues)				
Dim	Value	%	Cumulative %	scree plot
1	0.0373810	70.1	70.1	*****
2	0.0112660	21.1	91.3	*****
3	0.0026420	5	96.2	**
4	0.0019980	3.7	100	*
5	8e-06000	0	100	5
Total:	<b>0.0532950</b>	<b>100</b>		

Table 7.7: Principal Inertias for Vessels at El Cholo



**Figure 7.9: Correspondence analysis results for vessel frequencies at El Cholo**



**Figure 7.10: Correspondence analysis for vessel frequencies at El Cholo (continued from page 287)**

While the clustering of operations appeared to parallel that seen in ceramic types, the breakdown for actual vessel forms seemed to suggest a possible delineation along mounds that may again be tied to length of occupation. Operations F and E, aside from Operations C and D, demonstrated the tallest and presumably longest occupied mounds at El Cholo. This observation was strengthened by the fact that Operation E appeared to be an addition to the mound whose top held Operation F. Thus, while vessel form proved a problematic variable, it nonetheless seemed to reflect a basic depositional sequence.

The abundant presence of jars and bowls at Operations A, C and D, with A and D contributing the most to the second dimension, could likely suggest a difference in intrasite vessel utilization within El Cholo. Owing to the fact that the locations were overlapping in time, there can be no real way to say that the vessel forms were a function of time, where the use of one type of form gave way to another. Rather, it seems to show

a distinction for specific forms at different locations, most notably by the overabundant presence of escudillas at Operations G and A. This may be associated with the general idea that types such as Bugaba are often associated with composite tripod vessels. The lack of a compellingly clear pattern could also be due to the coarse nature of the general categories as well and the limitations of identifying vessel form from fragments of ceramics.

### **Correspondence Analysis of Expanded Categories**

Vessel form analysis was expanded to 14 categories to see if any patterns significantly differed from the previous condensed analysis. Below is the expanded table showing the inclusion of forms such as cylindrical cups, small bowl/seed jars (locally called “veneneros” (Corrales pers.comm), as well as other forms that were deemed too low ( $n < 5$ ) in frequency to conduct a valid Chi-square analysis (VanPool and Leonard 2011).

Op	Bowl	Tazon	Plate	Small jar	Cylindrical cup	Small Bowl Seed Jar	Shallow Bowl	Small Globular Jar	Jar	Tecomate	Globular jar	Comb Tripod	Large jar	Escudilla
A	89	363	1	3	6	7	16	7	137	2	37	68	124	137
C	48	209	8	13	6	26	18	9	92	4	4	89	108	24
D	64	376	6	8	2	8	27	28	136	4	35	95	82	51
E	26	316	9	1	0	3	30	6	56	3	25	36	53	87
F	43	376	2	0	0	3	19	6	83	2	36	54	49	61
G	80	669	8	11	1	4	41	11	122	8	88	115	32	198

Table 7.8: Counts of Expanded Vessel Categories

Op	bowl	tazon	plate	Small jar	Cylindrical Cup	Small bowl Seed Jar	Shallow Bowl	Small Globular Jar	jar	Tecomate	Globular jar	Comb Tripod	Large jar	Escudilla
A	3.38	-4.77	-2.36	-1.59	2.13	-0.90	-2.57	-1.73	2.22	-1.22	-0.86	-2.16	5.13	3.79
C	0.83	-6.30	2.00	4.36	3.27	8.45	-0.14	0.28	1.94	0.74	-4.91	4.88	7.95	-6.07
D	0.54	-1.60	0.06	0.79	-0.40	-0.29	0.218	5.35	3.16	0.02	-0.68	2.10	0.63	-5.35
E	-2.80	2.96	2.56	-1.73	-1.44	-1.38	2.93	-0.80	-2.62	0.13	-0.49	-2.93	-0.23	2.61
F	-0.81	4.75	-1.33	-2.40	-1.55	-1.63	-0.41	-1.14	-0.35	-0.70	1.01	-1.24	-1.79	-2.02
G	-1.36	4.40	-0.32	0.63	-1.70	-2.96	0.34	-1.79	-3.92	0.97	4.60	-0.40	-9.48	5.43

Table 7.9: Counts of Residuals of Expanded Vessel Categories

The Pearson's Chi-square resulted in a value of 577.1219 ( $df = 65$ ,  $p\text{-value} < 2.2e-16$ ). The following patterns from both analysis of residuals and the correspondence analysis showed a significant grouping of variables along three explanatory dimensions (Table 7.10, Figures 7.11 and 7.12), although grouping seemed to be best explained by only two. Bowls were most abundant at Operation A and least represented at Operation E, with tazones overly represented at Operations E, F and G and underrepresented at Operations A and C. Added variables such as plates (platonos) were highly represented at Operations C and E but poorly at Operation A. Operations C and F showed relatively higher and lower proportions respectively, while cylindrical cups, while showing a generally low proportion site-wide, had a high representation at Operations A and C.

"Veneneros," or small bowl/seed jars, were highly represented at Operation C and poorly at Operation G, and shallow bowls were most abundant proportionately at Operation E and least at Operation A. Small globular jars were disproportionately high at Operation D, with average-sized jars displaying high proportions at Operations A and D and smaller proportions at Operations E and G. Average-sized globular jars demonstrated a significantly small proportion at Operation C, with tripods highly represented at Operations C and D and underrepresented at A and E. Large jars were highly represented at Operations A and C, with very few at Operation G. Finally, the combined category of escudilla remained unchanged showing extremely high proportions at Operations A E and G, with very poor representation at Operations C, D and F. Overall, aside from the additional variables, the observed patterns tended to agree with the condensed analysis.

<b>Principal Inertias (eigenvalues)</b>				
<b>Dim</b>	Value	%	Cumulative %	scree plot
<b>1</b>	0.070635	65.5	65.5	*****
<b>2</b>	0.017015	15.8	81.3	*****
<b>3</b>	0.009964	9.2	90.5	***
<b>4</b>	0.007121	6.6	97.1	*
<b>5</b>	0.003137	2.9	100	
<b>Total:</b>		<b>100</b>		

**Table 7.10: Principle Inertias of Expanded Vessel Categories**

Correspondence Analysis appeared to show groupings based on differential use/preference of vessel form. Again, as mentioned above, this could likely be tied to length of occupation and thus accumulation of said vessel form at each location. Operations E, F and G presented a strong association with globular jars, escudillas, tazones and shallow bowls, but were nonetheless relatively strongly clustered with Operations A and D as well. When looking at the Correspondence Analysis correlation graphs as well as residuals it appears that both the 1<sup>st</sup> and 2<sup>nd</sup> dimensions are related to amount of deposition and therefore chronology/length of occupation. The 3<sup>rd</sup> dimension, with its obvious shift in association between examples such as small globular jars, seed jars and cylindrical cups, might suggest a functional dimension.

The chronological aspect seen for the first two dimensions seems borne out by the clustering algorithm for operations, showing the exact clustering seen for ceramic types. Thus, the temporal nature of the mounds can explain for the grouping of vessel forms. The functional aspect seems less clear, although the use of escudilla/incensarios at Operation G does seem to signify a preference for this form over the relative grouping of cylindrical cups, bowls and jars for Operations A and C and the shallow bowls and tazones for Operations E and F. It should be noted that the use of tazones do figure into the occupation at Operation G. However, the difficulty in interpreting these patterns may

simply be due to the limitations in the classification of vessels from sherds and the relative lack of complete vessels, as a look at the clustering for vessel form does not show any clear functional pattern.

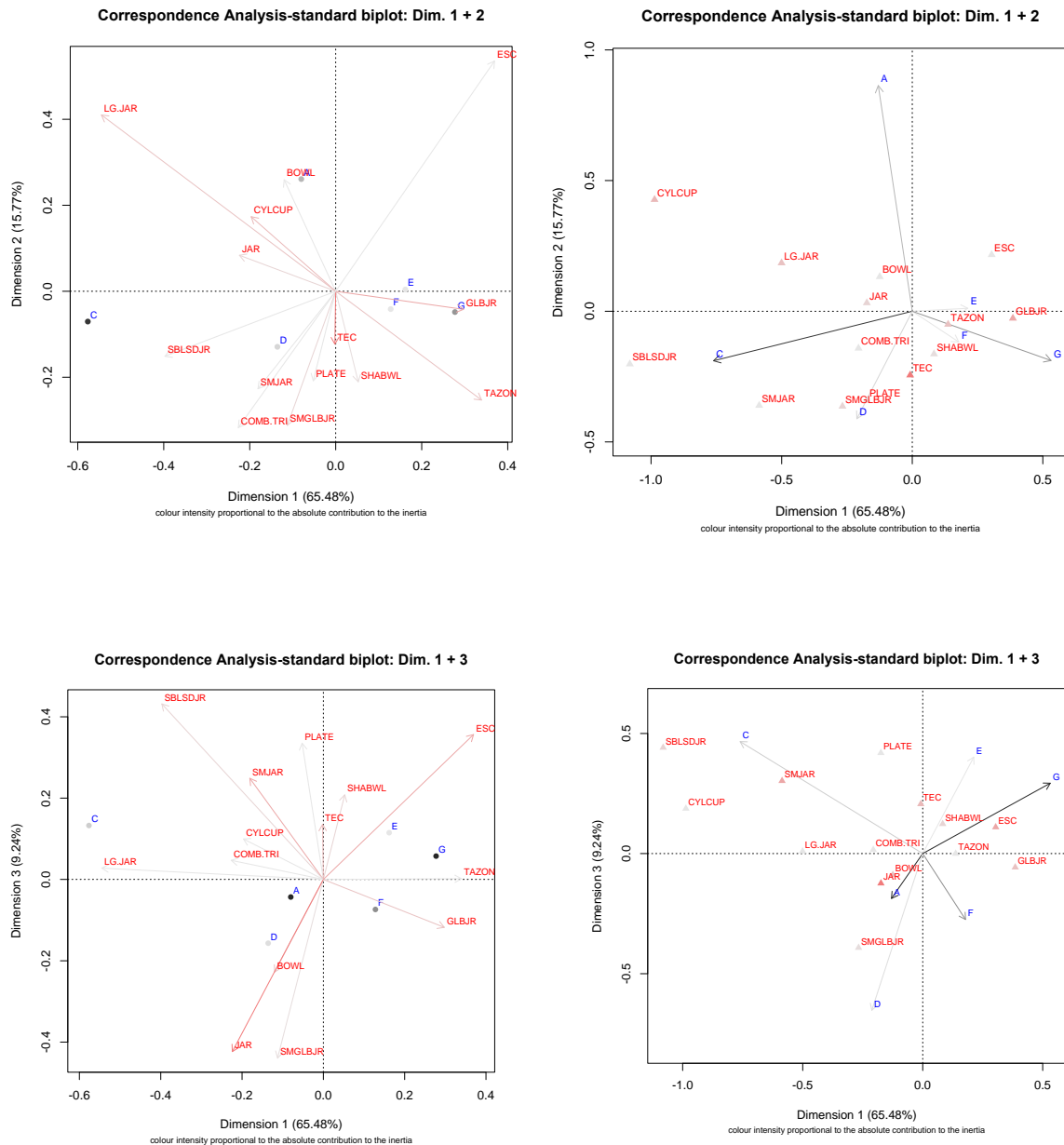
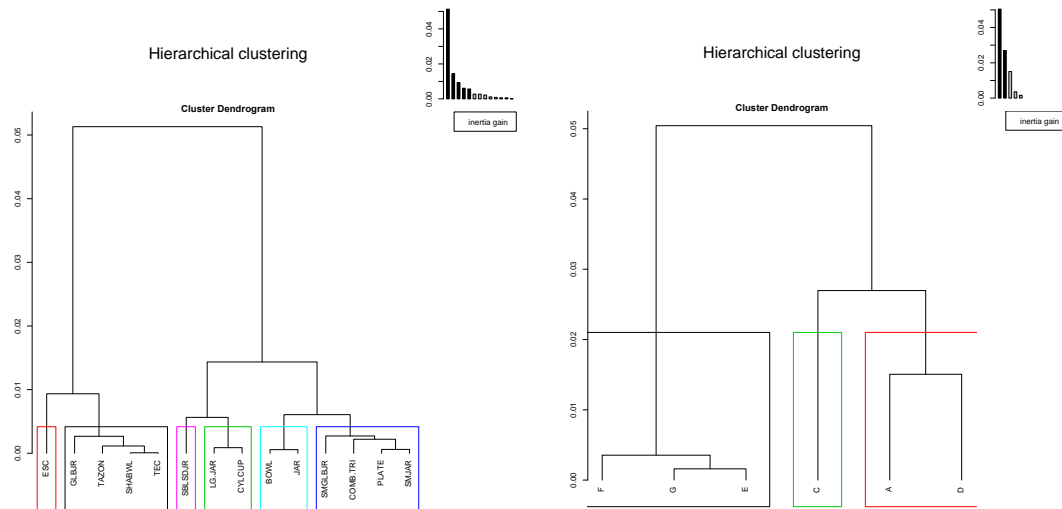


Figure 7.11: Correspondence analysis of expanded vessel form categories





**Figure 7.12: Correspondence analysis of expanded vessel form categories (continued from previous page)**

## Interpolation of Condensed Set Vessel Forms

As with the ceramic types, I divided the interpolation surfaces for vessel forms along the organic level beginning approximately at Level 7. The distribution of ceramics roughly matched the patterns laid out in the preceding analyses.

### Levels 1-6

Most of the collapsed categories for vessel forms demonstrated a similar pattern, with the highest densities located in and around Operation G (Figure D 7 to Figure D 12). Their distribution varied from this southern zone, with ollas showing densities across Operations E, A and D, and with very little showing up at Operations C and F. Bowl category densities were next highest at Operations A, C and D, with low densities at Operations E and F. Shallow bowls were evident in light amounts only at Operation E with very little to none present at Operations F, A and D. Operation C yielded virtually no evidence for shallow bowls.

Tripod vessels, aside from Operation G, showed up throughout the site in light concentrations, while escudillas/incensarios demonstrated light concentrations at Operation F with very light densities everywhere else other than Operation B. Jars showed a relatively even distribution throughout the site, present in light densities at Operations A, D, and C and very light at Operations E and F.

### **Levels 7 to Sterile**

Operation G was not represented at these depths, whereas vessels such as ollas and tazones appeared evenly distributed throughout the site (Figure D 6 to Figure D 12). Bowls were very dense at Operations A and C and light at Operations D, E and F. Shallow bowls were sparse throughout the site at these levels, with Operations E and G representing the highest and none seemingly present at Operation A. Tripods were highest at Operation C, with lighter densities only at Operations D and F. Escudillas were light at Operations A, E and F but not at Operations C or D. Finally, jars were most dense at Operations A, C and D, with the interpolation predicting lighter densities around Operations E and F.

Generally speaking, the interpolation surfaces reflected the patterns set out in earlier analysis. However, there is a marked shift in emphasis towards the southern circular structure in the levels corresponding to the construction and expansion of El Cholo, presumably around the 6<sup>th</sup> and 7<sup>th</sup> centuries.

## **Interpolation of Expanded Vessel Categories**

Expansion of categories consisted of additional plate, tecomate and cylindrical cup categories and expanding jar and bowl categories to small bowl/seed jar, small globular jar, globular jar and large jar categories.

### **Levels 1-6**

Plates were not abundant at El Cholo, but light concentrations were evident at Operations C, E and G, with lighter concentrations at Operations A and D (Figure D 13). There was no evidence for plate-like sherds at Operation F. Tecomate sherds, with clear indications of restricted mouths were, at these levels, mainly found at Operation G, with very light concentrations at Operations A, C and D, while cylindrical cups were evident only at Operations A and D (Figure D 14 and Figure D 15). Small bowls and seed jar sherds were present in relatively light concentrations at all operations save B, E and F (Figure D 16). The expanded jar category largely fit the patterns already established with the collapsed jar category, with small jars concentrating in Operations G, C and D, and large jars concentrating mainly at Operation G, with very light concentrations throughout the rest of the site (Figure D 17 and Figure D 18).

The qualitatively judged average-sized jar sherds were very concentrated at Operation G, with some dense concentrations at Operations A, C and D. Overall, this type seemed broadly distributed throughout the site, barring Operations B and F (for the latter operation, the very light concentration of jar sherds comes from an area that was likely disturbed). Small globular jar sherds had light concentrations in all operations, with peaks

at Operations A, D and G, whereas the highest densities were apparent for midsize globular jar sherds at Operation G. Large globular jar sherds, again, were almost exclusively abundant at the upper levels at Operation G, with light densities at Operations A and D.

### **Levels 7 to Sterile**

The levels below the level of masonry construction yielded slightly different patterns, with categories such as plates present at Operations C, D and E (Figure D 13).

Cylindrical cup sherds remained constrained to the relative center of the site at Operations C and A. This delimitation might be indicative of the previous occupation originating at the north as suggested by the analysis of ceramic types (Figure D 14).

Tecomate sherds, an arguably older vessel form, saw higher densities at Operations E and C, with light concentrations at Operations A, D and G (Figure D 15). Where small jars were restricted to Operations A, C and D, large jars were most dense at Operations C, A, D and G, while mid-range jar sherds followed the same patterns, albeit in relatively higher densities. Small globular jars were restricted to Operations C and D, with light concentration apparent at Operation A (Figure D 16 and Figure D 18). Mid-range globular jars were most dense, with 1.3 sherds per square meter found at Operation A as well as Operation D. Less dense concentrations were found at Operations G and E, and considerably less at Operation C, which continued to exhibit a lack of this vessel form. Conversely, large globular jars were only present at Operation C, prompting one to ask if there were any functional differences between these size types, or as suggested by the Correspondence Analysis, that the variation is muddled by the limitations of the categorization methodology.

While the expansion of the above vessel form categories is useful for general pattern recognition, I submit that the limitations of producing vessel form categories from sherd distributions may not be as helpful or valid as using easier classified measures such as ceramic types, which have relatively clear diagnostic characteristics that can be gleaned from small sherd sizes. However, certain isolated instances, such as the presence of cylindrical cups, tecomates and small bowl/ seed jars, owing to their relative rarity amidst the overall vessel form sample, do lend themselves to interpretation in at least the most fundamental of ways. Therefore, a mixed interpretation of collapsed categories along with the addition of the rare occurrence mentioned is useful.

#### **Comparison of Rim Diameter Coefficients of Variation and Spatial Interpolations across Select Ceramic Types**

In addition to the above analyses, I calculated a simple coefficient of variation (CV) for measured rim diameters. Lacking any volumetric data, these tests were necessarily simple, as I was unable to correlate rims with more revealing factors such as vessel size and height. Even ceramic types such as the Quebradas Type were found to violate expectations of size and volume suggested by past investigations. There were several anomalous instances where I encountered several small sub 20 cm tall complete Quebradas Incised vessels. The diameters for these vessels ranged from 8 to 10 cm and represented a significant deviation from the standard sizing expected of Quebradas vessels, which are generally tazones or medium to large ollas. This calls into question assumptions made regarding the domestic or ritual nature of said objects.

Nevertheless, some indication of standardization of rim diameter might prove helpful in determining whether there was any form of specialized or standardized production at El

Cholo. Moreover, a cursory evaluation of diameters to ceramic type and operation could possibly reveal patterns related to spatial function. Therefore, running these basic calculations would be a useful preliminary step in parsing out activity and possibly understanding production processes (if any are indeed present) within and between the mound structures. The table below shows rim diameter counts, averages, standard deviations and coefficients of variation for the 12 most abundant ceramic types at El Cholo. Following previous work on ceramic standardization, a CV of .10 or lower suggests a level of standardization that may be interpreted as attached or household level specialization (Crown 1983; VanPool and Leonard 2011).

Type	N	Average Rim Diameter	SD	CV
<b>Aguas Buenas General</b>	91	18.99	8.98	<b>0.47</b>
<b>Bambito (Moravia)</b>	173	23.93	8.00	<b>0.33</b>
<b>Bugaba Engraved</b>	38	22.03	5.74	<b>0.26</b>
<b>Cerro Punta v. Cerro Punta</b>	52	24.38	8.26	<b>0.34</b>
<b>Cerro Punta v. Cotito</b>	123	18.16	5.39	<b>0.30</b>
<b>Corral Red Coronado</b>	34	21.47	5.94	<b>0.28</b>
<b>Corral Red Corral</b>	79	20.56	4.63	<b>0.23</b>
<b>Guarumal Incised</b>	14	19.67	9.44	<b>0.48</b>
<b>Guarumal Cebaca</b>	32	18.88	9.14	<b>0.48</b>
<b>Guarumal v. Guarumal</b>	18	25.33	10.56	<b>0.42</b>
<b>Quebradas Plain</b>	242	28.63	8.80	<b>0.31</b>
<b>Quebradas Incised</b>	402	28.52	8.80	<b>0.31</b>

**Table 7.11: Coefficients of Variation for Ceramic Types Found at El Cholo**

However, as is evident, none of the ceramic types demonstrate a CV close to the suggested value, and a general review of all measures of dispersion suggests a relatively high variance. A quick look at a general interpolation of rim diameters throughout the site shows a general trend established by the other data analyses, namely that the upper levels 1 through 6 showed the densest concentrations at Operations G and C with relatively even distributions throughout the rest of the site, such as that for diameters 0-10 (Figure

7.13). Deeper sediments corresponding to the organic horizon show denser concentrations at the older sector of the site, with concentrations evident at Operation A, C, D, E and G, although in both cases, concentrations are very light (Figure 7.14). A look at a sample of larger rim diameters yields the same general pattern. For diameters in the central range of sizes, the distribution seems to be relatively even in the early component of the site, radiating from a central section around Operation C. This changes as activity from Operation G clearly overshadows deposition at the remainder of the site.

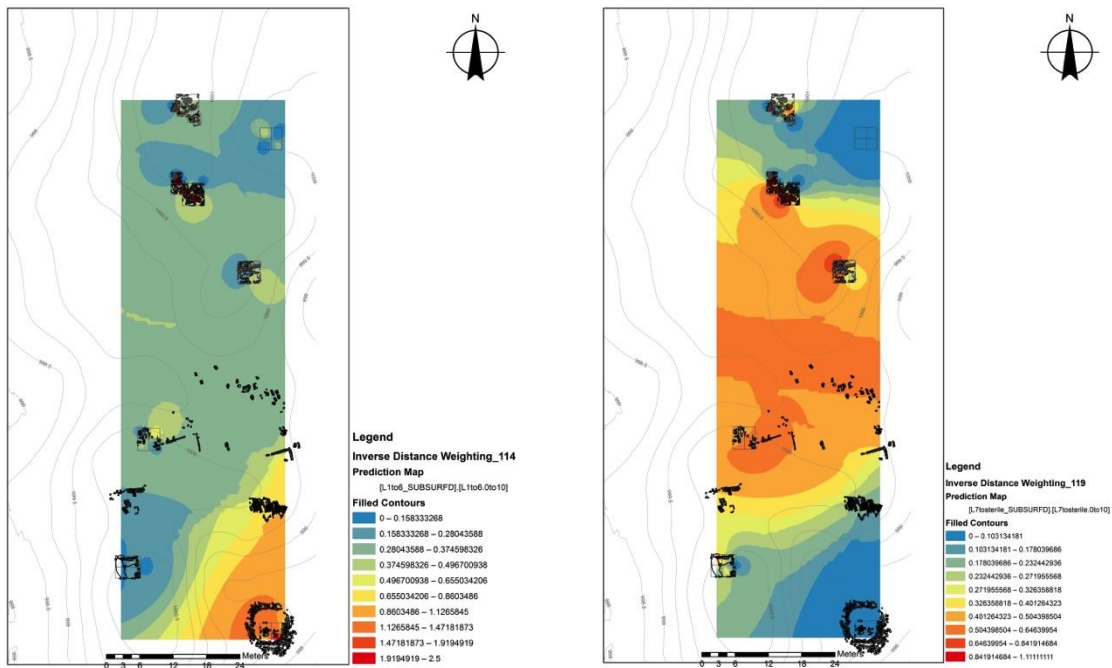
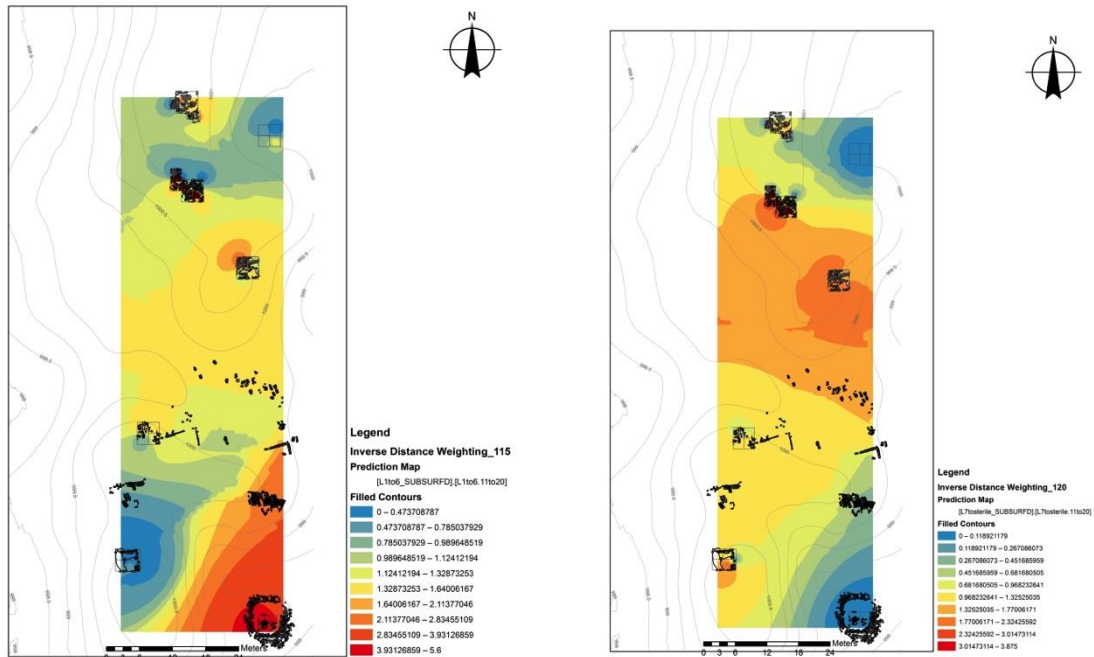


Figure 7.13: Interpolation maps of rim diameters 0-10 cm at El Cholo



**Figure 7.14: Interpolation map of rim diameters 11-20 cm**

Larger diameters resulted in a similar pattern to that seen with the mid-range diameters (Figure 7.15 to Figure 7.17). Diameters ranging from 20 cm to beyond 40 cm registered a similar pattern, with relatively higher densities occurring at Operation G and Operation F, decreasing and spreading out to include the northern operations such as Operation C and A as deeper levels are reached. Interestingly, the largest diameter vessels appeared to be poorly represented at Operation D—an odd observation, considering the evidence that the area had for food processing in the form of a metate fragment. This would perhaps suggest that the area was utilized less for "processing" than for interment, and that the metate was instead ritual in origin.

Overall, the earlier concentrations focusing largely at Operation C seem to substantiate the likelihood that the area was a focal point for the site, possibly as an area for food and



lithic production, ultimately moving to the south as the emphasis shifted to the circular structure as well as Operation F. This latter transition may be borne out by the fact that Operation F was taller than the northern sector, possibly due to its continued use throughout the occupation of the site into its interaction with Operation G. But whether or not this was the case, the level of ceramic production appears to have been unstandardized and possibly on an informal household level.

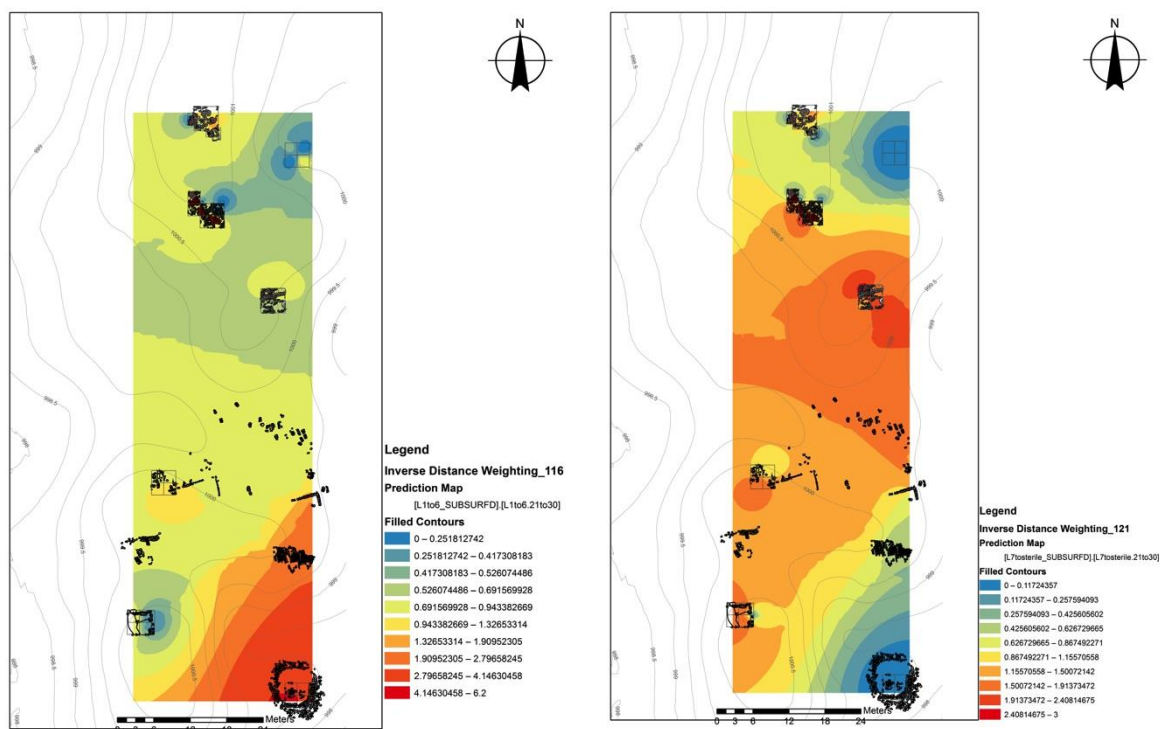


Figure 7.15: Distribution of ceramics diameters 20-30 at El Cholo

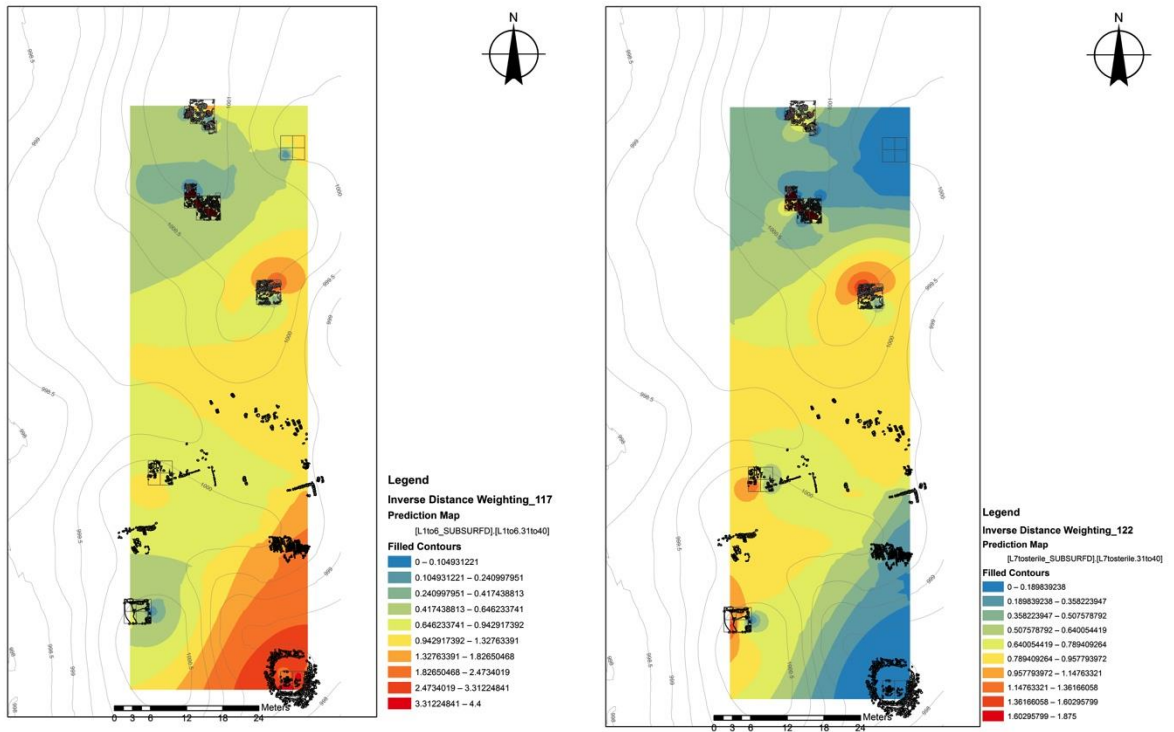


Figure 7.16: Distributions of ceramics diameters 30-40

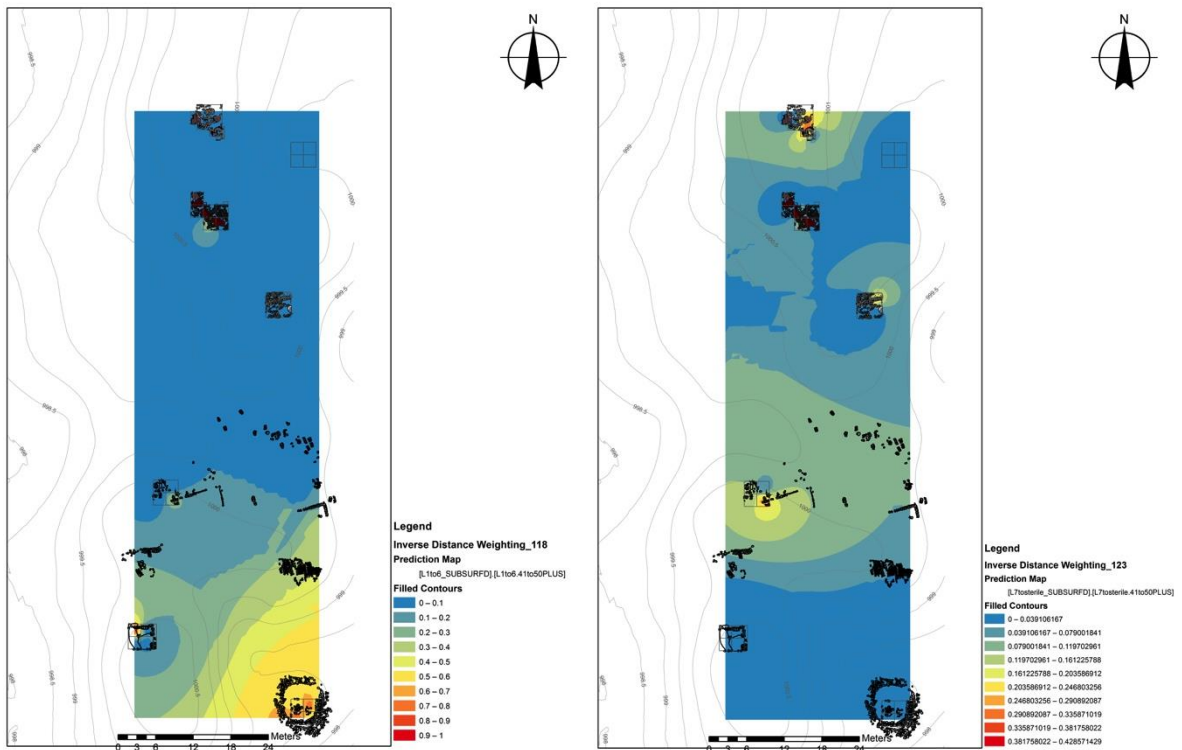


Figure 7.17: Diameters 40 and above at El Cholo

## Figurine Distributions

Albeit not as abundant as other ceramic forms or lithic items, the distribution of figurines did present an interesting source of data for inferring activities at the site. Ranging in form from zoomorphic to anthropomorphic, these “figurines” were at times indistinguishable from the more elaborate applique adorno fragments located at the site. Nevertheless, there were clear indications that certain items were indeed figurines and not simply vessel attachments. As another exploratory component of the investigations, the distribution of combination of adornos and figurines throughout the non-grave contexts of El Cholo are presented below with indications as to whether they were located near any clear mortuary contexts. These data will aid as an auxiliary analysis into the nature of complexity and inequality during these time periods, as some have argued for a symbolically represented expression of power and authority, most notably in the form of key animal representations. Also initially addressed in this brief analysis is the issue of trans-cordilleran contact from the north and south, an extension of the subject touched upon in the ceramic analysis above and elaborated in the results and conclusion.

Operation	Anthro	Reptilian	Feline	Frog	Avian	Pig/Tapir	Multiform	Simian
A	0	3	2	0	1	0	5	2
C	1	0	2	0	1	0	1	1
D	7	0	3	1	0	0	6	1
E	0	0	0	0	3	0	2	2
F	0	1	1	0	1	0	0	1
G	5	2	2	1	7	2	5	0

Table 7.12: Counts of Figurine Types across Operations

<b>Op</b>	<b>Conical/Helmet</b>	<b>Hoods/Tresses</b>
<b>A</b>	0	1
<b>C</b>	1	1
<b>D</b>	0	9
<b>E</b>	1	0
<b>F</b>	0	0
<b>G</b>	4	2

**Table 7.13: Comparison of Conical Hat vs. Tressed/Hooded Figurines at El Cholo**

A cursory evaluation of figurine representations at El Cholo seem to reflect the shift in emphasis that seems apparent in the ceramic distributions noted above. For all areas predating the circular structure at Operation G, figurine forms ranged from zoomorphic figures, anthropomorphic figures, figures in some middle state or transition, skull-like figurines, and female figurines, one clearly reflecting a Santa Clara Style originating from the Atlantic Watershed.



**Figure 7.18: Figurines found outside of Operation G**

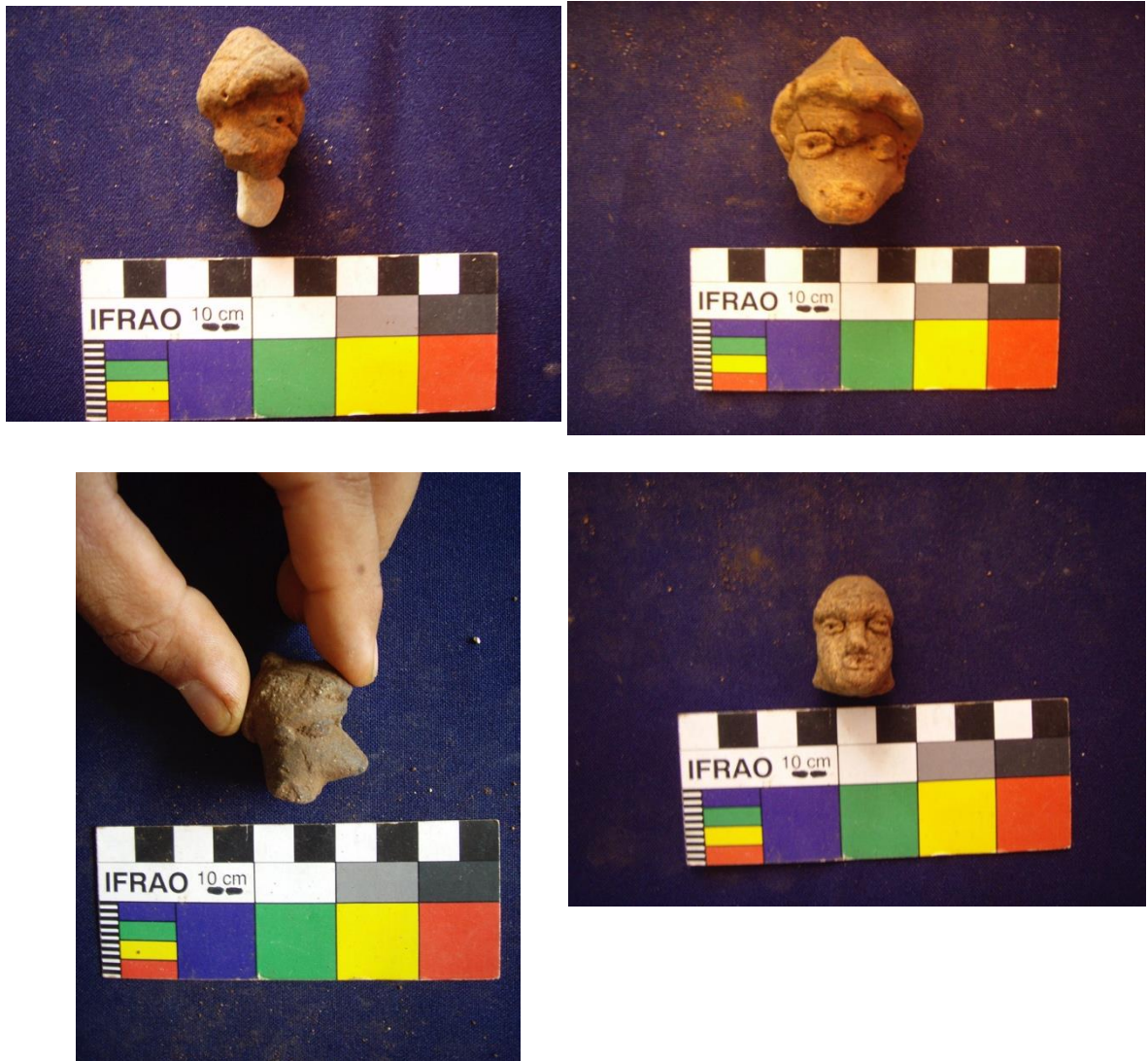
Curiously, save one example found at Operation E, figures with conical hats, a characteristic associated with Panamanian sites such as Barriles (Hoopes 1996; Ichon 1968), were only ever found within the circular structure. In addition to the exception at Operation E, there was also a non-figurine depiction that warrants mentioning. The upper 30 cm of Operation C yielded a support with a figure of an adorned individual being carried on top of another, a hallmark of Panamanian "slave-master" dynamics. While not a figurine, I tallied it within this study in part because it struck a similarity to that observed for Operation G and, being in the uppermost levels of Operation C, was potentially contemporary with Operation G, once again, linking the later part of the site with its earlier history.

Although we must be careful not to infer too much from such a small sample, the presence of this "slave-master" motif at Operation C (Figure 7.19), in conjunction with other indicators of conical capped individuals at Operation G and E, bears more discussion, especially when contrasted with another pattern: the presence of female figurines, zoomorphic transitional figures and the lack of "Barriles-Style" motifs at the arguably earlier parts of the site (Table 7.12 and Table 7.13). The fact that tressed female figurines as well as Atlantic Watershed style figurines such as Santa Clara overlap with the ostensibly earliest occupational phases of the site is intriguing. Associated with El Bosque ceramics, and coeval with radiometric dates and ceramic finds, these figurine finds may suggest that earlier populations of El Cholo may have had initial contact with northern counterparts and gradually strengthened their connection with the south over generations of population integration, or as some would suggest, domination.

This idea of domination of course, hinges upon the interpretation of the placement of conically capped individuals on top of others as a direct indicator for dominance.

Ethnographically, the special status of capped persons in the ICA has been likened to similarly clothed priest classes in modern day northern Colombia known as the Kogi (Reichel-Dolmatoff 1976). The inference of these individuals as elites however, correlates weakly with the actual social status of the present-day populations, leaving the issue open to debate. The implications of such a "master-slave" or "practitioner-assistant" dynamic as they pertain to mortuary ritual and figurine interment will be discussed in more detail at the conclusion of this study, but ambiguity notwithstanding, it is evident that there was a line of demarcation at El Cholo that may have even been detectable with a small sample of figurines.





**Figure 7.19: Figurines and supports showing conical capped individuals**

### **Lithic Artifact Distributions**

The analysis of lithic artifacts was particularly salient in addressing production of objects such as axes and celts, both thought to be valuable items used as exchange goods as well as utilitarian land-clearing tools (Drolet 1992). The question of specialization, as well as the domestic vs. ritual consumption of these items, is central to the analysis for the site

and as a sample for the region overall. Below is a table showing the basic categories used in the analysis.

Op	Primary	Secondary	Interior	Thinning Flake	Flake Fragment	Tool	Tested Cobble	Shatter	Core	Axe
A	37	18	221	24	39	29	20	14	15	38
C	27	12	170	7	48	14	24	20	14	40
D	55	20	191	14	51	4	19	10	10	29
E	28	17	91	10	15	6	10	5	5	11
F	36	10	93	4	18	11	13	4	15	22
G	68	26	330	39	32	19	23	15	18	45

**Table 7.14: Counts of Lithic Artifacts at El Cholo**

As with the previous ceramic analysis, I chose to omit Operation B in the table breakdown. Although in one case (interior flakes) there were a relatively high number of artifacts (N=48), the remainder never amounts to more than 11 artifacts and as such I did not use it in the initial Chi-square or the following correspondence analysis. However, I do include it in the later interpolation.

### **Analysis of Lithic Artifacts Frequencies**

The resulting Chi Square test yielded  $X^2 = 120.1242$  with degrees of freedom = 45 and a p-value =  $9.222e-09$ , suggesting a non-random distribution across the sample: the resulting standardized residuals are seen below.

Op	Primary Flake	Secondary Flake	Interior Flake	Thinning Flake	Flake Fragment	Tool	Tested Cobble	Shatter	Core	Axe
A	-2.21	-0.66	0.17	1.13	-0.30	<b>3.46</b>	-0.45	0.12	-0.12	0.18
C	-2.61	-1.37	-1.28	<b>-2.56</b>	<b>2.85</b>	0.08	1.58	<b>2.90</b>	0.39	1.94
D	1.84	0.46	-0.36	-0.91	<b>2.89</b>	<b>-3.14</b>	-0.08	-0.66	-1.11	-0.76
E	1.46	<b>2.87</b>	-0.66	0.53	-0.70	-0.49	0.17	-0.40	-0.70	-1.39
F	<b>2.47</b>	-0.08	<b>-2.24</b>	<b>-1.98</b>	-0.54	1.03	0.71	-1.13	<b>2.84</b>	0.92
G	0.01	-0.42	<b>3.16</b>	<b>2.90</b>	<b>-3.791</b>	-0.878	-1.43	-0.94	-0.74	-0.87

**Table 7.15: Adjusted Residuals for Lithic Artifacts**



From the outset, one can see that primary flakes are underrepresented at Operations A and C, while overrepresented at Operation F. Secondary flakes show a high proportion at Operation E, with interior flakes showing lower than expected proportions at Operation F and higher at Operation G. Flake fragments and shatter both demonstrated high proportions at Operation C with flake fragments also prevalent at Operation D. Tools, which will be broken down further, showed a higher proportion than expected at Operation A with less than expected amounts at Operation D.

Interestingly, whereas cores showed a higher than random proportion at Operation F, axes in all stages of production were evenly distributed throughout the operations, with only Operation C approaching a significantly different proportion from the rest of the operations. While the distributions of tools and axes across the operations could be usefully divided along more detailed attributes, an initial general correspondence analysis of lithic attributes to operation location is useful in understanding the potential explanatory factors underlying lithic artifact variability.

### Correspondence Analysis of Lithic Artifact Categories across Operations

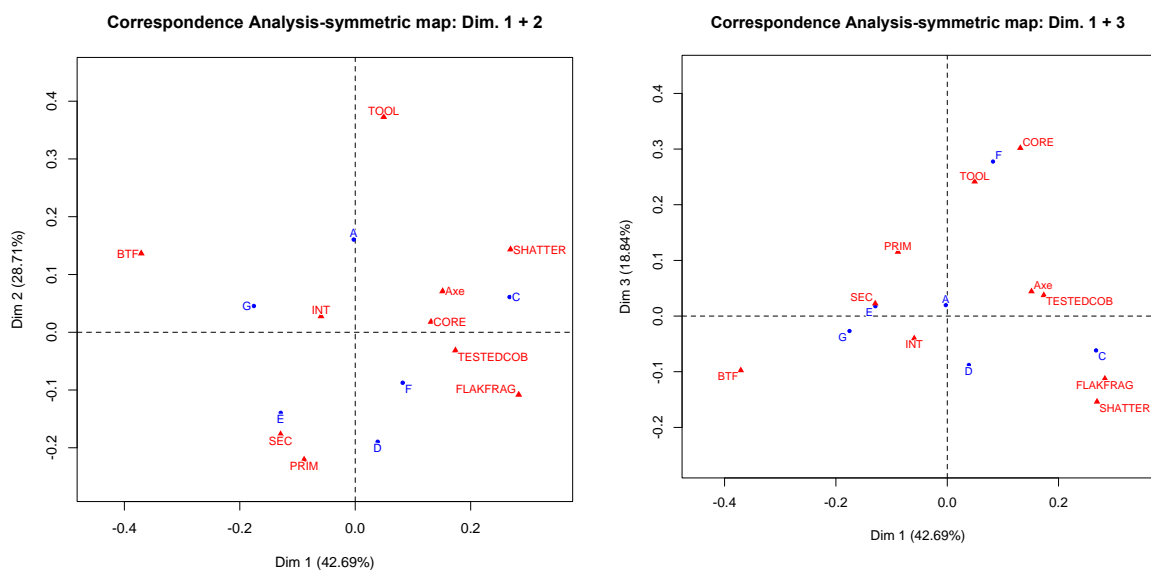
<b>Principal Inertias (Eigenvalues)</b>				
<b>Dim</b>	<b>Value</b>	<b>%</b>	<b>Cumulative %</b>	<b>scree plot</b>
<b>1</b>	0.022561	42.7	42.7	*****
<b>2</b>	0.015172	28.7	71.4	*****
<b>3</b>	0.009958	18.8	90.2	*****
<b>4</b>	0.003536	6.7	96.9	**
<b>5</b>	0.001622	3.1	100	
<b>Total:</b>	<b>100</b>			

**Table 7.16: Principle Inertias for Lithic Artifact Categories**

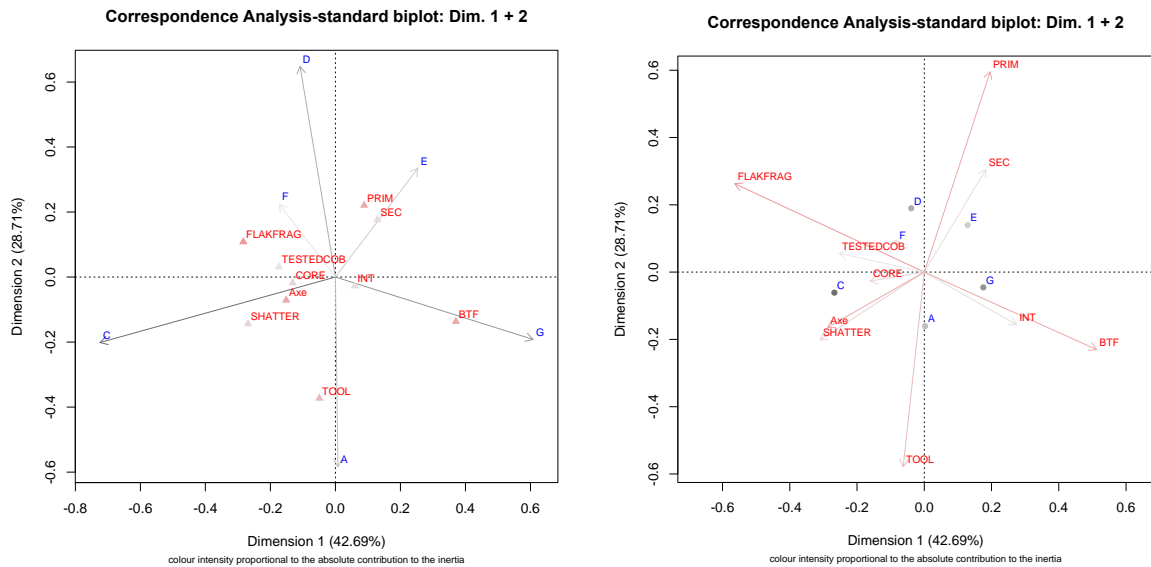
Review of the output table of eigenvalues for lithic artifacts show that that 90.2% of the variation in lithic material is explainable by 3 explanatory dimensions (Table 7.16).

Analysis of the correspondence bi-plots (Figure 7.20 to Figure 7.22) for the first

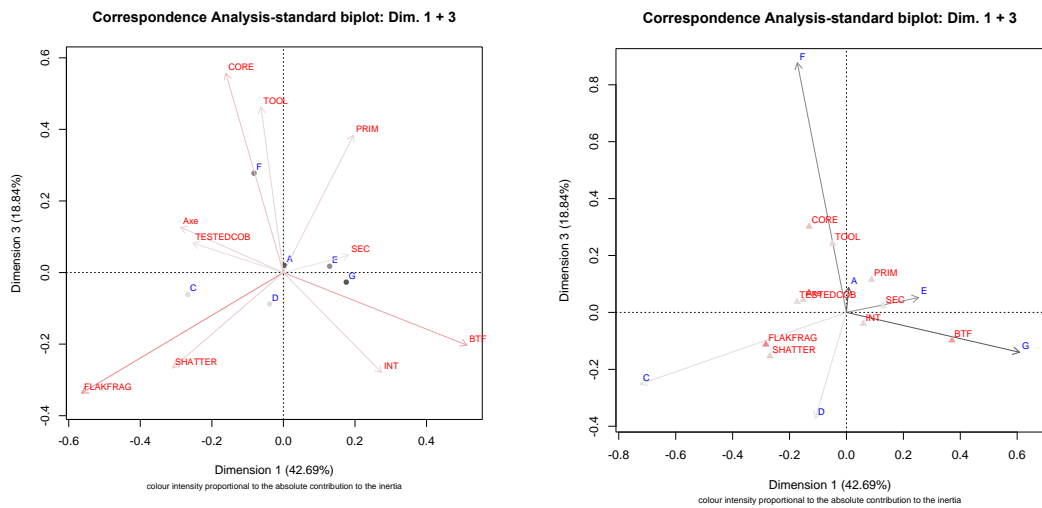
dimension place Operation A within an independent and random space for lithic artifacts (that is, closer to the center of the dimensional space), with interior, primary and secondary flakes clustering weakly around it. The contrasting ends of the 1<sup>st</sup> axis show a spectrum of reduction with thinning flakes on the far negative end (at -.4) and potential waste such as shatter, flake fragments and tested cobbles clustering on the far positive end (at >.2). Complete or semi-complete items such as tools, cores and axes appear to cluster between -.2 and .2 along with primary, secondary and interior flakes. This primary explanatory dimension of what appears to be reduction stage by operation location shows a relationship between Operation G and thinning flakes on one end and axes, cores, tested cobbles, flake fragments and shatter related to Operations F and C at the other. The middle region of the bi-plot seems to show the more evenly, near random distributed general intensive use of tools, interior flakes, secondary and primary flakes at Operations A, E and D.



**Figure 7.20: Correspondence symmetrical and standard biplots for lithic artifacts across operations**



**Figure 7.21: Correspondence symmetrical and standard bi-plots for lithic artifacts across operations**



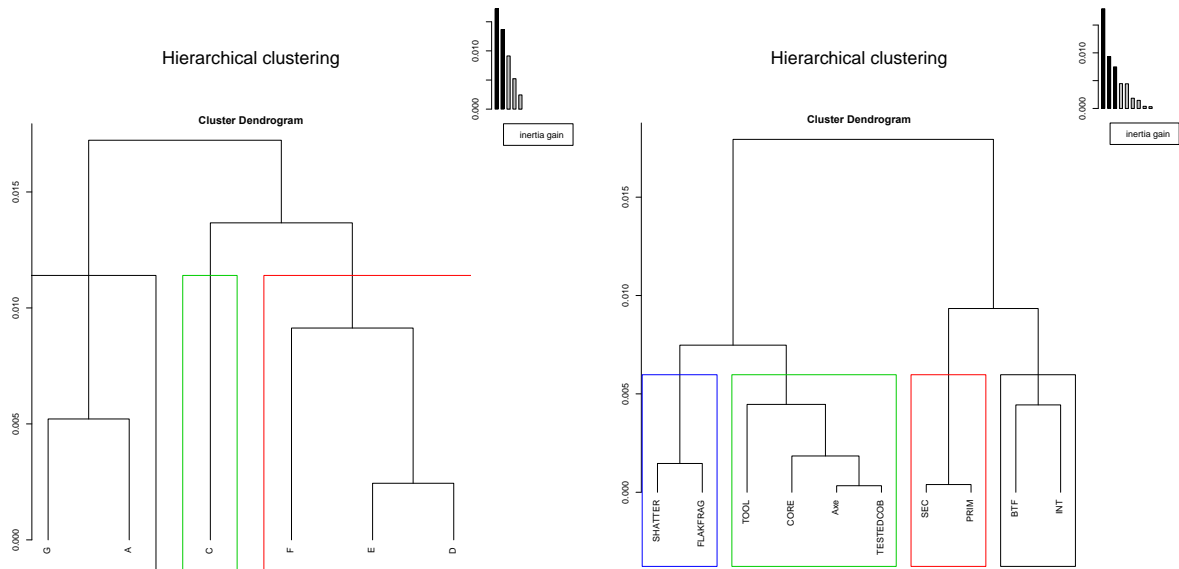
**Figure 7.22: Correspondence symmetrical and standard bi-plots for lithic artifacts across operations**

Review of the contribution of variates to each dimension appears to support the idea that differential usage may be the contributing factor. Operations C and G explain the most variation in Dimension 1 of which interior, thinning flake, flake fragments, tested cobbles, shatter and axes contribute the most. However, the analysis shows that

Operation G had the highest correspondence with thinning flakes. Interestingly, Operation C showed the strongest association with waste products and then finished items such as axes. The association of tested cobbles with axes (which include all stages of completion) seems to indicate that Operation C could have been a processing area. Operation G is similar, as it contributed as much as Operation C in explaining variation for all the lithic artifacts mentioned above; however, the abundance of thinning flakes at Operation G shows how this area was inordinately focused on axe production or at least curation.

One of the more interesting patterns, given the intensity of thinning flakes at Operation G, stems from the fact that overall, axes weakly corresponded with Operation G and instead seemed to cluster with Operations C and F. In the field, the impression was that Operation G was a small manufactory for axes. However, the overall pattern shows just how prevalent the distributions of these items were, showing a relatively even spread of axes through time at Cholo. The temporal differences between the two operations are likely responsible for the impression one received in the field, as the shorter occupation of Operation G would skew the perception of axe use. However, instead of intensive use of axes at this one operation, the overall picture demonstrates a shift in emphasis from the central portion of the site at Operation C to the southern sector, a pattern that was first discernible through ceramic pattern analysis and is explored in the interpolation analysis. It therefore seems that the distribution of axes may actually be skewed towards Operation C, simply because it was there for longer period of time, another factor that benefits from a more detailed analysis. It may also suggest that while Operations C and G seemed

focused on production, Operation C was focused on the entire process of production from beginning to final stages and that Operation G may have been one of late-stage curation.



**Figure 7.23: Cluster dendrogram for lithics across operations and technological types**

The second and third dimensions appear to reflect variations on usage, with Operation A strongly associated with tool use along with Operations D and E on the 2<sup>nd</sup> dimension that also corresponds with secondary and primary flakes. Although explaining only 18.84% of all the lithic artifact variability, Dimension 3, contributed to largely by Operation F as well as cores, tools, and to a lesser degree, interior flakes, divulged an intensity of usage that may have been initially obscured by the large contribution of Operation C in the first explanatory dimension. As such, the three dimensions may show the temporal variability of lithic artifact usage.

The clustering algorithms appear to show this distinction with Operation C set apart from the others in an almost chronological breakdown identical to that seen in the ceramic analysis. In this case, Operation C appears to be the central node, with early contemporary and overlapping mounds/operations on the red end (Figure 7.23) and

slightly later overlapping operations/mounds on the black end with the differences in general intensity reflected in the clustering. Similarly, the artifact breakdown reflects the differential emphasis each operation had with respect to reduction stage or artifact type.

### **Expansion of “Tool” and “Other” Categories**

Due to the expedient nature of field excavations at El Cholo, I initially classed lithic artifacts such as choppers, polishing stones, hammerstones and edge modified flakes into a general “Tool” category with other lithic artifacts also placed into a the catchall “Other” category when interpretation was tentative. However, in the laboratory I was able to parse out these items in finer detail. Therefore, in order to get a more refined view of the processes at El Cholo, I chose to expand the two classes if possible. The expanded table, shown below, demonstrates how, while certain classes of lithic artifacts were somewhat abundant, many were close to being isolated occurrences at the site. Carrying out analyses would be deemed invalid for many of these cases. However, I present the basic data and positional location here in order to compare to the more condensed set presented above.

Op	Primary	Secondary	Interior	Thinning Flake	Flake Fragment	Chopper Scraper	Polished Stone	Offering	Ground Stone	Hammer Stone	Burin	FAR	Tested Cobble	Shatter	Core	Axe
A	37	18	221	24	39	1	28	13	1	1	2	17	20	14	15	38
C	27	12	170	7	48	4	10	1	1	2	0	3	24	20	14	40
D	55	20	191	14	51	1	3	0	2	0	0	9	19	10	10	29
E	28	17	91	10	15	0	5	6	0	1	0	2	10	5	5	11
F	36	10	93	4	18	1	9	1	0	2	2	2	13	4	15	22
G	68	26	330	39	32	8	6	3	7	1	0	5	23	15	18	45

Table 7.17: Expanded Lithic Categories

As is evident from the table, the number of lithic artifacts within the two condensed categories is sparse, with perhaps the exception of thermally altered rock, offerings and polishing stones. The category “Offerings” is another source of confusion in that, as mentioned in the excavation summaries, there were sometimes instances of rock or pebble placement that appeared to be intentional and seemed to fit the pattern of deposition of stone artifacts within and around grave contexts. Therefore, the presence of polished stones, while very likely used to polish or grind items in their use life, in some contexts were clearly deposited as an offering. Cases like this are mentioned for Operations A, E and G, with more ambiguous examples found throughout the site. This underscores the challenge in interpreting domestic or ritual components as in some examples the line is blurred (e.g. Adler 1993). In any case, the tables show that outside of grave contexts, the amount of "domestic" or household utilitarian items found at El Cholo is remarkably small. The lack of finished tools could be a function of expedient tool use: participants taking advantage of existing low quality raw material and using it for cutting and hammering.

Operation	Item Description	Association
Unit 1034/E993	Greenstone Axe Fragment	Related to Operation C production?
Operation C	Star Polisher/Grinder	Production Area?
Operation C	Jasper Core	Production Area?
Operation E	Bluestone Bead	Feature 8
Operation E	Chalk Tubular Bead	Feature 7
Operation F	Chert Burin	Level 10 Production refuse?
Operation G	Small Bifacial Axe	Feature 5

**Table 7.18: "Special lithic items found at El Cholo**

Indeed, the general quality of all lithic artifacts was low, with only a precious few items made from higher quality raw material or reduced in a less than haphazard manner (Table 7.18). It instead appeared that high-quality lithic raw material was few and far between,



emerging in the depositional record of El Cholo in only a handful of instances and then often only in mortuary or near mortuary contexts.

The examples of thermally altered rock underscore the pattern of ritual burning that appears to have been abundant throughout the site. Not all examples were collected as artifacts, and in many instances examples of vitrified clay or rock were collected as samples or simply noted in the general summary. Regardless, the several occurrences of these thermally altered rocks showed multiple intentions for their burning. In some cases, as mentioned, some of these rocks were the product of burning when placed underneath or around areas that were subject to intense heat due to what appear to be ritual fires. Cases like this appear at Operations A, D, E, F and G (Table 7.17). However, in some instances, there was indication of an attempt to heat treat cobbles so as to facilitate the extraction of siliceous material within the matrix. Therefore, once again, the ritual burning process clearly noted in grave contexts also takes on a more utilitarian role as individuals—at least in some select instances—appeared to have also used the process to render low-quality raw material more usable.

The presence of groundstone is also notable, although no complete metates were ever found. Badilla (2009) in his salvage work notes the presence of manos, but they were few in number, with a precise tally unavailable. Given these relatively rare instances and the likely 800-or-more-year occupation of the site, the amounts and preservation of supposed site furniture such as groundstone metates leaves one with an impression of sporadic use, and in the case of the one clear legged metate fragment found at Operation D, ritual rather than quotidian use.

Overall, the expansion of the “Tools” and “Other” categories provides a qualitatively informative view of supposed domestic tool use at El Cholo, but underscores the ambiguity inherent in the classification of domestic versus non-domestic items as well as tentatively supports the idea that while food processing did occur at the location, its limited nature may be indicative of a periodic occupation consistent with ceremonial observance. Only Operations C and G seem to show any higher proportions of choppers and scrapers, and even so, show a relatively small amount for such relatively long occupations. The relatively higher presence of items such as choppers and scrapers, groundstone and fire-altered rock at Operation G bolsters the inference that the 7<sup>th</sup>-century structure was a focus of intense production, likely breaking the pattern established at the earlier sectors of the site in its highly focused locale.

### **Interpolation of Lithic Artifact Data**

While the expansion of certain lithic artifacts was vital in parsing out select activities at El Cholo, I chose to continue with the more condensed categories in the hopes of obtaining a more comprehensive picture of occupation patterning, unobstructed by individual noise. Thus, patterns explored in the initial correspondence analysis were brought into finer detail with a mixture of Inverse Distance Weighted Interpolation and Bayesian Kriging where applicable. As with the ceramic analysis, the data was divided into two distinct levels comprised of “surface to the beginnings of the organic horizon” and “the organic horizon to sterile soil.” Even split along these coarse divisions, one can see that variates such as primary flakes show the general distribution of artifacts shifting from a broader distribution of artifacts present in most operations and on the mounds proper to a high density of items localized at the area around Operation G. This pattern

was borne out in the correspondence analysis when one factors the longer timespan of the previously occupied mounds such as that at Operation C.

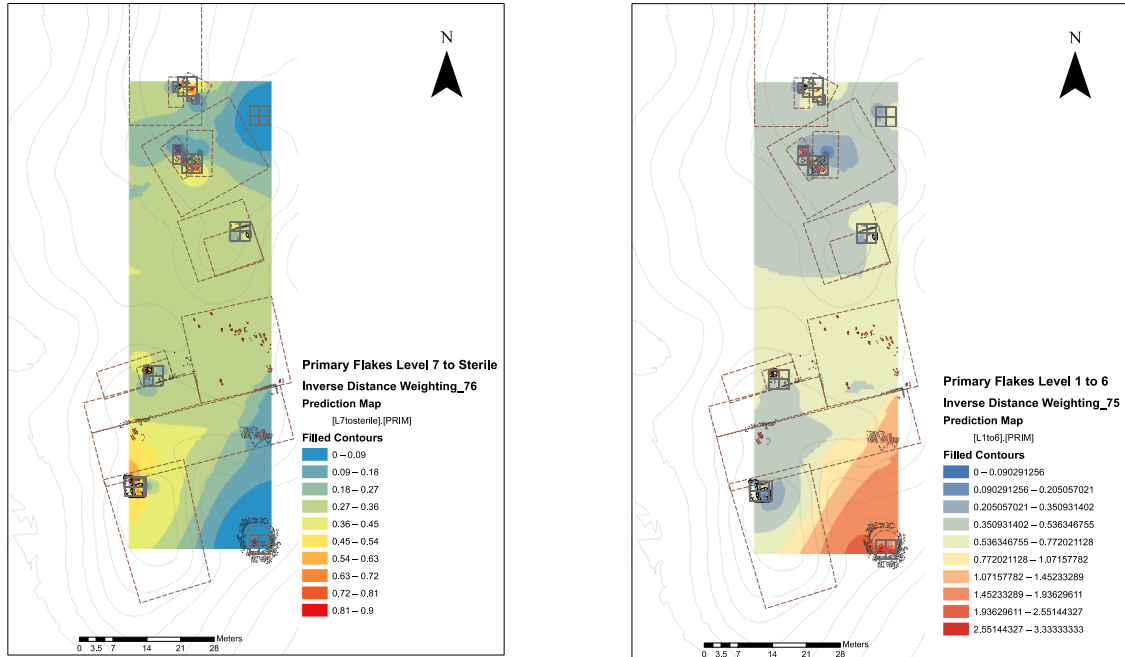


Figure 7.24: Primary flake interpolation

Items such as thinning flakes, while keeping with the general north-south shift noted for primary flakes, show a distinct zonal patterning, concentrating—as expected—to the south at Operation G for the younger half of the occupation, and focused to the north at Operation A in the earlier levels, a fact supported in the level-by-level breakdown in the excavation summaries, which show the thinning flake counts peaking at around Levels 8 and 9. Tools show a similar breakdown, concentrating at Operation G post 7<sup>th</sup> century with concentrations at Operation A, C, and to a lesser degree, Operation F, in the earlier centuries.

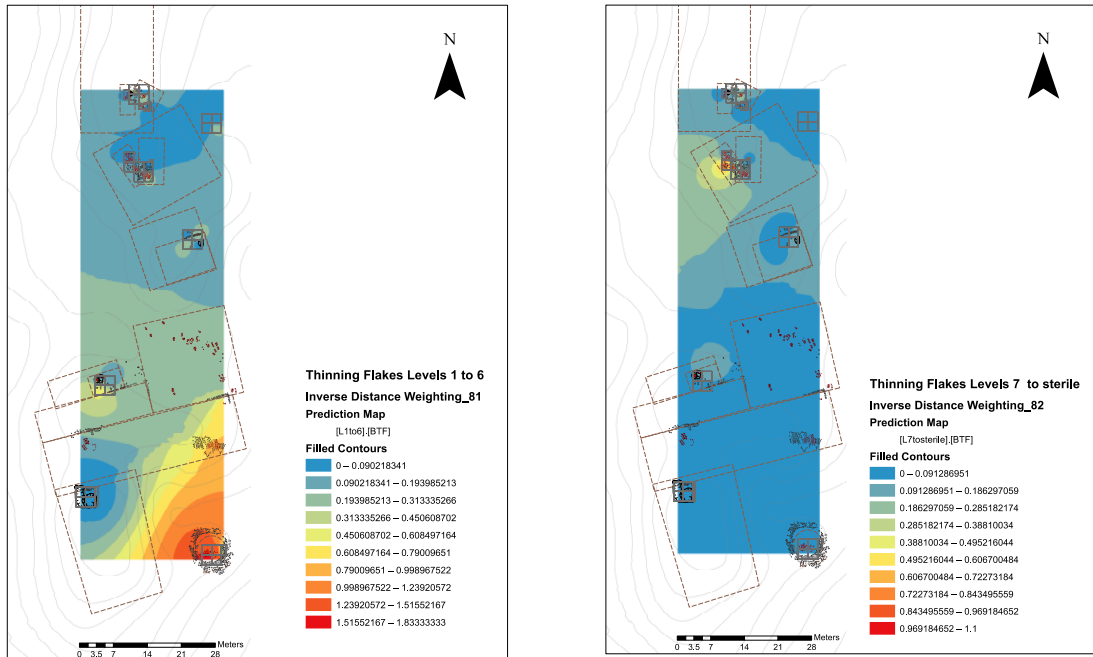


Figure 7.25: Thinning flakes interpolation

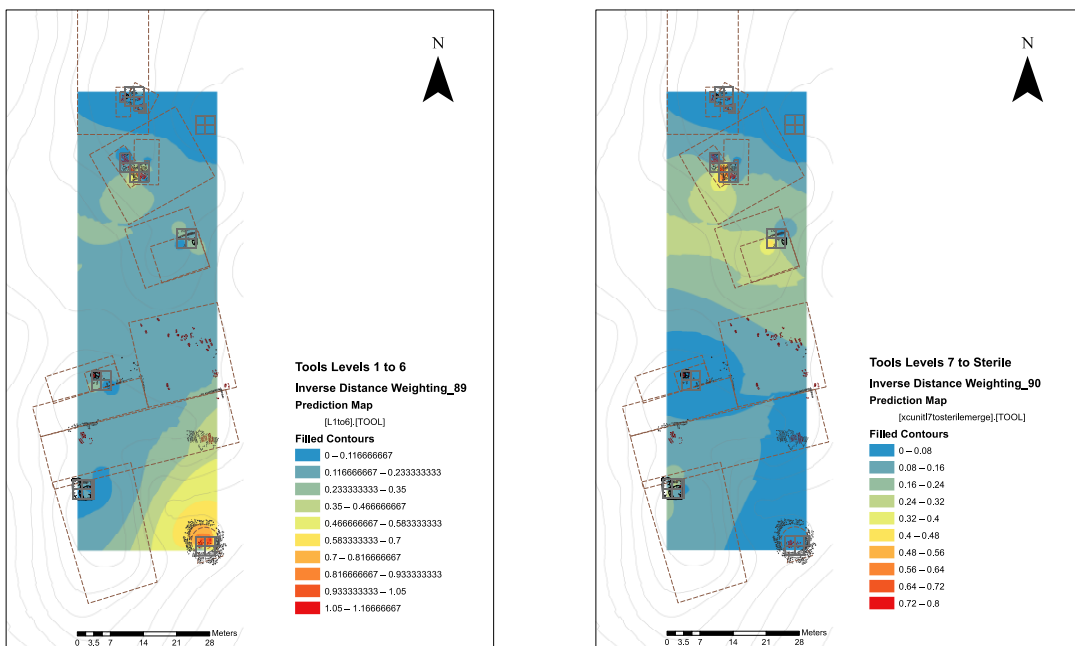
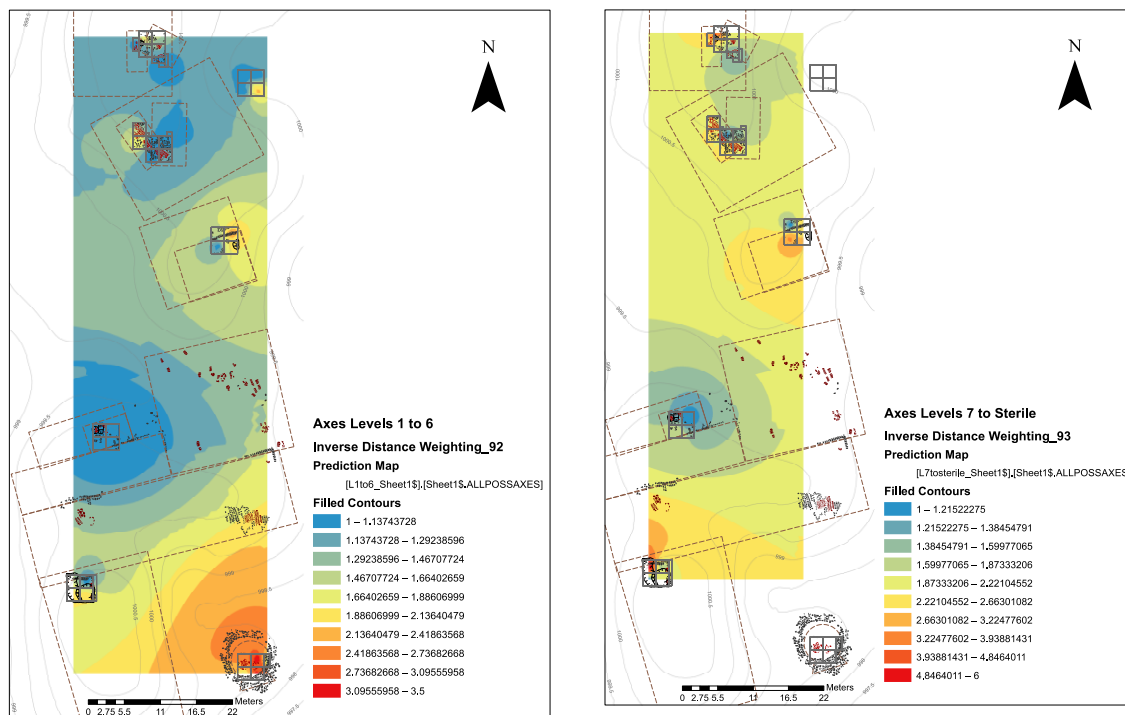


Figure 7.26: Tool interpolation



**Figure 7.27. Axe Distribution Interpolation**

Axes, as already noted in the correspondence analysis, demonstrate a much less restricted distribution overall. Albeit present in higher densities at Operation G in the younger component, most operations yielded some quantities of axes, be they almost complete, broken or a preform. This pattern becomes less restricted as one goes back in time, peaking at the mounds at Operation F, A, D and then C, respectively. This again repeats the now-familiar pattern of a shift from the mound areas to an introduction and incorporation of a newer presence at Operation G. That the structure at Operation G becomes of primary importance seems clear when looking at both ceramic and lithic artifact data.

It must be reiterated that the grouping of artifacts such as axes into a coarse category including all stages of reduction/completeness stems from observations of similar items intentionally broken or placed in unfinished states within and around graves without

regard for their “quality.” This pattern was recently noted at contemporary sites such as Batambal and Finca 6, where shattered pottery and fragmented lithic artifacts were placed in cache form within Aguas Buenas period rectangular structures (Corrales Ulloa and Cambronero 2011). As such, consolidating the array of axe forms outside of strict grave contexts is a prudent heuristic for this exploratory analysis.

One important issue stemming from analyses of stone axes—the level of production specialization—has been used in some arguments as a means to explain the shift in complexity from more egalitarian systems to the more entrenched and stratified chiefdom societies seen in the classic Chiriquí of the 1300 AD to Contact Period (Drolet 1992). In order to begin to address this issue as it pertains to the Formative Aguas Buenas, preliminary comparisons of standardization measures for axes found at El Cholo are presented below.

#### **Comparison of Coefficients of Variation for Standardization of Axe Production Analysis of Raw Material Types and Manufacturing Processes**

Total axe counts were compiled after review of all artifacts. In some cases, items that upon initial inspection were classed as general tools or “Other” were more clearly identified as axes in various states of reduction. Owing to the varying state of axe size noted in the field, I chose to calculate the center point or thickness of the “waist” of each axe specimen, assuming this would reflect the least amount of variability as opposed to length or width.

Field Category	N	Average Thickness (mm)	Standard Deviation	CV
<b>Biface</b>	5			
<b>Biface frag</b>	88	16.34	7.11	.44
<b>Uniface</b>	1			
<b>Uniface frag</b>	119	15.24	6.97	.46
<b>Other</b>	14			
<b>Tool</b>	14			
<b>Total</b>	<b>240</b>	<b>15.96</b>	<b>7.32</b>	<b>.46</b>

**Table 7.19: Table of Revised Category Counts for All Axe Forms as well as Selected Valid Samples of Axe Types**

The results of this preliminary analysis suggest a high degree of variation in production of axes throughout the site and over time. The high coefficient of variation suggests that there was not much effort invested into standardizing the thicknesses of these objects. Whether this is due to a function of raw material availability or intra-community variation is not clear, however; even an analysis of the two most abundant classes—biface and uniface fragments—shows that at least statistically, uniformity was not an express priority (Table 7.19). This is supported by the field observation of in-grave and non-grave contexts that showed varying sizes of lithic “axes” of variable quality. From “baby” axes to more lanceolate bifacially worked artifacts to the “classic” waisted axes identified through regional surface survey, the level of variability in axe manufacture, at least with this limited sample, initially rules out any claims for specialization.

Interestingly absent from the sample of axes were the smoothed stone celts observed in later Chiriquí sites. However, survey of the site periphery did yield some examples of these types of axes, and two cases attest to the production of polished stone tools within the architectural core of El Cholo: the aforementioned discovery of greenstone axe fragment in the pilot excavations of 2005 and one piece of debitage associated with stone celt production. However, based on the scarcity of the finds and the measures calculated

for the prevailing sample, El Cholo overall appears to have been a center of variable, not standardized production.

### **Artifact Analysis of Grave Features**

Located in Appendix F (Tables F2 to F21), is a breakdown of artifacts located within grave features mentioned in the excavation summary. There is also a brief discussion of potential grave features and markers that were not initially classed as mortuary but upon review are seen as tombs or tomb markers, including unexcavated/unidentified features from the prior pilot study.

The tables show that grave units yielded very little in the way of artifacts, an observation initially made during their excavation with intact vessels absent within the graves. Lithic artifacts, on the other hand, were relatively abundant within mortuary features, appearing to complement lithic items found outside of the feature boundaries in the form of axe fragments or complete axes placed near areas of the grave features. This particular form of ceramic and artifact placement replicates parts of patterns seen in the Upper General Valley and the Diquís Delta subregions, where ceramic offerings were placed to the side of mortuary features in lieu of within them (Quilter 2004). In other instances, as already mentioned, lithic artifacts were placed near cache offerings or within mortuary features in areas where the head was likely located (Corrales Ulloa and Badilla Cambronero 2011). However, to date, it is only at El Cholo where we were able to identify “almohada” or headstone features, noted in seven of the recorded graves.

Although lacking in any clear indications of complete vessels, there is still a distinct likelihood that ceramic artifacts were actually placed within grave features alongside



their lithic counterparts. In several cases, the presence of rodent tunnels running across the softer grave feature sediment suggested that post-depositional disturbance occurred not long after the interment activities occurred, the likely result of pocket gopher burrowing. Therefore the paucity of ceramic artifacts within the grave features themselves would have been distributed throughout the level of the grave itself. This is compounded by the possibility that the ceramics were shattered upon interment an observation made for Features 4, 5 and 15.

Another likelihood, given the similarity of the few ceramic artifacts present with those located in surrounding units, is that the remains of ceramics corresponded to ritual breakage across the operation at the time of interment. That is, the resulting depositional signature may have been the product of the liberal deposition of ceramics as fill itself, a process that several investigators have both noted for the region (Hoopes and Chenault 1994; Linares 1977a; Sheets and McKee 1994). Accompanied by thermal activities, the smashing of ceramics within and above the sealed grave could result in a depositional pattern whereby artifacts were distributed throughout the surrounding units as well as within the grave unit. In this case, the priority would seem to focus on the burning and breakage events surrounding the grave and not the importance of the offering within. In even the latest and clearest example at El Cholo, such as that found at Operation G, pottery was located adjacent to tombs with the remains of related broken and burned ceramics also discovered within the feature itself. The presence of rodent tunnels in this example suggests that a combination of factors mentioned above may have been in play. The deposition of smashed ceramics in tandem with the placement of lithic and either fragmented or whole ceramics seems to have been the standard at the site. If there were

indeed intact ceramic offerings placed in the tombs, they seemed to have been few in number, relative to amounts surrounding them.

Overall, the general interpretation from the mortuary features distribution tables differs little from their surrounding contexts, instead pointing towards a possibility that these areas, rather than single events isolated in their multiple activities, were instead open staging areas, with activities occurring in tandem with actual interment. Activities such as body preparation, lithic reduction and consumption of foodstuffs might have all been part of a larger ritual process that resulted in a panoply of residues within tombs and throughout each staging area. This scenario corresponds with some accounts made for Bribri and Cabecar funerary rituals, which occurred over a period of time (Bozzoli de Willie 1975; Frost 2009; Gabb 1875; Skinner 1920). The implications of this form of mortuary ritual and its relevance to corporate or network dynamics will be explored in more detail.

The next section will discuss radiometric results and their depositional contexts.

### **Radiometric Results**

Excavations yielded 162 carbon and soil samples. However, the budget allowed for only eight samples to be submitted for analysis. Samples were drawn from all seven operations, taken in and around an identifiable organic horizon and associated with mound construction and a subsequent increase in artifact frequency. This was done in an attempt to capture a general occupational history of the site, to determine the age of key features such as thermal activity, building sequences and funerary features as well as to

anchor ceramic chronologies while avoiding contamination from surface agricultural activities.

The eight samples were submitted to the Accelerator Mass Spectrometry laboratory at the University of Arizona. Out the eight samples, six were found suitable for analysis. The laboratory analysis yielded six uncalibrated results with error estimates. Calibrations were calculated by the author using the CALIB 6.1 Radiocarbon Calibration program and used in conjunction with Stuiver and Reimer (Stuiver, et al. 1993). Additional updated calibration data sets were obtained from Reimer et al. (Reimer, et al. 2009).

Below is a table showing samples with uncalibrated and calibrated date ranges along with relative areas under respective probability distributions. Both one sigma and two sigma ranges are given. An additional box plot graph presenting all six samples is provided.

Sample	Description	<sup>14</sup> C age yr BP	68.27% (1s) cal age ranges	Area under distribution	95.4% (2s) cal age ranges	Area under distribution
9	Op C U12 Lv10	1728±36	cal AD 255-308	0.55	cal AD 236-404	1
			cal AD 311-348	0.37		
			cal AD 369-378	0.08		
60	Op D U16 Lv10	1653±35	cal AD 344-428	1	cal AD 260-283	0.05
					cal AD 323-465	0.84
					cal AD 481-533	0.11
79	Op E U21 Lv9	1187±35	cal AD 790-783	0.13	cal AD 717-743	0.04
			cal AD 803-886	0.87	cal AD 768-900	0.87
					cal AD 917-965	0.09
95	Op G U31 Lv6	1461±35	cal AD 577-637	1	cal AD 547-649	1
128	Op F U27 Lv13	3319±39	cal BC 1635+1530	1	cal BC 1690-1503	1
142	Op D U16 Ftr13	1752 ±56	cal AD 228-358	0.916414	cal AD 134-404	1
			cal AD 365-381	0.083586		

**Table 7.20: Samples from Sitio SJ59-ECh Showing Locational Information, Uncalibrated and Calibrated Dates**

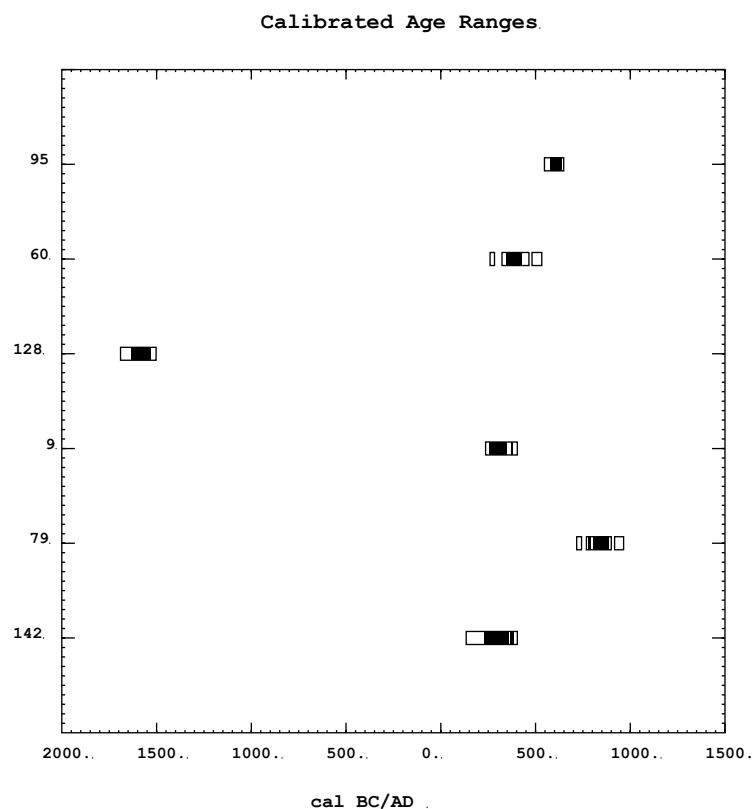


Figure 7.28: Calibrated C14 Ranges. Sample numbers are on the Y-axis. Ages are on the X-axis.

### Contextual interpretations and summary of architecture, features and ceramics associated with C14 dates.

A review of results revealed some significant patterns that hold implications for the age of the site as well as for associated ceramics. As evident in the above figures, three dates cluster around late 3<sup>rd</sup> century early 4<sup>th</sup> century AD. All three of these samples were associated with Quebradas or Aguas Buenas ceramics. For the cases of Samples 60 and 142, carbon was obtained from soot/charcoal affixed to Quebradas ceramics. The other three samples constitute older and younger dates that tentatively suggest the initiation and termination of peak occupation at the site.

### **Sample 9: Operation C, Unit 12, Level 10**

This sample was associated towards the bottom of a dense organic horizon corresponding to the beginning of cobble masonry construction, which formed a rectilinear mound structure. As mentioned above, this mound was located at the approximate center of the site and was the only mound that did not exhibit any distinct mortuary features.

Consideration of both 1 sigma and 2 sigma date ranges and ceramic frequencies suggests that the peak in artifact deposition, along with the beginning of construction for this particular portion of the site, dated to middle of the 3<sup>rd</sup> century to the end of the 4<sup>th</sup> century AD.

### **Sample 60: Operation D, Unit 16, Level 10; Sample 142: Operation D, Unit 16, Feature 13**

Both of these samples were located north of Operation C, but shared similar temporal ranges. An early to mid 4<sup>th</sup> century to mid 5<sup>th</sup> century date for Level 10 of Operation D suggests an overlap with the organic layer located at Operation C. This was further supported by dates obtained from a portion of the same organic layer in direct contact with Mortuary Feature 13. Consideration of both 1 and 2 sigma ranges for this feature suggests a mid 3<sup>rd</sup> century to early 4<sup>th</sup> century age for this contact layer. Moreover, the existence of El Bosque (~300-500 AD) ceramics in Mortuary Feature 4, across Feature 13 in Operation D, strongly supports this date range. The abundance of diagnostic artifacts such as Aguas Buenas and Quebradas ceramics, qualitative cross dating with El Bosque ceramics, in association with the radiometric data, appear to support previous chronological estimates for these ceramic types.

### **Dating of Organic Layer in the Northern Sector of El Cholo**

Since all three layers from which Samples 9, 60 and 142 were taken comprise a dense organic horizon seen throughout the site, the agreement in dates suggests that the lower segment of organic deposition for these two operations occurred over a period spanning the middle of the 3<sup>rd</sup> century until the 4<sup>th</sup> century. However, the existence of a mortuary feature in Operation D with El Bosque ceramics suggests a date as late as the 6<sup>th</sup> century for the upper portion of the operation profile overall. This holds interesting implications for the whole of the site, most notably the southeast sector at Operation G and its articulation with the remainder of El Cholo.

### **Sample 95: Operation G, Unit 31, Level 6**

This sample originated from the only circular structure at El Cholo, resembling house structures observed in later Classic Chiriquí phase sites. The operation was also the only area that did not reveal deep deposits or the characteristic dense organic horizon found at lower levels throughout the rest of the site. This suggests a later addition to the site, relatively peripheral to the original site plan in both form and location. The carbon, affixed to shattered Guarumal pottery, was located within strata adjacent to mortuary features fitting a pattern of ceremonially burned and shattered pottery identified at Operation G as well as other parts of the site. Both 1 and 2 sigma ranges strongly indicate a late 6<sup>th</sup>, early 7<sup>th</sup> century date for the pottery and associated mortuary features. The two mortuary features and their presumably attendant structures fully occupied the interior of the circular “house,” suggesting that it was constructed for the purpose of housing the interred. As mentioned in Chapter 6, the Guarumal ceramics, the small size of the circular

structure relative to houses identified in later periods, along with the later date tentatively suggest a distinct addition to the site in the late 500s to mid 600s AD.

#### **Sample 79: Operation E, Unit 21, Level 9**

Along with Operation G, this sample constitutes a later date range, the latest in the series, dating to early 9<sup>th</sup> to early 10<sup>th</sup> centuries. While associated with concentrations of carbon deposits and architecture, this portion of the site corresponded to an intrusive section within Operation E. Its later date, along with its apparent intrusive nature, suggests that serial visitation and activity of earlier mound features continued into the 900s AD. This observation, in conjunction with the likelihood of an intrusive feature at Operation A, the presence of Mora Polychrome ceramics at Operation F, and the presence of Sangria Red Fine Ceramics and Ceiba Incised at Operation D, lends support to the idea that activities at El Cholo lasted into the early 11th century. A conservative estimate (eschewing the following sample 128) would suggest a range of at least 800 years.

#### **Sample 128: Operation F, Unit 27, Level 13**

Sample 128 originated from some of the deepest levels at El Cholo. Associated with unknown incised ceramics as well as a chert burin similar to earlier archaic assemblages, this sample yielded a date of mid 17<sup>th</sup> to early 16<sup>th</sup> century BC. This date is an extreme outlier when compared to the rest of the dates and as such must be taken as a likely accident resulting from the mixing of sediments from bioturbation and from nearby looting activity. However, the location of this admittedly isolated date may suggest a long occupational/use history for El Cholo, a fact that would be clarified with a more expansive testing.

## **Dating El Cholo**

The clustering of three dates ranging from the 3<sup>rd</sup> to 5<sup>th</sup> century, bracketed by an extremely early 17<sup>th</sup>/16<sup>th</sup> century BC date and two from the early 6<sup>th</sup> and 9<sup>th</sup> centuries AD, potentially suggests a process of extended occupation, expansion and extension of areas originating in the 3<sup>rd</sup> or 4<sup>th</sup> century AD, if not much earlier. Given the location of most of these samples at the organic horizon below architecture, there is a likelihood that there was an augmentation of early non-architectural occupational components after this time, possibly related to the building of the circular structure in the 6<sup>th</sup> or 7<sup>th</sup> century. This is supported by evidence for site modification such as the abutted structures at Operation E and, as will be discussed later, the appearance of structures on the periphery of the main mound complexes. The dissimilar, possibly foreign elements in form and style, evidenced by Guarumal ceramics and the circular structure, may suggest a gradual regional integration.

As mentioned above, bimodal distributions of ceramics suggest a peak in artifact deposition around 3<sup>rd</sup> or 4<sup>th</sup> centuries, with later periods exhibiting a decrease in deposition and ceramic frequencies. All assays were associated with extensive thermal activity. While some indications point to ritualized clearing of earlier occupation, the interspersed nature of some of the dates is also suggestive of periodic burning likely associated with internment and possibly feasting.

## **Flotation Analysis**

Limited in scope, the analysis of macrobotanical and faunal remains was restricted to the flotation of a select set of samples. The idea was to obtain as much information about



each operation and take advantage of observations made in the field. As such, with the help of archaeologist Maritza Gutiérrez, 11 samples were floated at the Museo Nacional, with 9 samples yielding material.

Sample	Operation	Unit/Feature	Level	Description
11	A	Feature 1	1	Unknown seed cast
2	C	Unit 12	7	Charcoal
5	C	Unit 9	8	Rodent Phalanges
40	D	Unit 15	7	Palm Seed Fragments ( <i>Acrocomia</i> or <i>Scheelia</i> ) NW of Feature 12
47	D	Unit 13	8	Unknown seed cast
82	E	Unit 19	9	Unknown seed cast
112	E	Unit 20	11	Carbonized Pejibaye seed
86	G	Unit 29/ Feature 3	59cmbsd	Palm Seed Fragments (n=2), unknown seed cast (poss. <i>Phaseolus</i> )
90	G	Unit 30/ Feature 3	60cmbsd	Possible Seed Fragments (n=2)

**Table 7.21: Flotation Analysis Results**

It is evident that even given the small sample, both pejiabaye and wine palm were utilized potentially from an early period at El Cholo (Table 7.21). Although highly tentative, the association of *Acrocomia*, *Scheelia* and pejiabaye with possible commensal events in Central and South America (Hoopes 1991, 1994) reflects processes that likely occurred at El Cholo. The location of these macrobotanicals associated with carbon concentrations and relatively high densities of large diameter vessels at Operation D (Figure 7.16) lends some support to the hypotheses that commensal activities occurred at the site. Of course, this example is one of the more ambiguous scenarios, as it very well could have been restricted only to Operation D in the early stages of El Cholo's occupation. However, the presence of similar organics at Operation G suggests that later phases of occupation at El Cholo likely continued earlier practices. Again, we see the inklings of a continuation of practices established early in the history of El Cholo, albeit likely changed to

accommodate a newer social orientation around the 6th or 7<sup>th</sup> century. Incidentally, the potential presence of *Phaseolus* at Operation G underscores the orientations from a more upland-oriented vertical association to that focused towards the southern alluvial plains.

## **Chapter 8 : INTERPRETATION OF FINDINGS AND RESULTS**

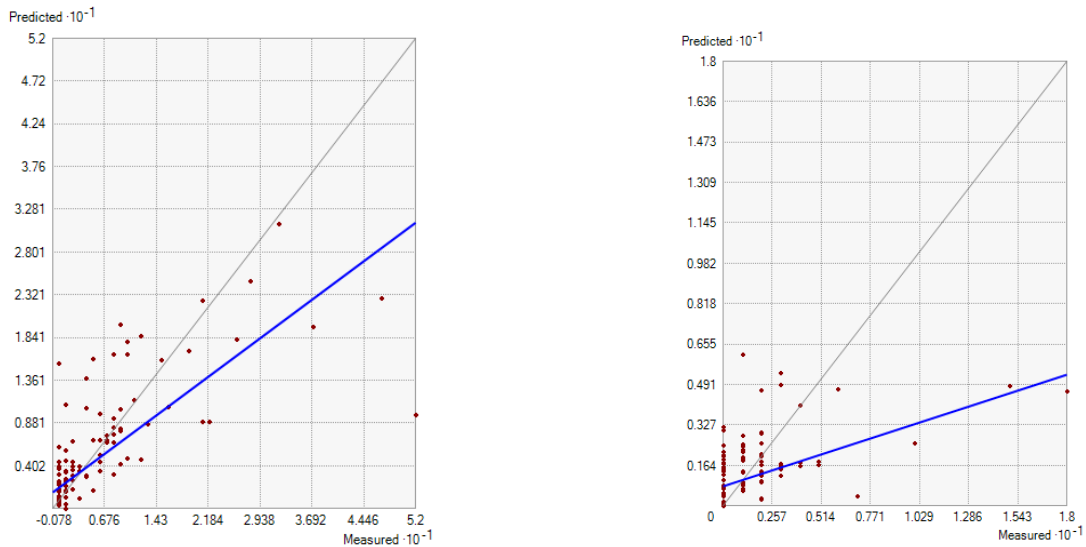
### **Confounding Factors in Surface and Post-Depositional Contexts**

Field observations, as well as spatial analysis of surface data, show that post-depositional factors may have obscured the overall pattern at El Cholo, calling into question the validity of surface inspection. As mentioned in Chapter 6, the high degree of ceramic and lithic surface refuse provided the impression that El Cholo was a habitation site.

However, while earlier surface efforts supported this initial qualitative assessment, subsurface evidence from this study belies surface indications, suggesting that the pattern more strongly represents the multi-generational accumulation of ceremonial refuse, including the accumulation of ceremonially shattered ceramic vessels and lithic artifacts used for preparatory and interment purposes. Although hampered by a lack of ground visibility towards the south, it can be shown that surface data interpretation, rather than a reliable indicator of habitation, was a casualty of equivocal artifact patterning, exacerbated by erosional processes. This is observable in interpolations demonstrating a predominant accumulation of artifacts within intramural areas of the site (Figure 6.21) that correspond to low points where water would likely have deposited material. Whether this was interpreted as midden is not indicated in previous reports, but as noted earlier in this study, it did justify my initial impression that the site was habitational.

Although the prevailing pattern suggests erosional movement off of the mounds, material remaining on the mound tops, while not as abundant as within the troughed areas at El Cholo, suggests deposition was not necessarily restricted to any one specific area but thinly widespread. The relative weakness of surface autocorrelations seems to support

this observation (Figure 8.1). Nevertheless, the relative number of artifacts found throughout the surface (Corrales 1996, 2002) and subsequently at depth, points to a protracted and variable utilization of space that encompassed all surfaces of El Cholo with no obvious surface indications associated with household/habitational activities.



**Figure 8.1: Predicted values and expected values for ceramic and lithic surface distributions. Horizontal regression line denotes random distribution.**

The initial impressions of El Cholo subsurface contexts were those of ambiguously massive levels, especially at operations such as A and D (Figure A 2 to Figure A 4 and Figure A 10), which prompted the use of arbitrary excavation levels. The initial supposition was that interior portions of the mounds were possibly secondary fill, likely ported from earlier sediments or midden concentrations within the site. This was thought to be the probable source of the large depression at Operation B. This issue was never resolved, and the problem of identifying the degree and depth of sediment deposition prior, during, and after interment events was persistent in the field and remains a thorny interpretive issue; for while there are relatively clear indications that mortuary features

were placed, presided over with attendant ritual and then ritually sealed, the actual amounts of post-interment fill seems to vary from operation to operation.

One point of comparison that can help to demonstrate the differences in stratigraphic formation was observed in the contrasting of depositional sequences at Operation F (Figure A 14). Here, excavations noted a significant difference in the soil composition inside the walls of the mound when compared to its outer sections (Figure 8.2). Outside of the retaining wall structure to the north was an observable alternating thinly laminated sediment profile indicating deposition due to natural erosional processes. While supplemented by the occasional debris accumulation from probable site cleaning, the pattern nonetheless provided a clear example of natural erosion over the processes occurring within the walls, which showed an inconsistent anthropogenically modified stratigraphy. Attempts to identify this pattern outside of similar features such as that at Operation C were not possible due to the impacted nature of the area just north of the wall.



**Figure 8.2: View northeast of stratigraphy outside of wall feature at Operation F**

Nevertheless, while anthropogenic action in the form of site cleaning (Spang 1976) may have happened as observed in the above example at Operation F, this was only one contributing factor to the depositional context we see at El Cholo. Indeed, in modern times as well ethnographically, it is customary for descendants of the deceased to maintain their ancestral plots (Bloch 1971; Bloch and Parry 1982), cleaning them and maintaining them as they are essentially the houses of their ancestors; and as noted by Bloch regarding African houses of the dead, indications of these "houses" or "villages" of the dead could very easily be construed as the houses of the living.

For El Cholo this was less confounding once complicating surface factors were taken into account, as the absence of intensive midden areas, postholes or household scale hearths demonstrated that the patterns at the site were unlikely examples of cleared house foundations. Rather, as I will demonstrate in more detail, when combined with the prevalent evidence of carbon concentration and ceramic deposition, the lack of identifiable indicators of domestic habitation instead suggests that El Cholo was likely an open-air ground for rituals involving interment, consumption of foodstuffs, lithic production, fire and the recurrent ceramic destruction. While limited to the sample excavated, given the current understanding, these activities likely persisted for at least 800 years.

### **Internal Organization and Orientation of El Cholo**

The data in Chapters 6 and 7 indicate a complex sequence of artifact and sediment accumulation associated with long-term serial mortuary processes. In general architectural terms, the data show that save one outlying circular structure, the overall site

layout was a collection of rectilinear alignments that were inadvertently connected through the vertical and eventually horizontal accumulation of mortuary features and accompanying markers leading to an impression of a complex of interconnected mounds. This is supported with evidence for multiple stages of deposition. Buried organics generally associated with mortuary features, residing beneath what are inferred to be later iterations of the same interments, mark a cumulative process that peaks at later architectural modifications. This is exemplified at areas such as Operations D, E, C and F. These observations and other inferences detailed below strongly indicate that the mounds likely started as relatively level areas, building up as sediments accumulated through serial deposition, and were eventually fortified and augmented to contain the resulting mound. The later architecture seems to have followed a general orientation, likely dating to the earliest uses of the area, providing a continuity of spatial and presumably ritual guidelines for returning generations who likely interred more recently deceased while visiting and commemorating ancestors.

This proposed layout diverges from earlier assessments that suggested the site was a series of ovoid house foundations, which I suggest above was likely affected by a missapraisal of surface indicators and post-occupational processes. What had been initially understood as large circular house platform mounds, upon more detailed investigation, was revealed to be a series of smaller quadrangular configurations, laid out on top of earlier, less formal interment features. Although excavations were unable to reveal complete wall boundaries, architectural structures such as Operation C and F (as well as the features and walls noted in later salvage operations) appear to have been constructed as a complete unit, whereas other areas such as at Operation E and possibly A

were accretional structures. This is evidenced by the continuously fitted manner that corners of the walls at Operation C and F displayed, whereas wall features in Operation E appeared to be abutted to preexisting structures over a period of time as needed. At operation A, the overlapping nature of some of the mortuary features identified within it suggest that the area had also experienced later modifications such as those observed for Feature 2 and Feature 8.

In the case of Operation E, the process of expansion may also have overlapped with earlier interments such as Features 7 and 8, with newer dedicational caches or features placed adjacent to presumably older deposits. As such, ritual participants would have simultaneously commemorated older burials by placing new capstones above earlier interments while introducing newer additions that expanded the borders of the mound. This again seems to have also occurred at Operation A with the interment of Feature 11, simultaneously introducing an intrusive burial while still adhering to previous practices and architectural orientation.

This speaks to the interesting alternating manner that seems to have characterized construction and elaboration at El Cholo. There seem to have been instances of single construction events (the multicourse retaining walls) along with opportunistic extensions seemingly occurring at different times at El Cholo. Yet with some of these ad-hoc constructions (Operation E), there was still a general adherence to established form. A key difference is noted in what was likely that final phase of usage at El Cholo, where surface alignments revealed at Operations D and F (Figure 6.50 and Figure 6.81) were identified at 45 degree angles from their respective internal layouts. Whether these late additions to these areas represent another variation and intentional departure from the



prevailing architectural pattern may be indicative of the changes occurring around the final phases of occupation. It may suggest a change in treatment of the site at a time that activities seem to cease at the architectural core of El Cholo, instead moving to the eastern flanks and presumably, closer to the General/Térraba river alluvial zone, a pattern noted by both Corrales (2000) and Drolet (1988, 1989, 1992).

The depositional and architectural sequence demonstrate an adherence to a general rectilinear form, until an introduction of circular elements around the 6th or 7th century breaks from the general layout. Despite this deviation from architectural form, the changes did not diverge from the general alignment. *All* sampled mortuary features located within El Cholo exhibited a north-south axial pattern. With the exception of the two anomalous surface alignments that may date to the final phases of occupation, this alignment was maintained throughout the expansion and fortification of the site.

Mortuary features found within the structures as well as the portico extension of the circular structure identified by later excavations (Badilla Cambronero 2009) seemed to stay in alignment. One key deviation involving the north and southern ends of mortuary features at Operation G will be discussed in more detail below.

### **Cairn Features, Pillars and Site Structure**

Consequently at El Cholo, we have evidence for an architectural evolution, as simple features likely increased in number and in elaboration. This elaboration developed further with the introduction of retaining walls that, along with peripheral mortuary features, physically connected disparate sectors of the site over time. Thus the northern and southern mounds would appear a single unit. Although the above scenario suggests an

accretional process between initially separate areas, the presence of three stone "cairn" features at extreme ends of the site suggests that a template of sorts may have been in use early on. The similarity of these features at Operations D and F, roughly bisecting the site along the same north-south axis that mortuary features and architecture shared, suggest that the north and south zones may have been connected spatially on a social level, if not actually demarcated architecturally. The presence of these features at comparable depths (Level 6, approximately 60-70 cmbsd) within dense concentrations of organics further supports the possibility that these "cairn" features were spatial designations. Whether they refer to the earlier stages of use at El Cholo associated with the 3rd and 4th century sediments is unclear, as they rest within the deposits but could have been part of a slightly later event.

The cairns may have been earlier spatial markers or an introduction of a newly required partition. The cairn positioning within dark carbon-rich sediments begs the question as to whether they were placed for some form of initiatory, founding or renewal stage during the life of the site. Regardless, they suggest a preoccupation with stone as an organizing factor and delimiter on a variety of scales ranging from components of mortuary and architectural features to enigmatic configurations such as that recorded beside Feature 13. No cairn features are noted in later Chiriquí phase sites, but it is interesting that there is significant investment in the crafting of pillars and stone sculptures. The former item might have had its own proto-typical form at El Cholo.

The ubiquitous presence of pillars at locations throughout Chiriquí phase Upper General Valley sites may have had a precursor in the form of the crude pillar recorded at Operation C. Although there are no dates directly associated with this feature, its position

within the architecture at Operation C as well as ceramic associations may suggest it was installed during the 7th or 8th centuries. Although there are some reports that pillars were taken from El Cholo, there are no definitive accounts detailing the size and location of these stolen pillars at the site. Rather, the only instance found at El Cholo was conspicuously located in an area absent of any mortuary features (although there may be an older feature off to the side at N1034/E993, found in the 2005 pilot study). This large pillar, located at the relative center of the El Cholo architectural core, may have been one of the first conspicuous divisional indicators, much like that proposed for the three stone features at the lower levels of the site. This large boulder has a smaller analogue, found at the corners of select mortuary feature capstones such as Features 1, 2, 3, 5, 11, and possibly the upper capstone of Feature 7 and the potential feature at Operation F. These small pillars, found at surface, may be chronologically linked to the placement of the larger central pillar, presumably another elaboration in the ritual structure of El Cholo.

The "proto" pillar may represent a new variant on an old theme, as earlier mortuary markers have shown to contain small pillars or crudely hewn stones placed within their configurations. Consider the evidence for subsurface Features 1, 7, 14 and 15. Here we can identify a simpler variant on the pillar motif and reasonable infer that these are variations on a larger lithic motif, as evidenced by the seemingly anomalous stone offerings and construction made at Features 12 and 13, and even the spherical pebble concentration at the base of the capstone of Feature 7. In all these instances, we see efforts to delineate space at different scales using stone, ranging from the individual mortuary features to the entire architectural complex. It should be noted that a similar phenomenon has been noted at an unnamed/unmapped mound complex thought to be

Aguas Buenas in age. Located above the Rivas/Panteón de La Reina complex, this mound system yielded one pillar, a pattern that may mirror that of El Cholo.

That these stone configurations demarcate cultural meaning seems apparent, but what they mean on a finer scale is beyond the basic pattern recognition that this preliminary study employs. Nevertheless, a potentially dual architectural layout demarcated by this central pillar may suggest, as Frost (2009) has for later Chiriquí sites, that these areas reflect dually organized group membership. However, although admittedly a cursory examination, there are no indications in grave morphology or in material culture to suggest any overt differences in types that may be related to these divisions. Nonetheless, the presence of these architectural "cairn" features, in conjunction with other architectural features, speaks to a deeper architectural and sociocultural patterning that requires more analysis of the Aguas Buenas built environment. The nature of this layout may suggest not only a preoccupation with dual organization, but with landscape in general, as the viewshed of El Cholo with that of the highest mountains in the regions may have had a lasting impact, serving as an orienting point of departure for founding populations.

### **Mortuary Feature Morphology**

While there was no apparent variability in mortuary morphology in relation to the proposed internal organization structure mentioned above, there were significant differences in feature morphology. Be they simple configurations of stones, or the more elaborate pavements, there were distinctions in the ways capstones or "tapas" were constructed. Sometimes these changes were evident within one mortuary feature. In one very clear case of Feature 1, we see the morphology of the mortuary feature change from

the simpler and possibly earlier form to the later boxier features characterized at the surface of Operation A. This stratigraphic change in form appears to have been repeated, albeit blurred by looting impacts, at Features 14 and 15, where small pillars that may have resembled forms such as Feature 1 likely marked upper pavements. This also seems to be the case at Feature 8, which yielded evidence for displaced corner pillars amid a box-like structure on the surface. Below the feature was an entirely different layout, with the presence of an anomalous lower capstone and an almohada emerging at just over a meter below surface. The unusual nature of this lower mortuary expression breaks from the general pattern noted at El Cholo and may indicate that mortuary treatment was more variable in earlier times. Regardless, the adherence to the boxier rectangular format at its surface indicates that when populations returned to cap the older grave, they adhered to a newer form, evident throughout the site.

The degree to which these differences in these mortuary forms represent temporal differences or group affiliation is currently beyond the scope of this analysis, but the variable form and manner in which grave features were commemorated—with morphological changes occurring over the approximately 800-year occupational history of the site—suggest that gradual and punctuated changes were occurring at El Cholo. In one conspicuous case, it seems that the individual interred at Feature 11 was intended to be distinguished, with a large and slightly different tomb form, from those individuals interred below. The lack of grave goods would suggest that this was the only distinguishing factor, although a portion of it had been truncated through looting. Nonetheless, amid this variability, the central identifying factor, that of mortuary ritual, was relatively stable, remaining a constant while expressing the variation of what

increasingly appears to have been a gradually evolving social, religious and political milieu. The interpretations relevant to this evolution, as they pertain to artifact intensity and deposition, are presented below.

### **Components of Commemorative Ritual**

The repeated visitation sub-hypothesis is supported by observations of mortuary features placed at different levels throughout the profile of the site and mortuary feature profiles that demonstrate multiple stages of deposition likely ritual in origin. This ritual deposition was accompanied in most cases by thermal and oxidation signatures denoting that fires were lit during interim stages of mound development. This is observable in examples such as Features 1 and 7, which demonstrate the interstitial phases of deposition, while the final or isolated manifestation of this process can be seen at the surface level of Feature 7, Feature 4 and Feature 5.

This periodic and continual interment was likely the reason El Cholo ultimately came to resemble a causewayed mound complex as initial founding locations, likely located at Operations D and F, rising over time as sediments were routinely deposited. These deposits eventually may have had to be retained, fortified and expanded by abutments, observable at Operation E, and later yielded to the peripheral placement of newer tombs. That said, evidence such as Feature 11 and the possible intrusive feature at Operation E seems to show that some interments were occasionally conducted within preexisting mound boundaries, possibly as efforts related to maintenance of group ties or the imposition of identity on an existing structure. This expansion, formalization and

intrusive behavior holds interesting implications, in that it may represent efforts to use, formalize and control space amid claims from newer and possibly foreign participants.

### **Fire Ritual**

While carbon concentrations were recorded at the site, their size may be better described as micro-hearths if they are to be described as hearths at all. This fire practice with ceramic breakage would resemble a pattern akin to food processing and cooking if not investigated closely. Rather, the evidence for fire was present in smaller sizes and concentrated locations, present atop or just off the side of mortuary features and in the case of Operation D, existing in such high amounts as to suggest an entire zone of fire activity. This high concentration of thermal activity may be a contributing factor to the horizons that were identified at all operations except Operation G.

The presence of ritual fire zones resemble the more architecturally formal rectangular fire pits noted at Panteón de La Reina (Frost 2009), and as we have seen with architectural and mortuary features, may represent an early manifestation of this practice at El Cholo. Frost argues that the Panteón de la Reina fire pits were themselves the likely antecedents to the day- to month-long fires that were set during Bribri and Cabecar funerary rituals (Bozzoli de Willie 1975; Gabb 1875; Skinner 1920). This may be the case at El Cholo, at least at Operation D, as large, long-term fires for multiple interments (some that may have eluded our identification) would be valid candidates for such an intense carbon signature. Additionally, this fire practice with its associated ceramic breakage would resemble a pattern akin to food processing and cooking if not investigated closely as

commensal activities, preparatory and actual feasting, could leave a compelling domestic assemblage.

The potential for equifinality in interpreting the patterns at El Cholo cannot be discounted. However, it does appear that the process of lighting ritual fires associated with the intentional destruction of ceramics vessels and the deposition of lithic artifacts was a binding thread throughout the history of El Cholo. Given the available evidence at El Cholo, it appears that offerings were not made nor placed within features, but above or beside them, a pattern also noted at neighboring Rivas (Quilter 2004). While some mortuary features such as Feature 5 do show some evidence for the classic “ofrenda” within the confines of the tomb itself, more often than not the pattern observed at El Cholo resembles patterns observed in areas in the Arenal region of Costa Rica as well as instances noted from Panama, where shattered remains were liberally littered within and around mortuary features (Hoopes and Chenault 1994; Linares 1968; Sheets and McKee 1994).

The shattering and burning of vessels appears to have been a mixed process that involved multiple strategies, including the burning of material within certain vessels during the ritual process of interment and the burning of material directly above mortuary markers. All of these situations have been recorded at El Cholo, with evidence such as the highly localized oxidation and carbonization at Operation A, E and F matching a pattern associated with the intense burning of material in vessels sitting on bare earth such as at around Feature 12, and at multiple levels within Operation F as well the documented presence of what I would call “ad hoc” informal censers at Feature 4.





**Figure 8.3: Informal censers from modern Guatemalan contexts (compare to patterns at Operations D and F) (Photo:Christenson 2008)**

These censers would likely have been able to heat up the surrounding sediment, leading to the reddish oxidation noted at various sectors of El Cholo (Figure 8.3). Another likelihood, supported by the pattern observed at Operation G, is the burning of offerings or even comestibles within vessels on top of supporting stones. The example at Operation G, if not for the direct association with Feature 5, would look much like a small cooking fire, with three hearthstones clearly reddened from thermal activity located under a shattered Guarumal vessel. In the case of Feature 8 at Operation E, this occurs within the mortuary capstone itself, in an offset manner similar to that seen at Feature 4.

It is unclear if any of the thermal signatures identified at El Cholo correspond to cooking activities. Unfortunately, residue analyses of vessels were unavailable and the few indications of palm, pejibaye (*Bactris gasipaes*) and possibly *Phaseolus* were found only within sediment contexts. However, the shallow bowl/tripod bowl vessel form of one of

the few intact examples at Operation D suggest that some of these activities utilized ceramics that were highly unsuitable for standard cooking practices. The relatively decorative nature of the Guarumal and Sangria Red vessels found at these features also suggests that these were likely used as special ritual items and not as everyday cooking vessels. However, the coarse brown pottery found within an offset ash concentration at Operation A between Feature 14 and 15 may suggest otherwise.

Additionally, the presence of miniscule versions of large tazon/ollas such as Quebradas and cylindrical vessels in the earlier levels of El Cholo may indicate that small quantities of special comestibles may have been in order, either for entopic experiences alluded to by the finds of certain figurines in transitional phases or for consumption of chicha or even cacao, the latter comestible consumed in miniscule gourds in ethnographic examples (Gabb 1875 p.500). However, the high numbers of Quebradas Incised and Quebradas Plain do suggest that consumption probably occurred in coarser wares alongside the finer quality ceramic during El Cholo mortuary ritual. The large number of thick walled vessels and their noted use as storage vessels by previous researchers suggest that if they were not processing comestibles at El Cholo, they were likely using the larger tazones for dispensing comestibles. Their smashed and dispersed nature throughout the site suggest that something similar to that observed by Gabb (1875) occurred at El Cholo, with ritual fires burning and required mortuary ritual transpiring while quantities of comestibles were consumed and presumably destroyed upon usage. The limited evidence for palm and pejibaye in dispersed soil contexts above features such as Feature 12 in Operation D may suggest that these residues were the subjects of ritual consumption, spread over a large area as the vessels in which they were contained were destroyed above the

designated mortuary zone. The presence of a legged metate fragment above this feature contributes to possible ritual preparatory activities. Further analysis is warranted to substantiate this interpretation.

Nonetheless, I argue that, once through their use cycle, large "domestic" ceramics such as Quebradas Plain and Incised were destroyed and used as ritual fill, sealing the event with a new layer, in a manner much like what happened to the in situ pots found at the site. This seems to have been the case over and over again throughout the site, and at earlier times may have been extremely widespread over time and space. The inherent variability in the manner of deposition attests to the way that the population likely had to adapt to new circumstances while maintaining some form of continuity. That there is a decrease in this deposition and location shift over time to the south speaks to a general decrease in ritual activity at the site over time. Unfortunately, the finer resolution is contingent on more detailed analyses.

### **Piedra Muerta**

The varying forms of interment, linked through use of fire ritual and the deposition of ceramic fragments, appear to be an almost prototypical form of mortuary practice identified later in the region's history at the site of Rivas (Quilter 2004; Quilter and Frost 2007). If we consider earlier components of areas such as Rivas/Panteón it could be that the behaviors at El Cholo were contemporary. Not only do we observe fire ritual similar to that of Chiriquí phase Rivas, caps of sediment interspersed by lateritic rock may also be an earlier expression of zonal placement of Piedra Muerta, concurrent with the intentional placement of stone markers, and material goods. In the beginning of the

investigation, the presence of Piedra Muerta was simply thought to be an indication of having reached parent material. Further investigation demonstrated the contrary and the presence of the Piedra Muerta seems intentional. In some cases the deposition of the lateritic rock preceded interments, and along with layers of oxidized and carbon-rich localizations around grave features, were placed at different intervals such as at Feature 8 (Figure 6.72). This with multiple stages of thermal activity further supports the idea that features were revisited, revitalized and commemorated in later times with layers of lateritic material.

This pattern is not definitive, however, and underscores an intrasite variability in interment that is characteristic of El Cholo, but it must be noted here that the intentional use of Piedra Muerta in itself took different forms, from the probable placement of Piedra Muerta fill within burial sediments to the incorporation of Piedra Muerta cobbles within mortuary features themselves (Figure 6.15, Figure 6.30, Figure 6.40). All in all, various trajectories were utilized in the way that this decayed material was used and seems to be another manifestation of the multiple ways that the population at El Cholo utilized stone in a ceremonial manner.

Thus, the earlier levels at El Cholo suggest a less bounded site that ostensibly begins to be formalized around the 3<sup>rd</sup> or 4<sup>th</sup> centuries, becoming more elaborate and "fortified" in the centuries after. Data seem to indicate a generally ad hoc formalization of ritual space, with mound-retaining features springing up as complete structures or as segments as the site grew in size and complexity. The quantities of material interspersed throughout profiles of the El Cholo mounds seem to show a process of ritual deposition originating in the earliest stages of its occupational history and showing subtle changes in the way

features and areas were demarcated. The puzzling questions encompass whether later elaborations such as the better formed retaining wall at locations such as Operation C and F were solely functional, a response to the potential slumping of sediments, or if sometime after the 5<sup>th</sup> century social conditions changed to such a degree that required an unambiguous demarcation of space.

This has been ostensibly demonstrated at Operation G, with radiometric dates anchoring construction events around the 6th or 7th centuries. However, radiometric dates for other features such as Operation C were obtained in the organic horizon just below construction. Thus, the retaining wall could be a later addition, ranging anytime from the 5th century on. The upper levels of this operation do yield the presence of one ceramic support with indications of a "slave-master" motif, and as I have mentioned, could be a link to the southern circular construction. The general data do indicate, however preliminarily, that there was indeed a change in social configuration, but whether it is an outright adoption of a hierarchical system is highly debatable.

### **Continuity and Shifts in Occupational Intensity and Regional Orientation**

The interpretations presented above depict a depositional model whereby accumulations of serially dictated mortuary behavior produced a final site pattern resembling premeditated mound construction or house mounds. I argue that the data instead presents the results of, at the minimum, 800 years of cumulative mortuary ritual. While the initial phases of El Cholo may have used a more open spatial layout, mortuary ritual from at least the 3rd century was contextualized within a specific spatial environment, one that may have had affinities with the Atlantic Watershed/Caribbean in its earlier

manifestation, appearing to transition to a more southern expression as time went on. The presence of rectilinear configurations, in conjunction with preliminary material references to the Atlantic Watershed such as El Bosque, La Selva and Santa Clara style ceramics (see Operations A, C and D), likely occurred within an already diverse social context where northern references were integrated with Formative period aspects of Greater Chiriquí society. This is evidenced by the coeval associations of Quebradas, Aguas Buenas, Cerro Punta and Bugaba materials with Atlantic Watershed ceramics, and may be one of the factors behind why Quebradas ceramics have a markedly intense concentration in the Upper General Valley relative to the rest of the Diquís subregion (Corrales 2002; Sol Castillo 2013).

Evidence supports that ritual activities persisted from this early occupation into a time where walls were built as structural (and maybe ideological) enhancements within the middle period of the occupational history of El Cholo, likely a short time after the 4<sup>th</sup> or 5<sup>th</sup> century. Conversely, the data also suggests that around the late 600s to mid 700s AD, a shift occurred coeval with the introduction of a new architectural element in the southeast of the site. This introduction of a circular house structure, tucked away and off the central axis of the site, seems as if it was placed in an offhand manner, but the resulting changes in artifact intensity indicate that the new introduction was more significant than its modest positioning may suggest.

Both lithic and ceramic data indicate that the gradual shift in intra-site occupational intensity was characterized in its earlier phase by a diffuse distribution of material throughout the site, increasing in intensity, first in the central and northern sectors of the site and then moving south towards the structures uncovered by Operations F and G. The

deeper level artifact distributions, initially located around the mound footprints and its western edge, may have been less constricted at earlier periods and could have easily extended far beyond the boundaries of later period retaining walls and grave clusters. This concurs with the presence of potential grave features near Operation C, suggesting that there was a shift from relatively open to a more structured built environment. Therefore, the nature of the bounds of occupation prior to the 2<sup>nd</sup> or 3<sup>rd</sup> centuries is still an open question, although as has been already mentioned, it may have already expressed the axial arrangement seen in its later form. Nonetheless, artifact patterning continues to be consistent from this earlier time period, going into the beginning of site augmentation and expansion around the 2<sup>nd</sup> through 4<sup>th</sup> centuries. This consistent artifact use then appears to shift to the southern mound areas, likely associated with the 7<sup>th</sup> century circular structure at Operation G and continuing on into the 10<sup>th</sup> and 11<sup>th</sup> centuries as evidenced by the later period ceramic densities noted at Operation F.

The change in artifact density seems to support a general shift in emphasis from the earlier northern sectors of the mound to the circular structure to the south and secondarily, to the mound centered at Operation F. Activities do not cease in the north, as the evidence of Sangria Red Fine and Ceiba Rojo incised at the uppermost levels of Feature 4 at Operation D suggests that there was contemporaneous activity in the northern half of El Cholo well into the Early Chiriquí phase. The interpolation data however, suggest that the intensity of deposition was clearly located in the South sometime during the 6<sup>th</sup> or 7<sup>th</sup> centuries. This shifting pattern may strike some as a possible material indicator of social cycling of power within groups (Anderson 1996) and has been suggested as a possibility for later Chiriquí phase society (Frost 2009).

However, given the paucity of grave offerings and apparent lack of funerary differentiation, this may not necessarily be "chiefly" cycling, but as I will detail in my conclusions, it may be a form of cycling inherent in intergroup negotiation.

It does seem that effort was made to draw attention from older motifs, possibly reflected by an older integrated artifact complex involving Atlantic Watershed, Aguas Buenas and the Panamanian motifs such as Cerro Punta and Bugaba Engraved. The already prevalent "Panamanian" presence of ceramics, along with the horizon-like presence of the waisted axe complex, may have been a conduit for this newer orientation. This renewed emphasis may have been expressed through the influx of Guarumal ceramics and Aguas Buenas style capped individuals as well as the "slave-master" vessel support found at Operation C. The similarity of the support from Operation C with a similar example from Batambal (Figures B7l and B8a) which yielded two radiometric dates ranging from AD 610-780 (Corrales Ulloa and Badilla Cambronerio 2011) along with the presence of the pillar at the operation supports the idea that this time period was one of marked change.

As such, this may well suggest that the tradition of ritual practitioners, with the available evidence for entopic experience and mortuary practice, shifted to a more specialized population. This may be a possible modification of roles from earlier duties that may have been officiated by clan or lineal custodians. But aside from the presence of "master-slave" motifs and conical capped figurines, there is still no clear indication that these ritual specialists resided or had special status above the rest of the interred population at El Cholo. They may have simply been buried there with representations of their role placed with them, but with no abject separation in the built environment until the introduction of new elements in the 6th or 7th century. The presence of the circular



feature and its material residues may indicate that possibility, but the modesty of the actual mortuary features suggests that it is not definitive.

We can say much more simply and with more confidence that there was an emphatic shift to the south. This is supported not only with the quantitative shift in artifact deposition, but as in the cases of Features 3 and 5, with the actual placement of headstones and offerings facing the south. The patterns seen at Features 3 and 5 contrast to the general northern pattern observed for other grave features at the site. While not fully integrated spatially into El Cholo, both the circular portico structure at Operation G and its mortuary features kept the prevailing axial orientation. The key exception is that both the portico and presumable head position and lithic artifact offerings faced south, a nod towards a possibly earlier southern origin, in much the same way that features in Operations A, D and E faced north indicating its directional preference. This mortuary orientation, given the relatively small sample and the lack of actual osteological materials, is highly tentative, but provides an interesting line of evidence, albeit indirect, when considered along the architectural and artifact based distributional data. Thus, we can see the effort to shift emphasis while maintaining a general continuity of form, where in the 6th and 7th century we seem to have a manipulation of mortuary space, tradition and practice put in the service of a more emphatic southern voice, seemingly taking over one zone of a larger mortuary ceremonial center in a possible effort to exert dominance. This newer "voice" may have led to or have been concurrent with the construction events noted for Operations C and A. These constructions, if not purely functional to retain accumulating sediments, may have been either a reactive response or a galvanizing reaction of

solidarity. Further radiometric dates from the upper levels of these features would aid in this assessment.

### **Intra and Intersite Comparison of Artifact Use, Specialization and Mortuary Status Differentiation at El Cholo, Contemporary and Later Period Sites**

The proposed general move to the south of El Cholo tends to agree and may have even culminated with findings made by Corrales (2000). His discovery of Chiriquí phase tombs well south of the architectural core supports the proposition that there was movement away from older Formative period ceremonial sites in favor of lower elevation locations. That this move to the lower bottom land started while El Cholo was active or merely an abandoned monument to earlier generations is unclear, as its occupation, given the presence of Mora Polychrome at Operation F, seems to have lasted to at least the 11<sup>th</sup> century.

An interesting note on site formation processes is that the early layout of El Cholo may well have looked like the informal Chiriquí structures that were observed at their southeast flanks by Corrales as well as large number recorded, prior to their destruction, by me and Aida Blanco Vargas in early 2005 (Figure 8.4). These grave features, using larger cobbles than seen earlier, appeared haphazardly located at ground level. There was no time to map the number of tombs that were found in order to see if there was any inherent grouping. However, it is plausible that commemorative ritual deposition would have led to a similar cumulative sediment pattern akin to El Cholo, had there not been a shift away from the higher elevation towards the alluvial bottom.



**Figure 8.4: View east and southeast of Chiriquí phase tombs across and down approximately 900m east of El Cholo**

Other scholars have noted this downslope movement of sites as well (Corrales 2000; Drolet 1984b; Kantner 1988). This above pattern may suggest a movement away from earlier sites, but does not preclude the active maintenance and occasional intrusive interment into the earlier sites. A similar pattern may have occurred at Rivas, as it has been noted that the Chiriquí phase Panteón de La Reina was located below an earlier, unnamed and unmapped Aguas Buenas mound complex. This site, as yet unexplored, contains some patterns that may match those at El Cholo and would be a prime candidate for testing this proposition.

The serial maintenance of El Cholo is a pattern that persisted for generations, but its post-occupational maintenance may well have started within its occupational history, as intrusive interment seems to have started at the site while populations were still congregating within it. It is unclear if the intrusive elements as evinced at Feature 11 and

Operation E occurred during the site's initial use or after its abandonment, as the ca. 900 AD date for the Operation E sediments may suggest, but the overlap with later period adjacent mortuary practices seems to have stopped definitively at the beginning of the Chiriquí phase, as all evidence of "Classic" period Chiriquí vessel forms are absent from the core of El Cholo.

With regard to Chiriquí phase at El Cholo, there was clear indication that the mortuary features recorded by Corrales at the southeast extension of El Cholo was Chiriquí phase in nature, as the area yielded vessels such Buenos Aires Polychrome, Papayal Engraved and Sangria Red Fine. The only Chiriquí phase ceramic type found at both areas of the site was an Instance of Sangria Red Fine, at the level of Feature 4. The relatively close proximity of the later funerary zone and overlapping ceramic assemblage seem to suggest a potential affiliation between the two areas, one where later generations, removed from the original ceremonial locus, are nonetheless returning and making offerings at the older location. Rather, it seems that the later mortuary pattern lends an appearance of staggering from an original point on the landscape towards its edge and then, presumably to lower alluvial aggregations at locations such as Murcielago (Drolet 1989).

That the pattern of tomb placement moves further downslope attests to the growing power of the newer loci to draw later generations towards it. Thus, this hesitant "stagger effect" in interment location may speak to the possible initial reluctance of transitional populations to abandon ancestral landscapes and conversely, to the new attempts being made by a select group during the Chiriquí to demarcate space along new lines, while still keeping to some key cultural elements. This contesting of space may have also been

prevalent at El Cholo during the introduction of the aforementioned architectural and material elements as well.

Given the lines of evidence, it seems that El Cholo represents an Upper General mortuary complex that participated in pan-regional and interregional traditions. This includes an early affinity with traditions likely originating from the northeast within the Atlantic Watershed and Central Caribbean. The discovery of a blue-green axe/celt fragment, blue disc-beads and pebbles all likely made from serpentine, as well as other greenstone items from presumably looted contexts, demonstrates that this ideological medium was used during the history of the site. The axe, celt or adze-like form of the blue green fragment, in conjunction with the waisted axes found in grave contexts and the one example for large basalt celt manufacture at Operation C, suggests that the general preoccupation with the axe form was in place and that there was a possible bridge in meaning facilitated by the earlier jade axe complex and the contemporary waisted axe and celt complex of later times. It is increasingly clear that axe production was definitely a shared affinity, one that was observable north and south of El Cholo. Its participation in this complex seems to have been one of the binding elements that connected it to both ends of its cultural sphere, and was a probable conduit that, along with northern ceramics, such as Atlantic Watershed in its earlier phases and Mora Polychrome in its final phase, made the Upper General Valley something more than just part of Greater Chiriquí.

The way the cultural and material complex was utilized at El Cholo does appear to have been less ostentatious, as the sample of mortuary features showed more of an adherence to general ritual than a deviation from practice and distinctive, potentially aggrandizing interment. Granted, there is evidence for beads, and possible resin items being interred in

examples such as Features 7 and 8. Factor in the presence of greenstone at the site and one may adduce that it is elite behavior. However, mortuary interments were modest, with few indications of internal offerings. A consistent suite of mortuary rituals accompanied all. Slight distinctions such as the ceramics, beads and pebble caches at Operation 8 are overshadowed by a consistently uniform set of traditional mortuary practices. The distinctions appear minor and the ubiquitous presence of axes in and around mortuary features suggest that the utilization of these items were for ritual purposes.

Given the prevalence of the item, it seems that the axe was the mortuary medium of choice, at least in the earliest phases at El Cholo, and was apparently available to everyone. This is underscored by the lack of formalization in its production, which, although widespread at El Cholo, did not exhibit the level of standardization, raw material quality, or uniformity to suggest it was a trade commodity. Rather than an item produced for widespread distribution as some have suggested was the case for Greater Chiriquí ceremonial centers (Drolet 1984b, 1988, 1992; Linares 1980b; Linares and Sheets 1980), production and distribution at El Cholo appears to have been centered within the site, a massive by-product of ritual consumption within the site. This pattern mirrors finds at the site El Zapote, where it was determined that axe production and its associated refuse was utilized for mortuary purposes (Arroyo Wong, et al. 2010).

Along with the axe complex, decorative wares were used for mortuary and commensal purposes, expended through fire or destroyed upon consumption of their contents. The use of these objects was part of mortuary ritual, instead of an outright expression of the interred individual. But in contrast to the often in situ deposition of lithic artifacts,

decorative ceramics such as Guarumal and Bugaba Engraved all appeared to have been used within a ritual cycle that resulted in them becoming part of the built environment rather than representations of individual possession. While there is a change in the use of Guarumal ceramics in Operation G, the destruction of other potential sumptuary goods, such as Bugaba, Cerro Punta and Corral ceramics, does not appear to be exclusive throughout the site. The intensity of this ritual complex does eventually concentrate in the southern sector of El Cholo after the 6th and 7th century, but even with the references within this area to masters or specialists, the overall quality of mortuary offering does not increase dramatically and rather, given the results of the correspondence analysis, may instead suggest that it is simply a function of time and intensive use of one area of the site. Nevertheless, it remains unresolved whether the intensity of deposition in certain areas suggests that certain types were simply more available as offerings at the time or were deposited at the location as an indicator of status differentiation.

Issues of status being unresolved as they are, the continuity of ritual seems apparent as vessel form percentages and their distribution around mortuary zones do seem to suggest preparation of comestibles with large tazon and olla sherds comprising large parts of the assemblages. While the relatively large scale pattern of ceramic breakage is not readily apparent elsewhere in the Diquís, this is more likely a sample bias, as El Cholo is effectively a sample of one. Current work by Palumbo at the site of Bolas notwithstanding (Palumbo, et al. 2013), the pattern of axe deposition and ceramic shattering on a slightly smaller scale is observable in other sites such as Batambal (Figure 8.5), and Finca 6 (Corrales Ulloa and Badilla Cambroneró 2011). In the case of Batambal we see the pattern of axe deposition and ceramic destruction alongside vague mortuary

features. While still in progress to date, it would be interesting to see if there are any indications for thermal features that would parallel a similar use of fire as seen at El Cholo.

At Fincas 4 and 6 we see a much closer association of Aguas Buenas mortuary deposition alongside later Chiriquí period deposits (Figure 8.5). The difference seen between these sites and that of El Cholo may denote a subregional difference and heterogeneity in expression amid a pan-regional style, balkanizing further Greater Chiriquí and the Diquís subregion. This expression of heterogeneity may even extend to the differential use of stone, expressed as spheres or as pillars in the Upper General Valley and the Lower Diquís Delta and touched upon in this study.



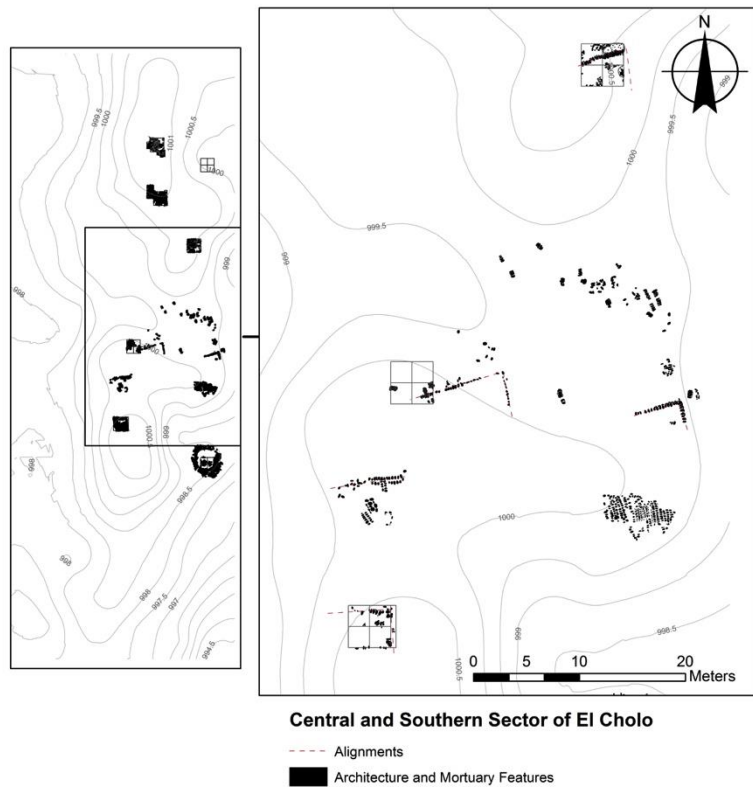
Figure 8.5: Examples of deposition at Batambal and Finca 6 (Photos from Corrales Ulloa and Badilla Cambronero 2011)



### **Attempting to Decipher Differential Tomb Signatures at El Cholo**

One final issue that needs to be addressed in this interpretive chapter involves the presence of "false" tombs. This feature was noted in areas such as Rivas (Quilter 2004), where no offerings, osteological remains or even shadow corpses were found within supposed mortuary features. These types of features were also noted in relation to Feature 7 at Operation E, the interpretation of which having been that this item likely was a placement for a cache, or possibly an early platform used for the placement of mortuary bundles; thus the underlying sediment also did not register a "shadow corpse" like that noted for other features. This pattern was generally associated with the less formal unbordered collections of stone, similar to Subsurface Feature 1, Subsurface Feature 7, Feature 14 and Feature 15, which yielded varying results.

This form of supposedly empty mortuary features was encountered in greater numbers by later salvage operations at El Cholo (Badilla Cambronero 2009). In several cases, excavations were terminated at approximately 70-80 cm below surface, with only a few vessel fragments present. These collections of rocks were determined to be sterile and empty, although sediments were generally loose and unconsolidated. The other series of structures resembled the collection of features at Operation A, but after 1.10 meters no distinct indicators were recorded.



**Figure 8.6: Plan of 2009 salvage excavations with Operations E and F to the west**

Given the absence of stratigraphically determined quantities in the salvage report, it is not possible to determine whether there were increases in artifact deposition that may suggest specific phases of construction for the deeper quadrangular tomb features. However, in addition to the possibility that the features encountered were bundle platforms where offerings were placed above features (see Feature 7, subsurface deposits), I propose alternative possibilities.

The general pattern observed at El Cholo seems to show that internal grave offerings of ceramics were not common practice. If an offering was registered, it was more often than not a lithic artifact. The nature of ceramic deposition being that of ritual shattering would most likely disperse the material horizontally throughout the profile; thus, examination of the relative abundances by level may have helped determine where any increases may have occurred in the profile, potentially pointing to a concentration in interment activity. I suggest that this may have been most useful in the section of quadrangular features located between Operation F and E. It is puzzling that these features yielded nothing, and other than being later additions to the complex, filling in space between both operations and being shallow, I can only suggest that these may have been preparatory platforms rather than tomb covers. I still believe, however, that disturbances may have greatly affected the profiles of these features, and that ceramic stratigraphy may have helped shed light on their formation. As observed underneath Feature 15 where the faintest of carbon concentration was noted, the presence of bioturbation and lateritic processes would have exacerbated many of these features, having the potential to greatly impact underlying sediments (Rapp and Gifford 1985; Rapp and Hill 1998; Waters 1992; Waters and Kuehn 1996) obscuring their original signature. This would be aggravated by loose soils and shallow depths, which would have been attractive to burrowing rodents and insects as well as facilitated the lateritic process of permeation and leaching of organics from the sediment.

Not being privy to the quantities and locations of the lithic artifacts and their precise positioning at the later salvage operations at El Cholo, I cannot speak to any lithic artifacts that may have been construed as an offering (Features 1, 4, 5, 10, 12 and 13), but

the lack of ceramics and organics indicative of an interment may been affected by the manner in which ceramics were deposited, the depth of those deposits, and the geologic forces that impacted their preservation. It is a possibility that shallower grave signatures likely could have been wiped out, especially when considering the peripheral and intramound positions of the majority of the mortuary features investigated in 2009.

Barring the clearing and extended identification of the circular feature at Operation G, the 2009 excavations focused on an area just north and east of Operation E as well as the already mentioned area between Operations E and F. The former, which I will focus on here, corresponds to the lower elevation of the site complex, or the "causeway" connecting the northern and southern sectors. Given the proposed vertical and horizontal accretional formation of El Cholo, these mortuary features may be one of the later additions made to the site once mound top and subsequent extensional spatial capacities were maximized. As room ran out on the tops of the main mounds, the complex grew outwards, expanding horizontally with each successive generation of interments. The shallow nature of the newer interments located within a high energy fluvial environment could have hastened the obliteration of subsurface indicators. The fact that deep deposits such as Features 7 and 13 yielded only faint organic shadows is a testament to how powerful these lateritic processes could be and how they would have affected relatively shallower and exposed structures.

## **Chapter 9 : SYNTHESIS AND CONCLUSIONS**

When one takes all the presented information from the investigation and looks at the entire site of El Cholo over time, the prevailing impression is that of a gradual and accretional occupation of the site. The available evidence establishes a baseline of occupational history where several key locations, likely the mound areas encompassing Operations D and C (and probably F, although dates coeval with D and C were not obtained for the operation) emerged by at least the 3<sup>rd</sup> century AD, if not as early as the 1<sup>st</sup> century. Whether this is the actual founding of El Cholo remains to be seen. It could be submitted that the large carbon accumulations at Operation D augmenting the already present organic horizon dating to the 3<sup>rd</sup> century could constitute the flash point of a preparatory thermal “clearing event” to initiate the formalization of the site. This would be similar to processes observed for areas in the Central Caribbean such as Las Mercedes, albeit without the level of ostentation noted for that site. The large carbon accumulation could also be a form of ritual fire pit noted in the Rivas area of the Upper General Valley, a fact that does not take the pattern out of the realm of initiatory or renewal event, as large fires could have been associated with the burials of founding ancestors, the first to mark the territory for their respective group.

Debate around preparatory rituals notwithstanding, it is reasonably clear that significant accumulation of ceremonial refuse approaches a notable and more formal level by at least this early date. It also seems clear that the presence of rectilinear house-like forms and simple rectilinear tombs, as well as the seemingly homologous pairing of cairn features at the northern and southern ends of the site, marks a formalization initiated during the early utilization of El Cholo. Whether it is a clear conversion of space from a possibly much

earlier campsite (evidenced by the earlier date and evidence for earlier higher quality lithic technology at the site) to a cemetery is unclear, but the marked changes in both architectural and mortuary elaboration is evident. Thus, the AD 200-500 time range saw efforts to formalize the space, characterized by an initially rectilinearly oriented site that later in its occupational history sees the introduction of newer elements such as the appearance of the circular form and portico evident in the southern portion of El Cholo at Operation G. However, while this introduction comes in around the 6<sup>th</sup> or 7<sup>th</sup> century, the general mortuary pattern observed within its walls reflects mortuary traits tracing its roots back to the earlier occupation of the site. Albeit expressing a “southern” and “Panamanian” orientation, the structure at Operation G mimics a house form built at a slightly smaller scale, much like what the rectilinear forms seem be trying to mimic: houses, but for the dead.

The question of whether El Cholo was habitational or ceremonial underscores a fundamental issue with which archaeologists struggle when defining sites (Adler and Wilshusen 1990; Wilshusen 1986). How does one distinguish between a ritual site versus a domestic one, especially when that distinction was not necessarily drawn by the inhabitants themselves? That noted, the data as presented above suggest that El Cholo was not comprised of habitations or houses for the living, but rather as a residence for ancestors. One can see repetitive commensal and funerary behaviors such as food preparation, lithic artifact production and curation, as well as the utilization of ceramics, leaving behind traces that appear somewhat like a conventional village. However, a closer look at the profiles for the site reveals levels of interspersed depositional events involving burning and soil oxidation and semi-vitrification that do not match a typical

hearth pattern. Patterns at locations such as Operations A, D, E and F show precise localized thermal events followed by fill in some cases, clearly sealed over by a later level of sediment. Other locations, evident at Feature 11 in Operation A, show results of an intrusive puncturing of earlier levels. In any case, there is evidence for a precedence of burial and non-domestic thermal events, over the usual cooking areas. That much is clear even at Operation G, presumably the latest installment within the sampled area at El Cholo.

While the argument is often made that the rectilinear walls of sites in the Diquís suggest the emergence of villages or habitations of elite sectors of the general population, to date no convincing evidence suggests that such well-built habitations existed within the Upper General Valley. Consultation of regional databases within Costa Rica reveals an ambiguous pattern of site identification hamstrung by the inability to document fully such sites. While the existence of sites such as Las Brisas, Monge and Bolas do show a level of labor investment that may suggest a preoccupation with the accouterments of ritual meaning, claims of these sites as villages of elite individuals are not entirely tenable. Rather, the evidence collected at El Cholo may be useful as a means to calibrate these earlier investigations. So, while there is no clear evidence that well-built elite centers existed during the Formative period in the Upper General Valley, I suggest that the patterns often seen as residues of elite residential behavior are better understood as the remains of long accumulations of funerary practices over hundreds of years, dotting the broken and hilly landscape of the Upper General Valley. These patterns may resemble those identified and classified in central Panama as macro-regional necropolises, where surrounding groups interred their dead in a central sacred location (Cooke et al, 2003,

Linares 1977). However, the degree and scale of the modest interments at El Cholo suggest community scale houses of the dead (Skinner 1920:96). The hypothesis of a special residence as presented by previous investigators is not off the mark, but glosses over the basic collective importance of burial and commemoration as a primary motivating factor in creating and maintaining built environments. Moreover, the level of population during the Formative period, if one considers the number of uninvestigated mound complexes in the Upper General Valley, could very well fit the distribution of said built environments. This diminishes the standing of the few excavated sites.

Overall, the information seems to indicate that El Cholo, while sharing some attributes of a living village or house cluster, fits a pattern closer to an agglomeration of burial zones that accommodated the repeated commemorative actions of several generations of ritual participants. The idea that the sites were the locations of thatched huts akin to those seen in the later Chiriquí phase is not supported, as evidenced by the lack of postholes or any features suggesting a standing structure at El Cholo. Rather, the pattern at El Cholo may well be a Formative precursor to what has been recorded at nearby locations such as Panteón de la Reina in Rivas, where investigators identified an open-air plan with mortuary preparation areas and large fire pits for the likely purpose of collective viewing (Frost 2009). In this regard, El Cholo marks a loose continuity in ritual behavior between these two neighboring sites and time periods, with the events at El Cholo indicating an earlier version of a form of behavior that lasted until at least AD 1300.

Thus, a vital distinction must be made between *occupants* and *participants* at a site. The interpretation of these Formative mounds as house sites changes in light of the new data from El Cholo. For example, the location of mounded sites on abandoned alluvial



terraces as is the characteristic of most Formative mound complexes does not require the usual interpretive schemas to justify its construction. House mounds positioned on such high relief likely served different purposes than mounds located in the lowlands. The seasonal stream on the west side of El Cholo, while certainly active during the wet months, likely did not threaten it with inundation as with sites along main waterways. The construction of mounds as a preventative measure to keep habitations dry would likely not have been the driving force behind El Cholo's initial construction and augmentation. Instead, as is the case in many parts of the world, it is the eventual consequence of the cumulative and clustered interment of the dead that likely produced the mound form and eventually required modification to accommodate new additions. As has been detailed in Chapter 8, events around the 6<sup>th</sup> century may well have accelerated the local processes that began early in the millennium. Nevertheless, it appears that the actual residents of El Cholo were not so much the living, who gathered at what were ostensibly ritually integrative built environments, but the dead, whose remains were interred within the confines of the site in what appears to be a variety of ways ranging from extended to possible secondary burials. The patterns bear out this interpretation. Simpler extended mortuary configuration appears to be the norm in the early centuries of the 1<sup>st</sup> millennium and develops in complexity as its surrounding population increases in size and likely in diversity.

Overall, the pattern of interment and artifact deposition is consistent with observations made for much of the Diquís subregion and Greater Chiriquí in general: that the accumulation of fragmented ceramic and lithic artifacts reflects form of preparation and sealing/concluding behavior identified in Northern Costa Rica and in Western Panama. In

these cases, ceramic objects are ritually destroyed and spread across burials, with a similar process employed for axes and their associated debitage. As mentioned in Chapter 8, there are more contemporary cases such as at Finca 6 and Batambal, where there are clear indications of this same behavior and the unequivocal evidence of burial of intentionally fragmented axes and celts placed alongside other offerings (Corrales Ulloa and Badilla Cambroneró 2011). This strongly indicates a behavioral pattern that bears greater consideration and testing, as there are pivotal implications for our understanding of fine grained mortuary ritual behavior. This understanding, in turn, can help us to reconstruct at a site level the associations behind mortuary ritual, population aggregation at these ritual centers, and the decision-making processes that were likely mediated and negotiated within these special places.

### **Incorporating El Cholo into the Upper General Valley, the Diquís and the Greater Chiriquí Archaeological Region**

If we consider that seemingly ubiquitous use of river cobble in building mound is the regions and consider the impact on the site of post-abandonment processes such as heavy rainfall and slumping, El Cholo appears morphologically to resemble mounds found throughout the region. Temporal overlap in these sites begs the question of whether there were indeed high levels of behavioral and material variation during the Formative, and of whether reevaluation of internal organization of contemporaneous sites is in order. At the very least, El Cholo's level of labor investment, size of its architectural core (approximately 10,000 m<sup>2</sup> or 1 ha), peripheral area (2-3 ha), and ceramic assemblage suggest that it is comparable to other contemporaneous sites in the area.

A complex pattern emerges from the data when one considers El Cholo in the larger context of the Upper General Valley. Social patterns appear to have been oriented differently at El Cholo during its earlier history than those of the Formative to Chiriquí phase transition. Items resembling Santa Clara Tradition figurines, along with other zoomorphic and anthropomorphic artifacts found in the earlier levels at El Cholo, along with ceramic evidence of Caribbean lowland material culture such as El Bosque ceramics and similar “grave house” forms that suggest southern Costa Rica and Panama, were not the first or only sources of influence or interaction for communities in the Upper General Valley.

The exchange of El Bosque period material across the Talamancan ranges could be one factor behind early connections with the Atlantic Watershed/Caribbean region and lowlands. However, material evidence of interaction with the south is abundantly evident. There seems to be clear incorporation of southern elements amidst the earlier cultural aspects at El Cholo, appearing to increase gradually as the site shifted to integrate newer house forms from the south. Earlier explanations of migrations from the south (Linares 1968), as well as movement from Costa Rica towards Panama, obscure what was obviously a more complex social interaction. However pronounced the introduction of more southern architectural forms and the eventual general downslope movement of Upper General populations may have been, the data suggests that rather than displacement of Upper General Valley populations, what likely transpired was a general admixture of northern and southern sensibilities, always spurred by the constant intermingling of groups and possibly punctuated by the northern movement of staple crop farming southern groups due to eruptions of the Baru Volcano to the south (Holmberg

2007, 2009; Linares 1977b; Linares, et al. 1975; Linares and Ranere 1980). That the seeming downward trend of use at El Cholo overlaps with this movement from the south and Upper General movement to the alluvial plain suggests that the transition and adoption of more southern lifeways and a final abandonment of northern orientation was complete. However, the evidence of peripheral mortuary structures dating to the Chiriquí phase in areas east and south of the main core of El Cholo suggest that some may not have been so willing to commit to new or modified social traditions.

Nevertheless, evidence such as the small examples of sculptured figurines, the presence of Santa Clara figurines and El Bosque ceramics, the depictions of zoomorphic and transformation figures (e.g Reilly 1989), along with the representations of figures with conical hats (Haberaud 1984; Hoopes 1996), suggests that this shift was underway.

Whether the transition was one-directional or not seems unlikely, as we clearly see a later shift towards similar types of patterns in the Caribbean. El Cholo simply reflects one of the earlier documented examples of this exchange and flow of ideas at an earlier date (6<sup>th</sup> century), as it moved and settled somewhere around the 11<sup>th</sup> century at sites further north, further modifying the social and ritual landscape.

What this means regarding the underlying model of elite or communal-level social interaction is intriguing. While elements of production that are often thought to be results of centralization are present in the Formative period, initial evidence suggests the level of specialization was not at a standard as to suggest manufactories for “chiefly” distribution. Rather, the variety in artifact dimensions, as observed with the waisted axes, suggests that the production of stone tools and perhaps ceramics was a variable function, possibly tied to family groups coming in to the site to maintain their respective “plots.”

Are there indications for specialized residence? The presence of green stone axe fragments and beads may lead to such a proposition, but the quality and the lack of overwhelming caches of such items suggest that these objects may have been important for all people. The presence of such strange offerings, such as the clustering of spherical stones at the base of a presumably later period capstone at Operation E, underscores the question of just what constituted valuable items at El Cholo. Was it greenstone? Was it El Bosque, Guarumal or Mora Polychrome ceramics? Was it the placement of smoothed stones or stone axes? Overall, the variation in items suggests that no one medium dominated the ritual technological landscape. All media were used with different emphases, but none so pronounced as to suggest that the goods exemplified overtly high status. Thus El Cholo, at least for the majority of its duration of use, shows all signs of having been a regional cemetery and central point at which participants from outlying hamlets likely gathered to deposit and remember their deceased.

With regard to these central points, it could be that the building and formalization of communally built cemeteries were responses to the increasing demands on the landscape. Following the theoretical line, these multivocal spaces, serving as delimiters of territorial space and niche control, may have required more visible elaboration and formalization to bolster and make clear the claims made by the local population. The possibility that the elaboration of older segments coincides with the introduction of the new circular structure may indicate just such an increased effort. Earlier ritual expressions such as tomb-top burnt offerings appear to have a more formalized architectural setting as time goes on at El Cholo. At Operation G, the sides of the two tombs recorded are clearly marked by large stones, whereas earlier subsurface indications of the same behavior at

earlier parts of the site suggest that participants simply interred their dead and burnt their respective offerings. When taken in conjunction with the contraction of retaining walls, does this suggest that the earlier population was responding to new claims by reaffirming and strengthening their own? If so, it would suggest that El Cholo was a contested space and that its intrasite dynamics were being negotiated by increased investment in the built environment by its participants. It would also suggest that mortuary ritual, indeed, was a reflection of the living community and less an indicator of the status of the deceased (Parker Pearson 1982, 1999, 2001). The existing community would have invested the time in renovating and reaffirming their collective space with new capstones and continued ritual until the attempts to maintain a centralized mortuary complex were successfully decentralized in the early Chiriquí phase. Whether these dynamics continued on into the following phase seems entirely plausible, given the ambiguity we find at Chiriquí phase settlements and the arguments that have been made for the equal access of goods thought to be "elite" in nature (Briggs 1993).

### **Trans-Cordilleran Contact and Implications for Modeling Community Identity in the Formative: Revisiting Verticality**

Situated in an intermontane corridor, sites found throughout the Upper General Valley have long been understood to be part of the Diquís and by extension, the Greater Chiriquí archaeological region. But while architectural and material criteria such as mound complexes, Aguas Buenas ceramics, and axe production do tie the Upper General Valley to this cultural sphere, further investigation is required, as preliminary examination of the inferences derived from these perceived cultural affinities reveals that they are far more complex than the uniform classification of "Greater Chiriquí" implies. More often than

not, the implications of late period Greater Chiriquí chiefdom structures have served as the basis for a pan-regional and cross-temporal socio-developmental model of hierarchization and inequality. However, upon a closer look at the processes behind the formation of sites such as El Cholo, a different picture emerges, and the implicit assumptions behind the early development of power relations become far more problematic than initially understood to be.

Rather than a homogenous cultural sphere and much like the ICA overall, the Upper General Valley appears to be a distinctive piece in a mosaic of cultural interaction. This point has already been argued in material terms. The limited geographical presence of the Quebradas ceramic type had already been offered as evidence that the Upper General constituted some type of cultural variation (Corrales 2002; Sol Castillo 2013). While the overlap in ceramic styles was hard to parse at El Cholo, it nevertheless seems that the site may be a clear example of this variation, possibly expressing a particularly highland character. The area may have inherited a distinct cultural pattern derived from its close affinities to sites in its upper highlands and along tributaries of the General River such as the Chirripo, Buena Vista and Pacuar (Kantner 1988) as much, if not more than, sites from the lower floodplains of the Diquís Delta and the plains of Chiriquí. It is at sites such as El Cholo that we can observe an architectural pattern similar to that seen in the upland sites of Herradura and those in the lower foothills of the Cerro de la Muerte such as Aguas Buenas itself. These sites, along with the better-documented sites of Sitio Monge and Bolas, show a configuration that is arguably distinct from those sites understood to be quintessentially Diquís, let alone characteristic of Greater Chiriquí.

Trying to differentiate between Diquís Delta Chiriquí phase sites and their Upper General affines is naturally going to be difficult, owing to the fact that very few Aguas Buenas sites have been adequately mapped, let alone systematically excavated. Nonetheless, the evidence obtained from El Cholo suggests that a social ceremonial funerary system seemed to be the overarching reason for early construction and expansion of architectural complexes during the Aguas Buenas period. The self-contained nature of the architecture, with the relative abundance of funerary fires and offerings, suggests that at the very least, sites such as El Cholo served as visual demonstrations and commemorations of ancestral ties to land, territory, and importantly, community.

I submit that the boundaries of the Upper General and the Diquís Delta served to delimit cultural attributes other than ceramics. It is at the nexus of the Upper General and the Diquís Delta/Terrabá region that researchers have observed the most southern extent of stone pillars (Corrales Ulloa and Badilla Cambrónero 2011). Moreover, the Aguas Buenas and Chiriquí phase multicomponent site of Bolas has stone spheres, argued to be a powerful marker of territory, prestige and power (Fernandez and Quintanilla 2003). However, it must be noted that north of sites such as Bolas, no large spheres have been found in situ, nor have stone pillars been recorded in abundance in the delta region, as have been recorded for the more northern sectors of the Diquís. Thus, as scholars have already suggested, the environmental transition from highland to delta may also be a division between traditions of ceramics as well as stone sculptures, both used in ritual behaviors at El Cholo. To be sure, a pan-Chiriquían, if not pan-Isthmian, tradition of waisted and stone axe manufacture does bind the Upper General to the south (as well as to the Caribbean), but the evidence for variation is compelling. The peoples surrounding



the site of El Cholo likely existed in one of many cultural niches that linked them to populations in the Cordillera de Talamanca on both sides. The evidence for El Bosque, La Selva and black-on-red ceramics in mortuary and fill contexts seems to attest to this fact.

There are anecdotal accounts made to the author as well as recorded (Gabb 1875; Guevara-Berger 1993) that recount the movements of Talamancan social groups from the Caribbean side of the Talamanca mountain range to the Upper General and neighboring valleys. The evidence encountered during this investigation holds interesting implications for the way groups maintained social cohesion over such rugged terrain in prehispanic times. The suggestion that Early to Middle Formative society was actively influenced by northeastern as well as southern sources is borne out by the presence of material such as El Bosque ceramics as well as the fact that structures from these times seem to reflect the rectilinear layouts prevalent in the Caribbean.

As in the Atlantic Watershed, the pattern in the Upper General Valley may reflect less the actual house structures found in early El Bosque period sites, but rather the slightly later La Selva complexes. In these cases, mortuary sites are made to look like earlier house structures (Snarskis 1981, 2003). The proposed southern influence, made later in the 6th or 7th century, reflects this older pattern of placing the dead within house-like structures, only they are in the circular pattern noted for the south rather than the north.

Interestingly, the circular form, seen at El Cholo as a likely "house of the dead" (Skinner 1920), is only recorded in its domestic form at other locations until the later Chiriquí phase. While it is possible that the influences mentioned above could have originated from the Bocas del Toro region (Corrales pers.comm), it nonetheless suggests that sites

such as El Cholo were more likely one of many integrative centers in the highlands that held cultural and spatial similarities that in turn influenced the sub-area's Formative architectural milieu in manners that differed significantly than what was observed in Greater Chiriquí sites such as Barriles, Sitio Pitti Gonzalez or La Pitahaya.

As demonstrated in this study, data does suggest that El Cholo experienced a change in emphasis from an earlier interregional mortuary complex to one that seems to have focused more on traditions associated with Western Panama. While this change looks to be coeval with the burgeoning influence of Barriles (AD 300 to 900) on the social landscape of Greater Chiriquí, given the case study, it does appear that the Upper General Valley, far from being a node within a territorial system centered on Barriles complex, exhibited its own particular cultural expression.

This thesis argues that sites such Monge and Las Brisas may be similar to El Cholo in that evidence for domestic settlement and craft production may in fact be indicative of ceremonial and mortuary lithic production associated with commensal behaviors. I concur with Drolet in that the Formative is a time where a “parochial” and “provincial” symbolic system is more entrenched (Drolet 1992). However, the discovery of waisted axes in mortuary contexts at Cholo, as well as heavy concentrations of said lithic artifact at other sites such as Zapote (Arroyo Wong, et al. 2010), suggest that previous indications may be off in their estimation. Most notably, the variation of raw material quality and size at El Cholo suggests that indications of cottage industry in the Upper General may have been representations of a localized production cycle of artifacts made for the purpose of participating in a regional ideology and not domestic/utilitarian use. That is not to say that many stone axes were not used to clear land. Given their

positioning throughout El Cholo, they may well have been used as excavation tools. It is only that their production and manufacture seems to have been oriented for non-domestic contexts, and isolating the function of these objects as utilitarian or ritual may run the risk of proposing a false dichotomy similar to the one encountered when identifying integrative facilities.

The cultural model suggested by this investigation is manifold. While sharing many behavioral traits with that of later period populations, it appears that the Formative period was still one where territorial markers remained community-oriented, expressed in rather confined cultural and possibly environmental niches. With regard to the relation of roles and status, it is possible that specialists did exist: craftsmen, priests and diviners, or possibly an interesting combination of all of these specializations. However, the evidence does not suggest an exclusive environment tailored for any one occupation or role, at least one with hard boundaries that can be readily identified. Rather, the spatial character of El Cholo suggests a broader clan organization not unlike what Frost (2009) and Quilter (2004) have already suggested for the area, only along simpler lines.

Social ceremonial centers of the late Formative period and early Chiriquí phases, taken from this more inclusive perspective, are no more than the natural evolution of likely long-established and maintained community-scale funerary behaviors. Sheets suggests the monumentality was likely initiated within the more egalitarian societies in the earlier centuries (Sheets and Sever 2006). The majority of late Formative socio-ceremonial centers, outside of outliers such as Bolas, Las Brisas and Barriles, are likely a result of aggregations of tombs and accumulations of commensal refuse over time. The origins of later period monumentality begin in the collective efforts of commemorating ancestors.

The beginning of the co-opting of these collective grounds may be evident in the 6th to 7th century shift we see at El Cholo, but it is a far cry from asserting that those buried within these structures were emergent leaders or chiefs. Rather, the evidence suggests that the activities at places such as El Cholo may reflect the tension inherent in community-scale heterarchical relations. Groups with no definite vertical hierarchy, functioning on a corporate level, may have negotiated shared decisions and power through mortuary ritual, and collective shared commensal events. While it appears that efforts were made to distinguish groups or individuals at around the 6th or 7th century at El Cholo, the efforts were still largely constrained by the prevailing traditional structure, the dominant practice that was encoded in the built environment from early on. A forum such as an ancestral burial ground with what appears to have been a relatively uniform collection of ritual observances, while somewhat standardized on a communal ritual level, would have also maintained a level space for establishing and contesting claims. That is, corporate hierarchies could pass and share information, express preferences and even attempt to consolidate power, but would be limited in their ability to innovate beyond convention and therefore could not outplay or project their "voice" beyond others.

Paradoxically, what some may call the stultifying mechanism of collective tradition would have allowed for all voices to be heard. Uniformity of practice in heterarchical corporate spaces would have allowed for the diversity of multivocality. This may be why efforts to supersede these constraints did not actually succeed in the Upper General until mortuary ritual was effectively decentralized (Sol Castillo 2013). The separation of mortuary space into distinct zones, as evidenced by some later Chiriquí phase sites such as Rivas-Reina and Murcielago, may have been the actions that allowed for a breaking

from previous traditions, permitting a less restrained co-opting and restructuring of practice to suit the ambitions of emergent chiefs. The evidence of Chiriquí phase mortuary features found near older Aguas Buenas period mound structures, however, attests to the fact that efforts to resist this decentralization may have continued well into the later period, another reason why "paramount" chiefdoms may not have emerged in this area until very late. Thus, the power of space and place is apparent. Integrative facilities served to integrate a community, a group, into a cohesive unit. It would stand to reason that the values imbued into a space, a location on the landscape that is interwoven with inherited meaning, would be a substantial barrier to those that would seek to redefine cultural terms. These areas would have been the ground for the reversal of dominance that Boehm and others (Boehm 1993, 2000, 2009; Roscoe, et al. 1993) have mentioned. Incipient leaders would remain provisional and not become the aggrandizing bullies until they could move the playing field to locations more favorable to their ends. This control of the group over the leader is evident even during times when leaders were supposedly in full control, as Gabb notes that chiefs only held nominal control over their people, with power more social than political in nature (Gabb 1875).

The epistemological use of "chiefdom" to categorize social complexity, especially in the ICA, is problematic. Often, it is the option that is taken when elaborating the underlying dynamics of "special residence." In some cases, the term may mean the presence of uncontested leaders; in others, it may merely suggest a custodial population, and not a seat of political power. These custodial populations, as detailed in Chapter 8, may have simply been clan or kin members pooling efforts to maintain ancestral grounds. At Barriles and other sites, these custodians may have established themselves to the point of

consolidating greater power. In the Upper General this may not have been the case.

Indeed, centralization may have been more the exception than a general community-scale equilibrium maintained by group interests over aggrandizing individuals. Thus, I propose incorporating a variably contested social landscape as a component within a more viable ICA social paradigm, in contrast to one where social hierarchy is the dominant outcome. The straightforward direction that hierarchical models can portray regional social dynamics may belie local differences that may become more apparent when using a broader model.

The inferences generated herein were based on a preliminary investigation of material intended to serve as a point of departure for future work in the Upper General Valley and the ICA in general. As this study constituted a general assessment of the spatial and temporal patterning at El Cholo, analysis of archaeological material necessarily consisted of basic tabulation and general characterization of artifacts using relatively simple methods. I anticipate that I and other investigators will be able to explore the existing dataset and provide a more in-depth ceramic chronological and lithic technological analysis to support or falsify the general trends reported in this study. The findings reported here are some of the first for this area and time period; the hope is that they will function as one of several interpretive templates that can be applied to the rest of the regions as we attempt to better our understanding of the Upper General, the Diquís and Greater Chiriquí and the ICA overall.

## **The State of Costa Rican Archaeology: Preservation, Conservation and Future Research**

Relatively recently, Kantner (2004) lamented the fact that the state of preservation in Costa Rica severely limited the ability for serious information potential. Sadly, this attitude is often reflected by many working outside of the ICA, with many sites, especially within Costa Rica, often written off as too impacted to offer any real insights into the actual conditions of the inhabitants of the site under investigation. Couple this with the usual absence of osteological remains, and we often have grounds for a complete dismissal of the region. However, if we consider the relative preservation of sites such as El Cholo, and acknowledge the limits in our explanations using limited data, one can dispel this notion. While looting is prevalent in many sites, several studies have now demonstrated that not only is selective sampling of these sites able to provide important information, it has actually led to discoveries requiring the revision of previous assumptions on the anthropology of the region. Examples leading to a further enquiry into the nature of complexity have been accomplished despite the supposed limitations of modern impacts (e.g. Frost 2009; Quilter and Frost 2012; Palumbo 2013).

These studies corroborate the hypotheses that conditions in the ICA were indeed unique and particularly variable within its boundaries. The initial work done here shows that a fundamental re-evaluation of the archaeological record, especially as it pertains to the Formative period of the region, is necessary. Even in the better-known Classic period, the debate around when chiefdom-level organization becomes entrenched continues. But now, we can see that once mysterious and inaccessible factors can begin to be clarified and aid in constructing a more comprehensive interpretive framework.

As these efforts are still unfolding and in continual development, the delineation of differences will continue to dominate the discussion. However, advancements in chronology and site definition continue apace. Moreover, a keener awareness and continued study into the impacts of post-depositional processes will help to parse out the mystery of seemingly empty graves or shallow concentrations of artifacts with no apparent mortuary referent. Repeatedly, we can see that a different set of interpretive models is needed to understand the ICA. Moreover, if the thesis of heterogeneity within this dissertation holds, we may have to admit to different sets of interpretive models for subregions within the subregions!

Further exploration into these models cannot be accomplished if sites are not valued for the informational potential that they offer. What the ICA provides is a landscape, like the SE and SW United States or the plains of Tierra del Fuego (Dillehay 1990), where complex groups were present but did not form the complex state-like configurations of the Inka or the Aztec. Albeit incorporating many elements from the north and south, these populations nevertheless utilized these items in their own way. We have observed this for the way ICA populations handled items such as jade; now we extend it to the manner in which they arranged themselves socially and within constructed space.

This valuation extends into the manner in which the local population appreciates the sites within the country. El Cholo is arguably a source of information extending for centuries, if not more. However, the importance of this is often lost on the local population. As more research is undertaken, it is likely that other equally extensive sites will join El Cholo as documentation of this process. The re-evaluation and ground-truthing of sites expediently classed as cemetery or habitation is imperative in building a database of



information that will serve both academic and outreach needs. As the importance of the cultural heritage and its time depth becomes more apparent, the task of promoting stewardship of sites becomes more manageable, if not easier. In any event, the ICA, especially the Upper General and the corridor between it and the Talamanca Range and the Caribbean, holds the greatest potential for fleshing out what is increasingly becoming known as a unique source of anthropological information. The establishment of a comprehensive programme of study in this region would prevent the loss of a valuable source of information pertinent to issues very close to the field of anthropology in general. While the information gained from such a programme may be based on what is a relatively small scale socially and geographically, it has implications for how we understand the development of social complexity and the conditions that can lead to the establishment of structural inequality. Continuing efforts to maintain and explore these types of sources of information are crucial, as often the enormity and the scale of highly complex social patterns can obscure less prominent signatures. Less conspicuous signatures can often fall beneath our ability to detect them, and as I have already mentioned, we may be inadvertently relegating them to background noise. However, provided that the modest power of such signals may actually indicate the decisions of social groups to maintain a relatively modest degree of social complexity, it behooves us to constantly monitor our expectations and assumptions underlying their impacts. More and more, it is apparent that collective action can modify and tear down the most ambitious prospects of the most established states on this planet. Their impact on and articulation with social complexity must not be discounted.

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## Appendix A: Stratigraphic Profiles and Photos

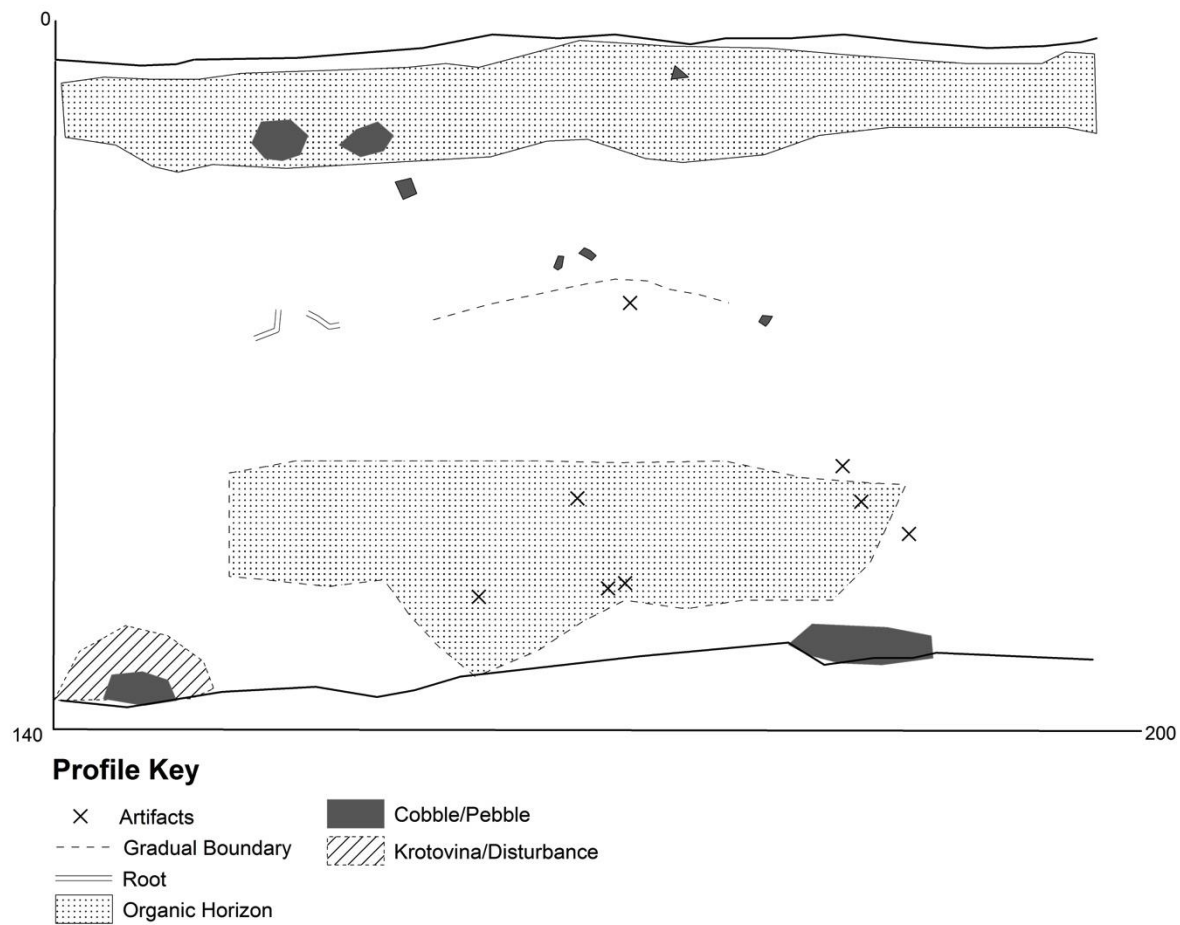


Figure A 1: Profile of West Wall, Pilot Unit N1034E993 (units in cm)



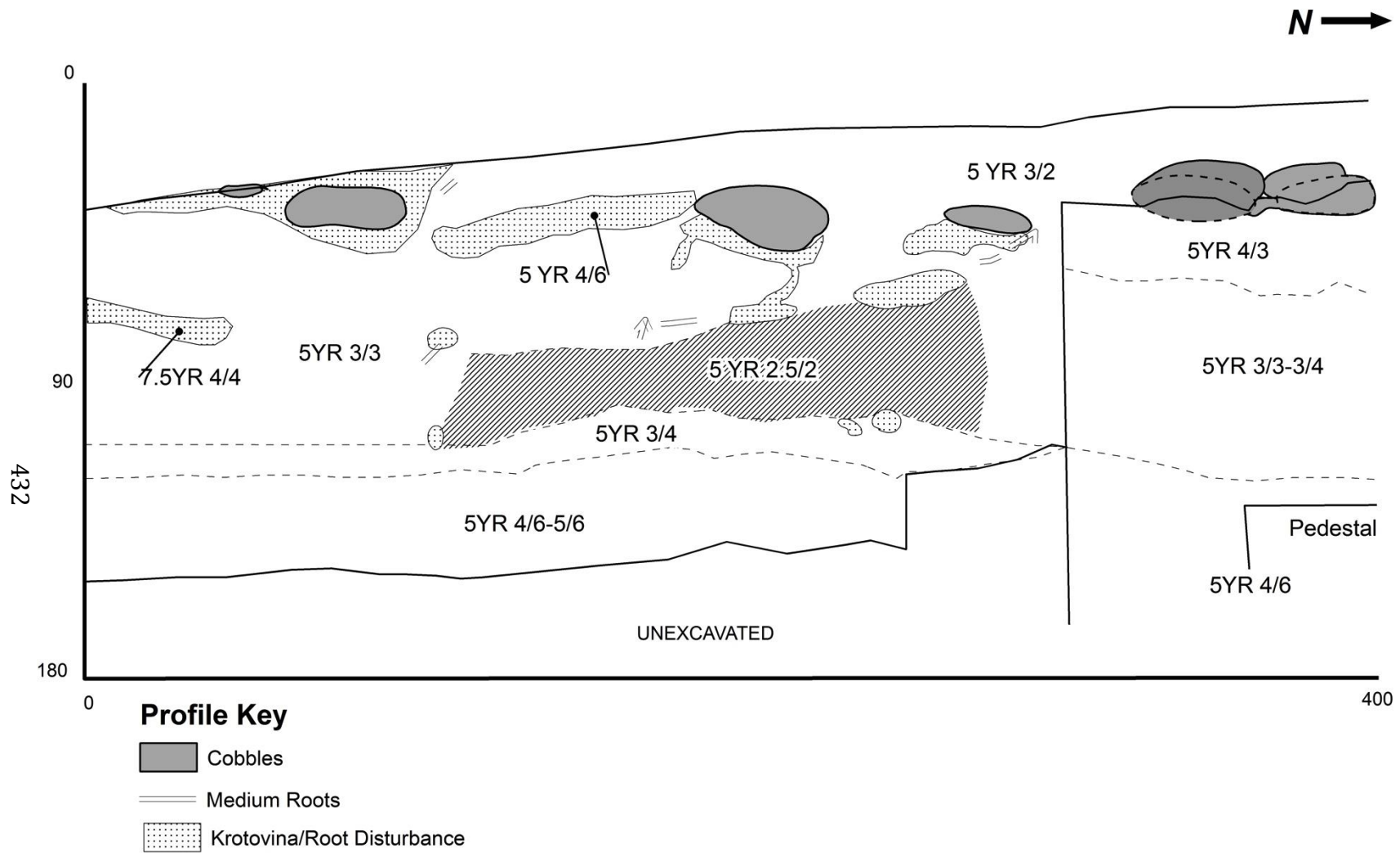


Figure A 2: Operation A West Wall of Units 17 and 18 showing Feature 10 unexcavated to the north (units in cm)

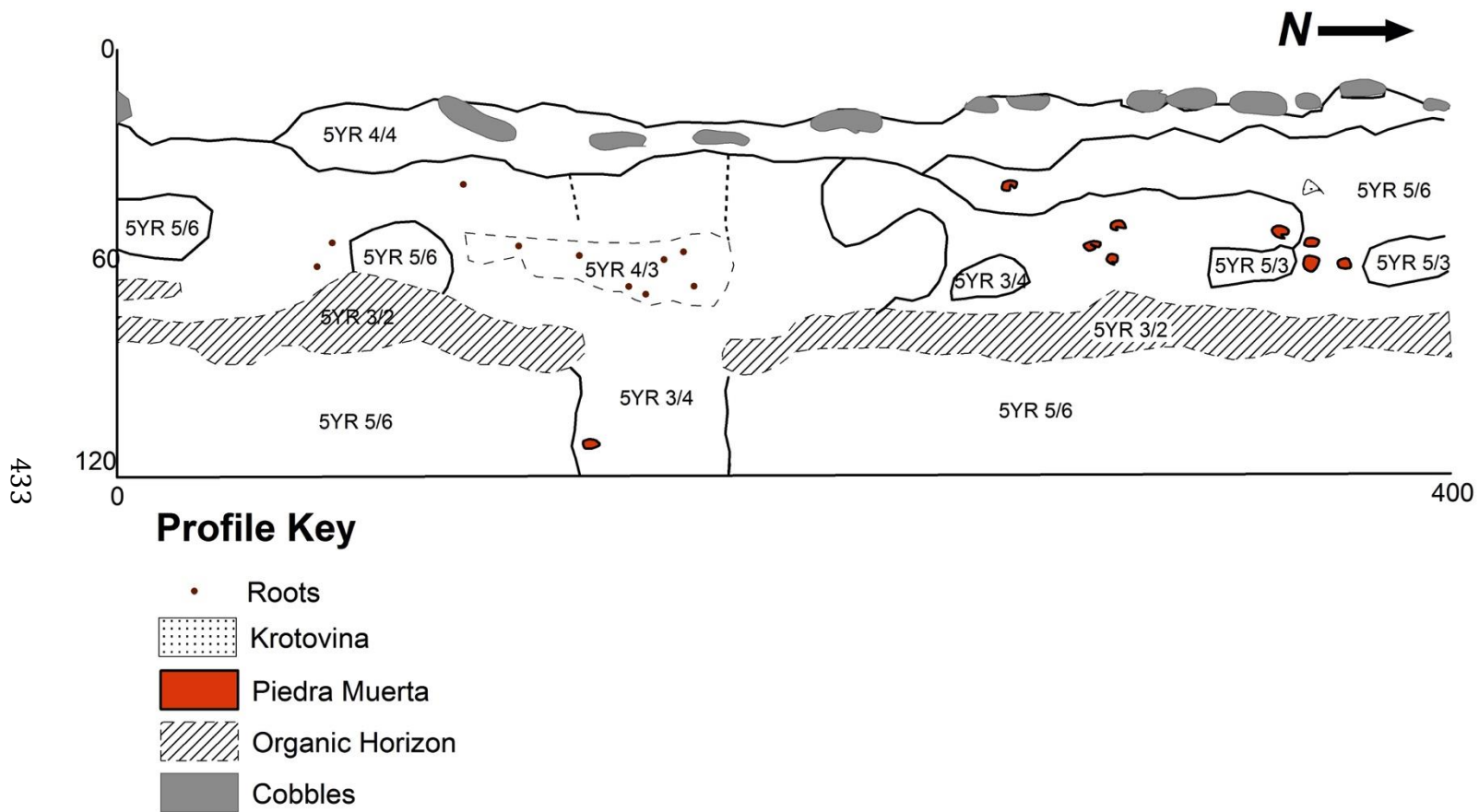


Figure A 3: Operation A West Wall of Units 3 and 4 (units in cm)

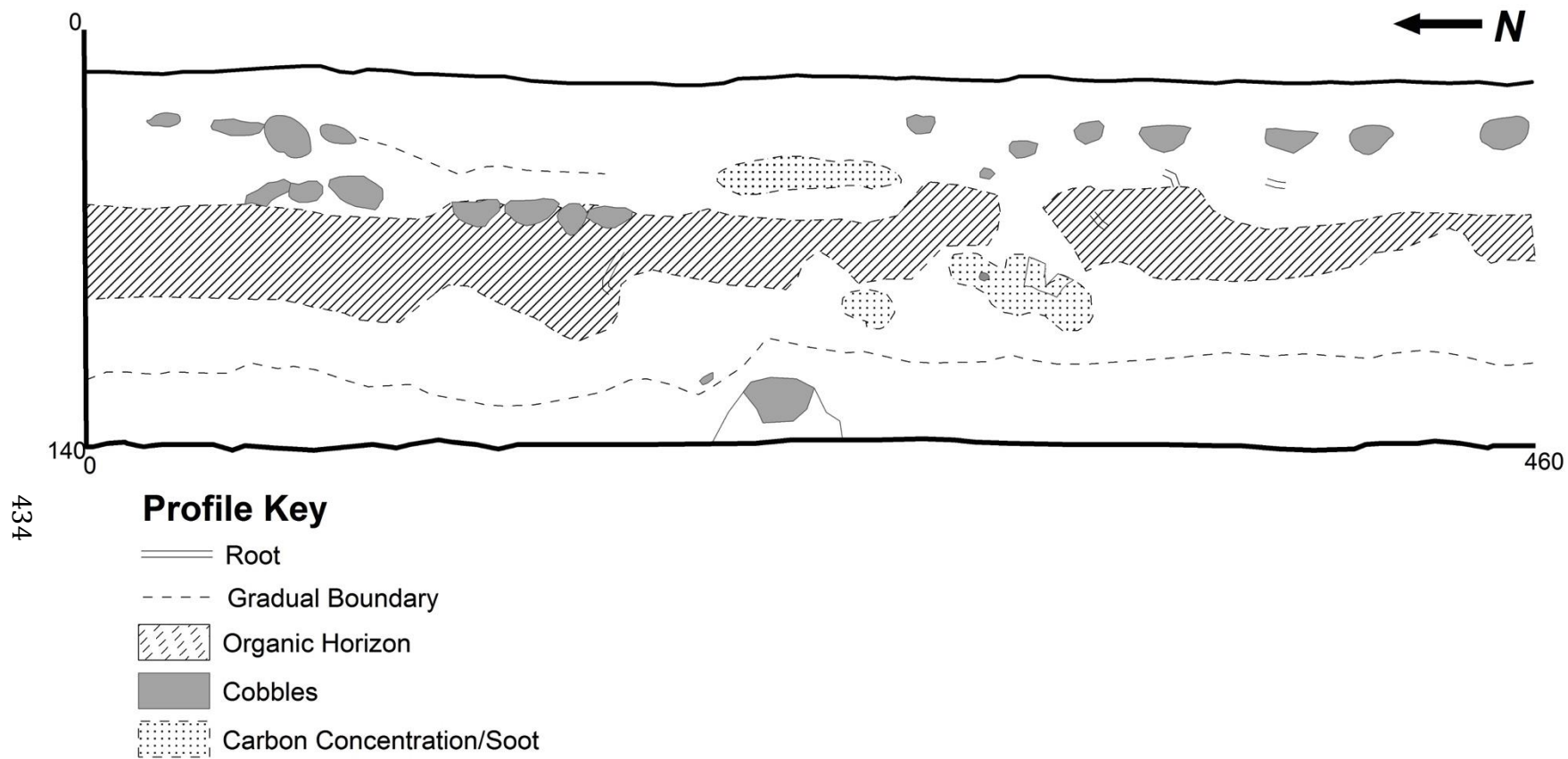


Figure A 4 Operation A East Wall (units in cm)

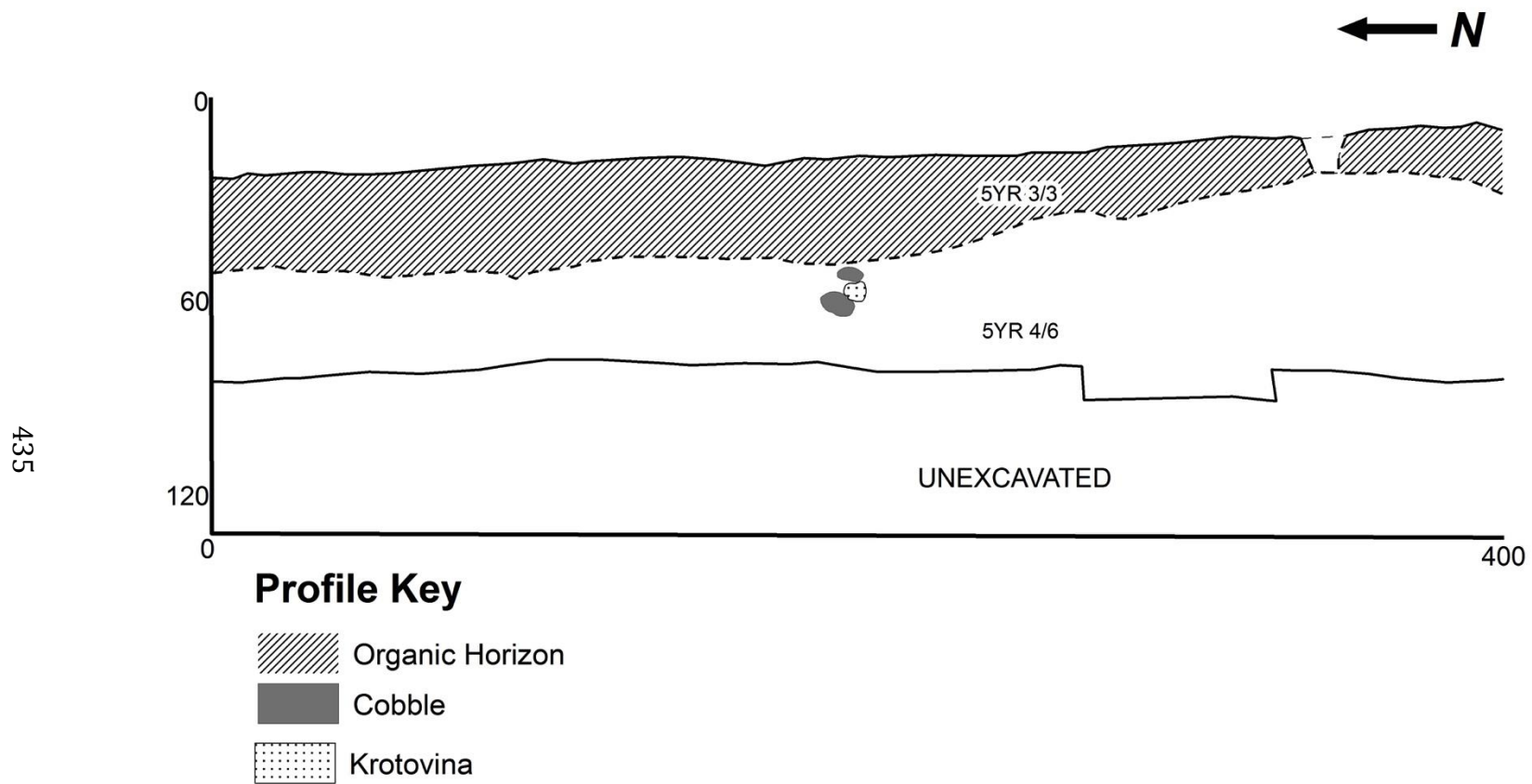


Figure A 5: Operation B East Wall (units in cm)

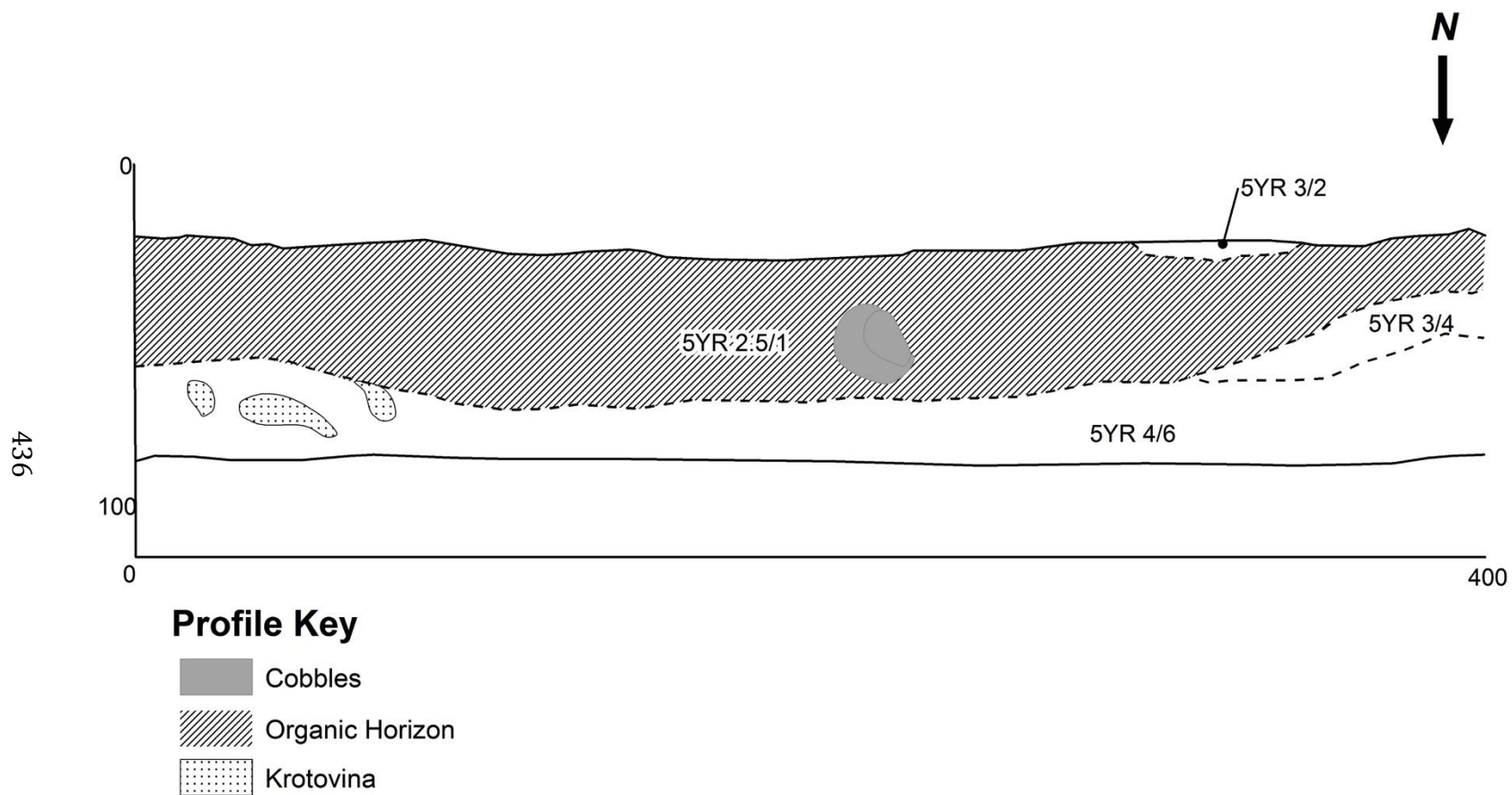


Figure A 6: Operation B South Wall (units in cm)

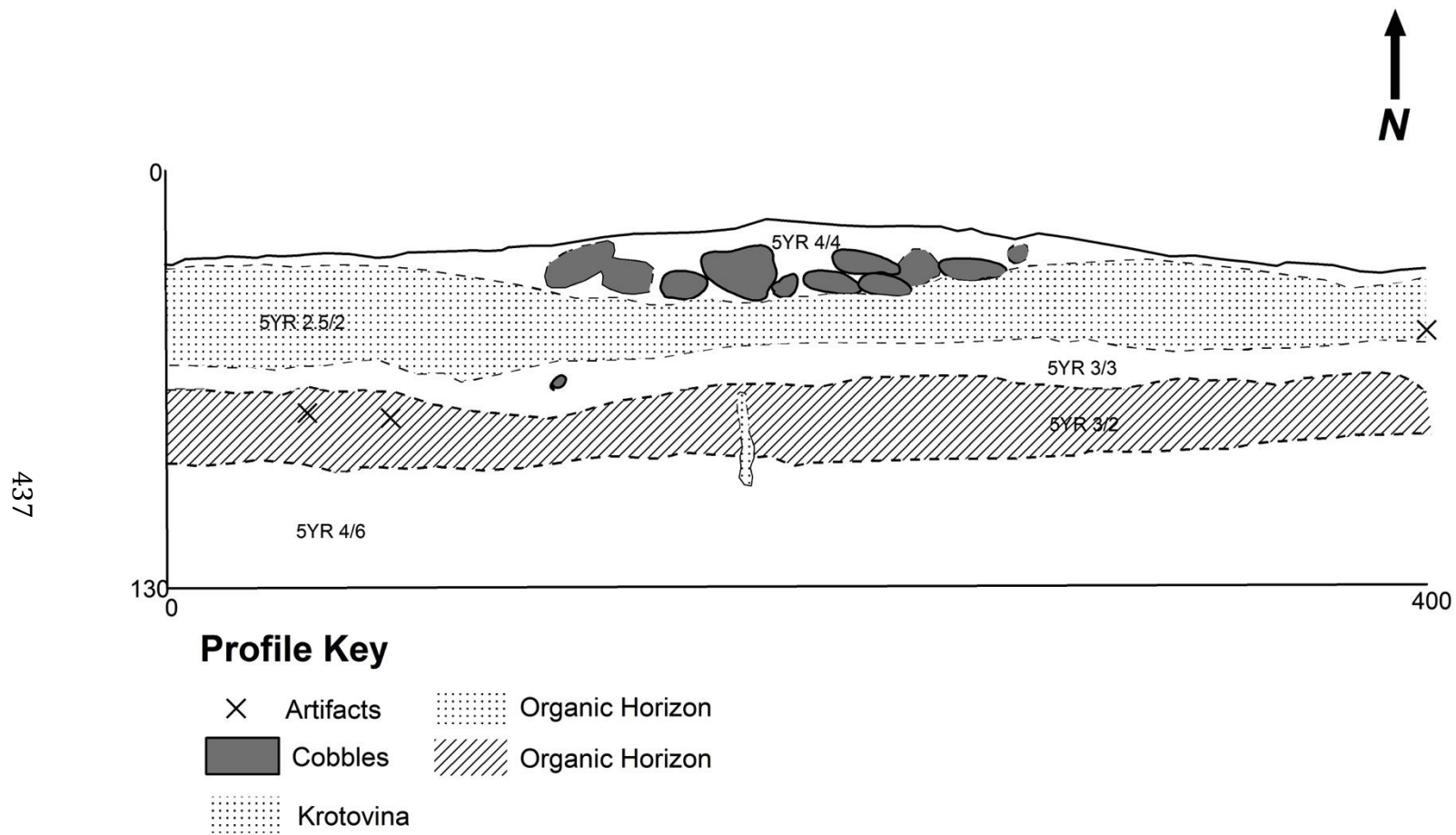


Figure A 7: : Operation C North Wall profile showing cluster of disturbed cobbles and lower organic horizon (units in cm)

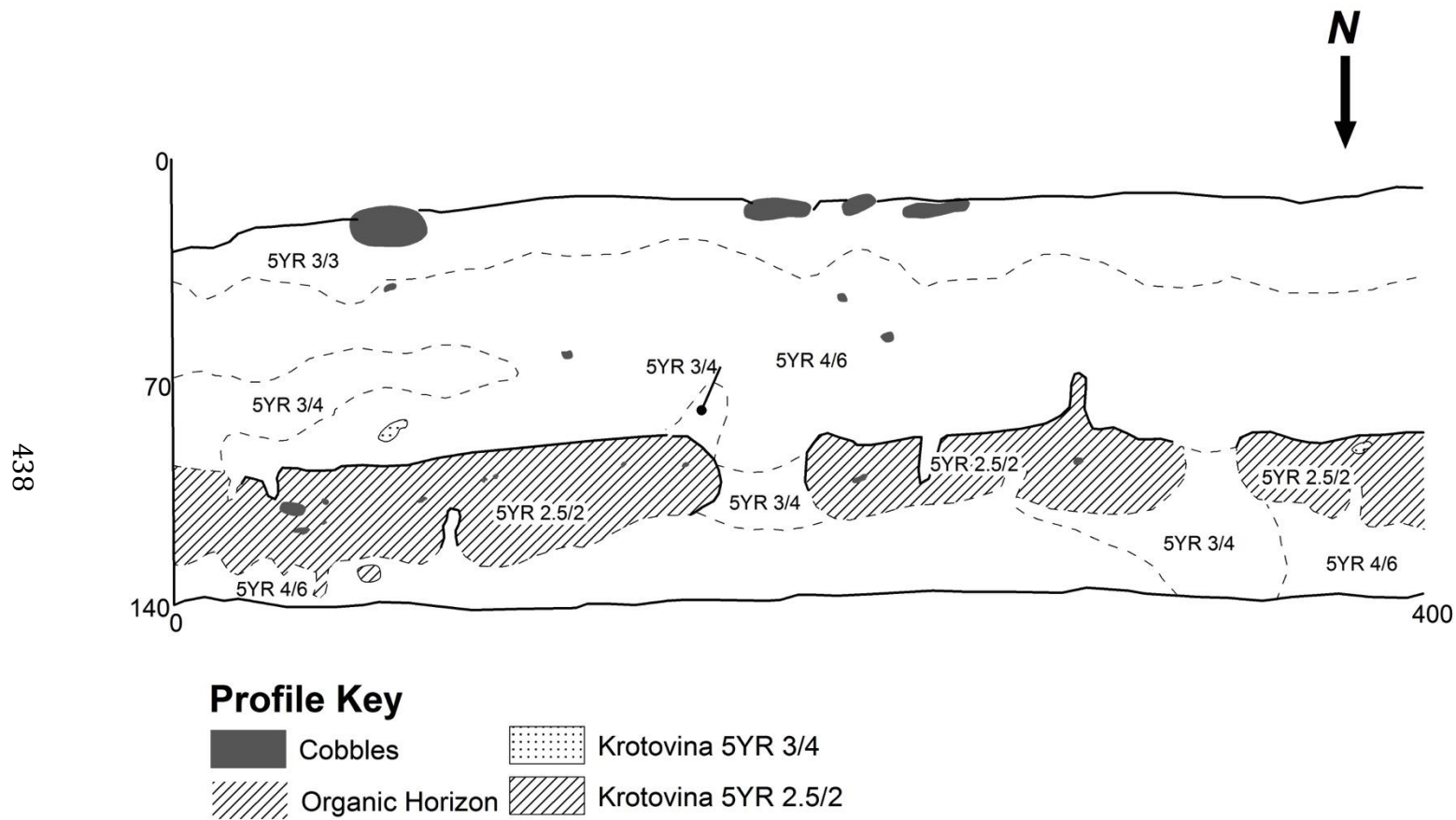


Figure A 8: Operation C South Wall showing organic horizon (units in cm)



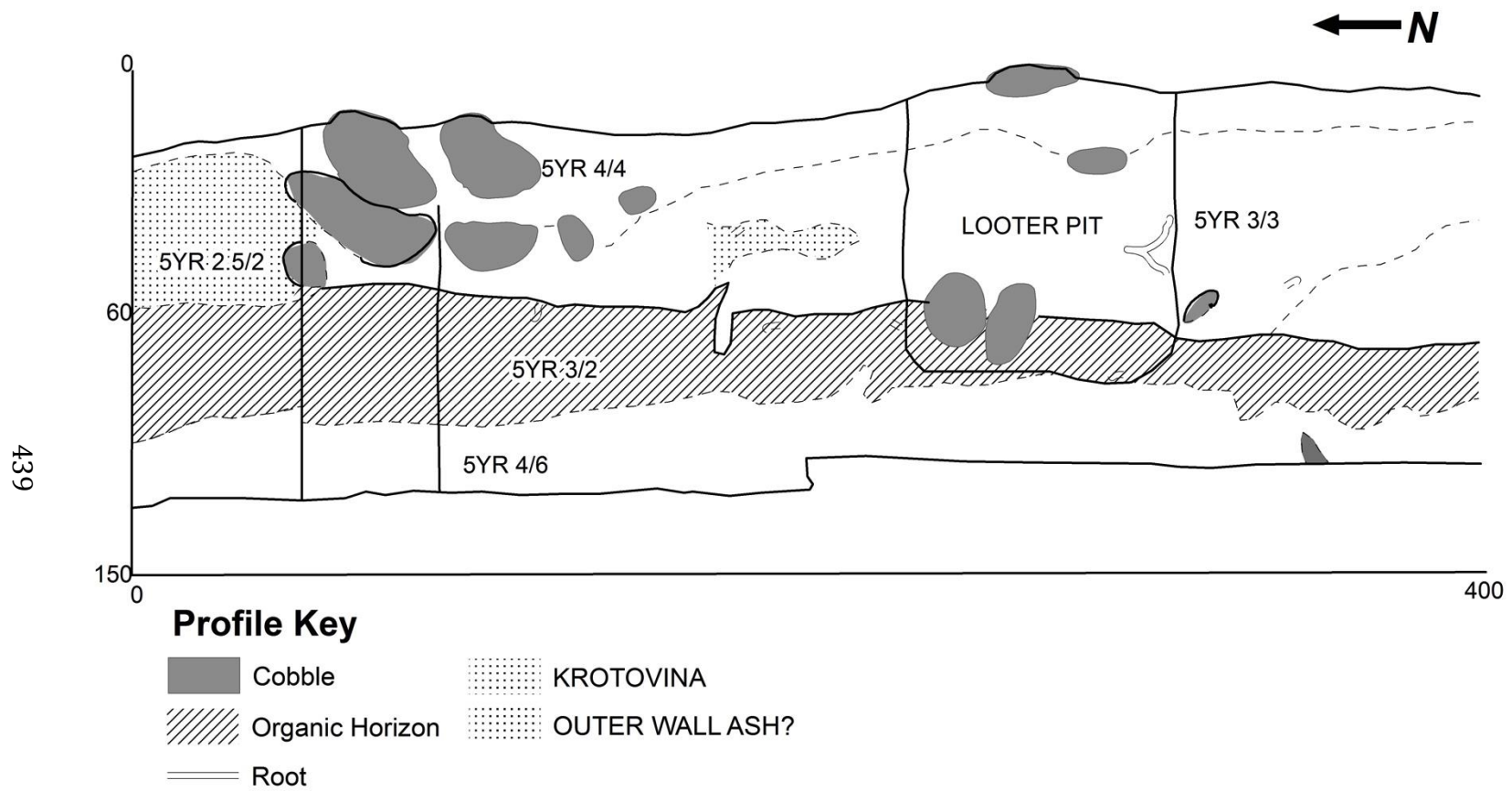


Figure A 9: Operation C East Wall with cobble masonry to the North, organic horizon and looter pit shown (units in cm).



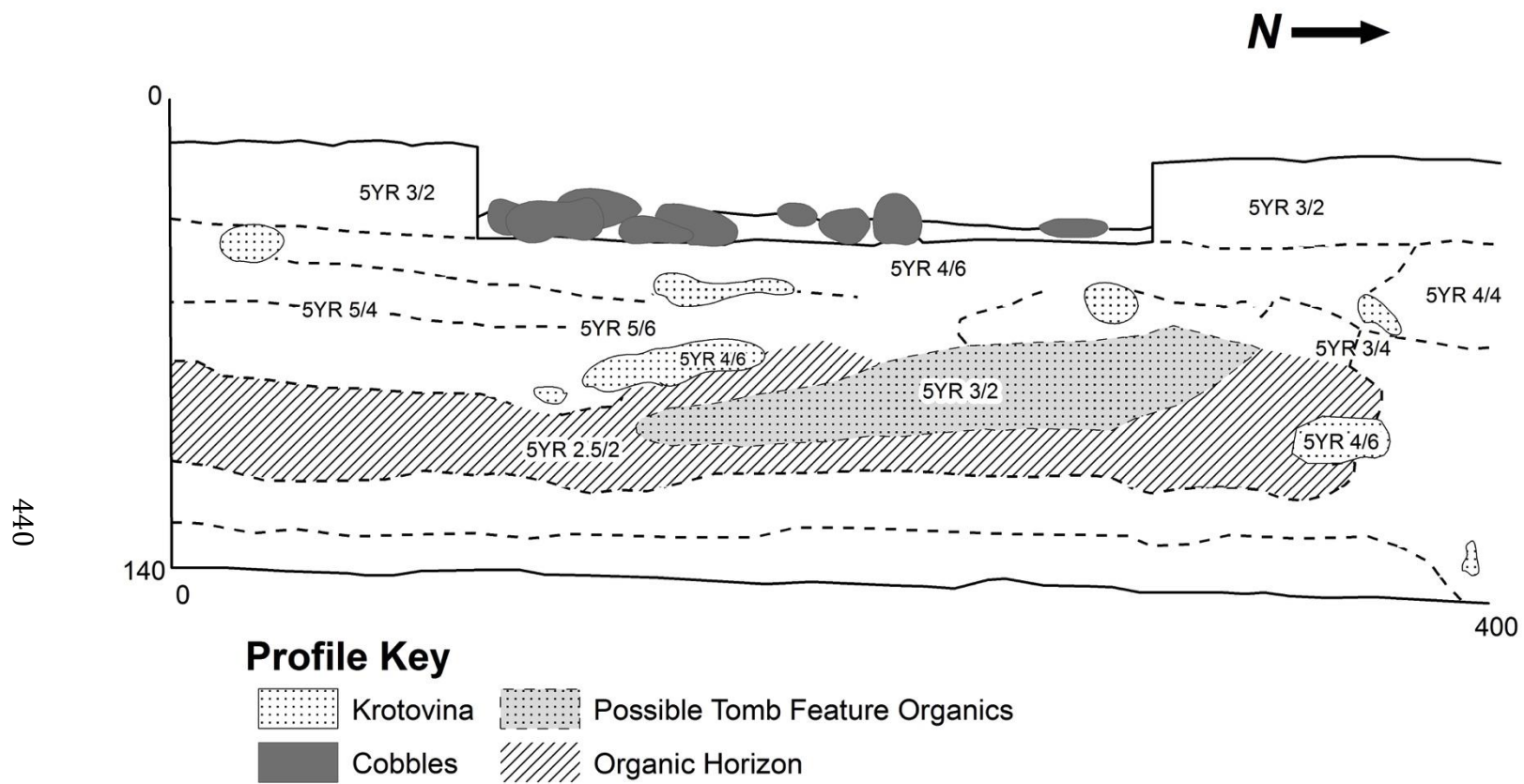
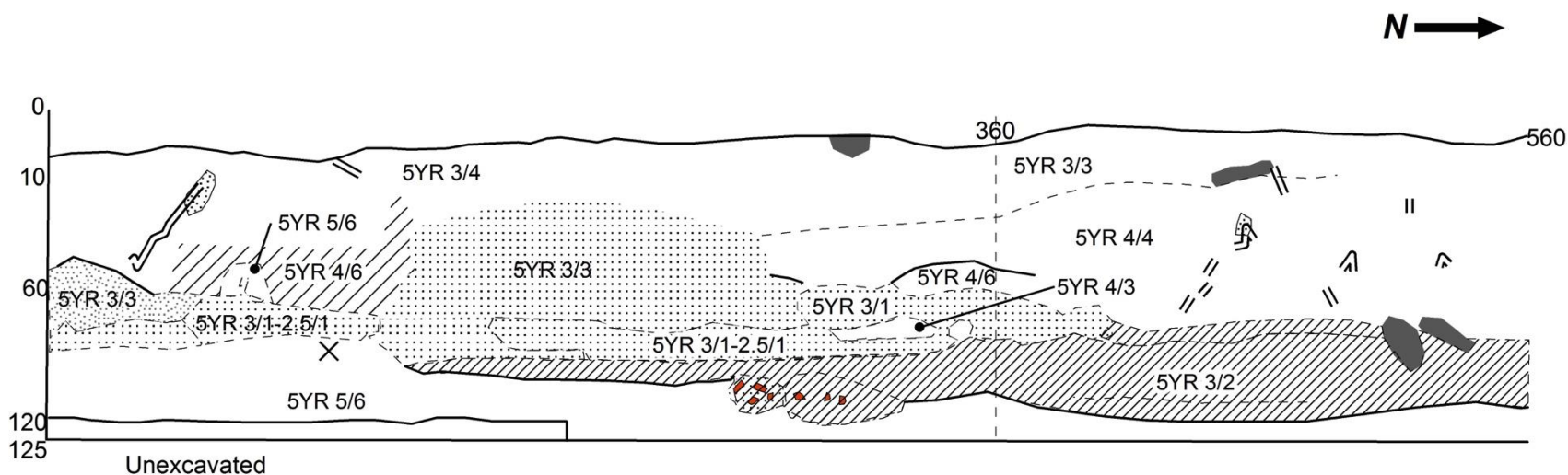


Figure A 10: Operation D West Wall Showing Organic Horizon and Feature 4 Outer Wall Profile (units in cm).



### Profile Key

- |       |                        |  |                      |
|-------|------------------------|--|----------------------|
| ×     | Artifact               |  | 5YR 3/3 Clay Loam    |
| —     | Upper/Lower Boundaries |  | Piedra Muerta        |
| - - - | Dashed                 |  | Root                 |
| - - - | Dashed Dividing Line   |  | 5YR 4/6 Silty Clay   |
|       | Root                   |  | Organic              |
|       | 5YR 4/6 Silty Clay     |  | Krotovina            |
|       | Krotovina              |  | Carbon Rich Organics |
|       | Carbon Rich Organics   |  | Cobbles/Pebbles      |

Figure A 11: Operation D East Wall

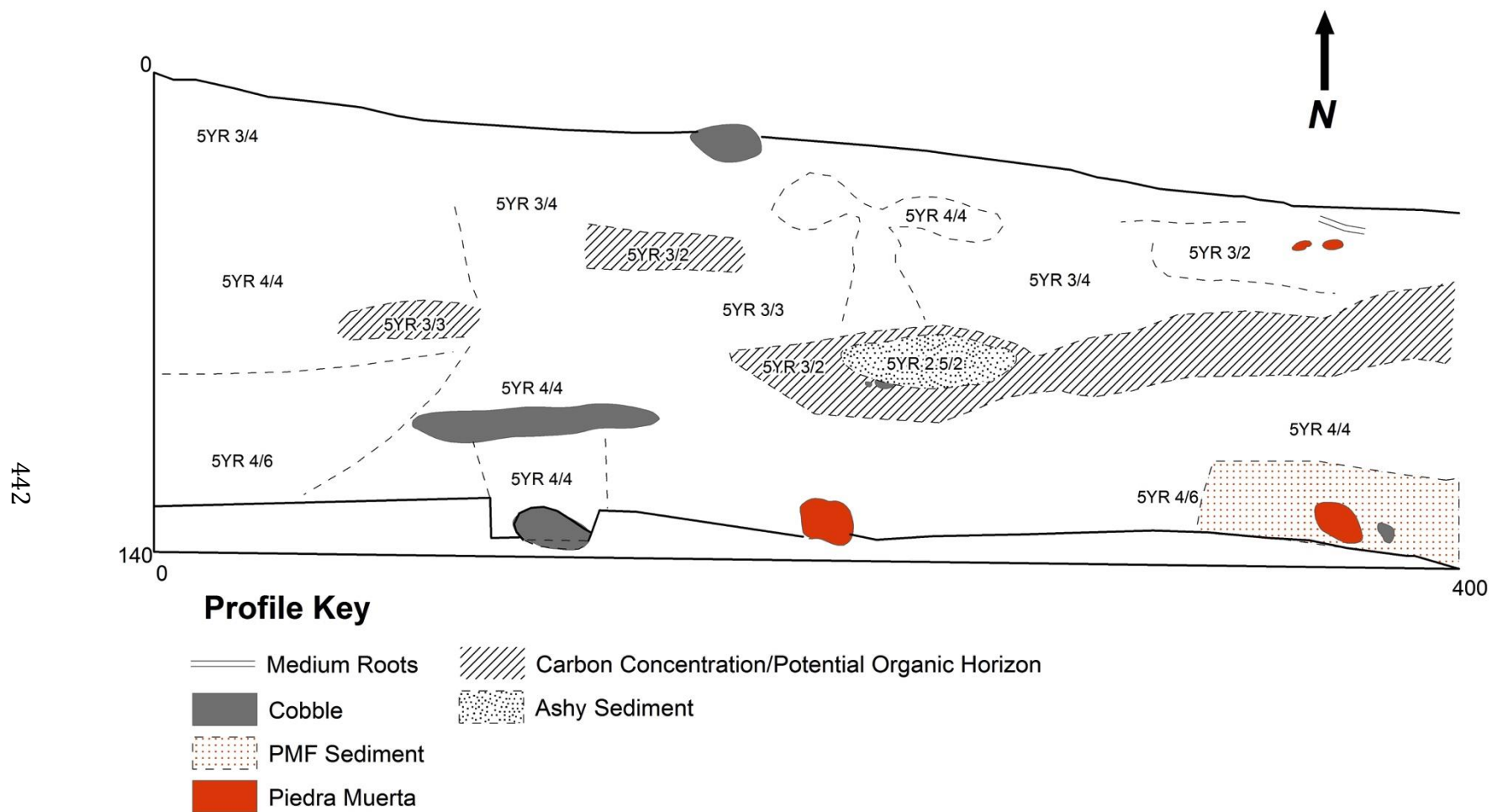
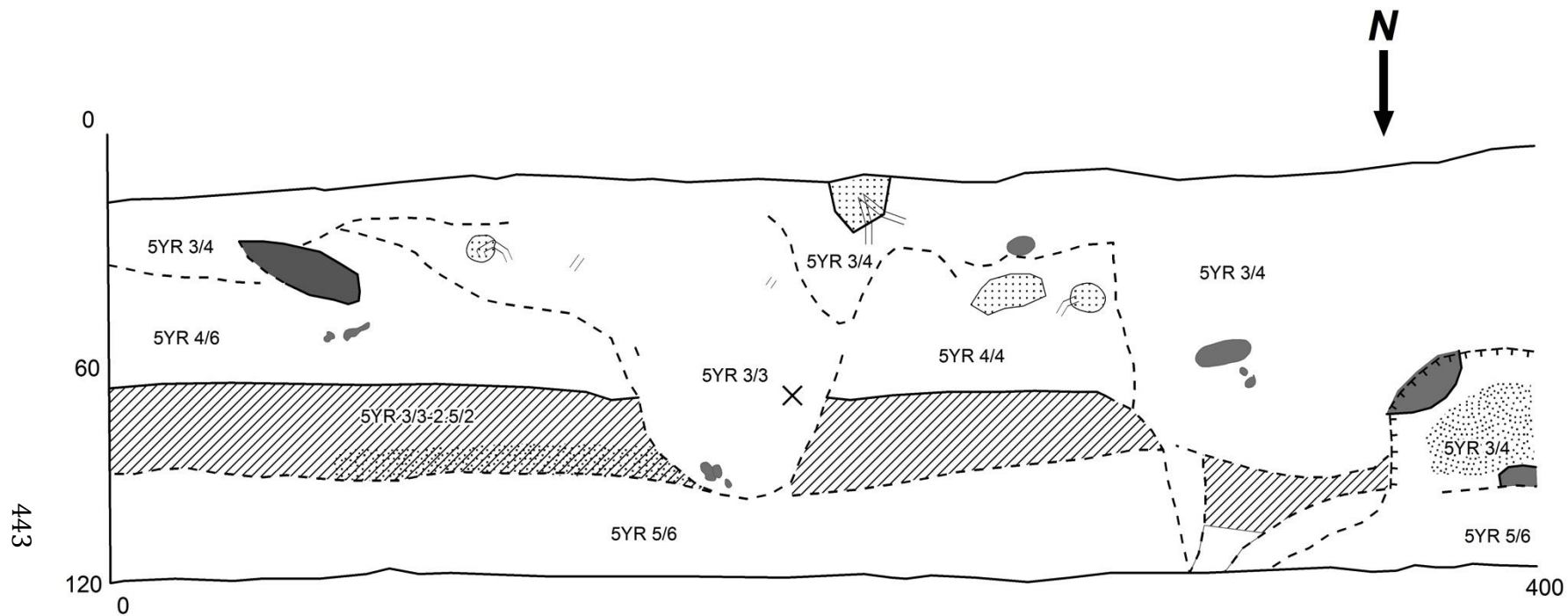


Figure A 12: Operation E North Wall Profile



### Profile Key

×	Artifact	—	Medium Roots
	Intrusion/Krotovina		Krotovina
	Organic Horizon		Cobble/pebble
	Ashy Sediment		

Figure A 13: Operation E South Wall Profile

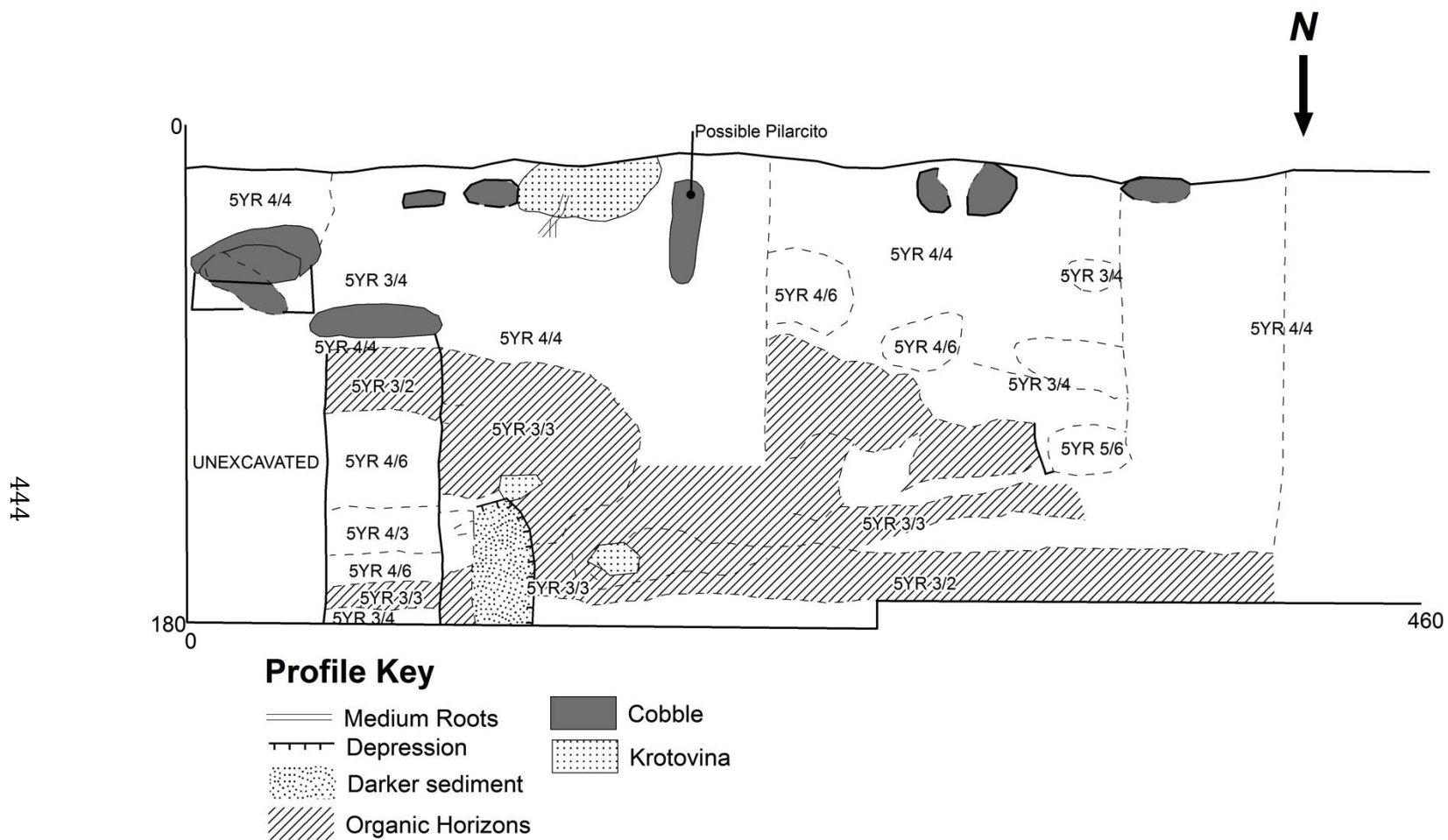


Figure A 14: Operation F South Wall Profile

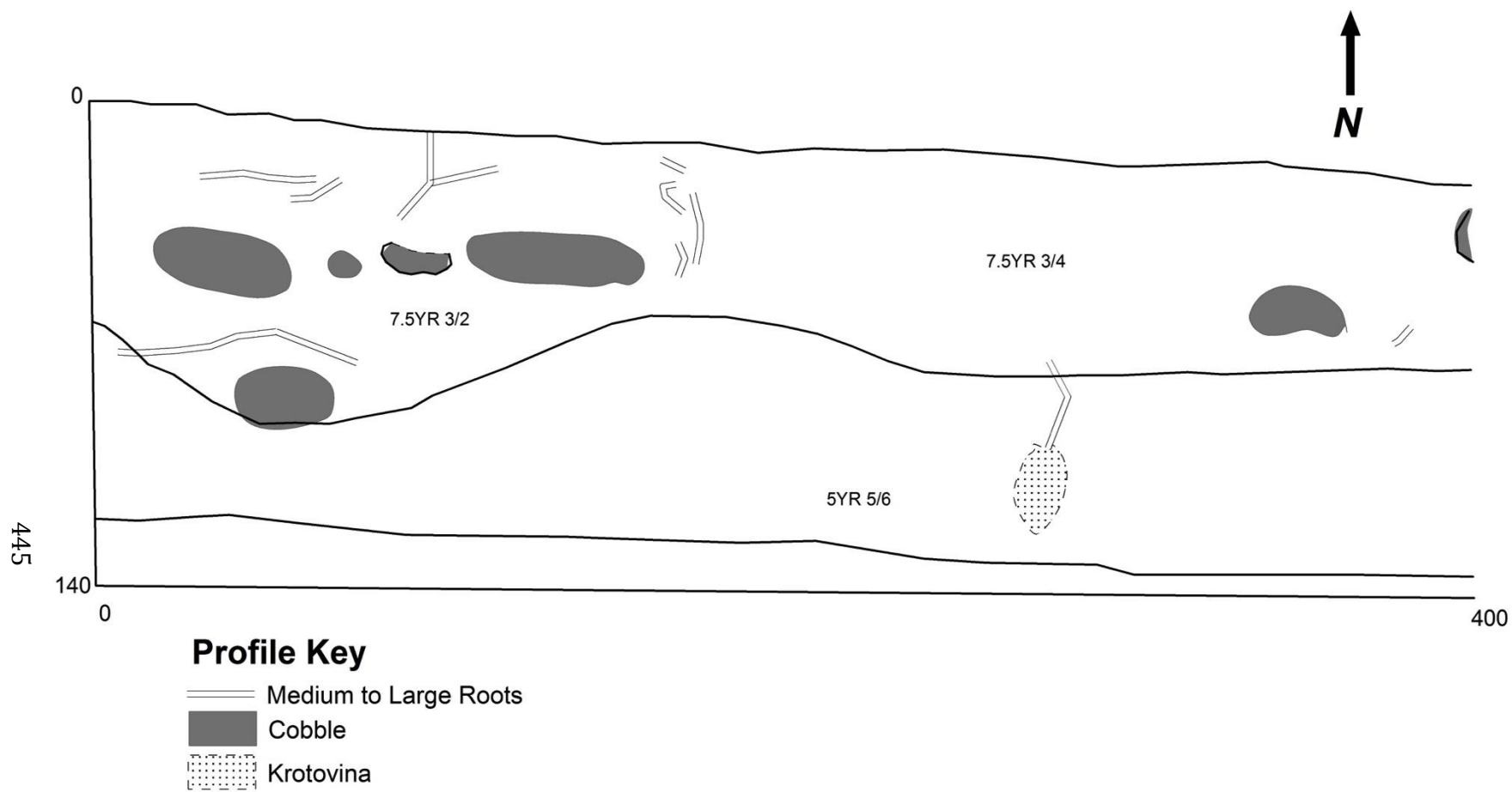


Figure A 15: Operation G North Wall Profile

## Appendix B: Select Ceramic Sherd Profiles and Illustrations

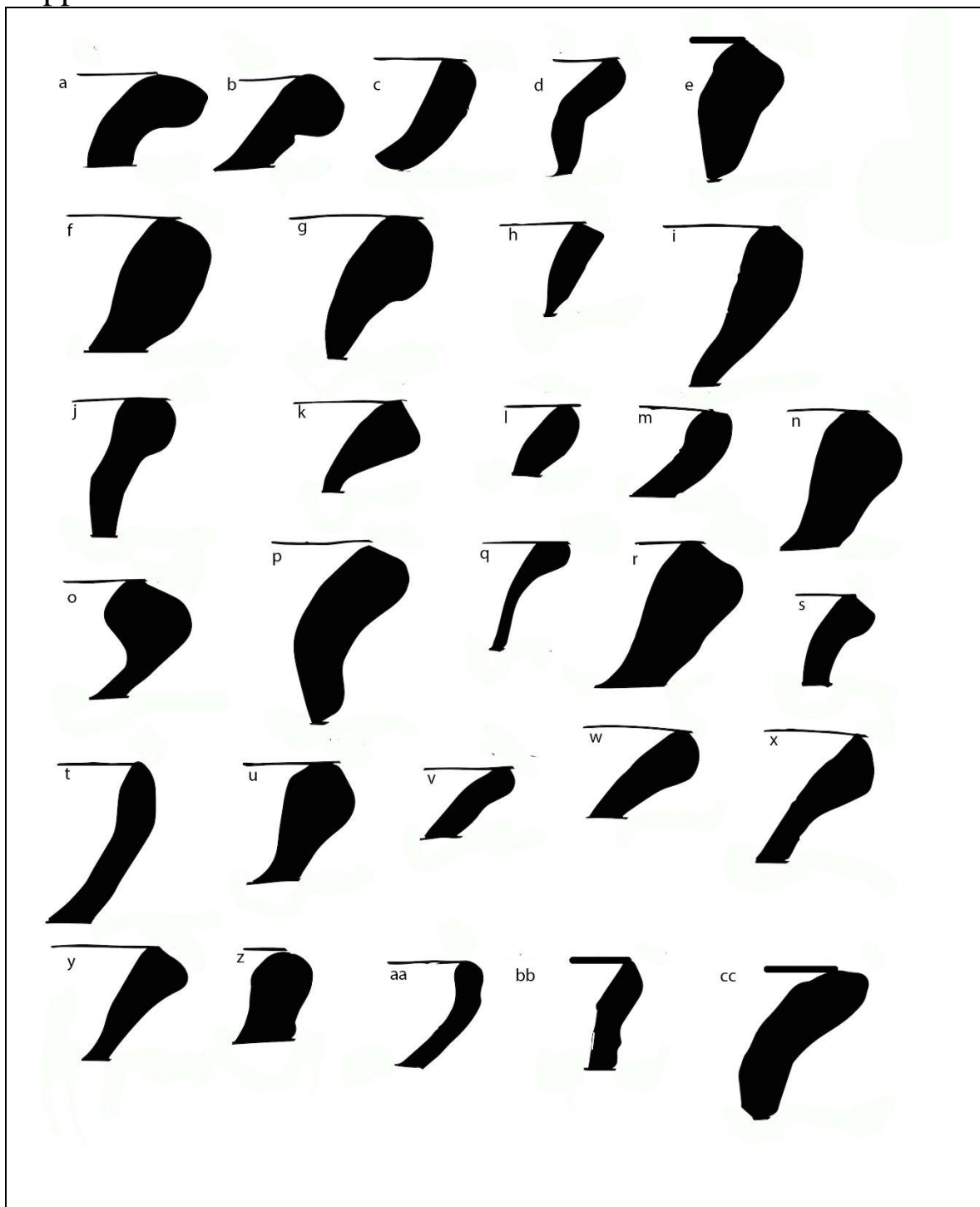


Figure B 1: Select Rim Profiles. a-b from N1034/E993. u-cc from N1038/993. (Quebradas Plain: a,c; Quebradas Incised: e,g,i,j,r,s,cc; Aguas Buenas General: l,t,u,v,x,y; Aguas Buenas Moravia: b,o,p,w,z,bb; Cerro Punta Cotito: aa; Unknown: d,f,h,k,m,n,q)



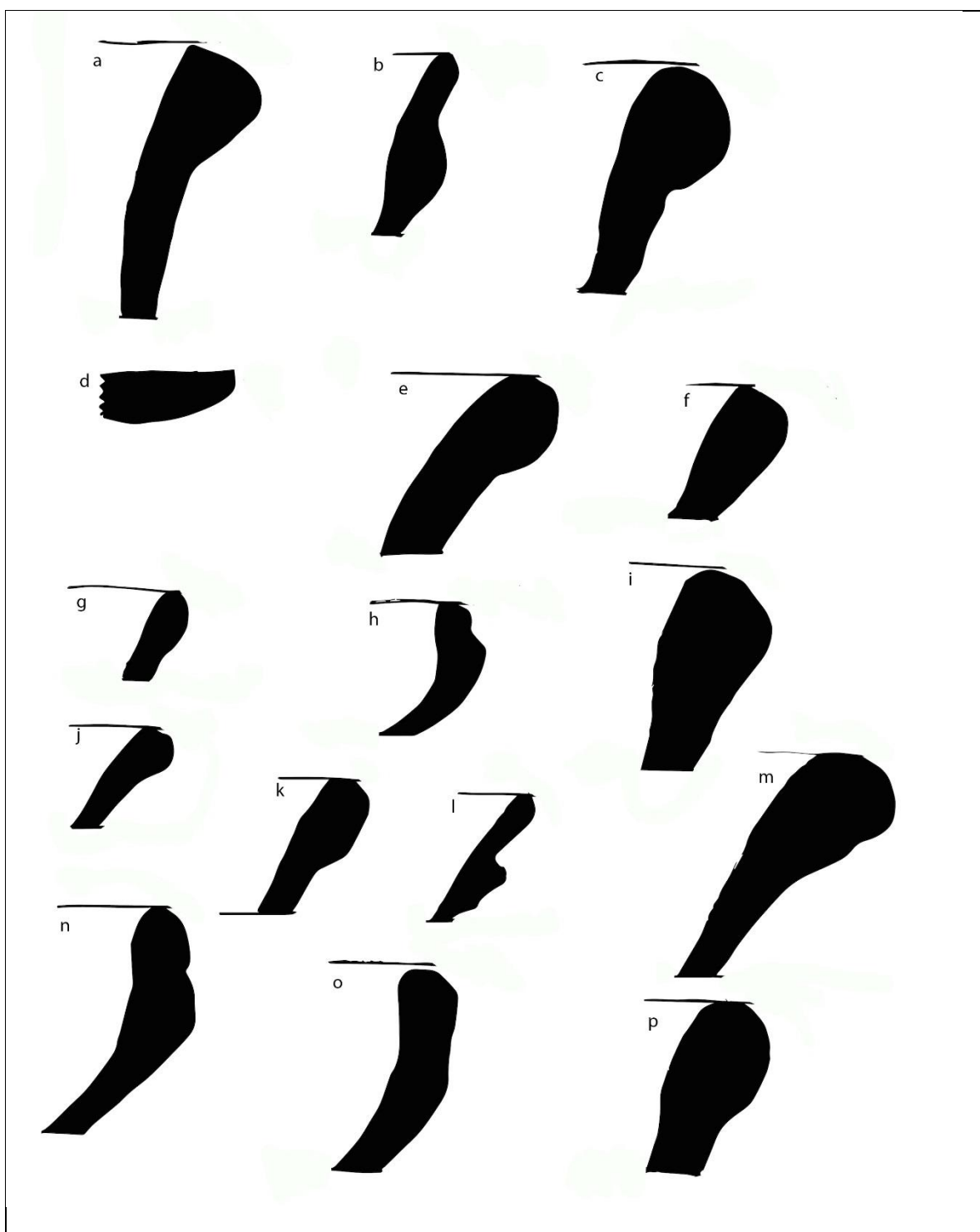
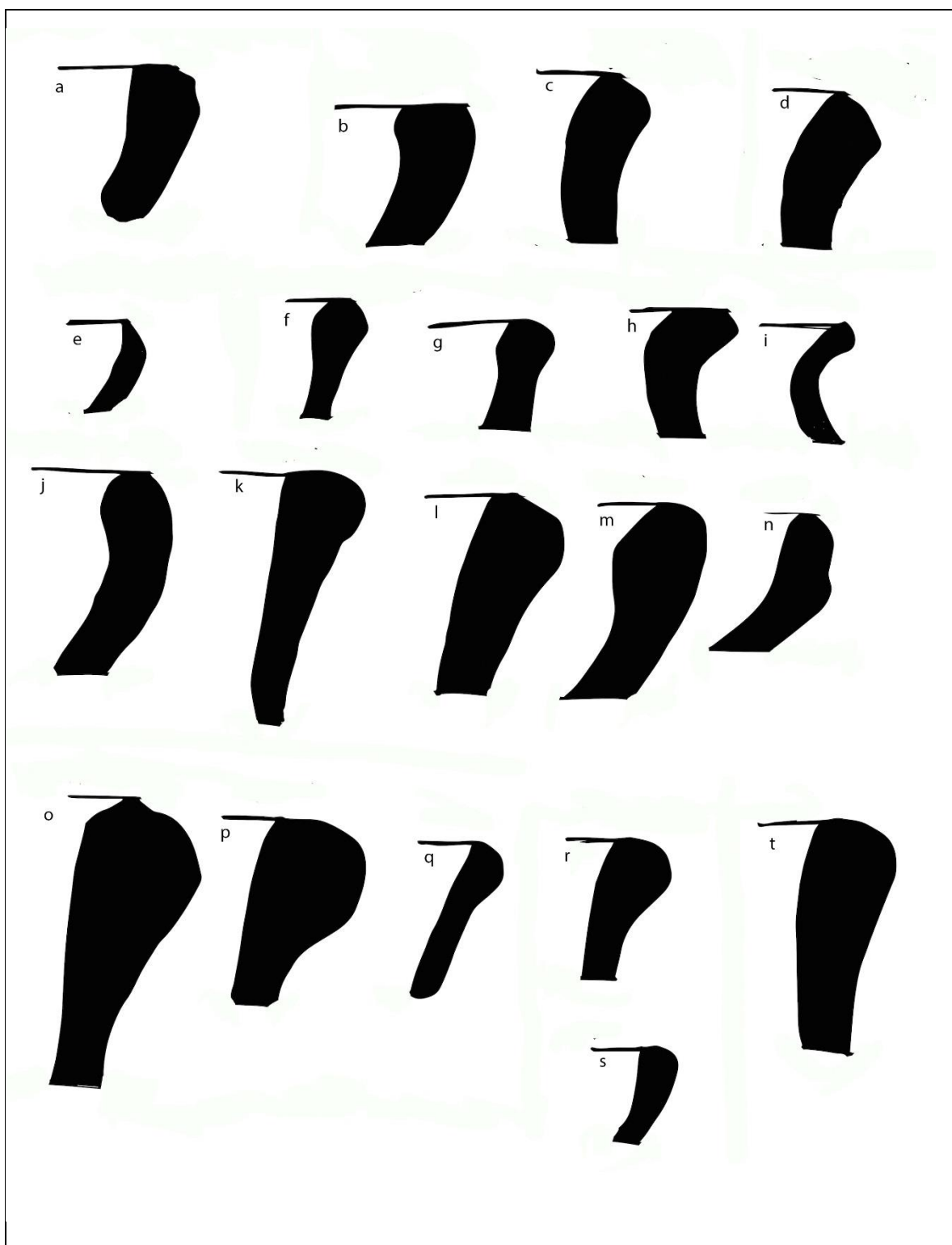
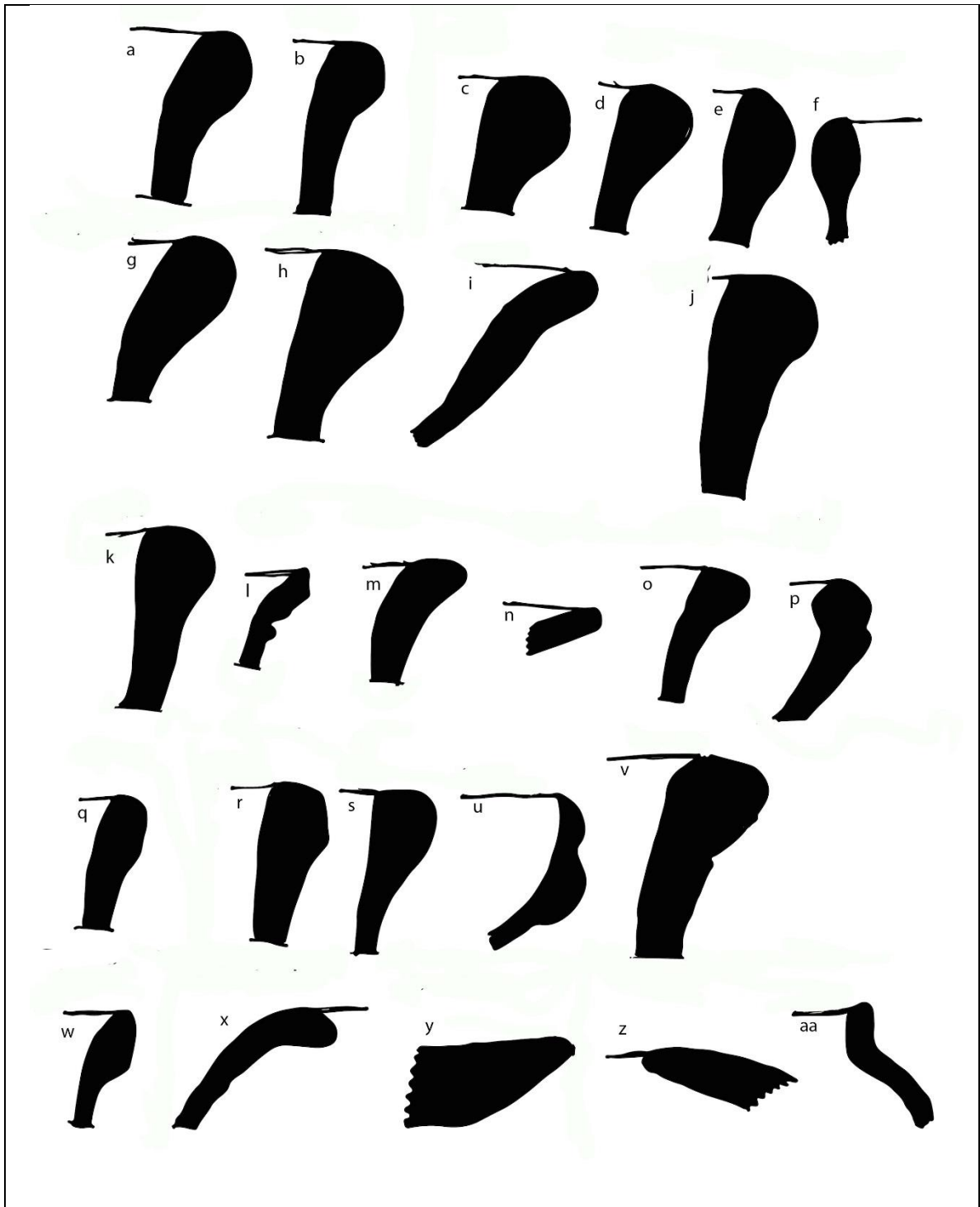


Figure B 2: Select Rim Profiles from N1038/E993 (Quebradas Plain: d,e,f,g,i,k; Quebradas Incised: c,m,p; Aguas Buenas General: a,j,o; Corral: b,h,l,n)





**Figure B 3: Select Rim Profiles from Surface Collection: (Quebradas Plain: b,c,f,g,h,l,o,r,t; Quebradas Incised: e; Aguas Buenas General: d,q,s; Aguas Buenas Moravia: j,m,p; Corral: a,n; Cerro Punta: i)**



**Figure B 4: Select Rim Profiles from Surface Collection: (Quebradas Plain: a,b,c,d,g,h,j,k,q,r,s,v,aa; Quebradas Incised: y; Quebradas Tecomate: z; Aguas Buenas General: e,f,w; Corral: l,p,u; Cerro Punta: i,m,n,o; N/A: x)**

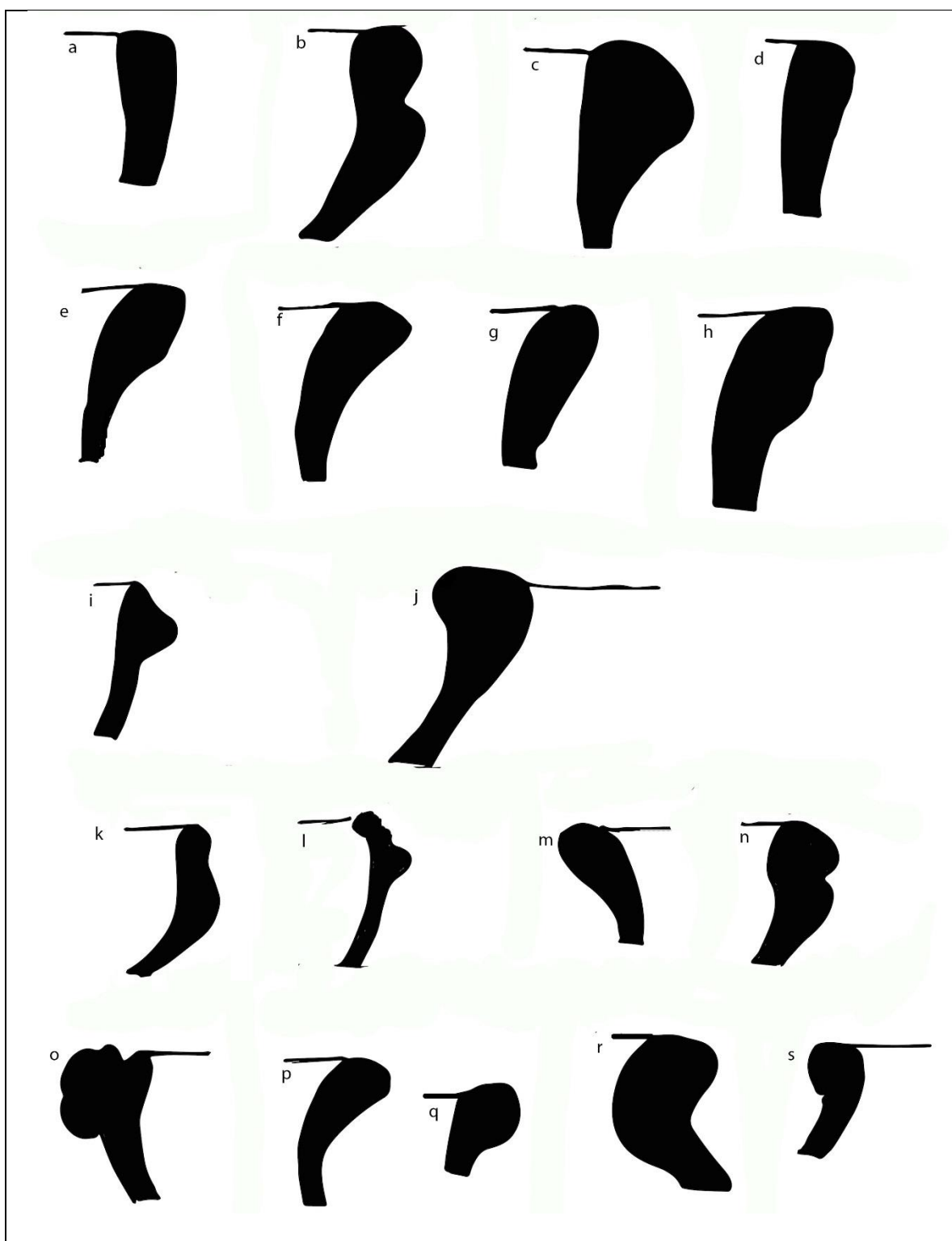


Figure B 5: Select Rim Profiles from Surface Collection (a-k); C9L2(l);B5L1(m);C9L3 (n); C12L5 (o); C9L6 (p,q); C12L7 (r); C9L8 (s) : (Quebradas Plain: c,d,e,f,m,s; Quebradas Incised: a,b,g,h,i,j,r; Aguas Buenas General: p,q; Corral: k,l,n,o) Site Designation example: (Op)C (Unit)9 (Level)L2

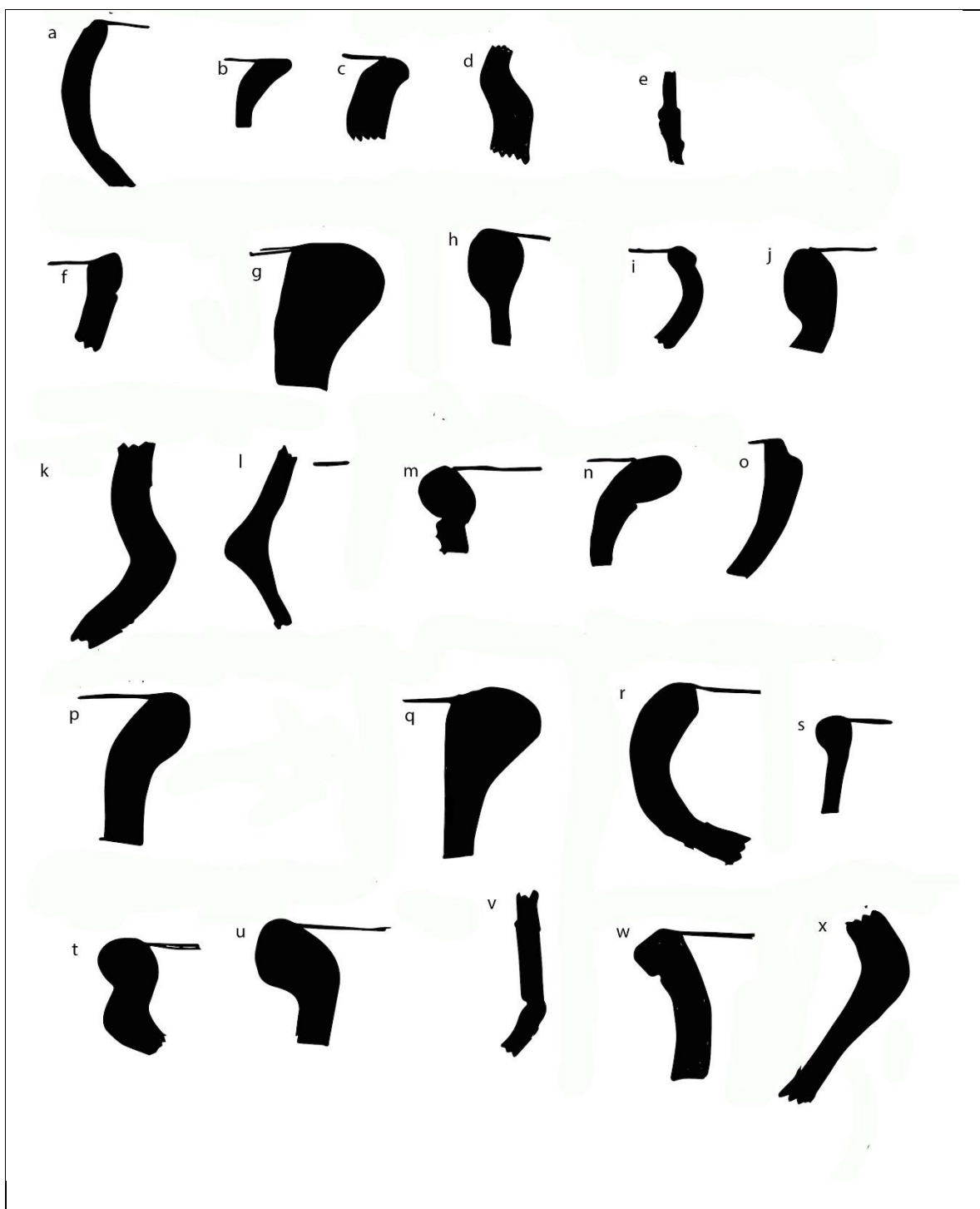


Figure B 6: Select Rim and Body Profiles from C9L8 (a-e); B6L2(f);B8L2(g);B6L3 (h); B8L3 (i,j,k,l); C12L8 (m,n,o); C9L9 (p,q); C12L9 (r,s,t,u,v); C9L10 (w);D15L1 (x) : (Quebradas Plain: c; Quebradas Incised: d,e,f,g,j,v,x; Aguas Buenas General: a,r,u; Corral:o,t; Cerro Punta: b,h,i,k,l,m,n,p,w; Bambito:q,s) Site Designation example: (Op)C (Unit)9 (Level)L2

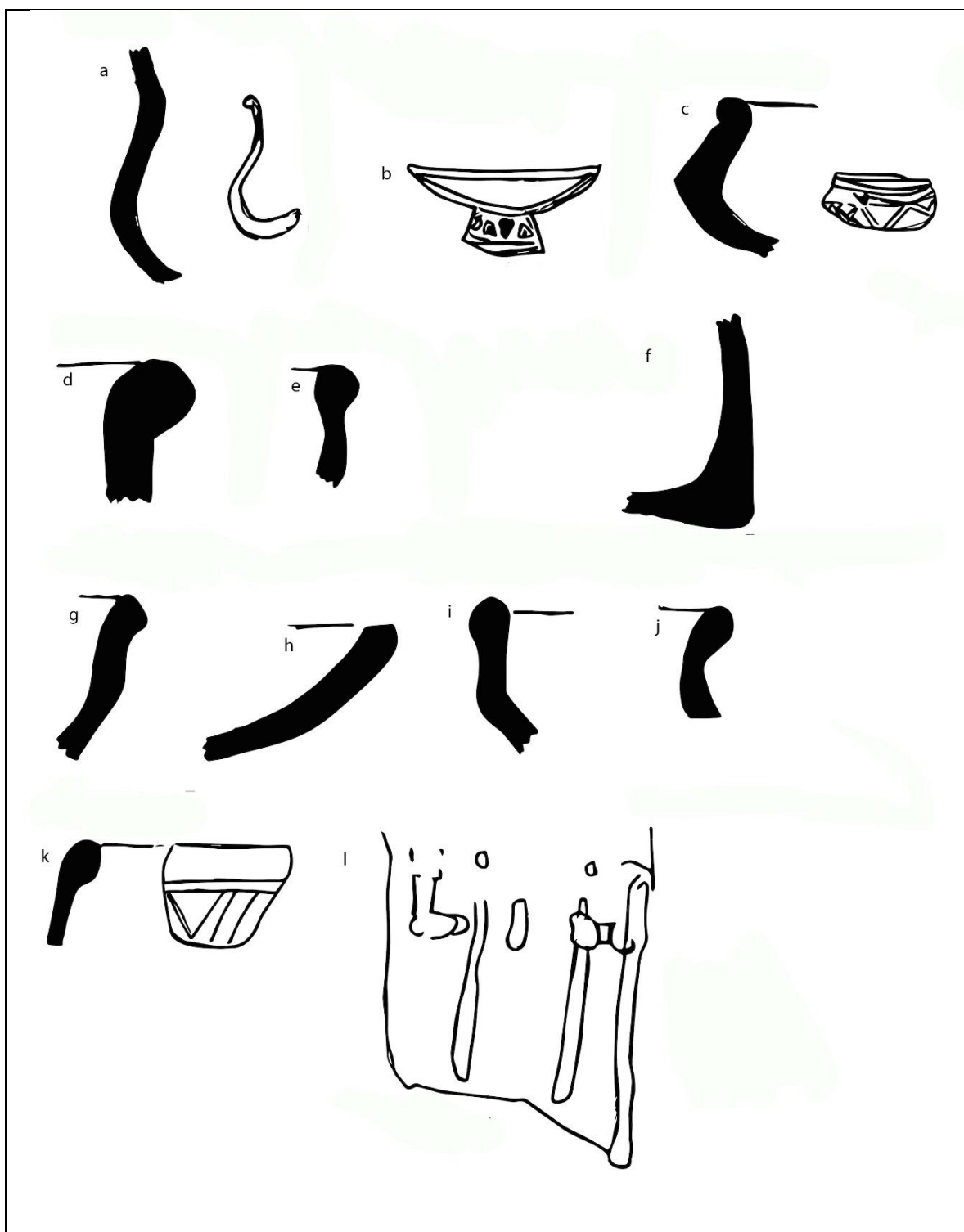


Figure B 7: Select Rim Profiles and Support Drawings from A17L2 (a); D13L2(b); from nearby quebrada(c,d);D16L1(e); C9L13 (f); D14L2 (g,h); D16L2 (i,j); A18L3 (k); support with standing "chief" motif from Batambal (l) : (Quebradas Incised: d; Aguas Buenas General: a,f; Corral:c; Cerro Punta: i; Sangria Red Fine:b,h; Ceiba Rojo:j; Chiriquí General:g; Bugaba Engraved:k; Unknown:e) Site Designation example: (Op)C (Unit)9 (Level)L2

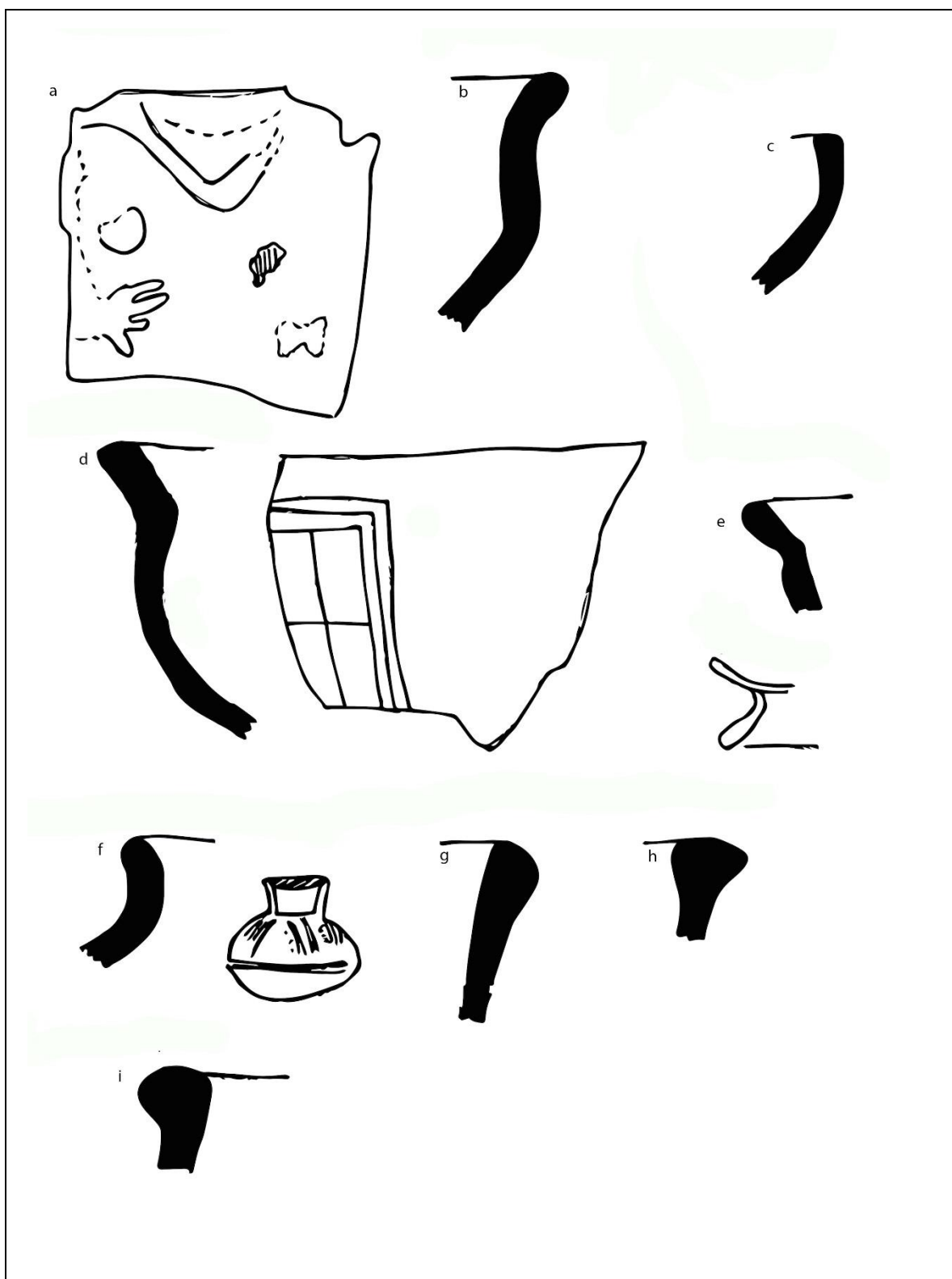


Figure B 8: Select Rim Profiles and Support Drawings from C11L2 (a); D14L3(b,c); D16L3(d); C11L3 (e); D15L3 (f,1); D15L4 (g): (Support with standing "chief", compare to example from Batambal (a) : Corral: e; Sangria Red Fine: b,h; Ceiba Incised: j; Chiriquí General [Turucaca?]:g; Bugaba Engraved: d; Unknown: g [Sangria?],h [El Bosque?],i [Sangria?]) Site Designation example: (Op)C (Unit)9 (Level)L2

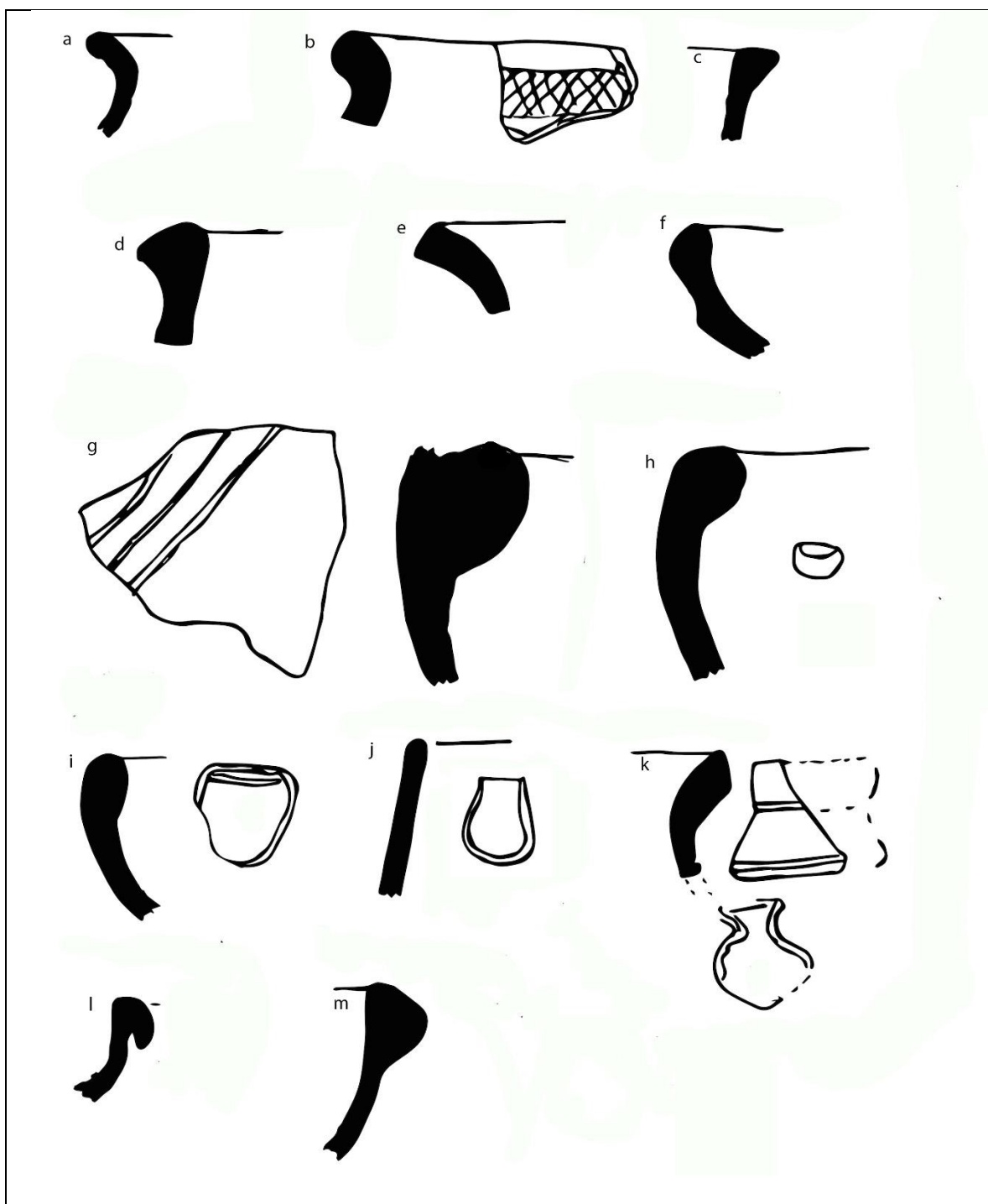


Figure B 9: Select Rim Profiles from D13L5 (a); A3L5(b,c); D14L5 (d); A4L5 (e,f); D14L6 (g); C11L6 (h); C11L7 (i); C11L8 (j,k,l,m); (Quebradas Incised: d; Aguas Buenas General [Curré-like (Corrales pers.comm): b; Corral Red: h,l; Unknown: a, c[Valbuena?], d [Caribbean/Valbuena?]; e,f [Cerro Punta?],g,i,j,k,m) Site Designation example: (Op)C (Unit)9 (Level)L2

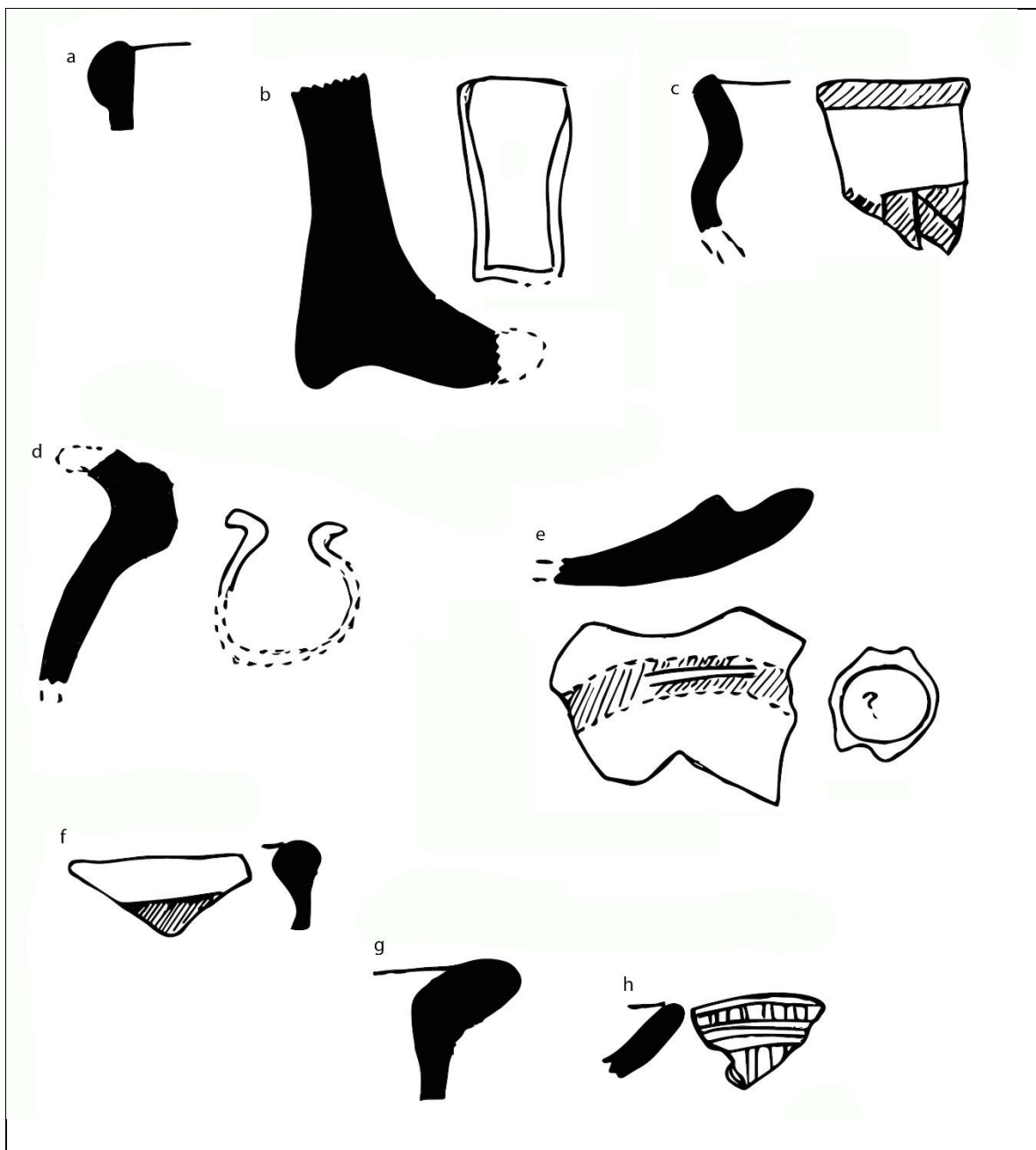


Figure B 10: Select Rim Profiles from A4L9 (a); C10L8 (b); D14L8 (c,d); D15L8 (e); C11L11 (f); D16L9 (g,h) : (Aguas Buenas General : b; Guarumal Cebaca: c,d; Corral Red [Plate?]: e; Unknown: a,f,g [early ceiba? (Corrales pers.comm)],h) Site Designation example: (Op)C (Unit)9 (Level)L2



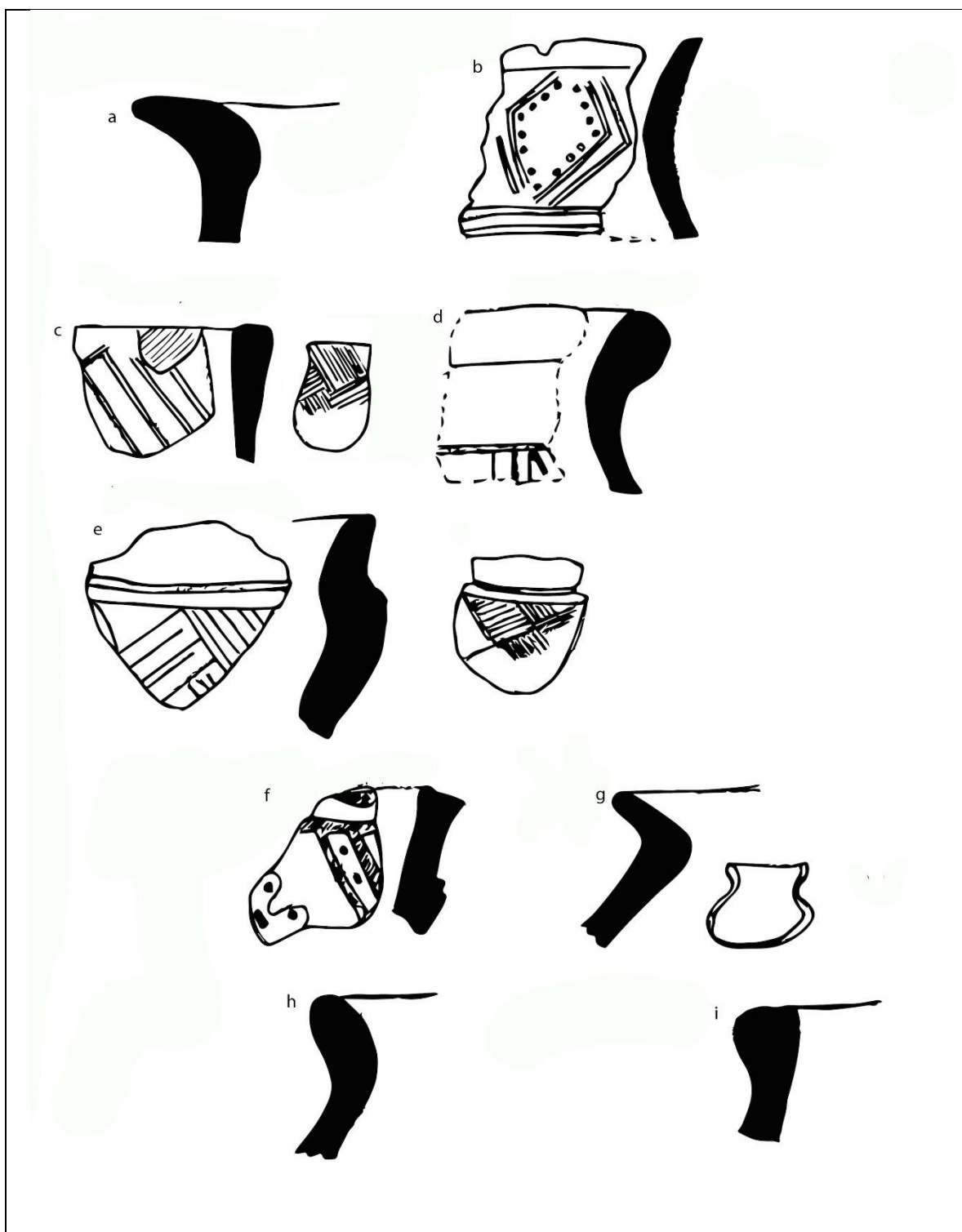


Figure B 11: Select Rim and Body Profiles from D28L7 (a); F24L3 (b); D14L10 (c, d); F24L5 (e); D13L10 (f); F26L6 (g); G29L1 (h); G31L1 (i) : (Quebradas Incised: c, d, e ; Aguas Buenas General : f; Chiriquí [Ceiba Incised?]: b; Cerro Punta: i ; Unknown: a [Curré-like (Corrales pers.comm.), g [early Ceiba? (Corrales pers.comm)],h [Sangria or Bambito?]) Site Designation example: (Op)C (Unit)9 (Level)L2

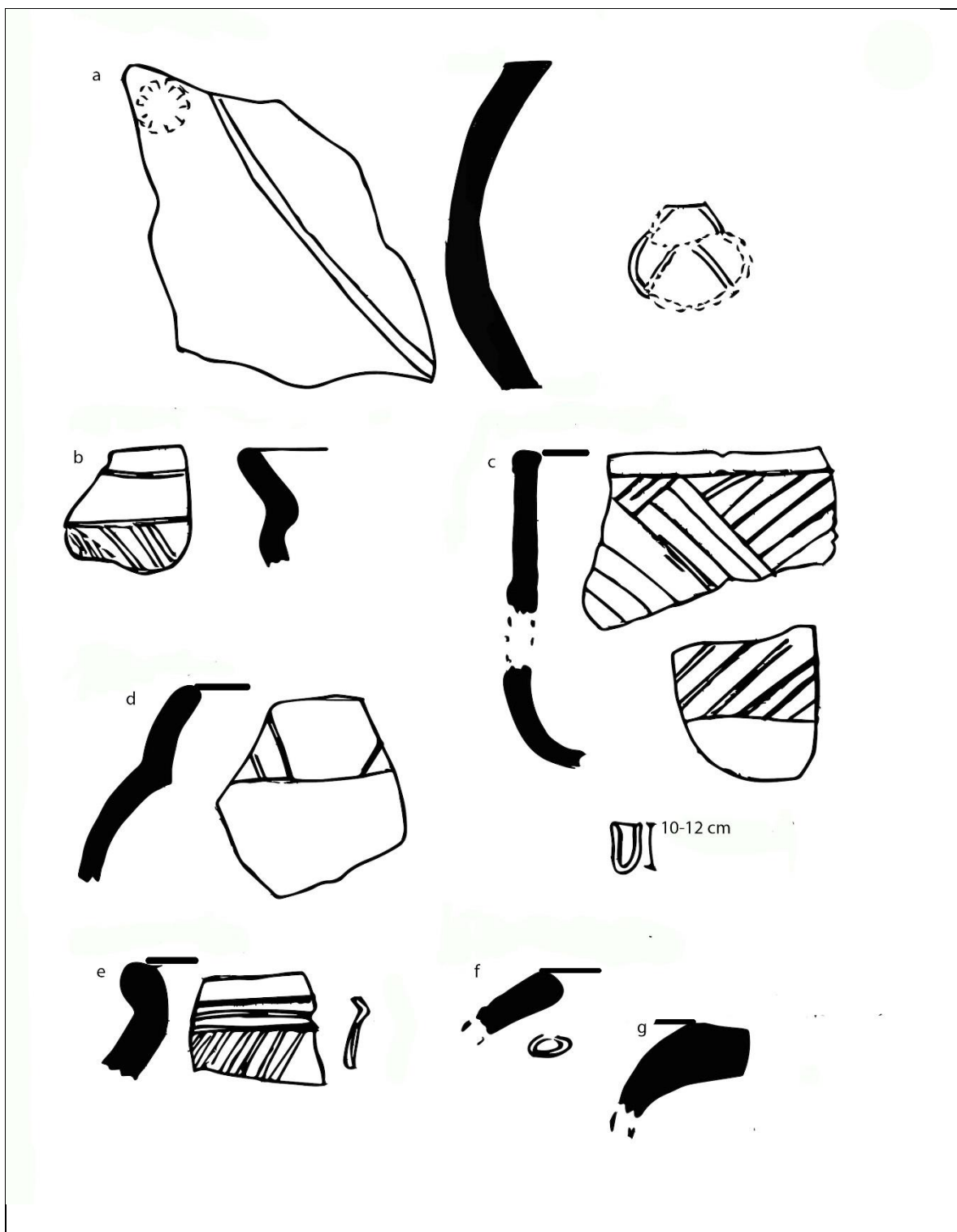


Figure B 12: Select Rim and Body Profiles from G31L1 (a); E21L7 (b); E19L8 (c); G32L1 (d); G32L1 (e); G32L2 (e, f, g) : (Quebradas Incised: c, e; Cerro Punta v. Cerro Punta: b; Guarumal v. Cebaca: a, d [small ollita?]; Unknown: f, g) Site Designation example: (Op)C (Unit)9 (Level)L2

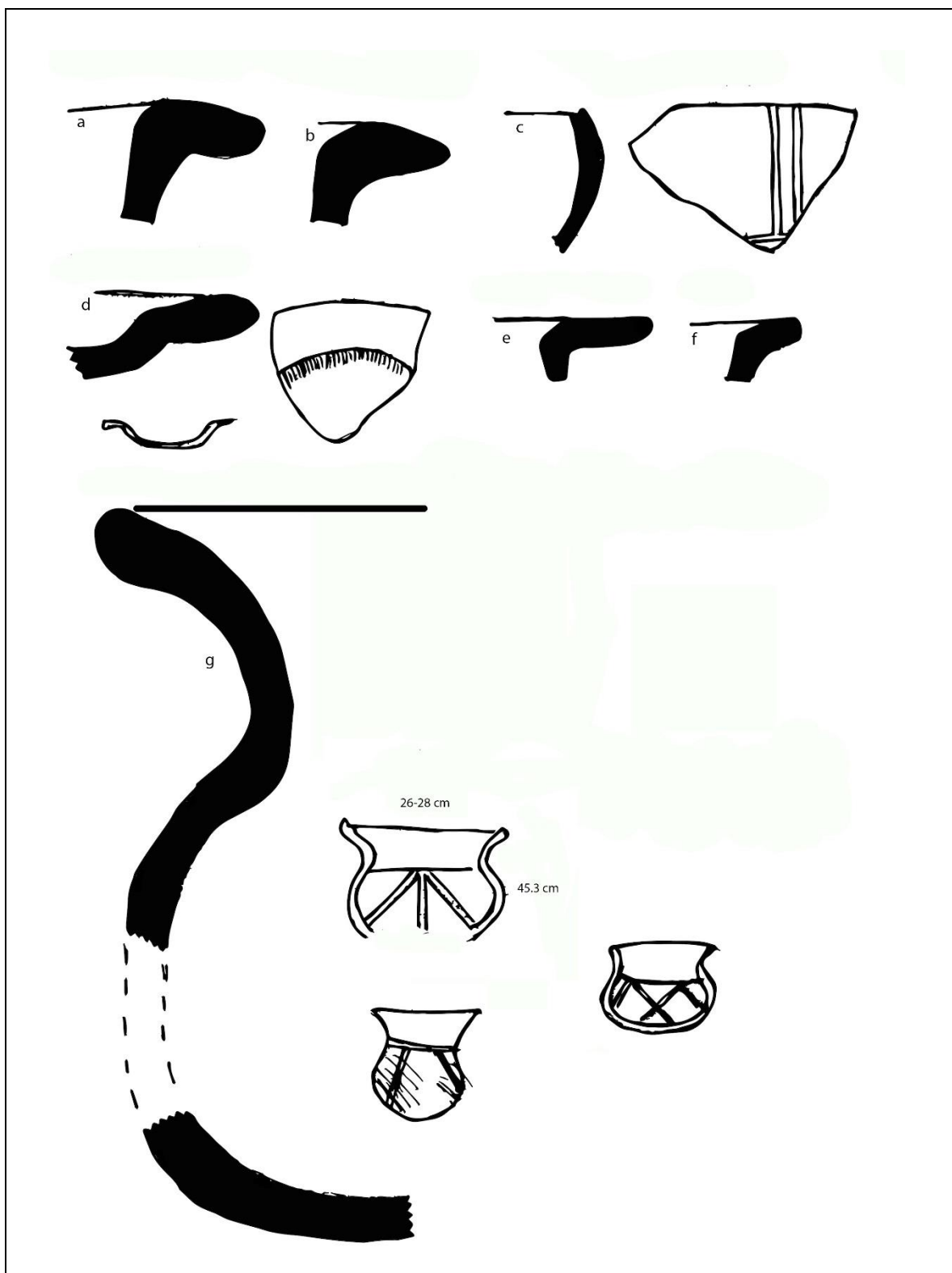


Figure B 13: Select Rim Profiles from GF3L1 (a, b, c); G32L3 (d); G33L1 (e, f); G33L2 (g) : (Cerro Punta v. Cotito: c; Guarumal Incised: g; Unknown: a [El Bosque ?], b, d, e, f) Site Designation example: (Op)C (Feature)F1 (Unit)9 (Level)L2

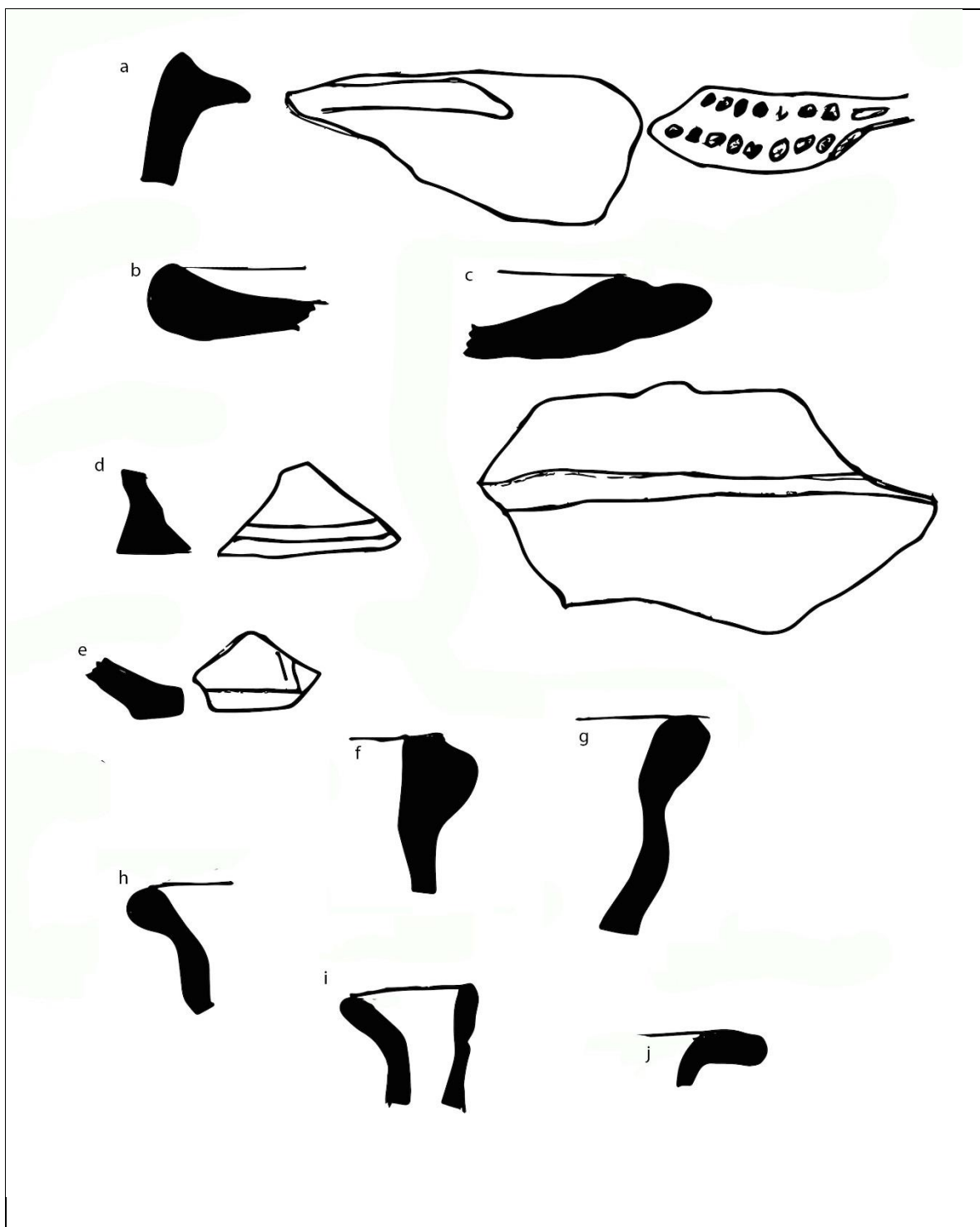


Figure B 14: Select Rim and Base Profiles from F25L7 (a); G30L4 (b); G31L4 (c, d); E22L5 (e); G33L3 (f); E22L8 (g); G31Ped (h); F25L13 (i); EF8L1 (j) : (Aguas Buenas General: a; c; Bambito: j; Guarumal Incised: i; Valbuena: g, h; Unknown: b, d [base], e [base], f) Site Designation example: (Op)C (Feature)F1 (Unit)9 (Level)L2

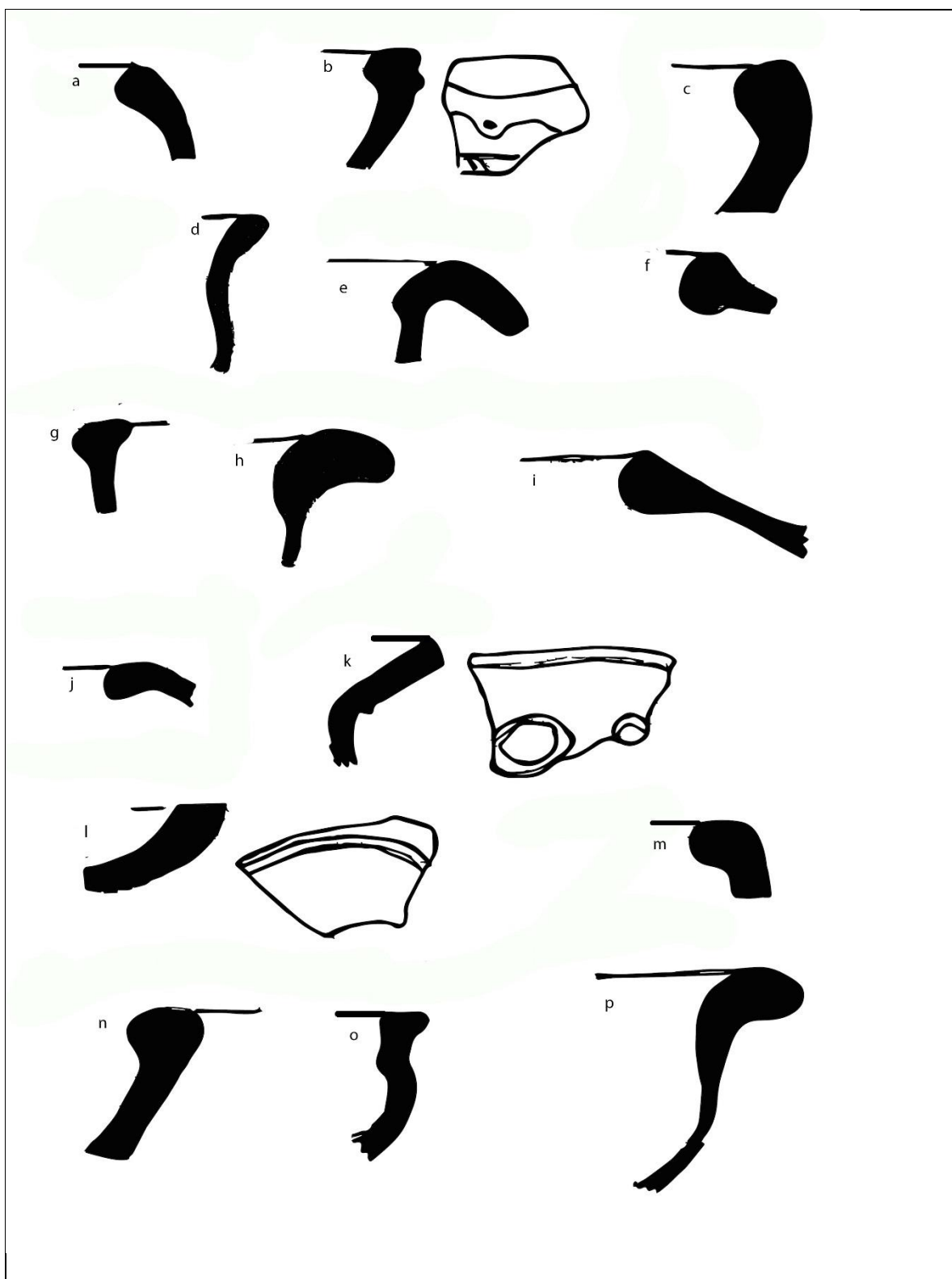


Figure B 15: Select Rim Profiles from F27L15 (a); AF11L1 (b); D35L2 (c); AF10L1 (d); From nearby Quebrada (e); DF12L1 (f); DF13L1 (g, h, i); DF13L2 (j, k); A2L9 (l); A17L3 (m); A17L4(n); A1L10 (o); A17L5 (p): (Bambito: b, h; Valbuena: d; La Selva: k; Unknown: a [Cotito?],c, e, f, g, i, j, l [Quebradas Tazon?},m, n [El Bosque?],o, p [Bugaba?]) Site Designation example: (Op)C (Feature)F1 (Unit)9 (Level)L2

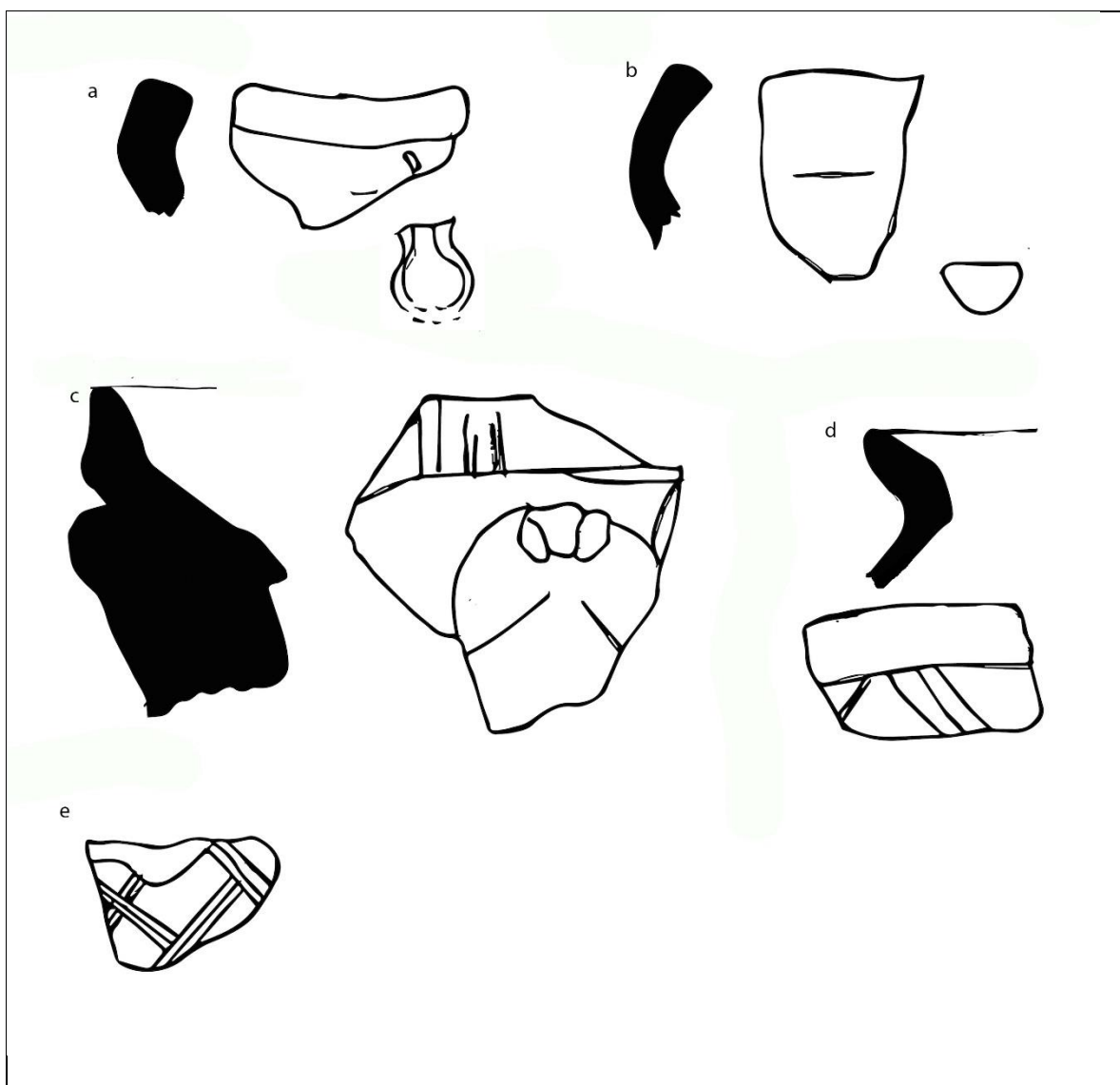


Figure B 16: Select Rim Profiles and Drawings from A177L5 (a); A17L9 (b, c); AF1L1 (d); AF2L2 (e) :  
 (Quebradas Incised: a, d ; Cerro Punta: b; Cerro Punta Cotito: c; Bugaba Engraved: e) Site Designation  
 example: (Op)C (Feature)F1 (Unit)9 (Level)L2

## Appendix C: Radiocarbon Data

Monday, August 15, 2011

NSF-Arizona AMS Laboratory

Page 1 of 1

Contact: Herrera, R.A.

AA #	Sample ID	Suite	Material	d13C	F	14C age BP
AA94417	142	1 of 8	carbon soot	-23.3	0.8041 +- 0.0056	1,752 +- 56
AA94418	79	2 of 8	carbon-	-26.2	0.8627 +- 0.0037	1,187 +- 35
AA94419	9	3 of 8	charcoal	-26.4	0.8064 +- 0.0036	1,728 +- 36
AA94420	128	4 of 8	charcoal	-29.9	0.6615 +- 0.0032	3,319 +- 39
AA94421	60	5 of 8	charcoal	-23.9	0.8140 +- 0.0036	1,653 +- 35
AA94422	162	6 of 8	carbon soot	x	+ - x	x +-
AA94423	95	7 of 8	charcoal	-10.1	0.8337 +- 0.0037	1,461 +- 35
AA94424	149	8 of 8	carbon soot	x	+ - x	x +-

Reported by \_\_\_\_\_

**Table C 1: Raw Radiocarbon Data for El Cholo**

## Appendix D: Additional Interpolation Maps

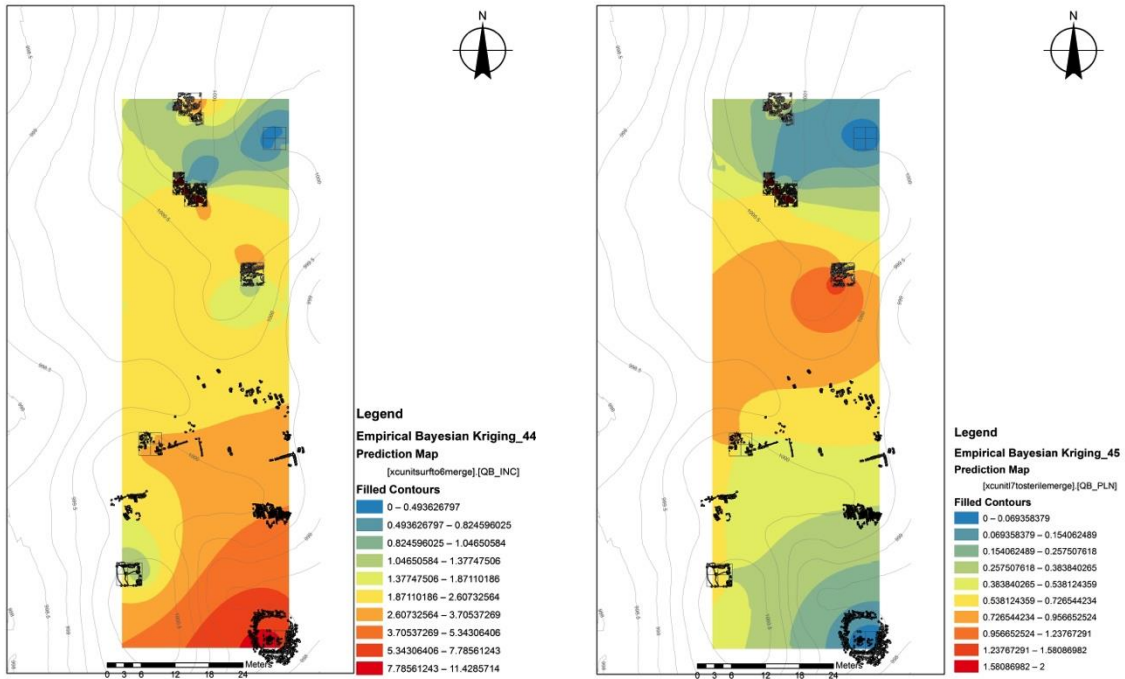


Figure D 1: Quebradas Incised Interpolation Surface to Level 6 and Level 7 to sterile

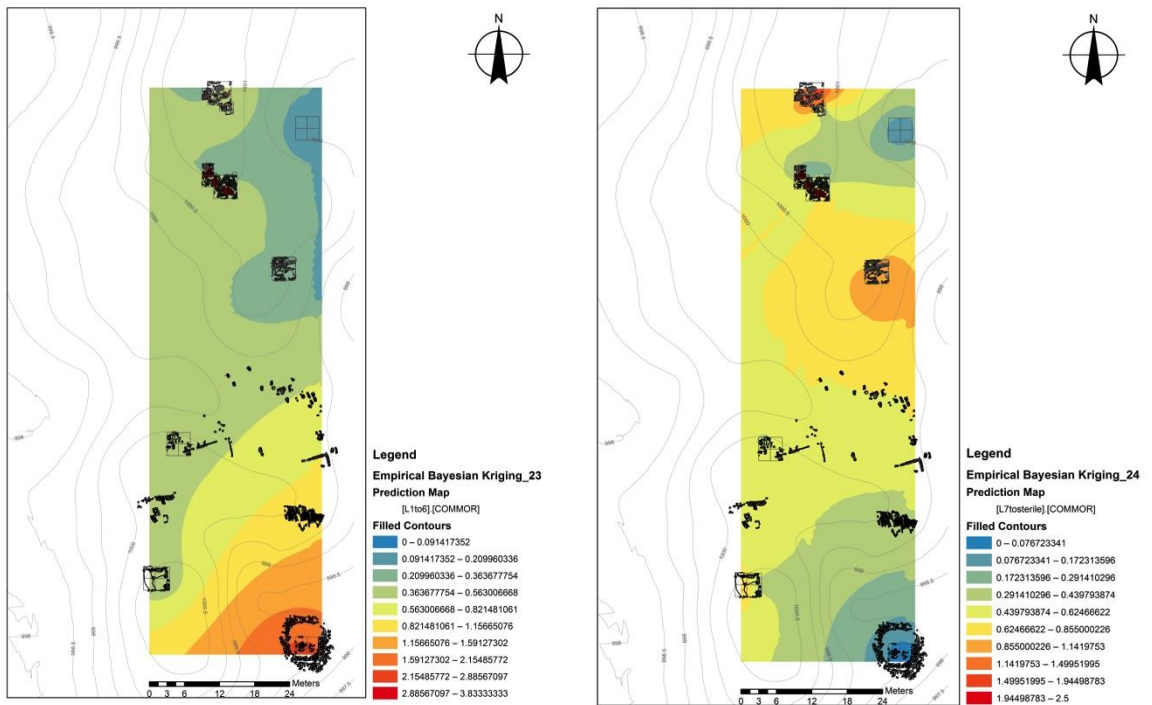


Figure D 2: Moravia Red Interpolations Surface to Level 6 and Level 7 to sterile



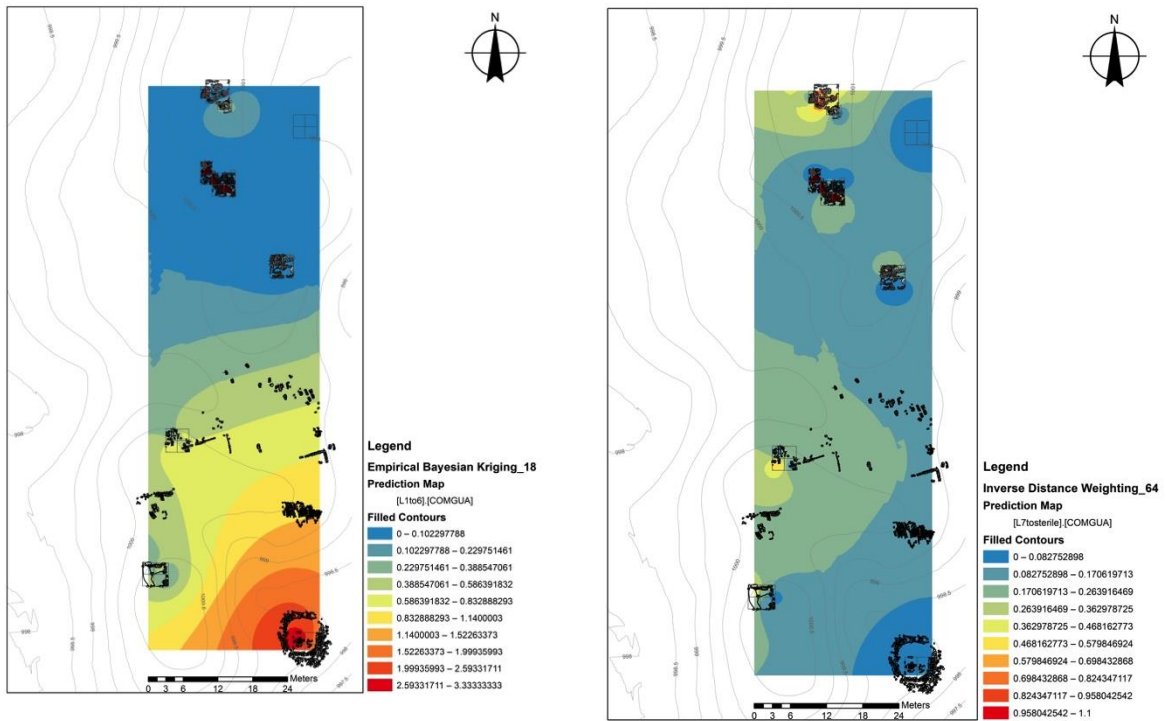


Figure D 3: Combined Guarumal Interpolations Surface to Level 6 and Level 7 to sterile

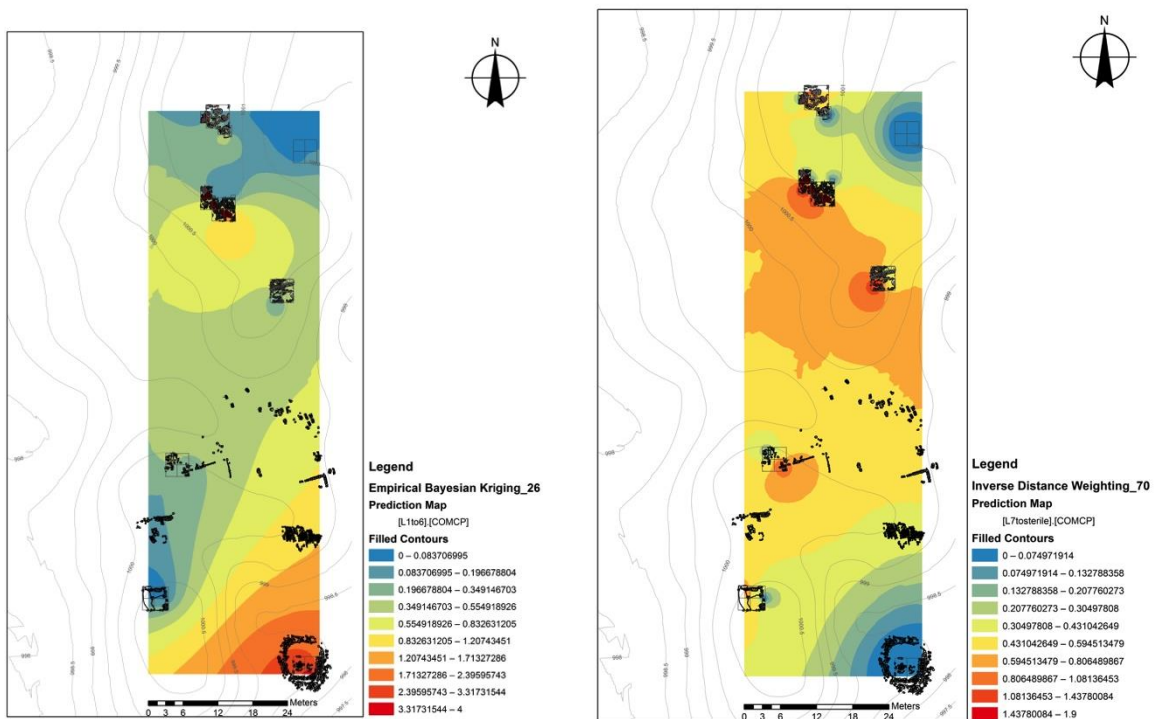


Figure D 4 Cerro Punta Interpolations Surface to Level 6 and Level 7 to sterile

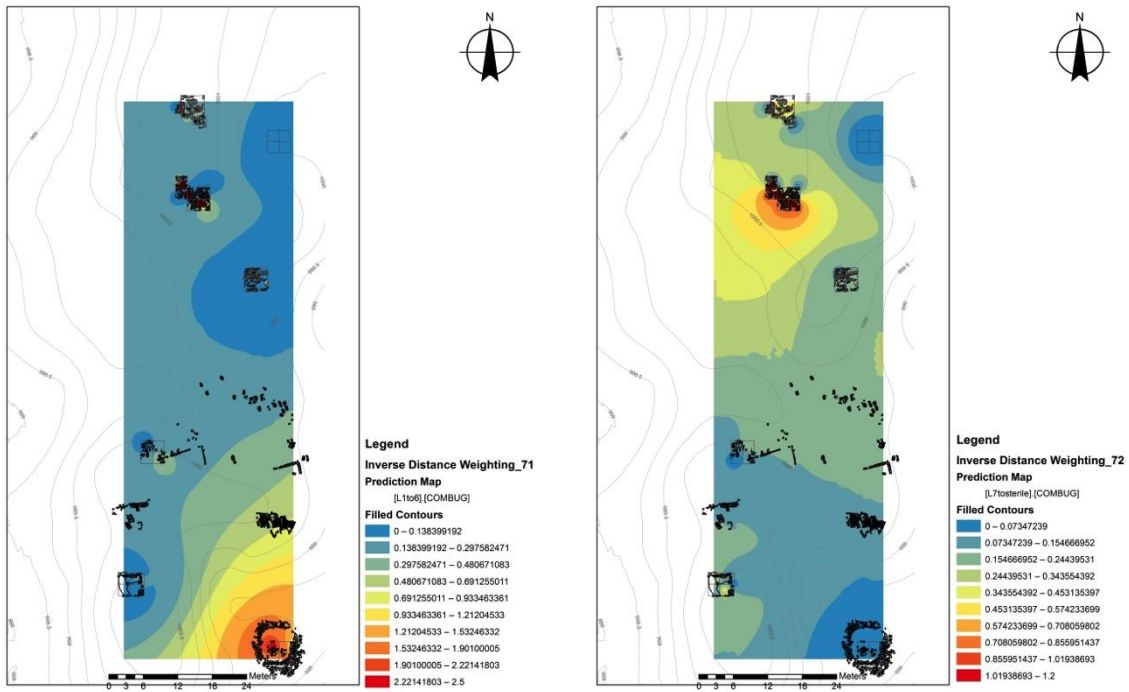


Figure D 5: Bugaba Ceramic Interpolations Surface to Level 6 and Level 7 to sterile

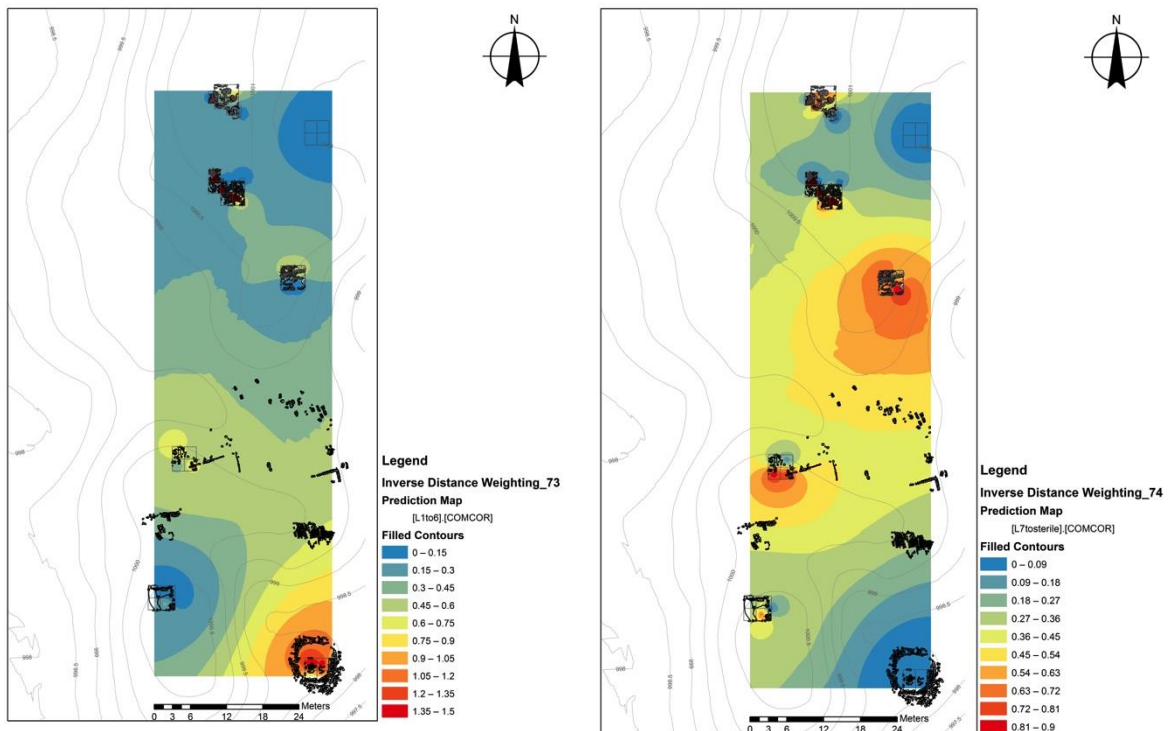


Figure D 6: Corral Red Interpolations Surface to Level 6 and Level 7 to sterile

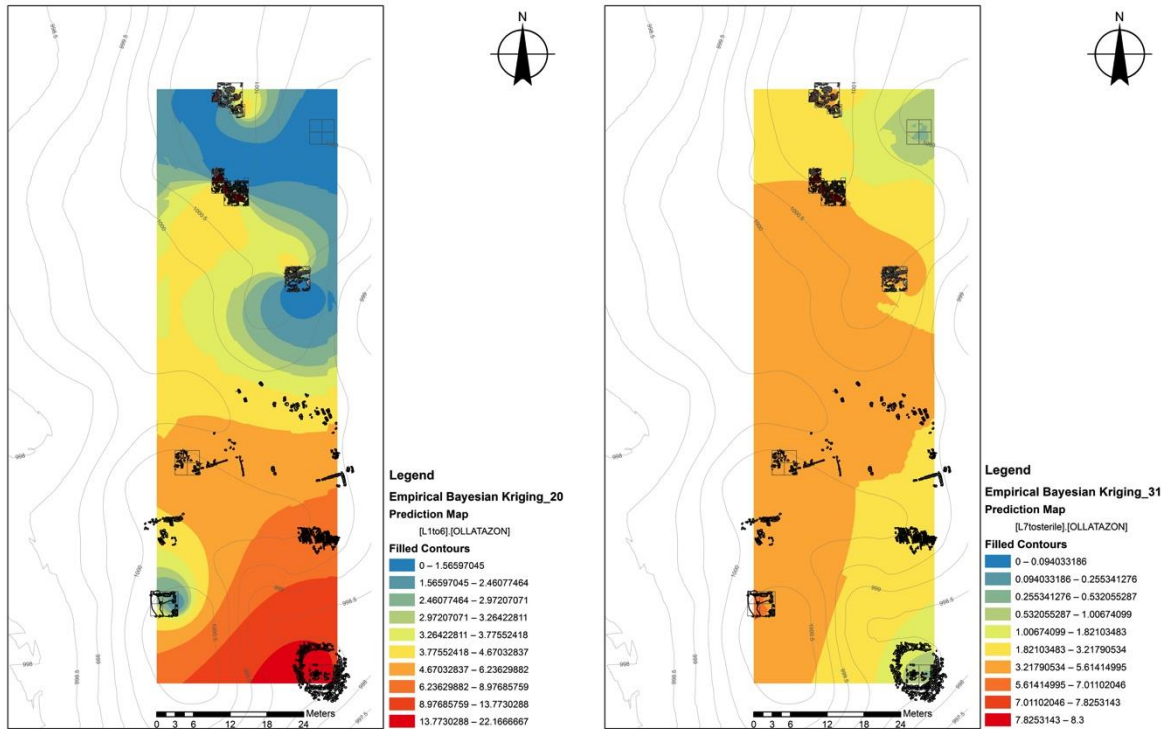


Figure D 7: Olla/Tazon vessel Interpolations Surface to Level 6 and Level 7 to sterile

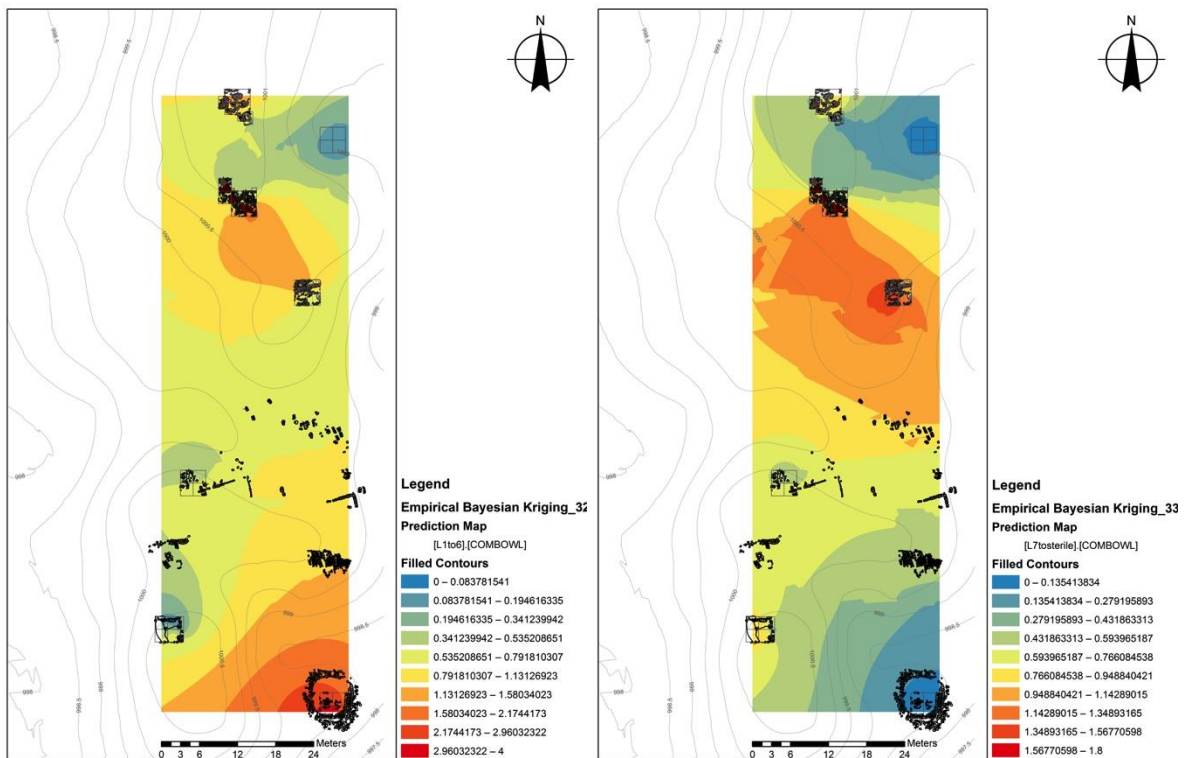


Figure D 8: Bowl Vessel Interpolations Surface to Level 6 and Level 7 to sterile

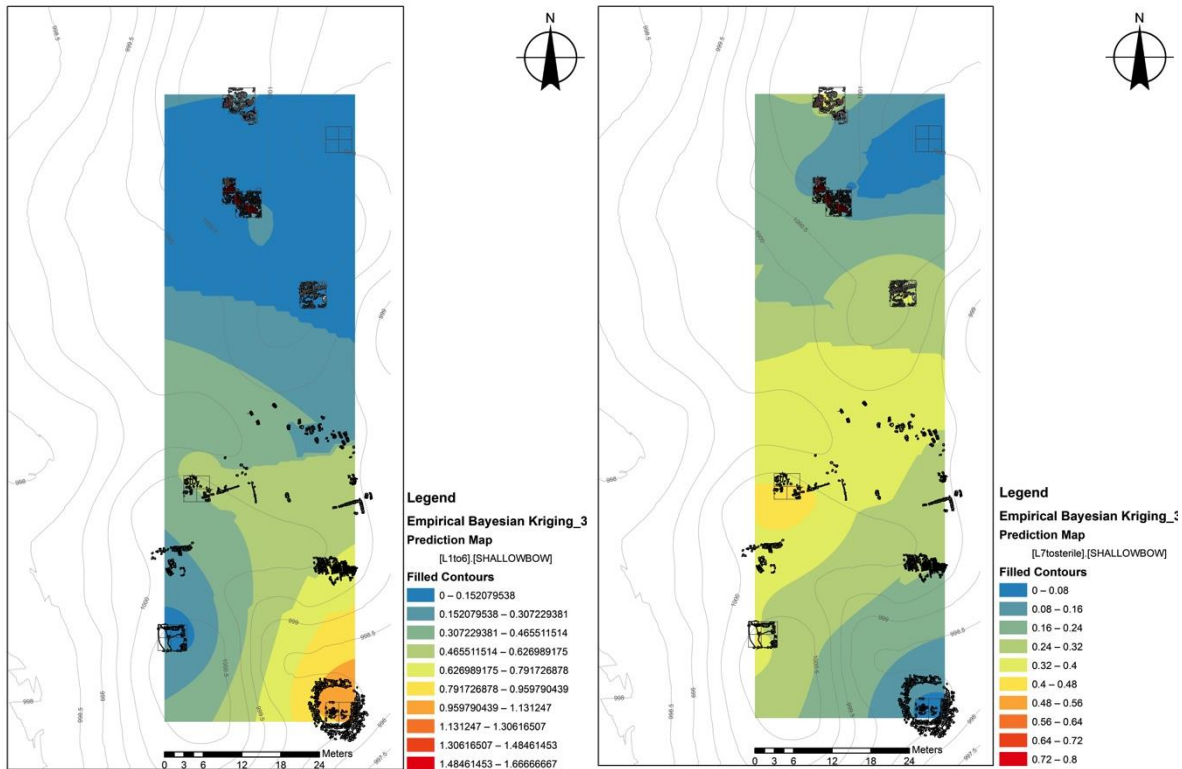


Figure D 9: Shallow Bowl Interpolations Surface to Level 6 and Level 7 to sterile

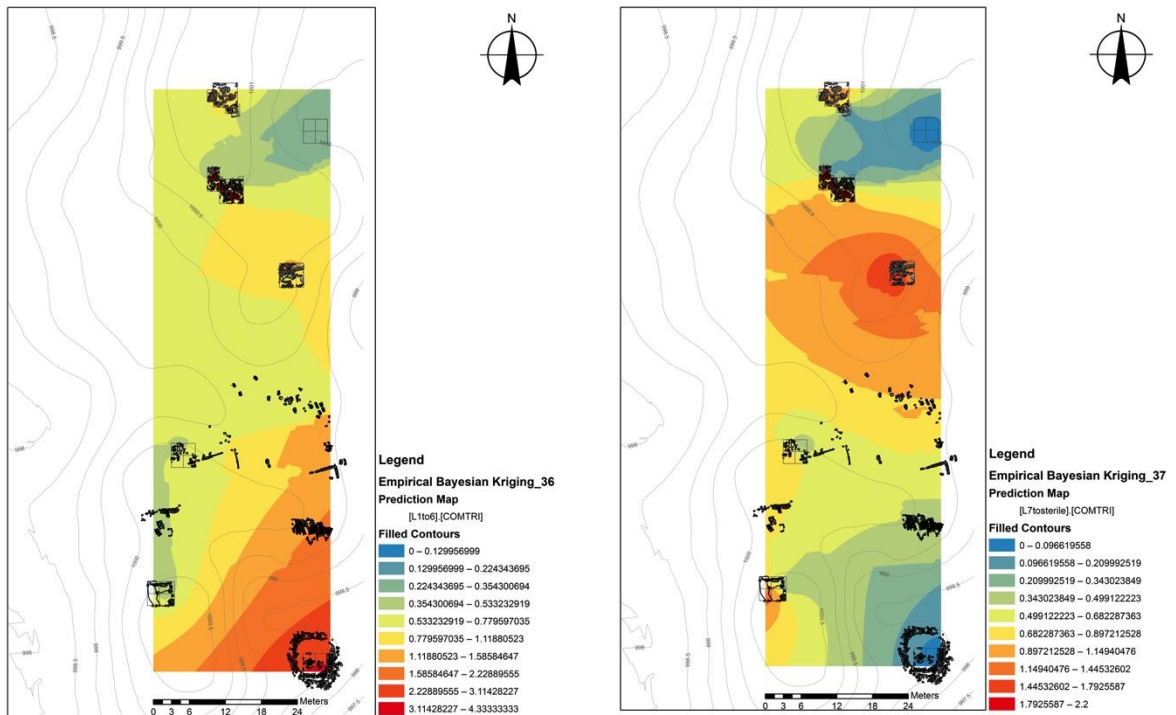


Figure D 10: Tripod vessels Interpolations Surface to Level 6 and Level 7 to sterile



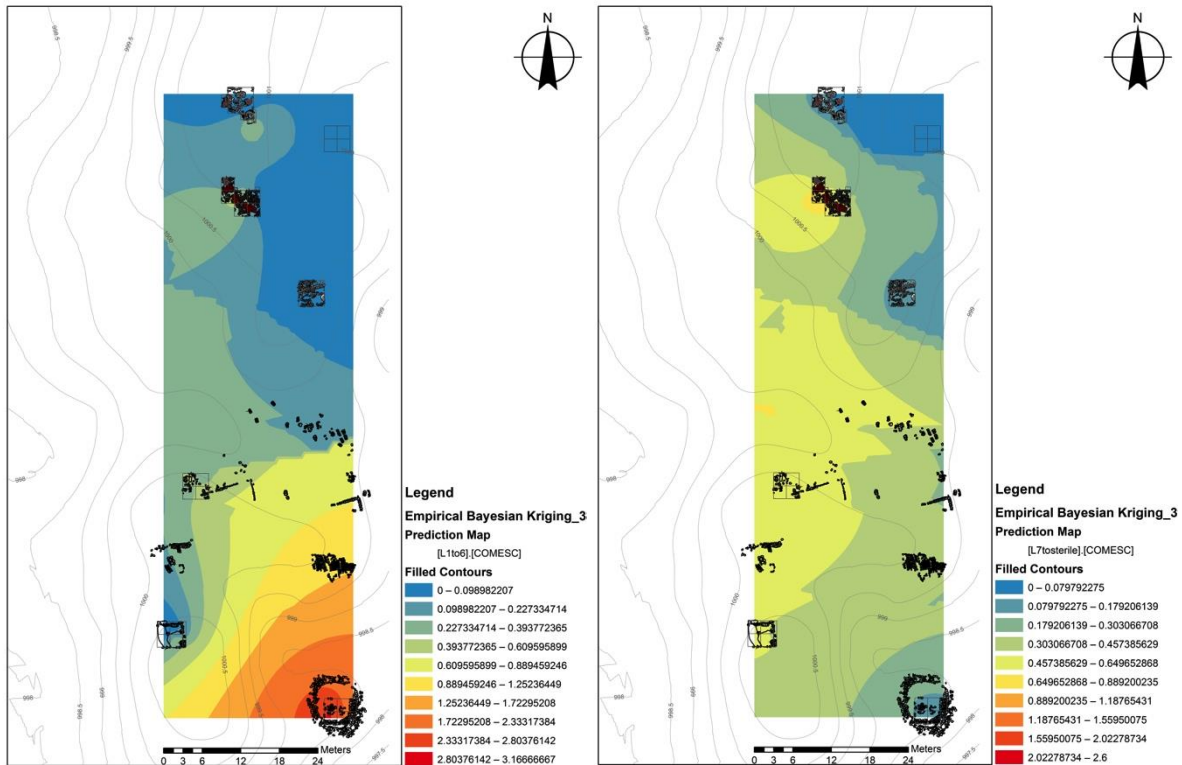


Figure D 11: Escudilla/Incensario vessel Interpolations Surface to Level 6 and Level 7 to sterile

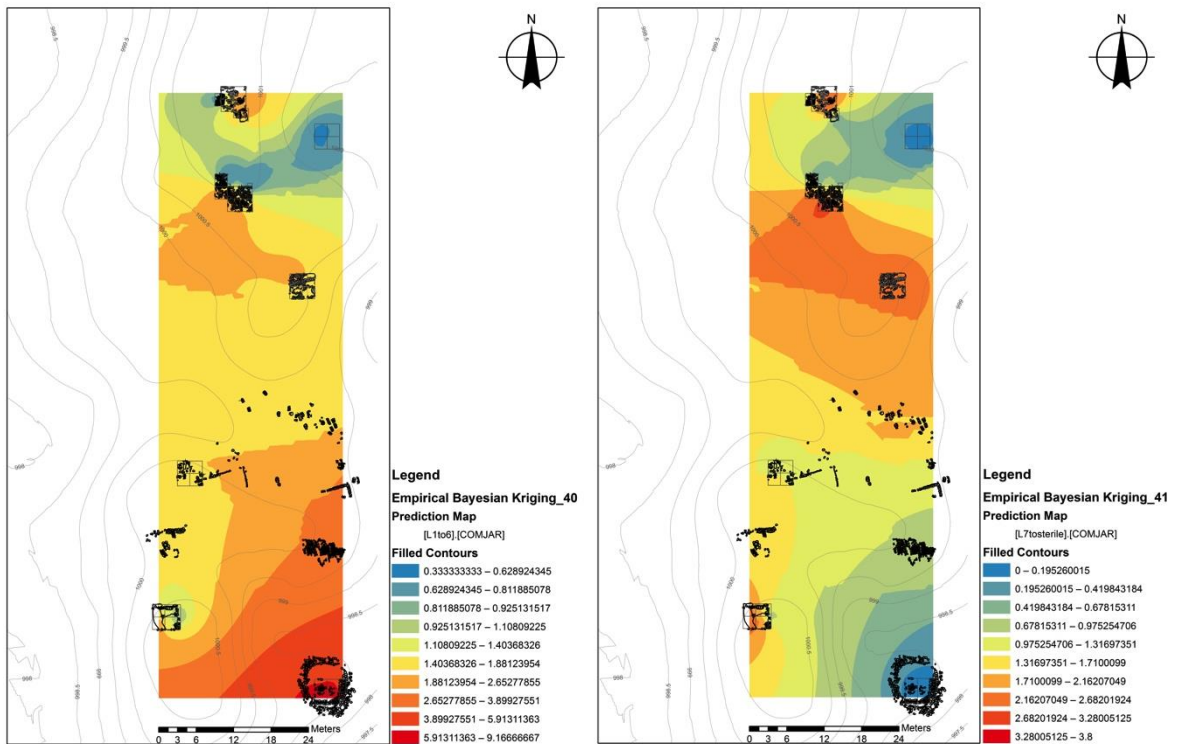


Figure D 12: Jar vessel Interpolations Surface to Level 6 and Level 7 to sterile

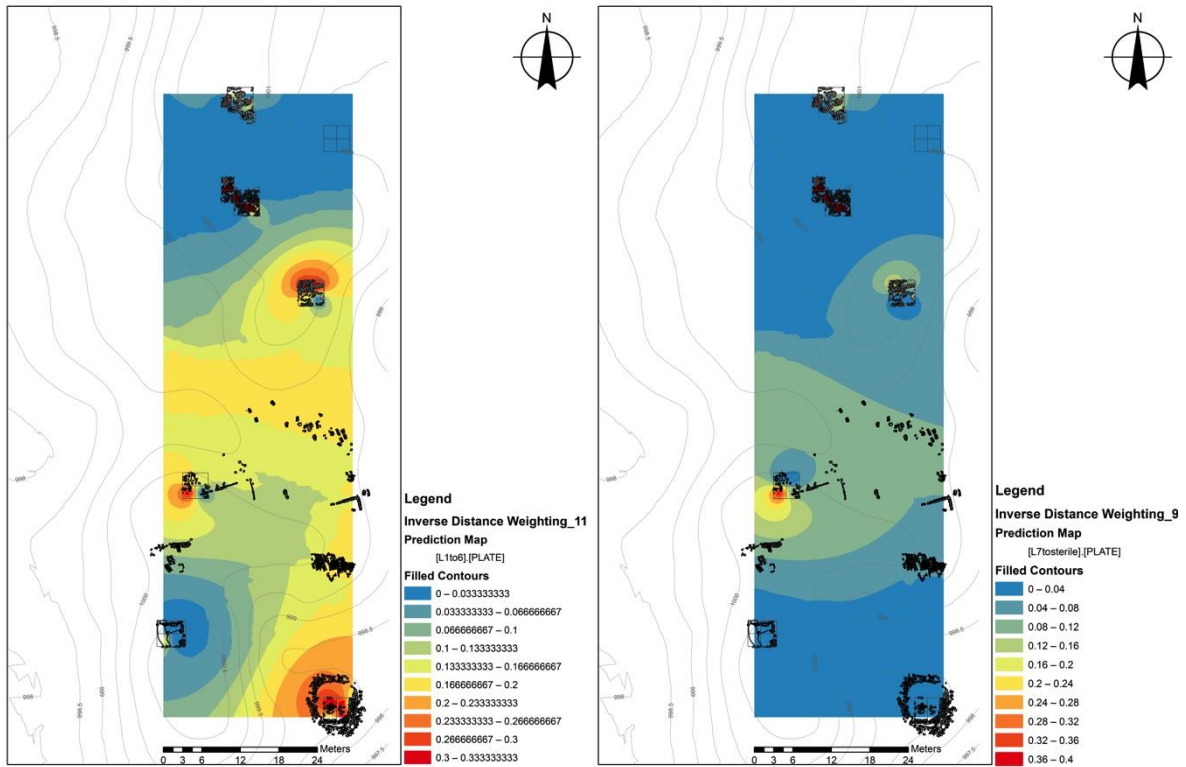


Figure D 13 :Plate Vessel Interpolations Surface to Level 6 and Level 7 to sterile

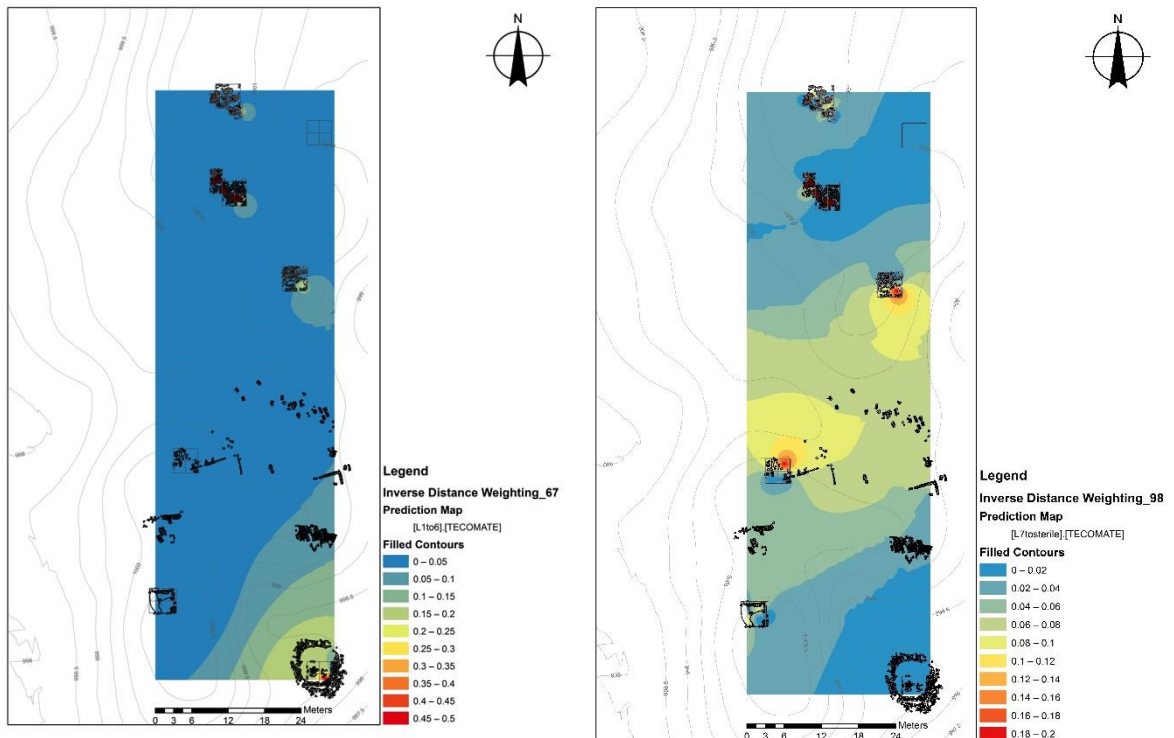


Figure D 14: Tecomate Vessel Interpolations Surface to Level 6 and Level 7 to sterile

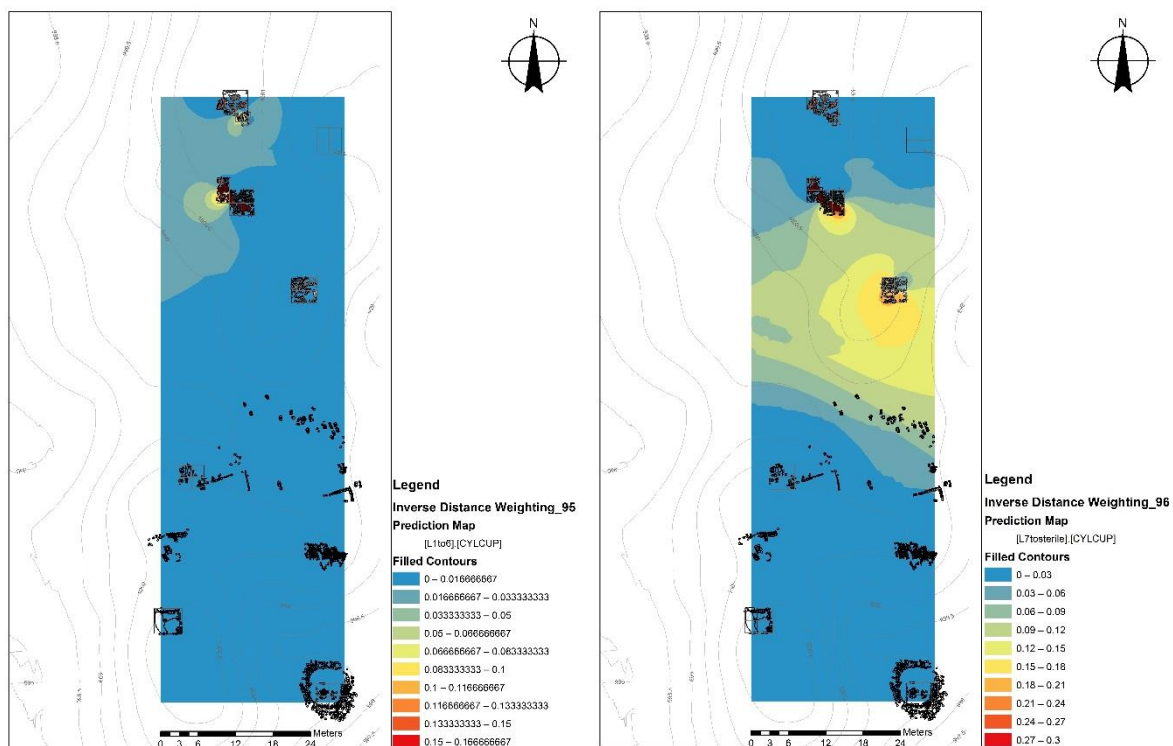


Figure D 15: Cylindrical Cup Vessel Interpolations Surface to Level 6 and Level 7 to sterile

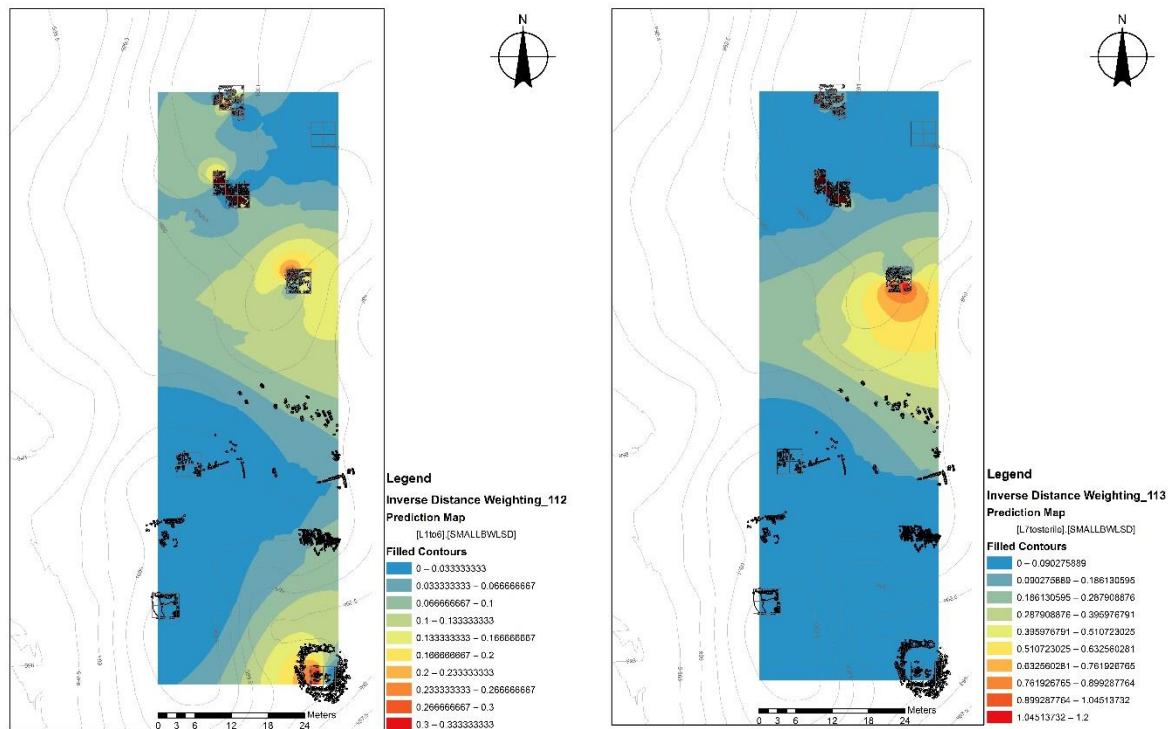
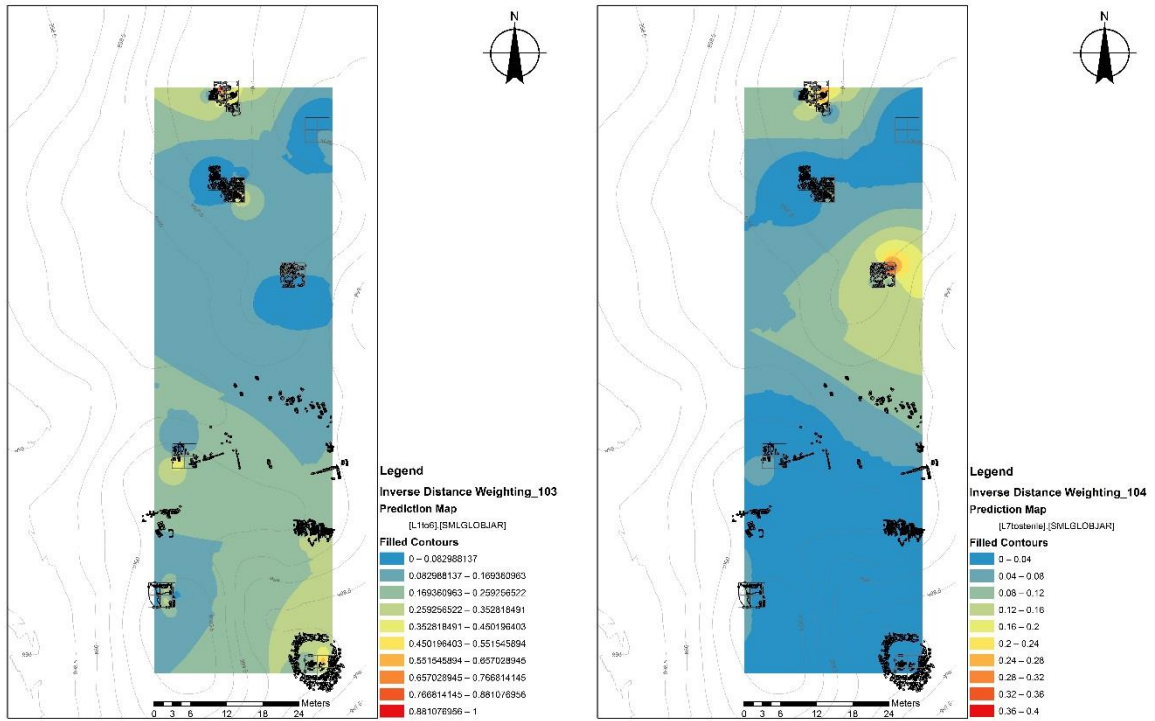
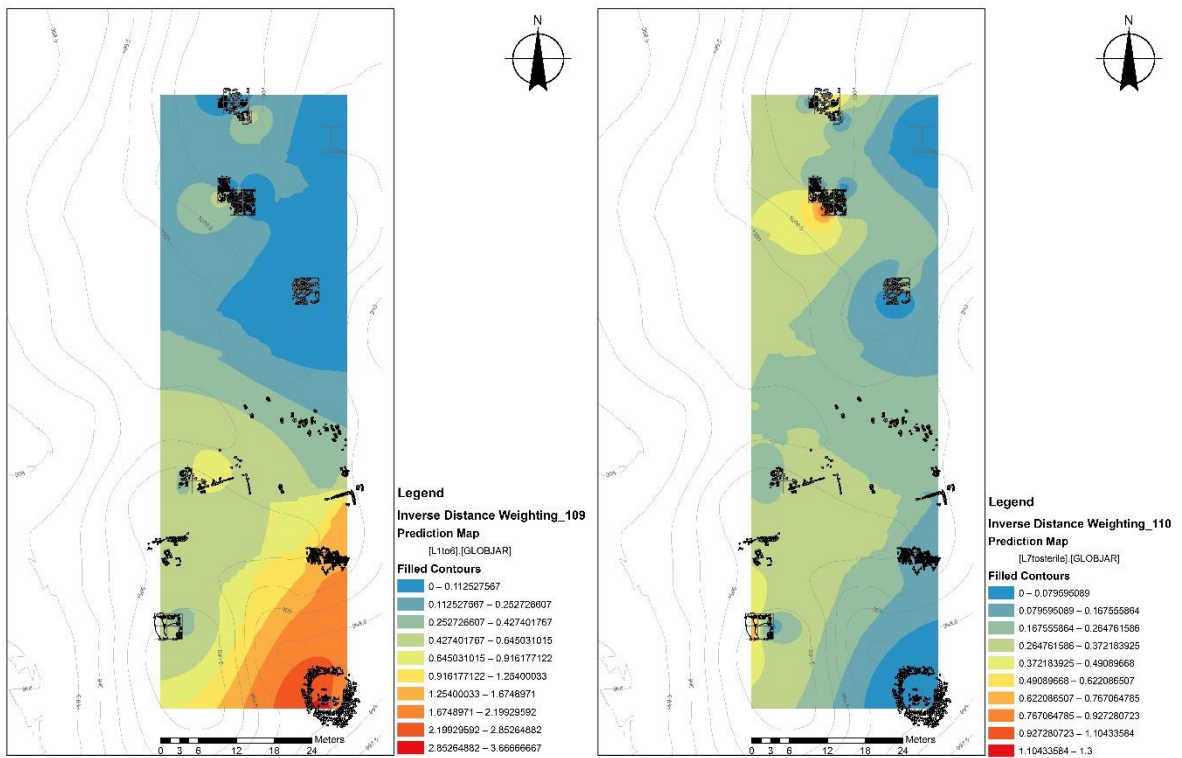


Figure D 16: Small Bowl/seed jar Vessel Interpolations Surface to Level 6 and Level 7 to sterile



**Figure D 17 Small Globular Jar Vessel Interpolations Surface to Level 6 and Level 7 to sterile**



**Figure D 18 Globular Jar Vessel Interpolations Surface to Level 6 and Level 7 to sterile**



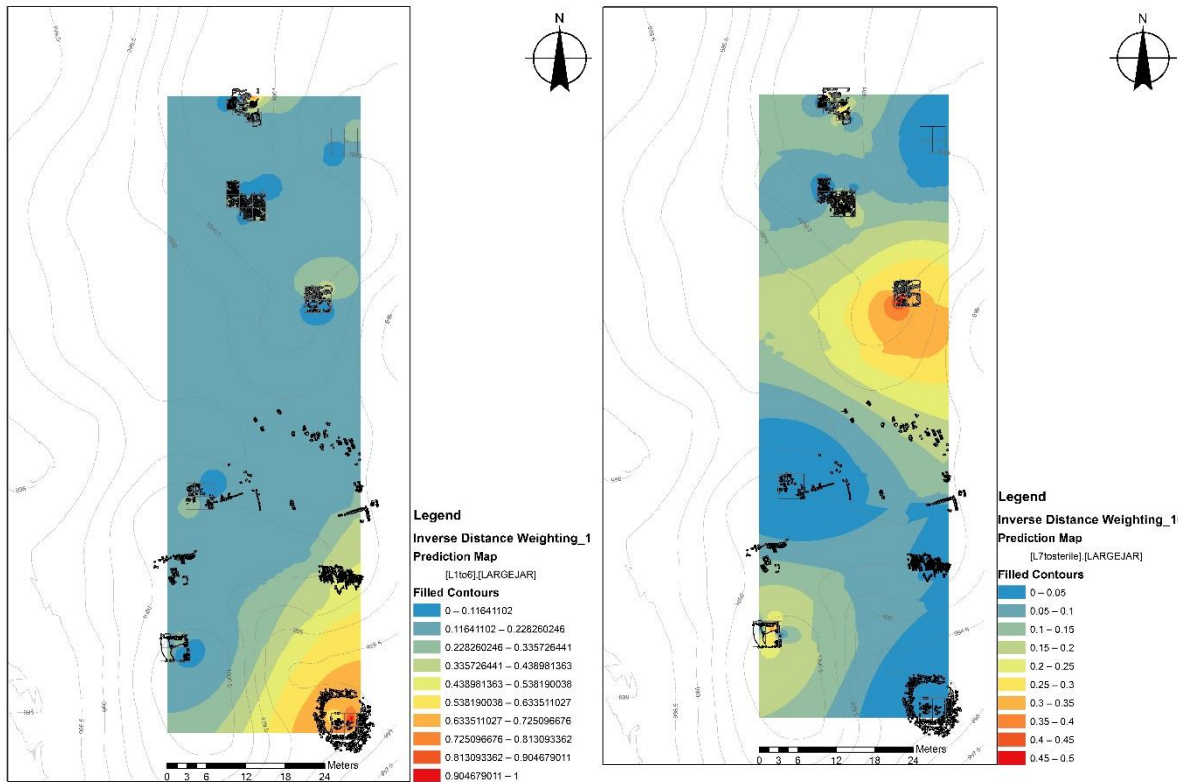


Figure D 19: Large Jar Vessel Interpolations Surface to Level 6 and Level 7 to sterile

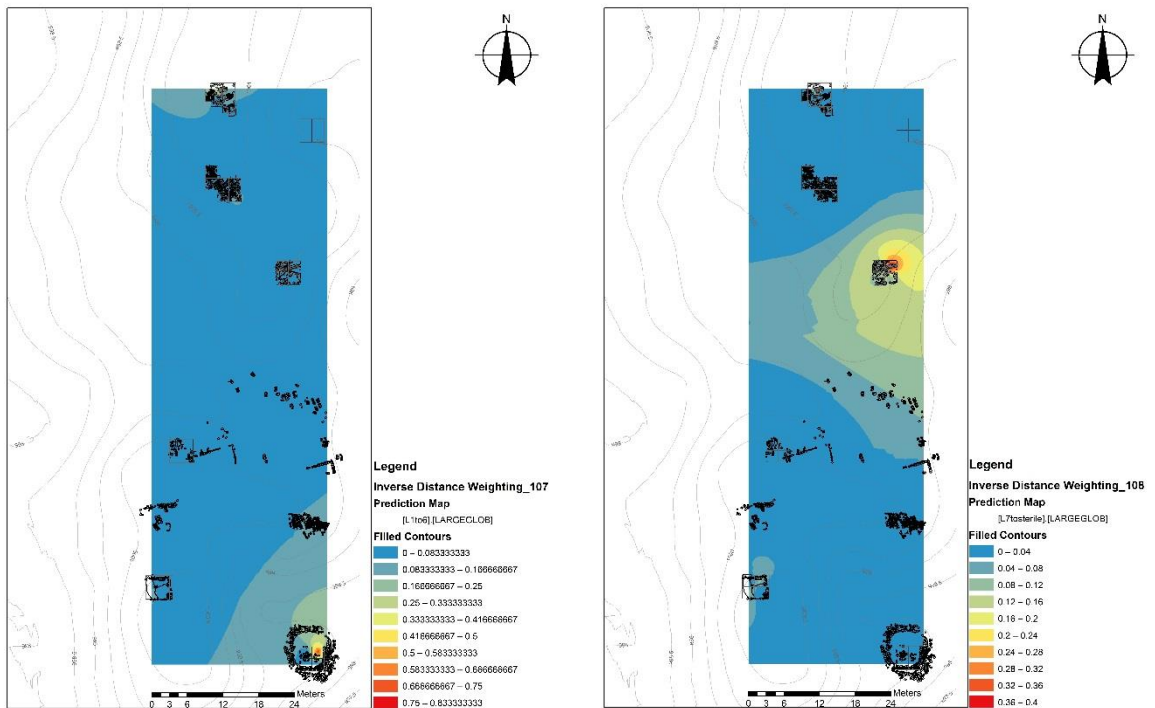


Figure D 20: Large Globular Jar Vessel Interpolations Surface to Level 6 and Level 7 to sterile

## Appendix E: Additional Artifact Frequency Charts

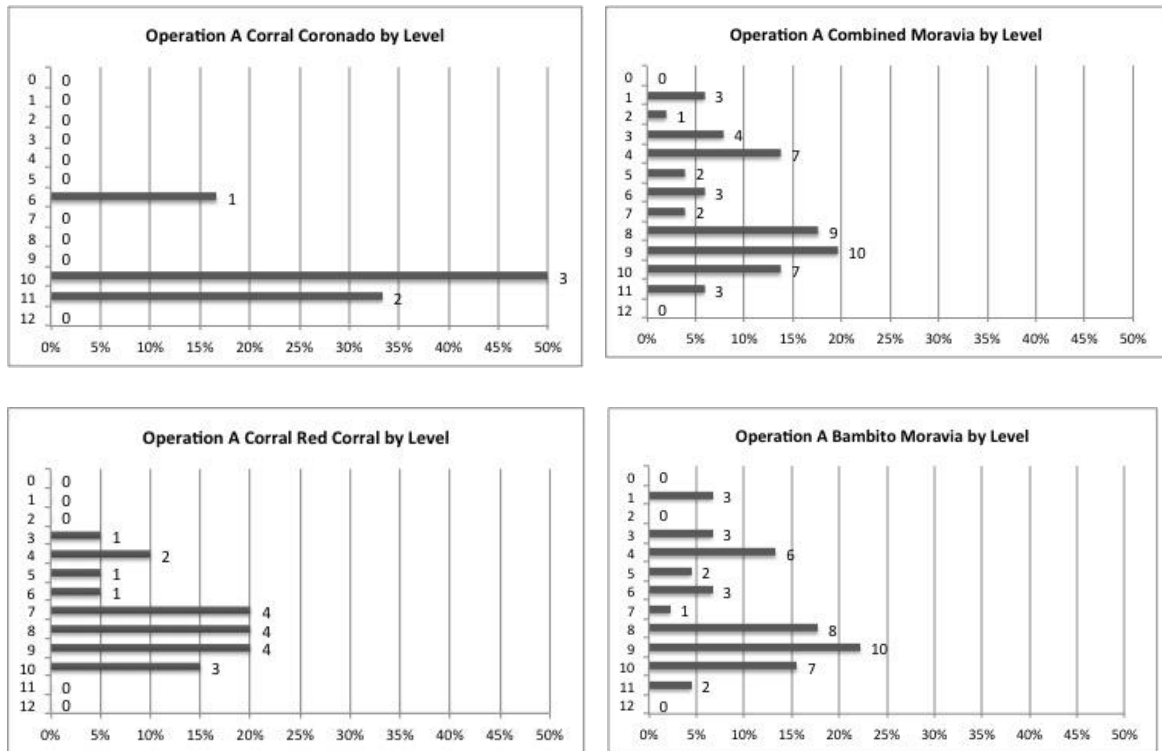


Figure E 1: Operation A Additional Ceramic Frequency Charts

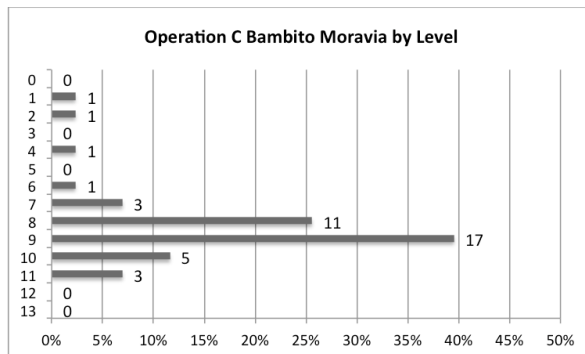


Figure E 2: Operation C Additional Ceramic Frequency Chart

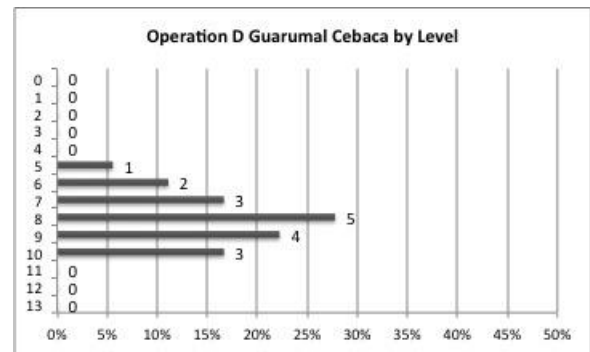
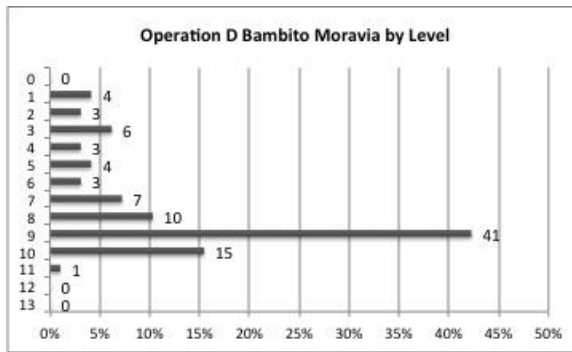


Figure E 3: Operation D Additional Ceramic Frequency Charts

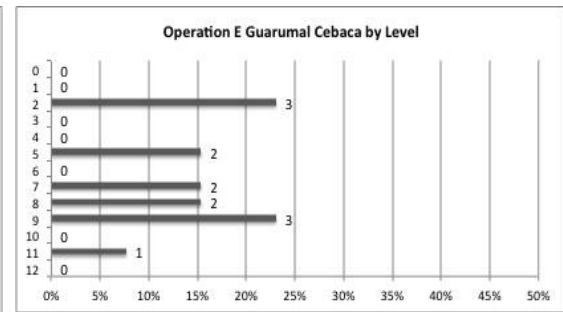
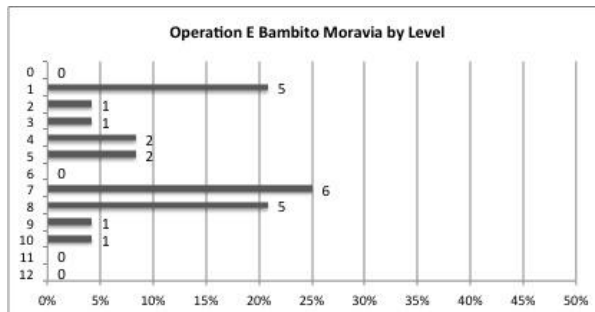


Figure E 4: Operation E Additional Ceramic Frequency Charts

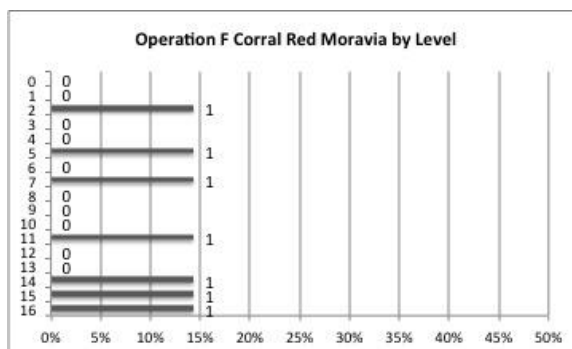
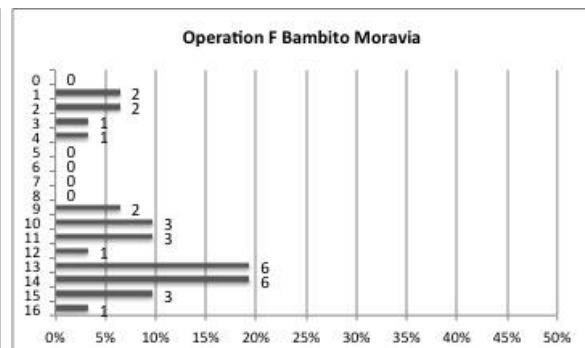
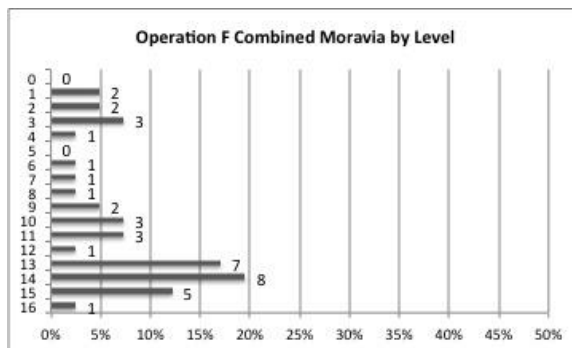
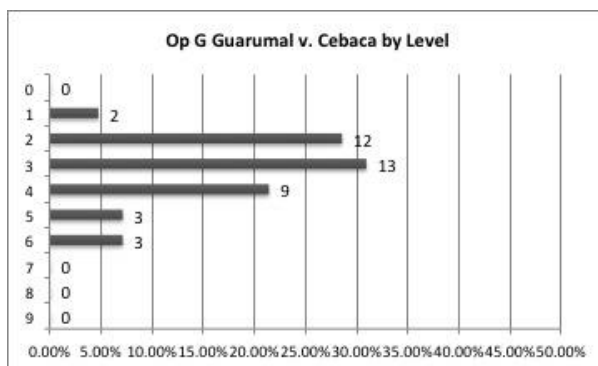
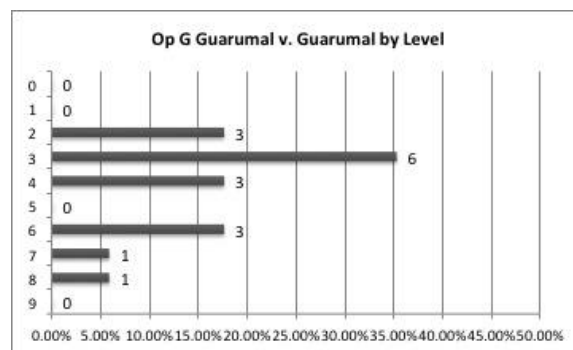
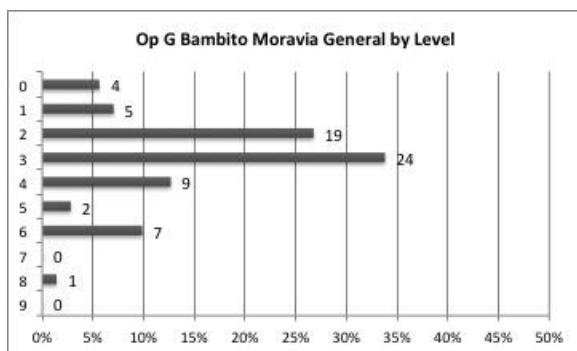
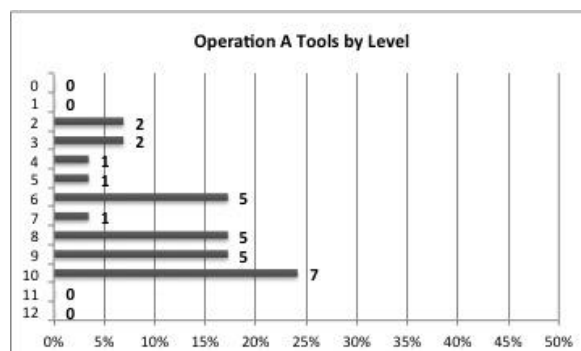
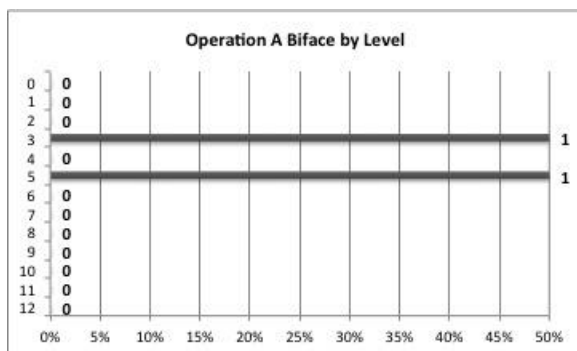


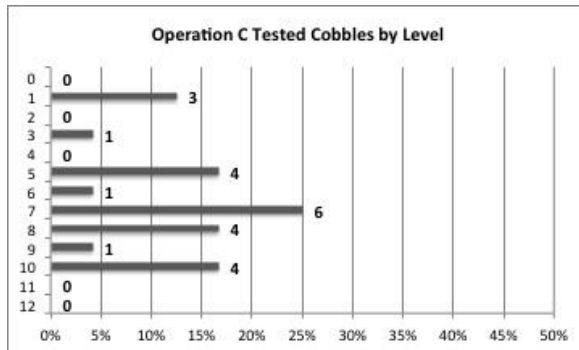
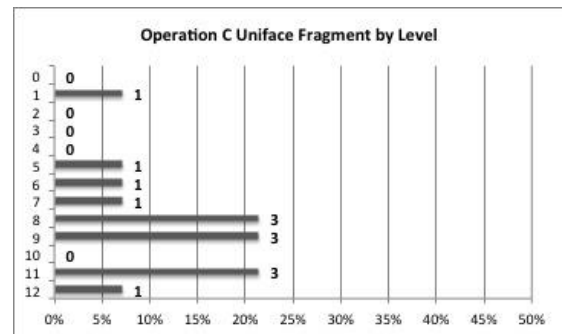
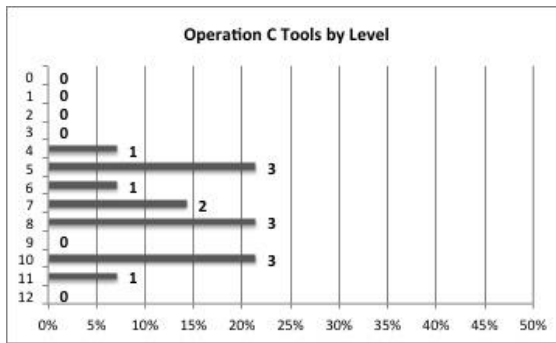
Figure E 5: Operation F Additional Ceramic Frequency Charts



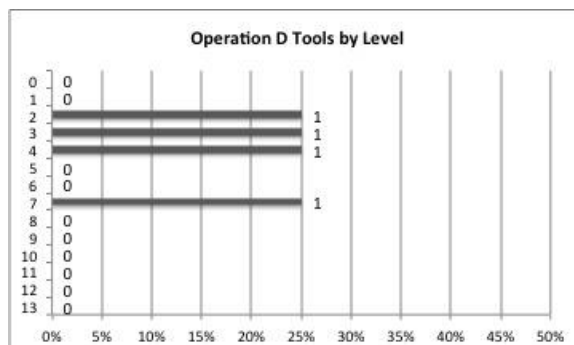
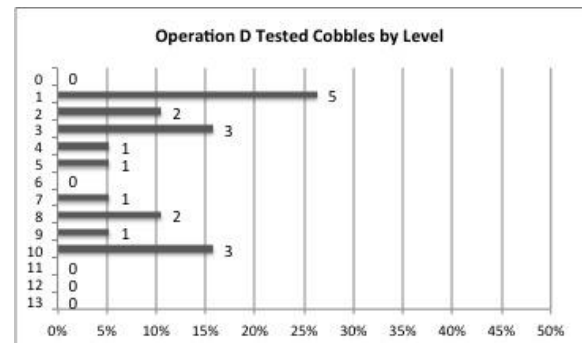
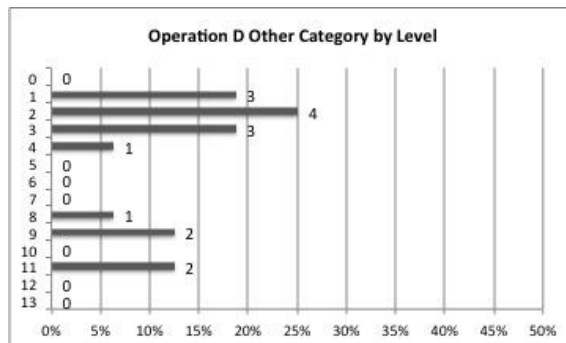
**Figure E 6: Operation G Additional Ceramic Frequency Charts**



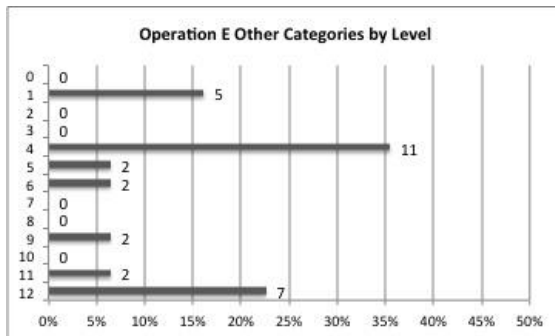
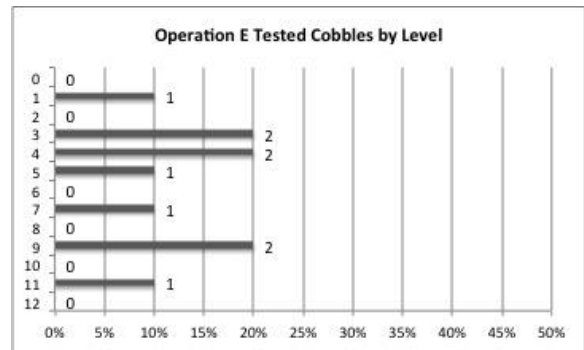
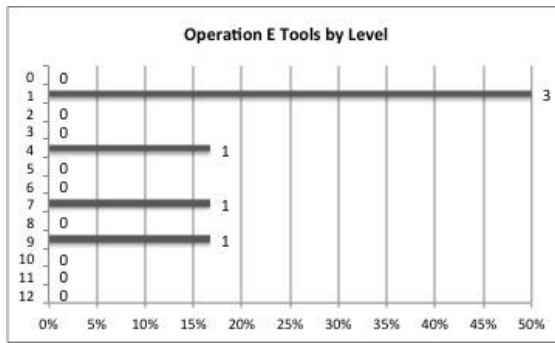
**Figure E 7: Operation A Additional Lithic Charts**



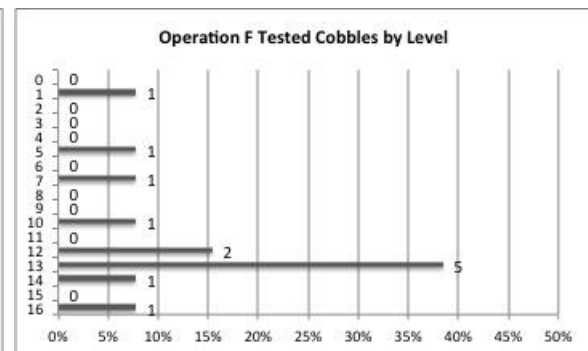
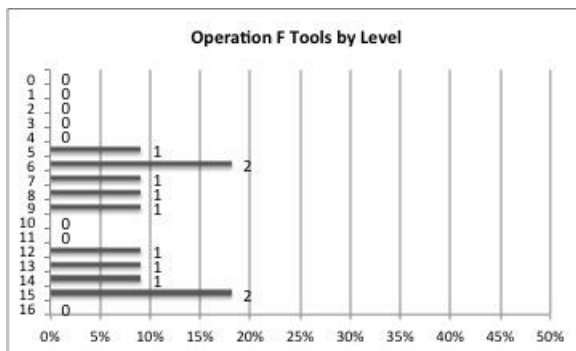
**Figure E 8: Operation C Additional Lithic Charts**



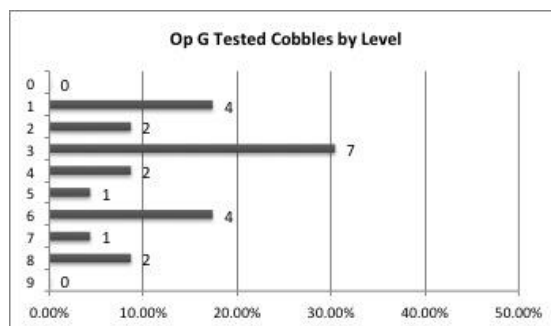
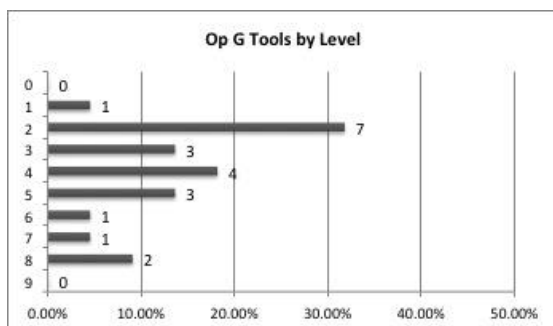
**Figure E 9: Operation D Additional Lithic Charts**



**Figure E 10: Operation E Additional Lithic Charts**



**Figure E 11: Operation F Additional Lithic Charts**



**Figure E 12: Operation G Additional Lithic Charts**

## Appendix F: Additional Tables and Figures

Site	Elev (masl)	Size ha	Temporal range	Architectural Features	Other Features	Artifact Types/Classes	Inferred Behavior	References
<b>El Cholo</b>	600	4-9 (architectural core 1.3)	Quebradas/Aguas Buenas (300 B.C.-800 A.D.)/Chiriquí (800- Contact) (components are spatially distinct)	Cobble paved 1-2m high mounds connected with cobbled ramps	Two distinct occupational horizons: one prior to mound construction.	Quebradas bowls jars and lids with zoomorphic and anthropomorphic forms, Aguas Buenas Bowls and Jars. Lithic debitage: primary through late stage reduction flakes, cores and crude axes/hoes, Jadelike pendant (1), metate fragments.	"non-elite"	Corrales 2000a, 2000b; Herrera 2006
<b>Sitio Bolas</b>	500	5	Quebradas/Aguas Buenas (300 B.C.-800 A.D.)/Chiriquí (800- Contact)	Cobble paved rectangular mounds, some with ramps.	Stone Balls (3) Stone Cist Tombs within the interior of mounds. Dense occupational debris.	Quebradas Incised, Monochrome Bowls, Aguas Buenas (Moravia Red) Bowls and Jars, Axes, Cores, Utilized Flakes Stone Sculpture, metates	Special Residence Status. Ceremonial/Territorial Center	Drolet 1983b:30-35 1988:174, 1992:213,220 222
<b>Sitio Monge</b>	N/A	8	Quebradas/Aguas Buenas (300 B.C.-800 A.D.)	Ten modified natural mounds used as house platforms. Courtyards	N/A	Quebradas Incised, Monochrome Bowls, Aguas Buenas (Moravia Red) Bowls and Jars with zoomorphic and anthropomorphic forms, Axes (evidence for specialization), Cores, Utilized Flakes, metates (low frequency)	Specialized axe production, luxury goods network node. Utilization of luxury goods Elite or non-elite consumption of exotic goods.	Drolet 1992:218
<b>Las Brisas</b>	620	3	Quebradas/Aguas Buenas (300 B.C.-800 A.D.)	Modified natural mounds with courtyards	N/A	Quebradas Incised, Monochrome Bowls, Aguas Buenas (Moravia Red) Bowls and Jars with zoomorphic and anthropomorphic forms, Axes, Cores, Utilized Flakes, "Jade-like" pendants, metates (ceremonial/extra local, "common not abundant)	Specialized axe production and exchange in luxury goods network. Site as node. Elite or non-elite consumption of exotic goods.	Corrales 2000; Drolet 1992:213,220 222
<b>Curré</b>	100	6	Curré (1000-300 B.C)/Quebradas/Aguas Buenas (300 B.C.-800 A.D.)/Chiriquí (800- Contact)	Cobble paved mounds, some with cobble walls.	Burials Located within habitation zone.	Curré, Quebradas, Aguas Buenas and Chiriquí Pottery.	Central Place/ceremonial zone	Corrales 1985,1989,2000: 99
<b>San Vito / El Zoncho</b>	1350	6	Quebradas/Aguas Buenas (300 B.C.-800 A.D.)/Chiriquí (800- Contact)	Artificial mortuary mounds	Burials	Quebradas, Aguas Buenas and Chiriquí Pottery, Stone Sculpture	High status burials	Laurencich de Minelli 1966, Laurencich de Minelli 1973; Gomez and Soto 2001
<b>Barriles</b>	1300	30	Barriles/late Bugaba (300 B.C. – 600 A.D.)	Large oval mound measuring 46x27 m	Mound with stone sculptures surrounding it, Barrel shaped	Barriles pottery. Stone sculpture suggesting Master-slave relationship.	Territorial and Socio-ceremonial center. Elite residence.	Corrales 2000; Dahlin 1980:288; Hoopes 1996;



					sculptures. Numerous Petroglyphs			Linares and Ranere 1980; Stirling 1950
<b>Pitti-Gonzalez</b>	1860	18	Early Bugaba (200-400 A.D.) to Late Bugaba (400-600 A.D.) (3 Radiocarbon dates also place the site late in the Barriles sequence)	Modified ridgeline.	Posthole configuration suggesting oval structures. Stone supported foundations (not abundant)	Bugaba Pottery, lithic debitage, cores, chisel (1), celts, grinding palettes, metates.	Specialization	Dahlin 1980: 278, 282; Ranere 1980: 122
<b>Pitahaya</b>	150	8.5	Late Bugaba to San Lorenzo (400-700 A.D.)	Angular rock-capped mounds on natural rises	Intrusive burials associated with basalt columns	Bugaba and San Lorenzo Bowls and Jars. Cores, perforators, ground celts. Metates, ceremonial and quotidian. Stone sculpture.	Territorial and Socio-ceremonial center. Elite residence. Stone tool refinement center	Linares 1980; Linares and Ranere 1980

**Table F 1: Site Descriptions and attributes of contemporary high-labor investment sites in Greater Chiriquí (Continued From previous page)**

## Additional Correspondence Biplots and Dendrograms

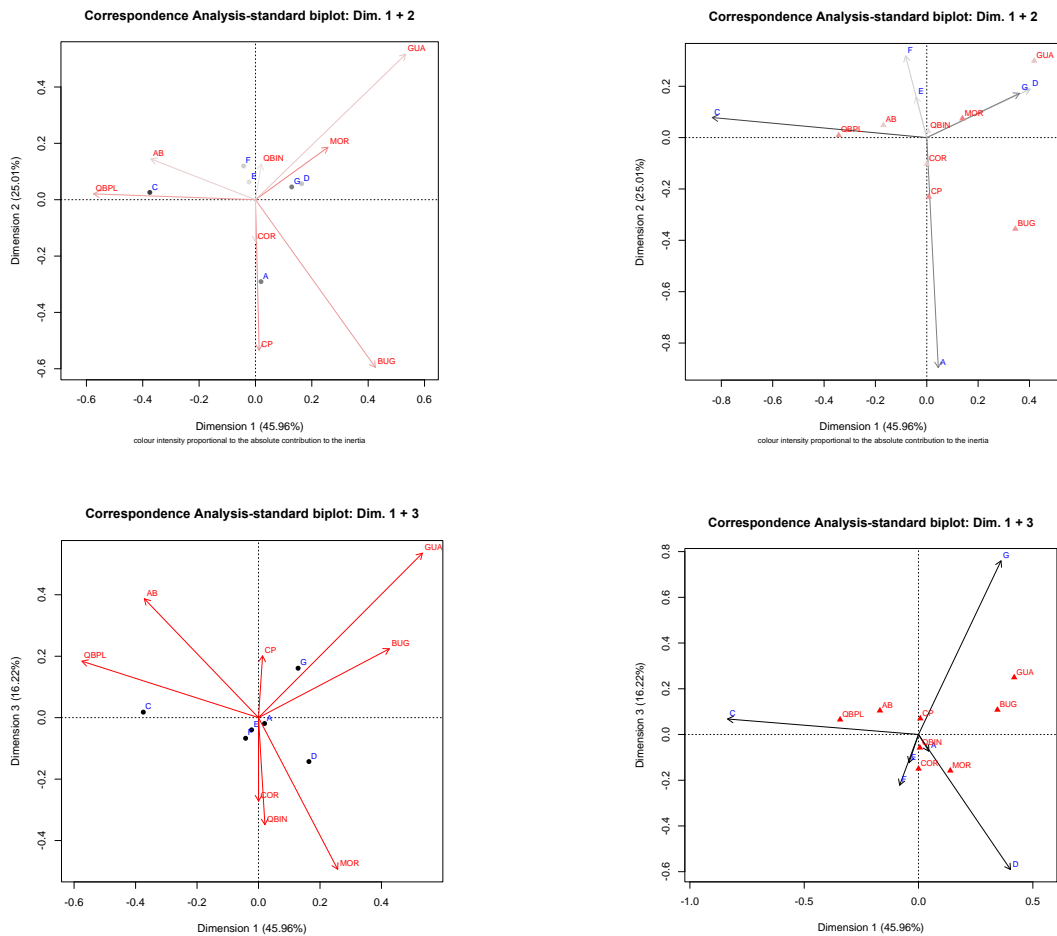


Figure F 1: Additional Biplots for 1st, 2nd and 3rd Dimensions of Condensed Ceramic Types and Operations

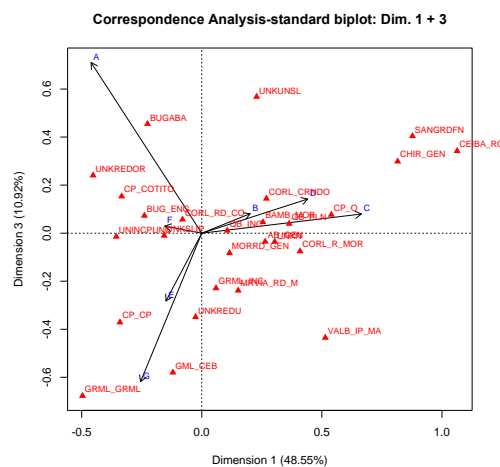
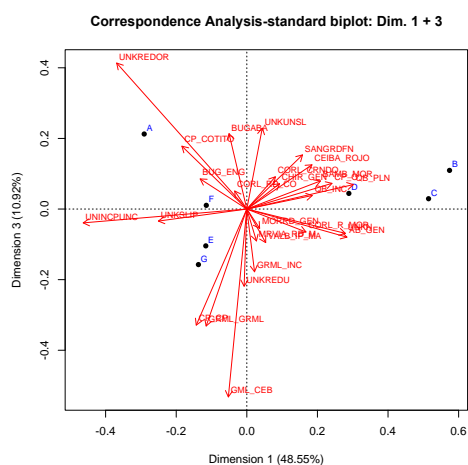
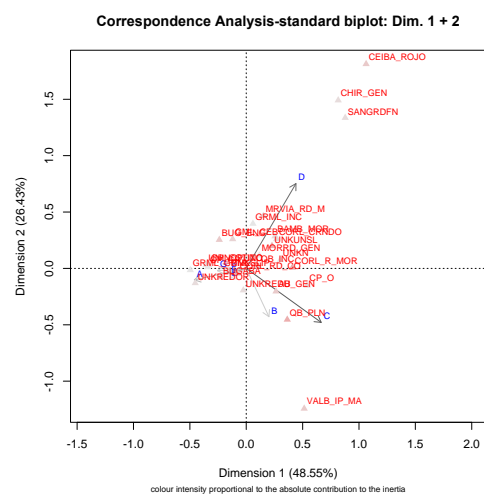
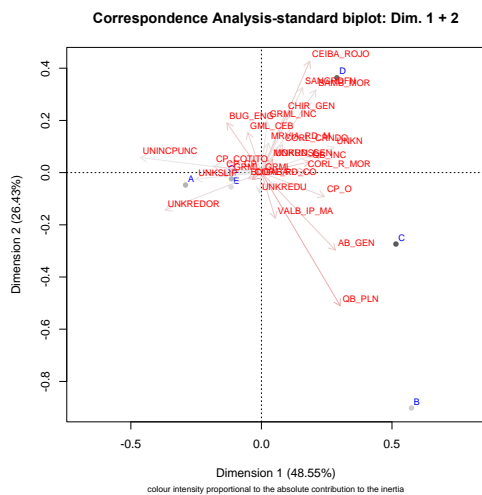


Figure F 2: Additional Biplots for Expanded Ceramic Categories

## Mortuary Feature Ceramic and Lithic Tables

Operation A Feature 1 Ceramics			
Level 1	N	Level 3	N
Corral Red Moravia	1	Quebradas Incised	3
Bugaba Engraved	1		
Quebradas Incised	5		
Bambito Moravia	2		
Moravia Red Moravia	1		
Cerro Punta Cotito	1		
<b>Total</b>	<b>11</b>		<b>3</b>

Table F 2: Feature 1 Ceramics

Operation A Feature 1 Lithics					
Level 1	N	Level 3	N	Level 4	N
Primary Flake	1	Flake Fragment	2	Primary Flake	1
Interior Flake	10	Shatter	1	Interior Flake	3
Thinning Flake	1			Thinning Flake	1
Core Fragment	1			Tool	1
Flake Fragment	2				
Tool	3				
Tested Cobble	1				
<b>Total</b>	<b>19</b>		<b>3</b>		<b>6</b>

Table F 3: Feature 1 Lithics

Operation A Feature 2 Ceramics			
Level 1	N	Level 2	N
Quebradas plain	1	Quebradas Plain	2
Aguas Buenas general	4	Moravia Red General	1
Cerro Punta orange	1	Corral Red Moravia	1
Corral Red Moravia	1	Bugaba Engraved	1
Bugaba Engraved	2	Quebradas Incised	1
Quebradas Incised	7	Bambito Moravia	2
Bambito Moravia	1		
<b>Total</b>	<b>17</b>		<b>8</b>

Table F 4: Feature 2 Ceramics

<b>Operation A Feature 2</b>			
<b>Level 1</b>	<b>N</b>	<b>Level 2</b>	<b>N</b>
<b>Interior</b>	3	<b>Interior</b>	3
<b>Flake Fragment</b>	1	<b>Tested Cobble</b>	2
<b>Biface Fragment</b>	1	<b>Other</b>	1
<b>Total</b>	<b>5</b>		<b>6</b>

**Table F 5: Feature 2 Lithics**

<b>Op A Feature 9 Ceramics</b>							
<b>Level 1</b>	<b>N</b>	<b>Level 2</b>	<b>N</b>	<b>Level 3</b>	<b>N</b>	<b>Level 4</b>	<b>N</b>
<b>Quebradas Plain</b>	5	<b>Quebradas Plain</b>	1	<b>Quebradas Incised</b>	2	<b>Quebradas Plain</b>	1
<b>Aguas Buenas</b>	4	<b>Aguas Buenas</b>	1	<b>Cerro Punta Cotito</b>	1	<b>Quebradas Incised</b>	2
<b>Bugaba Engraved</b>	2	<b>Quebradas Incised</b>	4			<b>Bambito Moravia</b>	3
<b>Guarumal Incised</b>	3						
<b>Quebradas Incised</b>	16						
<b>Bambito Moravia</b>	1						
<b>Coral Red Coral</b>	3						
<b>Cerro Punta Cotito</b>	3						
<b>Cerro Punta Cerro Punta</b>	2						
<b>Total</b>	<b>39</b>		<b>6</b>		<b>3</b>		<b>6</b>

**Table F 6: Feature 9 Ceramics**

<b>Op A Feature 9 Lithics</b>							
<b>Level 1</b>	<b>N</b>	<b>Level 2</b>	<b>N</b>	<b>Level 3</b>	<b>N</b>	<b>Level 4</b>	<b>N</b>
<b>Primary Flake</b>	2	<b>Interior Flake</b>	3	<b>Primary Flake</b>	2	<b>Interior Flake</b>	6
<b>Secondary Flake</b>	2			<b>Interior Flake</b>	4	<b>Flake Fragment</b>	1
<b>Interior Flake</b>	13			<b>Other</b>	1		
<b>Thinning Flake</b>	2						
<b>Core Fragment</b>	1						
<b>Tool</b>	1						
<b>Biface Fragment</b>	1						
<b>Uniface Fragment</b>	1						
<b>Total</b>	<b>23</b>		<b>3</b>		<b>6</b>		<b>7</b>

**Table F 7:Feature 9 Lithic**

<b>Op A Feature 10 Ceramics</b>					
<b>Level 1</b>	<b>N</b>	<b>Level 2</b>	<b>N</b>	<b>Level 3</b>	<b>N</b>
Quebradas Plain	2	Quebradas Plain	1	Quebradas Incised	6
Aguas Buenas	2	Aguas Buenas	2	Cerro Punta Cotito	1
Bugaba Engraved	3	Bugaba Engraved	1		
Quebradas Incised	7	Quebradas Incised	4		
Bambito Moravia	2	Coral Red Coral	1		
Valbuena	1				
Coral Red Coral	1				
Cerro Punta Cotito	3				
<b>Total</b>	<b>21</b>		<b>9</b>		<b>7</b>

**Table F 8:Feature 10 Ceramics**

<b>Op A Feature 10 Lithics</b>					
<b>Level 1</b>	<b>N</b>	<b>Level 2</b>	<b>N</b>	<b>Level 3</b>	<b>N</b>
Secondary Flake	1	Interior Flake	3	Primary Flake	3
Interior Flake	8	Tested Cobble	1	Secondary Flake	2
Thinning flake	1			Interior Flake	9
Core	1			Thinning flake	1
Tool	1			Core Fragment	2
Other	4			Biface Fragment	1
				Uniface Fragment	1
<b>Total</b>	<b>16</b>		<b>4</b>		<b>19</b>

**Table F 9:Feature 10 Lithics**

<b>Op A Feature 11 Ceramics</b>		<b>Op A Feature 11 Lithics</b>	
<b>Level 1</b>	<b>N</b>	<b>Level 1</b>	<b>N</b>
Aguas Buenas general	4	Sec	1
Bugaba engraved	1	Interior	7
Quebradas incised	6	Flake fragment	3
Bambito Moravia	3	Tested cobble	1
Corral red corral	1	Other	4
Cerro Punta Cotito	2		
Guarumal Cebaca	1		
<b>Total</b>	<b>18</b>		<b>16</b>

**Table F 10:Feature 11 Ceramics and Lithics**

Operation A Feature 14 Ceramics	
Level 1	N
Unknown Red Slip	5
Unknown Incised	1
Total	6

Table F 11: Feature 14 Ceramics (no lithics present)

Operation A Feature 15 Ceramics					
Level 1	N	Level 2	N	Level 3	N
Aguas Buena General	1	Quebradas Plain	1	Unknown Red Slip	1
Unknown Red Orange	4	Unknown Red Slip	1		
Corral Red Moravia	1	Unknown Red Orange	2		
Quebradas Incised	3	Quebradas Incised	3		
Unknown Incised	2	Unknown Incised	8		
Cerro Punta Cotito	1	Corral Red Corral	1		
	12	Cerro Punta Cotito	1		
		Guarumal v. Guarumal	1		
Total	12		18		1

Table F 12: Feature 15 Ceramics

Operation A Feature 15 Lithics			
Level 1	N	Level 2	N
Primary Flake	1	Primary Flake	1
Secondary Flake	1	Secondary Flake	1
Interior Flake	1	Interior Flake	3
Core	1	Flake Fragment	1
Tool	1	Tool	1
Total	5	Total	7

Table F 13: Feature 15 Lithics

<b>Operation D Feature 4 Ceramics</b>			
<b>Level 1</b>	<b>N</b>	<b>Level 2</b>	<b>N</b>
Quebradas Plain	2	Quebradas Plain	4
Aguas Buenas General	2	Aguas Buenas General	4
Unknown Red Slipped	5	Moravia Red General	1
Unknown Red Orange	2	Unknown Red Slipped	16
Corral Red Moravia	1	Unknown Smudged	1
Quebradas Incised	5	Unknown Red Orange	5
Unknown Incised	10	Unknown Slipped	1
Corral Red Coronado	1	Bugaba Engraved	1
Unknown Punctate	2	Quebradas Incised	12
		Bambito Moravia	3
		Unknown Incised	14
		Corral Red Coronado	1
		Cerro Punta Cotito	6
		El Bosque	1
		Unknown Brown	1
<b>Total</b>	<b>30</b>		<b>71</b>

Table F 14: Feature 4 Ceramics

<b>Operation Feature 4 Lithics</b>			
<b>Level 1</b>	<b>N</b>	<b>Level 2</b>	<b>N</b>
Interior Flake	9	Primary Flake	3
Thinning Flake	1	Interior Flake	17
Core Fragment	1	Toll	2
Tool	1	Other	9
Tested Cobble	1	Biface Fragment	1
Other	1	Uniface Fragment	2
		Shatter	1
<b>Total</b>	<b>14</b>		<b>35</b>

Table F 15: Feature 4 Lithic Artifact Distribution



Operation D Feature 12 Ceramics		Operation D Feature 12 Lithics	
Level 1	N	Level 1	N
Quebradas plain	1	Primary Flake	4
Aguas Buenas General	1	Interior Flake	9
Moravia Red General	1	Thinning flake	3
Unknown red slip	8	Core	0
Cerro Punta orange	1	Core fragment	1
Unknown Red Orange	1	Flake fragment	2
Bugaba Engraved	3	Tool	1
Quebradas Incised	10	Tested Cobble	1
Bambito Moravia	3	Other	1
Unknown incised	10	Biface fragment	1
Corral red corral	2		
Cerro Punta Cotito	1		
Total	42		23

Table F 16: Feature 12 Ceramic and Lithics

Operation D Feature 13 Ceramics		Operation D Feature 13 Lithics	
Level 1	N	Level 1	N
Quebradas Plain	11	Primary Flakes	5
Aguas Buena General	11	Secondary Flakes	1
Moravia Red General	1	Interior Flakes	23
Unknown Red Slip	21	Core fragment	1
Unknown Red Orange	14	Other	4
Unknown	2	Biface fragment	2
Bugaba Engraved	2	Uniface fragment	3
Quebradas Incised	23	Shatter	1
Bambito Moravia	4		
Unknown Incised	25		
Corral Red Corral	1		
Cerro Punta Cotito	1		
Cerro Punta Cerro Punta	1		
El Bosque	2		
La Selva	1		
Unknown Brown	2		
Total	122		40

Table F 17: Feature 13 ceramics and lithics

Operation E Feature 7 Lithics	
Level 1	N
Tested Cobble	1
Other	2
Biface	1
Total	4

Table F 18: Feature 7 lithic distributions (no ceramics present)

Operation E Feature 8 Ceramics		Operation E Feature 8 Lithics	
Level 1	N	Level 1	N
Unknown Red Slip	1	Primary Flake	1
Unknown Red Orange	2	Interior Flake	5
Quebradas Incised	1	Tested Cobble	1
Bambito Moravia	1	Other	3
Unknown Incised	3	Shatter	1
Total	8		11

Table F 19: Feature 8 ceramic and lithics

Operation G Feature 3 Ceramics		Operation G Feature 3 Lithics	
Level 1	N	Level 1	N
Quebradas Plain	6	Primary	7
Aguas Buenas General	19	Secondary	2
Corral Red Moravia	1	Interior	60
Bugaba engraved	1	Thinning flake	10
Guarumal incised	6	Core	1
Quebradas incised	18	Core fragment	2
Bambito Moravia	7	Flake fragment	13
Corral red corral	4	Tool	6
Moravia Red Moravia	1	Tested Cobble	5
Cerro Punta Cotito	6	Other	1
Cerro Punta Cerro Punta	1	Shatter	3
Guarumal v. Guarumal	2		
Guarumal Cebaca	3		
Unknown	87		
Total	162		110

Table F 20: Feature 3 ceramics and lithics

Operation G Feature 5 Ceramics		Operation G Feature 5 Lithics	
Level 1	N	Level 1	N
Quebradas plain	12	Primary Flake	2
Aguas Buenas General	18	Secondary Flake	1
Moravia Red General	1	Interior Flake	50
Unknown	85	Thinning flake	6
Bugaba engraved	11	Flake fragment	1
Quebradas incised	16	Tool	2
Bambito Moravia	1	Other	9
Corral Red Corral	2	Biface fragment	1
Cerro Punta Cotito	1	Uniface fragment	5
Cerro Punta Cerro Punta	1	Biface	1
Guarumal v. Guarumal	1	Shatter	2
Guarumal Cebaca	1		
El Bosque	1		
Black Paint on Red	1		
Zoned incised	1		
Total	153		80

**Table F 21: Feature 5 ceramics and lithics**