

LA CONSENTIDA: INITIAL EARLY FORMATIVE PERIOD SETTLEMENT, SUBSISTENCE, AND SOCIAL
ORGANIZATION ON THE PACIFIC COAST OF OAXACA, MEXICO

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La Consentida: Initial Early Formative Period Settlement, Subsistence, and Social Organization
on the Pacific Coast of Oaxaca, Mexico

written by Guy David Hepp

Thesis directed by Professor Arthur A. Joyce

In this dissertation I address the timing of and interrelatedness between initial Early Formative period (2000–1500 BCE) transitions in residential mobility, subsistence, and social organization in Mesoamerica. I approach these topics using evidence from the La Consentida Archaeological Project (LCAP), a multi-season field and laboratory investigation of the site of La Consentida on the Pacific coast of Oaxaca, Mexico. Based on six radiocarbon dates (1947–1530 cal B.C.), La Consentida represents the earliest village site ever discovered in coastal Oaxaca, and likely in much of Pacific coastal Mexico. According to these dates, the site has produced some of the earliest ceramics and mounded earthen architecture known in Mesoamerica. In this dissertation, I argue on the basis of changes over time in earthen architecture, ground stone tools, and house construction that the community grew more sedentary over the course of site occupation. Based on studies of faunal remains, human dental pathologies, isotopic indicators, and food processing technology, I conclude that the community ate a broad diet but consumed more maize than did contemporaneous groups in other Early Formative period occupation areas, such as the Soconusco region of Chiapas and Guatemala. Culinary preferences may have changed at La Consentida, however, with a shift over time from consuming maize in beverage form to processing flour on stone mills that prompted increasing dental attrition. Anthropomorphic ceramic figurines from the site demonstrate a diversity of

social roles, suggesting that the community was heterarchically complex from very early in its history. Obsidian sourcing and evidence of ceramic formal and decorative styles similar to those from other Formative period sites in West Mexico, the Valley of Oaxaca, and Central Mexico indicate La Consentida's broad interaction sphere. The very early dates associated with ceramic vessel fragments from La Consentida may complicate current models for the adoption of ceramic technology in Mesoamerica by suggesting an early tradition developing along the western Pacific coast that was contemporaneous with the Soconusco region's Barra phase (1900–1700 cal B.C.). These various lines of evidence demonstrate that La Consentida was a community in transformation during one of the most fundamental moments of socioeconomic change in the ancient Americas. Research at La Consentida is relevant to key archaeological debates concerning Archaic to Formative period transitions in settlement, subsistence, and social organization. Evidence from the site is beginning to support arguments for gradual adoption of sedentism, early consumption of significant quantities of maize, and the importance of heterarchical distinctions in the birth of Mesoamerican social complexity.

To my family

and

a los costeños,

a los de hoy y a los de ayer,

a los nativos y a los recién llegados

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Archaeological dissertation projects are not really the work of one person, but instead result from the collaborative efforts of field researchers, local people, permitting agencies, funding sources, colleagues and friends, family, and mentors. In undertaking the research presented in this dissertation, I have benefitted from countless brainstorming sessions, studies by other scholars, and unwavering support from friends and family. It is impossible to name everyone who has influenced my work, but I will use this opportunity to mention a few. First, I want to thank the funding bodies that supported this project. I am grateful to the National Science Foundation (Grant #: BCS-1213955), the Fulbright-García Robles Scholarship committee (Grantee ID: 34115725), the University of Colorado Graduate School and the Department of Anthropology, the CU Latin American Studies Center, the Center to Advance Research and Teaching in the Social Sciences, the Colorado Archaeological Society, the Montrose Community Foundation, and the Florida State University Department of Anthropology. Without financial backing from these groups, I could not have completed this project. I also thank the *Instituto Nacional de Antropología e Historia* (INAH) for permitting this research.

The La Consentida Archaeological Project (LCAP) has benefitted from the labors of a diverse group of archaeologists and field assistants. LCAP volunteer and staff archaeologists included Kyle Urquhart, Susan Chandler-Reed, Alan Reed, Martín Cuitzeo Domínguez Nuñez, Adam Andrus, and Jamie Forde. These assistants oversaw labor teams, organized artifacts, completed paperwork, made scale drawings, took photographs, and helped excavate important features. Sarah “Stacy” Barber of The University of Central Florida generously lent me ground

penetrating radar and mapping equipment at key points in the 2009 and 2012 field seasons. Carlo Lucido and Jeff Brzezinski helped with mapping, and Carlo returned for some crucial profile drawing. José “Pepe” Aguilar provided bioarchaeological expertise and companionship as the 2012 field season drew to a close and I lived alone in San José del Progreso for months with only pottery and tarantulas for company. All fieldwork was made possible with the help of local workers. Over several seasons of research, I worked with many residents of San José del Progreso and the modern town of La Consentida. The local knowledge, funny stories, delicious and strange food, and *banda* music they shared with me are among my many reasons for returning to Oaxaca season after season. Though there is not room to mention everyone who worked on the project, particularly good friends among them include Felix Herrera, Giovanni Pinto, Angel “Chucho” Reyes, Rey David Rosario, Anselmo Ramos, Ramiro Pinto, Jesus Pacheco, and Leticia Gómez. Without the generous use of the land and bridge owned by the Soltelo brothers (Vicente and Gerónimo), our team would have been swimming across a canal to reach the site every day. I am also grateful for the mentorship of my advisor, Arthur Joyce. Art was able to visit the site and provide guidance intermittently during the LCAP. His advice and encouragement have been driving forces, and I’m glad he introduced me to La Consentida.

The LCAP has included collaboration with a local community museum (*Museo Comunitario Yucuzaa/Tututepec*), and resulted in the production of an educational display at the museum. Following the 2012 season, I presented a public talk summarizing the project to about one hundred members of the public at the Hotel Santa Fe in Puerto Escondido, Oaxaca. I am indebted to Robin Cleaver, Barbara Cleaver, Paul Nunn Cleaver, Roberto Lepe, Gina Machorro, and Sheila Clarke for making this presentation possible through their

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Twice during this project, my mother, Anne Hepp, came to Oaxaca to visit. Rather than taking a vacation, she went to work sorting and photographing artifacts. When the 2012 season ended, my father, Mike Hepp, flew to Oaxaca to be my co-pilot on a 2,500-mile drive back to Colorado. I was glad to find his love for road trips both unmatched and unquenchable. I want to thank my grandparents, Jeannette Hepp and Donald Hepp, without whose support I could not have made it this far with my education. My grandmother, Jo Knight, provided countless meals and a timely loan when funds got tight. She also lent me a sympathetic ear as I discussed the project with her for years. That's what she gets for living in Boulder. My brother and sister-in-law, Simon and Elizabeth Hepp, gave me a great place to work when I visited them in Spain. Celebrating *Carnival* was a good way to blow off steam built up from all the writing.

My first visit to La Consentida was in the summer of 2008, when Art Joyce led a crew of researchers on something of a vision quest into the coastal jungle of the *Parque Nacional de Chacahua*. I was already almost sure I wanted to do my dissertation work at the site. After

hours of searching for La Consentida, we finally stumbled (hot, sweating, and exhausted) upon the main platform. In subsequent years, La Consentida has often seemed to shift location, even eluding rediscovery when GPS points should lead me right to it. Perhaps the site is just hiding until those who seek her pay an ample blood offering to the fire ants, mosquitos, killer bees, and ticks. Such journeys are allegorical of the project as a whole. At times, organizing research that would do justice to La Consentida has felt like an overwhelming task. Some days the mosquitos seemed to exact more than a fair toll. It is to the support and participation of people I've mentioned here (and others) that I owe much of the credit for seeing this through.

Finally, and at the risk of falling into cliché, I want to thank the ancient La Consentida community itself. My curiosity about the lives of these early Mesoamerican people, which I believe were lived at a pivotal moment in New World history, has never diminished despite the challenges of the project. Their art, rituals, and modes of making a living in a difficult climate and without modern amenities have fascinated and bolstered me when the project seemed most daunting. It is in this spirit of interest in and passion about the lives of Oaxaca's people (both ancient and modern) that I dedicate this dissertation to the memory of my friend, Paul Cleaver. Paul loved Oaxaca as much as anyone I have ever met. He had an appetite for knowledge, and a drive to establish a Puerto Escondido intelligentsia, that I will never forget. He seemed to me one of the last real Renaissance men, and appeared to have at least some knowledge about every topic I could think of to discuss with him. The stories he told at his bed and breakfast, *El Hotel Tabachín*, were so fantastical that I was never sure which ones to believe, and would often jot down notes for later fact checking. We did not know each other long enough, but I'm glad to call him a friend. This one's for you, Don Pablo.

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Chapter I: Introduction

Introduction to the dissertation

The Mesoamerican Early Formative period (1600–850 BCE)¹ was a time of social transformation. In the preceding Archaic period, (7000–1600 BCE) mobile hunter-gatherers had moved seasonally across the landscape and experimented with a few domesticates such as squash, maize, beans, and root crops. By the end of the Formative, Mesoamericans lived in permanent towns and cities, relied upon agriculture, and were ruled by powerful royal dynasties. The Late Archaic and Early Formative periods set the stage for these dramatic changes, but the exact timing of and the possible connections between transitions to sedentism, agriculture, and social complexity are debated in Mesoamerican archaeology (Blake and Clark 1999; Clark 2004a; Killion 2013; Lesure and Blake 2002; Love 2007; Webster 2011). Though sedentism was traditionally seen as beginning with the Early Formative (e.g., Flannery 1972a), more recent scholarship has suggested that certain groups remained semi-mobile for centuries (e.g., P. Arnold 1999). Though some researchers (Coe 1981; Coe and Flannery 1967; Sanders and Webster 1978) have argued that the economic basis for sedentism was maize agriculture (supplemented with other crops such as squash and beans), others (e.g., P. Arnold 2009; Blake et al. 1992; Clark et al. 2007; Smalley and Blake 2003; VanDerwarker 2006) propose that maize in coastal zones was a feasting food that, along with other, limited-use horticultural products, supplemented a broad diet consisting mostly of wild resources collected in estuarine or floodplain settings. The origin of Mesoamerican social complexity is another topic of

¹ In this dissertation, dates reported with “BCE” and “CE” are uncalibrated dates. Calibrated radiocarbon dates, and time spans based upon them, are reported with “cal B.C.”

disagreement. The timing of initial social complexity differed between regions, with areas such as Mazatán apparently experiencing hierarchical hereditary inequality by about 1600 cal B.C. (Clark 1991, 1997; Hill and Clark 2001). In comparison, the Gulf Coast region likely did not see such formalized social inequalities until somewhat later in the Early Formative period, and regions of the Soconusco outside of Mazatán did not do so until the Middle Formative (850–400 BCE) (Love 2002; Pool 2007). Traditional definitions of social complexity focus on hereditary hierarchical inequalities (Feinman and Marcus, eds. 1998; Spencer and Redmond 2004), while more recent research has considered the ways in which complex heterarchical distinctions influence social landscapes (e.g., Crumley 1995, 2004; McIntosh, ed. 1999; Pauketat and Emerson 2004; Vega-Centeno Sara-Lafosse 2007:169).

Early Formative sites are found in both highland and coastal regions of Mesoamerica (Figure 1.1; P. Arnold 2009; Flannery and Marcus, eds. 2003). Many coastal sites occur near estuaries, especially in the Soconusco region (Blake and Clark 1999; Clark 2004a; Lesure, ed. 2009, Lesure 2011a). Despite decades of research in various environmental and geographic settings, large areas (such as much of Mexico's Pacific coast) remain enigmas regarding Early Formative history. This circumstance dictates that explanatory models for Early Formative social transitions are based on research in only a few regions. Worldwide, the establishment of villages (and the dietary and social implications of that process) presents major archaeological research problems, but no consensus exists as to its causes (Banning 2003; Bar-Yosef and Belfer-Cohen 1989; Boyd 2006; Byrd 1994; Choe and Bale 2002; Flannery, ed. 2009; Joyce and Henderson 2001). To address these debates and gaps in the literature, my doctoral dissertation

asks: what relationships existed between settlement, subsistence, and social organization at the initial Early Formative (2000–1500 cal B.C.) site of La Consentida in Oaxaca, Mexico?



Figure 1.1: Map of key sites mentioned in the text

My studies at La Consentida have taken place during six field and laboratory seasons totaling over twenty months of research (Hepp 2011a, 2011b, 2014; Hepp and Joyce 2013; Hepp et al. 2014). Based on six radiocarbon samples (Table 1.1), which provide a calibrated date range of 1947–1530 cal B.C. when reported with 2σ probability and 1885–1611 cal B.C. when reported with 1σ probability,² La Consentida represents the earliest well-dated Formative period site discovered to date in Oaxaca (Hepp 2011c, 2014; Hepp and Joyce 2013:266–267;

² AMS radiocarbon calibration performed with IntCal 13 curve by OxCal 4.2. Unless otherwise stated, I report calibrated dates with 2σ probability (Reimer et al. 2013).

Hepp et al. 2014; A. Joyce 2010:71–72).³ The contexts from which these dated samples were collected are sound and are unequivocally associated with both ceramics and mounded earthen architecture. As described in Table 1.1, dated deposits include well-preserved hearths sealed between layers of platform fill and burned food adhering to a jar fragment from a primary midden deposit. With the exception of one sample that was probably contaminated, the radiocarbon dates are also quite consistent across wide areas of the site. More specific details about these dated contexts (and all strata excavated during the LCAP) can be found in Chapter IV. These radiocarbon dates are older than those for other Early Formative Oaxacan deposits of the Tierras Largas (1400–1200 BCE, or 1600–1400 cal B.C.) and Lagunita (1500–1100 BCE, or 1750–1350 cal B.C.) phases (Table 1.2).⁴ I am aware of no radiocarbon dates for the Espiridión phase, which some authors (Flannery and Marcus 1994:375) argue predates Tierras Largas. Espiridión is now in question as a phase distinct from Tierras Largas (Marcus Winter, personal communication 2013). The dates also establish La Consentida as contemporary with the Barra phase (1900–1700 cal B.C.) of the Soconusco. Comparison between these dated phases demonstrates that La Consentida has yielded some of the earliest ceramics and perhaps the earliest mounded earthen architecture known in all of Mesoamerica (Table 1.2). The site thus provides a unique opportunity to address debates in Early Formative period studies. As I discuss in Chapters VIII and IX, the early dates complicate current models for the adoption of ceramics in Mesoamerica (e.g., Clark and Blake 1994), and suggest that there may have been two contemporaneous ceramic traditions established in the region by about 1900 cal B.C.

³ By conventional definition, the presence of ceramics establishes La Consentida as dating to the Early Formative period, rather than to the Late Archaic period (see R. Joyce 2004b).

⁴ The calibrated date ranges for the Tierras Largas and Lagunita phases are my own estimates based on published, uncalibrated dates and the IntCal 13 curve by OxCal 4.2.

AMS radiocarbon date	Uncalibrated	2σ calibration	1σ calibration	Material / lab number	Context
3480 ± 60⁵	1590–1470 BCE	1947–1644 cal B.C.	1885–1741 cal B.C. (64.2%) 1711–1700 cal B.C. (4.0%)	Wood carbon (Beta-131037)	Floor or occupation layer
3482 ± 40	1572–1492 BCE	1904–1692 cal B.C.	1878–1839 cal B.C. (24.1%) 1828–1751 cal B.C. (44.1%)	Carbon-rich sediment (AA92453)	Hearth in Platform 1 fill
3443 ± 35	1528–1458 BCE	1880–1665 cal B.C.	1869–1847 cal B.C. (11.6%) 1775–1691 cal B.C. (56.6%)	Wood carbon (AA101267)	Occupational surface
3435 ± 44	1529–1441 BCE	1880–1641 cal B.C.	1871–1845 cal B.C. (11.1%) 1812–1803 cal B.C. (3.1%) 1777–1684 cal B.C. (54.1%)	Carbon-rich sediment (AA101269)	Possible hearth in midden
3419 ± 36	1505–1433 BCE	1876–1626 cal B.C.	1761–1662 cal B.C. (68.2%)	Carbonized food (AA104836)	Burned food adhering to jar fragment from Op. LC12 H midden
3358 ± 43	1451–1365 BCE	1746–1530 cal B.C.	1736–1716 cal B.C. (8.5%) 1695–1611 cal B.C. (59.7%)	Carbon-rich sediment (AA92454)	Hearth in Platform 1 fill
2433 ± 35⁶	518–448 BCE	751–682 cal B.C. (21.2%) 669–636 cal B.C. (8.0%) 626–614 cal B.C. (1.5%) 592–405 cal B.C. (64.8%)	729–694 cal B.C. (13.0%) 658–654 cal B.C. (1.5%) 542–414 cal B.C. (53.4%)	Carbon-rich sediment (AA101268)	Structure 2 domestic area

Table 1.1: AMS radiocarbon dates from La Consentida (calibrated with IntCal 13 curve by OxCal 4.2). Reported with both 1σ and 2σ probability

⁵ A. Joyce 2005:17

⁶ This date is considered suspect, based on its shallow deposition and proximity to modern plant roots. The sample may have been contaminated or may represent some burning event subsequent to site abandonment. It also occurs at a plateau on the calibration curve.

Phase name	Site/region	Uncalibrated date	Calibrated date
Tlacuache	Oaxaca coast (La Consentida)	1600–1350 BCE	1950–1500 cal B.C.
Barra⁶	Soconusco	1600–1450 BCE	1900–1700 cal B.C.
Espiridión⁷	Valley of Oaxaca	1600–1400 BCE est.	1900–1600 cal B.C. est.
Ojochi⁸	Gulf coast	1550–1400 BCE est.	1800–1600 cal B.C.
Pox⁹	Guerrero coast (Puerto Marqués)	1500 BCE est.	1750 cal B.C. est.
Lagunita¹⁰	Isthmus	1500–1100 BCE	1750–1350 cal B.C. est.
Locona¹¹	Soconusco	1450–1300 BCE	1700–1500 cal B.C.
Bajío¹²	Gulf coast	1400–1300 BCE est.	1600–1500 cal B.C.
Tierras Largas¹³	Valley of Oaxaca	1400–1200 BCE	1600–1450 cal B.C. est.
Cruz A¹⁴	Mixteca Alta	1400–1150 BCE	1600–1400 cal B.C. est.
Ocotillo¹⁵	Honduran coast	1400–1100 BCE	1600–1350 cal B.C. est.
Ocos¹⁶	Soconusco	1300–1150 BCE est.	1500–1400 cal B.C.
Tulipan¹⁷	Gulf coastal highlands	1300–1150 BCE	1500–1400 cal B.C. est.
Chicharras¹⁸	Gulf Coast (San Lorenzo)	1250–1150 BCE	1500–1400 cal B.C. est.
Capacha¹⁹	Colima	1200–900 BCE	1450–1150 cal B.C. est.
Opeño²⁰	Michoacán	1200–900 BCE est.	1450–1150 cal B.C. est.
San José²¹	Valley of Oaxaca	1200–900 BCE	1450–1150 cal B.C. est.
Cherla²²	Soconusco	1150–1050 BCE est.	1400–1300 cal B.C.
Cotorra 1-A²³	Chiapa de Corzo	1150–1050 BCE	1400–1300 cal B.C. est.
San Lorenzo A²⁴	Gulf Coast (San Lorenzo)	1150–950 BCE est.	1400–1200 cal B.C.
Cruz B²⁵	Mixteca Alta	1150–850 BCE	1400–1100 est.
Coyame²⁶	Gulf Coastal Highlands	1150–850 BCE	1400–1100 est.
Golfo²⁷	Isthmus	1100–800	1350–1050 cal B.C. est.
Cotorra 1-B²⁸	Chiapa de Corzo	1050–1000 BCE	1300–1250 cal B.C. est.
Cuadros²⁹	Soconusco	1050–950 BCE est.	1300–1200 cal B.C.

Table 1.2: Comparison chronology of Mesoamerican Early Formative period phases

Site and regional background

The lower Río Verde Valley is located on the western Oaxaca coast (Figure 1.2). Although sediment cores indicate maize cultivation and anthropogenic land clearance going back into the late Archaic period, archaeological research since the 1980s has suggested that the region was only sparsely populated until the Middle Formative period (Goman et al. 2005, 2013; A. Joyce 1991b, 2005, 2010; Joyce and Goman 2012; Joyce and Mueller 1997). Contrary to recent published reports, however, it is not true that there was “virtually no occupation during the Archaic or Early Formative period (see Rosenswig 2014:21).” The region is best

⁶ Clark 1994:544

⁷ Flannery and Marcus 1994:375. Espiridión should likely be incorporated into the Tierras Largas phase, due to similarities in the ceramics (Marcus Winter, personal communication 2013). Since no radiocarbon dates exist for this phase, the ranges are hypothetical.

⁸ Cyphers and Zurita-Noguera 2012:146

⁹ Brush (1965:194) reported the Pox phase as 2940 ± 130 BCE. Clark and Cheetham (2002:314) revised the dates to 1500 BCE on the basis of stylistic similarities to Tierras Largas.

¹⁰ Reyes González and Winter 2010:151; Zeitlin 1978

¹¹ Clark and Cheetham 2002:295

¹² Cyphers and Zurita-Noguera 2012:146

¹³ Marcus and Flannery 1996:75

¹⁴ Blomster 2004; Spores 1984:18–19; Winter 1989

¹⁵ Joyce and Henderson 2001

¹⁶ Lesure 2011b:13

¹⁷ P. Arnold 2003:31

¹⁸ Coe and Diehl 1980a

¹⁹ I. Kelly 1980; Mountjoy 2006

²⁰ Mountjoy 2006; Oliveros 1974

²¹ Marcus and Flannery 1996:75

²² Lesure 2011b:13

²³ Bachand 2013:14

²⁴ Coe and Diehl 1980a

²⁵ Blomster 2004; Spores 1984:18–19; Winter 1989

²⁶ P. Arnold 2003:31

²⁷ Reyes González and Winter 2010:151; Zeitlin 1978

²⁸ Bachand 2013:14

²⁹ Lowe 2007

known ethnohistorically for the site of Tututepec, the seat of a Postclassic period (800–1521 CE) Mixtec empire (A. Joyce et al. 2004; Levine 2007, 2011; Spores 1993). Before the arrival of the Mixtecs, the area saw several periods of political centralization and destabilization with a complex settlement and political hierarchy centered at Río Viejo, the seat of short-lived Terminal Formative (150 BCE–200 CE) and Late Classic period (500–800 CE) polities (Barber and Joyce 2007; A. Joyce 1991b, 2005, 2006, 2010; A. Joyce, ed. 2013).

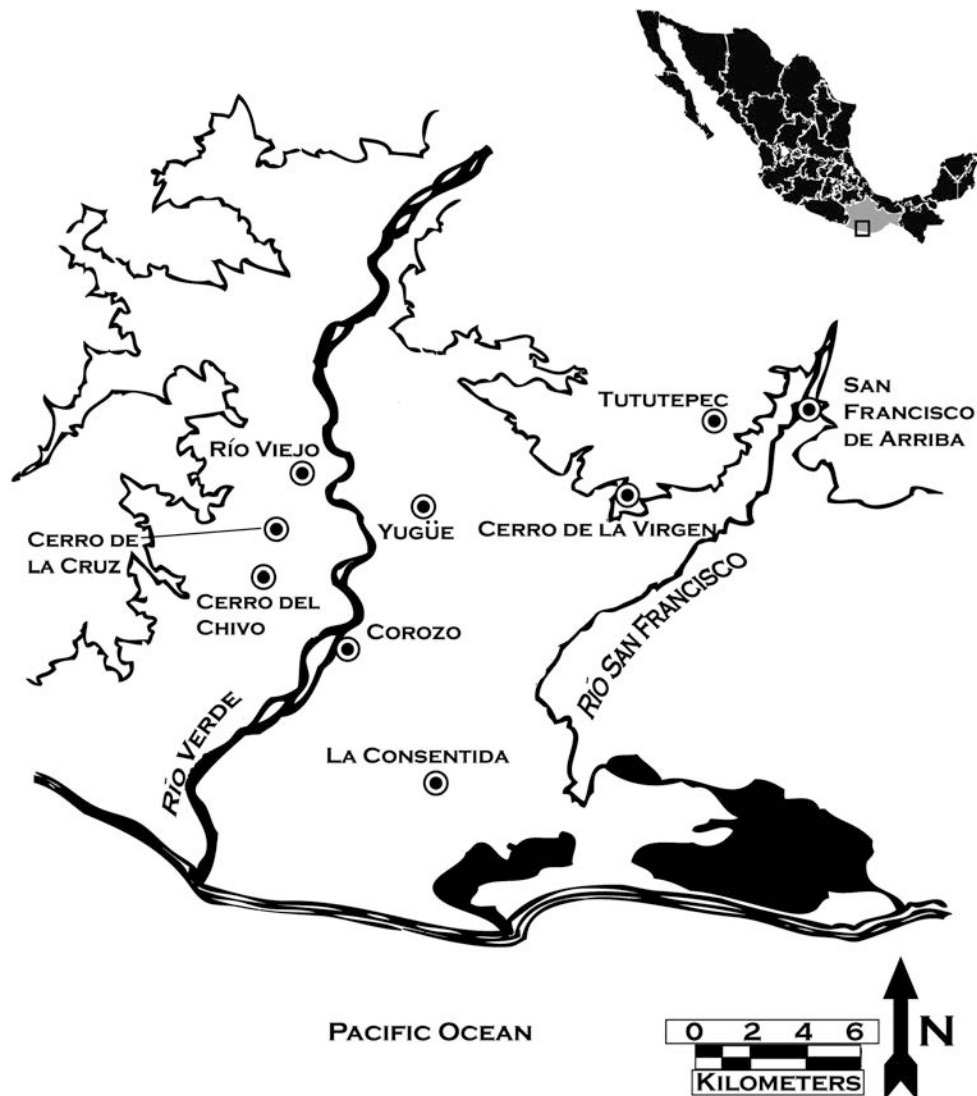


Figure 1.2: Map of archaeological sites in Oaxaca's lower Río Verde Valley

Prior to recent research at La Consentida, little was known about Early and Middle Formative period sites in the lower Río Verde Valley. La Consentida was initially discovered by archaeologists during a regional reconnaissance in 1986 (A. Joyce 1991b:85, 116–117). The site is located 5 km from the modern Pacific coastline, and falls within the boundaries of the Chacahua National Park. The site is named after a small town located between the national park and the local stretch of Mexico's Highway 200. La Consentida is recognized within the regional site catalogue as RV-72. During the Early Formative period, the site was probably positioned within about 4 km of an open bay (Goman et al. 2005, 2013; Joyce and Goman 2012; Figure 1.3). Based on artifacts and earthen architecture visible at the surface, La Consentida covers at least 4.5 hectares and is dominated by an earthen platform (Platform 1) measuring 300 x 100 meters in horizontal extent and averaging about 5 meters in height.



Figure 1.3: Reconstruction of open bay in the Early Formative period lower Río Verde Valley with locations of nearby sites containing Early Formative materials. (Image courtesy of Jessica D. Hedgepeth Balkin. See Goman et al. 2005 for the paleoecological work on which this map is based)

Preliminary work at La Consentida in 1988 (A. Joyce 1991b:406, 2005; Winter 1989) formed part of the Río Verde Formative Project, and included surface collections, sediment sampling, and excavation of a single test unit. A charcoal sample from this test unit, which was excavated at the top of the western edge of Platform 1, produced an AMS radiocarbon date of 3480 ± 60 (Beta-131037; wood charcoal; $\delta^{13}C = -24.4\%$) or 1947–1644 cal B.C. (A. Joyce 2005; Table 1.1). The sample was collected at approximately 12.8 meters above sea level (Winter

1989). The surprisingly early date for this sample sparked interest in further research at the site. Both surface collections and pilot excavations at La Consentida in 1988 recovered eroded medium brown ware sherds indicative of a vessel assemblage including bottles, bowls, jars, and possibly platters and braziers. These investigations also identified bipolar gray obsidian percussion flakes, which were informally produced, meaning they have no clear proximal and distal ends. These flakes seem to be largely debitage or part of a flake industry focused on making sharp cutting edges regardless of tool shape, rather than producing blades to conserve materials. In 2000, Joyce and colleagues (2009a:347; 2009b:522–525) carried out surface survey and GPS mapping at the site. The results of this mapping project are being revised with new total station mapping data, as discussed in Chapter III. It was on the basis of this preliminary work that I developed the research project presented in this dissertation.

Project scope and dissertation outline

The La Consentida Archaeological Project (LCAP) addresses the relationships between transitions in sedentism, subsistence, and social organization at an Early Formative period site. Chapter II frames the LCAP within the context of key debates regarding these socioeconomic changes as they relate to the archaeology of Early Formative period Mesoamerica. Chapter II also discusses some of the material correlates for identifying sedentism, agriculture, and social complexity in the archaeological record. The LCAP has included surface survey, mapping, ground-penetrating radar, large-scale excavations, and laboratory study. The mapping phase updated a pre-existing map and revealed the dimensions and locations of Platform 1 and several earthen substructures atop it. Refer to Chapter III for a discussion of research methods,

terminology, and mapping results. Chapter III also presents several kinds of maps to help readers visualize the site's dimensions and spatial organization. At later sites in the region, platforms similar to La Consentida's Substructures 1–7 often supported domestic architecture and/or public buildings (Barber 2005:140–141, 235; A. Joyce 1991b:292). On the basis of this comparison, horizontal excavations atop these mounds were one focus of the LCAP.

Excavations also sought middens, largely as a way to extend the regional ceramic sequence and locate floral and faunal remains to aid dietary reconstruction. Chapter IV presents a detailed discussion of excavation results and sediment analysis. I pay particular attention in Chapter IV to strata relevant for understanding La Consentida's occupational history. Wherever possible, excavated contexts are discussed chronologically, using radiometric, stratigraphic, and ceramic data as supporting evidence for their relative dates of deposition. Where chronological relationships are less clear, I organize the description of excavated contexts stratigraphically and by operation.

For interpretations of excavation and laboratory data specific to each component of the project's research questions, refer to Chapters V, VI, and VII. Chapter V addresses evidence for domestic mobility and sedentism. Chapter VI presents evidence for La Consentida's subsistence economy. Chapter VII presents evidence for social organization at the site, and focuses especially on architectural stratigraphy indicating shifting patterns of communal labor, iconography, evidence for personal adornment, and mortuary and ritual deposits. Iconography relevant to discussions of social organization includes figurines suggesting practices of bodily adornment and the expression of diverse social identities. Figurine analysis is an important step in interpreting social organization and identity in ancient Mesoamerica (Blomster 2009; Cyphers

Guillén 1993; Faust and Halperin 2009; Hepp 2007; Hepp and Joyce 2013; Hepp and Rieger 2014; Lesure 1997a, 1999a, Lesure 2011b; Marcus 1998, 2009). Ceramic figurines recovered from numerous contexts at La Consentida, including with human burials, indicate an emphasis on the human form and especially on the depiction of women. Ceramic musical instruments recovered at La Consentida are among the earliest known in Oaxaca, and appear to predate similar instruments of the Tierras Largas phase (Hepp et al. 2014; Ramírez Urrea 1993:143). See Chapters VII and VIII for results of figurine and musical instrument analysis, for which regional typologies established during previous studies proved useful (Barber and Hepp 2012; Hepp 2007, 2009; Hepp and Rieger 2014; Hepp et al. 2014; Hepp and Joyce 2013). Chapter VIII discusses evidence from La Consentida for interregional interaction and trade, including patterns identified through the study of ceramic vessel and decorative styles and obsidian X-ray fluorescence (XRF) sourcing data. These lines of evidence indicate interactions with the Valley of Oaxaca, Central Mexico, the Gulf coast, and West Mexico.

In Chapter IX, I summarize the evidence for each of the main components of the LCAP research agenda (i.e., transitions in practices of settlement, subsistence, and social organization), consider how these social phenomena were interrelated, and present the final interpretations of the project. I conclude that La Consentida presents good evidence for a transition toward sedentism during site occupation, which appears to have lasted for about two and a half centuries during the initial Early Formative period. The community's diet appears to have included more maize consumption than that identified for contemporaneous sites in the Soconusco region (e.g., Blake et al. 1992; Chisholm and Blake 2006). Dental pathologies, ground stone tools, and ceramic vessel styles suggest a possible shift from an emphasis on maize in

beverage form to the processing of maize flour with stone manos and metates. The La Consentida community appears to have been heterarchically complex, with perhaps the first glimmers of the ascribed social hierarchies of the kind better documented in later Mesoamerican contexts.

The appendices of this dissertation contain the results of LCAP Laboratory analysis. Appendix 1 presents a description of the ceramics recovered at La Consentida. These ceramics represent a previously unknown assemblage in the lower Río Verde Valley, and thus require description as a new complex and phase in the regional ceramic sequence. I propose the phase name *Tlacuache*, in honor of a village located near the site. Tlacuache ceramics include various types of jars, conical and hemispherical bowls, bottles, and a few tecomates. In its current form, the Tlacuache phase is long (250 or 450 years, depending on whether or not the dates are calibrated), contains a diverse array of vessel types, and may present some chronological variation. On the basis of future analysis, the phase may eventually be divided into earlier and later sub-phases. Appendix 2 presents data pertaining to within-site patterns of ceramic vessel discard. In this Appendix I provide statistical comparisons of different contexts at La Consentida, the results of which support arguments made elsewhere in the dissertation about the practices behind the deposition of those deposits. Chapter VI and Appendix 3 present the results of faunal analysis focused on comparing the contents of several middens. Analysis of these remains indicates the consumption of bivalves, marine and freshwater fish, various reptiles, mammals, and a few birds. Chapters V and VI and Appendix 4 discuss the results of analysis of chipped stone and ground stone tools, especially as evidence for practices of food processing at La Consentida. Finally, Appendix 5 presents the results of the analysis of human burials.

Project significance

La Consentida was occupied during some of the most revolutionary social transformations in the history of the New World. Archaeologists working in many areas of the world debate the causal mechanisms behind sedentism, agriculture, the demise of egalitarianism, and the establishment of social complexity (Banning 2003; Bar-Yosef and Belfer-Cohen 1989; Boyd 2006; Byrd 1994; Choe and Bale 2002; Flannery, ed. 2009; Ford 1969; Joyce and Henderson 2001). Studies of Formative period Mesoamerica are especially rife with debates over the timing of and causal relationships between these transitions. Positions in these debates correlate strongly with regional research foci, suggesting that a diverse material record inspires diverse interpretations (see P. Arnold 1999, 2009; Blake et al. 1992; Blake and Clark 1999; Clark and Cheetham 2002; Flannery and Marcus, eds. 2003; Marcus and Flannery 1996; Chapter II). These different explanatory models also reflect major theoretical positions of their day, such as the ecological functionalism of the 1960s and 1970s, and the practice-based approaches of the 1990s and 2000s (Johnson 2010). La Consentida is uniquely suited to inform these debates for several reasons. First, the site's probable location near an open bay, in contrast to the estuarine environments of most coastal Early Formative sites, makes its ecological setting somewhat unique (Goman et al. 2005, 2013; Joyce and Goman 2012; Mueller et al. 2013). Second, because La Consentida was apparently abandoned by the late Early or early Middle Formative period, excavations at the site exposed broad horizontal contexts from the initial Early Formative period rather than narrow windows penetrating through Classic or Postclassic period overburden. Third, the site's mounded earthen architecture suggests

communal labor efforts and perhaps the origins of social complexity associated with organizing work parties.

On a regional level, the LCAP represents a unique opportunity to expand understandings of ecological conditions and social organization at one of the earliest known villages on the Pacific coast of Mexico. Because La Consentida was apparently occupied *before* the development of local estuaries and the expansion of the Río Verde floodplain, it can provide information about settlement, subsistence, and social organization in the valley before it was intensively occupied during the late Middle Formative (A. Joyce 2005, 2010:180–195). The regional ceramic chronology (Table 1.3; A. Joyce 2010:16) has never before included information for the Early Formative or early Middle Formative periods. With the newly identified Early Formative Tlacuache phase (see Appendix 1), the LCAP expands this regional chronology and promotes greater chronological depth of regional ceramic analysis and interregional comparison than has been possible before. Ceramic iconography from La Consentida also permits a more deeply diachronic study of changing styles of decorated pottery, figurines, and musical instruments than has been possible before (e.g., Barber and Hepp 2012; Hepp 2007, 2009; Hepp and Rieger 2014; Hepp et al. 2014; Hepp and Joyce 2013).

Phase	Period	Date
Yucudzaa	Late Postclassic	1100–1522 CE
Yugüe	Early Postclassic	800–1100 CE
Yuta Tiyo	Late Classic	500–800 CE
Coyuche	Early Classic	250–500 CE
Chacahua	Late Terminal Formative	100–250 CE
Miniyua	Early Terminal Formative	150 BCE–100 CE
Minizundo	Late Formative	400–150 BCE
Charco	Late Middle Formative	700–400 BCE
?	Late Early–Middle Formative	1350–700 BCE
Tlacuache	Initial Early Formative	1600–1350 BCE

Table 1.3: Lower Río Verde regional ceramic sequence with uncalibrated radiocarbon dates (see A. Joyce 1991b, 2010)

More broadly, the results of the LCAP engage general anthropological concerns, such as how Early Formative Mesoamerican peoples negotiated the novel social and ecological conditions of increasingly sedentary and agrarian communities (Banning 2003; Joyce and Henderson 2001; Kelly 1992; R. Pearson 2006). Early Formative sites were occupied during major social transitions involved in the formation of the geographical and cultural entity known as Mesoamerica, but relatively few sites comprise the period’s known material record (Blake and Clark 1999; Blomster 1998; Clark 1991, 1994; R. Joyce 2004b; Kirchhoff 1943; Lesure 2004; Michaels and Voorhies 1999). Identifying material evidence of Early Formative period practices of settlement, subsistence, and social organization, and refining explanatory models for their transformation, will be one of the most productive ways to address key debates in Mesoamerican archaeology in the future (see Chapter II). La Consentida, located in a region of Mesoamerica practically unknown in Early Formative archaeology, offers an opportunity for comparison with better-known areas to assess the applicability of current models for social

transformation beyond the specific regions in which they have been developed and tested.

Results of the LCAP can help to redefine the role of the Pacific coast of southern Mexico in the Early Formative roots of Mesoamerican culture.

In the subsequent sections of this dissertation, I will argue that transitions in settlement, subsistence, and social organization at initial Early Formative period La Consentida were intimately linked. The site presents evidence for an early farming village in a region of Mesoamerica that has thus far been practically unknown in terms of the Early Formative period history. Secure radiocarbon dates from multiple deposits demonstrate that La Consentida's ceramics are among Mesoamerica's first, and that the community was building mounded earthen architecture perhaps before any other known Mesoamerican group. As I will discuss in the following chapters, Mesoamerica is too diverse for research at a single site to "lay to rest" ongoing debates about the Early Formative. Evidence from La Consentida does have the potential to impact those debates however, as the site represents a unique example of the socioeconomic transformations that took place in an Early Formative village. Before discussing the evidence from the site in detail, in the following Chapter I will first lay out the different theoretical approaches and explanatory models applied to the archaeology of the Early Formative period.

Chapter II: Debating Early Formative Settlement, Subsistence, and Social Organization

Introduction

As discussed in Chapter I, the primary goal of this dissertation is to investigate relationships between settlement, subsistence, and social organization at initial Early Formative period La Consentida. As part of that undertaking, it is appropriate to review the state of current research and debate on these topics. The refinement of models for initial Early Formative social organization, settlement, and subsistence is crucial to the future of Mesoamerican archaeology because proposed Archaic to Early Formative period social changes were not only precursors of later developments, but also exemplify broader transformations that occurred in many parts of the world during the early and middle Holocene epoch (Banning 2003; Bar-Yosef and Belfer-Cohen 1989; Binford 1983; Cohen 1985; Ford 1969; Hayden 1990, 1995, 2009). These changes are the basis for fundamental anthropological questions regarding the history of social and ecological transformations in the New World and globally. In this chapter, I summarize debates most relevant to the research questions of the LCAP. I also explain my own positions regarding these issues and discuss material correlates appropriate for the study of Early Formative social dynamics at La Consentida.

Archaeological study has suggested that Early Formative period Mesoamericans established the region's first villages, increased their dependency on domesticates in comparison to their Archaic period forebears, organized communal labor projects, and

developed status distinctions that led ultimately to hierarchical hereditary inequalities (Blake and Clark 1999; Clark 2004a; A. Joyce 2010:64–83; R. Joyce 2004b). Debate regarding the archaeology of the Early Formative has focused on possible ties between sedentism, agriculture, and social complexity (Clark 2004a:44–45; Love 2007; Marcus and Flannery 1996). For example, archaeological evidence suggests that the first hereditary, hierarchical social inequalities occurred at various times in different regions, with areas such as Mazatán likely developing such inequalities by 1650 cal B.C. (Clark 1991; Hill and Clark 2001), while neighboring regions did not do so until the Middle Formative (Lesure, ed. 2011; Love 2002). Debates regarding Early Formative subsistence focus not only on relative degrees of maize reliance, but also on the significance of wild resources and other crops. Legumes and tubers, for example, have been proposed as significant Early Formative cultigens (Chandler-Ezell et al. 2006; Clark et al. 2007; Davis 1975; Isendahl 2011:464; Lowe 1967, 1975, 1977; Pohl et al. 1996). The dietary importance of non-maize crops is difficult to discern, however, especially in areas with poor organic preservation (*although see* Morell-Hart et al. 2014).

The social changes of the Early Formative have been studied in various regions including the Soconusco, the Gulf Coast, the Basin of Mexico, and the highland valleys of Tehuacán and Oaxaca (P. Arnold 1999, 2000, 2009; Blake and Clark 1999; Clark 1991, 1994, 2004a; Clark and Blake 1994; Flannery 1968b; Flannery and Marcus, eds. 2003; Lesure and Blake 2002; Lesure, ed. 2009, 2011; MacNeish and Eubanks 2000; Marcus and Flannery 1996; Sanders et al. 1979; Tolstoy 1975). The very beginning of this period, termed the initial Early Formative, is poorly understood in most areas (see Table 1.2). Much of the information for this time of transition from Archaic period lifeways comes from the Soconusco region of Pacific coastal Chiapas and

Guatemala (e.g., Blake and Clark 1999; Clark 1991, 1994, 2004a; Clark and Blake 1994; Lesure and Blake 2002; Lesure, ed. 2009, 2011; Love 2007). Because it was a time of key social transformations, evidence from the initial Early Formative is crucial for resolving debates in Mesoamerican archaeology.

Scholars have proposed competing explanations for why such dramatic and geographically widespread social changes occurred during the initial Early Formative. Diverse ecological, demographic, economic, and political models for these changes, and for similar changes in other parts of the world, have been the subjects of thoughtful review (J. Arnold 1993; Clark and Blake 1994; Hayden 1995; Flannery and Marcus, eds. 2003; Marcus 2008; Price and Feinman, eds. 1995; Tolstoy 1989). Some of these models may be appropriate for certain regions and not others, a circumstance that highlights the historically and ecologically contingent nature of these cultural changes. For example, people in the neighboring Mazatán and Río Naranjo sub-regions of the Soconusco seem to have developed social complexity (measured according to variables such as settlement hierarchies, public architecture, and exotic grave offerings) at different times (Clark 1991, 1994:126; Lesure and Blake 2002; Love 2002, 2007). Also, some initial Early Formative sites (such as Paso de la Amada in the Mazatán region) have produced evidence for key social transitions, such as mobilizing labor for large-scale architecture, despite apparently homogenous wealth among households (Lesure and Blake 2002; Love 2007). I argue in the following sections that some models explain Early Formative social transitions better than others because they consider a broader set of causal factors or more fully incorporate the results of study in adjacent regions than do other models. For example, recent research into the importance of maize in Early Formative diets (e.g., Chisholm

and Blake 2006; Clark et al. 2007; Pohl et al. 1996; Pope et al. 2001; Smalley and Blake 2003) benefits from a more diverse array of phytolithic, palynological, isotopic, and lithic data than did previous discussions of the importance of farming to the establishment of sedentism (e.g., Coe and Flannery 1967; Flannery 1968b; MacNeish 1969, 1972).

Debating Early Formative settlement practices

The traditional definition of the Mesoamerican culture area, as summarized by Clark and Cheetham (2002:280), holds that the sedentary, agricultural, and socially stratified societies of the Late Formative through Postclassic periods grew out of the first farming villages of the Early Formative. Evidence for permanent Early Formative villages has been identified in diverse regions of Mesoamerica, ranging from highland valleys (Flannery and Marcus 2000; Whalen 1983) to marshlands or estuaries (Berry and McAnany 2007; Voorhies 1989) and coastal plains (Blake et al. 1992; Clark and Blake 1994; Clark and Cheetham 2002; Rosenswig 2006, 2007). Such data, which include settlement patterns and population estimates, suggest that some of Mesoamerica's first sedentary villages coincided temporally with evidence for agriculture, including ceramic technologies and non-portable ground stone (Blanton et al. 1979; Flannery 1968a; Flannery, ed. 2009; Kowalewski 1990:42; Marcus and Flannery 1996).

In the lower Coatzacoalcos River drainage of the Gulf coast, monumental architecture and a dense settlement pattern indicate that the regional population was sedentary and dominated by San Lorenzo as a regional capital (and by several secondary political centers) by as early as the San Lorenzo A phase (1400–1200 cal B.C.) (P. Arnold 2009; Santley and Arnold 1996:244–245; Symonds 2000:64–66). Sedentism at nearby sites may have begun even earlier,

with Estero Rabón reaching 60–80 ha in size by 1600–1300 cal B.C. (P. Arnold 2009:402; Borstein 2001). Symonds (2000:64–66) argued that Early Formative settlement in the lower Coatzacoalcos region became dense during the Bajío phase (1600–1500 cal B.C.) and may relate to the use of local rivers for trade, transportation, and subsistence. Evidence for sedentism in other regions includes durable architecture at San José Mogote by the Tierras Largas phase (1600–1450 cal B.C.) (Drennan 2003:47; Marcus and Flannery 1996:109–110). At Paso de La Amada, the community produced a monumental ballcourt by around 1600 cal B.C. (Hill and Clark 2001). Such communally constructed features imply investment of human labor in specific areas of the landscape. Large domestic structures, such as Paso de la Amada’s Mound 6 (which was apparently associated with the adjacent ballcourt by about 1600 cal B.C.), may also suggest sedentism (Hill and Clark 2001; Lesure 1997b, 1999b; Lesure and Blake 2002). As I discuss below, however, and as demonstrated by sites such as Poverty Point in Louisiana, the presence of monumental constructions does not constitute *a priori* evidence of sedentism (Gibson 2000).

Despite suggestions of sedentism in certain regions, some scholars (e.g., P. Arnold 1999; Lesure, ed. 2009) have offered new interpretations of Early Formative settlement patterns by arguing that the shift toward sedentism was gradual, particularly in coastal regions such as the Soconusco, Gulf Coast, and the Caribbean coast of Honduras. For example, Arnold (1999:160) found that the site of La Joya, located in the Tuxtla Mountains adjacent to the Gulf coast, was a sedentary agricultural community during the Late Formative, but lacked the mounded earthen architecture, durable domestic structures, formalized storage facilities, non-portable artifacts, and consistency in the placement of features that would identify it as sedentary during the Early Formative. Ground stone from Early Formative La Joya suggests multi-purpose use of

portable tools rather than heavy stone metates or mills for flour processing, which would arguably evince sedentism. Arnold (1999:160) also suggested that Tulipan phase (1500–1400 cal B.C.) tecomates (neckless ceramic jars) at La Joya may have been all-purpose vessels suited to a semi-mobile lifestyle, by virtue of their restricted mouths and portability when enclosed in a net. Arnold (1999, 2009) thus concluded that Early Formative domestic mobility practices were diverse, even within specific regions such as the Gulf Coast.

On the basis of finds at La Joya, Arnold (1999) extrapolated his model to other regions. He argued, for example, that a high proportion of tecomates among Barra phase (1900–1700 cal B.C.) ceramics in Mazatán suggests that initial Early Formative communities on the Pacific coast also remained semi-mobile (P. Arnold 1999:161). Clark and Cheetham (2002:311) rejected this assertion on the basis that Paso de la Amada and other Mazatán sites exhibited public architecture such as plazas and a clay-surfaced ballcourt by as early as 1650 cal B.C. Other Soconusco scholars have not been so quick to dismiss alternative arguments about Early Formative residential mobility and multi-purpose use of ceramics, however. Lesure (ed. 2009:259, 261; *see also* Blake et al. 1992:90; Voorhies 1989:116) identified estuarine sites with ceramic assemblages dominated by tecomates as probable seasonally occupied resource extraction points that supplied more permanent inland settlements. Such practices of seasonal resource extraction in coastal wetland zones may date back to the Chantuto (5000–1900 cal B.C.) occupations of the late Archaic (Voorhies 2004; Voorhies and Kennett 2011). I agree with Arnold (1999) and Lesure (ed. 2009) that reinterpretations of artifacts such as tecomates should prompt us to question direct correlations between specific types of material culture and sedentism (*see also* Clark and Cheetham 2002; Skibo and Feinman, eds. 1999). I find such

reconsiderations of material culture informative for research at La Consentida, where ceramic vessels were used by a community that may have initially been semi-sedentary (see Chapter V).

In order to interpret an ancient community's settlement practices, it is important to consider what material correlates might indicate mobility and sedentism. Several criteria have been recognized cross-culturally as significant for assessing the mobility of ancient human groups. Among these are the portability and versatility of tools used on a frequent basis, often for daily activities such as food processing. Small, light tools such as mortars and pestles are more easily transported than are large items such as stone metates. Multi-purpose tools, such as small ground stone mauls that can also be employed as grinders, offer ease of transport and flexibility of purpose at the possible expense of task-specific efficiency (Clark et al. 2007; McDonald 1991:85; Torrence 1983). Evidence of sedentism may thus include heavy, single-purpose ground stone tools such as manos and metates, which evince the processing of flour from grains such as maize. These relatively non-portable tools suggest that the communities using them may have been tied to specific places on the landscape through their subsistence practices (P. Arnold 1999:159–160; Rosenswig 2006). By contrast, portable and multi-purpose ground stone tools (in the absence of heavy, single purpose tools) have been considered evidence of non-sedentary occupation at Early Formative La Joya in the Gulf coastal highlands, and at Archaic and Paleoindian sites throughout Mesoamerica (P. Arnold 1999:159–160, 2009:404).

Clark and colleagues (2007) studied Archaic to Early Formative transitions in ground stone and boiling stone technology in the Soconusco. Though Archaic sites have been notoriously difficult to locate across Mesoamerica (see Borejsza et al. 2014), Clark and

colleagues (2007:25) recognized fire-cracked rock (FCR) and certain types of ground stone tools as among the few artifact types held in common between Archaic and Early Formative sites. These authors (2007:28) identified an inverse correlation between increasing numbers of plain tecomates and decreasing quantity of FCR at Soconusco sites between 1900 and 1550 cal B.C. This pattern corresponds with an increase in manos relative to a decrease in FCR between 1900 and 1150 cal B.C. (Clark et al. 2007:31). What these data indicate, according to Clark and colleagues, is that the use of hot stones dropped into water for cooking (an Archaic period practice) decreased apace with increasing use of ceramics and maize processing, which grew in significance throughout the Early Formative and became especially important by the Middle Formative. This pattern suggests that dietary practices changed along with the shift in technology, as maize flour and liquids boiled in ceramic vessels grew in significance. As I will discuss in Chapter VI, I believe that ground stone and skeletal data suggest a similar trend at La Consentida.

The data discussed above suggest that maize production was not a necessary economic condition for the origins of sedentism. What these data *do not* provide is an answer to why maize reliance did not take hold in the Soconusco until the Middle Formative, well after populations both there and on the Gulf coast were apparently sedentary (Blake et al. 1992; VanDerwarker 2006). Though the small, portable ground stone mortars and pestles of the Archaic gradually gave way to the less portable manos and metates of the Formative, the arrival of ceramic technology occurred abruptly in the Soconusco. For Clark and colleagues (2007:25; *contra* P. Arnold 1999) these Barra phase ceramics mark the beginnings of dedicated sedentism in the initial Early Formative. Varying interpretations of the first ceramic vessels in the Tuxtla

region versus in the Soconusco suggest an underlying debate about the nature of ceramics themselves, where Arnold (1999) suggests that pottery may have been used by semi-mobile peoples, while Clark and colleagues (2007) take ceramics as an indicator of sedentism. As I will demonstrate in subsequent chapters (and with reference to evidence from ground stone tools, for example), data from La Consentida lead me to support Arnold's conclusion that ceramics were likely used by semi-sedentary peoples in the initial Early Formative period.

Another key component of models for Early Formative settlement is the study of public architecture. Santley and Arnold (1996:228) noted that there was no evidence for earthen platform construction in the Tuxla region during the Early Formative. This pattern might seem to corroborate Arnold's (1999, 2009) conclusions that the people of the Tuxtla Mountains remained semi-mobile during this time, but such a conclusion would indicate a facile correlation between monumental or public architecture and sedentism. Regardless, recent research by Cyphers and Zurita-Noguera (2012) may lead to revisions of the history of public architecture in the region, as earthen mounds in wetland areas of the Gulf Coast are now dated to the Bajío phase (1600–1500 cal B.C.). Despite the presence of early mounded earthen architecture in parts of the Gulf coastal region, it is clear that Early Formative villages were often small and ephemeral in comparison to later settlements. In coastal Honduras, for example, Joyce and Henderson (2007:643) found evidence that domestic structures remained ephemeral into the Ocotillo phase (1600–1350 cal B.C.). Furthermore, the use of public and/or monumental architecture as indisputable evidence of sedentism may not be appropriate. The megalithic landscapes of ancient Europe, the towering stone pillars of Turkey's Göbekli Tepe, and Archaic period earthworks of North America all suggest that semi-mobile peoples can

amass large labor parties and invest resources in a place as part of producing a sacred landscape (R. Bradley 1993, 1998, 2000, 2005; Gibson 2000; Pauketat and Alt 2003; Peters and Schmidt 2004; Sherratt 1990; Tilley 1994, 2007).

Another criterion for assessing a group's domestic mobility is their methods of storage. Storage of surplus goods is not unique to sedentary populations, but "formal" (i.e., slab or clay-lined) storage features have been recognized as an index of sedentism among the Maya of the northern Yucatan (Smyth 1989:90) and in the American Southwest (Kent 1992). In highland Oaxaca, Early Formative storage features included large, bell-shaped pits requiring significant labor for their construction (Winter 2009:27–29). Such formal storage facilities, argued Smyth (1989:90, 92) suggest a community's own predictions about its future mobility. It was, in part, the lack of such continuity in site organization that led Arnold (1999) to argue that La Joya was an encampment for semi-mobile peoples well into the Formative period. Diachronically shifting patterns in the placement of domestic features, in some instances leaving "hot spots" of overlapping and ephemeral domestic structures and storage features, suggested to Arnold (1999:160; 2009) that Tulipan phase La Joya was a site of repeated reoccupation by seasonally mobile groups. Research elsewhere in the Americas has indicated that mobile groups interact with their surroundings as socially constructed spaces rather than merely for resource collection. Mitchell (2008) found, for example, that burned rock middens in southeastern Colorado possessed historical biographies for the hunter-gatherers who used them. Mitchell argued (2008:60) that the interplay of human social action and the landscape that shapes and *is shaped* by those relationships are determining factors in practices of mobility and land use. The adoption of sedentism is thus not merely an economic choice, but also a social one. I agree that

the mere presence of repeatedly used food-processing or storage features (particularly if they are not very large) does not constitute sufficient evidence of sedentism. I also feel that the use of storage features to assess domestic mobility may be hampered by regional variations in storage practices, perhaps making it unsupportable to rely on them alone as sufficient evidence for sedentism. As I will discuss below, I find that the only way to adequately address the issue of domestic mobility is by basing one's conclusions on as many variables as possible. Even when that is accomplished, the material record of domestic mobility may be unclear (see Chapter V).

Debates about Early Formative sedentism like those outlined above demonstrate that researchers can support differing conclusions using the same data. Some types of features, such as domestic buildings, formal storage facilities, and mounded earthen architecture suggest that a community invested a good deal of labor in a specific place rather than (or in *addition to*) maintaining multiple seasonal occupation sites. When such features remained consistent in their placement through time, argue some authors (e.g., P. Arnold 1999; Rosenswig 2006:336), the evidence suggests that a community remained permanently in one place rather than periodically reoccupying a site. Similarly, certain types of artifacts, such as non-portable ground stone metates, suggest that a community's food processing took place in a specific spot and likely included making flour from domesticates such as maize (Clark et al. 2007; McDonald 1991:85; Torrence 1983). The argument that heavy grinding stones indicate sedentism is complicated, however, by evidence for seasonal reoccupation of resource extraction areas in regions such as the Soconusco (e.g., Voorhies 1989). Once transported to a location, a heavy metate could be cached by members of a semi-mobile group planning to revisit a site the following season. Such potentially confounding factors underscore the need to marshal as

many lines of evidence as possible in the study of complex social and ecological factors involved in domestic mobility.

On the basis of my review of the literature, I find that there is no single line of evidence that provides an absolute indication or unambiguous material signature of sedentism. Rather than existing as a strict dichotomy, nomadism and sedentism are extremes within a spectrum of domestic mobility. This conclusion is supported by evidence that many ethnographically recognized peoples practice complicated forms of domestic mobility that change according to seasonal, environmental, and political circumstances (e.g., R. Kelly 1992; Kent 1992; Marshall 2006). Because no single indicator demonstrates sedentism, I argue that one must consider multiple lines of evidence when building arguments about domestic mobility (P. Arnold 1999; Clark and Cheetham 2002; Rosenswig 2006). Only when the preponderance of data (drawn from such diverse lines of evidence as domestic architecture, communal labor projects, mortuary practice, and subsistence) suggests that a community placed greater emphasis on either mobility or sedentism is it appropriate for us to label them as such.

One important step in investigating evidence for sedentism at La Consentida is the analysis of domestic contexts. Though mounds at Early Formative coastal sites are sometimes the result of shellfish or salt processing (e.g., Lesure, ed. 2009:185), comparison with data from later sites in the lower Río Verde region suggests that Substructures 1–7 at La Consentida likely supported domestic or public architecture (Barber 2005:140–141, 235; A. Joyce 1991b:292). The analysis of features atop these mounds is thus one way to infer whether La Consentida was perpetually or intermittently occupied, particularly if buildings or their supporting earthen architecture were consistent in their placement through time and required significant labor

investment for construction (P. Arnold 1999:160). The location of the supporting earthen architecture itself could arguably serve to stabilize the placement of even the most ephemeral and temporary buildings if a mobile group seasonally revisited the site, however. Domestic refuse associated with these contexts may also indicate settlement practices, particularly if seasonally available faunal resources are present. Durable architecture such as structures at San José Mogote (Drennan 2003:47; Marcus and Flannery 1996:109–110) and the ballcourt at Paso de La Amada (Hill and Clark 2001) could also lend credence to the interpretation of sedentism because it suggests significant amounts of labor invested in a single area. Though European and Near Eastern Neolithic data (e.g., R. Bradley 1993, 1998, 2000, 2005; Peters and Schmidt 2004; Sherratt 1990; Tilley 1994, 2007) indicate that public and/or monumental constructions are not sufficient evidence of sedentism, they nonetheless represent one line of evidence useful for assessing degrees of mobility. The beliefs behind the production of monuments by non-sedentary peoples may be part of a process that can ultimately lead to sedentism, rather than *ex post facto* evidence of sedentism.

“Durability” of structures is obviously a relative term, but can be established through comparison of building practices and labor investments with those of known sedentary communities (Abrams 1989). As Boyd (2006; *see also* Joyce and Goman 2012) suggested, a cemetery may indicate that a community was tied to a site as a part of its symbolic landscape. Indications that symbolic associations with the deceased reaffirmed a community’s ties to a place may include long-term reuse of a cemetery, anthropomorphic figurines (perhaps indicating ancestor veneration) as offerings with burials, or the interment of the deceased in other contexts such as below household foundations or floors. The spectrum of variation

between mobile and sedentary peoples may be similar in its production of a complicated material record to that between horticulturalists and agriculturalists. It is to the discussion of Early Formative subsistence, itself intimately related to domestic mobility, that I now turn my attention.

Early Formative subsistence

As discussed above, agriculture has traditionally been considered part of a suite of factors (along with, and as *tied to* sedentism) that promoted social complexity in Mesoamerica (e.g., Coe and Flannery 1967; Flannery 1972b, 1973; Flannery and Marcus, eds. 2003; MacNeish 1992; Marcus and Flannery 1996; Sanders 1968; Sanders and Webster 1978). At what point, though, did people experimenting with domesticates truly become farmers? Was this change really contemporaneous with transition to sedentism? In order to address debates regarding the relationship between subsistence and mobility, it is necessary to differentiate between “horticulture” and “agriculture” (P. Arnold 2009; Clark et al. 2007; Kennett et al. 2010; Killion 2013; VanDerwarker 2006). Most scholars of the Early Formative agree that “horticulture” refers to limited use of domesticated plants as part of a diet based largely on wild resources, while “agriculture” connotes reliance on domesticates as staples, albeit ones usually supplemented with wild resources. This distinction is important because recent evidence suggests that Mesoamericans practiced horticulture based on maize, beans, squash, and probably manioc and malanga (*Xanthosoma violacium*) for thousands of years before they became reliant on them, a transition which did not occur in many regions until the Middle Formative (P. Arnold 2009; Bronson 1966; Clark et al. 2007; Kennett et al. 2010; Killion 2013;

Pohl et al. 1996; Rosenswig 2007; Sheets et al. 2012). I follow those established definitions for “horticulture” and “agriculture” in this dissertation.

Historically, archaeologists have argued that the transition from Archaic period seasonal mobility to settled Early Formative villages was predicated upon an agricultural subsistence base (e.g., Coe and Flannery 1967; Flannery 1968a; Marcus and Flannery 1996). Flannery (Coe and Flannery 1967; Flannery 1968a, 1973; Flannery, ed. 1986) proposed a highland origin of domesticated maize and the sedentism and social complexity he felt that agriculture promoted. Flannery (1968a:79–81; Flannery, ed. 1986) argued for a causal link between agriculture and sedentism when he claimed that increased reliance on domesticates in the highlands prompted more permanent settlement as traditionally mobile groups remained stationary for increasing intervals to tend their crops. According to Marcus and Flannery (1996:79–80), areas with the best agricultural land attracted the largest and most nucleated populations. These authors suggested, for example, that the Etla arm of the Valley of Oaxaca attracted dense settlement at sites such as San José Mogote because it possessed a greater allotment of fertile “Class I” land than did other areas of highland Oaxaca (Marcus and Flannery 1996:79–80).

In a study addressing the origins of agricultural villages in Pacific coastal Guatemala, Coe and Flannery (1967:5) argued that “an effective maize-beans-squash agriculture” was a “prerequisite to fully settled village life in Mesoamerica.” Drawing on Caldwell’s (1958) interaction sphere model, Coe and Flannery (1967:7) proposed an ecological approach that viewed human populations as reacting not to entire “biomes,” but rather to specific microenvironments within them. According to these authors (1967:102–105), agriculture originated in the highlands, where it promoted sedentism, population growth, and social

complexity. Coe and Flannery (1967:103) sought to explain social complexity on the Guatemalan coast (suggested by apparently permanent villages and earthen architecture indicative of labor management by about 1400 cal B.C.) in light of their belief that farming, sedentism, and social complexity originated in highland regions such as the Tehuacán Valley. Causal mechanisms proposed by Coe and Flannery (1967:102–105) for this social and economic diffusion included the exchange of goods, products, and ideas between societies in different ecological settings and the “efficiency” of adopting maize in coastal zones. Pacific coastal social complexity, for these authors (1967:103), was the result of fortuitous ecological circumstances in the highlands, followed by diffusion of maize agriculture to the coasts. According to this model, coastal communities played a passive or secondary role in developing their own social complexity. Though ambitious in their attempts at synthesis, early studies such as that by Coe and Flannery (1967) were hampered by a lack of extensive information about the Early Formative period at the time of their writing. For example, the Barra phase, now recognized as the earliest ceramic assemblage in the Soconusco, was not yet identified at the time of Coe and Flannery’s study (Lowe 1975, 2007). As Lesure (ed., 2009:15) noted, these early studies remain important for their reconstructions of Early Formative subsistence, paleoenvironmental analysis, and modeling of daily life in Early Formative communities.

Recent evidence suggests that the timing of full-blown agriculture and permanent sedentism was not consistent across different regions of Mesoamerica. While many archaeologists (e.g., Coe 1981; Coe and Diehl 1980a, 1980b; Coe and Flannery 1967; Flannery 1968a; Sanders and Price 1968) have claimed that agriculture was a prerequisite to sedentism in both inland and coastal settings, this conclusion is under revision. Several scholars (e.g., P.

Arnold 2009; Blake et al. 1992; Clark 2004a; Kennett et al. 2010; Killion 2013; Rosenswig 2007) have argued that coastal subsistence from the Late Archaic through the Middle Formative was based on floodplain and estuarine resources supplemented by limited horticulture. According to these models, agriculture appeared *after* sedentism on the coasts, thus contradicting Coe and Flannery's (1967:5) claim that agriculture was "prerequisite" to sedentism. Underlying these contrasting interpretations are the basic assumptions that agriculture is either necessary for sedentism (e.g., Coe and Flannery 1967) or an independent social and economic phenomenon often affiliated with sedentism but not strictly *necessary* for it (e.g., P. Arnold 2009; Blake et al. 1992; Clark 2004a; Kennett et al. 2010; Killion 2013). Of these two basic approaches, I favor the latter because it takes the association between discrete social and economic variables (e.g., sedentism and agriculture) as a point of departure for further inquiry rather than assuming an *a priori*, causal relationship between them.

Survey and excavation in the Mazatán region over the last two decades have demonstrated that sedentism, ceramics, and monumental architecture were all well-developed on the Pacific coast as early as, or *earlier than*, they were in many highland areas (Clark 1991; Lesure, ed. 2009; Love 2002:193; Lowe 2007; Voorhies 1989). These various lines of evidence cast doubt on models proposed by authors such as MacNeish (1969, 1972, 1992; MacNeish and Eubanks 2000; MacNeish and Nelken-Terner 1983), Sanders (1956, 1965, 1968; Sanders and Nichols 1988; Sanders et al. 1979; Sanders and Price 1968), and Flannery (Coe and Flannery 1967; Flannery 1968a; Flannery and Marcus, eds. 2003; Marcus and Flannery 1996) for the highland origins of agriculture and social complexity. Research in highland Mexico suggests that sedentism in certain areas significantly predated reliance upon domesticates (e.g.,

Niederberger 1979; *see also* Pohl et al. 1996:335). This pattern corroborates the Soconusco settlement data, indicating that sedentism need not imply an agricultural subsistence economy.

According to Pohl and colleagues (1996:367–368), the two main competing explanations for the transition to agriculture in Mesoamerica are the “economic buffering” hypothesis (e.g., Coe and Flannery 1967; Flannery 1972a, 1972b, 1973; Flannery, ed. 1986; Flannery and Marcus, eds. 2003; Marcus and Flannery 1996) and models proposing that agriculture was “a strategy to manipulate social relationships in the context of emerging political hierarchies” (e.g., Clark and Blake 1994; Hayden 1990). The former model is based on ecological systems theory, and implies that maize agriculture was an adaptive response that promoted homeostasis with local environments as sedentism caused population increase and the threat of ecological imbalance. The latter explanation is part of a broader set of agency models (e.g., Blake and Clark 1999; Clark and Blake 1994; Hayden 1990; Hill and Clark 2001) focusing on the social maneuvering of individual “accumulators” or “aggrandizers” employing domesticates for purposes of social mobility or the development and maintenance of prestige, especially through competitive feasting. Importantly, the material implications of these two apparently contradictory models may not be mutually exclusive, given varied evidence for the establishment of reliance on agriculture in different regions. In their discussion of predominantly palynological evidence for early agriculture in northern Belize at wetland sites such as Cob and Pulltrouser Swamps, Pohl and colleagues (1996) determined that the transition to maize agriculture occurred at various times in different regions. Furthermore, these authors (1996) suggested that this varied sequence of horticulture and early agriculture indicates that maize served different purposes in different areas. In places prone to food shortage, such as central Panama, maize may have been

an important component of the diet since its introduction to the region. This evidence does not contradict the use of maize as a calorically insignificant feasting food employed as part of a social strategy by emergent elites in Mazatán, where wild estuarine products could provide dietary staples (Blake et al. 1992; Blake and Clark 1999; Clark 2004a; Clark and Blake 1994; Pohl et al. 1996:367). Differences in social organization between regions may have been just as important to the adoption of agriculture as environmental factors. In Belize, communities near centers of elite political power appear to have shifted to maize reliance before their rural counterparts. Despite evidence from Belize, Panama, the Río Balsas drainage, and highland Mexico for plant manipulation by the Early and Middle Archaic period (c.a. 5000 cal B.C.), Pohl and colleagues (1996:368) concluded that significant agricultural intensification did not occur in northern Belize until 1500–1000 cal B.C.

In Mazatán, Clark and colleagues (2007:35) found settlement evidence suggesting that, by 1900 cal B.C., the Mokaya people were selecting village sites according to the distribution of interfaces between “well-drained soils and humid soils.” This combination of soil types would have been ideal for a variety of crops, including legumes, tubers, and maize. On the basis of macrobotanical finds and a lack of tooth wear from metate grit, it may have been beans, rather than maize, that was the real staple crop for the Early Formative Mokaya (Clark et al. 2007:25, 34–35). Use of legumes as a dietary staple might explain not only the distribution of early villages in the Soconusco, but also the increase in use of ceramic cooking vessels and the relative lack of isotopic indicators for maize reliance in human remains (Clark et al. 2007:35). In perhaps their most revolutionary refinement of traditional Early Formative subsistence models, Clark and colleagues (2007:35) suggested that it might have been sedentism that prompted

eventual (i.e., by 1000 cal B.C.) maize dependency, rather than the other way around. In other words, Clark and colleagues (2007) indicated that a combination of factors, including the availability of estuarine resources and the potential productivity of legume horticulture, might have spurred the development of sedentism. The establishment of cultivated fields at the interfaces between different types of arable land, coupled with increasing social pressures emanating from status competition associated with ritual feasting, later drove the transition towards maize agriculture. If the earliest sedentary peoples of the Soconusco were focusing heavily on domesticates other than maize, it suggests that archaeologists should reassess their methods of identifying horticulture versus agriculture, if possible. Other considerations besides isotopic markers of maize dependency could include microbotanical remains such as starch grains, pollen, and phytoliths (e.g., Morell-Hart et al. 2014) and skeletal indices of the health effects of different dietary regimes (see Hodges 1987; Larsen 1987; Chapter VI; Appendix 5). Furthermore, as Clark and colleagues (2007:37) concluded, it is difficult to determine the social significance of a given domesticate, since even a calorically insignificant crop could have “tipped the balance” towards increased sedentism and/or social complexity despite a subsistence economy generally based on other resources. I am sympathetic to Clark and colleagues’ interrogation of traditional models for maize dependency in Early Formative Mesoamerica. As dietary evidence from La Consentida demonstrates, however, maize consumption on the western Oaxaca coast may have been higher than it was in the Soconusco region during the Early Formative period (Blake et al. 1992; Chapter VI).

Ancient peoples of the Soconusco undertook the labor of crop cultivation despite an apparent abundance of nearby estuarine resources (Kennett et al. 2010:3401–3402). For

example, Blake et al. (1992:89–90) identified isotopic indicators in human remains for limited Early Formative maize consumption in the Soconusco despite faunal evidence indicating that the majority of the diet was composed of marine, brackish, freshwater, and terrestrial wild game. These hunted animals included gar, *mojarra*, turtles, iguanas, crocodiles, deer and various snakes. Domesticated dogs also represented a significant portion of the diet (Blake et al. 1992:90). Limited macrobotanical remains also suggest some maize use in the Early Formative Soconusco, but not as a dietary staple (Blake et al. 1992:91).

On the basis of isotopic data and the abundance of wild fauna in the Early Formative Soconusco diet, several authors (Blake et al. 1992; Clark et al. 2007:25, 32) have argued that it may have been for *social* rather than strictly *dietary* reasons that maize grew in popularity. Such social factors could have included the production of alcoholic feasting beverages produced from the sugary stalk of the maize plant. Feasting beverages may have been integral to competitive generosity between aggrandizers and to the establishment of social complexity despite the relative insignificance of maize in the diet (Blake et al. 1992; Clark and Blake 1994; McGovern 2009; Rosenswig 2007:22; Smalley and Blake 2003). The interpretation that Barra phase ceramics were used for serving food or drink at feasts rather than for cooking is supported by the absence of evidence for burning on these early vessels (Clark and Blake 1994; Clark et al. 2007). Clark and colleagues (2007:25) suggested that tecomates in particular likely held fermented maize or cacao beverages. This interpretation is supported by residue analysis demonstrating early cacao consumption using Barra phase vessels (Powis et al. 2007, 2008). Based on increased evidence for burning on later ceramics, along with an apparent decrease in cooking with boiling stones, the use of Mazatán ceramics for cooking apparently increased after

the Ocós phase, likely in tandem with the transition to maize use as a dietary staple (Clark et al. 2007:29). Clark and colleagues (2007:33–34) pointed out, however, that the steady increase in cob and kernel size in domesticated maize beginning in the Archaic period indicates that the harvesting of and selective planting of the kernels themselves was a consistent factor in the plant's cultivation (*though see* Webster 2011). By subsisting on wild resources supplemented by maize and other domesticates, the Chantuto and Mokaya (among other coastal peoples) demonstrated both the productive wealth of coastal resources and the social significance of feasting foods (Blake et al. 1992; Clark 2004a; Clark and Blake 1994; Coe and Flannery 1967; Kennett et al. 2010; Rosenswig 2007; VanDerwarker 2006; Voorhies 2004:342–343).

One limitation of many subsistence models for Early Formative Mesoamerica is researchers' tendency to focus on the importance of maize at the expense of other domesticates. As Lowe (1967, 1975, 1977) and Clark and colleagues (2007:25, 35) have argued, Archaic and Early Formative Pacific coastal horticulture likely included the cultivation of beans and manioc. Maize preserves well in the archaeological record because its hard kernels carbonize readily and its pollen and phytoliths are diagnostic. The opposite is true of manioc. Lowe (1967, 1975, 1977) proposed that the apparently random obsidian flakes common among Early Formative lithics might indicate the use of obsidian graters for manioc processing. Such processing is necessary for the use of bitter manioc in order to avoid "acute cyanide intoxication" (*see* Isendahl 2011:455). Though experimental archaeology (e.g., Davis 1975) suggested that the use of obsidian for manioc graters is consistent with Early Formative debitage morphology and microwear traces, other research indicated that archaeological obsidian chips bear little resemblance to ethnographically recorded manioc graters (DeBoer

1975:431; Lewenstein and Walker 1984). In particular, DeBoer (1975:430–431) noted that ethnographically recorded manioc grater chips tend to be much smaller (less than 1 cm in diameter) than most archaeological obsidian flakes. Another potential drawback of the obsidian chip grater hypothesis is the probability that microscopic fragments from brittle obsidian could render the processed root pulp dangerously inedible, as Green and Lowe (1967:128) acknowledged (*see also* Lewenstein and Walker 1984). It therefore seems unlikely that the Early Formative informal obsidian flakes came from manioc graters. Furthermore, graters would likely only be necessary for bitter varieties of manioc, and thus their identification would be irrelevant in tracing the use of the sweet varieties identified in the archaeological record of Central America (Payson Sheets, personal communication 2015; *see also* Sheets et al. 2012;). Recent research has demonstrated, however, that obsidian tools were used to process manioc in ancient Mesoamerica (Sheets et al. 2012). Morell-Hart and colleagues (2014:74), for example, identified preserved starch grains indicating the use of prismatic obsidian blades in ancient manioc processing. It also may be possible to identify diagnostic use wear on obsidian tools heavily used for the removal of manioc cortex (Sheets et al. 2012:271–272).

Despite the difficulty of demonstrating the Early Formative use of manioc (which does not preserve well in hot coastal climates) discussions of the tuber as a possible Early Formative cultigen persist. Pohl and colleagues (1996:362) identified fossil pollen comparable to domesticated manioc in northern Belize by approximately 3400 cal B.C. The analysis of macrobotanical remains, as well as DNA sequence variation of modern manioc, has demonstrated an early date for the crop's domestication (likely from a single wild ancestral subspecies of *Manihot*) and the presence of domesticated manioc in central Pacific Panama by

about 5700 cal B.C. (Olsen and Schaal 1999; Piperno 2011:S454, S458). Natural volcanic casts from El Salvador demonstrate that manioc was farmed in Central America during the Classic period (Sheets and Woodward 2002). At the site of Cerén, Sheets and Woodward (2002:189–190) found that manioc farming formed part of a “zoned biodiversity” in Classic period kitchen gardens, which also contained chiles, guayaba, maize, maguey, and cacao. Given Lowe’s (1967, 1975, 1977, 2007) convictions regarding late Archaic and Early Formative contact between Central America and the Soconusco, evidenced by the abrupt arrival of sophisticated Barra phase ceramics with no local precursor, the diffusion of manioc from Central America should not be disregarded. In fact, archaeobotanical evidence is mounting that manioc was a component of Mesoamerican diets by 4600 cal B.C. (Isendahl 2011; Pohl et al. 1996; Pope et al. 2001). The answer to correcting preservational biases in the study of ancient domesticates may lie in the study of absorbed residues in cooking vessels and on grinding stones (Clark et al. 2007:300; Isendahl 2011). The majority of the ground stone and chipped stone tools recovered at La Consentida has not been washed in the hopes that a future microbotanical study can elucidate the uses of these artifacts (see Clark et al. 2007; Morell-Hart et al. 2014).

Early studies of coastal subsistence in the Soconusco (e.g., Coe and Flannery 1967; Green and Lowe 1967), while not benefitting from more recent methodological advances such as isotopic and residue analyses, nonetheless provided a rough outline of dietary practices in Early Formative villages. At Altamira, Green and Lowe (1967:31) found evidence for the consumption of deer, rodents, and possibly fish. The infrequent nature of faunal remains in Barra and Ocos deposits at Altamira suggested to Lowe (1967:58; *see also* Clark 1994:228) that occupants focused more on plant cultivation (perhaps that of manioc) than on fishing or

hunting. Green and Lowe (1967) suggested that their faunal evidence for small mammal consumption corresponded with similar finds at La Victoria (Coe 1961:12, 141). The small Barra phase occupation identified at Altamira Mound 19 does not necessarily promote subsistence reconstructions, but does establish continuity of occupation at the site since the very beginnings of the Early Formative (Lowe 1967:56). Though Lowe (1967:56–57) found it “impossible to conclude much... about the Barra phase economic base,” he did identify a lack of evidence for extensive fishing or shell fishing in comparison with Central and South American cultures from which he proposed that Barra phase ceramics diffused.

What most of the diverse reconstructions of Early Formative subsistence discussed here have in common, it seems, is their focus on agriculture and their attempt to establish its chronology relative to sedentism. In a critique of traditional models for Early Formative subsistence on the Gulf Coast, Phillip Arnold (2009:398; *see also* J. Arnold 1996; Killion 2013) has challenged several researchers for relying on “agricentrist” models that depend too heavily on agricultural explanations for social change. Arnold (2009:397) proposed that competition over floodplain resources such as fish promoted social complexity in coastal settings. This model is supported by faunal remains at San Lorenzo, where aquatic resources may have composed 60 percent of meat in the diet (Wing 1978; *also see discussion in* Arnold 2009:400). Wing (1978:31) estimated the relative importance of faunal resources in the San Lorenzo diet by calculating the NISP and MNI of identifiable taxa, and then applying “correlations between a linear dimension in the skeleton and live body weight using a least squares regression analysis.” Arnold (2009:398) has suggested that a model for aquatic resource use is also appropriate for the Soconusco, and would tend to indicate that Early Formative peoples in both coastal regions

were fisher-forager-horticulturalists before a Middle Formative adoption of agriculture.

Similarly, VanDerwarker (2006:195) argued that maize horticulture was only one aspect of a broad-based Early Formative Gulf coastal diet that included exploitation of fruit trees, hunting, and fishing. I agree with Arnold and others (e.g., Garcea 2006; Marshall 2006) that the relationship between early village communities and agriculture must be questioned rather than assumed as components of a “Neolithic Package.” For example, in areas with ample wild resources, such as north African rivers and coastal regions of the Pacific Northwest with fish communities abundant enough to support an intensified subsistence regime, foragers may form sedentary or semi-sedentary, socially complex communities (J. Arnold 1993, 1996; Garcea 2006).

To summarize the findings of many of the dietary studies discussed above, Early Formative communities on the Soconusco and Gulf coasts appear to have subsisted upon estuarine and floodplain products (such as freshwater and saltwater fish, waterfowl, shellfish, ungulates, beans, and palm fruits) supplemented by limited horticulture of maize and perhaps other domesticates such as beans, squash, and manioc (P. Arnold 2009; Blake et al. 1992; Clark et al. 2007; Jones and Voorhies 2004; Killion 2013; Lesure, ed. 2009; Voorhies 1976, 2004).

Consistent themes among many of these coastal subsistence models include the importance of individual and group agency and the impact that diet, and especially the shift to agriculture and use of domesticates in feasting, may have had on social organization. These results differ from earlier studies in the Mesoamerican highlands (e.g., Flannery 1972b, 1973; Flannery and Marcus, eds. 2003; MacNeish 1992; Marcus and Flannery 1996; Sanders 1968; Sanders and Webster 1978) that applied an ecological systems approach, and inferred a direct relationship

between agriculture, sedentism, and eventual social complexity.

Obviously, La Consentida's coastal environment implies that different ecological relationships were important at this site than were present in the highlands. Even other coastal studies, however, may not be wholly appropriate for comparison with La Consentida. While most of the coastal sites discussed in this chapter are located near estuaries, sediment cores from the lower Río Verde Valley indicate that estuaries in the region are geologically recent and probably formed by around 400 cal B.C. (Goman et al. 2005). The relationships between domestic mobility, natural resource exploitation, and social organization may thus have been unique at La Consentida in comparison to Early Formative sites in other regions. Compared to mobility and diet, social organization may be the most complicated and elusive element of ancient life to understand. It is to the discussion of social organization (particularly hierarchical and hereditary inequality) in Early Formative Mesoamerica that I now turn my attention.

Early Formative period social complexity

Archaeological and ethnohistoric evidence indicates that Mesoamerican social organization of the Middle Formative through Postclassic periods included hierarchical inequality inherited according to lineage or familial affiliations. Hierarchical differentiation between nobles and commoners and networks of interaction between nobility in different regions promoted a rich elite culture exemplified by the monumental public buildings and complex political systems of the Late Formative through early Colonial periods (R. Adams 1966; Drennan 2009; Feinman and Nicholas 1989; A. Joyce 2000, 2010; Kowalewski 1990; Lesure and Blake 2002; Parsons 1974; Sahagún 1950–1982 [ca. 1540–1585]; Sanders and Nichols 1988;

Sousa 1998; Spores 1997; W. Taylor 1979; Terraciano 1994, 2000, 2001). Due to the pervasive social influence of commoner/nobility distinctions of later times (and the traditional social models used to explain that complexity [e.g., Morgan 1877]), the type of Early Formative Mesoamerican social complexity most frequently discussed is both *hierarchical* and *ascribed*. This is not to say that heterarchical differences in social roles were insignificant, as I discuss below (Fried 1967:11–14). Rather, it was the establishment of hierarchical differences that many researchers (e.g., Blake and Clark 1999; Clark 2004a, 2004b; Clark and Blake 1994; Clark and Cheetham 2002; Flannery and Marcus, eds. 2003; MacNeish 1992; Parsons 1974; Sanders and Nichols 1988; Sanders and Webster 1978) associated with the Early Formative period changes in subsistence and settlement discussed in this chapter.

Traditional explanations for the advent of social complexity in Mesoamerica have tended to focus on ecology and the economics of interregional interaction (Drucker et al. 1959; Flannery 1968b; Flannery and Marcus, eds. 2003; MacNeish 1992; Marcus and Flannery 1996; Sanders 1956; Sanders and Nichols 1988; Zeitlin 1978). Human ecology models have viewed social complexity as arising in areas with particular environmental characteristics such as fertile agricultural land (Drucker et al. 1959; Flannery 1968b; Flannery and Marcus, eds. 2003; MacNeish 1992; Marcus and Flannery 1996; Sanders 1956; Sanders and Nichols 1988; Zeitlin 1978), aridity requiring the importation of goods and the regulation of irrigation agriculture (Sanders 1968; Sanders and Nichols 1988; Sanders and Price 1968) or even agricultural shortfall (Symonds et al. 2002). Economic models for social complexity (e.g., Rathje 1971) have focused on interaction and exchange between communities in diverse ecological zones. Sanders and Nichols (1988) argued that the rise of social complexity has often occurred in semiarid regions

of the world such as the highlands of central and southern Mexico. Basing their argument in part on Julian Steward's (1955) cultural ecology, Sanders and colleagues (1956, 1965, 1968; Sanders and Nichols 1988; Sanders et al. 1979; Sanders and Price 1968; Sanders and Webster 1978) suggested that the risk of agriculture in arid regions, coupled with the necessity to import goods otherwise unavailable in such areas, promoted the development of "central places." These central places in marginal environments become trade hubs, centers of population nucleation, areas for the accumulation of agricultural surplus, and (through such emphasis on social interaction and increasing population density) loci of developing social complexity. These authors argued that highland Oaxacan sites such as San José Mogote and Monte Albán fit the description of such centers. For Sanders and Nichols (1988), natural environmental conditions and human agricultural responses to them provide the main causal influences on cultural development. According to these authors, for example (1988:72), the cultural development of the Oaxacan Mixteca Alta experienced "retardation" in comparison to that of the Valley of Oaxaca because the former lacked strains of domesticated maize properly resistant to frost.

Recent research in the Soconusco, Gulf, and Honduran coastal regions considers the importance of ecological factors such as estuarine productivity, but primarily focuses on the activities of social actors in the establishment of complexity (P. Arnold 2009; Blake and Clark 1999; Clark 2004a; Clark and Blake 1994; Clark and Cheetham 2002; Clark and Pye 2006; Joyce and Henderson 2001, 2007; Lesure and Blake 2002; Love 2007). Rather than focusing on the community or regional level of analysis, such actor-based approaches consider smaller social units of analysis, such as individuals and inter- and intra-community alliances. Some of this recent coastal scholarship has demonstrated that key social transformations occurred in

variable sequences in domestic, economic, and mortuary contexts in Early Formative sites such as Paso de la Amada (e.g., P. Arnold 2009; Clark 2004a; Lesure and Blake 2002; Rosenswig 2006). The “aggrandizer model” is one application of agency theory that has been particularly influential among researchers of the Mazatán region. Authors applying variants of this model (e.g., Blake and Clark 1999; Clark 2004a; Clark and Blake 1994; Hill and Clark 2001; Lesure and Blake 2002; Love 1999, 2002; *see also* Hayden 1990, 1995, 2009) have considered interregional interaction, exchange and redistribution, competitive generosity, and the management of public events as strategies employed by aggrandizers in promoting the development of social complexity. Community events organized by aggrandizers, according to these authors, included feasts, sporting events, gambling, and communal labor projects. Aggrandizer models have been applied mostly in the Soconusco region, though they have received refinement from archaeologists working in other regions areas as the Caribbean coast of Honduras (e.g., R. Joyce 2004a; Joyce and Henderson 2001, 2007). In a sense, these models specifically propose that relationships of social indebtedness (in areas of ecological abundance, where resource surplus was possible) sparked the development of hierarchical complexity.

“Transegalitarian” is a heuristic category used to describe societies transitioning between relative egalitarianism and ascribed status distinction (Blake and Clark 1989, 1999; Hayden 1995, 2009). Hayden (1995) identified three principal types of transegalitarian societies: despotic, reciprocator, and entrepreneurial. He identified increasing evidence of social inequality among those three types, respectively. Archaeological implications of transegalitarian societies, according to Hayden (1995:41–42, 49–50, 60–61), include increasing evidence for competitive feasting, exchange of prestige goods, public architecture,

procurement and storage of surpluses, ancestor veneration, burial offerings indicating a transition from achieved to ascribed status, population nucleation, and differences in house structures. Though transegalitarian societies do not require agriculture, Hayden (1995:61) argued that the most complex groups among them tend to be agriculturalists, as the social necessity to produce, store, and exchange surplus goods amidst increasing population density becomes extreme. Transegalitarian social organization represents a key theoretical bridge between egalitarian and ranked societies, which are too often viewed as diametrically opposed modes of social organization (Hayden 1995:18).

Blake and Clark (1999:67) analyzed the development of transegalitarian society as an element of their aggrandizer model for social complexity in Mazatán. These authors determined that trajectories of social change may differ between regions, but tend to follow the establishment and maintenance of internal and external alliances, the procurement of surplus goods, the sponsorship of craft specialists producing elite wealth items, and the elaboration of mortuary practices. A central aspect of Blake and Clark's (1999) discussion of transegalitarian society is the redistributive economy of surplus goods and prestige items that allow aggrandizers to accumulate indebtedness and acquire influence over their contemporaries. Blake and colleagues (1992) and Clark and Blake (1994:28) argued that Early Formative maize use, for example, consisted primarily of consuming prestige foods used in shows of "competitive generosity" such as feasting. Beyond the redistribution of material wealth, the social capital collected by aggrandizers who organized events such as feasts and ball games left them at the pinnacle of an increasingly institutionalized social hierarchy. By sponsoring feasts and encouraging gambling debts, according to the model, aggrandizers accrued indebtedness

convertible into social capital such as control over labor for monumental construction projects.

It was only in the context of rising ecological abundance (especially in areas like fertile estuaries, where r-selected resources are plentiful and difficult to overexploit and where people can accumulate resource surpluses) and human population growth during the Holocene that such social dynamics sparking complexity could develop.

Material evidence for hereditary inequality in Mazatán suggests that the origins of hierarchical social complexity in Mesoamerica may be sought in the initial Early Formative period (Blake and Clark 1999; Clark 2004a; Clark and Blake 1994; Hill and Clark 2001; Lesure and Blake 2002; Love 2007). Diversity in the size and architectural elaboration of domestic structures at sites such as Paso de la Amada demonstrates growing differentiation between households (Flannery 2002; Lesure and Blake 2002). The construction of a public plaza and a large ballcourt at Paso de la Amada by 1650 cal B.C. suggests organized communal labor and public events (Clark 2004a:62; Hill and Clark 2001). Though it may be difficult to demonstrate whether these hierarchies were hereditary rather than achieved, Hill and Clark (2001:333) sought to do so through the study of Structures 2 through 6 at Paso de la Amada's Mound 6. These structures increased in size and preeminence among houses at the site beginning around 1600 cal B.C. Hill and Clark (2001) proposed that the ball game became a focal point of communal identity and loyalty, or "*communitas*" (see also Turner 1967). These authors (2001:331) argued that the Mound 6 construction sequence indicates one of Mesoamerica's first episodes of "ascriptive" social differentiation. Successive generations born into the Mound 6 kin group began to inherit their role as event organizers rather than earning it during their lifetimes as their ancestors had done.

According to Hill and Clark (2001), social actors engaging in the playing, ritualization, observation, and even gambling on the ball games produced a self-perpetuating cycle of increasing social complexity. Ethnohistoric evidence of ball games played in Mazatán at the time of European arrival helped the authors establish a link between the structure of Paso de la Amada's ballcourt and the "hipgame" likely played there (Hill and Clark 2001:334, 336). Nineteenth-century reports of a North American Choctaw ball game suggest that, at least in some New World contexts, hundreds or even a thousand participants might play in a ball game, while an even greater number observed (Catlin 1953; Hill and Clark 2001:339). Early Spanish accounts of Aztec ball games focused, according to Hill and Clark (2001:339), at least as much on the importance of spectator gambling as on the game itself. Ethnographic accounts of Amazon Basin societies demonstrate that gambling is sometimes considered sacred, rather than secular or unethical (Gabriel 1996; Hill and Clark 2001:339). What these examples suggest is the need for facilitators at lively and well-attended sporting events. Hill and Clark (2001) concluded that the role of sport in Mesoamerican social complexity (further demonstrated by the presence of probable ballplayer helmets on the colossal Olmec chiefly depictions of slightly later Mesoamerican history [Clark 2007:30]) supports the aggrandizer model as it pertains to the management of large-scale social events. The ethnographic examples (e.g., Gabriel 1996) indicate that sporting and gambling had significant ideological connotations that may have justified the growing prestige of individual facilitators. These interpretations rely, however, on the assumption that a single kinship group occupied Mound 6 throughout its use.

Demonstrating a slightly different perspective than Clark (2004a, 2004b), Lesure and Blake (2002) found that some lines of evidence for the establishment of hierarchical social

inequality at Early Formative Paso de la Amada are conflicting. For example, the construction of probable elite residences atop earthen platforms, which contrast with the majority of non-elevated residences at the site, was contemporaneous with homogenous site-wide distributions of obsidian, greenstone ornaments, incense burners, rattles, figurines, celt and animal bone offerings, and possible blood letters (Lesure and Blake 2002:2, 12). Mortuary evidence of hereditary inequality, such as greenstone objects and a mirror made of mica, is weakly associated or unassociated with the elevated houses, which likely required control over communal labor for their construction (Lesure and Blake 2002:12). These authors argued that such apparently contradictory material traces of complexity indicate that Early Formative social transformations affected some realms of social life (i.e., architectural elaboration) before others (i.e., wealth distribution). This conclusion suggests that evidence for initial social inequality should be sought in discontinuous and variable patterns potentially unique to individual communities or regions. Lesure and Blake (2002) questioned a uniform or monocausal development of social complexity in Mesoamerica, but did find some support for Clark and Blake's (Blake and Clark 1999; Clark and Blake 1994) aggrandizer model. It thus appears that the emergent elite of the Soconusco had the ability to convince their neighbors to build structures and participate in public events, but perhaps could not yet levy this influence for the accumulation of notable personal wealth. I agree with Lesure and Blake's interpretations in that I believe hierarchical complexity to be historically and socially contingent rather than the predictable outcome of a simple set of environmental and economic variables. As I will discuss in Chapter IX, I also feel that the cultural and ecological variability of Mesoamerica make the use of any single causal explanation for social complexity in the region

untenable.

Aggrandizer models for the origins of Mesoamerican social complexity are not without caveats, and critiques from scholars working in the Soconusco and elsewhere have promoted their refinement. Rosemary Joyce (e.g., 2004a; Joyce and Henderson 2001, 2007), Lesure (1997a, 1999b; Lesure and Blake 2002), and Bove (1989) suggested that the activities of social factions, rather than just of ambitious individuals, may have been a source of Mesoamerican complexity. Joyce (2004a) argued that many of the most impressive architectural achievements, and even the development of elite culture itself, likely began as the unanticipated consequences of groups seeing to their daily concerns. According to this model, such communal endeavors initially promoted group solidarity and heterarchical social distinctions, without foreknowledge of what would eventually become hierarchical social inequality. Though Clark and Blake (e.g., Blake and Clark 1999; Clark and Blake 1994) suggested a similar lack of clear predictions about the outcomes of aggrandizer activities, the key difference that Joyce (2004a) proposed was the inclusion of agency on the part of social collectives. Many architectural features that would later become impressive mounds, platforms, and pyramids, for example, may have begun as domestic foundations or as modest stages for public performance. These features were gradually elevated through resurfacing, thus creating a demarcation of social space and thereby opportunities for influential people to appropriate some of those spaces. I agree with Joyce in that assuming Early Formative emergent community leaders to be fully aware of the ramifications of their actions leads to a teleological fallacy. I would add, however, that assuming those social actors were totally *unaware* of the significance of their aspirations is too simplistic as well. In a society so focused on kinship and ancestor remembrance, emergent

Mesoamerican social elites would have considered the legacy they left to their descendants (Clark and Cheetham 2002:292; Hepp and Joyce 2013; Love and Guernsey 2011:181; Marcus 1998; Marcus and Flannery 1996:78, 95).

Specific critiques of the aggrandizer model have included assertions that the social agency of aggrandizers is assumed to have been the exclusive privilege of atomistic, even “*westernized*” individuals with some foreknowledge of the social hierarchies their activities would produce (e.g., R. Joyce 2004a:16–17). Rosemary Joyce (2004a:17) claimed that many aggrandizer arguments (e.g., Blake and Clark 1999; Clark and Blake 1994; Clark and Gosser 1995) assume that these hypothetical social actors were independent, ambitious, and usually male. According to such critiques, the aggrandizer model overlooks the activities of not only women and children, but also of collectivities (perhaps organized according to kinship or non-kinship corporate principles) of people working together to modify their social and geographic landscapes. Such critiques suggest that agency must be considered on different scales, with everything from individuals to collectivities and entire communities engaging in the activities that promoted social complexity. My response to these specific critiques is twofold. First, Clark and Blake (1994) do not claim that the aggrandizers of the Soconusco were fully aware of the eventual results of their activities. In fact, they state that “the development of permanent social inequality is an unanticipated consequence of individuals pursuing self-interests and personal aggrandizement (Clark and Blake 1994:28). Second, I do agree that Clark and Blake’s model is overly focused on the social maneuverability of individuals over the agency of social collectives, as the aforementioned quote demonstrates.

I suggest that one potential limitation of the aggrandizer model is that it may under-

emphasize the negotiated status of aggrandizers' identities and the social contexts, constraints, and norms within which agents operated (Giddens 1979; A. Joyce 2000, 2010; R. Joyce 2004a; Joyce and Henderson 2007; Sewell 1992). In other words, agents cannot be considered atomistic individuals divorced from their surroundings. Also, aggrandizer arguments tend not to account for changes in ideology that must have accompanied the transition from achieved to ascribed status. Given that Mesoamerica developed from egalitarian societies of the Archaic period, such reformulations of ideology and social interaction must have been significant (Clark 2004a; Clark and Cheetham 2002; Joyce and Henderson 2007). The relative diminution of social and geographic independence that the transition to sedentism must have brought (in comparison to seasonally mobile communities whose members can more easily relocate when displeased with some aspect of their surroundings) would have made for novel modes of interaction with one's increasingly permanent neighbors, and may itself have been a factor in the development of hierarchical complexity. I will develop this idea further in Chapter VII, particularly regarding the discussion of anthropomorphic iconography at La Consentida.

According to Joyce and Henderson (2007:642) social groups, rather than just aggrandizing individuals (*contra* Blake and Clark 1999; Clark 2004a), built status through the sponsorship of communally enacted feasting events and the use of foods meant to highlight social distinctions. These authors argued that, beginning in the Ocotillo phase, the consumption of cacao in coastal Honduras formed part of an environment in which successful feasts increased the social capital of factions sponsoring them. Joyce and Henderson (2007) argued that Early Formative cacao use at Puerto Escondido shifted from feasting events centered on the consumption of alcoholic cacao beverages to the consumption of non-alcoholic cacao as an

element of elite “cuisine.” Supporting evidence for this model includes ceramic residue analysis of theobromine, a distinctive alkaloid marker of cacao. This model differs from aggrandizer theory (e.g., Blake and Clark 1999; Clark 2004a; Clark and Blake 1994; Hayden 1990, 1995, 1998; Lesure and Blake 2002; Michaels and Voorhies 1999) in that it focuses on community constructions of elite “cuisine” rather than on feasts sponsored by ambitious individuals. For a food to be transformed from an element of communal feasting to one of elite cuisine, however, implies that its availability at some point became restricted. This limiting of access to a good, similar in some ways to the demarcation of space discussed previously by Joyce (2004a), indicates a process of restriction that must have been central to increasing hierarchical social distinctions of the Early Formative. I find Joyce and Henderson’s discussion of shifting cultural significance attributed to food compelling, and will discuss this further in Chapter VI with regard to what I believe were changing practices of maize consumption at La Consentida.

In his more recent discussions of Early Formative aggrandizers, Clark (2004a) has reformulated the model in light of the critiques summarized above. Explaining his (with Blake) earlier hypothetical construction of aggrandizers as “frenetic and single-minded individuals” to be “descriptive excesses involved with initial stages of model-building,” Clark (2004a:47) re-envisioned the aggrandizers as diverse social actors with negotiated and socially constructed identities. These agents sought their ambitious aims of self-promotion within the confines of an egalitarian or transegalitarian ethos retained from the Archaic period. Such aggrandizers were able to transform their social landscapes only in settings in which resources such as labor and consumable goods were abundant (Clark 2004a:47). The actions and strategies of aggrandizers, according to Clark (2004a:47), included “ritual feasting and drinking, sponsorship of craft

specialists, long-distance exchange, gift giving, competitive sports, and communal construction projects.” Archaeological evidence for these strategies includes ornate Barra phase ceramics, which appear to have been used to serve feasting beverages such as maize beer or chocolate, rather than daily domestic meals (Clark et al. 2007; Clark and Blake 1994). Of such proposed strategies, Clark (2004a:67) has viewed the organization of community labor for constructing monumental architecture and public spaces, which symbolized a growing community identity, as the most important factor in the birth of Mesoamerican social complexity. Clark’s revisions have partially met the challenge of detractors by reimagining the social unit of Early Formative agency, but have done less to address explicit gender biases in the model. The best contribution of these aggrandizer models as applied in Mesoamericanist research, in my opinion, is the diverse kinds of activities they propose (such as organizing feasts, labor projects, sporting events, and gambling) as possibly causal to social change.

Reformations of the aggrandizer model by Clark have not quieted all critiques. Though Love (2002) has supported the model in the past, he has recently been more critical. Love (2007:285–286) noted that Clark and Pye (2006) and Lesure and Blake (2002) have continued to support Clark and Blake’s (1994) aggrandizer model despite its “weak” “empirical base.” Without significant variation between household middens in ceramic styles and vessel forms at Paso de la Amada, argued Love, one must question the interpretation that feasts permitted aggrandizers to accumulate indebtedness or display wealth. Love further stated that data for obsidian redistribution at the sites of Tajumulco, El Chayal, and San Martín Jilotepeque, which Clark and Salcedo Romero (1989) originally saw as evidence for a “petty chiefdom,” has more recently proven inconclusive (Clark and Pye 2006). Finally, Love found mortuary evidence for

Locona phase social differentiation to be unsatisfactory. While Clark (1991, 1994) interpreted differences in mortuary goods in juvenile burials as indicative of ascribed inequality, Love (2007:285) found this evidence insufficient to rule out “differential regard for those who die young.” In general, while Clark’s model predicts wealth inequality as a major indicator of growing social differentiation, the archaeological evidence for such inequality is mixed.

Love (2007) acknowledged the presence of a regional settlement hierarchy in Mazatán, the status of Paso de la Amada as a likely regional ceremonial center, the interpretation of Structure 6 as a possible elite house, and the presence of the earliest known ballcourt in Mesoamerica (Clark 2004b; Hill and Clark 2001; Lesure and Blake 2002). In terms of proposing his own explanations for Early Formative social complexity, Love (2002:199–200) has tended toward models for interregional social interaction, of which he discussed two main types. Interaction sphere models, according to Love, tend to consider the Gulf Coast and other regions of Mesoamerica as relatively equal partners in exchange and early social complexity (e.g., Flannery and Marcus 1994; Grove 1989; Marcus 1989 [*cited in* Love 2002:199]). Core-periphery models, including Olmec “mother culture” models, tend to view the Gulf Coast as a primary source of early Mesoamerican social complexity, iconographic traditions, and monumental sculpture and architectural production, perhaps after an initial florescence in the Soconusco (Clark 1997; Coe 1968, 1989; Diehl and Coe 1996; Tolstoy 1989 [*cited in* Love 2002:200]). Recent research regarding early Maya monumentality (e.g., Inomata et al. 2013) suggests that the Olmec heartland was not the only source of hallmarks of Formative period social complexity such as ceremonial architecture.

Though Love (2002:201–204) concluded that the evidence is insufficient to choose

between these models, he pointed out important problems with each, including that San Lorenzo chronologies are too imprecise to demonstrate early dates for all monumental sculptures, and that symbols on ceramics belonging to the “X Complex” appear unassociated with social rank. This discrepancy between indicators of interregional interaction (such as the ceramic X Complex) and other archaeological evidence of social hierarchy is reminiscent of Lesure and Blake’s (2002) findings regarding contradictory traces of complexity in Mazatán. Ultimately, Love (2002:202, 204) implied that the only consistent causal mechanism behind Early and Middle Formative social complexity in different regions is that of population size and nucleation. Regardless of the as-yet poorly understood mechanisms that drove Early Formative interregional interaction, Love (2002:202) found more decorated, exchanged ceramics at larger sites that arguably served as “nodes for interregional interaction and economic exchange.” Love did not explain what caused sites to grow larger or better connected to interaction networks in the first place, though favorable ecological conditions seem a probable candidate. Such contradictory interpretations of the Mazatán and Gulf coastal data underscore the importance of both ecology and agency in explanations for social complexity. Despite conflicting conclusions such as those discussed here, several authors (Blake and Clark 1999; Clark 1991, 2007; Hill and Clark 2001; Love 2007:285) describe the Soconusco as “precocious” in its development of social complexity, regardless of later Gulf coastal phenomena that eclipsed it. I am generally supportive of Love’s shrewd comparison of the material records of different regions, though I find that ethnographic evidence is inconsistent with some of his specific critiques of the aggrandizer model, as discussed below.

Divergent interpretations regarding the advent of social complexity in regions such as

the Soconusco stem from conflicting data as well as from differing theoretical perspectives (P. Arnold 2009; Blake and Clark 1999; Clark 1991, 1994, 2004a; Love 2002, 2007; Marcus and Flannery 1996). The case for initial Early Formative social complexity is tantalizing at Paso de la Amada, with its 3,600 year-old ballcourt and a possibly associated residence (Clark 2004a; Hill and Clark 2001; Lesure and Blake 2002). In the Río Naranjo subregion of the Soconusco, however, significant settlement hierarchy and public architecture did not appear until the Middle Formative, and even then most likely as the result of contact with Mazatán (Love 2002:19–26, 199–202). I believe that it is only through the careful study and comparison of various lines of evidence, such as those discussed by Lesure and Blake (2002) that archaeologists can hope to reconstruct Early Formative social organization. This comparison of multiple lines of evidence is important because initial social complexity is likely to have left diverse material signatures in different sites and regions, as I will discuss more fully in Chapter IX (R. Joyce 2004b; Joyce and Henderson 2001; Lesure and Blake 2002).

Love's (2007) critique of the evidence for social complexity in the Early Formative Soconusco is similar to arguments by Blanton and colleagues (1999:39), who suggested that late Tierras Largas and San José (1450–1150 cal B.C.) phase highland Oaxacan burial practices, though indicative of burgeoning wealth discrepancies, might imply moieties rather than elite/commoner differences. In this vein, Arthur Joyce (2010:113–115) argued that mortuary, settlement pattern, and architectural data for Early Formative highland Oaxacan social complexity are weak in comparison to those in the Soconusco and Gulf coastal regions. Variation in quantities and types of probable prestige goods (such as worked shell and imported stone) in domestic refuse at sites such as Santo Domingo Tomaltepec in the Valley of Oaxaca

has been interpreted as evidence for early social complexity (Blanton et al. 1999:34–42; Flannery 2002; Marcus and Flannery 1996:76–110; Whalen 2009:76–77). Blanton and colleagues (1999:35) discussed burial evidence for San José phase social differentiation, which included patterning in flexed versus extended body positioning, quantities of grave goods, and stone slabs over apparently “elite” burials. Mixed evidence for complexity in highland Oaxaca, such as a lack of obvious “chiefly” houses despite mortuary evidence for the beginnings of achieved wealth accumulation (Blanton et al. 1999:37) resembles the aforementioned mixed indications of formalized hierarchy in the Soconusco (Lesure and Blake 2002).

Many researchers (e.g., Carballo 2009; Flannery 2002; Hill and Clark 2001; Lesure 1997b, 1999b; Pool 2007:124; Whalen 1983:24) have argued that public architecture in Early Formative population centers suggests group ritual and political activities developing from earlier domestic practices, and that these public activities may have been organized by emerging elites. Though public spectacle itself does not denote inequality, the organization of labor for constructing public architecture such as platforms and ballcourts (in Mazatán, for example) to house those events may do so to a certain extent (Clark 2004a:67). Though examples may be found elsewhere in the world for monumental and public architecture made by ostensibly “egalitarian” groups (e.g., Göbekli Tepe on the Anatolian Plateau), such examples must be used with the caveat that there is still much we do not understand about the social dynamics of the communities who produced them (Banning 2011; Peters and Schmidt 2004). Several authors (e.g., Drennan 2003; Marcus and Flannery 1996) have argued that San José Mogote in the Valley of Oaxaca attracted a large population during the Early Formative in part due to its fertile agricultural land. This site may have later developed public ritual architecture indicative of

initial social complexity. It is worth noting that while some authors (e.g., Drennan 2003:47; Flannery 2009; Marcus and Flannery 1996:109–110) interpret a set of buildings at Tierras Largas and San José phase San José Mogote as public ritual structures, others (e.g., Winter 2002:69) suggest instead that they were high status houses. Though Flannery and Marcus (1994:129–132; Marcus and Flannery 1996:87) interpret these “Men’s Houses” as public structures repeatedly razed and reconstructed over time in the same spots, other authors disagree. Based on stratigraphic reinterpretation, Clark (2004a:50) argued that the structures were a set of neighboring buildings used concurrently. Clark (2004a:52) concluded that the possibly simultaneous use of these relatively small buildings suggests political competition between contemporaneous social factions rather than diachronic maintenance of community ritual. If Clark is correct, and the Early Formative highland Oaxacan structures are a collection of redundant community buildings rather than a long-used “Men’s House,” a major component of the argument for hierarchical social complexity in these Early Formative communities is lost.

Differing interpretations of evidence for initial social complexity in Mesoamerica may sometimes relate to basic theoretical differences such as degrees of adherence to General Systems Theory. Critiques of the application of systems theory in archaeology (e.g., Berlinski 1976; Salmon 1978) have suggested that archaeologists have imprecisely used many of the specific terms and ideas developed within systems ecology, but which are inappropriate for application to anthropological questions. As Salmon (1978:182) argued, even the best uses of systems theory by archaeologists (her example being the work of Kent Flannery) could have borrowed equally productive theoretical influence from other realms of study. Responses to Salmon’s critique (e.g., Lowe and Barth 1980; *see also* Salmon 1980) were swift, and in some

cases seemed to imply that a rejection of the principles of ecological systems thinking were tantamount to a rejection of any form of systematic or scientific thinking in archaeology. In a sense, the debate seems to have descended into accusations of scientistic versus anti-science approaches to archaeology. Salmon (1980:576) acquiesced that General Systems Theory (GST) may represent a useful source of heuristic thinking about social dynamics studied by archaeologists, but maintained that most attempts by archaeologists to utilize the terms and approaches developed within GST have been “confused, jargon-ridden, and full of grandiose claims.” Perhaps most damningly, Salmon (1980:578) pointed out that the use of GST principles to formulate replicable models for ancient social dynamics (as in the case of computer simulations) must necessarily include the assumption that certain variables of ecological relationships and social dynamics are causally linked to one another (i.e., in order to promote “homeostasis”). The potentially “high degree of arbitrariness” in such determinations of causality, argued Salmon (1980:578) lead proponents of GST in archaeology to produce misleading models for social change that may do more to obfuscate causality than to clarify it. In short, Salmon argued (and I agree) that human societies cannot be reduced to the mathematical models or computer simulations favored by GST-inspired archaeology. Attempting to explain social dynamics in this manner may lead to models that appear “logical,” or that seem to find causal links for social change, but that bear little relationship to reality.

One of my main critiques of the ecological systems approach that Flannery and colleagues have applied to the highland Oaxacan evidence relate to the authors’ overly straightforward associations between the purported quality of agricultural land and the advent of social complexity. I agree with recent findings of Mesoamerican subsistence research (see

discussion above) that contradict proposals that social complexity can be predicted by something as simple as the distribution of fertile “Class I” land, (Marcus and Flannery 1996:79–80), though I do acknowledge the importance of soil variation to agriculturalist communities. In a somewhat similar vein, archaeologists applying ecological systems theory in Oaxaca have tended to rely on overly strict dichotomies between masculine and feminine activities and between the public and domestic spheres of community activity (e.g., Flannery and Marcus 1994:129–132; Marcus 1998, 1999; Marcus and Flannery 1996:87) As I have argued elsewhere (Hepp and Joyce 2013), I feel that “domestic,” as applied to Formative Mesoamerica, is in some ways a misnomer. When viewed through a modern, Western lens, “domestic” comes to imply “private,” or “hidden within the household.” My research indicates that Formative period domestic life was defined by public and social interaction, a circumstance in part driven by the necessity of cooperating with ever more permanent neighbors in increasingly sedentary communities. No longer as free to “vote with their feet,” as their Archaic forebears, Formative period peoples gathered their domestic lives into communal scales of collaboration and contestation in a process I have referred to as “communal domesticity.” Furthermore, historical analyses of early colonial Mixtec gender concepts (Sousa 1997, 1998:108; Spores 1997:186; Stern 1995:242, 248; W. Taylor 1979:108; Terraciano 1994:393, 2000:16), linguistic study (Terraciano 1994:176-177), and Zapotec ethnography (Stephen 1991:76-77, 2002:41-59), suggest that gender roles in ancient Oaxaca existed within a framework of complementarity rather than strict divisions. This data contradicts interpretations that figurines were always used in homes by women (Marcus 1998) or that groups of men gathered in public spaces to make all decisions for the community (Flannery and Marcus 1994:129–132; Marcus and Flannery

1996:87).

Several archaeologists (e.g., Blanton et al. 1999; Clark 2004a; A. Joyce 2010; Winter 2002) have generally been critical of attributions of hierarchical social complexity to Early Formative highland Oaxacan communities. Arthur Joyce (2010:74) argued that no highland Oaxacan settlements of the Early Formative, with the exceptions of San José Mogote and Yucuita, had populations above “a few dozen people.” Even in these larger towns, similarity in size and form of houses (averaging between 18 and 24 m² in size) and bell-shaped domestic storage pits suggests that neighborhoods were organized according to kinship rather than social status. Neighborhoods at San José Mogote were remarkably similar to those in the smaller, more “typical” villages of the region (A. Joyce 2010:75). According to Joyce (2010:77), Tierras Largas and San José phase burials indicate an emphasis on domestic community organization, variability according to kinship, and “minimal wealth and status distinctions.” This relative lack of hierarchical distinction suggests an emphasis on kinship over ascribed status. Though they acknowledged evidence for some social differentiation in the region by the San José phase, Blanton and colleagues (1999:39–42) suggested that Early Formative highland Oaxacan society was organized not according to inherited hierarchical status, but instead according to moieties dedicated to the earth and the sky. The evidence for the moiety model comes from imagery interpreted as referring to “lightning” and “earthquake” on ceramic vessels (Blanton et al. 1999:40; Marcus 1999). Even if arguments for social complexity in Early Formative highland Oaxaca are accepted, the earliest dates for that complexity (c.a. 1350 cal B.C.) postdate those in Mazatán by several centuries (Clark 2004a:62; Marcus and Flannery 1996).

The debates summarized above indicate that archaeologists have considered many

material correlates for identifying and understanding social complexity in Mesoamerica. One line of evidence that I have so far only briefly discussed is mortuary data. Differential burial practices, by which certain individuals were interred with elaborate offerings or with different body treatment, provide evidence of the diverse ways Mesoamericans treated their dead (Gillespie 2001; R. Joyce 1999; Spencer and Redmond 2004; Whalen 1983:30–33; Winter 2002:68). For decades, archaeologists have inferred degrees of social difference through the analysis of burial practices. Some (e.g., Binford 1971; Gillespie 2001; Saxe 1971) have argued that differential burial of children may indicate hereditary status distinction. Clark (1991, 1994), for example, interpreted offerings interred with juveniles at the Early Formative Chilo “site cluster” in the Mazatán region, such as a mica forehead mirror with a juvenile at Locona phase Vivero, as indicative of ascribed inequality. This interpretation is partially based on anthropomorphic figurines with forehead mirrors recovered at the Ocós phase site of Cosme (Clark 1994:126). Other scholars have voiced concerns about the use of mortuary data to infer social organization, in part because it is difficult to determine what variations in the quantity and type of grave goods indicate status rather than other social affiliations or idiosyncratic variation (Carr 1995; Love 2007). Love (2007:285) warned, for example, that mirrors interred with juveniles in the Soconusco might simply reflect the social importance of youth in ancient communities. This interpretation may contradict Amerindian ethnographic evidence for infancy and personhood, however, particularly in societies with traditionally high infant mortality. Among the Wari’, for example, it is not the act of being born, but rather the establishment of social connections, that makes a person (Conklin and Morgan 1996:681; *see also* R. Joyce 2000b; Parsons 1936).

Carr (1995:188) called on archaeologists to recognize that the determining factors of differential mortuary treatment include not only social organization, but also “philosophical-religious” beliefs. Following Bazelmans (2002), Rosemary Joyce (2005:143) has argued that funerary offerings, accoutrements, and attire represent a complex interplay of social meanings, and are “not simply... reflections of a coherent ‘identity,’” or status. Joyce (2005:143) referred to these complex meanings of burial goods as “the enactment of embodiment in mortuary contexts.” Strengthened by these evaluations, mortuary analysis remains an important step in understanding social relations in ancient communities (Morris 1991; Rakita et al., eds. 2008). Mortuary analysis is important for studying social organization not just because it promotes comparison of burial offerings, but also because ancient human bodies themselves varied in ways that sometimes relate to social status or other dimensions of identity. Markers of skeletal health indicative of dietary and lifestyle differences include porotic hyperostosis suggesting malnutrition, linear enamel hypoplasia indicating juvenile growth interruption (Cook 1981; Goodman 1991; Skinner and Goodman 1992), cribra orbitalia suggestive of anemia, and Harris lines in skeletal growth plates that indicate arrested growth (Lallo et al. 1977; Martin et al. 1985; Mays 1995; Roberts and Manchester 1995 Stuart-Macadam 1989). Though variable health between individuals is not exclusively a result of unequal status, skeletal health indicators that correlate with evidence from offerings or body treatment may indicate that people led dissimilar lives (Danforth 1999:17–18; Márquez Morfín et al. 2002; Paynter 1989; M. Pearson 1999:81, 210; Santley and Rose 1979; Storey et al. 2002). For that reason, mortuary analysis is appropriate as one avenue (accompanied by other types of data such as those from iconographic study and the comparison of domestic contexts) for inferring modes of social

organization.

What most of the models for social complexity discussed above have in common is their emphasis on ascribed hierarchical inequality. I believe this to be problematic because many anthropologists (e.g., J. Arnold 1996; McGuire 1983; Pauketat and Alt 2003; Pauketat and Emerson 2004) recognize that inherited status distinctions are only one type of social complexity, which may also take the form of heterarchical specialization without formal hierarchy. Furthermore, heterarchical and hierarchical social distinctions may be negotiated, contested, and variable throughout one's lifetime according to such factors as age, gender, roles enacted in ritual cycles, specialized knowledge, and myriad social affiliations (Brumfiel 2003, 2006; R. Joyce 1999, 2000a, 2002; Stockett 2005). Heterarchical and hierarchical distinctions may be ascribed or achieved during one's lifetime. Though all societies have some heterarchical and hierarchical differences and may practice division of labor according to variables such as sex and age, certain forms of economic specialization are less universal (Crumley 1995, 2004; McIntosh, ed. 1999; Pauketat and Emerson 2004; Vega-Centeno Sara-Lafosse 2007:169). I argue that acknowledging the significance of heterarchical complexity is not the same as stating the facile truism that 'all human groups are socially complex.' Instead, groups with marked economic or ritual specialization despite a relative lack of ascribed hierarchical inequality are *different* (perhaps as a matter of degree rather than of kind) in their modes of social organization than other egalitarian groups (see J. Arnold 1996; Fried 1967). Material indicators of a complex heterarchical group might include anthropomorphic iconography (see R. Joyce 2000a; Lesure 1997a, 1999a, 2011b) or grave goods suggesting that community members fulfilled diverse social roles or possessed different kinds of craft

specialization, ecological, or ritual knowledge or skill (see Carr 1995; Gillespie 2001).

Most anthropologists agree that groups marked by inherited status display a different form of complexity than those in which social distinction is attainable only through achievement (e.g., Blake and Clark 1999; Hendon 1991; A. Joyce 2010; Kowalewski 1990; McGuire 1983; Michaels and Voorhies 1999; Paynter 1989; Spores 1997). It is widely accepted (e.g., Banning 1998:229; Clark and Cheetham 2002; Feinman 1995; Hayden 1990:32–33; Sanders and Price 1968) that hierarchically ranked society is a recent development in comparison to the relatively egalitarian societies that comprised most of human history. Egalitarian societies have traditionally been defined as those in which there are “as many positions of prestige in any given age-sex grade as there are persons capable of filling them” (Fried 1967:52). Nevertheless, the recognition that status can vary according to gender, age, and achievement in all societies has led some to argue that nowhere are people truly equal (Blake and Clark 1999; Blanton 1998; Clark and Blake 1994; Feinman 1995:261; Flanagan 1989; Paynter and McGuire 1991). This conclusion is not new, however. As Morton Fried (1967:11–14) argued, true “egalitarianism” is a fallacy because humans will always be somewhat self-interested. The key difference between “egalitarian” and ranked groups may lie in the relaxation of leveling mechanisms that worked against the formalizing of hierarchy during our egalitarian past (Feinman 1995:262; Hayden 1995).

As discussed above, authors such as Blake and Clark (1989, 1999; Clark and Blake 1994) and Hayden (1995) have proposed “transegalitarian” as a category for the transition between egalitarian and hierarchical social organization. In my opinion, the concept of transegalitarian society is important for understanding the origins of Mesoamerican social complexity because it

combines extra-societal factors such as the availability of rapidly reproducing r-selected resources with the agency of real people operating according to societal freedoms and constraints, while recognizing that transitional communities leave variable and often ambiguous material evidence (Blake and Clark 1999; Clark 2004a). As I will demonstrate in subsequent chapters and conclude in Chapter IX, I feel that “transegalitarian” is a useful descriptive concept for much of the archaeological evidence at La Consentida. One should remember, however, that many results of aggrandizing practices were likely unintentional outcomes of more immediate and personal goals, and that aggrandizing agents need not always have been ambitious (or male) individuals, but instead could be collectivities of diverse scale. For that reason, I am generally sympathetic to the refinement of aggrandizer models to accommodate agency on multiple social scales (Clark 2004a; R. Joyce 2004a).

Debates discussed above regarding such lines of evidence as architectural differentiation (e.g., Clark 2004a:50–52; Flannery and Marcus 1994:129–132; Marcus and Flannery 1996:87; Winter 2002:69), scales of social agency, such as that of individual aggrandizers versus that of social collectives (e.g., Blake and Clark 1999; Clark and Blake 1994; R. Joyce 2004a:16–17), and mortuary analysis (e.g., Carr 1995; Clark 1994:126; Love 2007:285) indicate that no one line of evidence can supply a satisfactory indication of past social organization. Put simply, there may be many *necessary* types of evidence for social complexity, but there appears to be no single *sufficient* indicator. The possible permutations of extra-communal and intra-communal influences on Early Formative period social change leave a convoluted and regionally variable material record. As Lesure and Blake (2002) discussed, the search for material indicators of Early Formative complexity often yields mixed results, and

archaeologists should expect some forms of evidence in the absence of others. One should thus not anticipate that certain kinds of evidence for social complexity will appear in unison across domestic, economic, and ritual milieus of Early Formative society. Furthermore, though clear evidence of domestic, mortuary, and economic differentiation at a site might suggest the presence of fully developed hereditary social inequality, the very beginning stages of status differentiation will likely be much more difficult to recognize (Clark and Blake 1994:29). In such cases of incipient complexity, even faint hints regarding the different roles of individuals may be significant as precursors of fully institutionalized inequalities of the later Formative and Classic periods (R. Joyce 2004a). It may be that some Early Formative period individuals were preeminent administrators in their communities, but that such roles were still achieved through personal accomplishment or endowed by corporate partnerships rather than ascribed to individuals by birthright (see Blanton et al. 1996). Perhaps also these nascent elites were initially unable to use their social influence for *personal* gain, but could instead enlist it on behalf of the community. Such considerations might be particularly applicable to initial Early Formative sites, where long-held social practices (or “leveling mechanisms”) of the Archaic likely instilled resistance to the novel status reorganizations of the Formative or constrained the degree to which influential people could institutionalize hereditary status distinctions.

Summary

As reviewed in this chapter, ongoing debates in Early Formative archaeology concern the establishment of sedentism, the subsistence economy supporting early village life, the origins of institutionalized social complexity, and the relationships between these

transformations. While Early Formative sedentism and social complexity in the highlands may have been based on agriculture (*see* Marcus and Flannery 1996:79–80), recent scholarship suggests that some coastal populations founded villages before they were reliant on domesticates such as maize, and that sedentism was adopted gradually in some areas (P. Arnold 2009; Kennett et al. 2010; Killion 2013; Lesure, ed. 2009; Rosenswig 2007). One potential limitation of subsistence evidence from coastal contexts is that it typically comes from sites near estuaries (Blake et al. 1992; Kennett et al. 2010; Lesure, ed. 2009). This pattern begs the question: what was the economic basis for communities in coastal regions without estuaries? Such a lack of evidence represents a limitation to understanding Early Formative diversity. The interplay between ecology and social organization in Early Formative coastal communities is still not well understood in many regions, but likely had significant influences on practices of mobility and community development (P. Arnold 2009; Clark and Cheetham 2002; Coe 1981; Joyce and Goman 2012; Stark and Voorhies, eds. 1978; Wing 1978). Patterns of material culture variation between ecologically distinct zones, such as differences in ceramic vessels between estuarine and slightly inland sites in the Soconusco, emphasize this point (Lesure, ed. 2009:2).

In light of continued debates in Early Formative archaeology, it is clear that there was no single set of conditions or sequence of events behind transitions in settlement, subsistence, and social organization in Mesoamerica. Initial sedentism began at different times in various regions, and seems (at least in some coastal zones) to have been based on a mixed subsistence economy of horticulture and foraging, rather than on a truly agriculturalist diet. Early social complexity seems to have been historically contingent and regionally variable. Its development

was based on human agency at different scalar levels and on ecological circumstances promoting the accumulation of resource surplus that could be employed for communal events. Debates regarding these transformations suggest that individual causal mechanisms fail to explain them across diverse regions, and also signify the value of evidence from initial Early Formative period sites in previously unstudied or understudied regions, which may provide new insight on this era of significant social change. Investigations at La Consentida represent an opportunity to address the relationships between sedentism, subsistence, and social organization in a region never before studied in light of the initial Early Formative. Coastal Oaxaca may have been a significant but previously unrecognized participant in the roots of Mesoamerican culture. As I will seek to show in the remaining sections of this dissertation, research at La Consentida will help to illuminate that role.

Chapter III: Methods and Mapping

Introduction

This chapter summarizes the LCAP's phases of research, field and laboratory methods, mapping results, and definitions of some terminology used throughout the dissertation.

Research at La Consentida in 2008 included ground-penetrating radar (GPR), informal site reconnaissance, and an analysis of ceramics collected during the excavation of a test pit at the site in 1988 (Barber 2009; A. Joyce 1991b:116–117; Joyce et al. 1998:105–106; Winter 1989). In 2009, I returned to La Consentida for limited total station mapping and a pilot excavation project during which the team removed about 15.4 m³ of sediments in two operation areas at the western edge of Platform 1, along its northern and southern slopes. A 2010 laboratory project helped to begin the classification of La Consentida's ceramic and chipped stone artifact assemblages. The results of these preliminary studies proved useful for demonstrating the early dates of site occupation and for securing grant funds to support a longer project in 2012. The 2012 field season consisted of nine months of research divided into three phases. The first phase (January–February) focused on mapping. The second phase (February–June) focused on excavations. The final phase (June–October) included preliminary laboratory study and processing of artifacts and samples collected during excavations. Carbon, ceramic, and human tooth samples were exported to the United States for specialized analyses. Remaining artifacts and samples are curated at the INAH facility in Cuilapan, Oaxaca. A 2013 laboratory season focused on analysis of ceramics, figurines, and ground stone, and a 2014 laboratory project included the study of faunal remains.

Remote sensing

GPR analysis in 2008 was undertaken in two long transects along a modern road bisecting the western edge of La Consentida's Platform 1, as well as in three rectangular areas atop and at the northern and southern margins of the western end of Platform 1 (Barber 2009; Figures 3.1 and 3.2).¹ Due in part to interference from plant roots, the rectangular areas of GPR produced little useful information. Analysis of the data produced by the long transects, however, indicated as many as six to eight subsurface anomalies along the modern road. As discussed below, these anomalies formed the basis for the 2009 excavations at La Consentida.

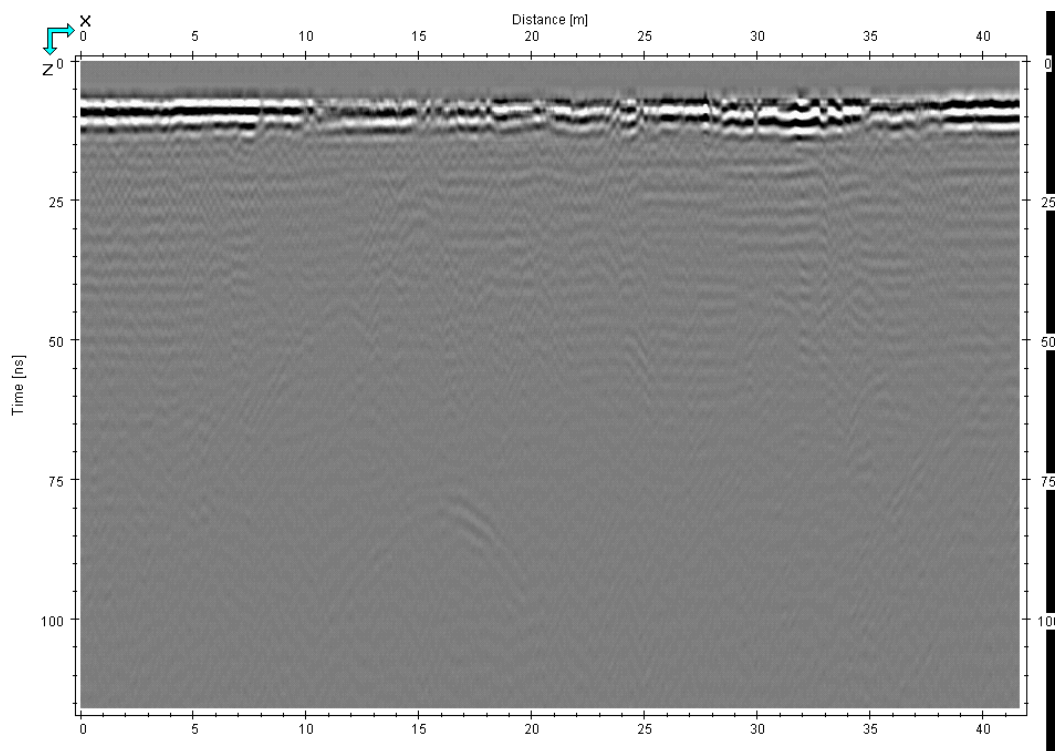


Figure 3.1: GPR results from the southern margin of Platform 1. Anomalies detected at 10m, 15m, 18m, and 35m. (Left: South; Right: North).

¹ Sarah Barber (2009) and Arthur Joyce co-directed the 2008 regional GPR study. GPR was performed under Barber's INAH permit and with assistance from UCF students. TAG Research by Strum, Inc. analyzed the data. A 500 MHz antenna was used, and anomalies were detected at a depth of about 1.7 m (Barber 2009:4–10).

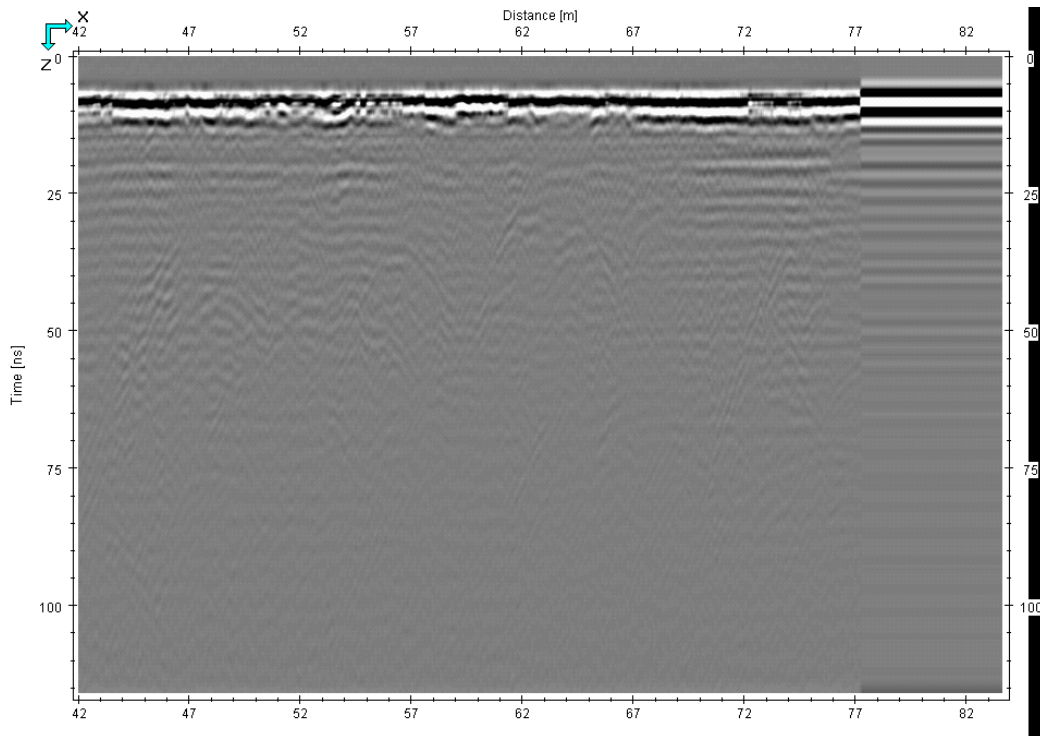


Figure 3.2: GPR results from the northern margin of Platform 1. Anomalies detected at 54m, 61m, 66m, and 72m. (Left: South; Right: North).

Mapping and survey

Much information about the location and setting of La Consentida can be learned from publicly available remote sensing imagery. Figure 3.3, for example, shows the location of La Consentida as visible on a Microsoft Bing Maps™ image. The map demonstrates the densely vegetated location of the site within the Chacahua National Park, as well as the site's proximity to modern coastal estuaries.



Figure 3.3: Bing Maps™ image showing La Consentida in relation to modern estuaries in the lower Río Verde Valley

In May of 2009, fieldwork at La Consentida began with the clearing of underbrush to expose key areas for excavation, which were chosen based on the GPR results from the previous field season. A site datum point was set and a north/south baseline established to facilitate mapping. Excavation areas were placed adjacent to the disused road bisecting Platform 1. Though GPR results indicated anomalies directly under the road, excavations were performed slightly west of the road to avoid potential compaction interference produced by vehicle traffic that crossed over the platform as recently as the 1990s. An arbitrary Cartesian grid was set for the site, with the main datum designated as 5000N 5000E, in order to record

the location of the datum, mapping points, and the southwest corner of excavation operations. Casual walking survey in 2008 and 2009 (performed beyond the boundaries of an initial GPS mapping project undertaken in 2000) indicated that the site was larger, and its topography more complex, than initially thought (see Joyce et al. 2009b:524). Several earthen substructures were identified atop Platform 1. Survey also located the collapsed remains of a historic brick structure near the northwestern edge of Platform 1. Approximately 50 meters west of Platform 1 is a dry stream bed that may relate to the deposition of sand and silt in the natural strata beneath earthen architecture at La Consentida (A. Joyce 1991b:166, 408; Mueller 1991:826; Winter 1989). Terrain, time constraints, and vegetation limited the extent of mapping during the 2009 season. The task was completed as an initial component of the 2012 study.

The first step of the 2012 field season was to use machetes to clear as much vegetation from Platform 1 and a surrounding buffer area as possible. Because the site is located in a national forest, no large trees were damaged during this process. Following site clearing, one assistant (Kyle Urquhart) and I spent three weeks mapping the entire site with a total station. We recorded a total of 1,507 three-dimensional data points. This mapping process revealed the location of seven earthen mounds (Substructures 1–7) atop Platform 1 (Figures 3.4 and 3.5). We discovered that another modern road crosses the eastern edge of the site. As of 2012, this road was still in use and provided local farmers with access to large colonies of bees kept in the forest. The better understanding of site topography afforded by these mapping results, as well as surface finds identified during mapping and survey, helped to refine plans for excavation during the following phase of the 2012 field season. As demonstrated by Figures 3.4–3.6 several types of maps can be generated from this data. Figures 3.4–3.6 are topographic maps using 20

cm intervals. Figures 3.4 and 3.5 are identical plan view maps, with the exception that the former indicates the locations of earthen features at the surface, while the later indicates the locations of excavation operations at the site. Figure 3.6 provides an oblique view of the surface of the site, with the vertical dimension slightly exaggerated for greater visibility of Platform 1 and the various substructures.

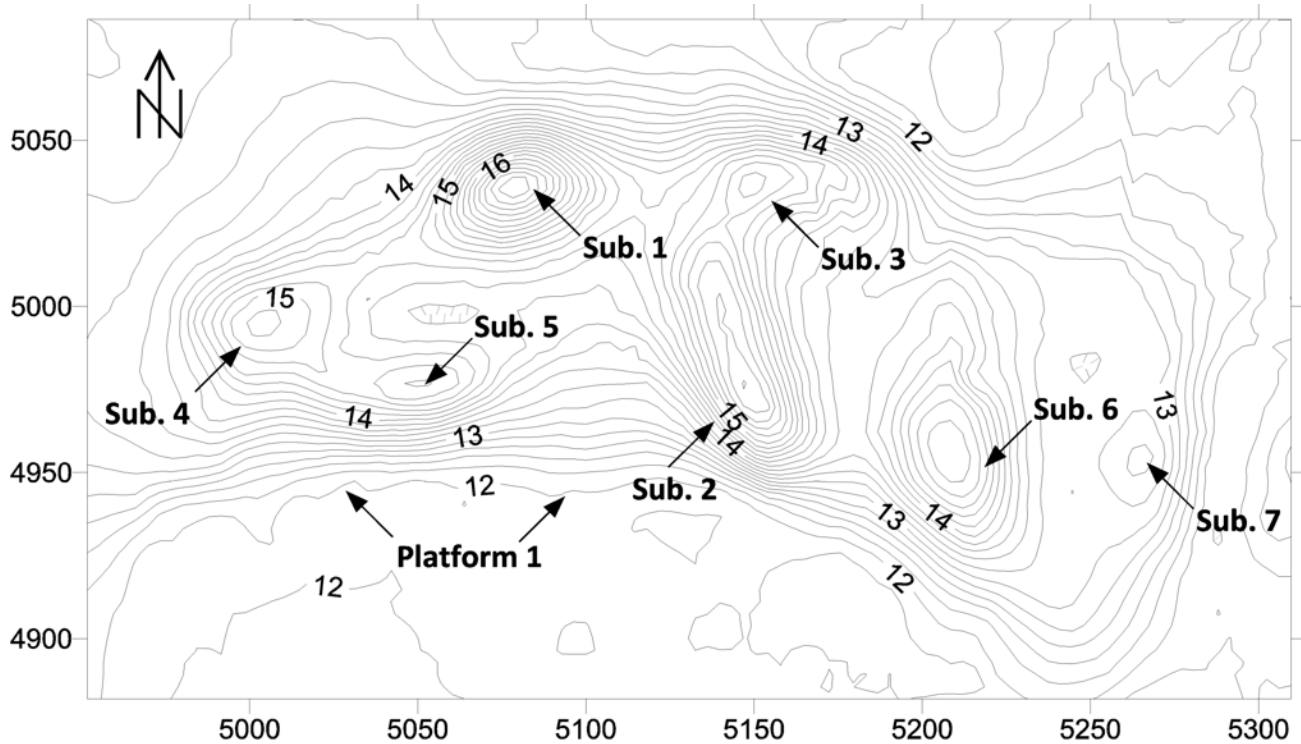


Figure 3.4: Topographic map of La Consentida showing Platform 1 and Substructures 1–7

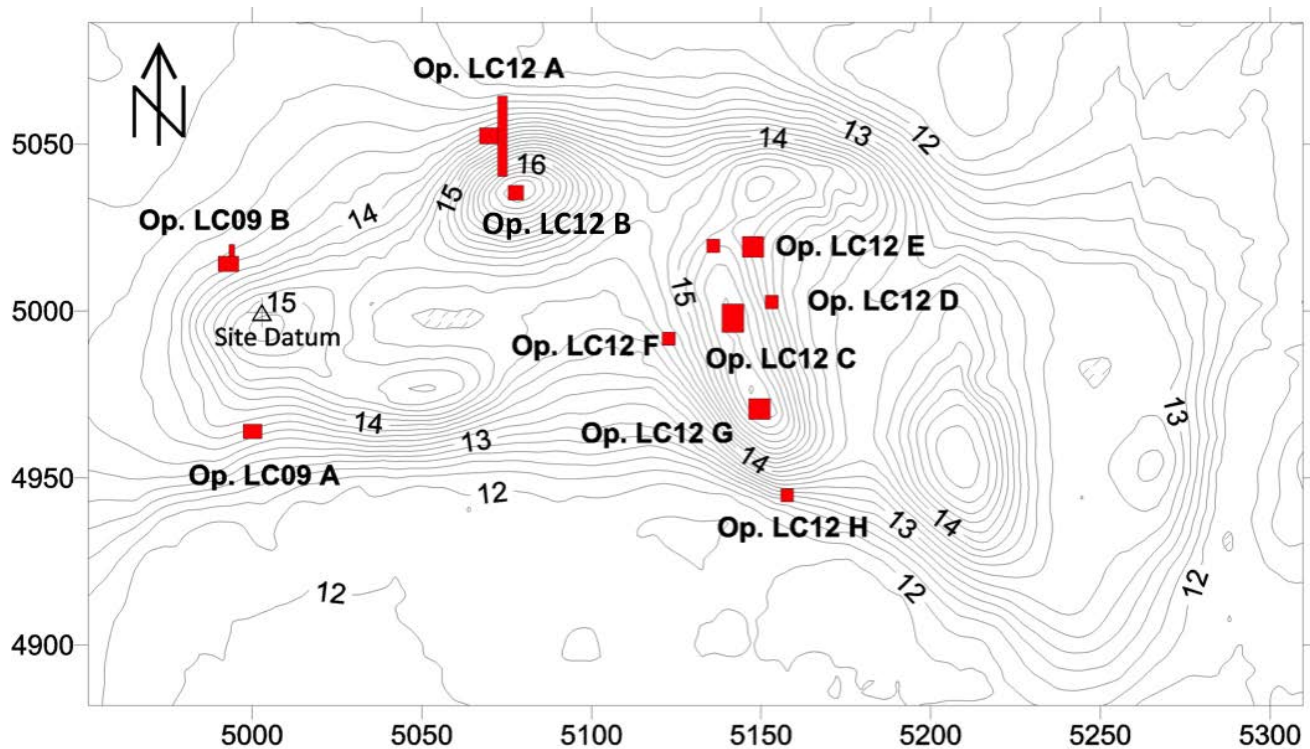


Figure 3.5: Topographic map with locations of 2009 and 2012 excavations (dimensions of operation areas are approximate)

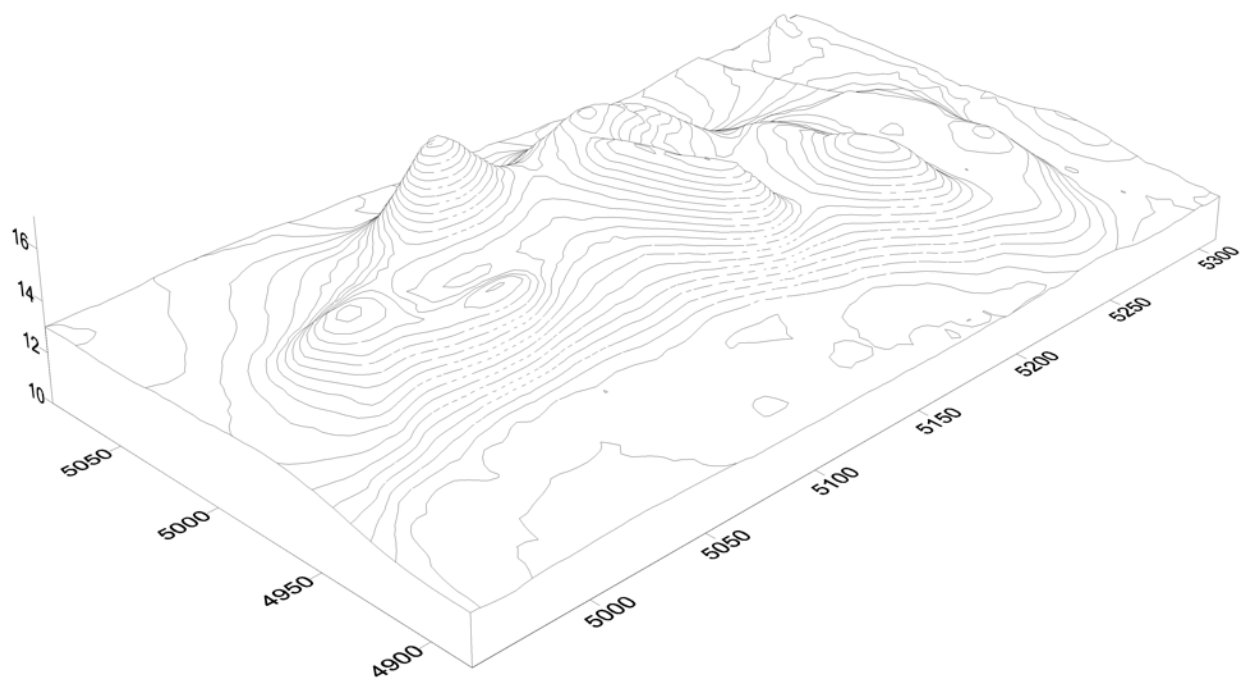


Figure 3.6: Topographic map of La Consentida with oblique view elevations exaggerated approximately ten times

Excavations

In general, excavations at La Consentida followed procedures established by previous projects in the region (e.g., Barber 2005; A. Joyce 1991b; Levine 2007). This was largely done so that project results would be more easily comparable to findings from later sites in the lower Río Verde Valley. The 2009 LCAP excavations were undertaken in two operation areas, which were respectively labeled LC09 A and LC09 B. The 2012 excavations occurred in eight new operation areas (LC12 A–LC12 H). These excavations also reopened Op. LC09 B, in order to access previously identified human burials, some of which could not be fully excavated in 2009 due to time constraints (Hepp 2011a). Each operation was divided into 1 x 1 m excavation units in order to maintain horizontal control. In some cases, exposing features and stratigraphic associations required the excavation of units outside the original grids. To preserve vertical control, excavations proceeded in levels of 5–20 cm in both arbitrary and natural stratigraphic lots wherever stratigraphic changes were identified. The relatively low quantity of artifacts in some construction fill contexts made the thicker 20 cm lots practical in some cases. In areas with high densities of artifacts, features, or burials, excavation lots were reduced to 5–10 cm in either arbitrary or natural stratigraphic levels. In most excavation areas, surface sediments were heavily disturbed by bioturbation. Tree roots and *camote de agua* tubers were among the most destructive culprits, and their size is a good reminder of what can cause artifact disruption and reverse stratigraphy, particularly near the surface (Figure 3.7). All excavated sediment was passed through 1 cm mesh screens. In areas of highest sensitivity (e.g., structure floors, burial fill, and an offering), we used 0.4 cm mesh to prevent losing small items from good contexts. The few exceptions to this screening procedure included some redeposited fill contexts that

were deemed appropriate for excavation without screening because they were so disturbed. All units were backfilled and manually compacted after excavation and illustration.



Figure 3.7: Examples of camote de agua tubers that disturb surface deposits at La Consentida

Excavation teams collected sediment samples for basic flotation and soil chemistry analysis from certain contexts such as occupational surfaces, fill from human burials, hearths, and middens. Most samples intended for flotation have been processed, and heavy fractions from six samples have been studied for faunal remains (see Chapter VI and Appendix 3). These samples typically consisted of two to four liters of sediment, depending on the size of the feature and the amount of material available. During the field investigations, project

archaeologists completed 1:10 scale excavation profile and feature plan drawings. The research team also took thousands of photographs of excavated units and of important discoveries such as stratigraphic changes, features, and *in situ* artifacts. Investigators described each stratum by color, consistency, plant activity, artifact density, and stratigraphic relationships. Project archaeologists organized and assigned field specimen numbers to all artifacts according to provenience and material type. Following previously established conventions in the region (e.g., Barber 2005; A. Joyce 1991b; Levine 2007), provenience coordinates for each excavated context included operation, unit, and lot designations according to the Cartesian grids governing LCAP field investigations. Either during excavation or during sediment screening, the research team collected all identified ceramic artifacts, lithics, shell, and bone. All sherds were counted and weighed by paste type. Decorated or diagnostic sherds were curated for typological analysis, while many undecorated body sherds were discarded. All curated artifacts have been stored at the INAH facility in Cuilapan, Oaxaca. Samples of carbon, obsidian, ceramics, human bone, animal bone, and human teeth were exported with INAH permission (e.g., permits 401-38586, 401-3-10368, 401-3-5375, 401-3-6699, and 401-3-8009) in 2010, 2012, and 2014 to undergo specialized laboratory analyses in the United States. Studies completed so far have included AMS radiocarbon dating of charcoal and carbon-rich sediment, X-ray fluorescence (XRF) of obsidian, and the analysis of stable isotopes in the dentin and enamel of human teeth.

Excavations in 2009 were intended to explore the aforementioned GPR anomalies. Excavations in 2012 built on results of the 2009 pilot study (Hepp 2011a, 2011b). Goals of the 2012 excavations included bisecting part of the northern edge of Platform 1 and Substructure 1 (especially in Op. LC12 A) with a long trench excavated so as to reveal the stratigraphy

produced by platform and mound construction episodes (Figure 3.8). To test hypotheses regarding social complexity, excavations returned to Op. LC09 B, an area with several human burials initially identified in 2009 (Hepp 2011b). Because numerous burials were identified in this reopened operation and in Op. LC12 A, mortuary analysis became another major focus of the 2012 investigations. As described in Chapter IV and Appendix 5, investigation eventually determined that these two areas represent possible cemeteries. Mortuary studies included the excavation, photography, and detailed drawings of each burial. Human skeletal material was then collected for analysis by bioarchaeologist José Aguilar, as described in more detail below (also see Appendix 5). The research team recorded and collected artifacts interred as burial offerings (such as ceramic vessels, figurines, and stone tools) for analysis and comparison with similar artifacts from other contexts.

Finds from the very earliest site occupations were uncovered in multiple operations in 2012, and included stratified midden deposits and a few human burials, along with their mortuary offerings. Additional platform construction layers, slightly different ceramics, and several human burials were deposited at La Consentida later in the site's occupation, and were uncovered in the excavations at Op. LC09 B, as well as in several areas excavated in 2012 (see Appendix 5). Chronological ceramic variation is subtle, and does not yet justify the establishment of separate formal subphases, though future analyses may further quantify these variations (see Appendix 1). Early Formative period occupations at La Consentida produced large quantities of lithic debitage. Prismatic blades, which were introduced to most of Mesoamerica in the late Early Formative and Middle Formative periods, are very rare at La Consentida, and occur only in shallow deposits dating to shortly before site abandonment

and/or possibly to later reuse of the site. This pattern indicates that La Consentida may have been occupied into the early Middle Formative (Jackson and Love 1991; Chapter VI), though the single ceramic phase identified at the site (see Appendix 1) tends to suggest a shorter occupation that took place entirely within the Early Formative period. As discussed in Chapter IV, the site later experienced a small Early Classic reoccupation atop Substructure 1.



Figure 3.8: Operation LC12 A trench overview, facing north

To test hypotheses regarding sedentism and social organization at La Consentida, some 2012 excavation areas (including Ops. LC12 B, LC12 C, and LC12 G) were intended to expose probable domestic contexts atop substructural mounds. These excavations targeted the

substructures in part because such mounds often contain domestic contexts at later sites in the region (Barber 2005:140–141, 235; A. Joyce 1991b:292). The density of surface artifacts atop these mounds, identified during the mapping phase, was also useful for locating probable domestic areas. Once such contexts were identified, the research team employed shallow, horizontal excavations in order to expose structure floors and occupational surfaces. After exposing the remains of structures, excavation teams used a few smaller, penetrating excavations to identify superimposed occupational surfaces, explore wall-fall and the remains of foundations, and investigate probable postholes. Operations such as LC12 C, LC12 E, LC12 F, and LC12 H searched for middens at the base of Platform 1 and around its substructures. The ceramic and lithic artifacts, as well as faunal remains identified in such middens, provided useful evidence of the site's ceramic vessel assemblage, ceramic iconography indicative of interregional relationships and social organization, and dietary practices.

Artifact processing and laboratory analysis

Preliminary artifact processing and some laboratory analysis of the artifacts and samples collected during 2009 and 2012 excavations took place at field houses/laboratories rented in the coastal Oaxacan town of San José del Progreso. Local workers and project archaeologists were instrumental in these phases of research. Formal laboratory analysis projects in 2010, 2013, and 2014 took place at the INAH storage and research facility in Cuilapan, Oaxaca, where project finds are currently curated. Bioarchaeologist José Aguilar analyzed the human remains collected during the 2009 and 2012 field seasons. Aguilar's assessment of each individual set of remains focused on basic information such as age, sex, pathology, and evidence of habitual

activities (see Appendix 5). Aguilar and I collected M2 or M3 molars for analysis of stable isotopes as evidence of ancient diet. Stable isotope expert Paul Sandberg and I then prepared the samples at the University of Colorado for further analysis at specialized laboratories (see Chapter VI and Appendix 5). Other human molars and long bone fragments were exported in 2014, and await analysis. David Williams (2012) analyzed lithics recovered during the 2009 excavations. Of those hundreds of lithic artifacts, forty obsidian samples were submitted for XRF analysis to reconstruct the ancient exchange networks in which La Consentida was involved (see Chapter VIII). Biologist Silvia Pérez Hernández and I organized the study of faunal remains from the 2012 excavations during a 2014 laboratory season at Cuilapan (see Appendix 3). Our study focused in particular on the comparison of animal remains from the Ops. LC09 B, LC12 D, LC12 E, and LC12 H middens. We also analyzed the faunal remains from the LC12 A-F15 ritual cache (see Chapters IV and VII, Appendix 3). Pérez Hernández undertook the majority of species identification, while I chose appropriate contexts, provided reference materials and species research, and sorted the heavy fractions of the six flotation samples analyzed from the Op. LC12 D, LC12 E, and LC12 H middens. We followed standard faunal analysis procedures for estimating the number of identified specimens (NISP) and minimum number of individuals (MNI) of each taxon identified (*see for example* Banning 2000:187–211). Methods of species identification and data reporting benefitted from the example of a previous study on animal remains in the region by Fernández (2004; *see also* A. Joyce 1991b).

As discussed throughout this dissertation, and in most detail in the appendices, I personally analyzed the ceramics (Appendices 1 and 2), figurines and musical instruments (Chapters VII and VIII), and ground stone (Chapters V and VI and Appendix 4) recovered from

the site. Methods of ceramic analysis followed previous examples in the lower Río Verde region (A. Joyce 1991b:121–173) and in the valley of Oaxaca (Caso et al. 1967; Martínez López et al. 2000). Ceramic analysis began with sorting sherds by paste. The two primary paste categories identified in the Formative period occupation layers were medium brown ware and coarse brown ware. Though excavations recovered a small collection of fine brown and gray wares, these more recent ceramics tended to occur near the modern surface and postdate the site's primary occupation.

Temper in the paste of the ceramics consisted of sand, grit, gravel, and possibly grog (crushed, recycled pottery) and shell. Some sherds also contained voids and carbonized materials indicating the use of organic temper. Nearly all La Consentida ceramics have a micaceous paste, which is naturally occurring in clay sources within the Río Verde fluvial system, rather than representing intentional additives (Mueller 1991:834–836). Comparative count and weight analysis of ceramic paste types indicates a predominance of medium brown ware pastes among all ceramics from the site (Hepp 2011b; Appendix 1). Medium brown ware ceramics are rare in the lower Río Verde Valley assemblage except during the late Middle Formative Charco phase (A. Joyce 1991b:126–129; Urquhart 2010). The occurrence of this paste type at La Consentida is consistent with an occupation in the Middle Formative period or earlier, as indicated by the lack of medium brown wares in later ceramics in the region (A. Joyce 1991b). Preservation of surfaces of ceramics from the earliest occupations at the site was generally superior to that of later ceramics. Due to the apparently low firing temperatures, however, few large sherds from the earliest vessels survive. It is possible that the better surface preservation of the earliest sherds as compared to later examples is due to their heavy slips and

burnished surfaces. Flooding events caused by the seasonal variability of the Río Verde may also have influenced differential artifact preservation, as the condition of ceramics varies strongly according to stratigraphy (see Chapter IV). Geochemical processes may also be responsible for some of the ceramic deterioration. La Consentida sediments are slightly acidic with a pH of 6.2, whereas most sediments in the lower Río Verde valley are neutral with a pH of 7.0–7.2. This slight difference in acidity is unlikely to have a significant impact on ceramic preservation, however (Raymond Mueller, personal communication 2009). I feel that the most likely cause of ceramic erosion at La Consentida is low firing temperature used to produce the region's first ceramics, which generally have a soft, sandy paste, leaving them susceptible to erosion from redeposition.

Following the analysis of sherds according to paste, various vessel forms were identified within the paste categories of the ceramic sample. This process was difficult in many cases due to the fragmentary condition of the collection. Though many rim sherds were present, for example, rarely did they include an entire vessel wall. Only a handful of complete vessels, mostly interred as mortuary offerings, have been recovered at the site. Identified vessel forms among each paste type were numerous. Some vessel forms, especially various types of conical bowls and globular jars, make up the majority of the collection. Other vessels, such as tecomates, bottles, and semispherical bowls, were present and relatively consistent in form across paste categories, but were not as common as conical bowls and jars. Grater bowls imply food preparation or some other crafting activity such as pigment processing, while worked sherd discs may have been used as grinders or perhaps as lids (see Chapter VI, Appendix 1).

In order to investigate patterns in artifact production and symbolic representation at La

Consentida, I illustrated, photographed, and analyzed the most complete examples of figurines, musical instruments, decorated ceramic vessel fragments, and other types of figural artifacts. Examples of these artifacts can be found in Chapter VII, Chapter VIII, and Appendix 1, as well as in other sections of the dissertation. Analysis of chipped stone artifacts from La Consentida indicated the use of gray and black obsidian, chert, quartz, and chalcedony (Hepp 2011c; D. Williams 2012). Lithics are dominated by gray obsidian debitage, at least a small amount of which has been utilized. Though few formal tools were identified, exceptions include bifacially flaked chert knives (one example of which was found near the cranium of burial B2-13), scrapers, and especially stone drills (see Chapter VI). Other lithics include a few probable exhausted chert cores and a variety of ground stone tools. Obsidian XRF results indicate that La Consentida was part of a complicated exchange network including six obsidian sources located as far away as central and Gulf coastal Mexico (see Chapter VIII).

Stable carbon ($^{13}\text{C}/^{12}\text{C}$) and nitrogen ($^{15}\text{N}/^{14}\text{N}$) isotope composition of teeth has been recognized an important indicator of diet in many archaeological contexts (Blake et al. 1992; Boyd et al. 2008; Katzenberg 2000; Price et al. 2008; Schwarcz and Schoeninger 2011; Sealy 2006; Tykot and Staller 2002; Webster et al. 2005). The results of dental isotopic analysis on human remains from La Consentida are discussed in Chapter VI. A key factor when considering nitrogen isotope levels as an indicator of marine resource use is the comparison of $^{15}\text{N}/^{14}\text{N}$ levels between human remains and those of local terrestrial animals. Such animals, if they did not consume marine products, can provide a “baseline” for nitrogen isotope levels, the results of which can help to differentiate between marine and maize dietary indications (Sealy 2006:578). The 2014 laboratory analysis thus included the exportation of fifteen marine and

fifteen terrestrial animal bones for isotopic study, which await analysis.

Chipped stone, ground stone tools, boiling stones, and ceramic vessel forms can also provide evidence of ancient food preparation and diet. Manos and metates are often associated with maize processing, while mortars and pestles have been more frequently associated, due to their portability, with wild resource exploitation and horticulture practiced by mobile groups (Clark et al. 2007; Rosenswig 2006:339). It is noteworthy that some small “manos” were likely used for hide processing and other crafting tasks (J. Adams 1988), but the presence of metates at La Consentida suggests that at least some ground stone was for food processing. The study of probable food-processing artifacts provides evidence for reconstructing both ancient diet and domestic mobility patterns. Stone tools and ceramics may also be useful for identifying the presence of domesticates besides maize, particularly if cooking jar styles or stone tool use wear suggest the relative unimportance of maize or the processing of domesticates not identified in dental isotopic analysis (Clark et al, 2007). I performed a basic typological analysis of ground stone tools according to established methods of categorizations employed by other researchers working in Oaxaca (e.g., Winter and Mateos 2010). I photographed, weighed, and measured ground stone tools recovered at the site (see Appendix 4). I illustrated many of the complete or otherwise diagnostic examples in a conventional stippled style (see Chapters V and VI). I inspected each artifact for use wear from activities such as grinding, hammering, polishing, and chopping. In many cases, the tools appeared heavily used for a variety of tasks. Though it hampered some of the use wear analysis, I left the ground stone (and much of the chipped stone) unwashed in order to allow for future residue analyses of pollen, phytoliths, and/or starch grains (see Morell-Hart et al. 2014). The primary concern of

the ground stone study was to identify basic tool types (such as manos, metates, grinders, hammer stones, pestles, etc.) and determine if there are any obvious chronological or spatial patterns present in the kinds of ground stone tools found in different contexts at the site. As described in Chapter V, these artifacts represent secondary evidence of the La Consentida community's practices of domestic mobility. In Chapter VI, I discuss these artifacts as an indication of changing dietary practices.

Terminology

Throughout this dissertation, I use technical archaeological terms to refer to certain types of features, artifacts, and contextual relationships. I try to use these terms in a way consistent with standard archaeological practice (e.g., Banning 2000; Kipfer 2007; Roskams 2001) and as established by previous research in the lower Río Verde Valley (e.g., A. Joyce 1991b). Though I define many of these terms the first time I use them, I will use this opportunity to clarify some of the most common examples. For the purposes of this dissertation, the term "occupational surface" refers to an interface between strata that seems to have been a stable surface on which daily activities were carried out in antiquity. Evidence for identifying such surfaces include refitting ceramic sherds in horizontal position at a stratigraphic interface, as well as other evidence of occupation such as thin bands of ash and alignments of architectural stones. I use this term independently from "floors," which I consider to have been inside ancient structures, and "soils" or "paleosols." In some cases, "paleosols" (ancient soils identifiable by their dark color and prismatic structure) are evidence that a stratum was a stable surface for an amount of time sufficient to allow soil formation.

“Domestic” contexts are identified as living areas atop substructures that are associated with small buildings (probably houses) and lenses of artifacts such as ceramics, animal bone, and ground stone. Sharp chipped stone debitage is frequently not found in domestic zones due to the danger of stepping on it, though of course postdepositional processes can muddle such patterns, if they were ever clear to begin with. I differentiate “domestic contexts” in the general sense from “domestic middens,” which are related to the former but were the locus of trash accumulation away from actual living and daily activity areas. In general, I make reference to possible or probable domestic zones, rather than definitive domestic zones. I do this because it is possible (though unlikely, for reasons I explain in detail for each circumstance) that some buildings atop La Consentida’s mounds were public in nature. “Daub” refers to fired earthen material used to seal the walls of structures made of “wattle” (woven sticks) and likely with thatched roofs, and is useful for identifying probable domestic contexts (see A. Joyce 1991b). It is generally assumed that most daub was fired either unintentionally or as part of a practice of retiring buildings, rather than as a step in construction. “Fill” contexts are composed of redeposited sediment used to construct the earthen platforms and mounds at the site. “Middens” are refuse heaps deemed to be in primary context, unless described as otherwise, as in the case of deposits likely composed of redeposited midden materials. They tend to contain ceramics, lithics, animal bone, and often shell and ash. In some situations, high artifact density and poor artifact preservation have led to the interpretation that redeposited midden has been used as fill. The term “*in situ*” is used to refer to features or artifacts that appear not to have been moved or redeposited after their formation by either cultural or postdepositional processes.

In this dissertation, I use an abbreviation system to refer to operation areas, excavated units, and features. I have endeavored to keep this system consistent with previous studies in the region (e.g., Barber 2005; A. Joyce 1991b). Operation areas are described first by year (i.e., LC09 or LC12, depending on whether they were excavated in 2009 or 2012), and then by letter according to the order in which they were established. In some cases where I have already stated the year, I avoid repetition by omitting it. The research team labeled excavation units according to a Cartesian grid in which numbers increase from west to east and letters increase from south to north. Refer to the figures in Chapter IV (e.g., Figure 4.1) for visual examples. Excavated strata were labeled either natural strata (N) or features (F) and were assigned numbers. These numbers increase from the surface downward, though they are described chronologically, beginning with the deepest/earliest deposits (see Chapter IV). I frequently refer to elevations “asl” (above sea level) for excavated features. Where contextual data permits, I report these elevations to the nearest centimeter (for example, 15.15 masl refers to 15.15 meters above sea level). Where contextual information is approximate (such as with the elevation of strata that vary somewhat in their size and location) I refer to approximate elevations “asl” with 0.1-meter accuracy. Approximate elevations asl can be found in all profile drawings. Burials are considered cultural features and are independent from individual sets of skeletal remains. This is an important distinction in Mesoamerican archaeology, as burials often contain multiple individuals (e.g., A. Joyce 1991b:Appendix 5). Following convention in the lower Río Verde region, burials at La Consentida are numbered (e.g., B1, B2, B3, etc.) separately from individual sets of remains (e.g., I1, I2, I3, etc.). A standard reference to a set of human remains would thus indicate both the burial and the individual (i.e., B1-I1; see Appendix 5).

Chapter IV: Excavation Results

Introduction

Excavations at La Consentida in 1988, 2009, and 2012 have uncovered natural and cultural strata resulting from the pre-occupational and occupational history of the site. In this chapter, I discuss the excavated deposits of La Consentida to provide a chronological summary of occupation through time. I use radiocarbon dates and artifact comparison to indicate vertical and horizontal relationships among features. I emphasize vertical stratigraphic relationships and chronological change, though I also discuss horizontal/synchronic patterns where the data allow. When it is impossible to identify stratigraphic crossties between excavated contexts, I divide the discussion according to operation areas. Before discussing occupational history, however, I will briefly describe the operations. With each operation description, I provide a table listing the cultural and natural strata identified in excavations, as well as profiles of excavated units. For a schematic map indicating the locations of each operation, see Figure 3.5.

Op. LC09 A was a 5 x 5 m grid located just west of the road bisecting Platform 1 (Figure 3.5, Table 4.1). The operation was located on the southern margin of the platform, and positioned to explore GPR anomalies identified in 2008 (Barber 2009; Figure 3.1). Artifacts exposed in the road cut adjacent to LC09 A were more frequent than in many other areas, which appeared to suggest midden deposits. Four 1 x 1 m units were opened here, and their primary focus was vertical penetration in order to reveal Platform 1 construction stratigraphy and search for midden or other domestic features. Approximately 7.4 m³ of sediment was excavated in this operation. Though no midden was identified, an Early Formative hearth (A-F4-

s1), intrusive into initial Platform 1 fill (A-F5), was uncovered. This hearth provided an AMS date of (1904–1692 cal B.C.), as discussed below.

Table 4.1: Description of natural strata and features from Op. LC09 A (see Figures 4.1–4.5)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	5YR 2.5/2 Topsoil	Formative – Modern	Occupational debris	Extensive root activity and modern soil formation.
F2	7.5YR 3/3 Clayey loam	Early Formative	Fill	Less root activity than Stratum A-F1.
F3-s1	10YR 5/6 Compact silt with rock and shell	Early Formative	Fill	Sediment containing rock and shell inclusions. Overlies A-F4-s1-3.
F3-s2	N/A	Early Formative	Fill	Burned sediment containing granodiorite and gneiss inclusions. Redeposited as fill.
F3-s3	2.5YR 4/3 Compact silt	Early Formative	Fill	Contains decomposing roots. Overlies A-F4-s1, s2, s3, and F5.
F4-s1	N/A	Early Formative (1904–1692 cal B.C.)	Hearth	Large hearth ringed with burned earth and stone. Intrusive into A-F5. Contained compact shell deposit.
F4-s2	N/A	Early Formative	Secondary hearth	Small hearth-like feature attached to A-F4-s1.
F4-s3	N/A	Early Formative	Ash from hearth	Deposit of ash eroding from A-F4-s1 hearth and intruding into stratum A-F5 and A-N1.
F5	2.5YR 4/3 Silt	Early Formative	Fill	Compact tan silt with decomposing roots. A-F4-s1 hearth intrudes into this stratum. Contains small inclusions of granodiorite and gneiss.
N1	2.5YR 6/4 Sand	Early Formative or before	Fluvial deposit	Fine-grained river sands. Probable point bar deposit.

N2	2.5Y 6/3 Silt	Early Formative or before	Alluvial deposit	Laminated, overbank silt with no rock or sand.
N3	2.5Y 5/4 Sand	Early Formative or before	High-energy fluvial deposit	Coarse river sands.

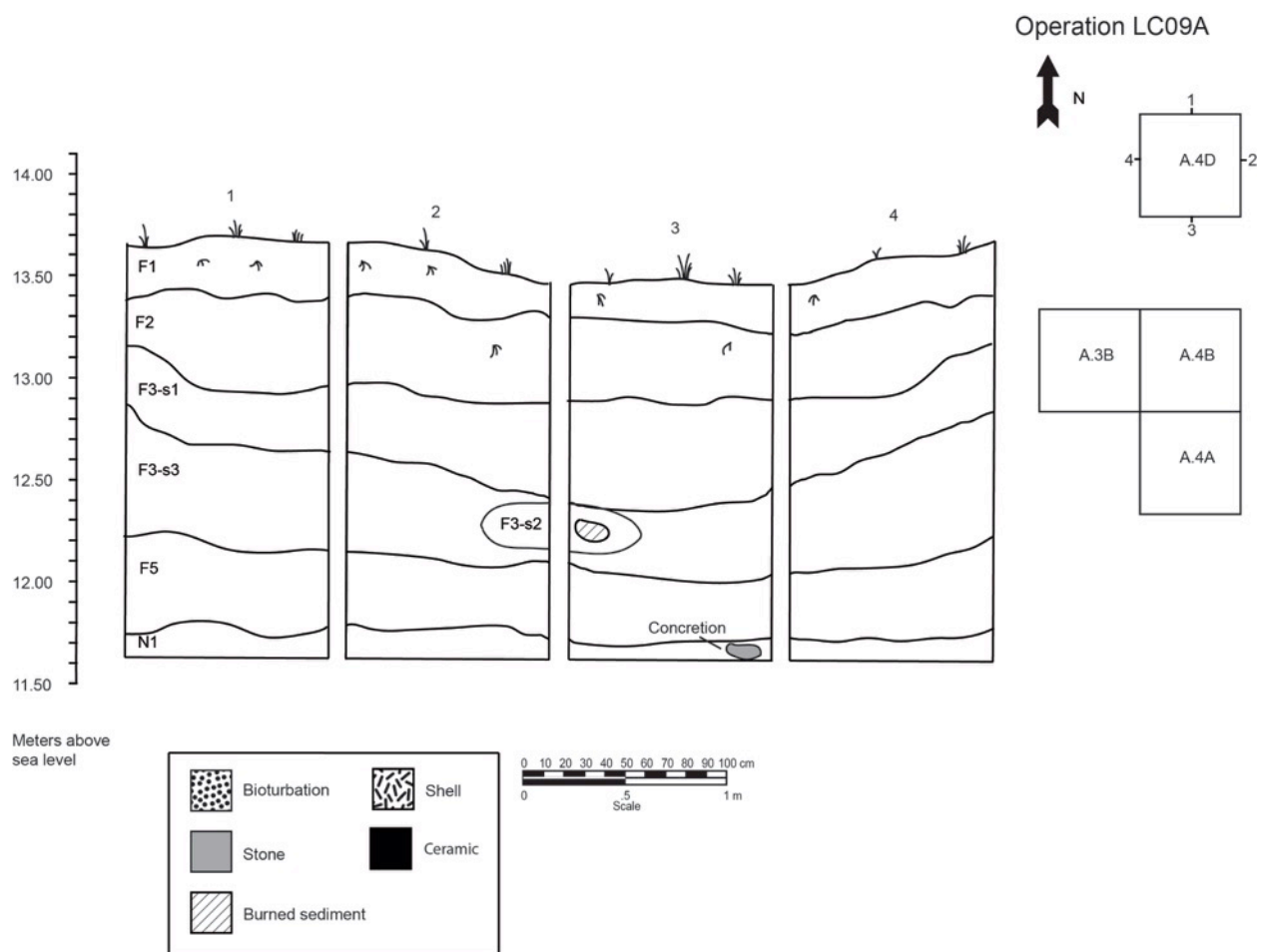


Figure 4.1: Op. LC09 A excavation profile (Unit A.4D)

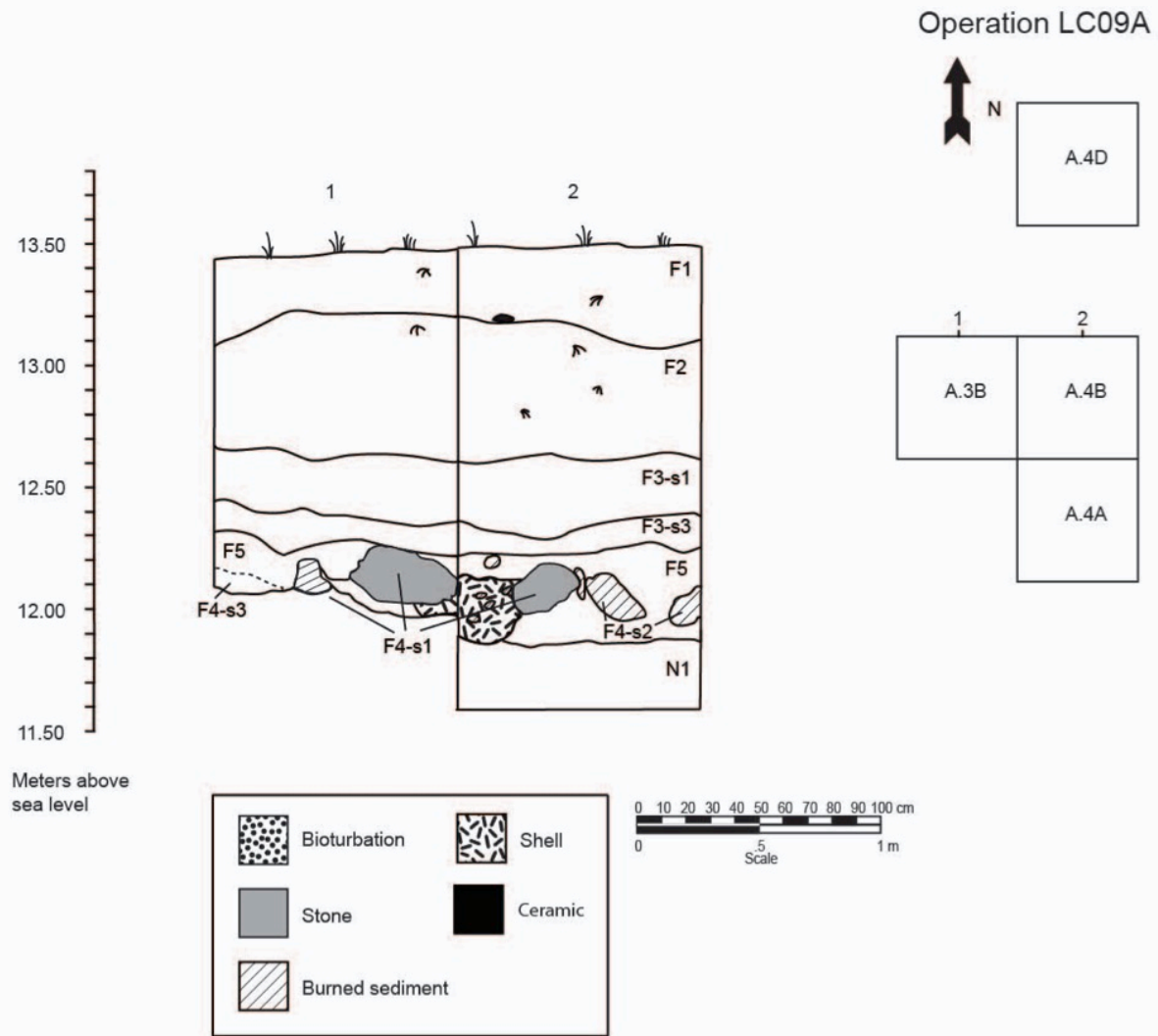


Figure 4.2: Op. LC09 A excavation profile (Units A.3B and A.4B)

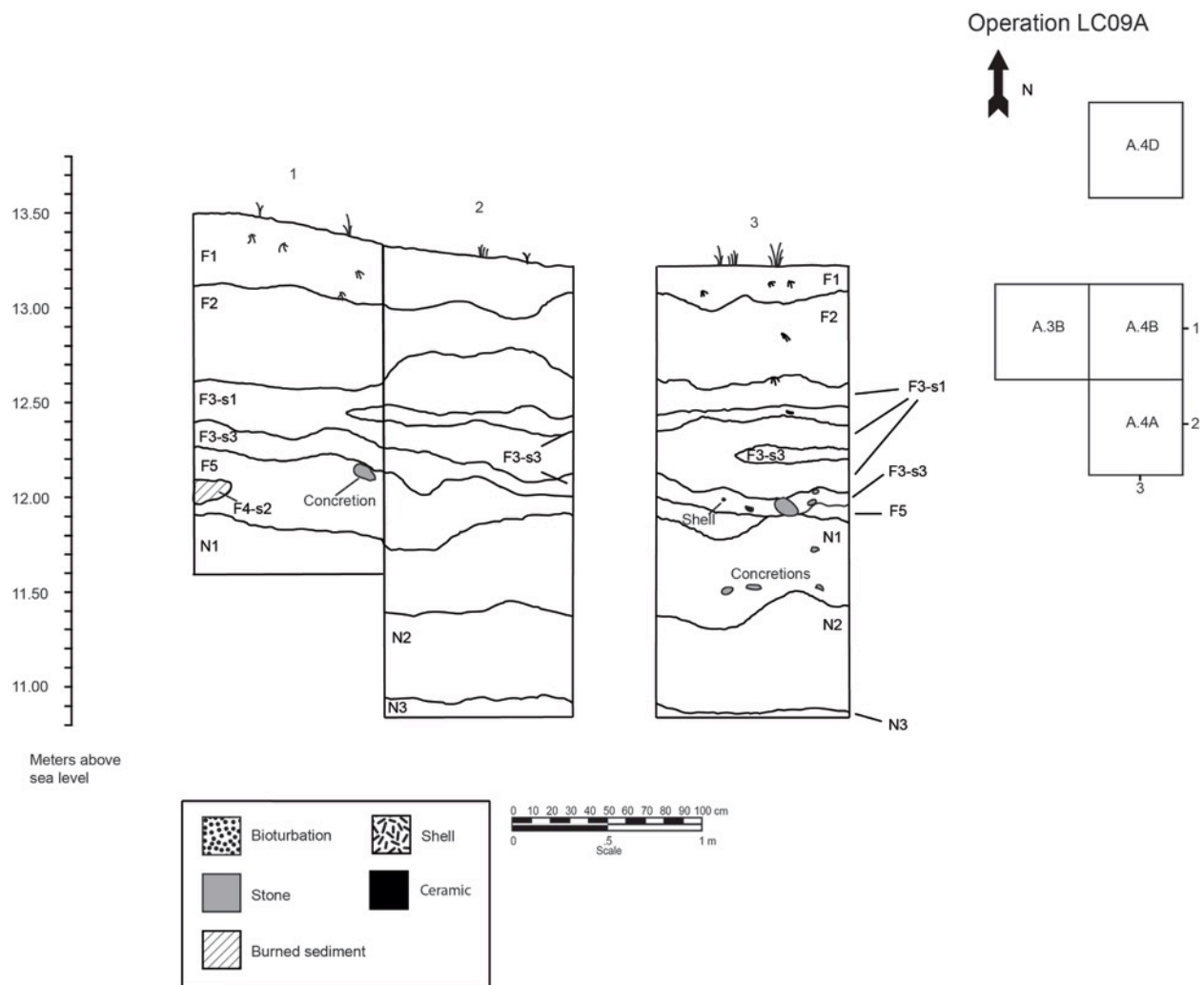


Figure 4.3: Op. LC09 A excavation profile (Units A.4A and A.4B)

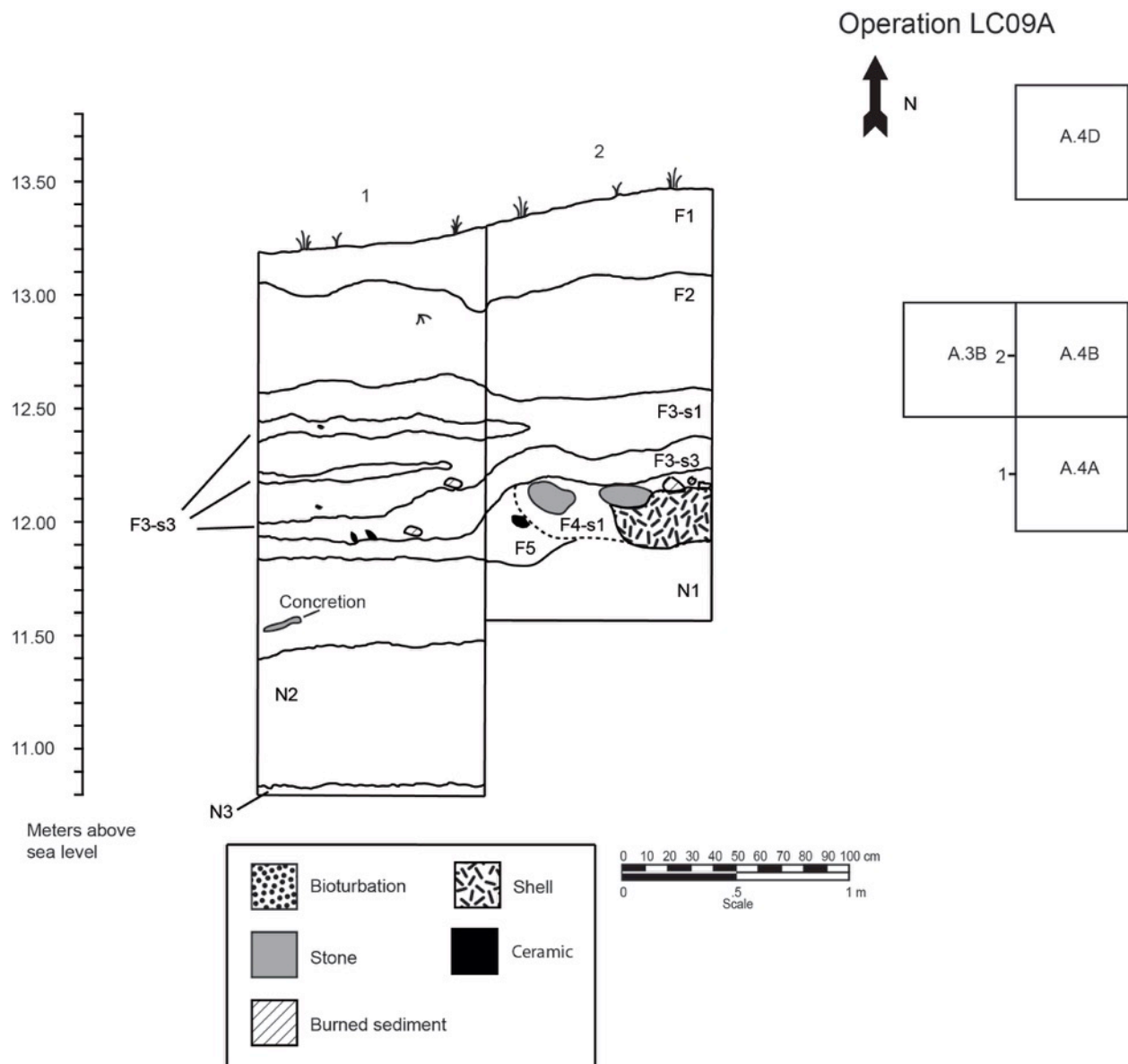


Figure 4.4: Op. LC09 A excavation profile (Units A.4A and A.4B)

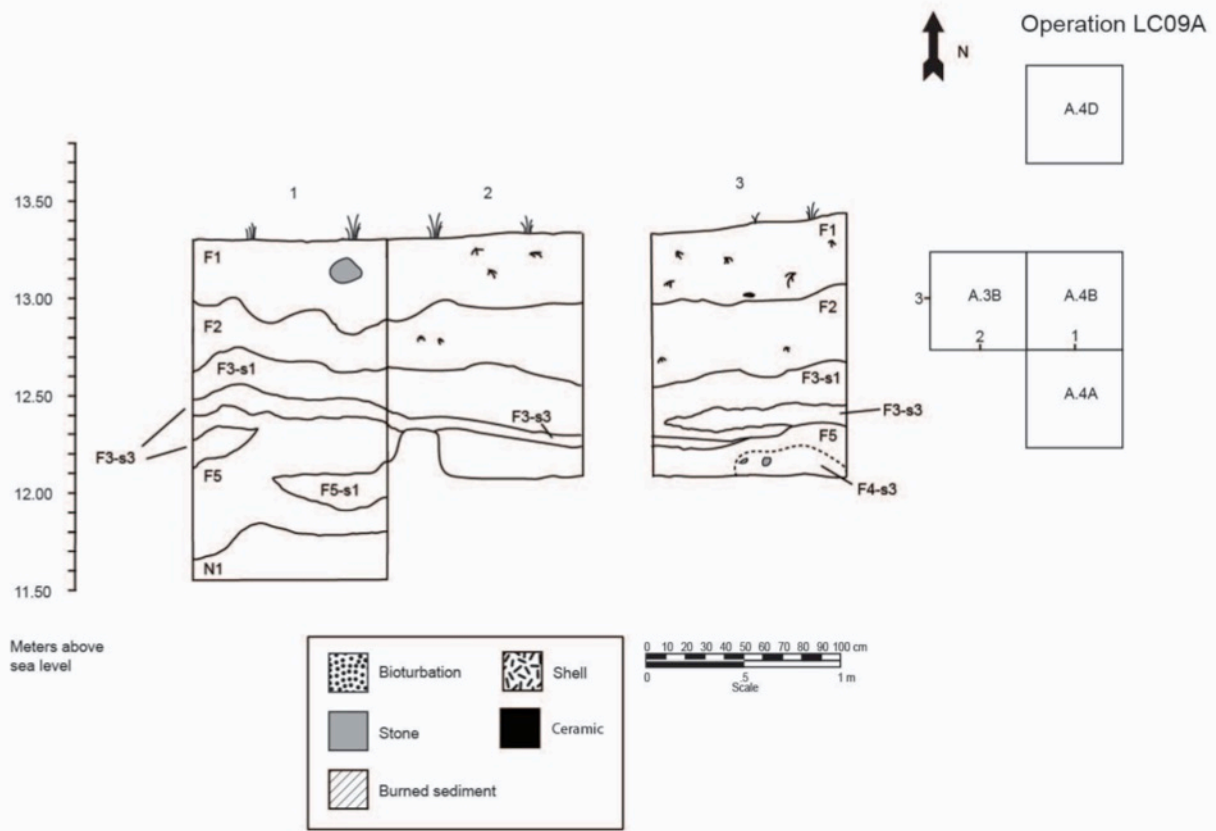


Figure 4.5: Op. LC09 A excavation profile (Units A.3B and A.4B)

Op. LC09 B was first excavated during the 2009 pilot project, and was revisited by the research team in 2012. The operation began as a 2 x 2 m grid on the northern side of Platform 1 (Figure 3.5). This location was chosen because of the possibility of uncovering middens at the edge of Platform 1, as well as to investigate a GPR anomaly (Figure 3.2). Due to the identification of numerous human burials, more units were opened in this operation than originally planned. The excavation team opened six 1 x 1 m penetrating units during the 2009 field season. The 2012 excavations re-opened these initial units, and expanded the area to a total of thirteen 1 x 1 m units. Excavations during the two field seasons analyzed 21.0 m³ of sediment (Table 4.2). In the main area of LC09 B (Units 0Y, 1Y, -1Z, 0Z, 1Z, 0A, 2A, 1B, 2B, and

3B), the high density of lithic and ceramic artifacts, the artifact diversity, and lenses containing refitting ceramics suggest that some of the sediment was likely composed of redeposited midden. In addition to uncovering human remains (B1-I1, B1-I2, B2-I3, B3-I4, and B4-I5), Op. LC09 B excavations identified an Early Formative hearth (B-F15) intrusive into an early Platform 1 fill layer (B-F16). A carbon sample from this hearth returned an AMS radiocarbon date of 1746–1530 cal B.C., as discussed below. In the north extension of LC09 B (Units 1E, 1H, and 1J), excavations uncovered a diffuse deposit of midden with wood ash (B-F17-s1 and B-F17-s2).

Table 4.2: Description of natural strata and features from Op. LC09 B (see Figures 4.6–4.15)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	7.5YR 4/3 Silty clay loam	Formative – Modern	Modern soil formed in occupational debris	Extensive root activity and modern soil formation. Looks gray in color in parts of Units 1E, 1H, and 1J.
F2	7.5YR 4/3 or 10YR 5/4 Clay or Silty clay	Early Formative	Fill	Less root activity and more sand and clay than F1, but otherwise similar. Looks gray, feels loamy, and increases in compactness with depth in Units 1E, 1H, and 1J.
F3	7.5YR 4/3 Silty sandy clay	Early Formative	Fill within probable burial pit	Intrusion into F10. Contains highly prismatic paleosol material. Looser consistency than F10. Soil formed after intrusion. Associated with human burial (B-1).
F4	10YR 4/3 Sandy clay	Early Formative	Fill within intrusive pit	Intrusion into F10. Contains highly prismatic paleosol material. Soil formed after intrusion.

F5	10YR 4/3 Sandy clay	Early Formative	Fill within intrusive pit	Intrusion into F10. Contains highly prismatic paleosol material. Looser consistency than F10. Soil formed after intrusion.
F6	10YR 4/3 Sandy clay	Early Formative	Fill within intrusive pit	Intrusion into F10. Contains highly prismatic paleosol material. Soil formed after intrusion.
F7	10YR 4/3 Silty sandy clay	Early Formative	Fill within intrusive pit	Intrusion into F10. Contains highly prismatic paleosol material. Looser consistency than F10. Soil formed after intrusion.
F8	10YR 4/3 Silty clay	Early Formative	Fill within probable burial pit	Probable burial pit intrusive into F10. Contains highly prismatic paleosol material. Large pieces of bone identified in Unit 0Y wall, suggesting additional burial. Soil formed after intrusion.
F9	7.5YR 2.5/2	Early Formative	Fill within intrusive pit	Intrusion into F10. Contains highly prismatic paleosol material. Soil formed after intrusion.
F10	10YR 4/3 Clay	Early Formative	Surface formed in ancient fill	Redeposited midden within which a prismatic paleosol has formed, indicating a period of abandonment of this part of the site. Less prismatic in structure (less well formed) than F12. Some sand and silt. Underlies F1 and F2, and has greater artifact density than those deposits. Identified in Units 0Y, 1Y, -1Z, 0Z, 1Z, 0A, 2A, 1B, 2B, and 3B.

F11	10YR 4/2 or 10YR 5/4 Sandy clay	Early Formative	Occupational debris	Dark, grayish layer of fill or eroded fill identified in Units 1H and 1J. Likely slope wash at edge of ancient platform. Perhaps produced during a period of brief abandonment of this area of the site. High degree of bioturbation.
F12	10YR 4/3 Sandy clay	Early Formative	Surface formed in ancient fill	Redeposited midden within which prismatic paleosol has formed, indicating a period of abandonment of this part of the site. Represents a stable ancient surface. More prismatic in structure (better developed) than F10. Contains high quantity of daub, ceramics, and obsidian. Identified in Units 0Y, 1Y, -1Z, 0Z, 1Z, 0A, 2A, 1B, 2B, and 3B.
F13-s1	7.5YR 4/3 or 10YR 5/4 (in unit 1J) Silty clay	Early Formative	Surface formed in ancient fill	Thick fill layer. Looks gray in color. Has formed a prismatic paleosol indicating a period of abandonment of this part of the site. Identified in Units 1E, 1H, and 1J. May correspond to F10 or F12. In Unit 1J, transitions to F13-s2.
F13-s2	7.5YR 4/3 or 10YR 5/4 (in unit 1J) Silty clay	Early Formative	Surface formed in ancient fill	In Unit 1J, this stratum transitions to a darker, more clayey sediment, due perhaps to postdepositional flooding or slope wash.
F14	10YR 5/4 or 7.5YR 5/4 Silty clay	Early Formative	Fill	Lightly colored Platform 1 fill. Identified in all but Units 1H and 1J. Contains some sand. Similar to F16, but more compact.

F15	7.5YR 2.5/1 Carbon and sandy loam	Early Formative (1746–1530 cal B.C.)	Hearth	Hearth containing dark, carbonized sediment. Similar in form to LC09 A-F4-s1, though lacks shell and contains more carbonized sediment. Intrusive into F16.
F16	10YR 6/4 Sandy clay loam Or 10YR 4/3 Silty clay	Early Formative	Fill	Almost a sandy loam. Less compact than F14. Platform 1 fill and occupational surface below F15 hearth. Some burials intrude into this stratum. Contains carbon flecking.
F17-s1	10YR 6/4 Sandy loam	Early Formative	Ashy fill and midden layer	Thick, ashy layer containing diffuse but apparently primary midden with ceramics, obsidian, bone, and shell. Likely deposited after F18. Identified in Units 1H and 1J, at the base of the platform. Underlies F13. The midden also appears to be deposited in a pit that disturbs underlying natural stratum N4.
F17-s2	10YR 6/4 Sandy loam	Early Formative	Ashy fill and midden layer	Sandy loam substratum within ashy midden deposit. Possibly indicates use of fill material to cover midden for hygienic reasons. Likely deposited immediately after F18.
F17-s3	10YR 6/4 Sand	Early Formative	Fluvial sand inclusions within ashy midden layer	Deposits of channel sand within F17-s1 ashy midden layer. Appears to be same material as N4-s1, suggesting intrusions into or mixing with underlying natural sediments. Likely deposited immediately after F18.

F18	7.5YR 5/4 Silty sandy clay	Early Formative	Fill	At times blends into N1, but is generally harder and siltier. N1 is possible source material. Contains daub and sherds. Initial Platform 1 fill atop natural deposits, or possibly debris from occupation atop N1. Ceramics of earliest style. Sediment contains some river pebbles. May have a small sheet midden deposit at interface with F16, which may also be associated with F17 midden.
N1	10YR 6/4 Sand or sandy loam	Early Formative or earlier	Probably natural, lower-energy alluvial deposit	Sandier than F18. At times blends into F18. Similar to N4-s1 but finer and containing some clay. May be uppermost part of natural river deposit. Essentially sterile. Identified in Units 1E and 1B (Figures 4.8 and 4.9).
N2	2.5Y 6/3 Silt	Early Formative or earlier	Natural, moderate energy overbank deposit	Laminated, uniform silt with no rock or sand. Identified in Unit 1B.
N3	10YR 7/4 Sandy silty clay	Early Formative	Natural alluvium	Apparently produced by low energy overbank deposition. Culturally sterile. Identified in Unit 1E.
N4-s1	10YR 6/4 Sand	Early Formative or earlier	Natural, high energy fluvial deposit	Natural fluvial sand. Fine in some spots. Culturally sterile. Identified in Units 1E, 1H, and 1J. Contains some silty clay loam inclusions with shell.
N4-s2	10YR 6/4 Sand concretion	Early Formative or earlier	Natural, high energy overbank deposit	Concretion formed within sand deposit. Probably postdepositional. Identified in Unit 1H.

N4-s3	10YR 6/4 River sand	Early Formative or earlier	Natural, high energy overbank deposit	Loose substratum of natural fluvial sand. Identified in Unit 1J.
N4-s4	Silty clay loam	Early Formative or earlier	Inclusion within overbank deposit	Silty clay loam inclusions with shell. Possibly intrusive.
N5	10YR 6/4 Gravely river sand	Early Formative or earlier	Natural, very high energy fluvial deposit	Gravely texture indicates very high fluvial energy. Identified in Unit 1H.

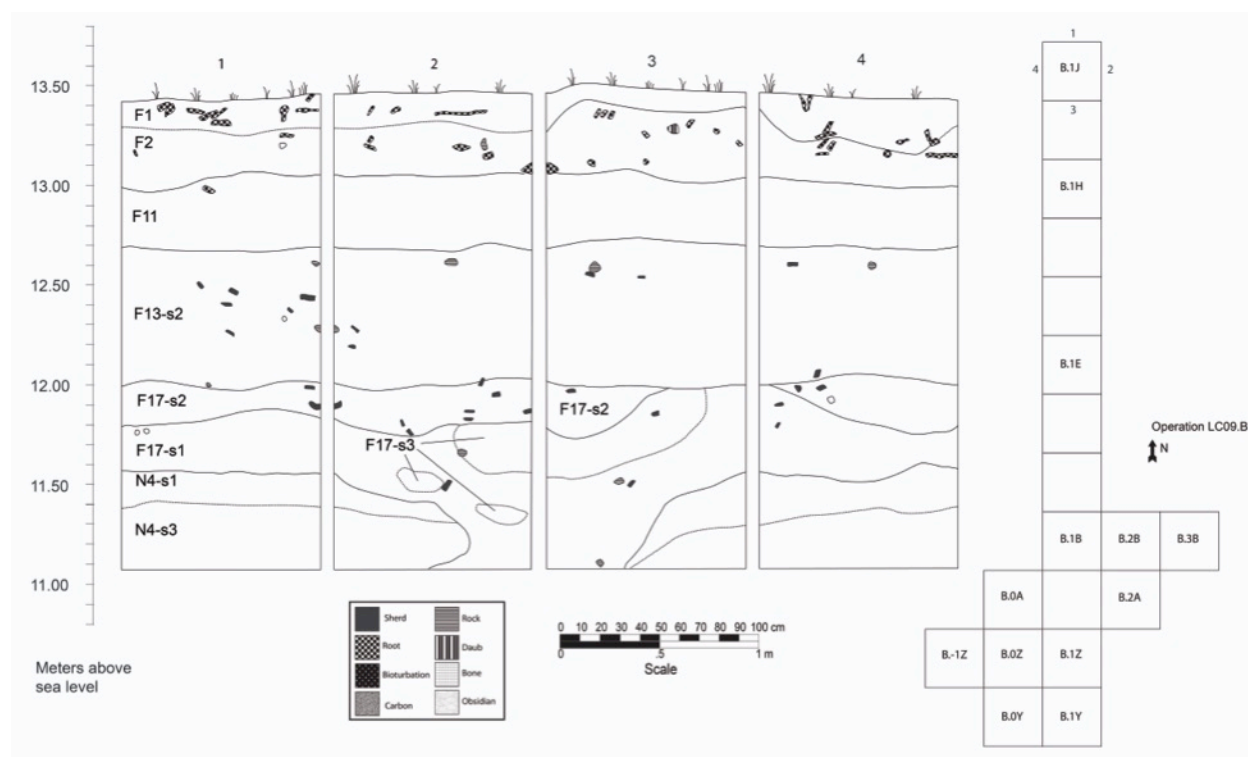


Figure 4.6: Op. LC09 B excavation profile (Unit B.1J)

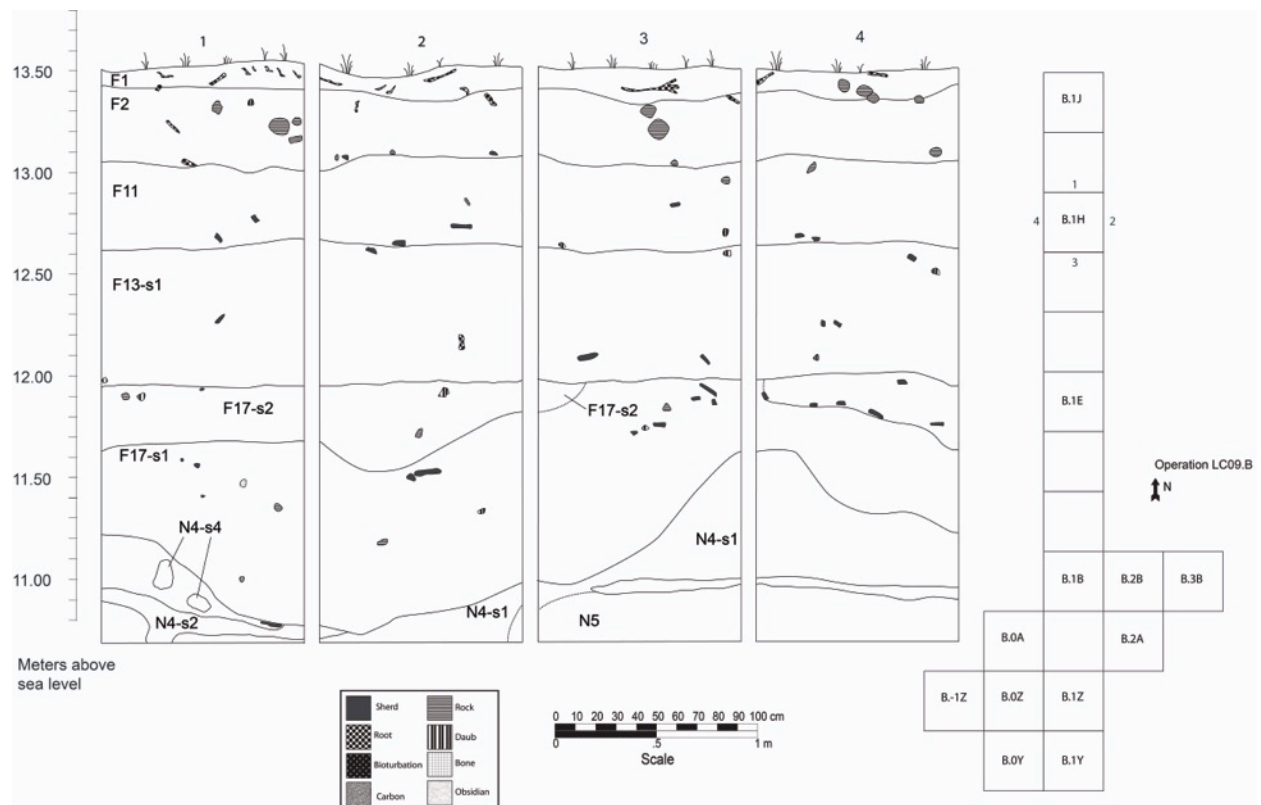


Figure 4.7: Op. LC09 B excavation profile (Unit B.1H)

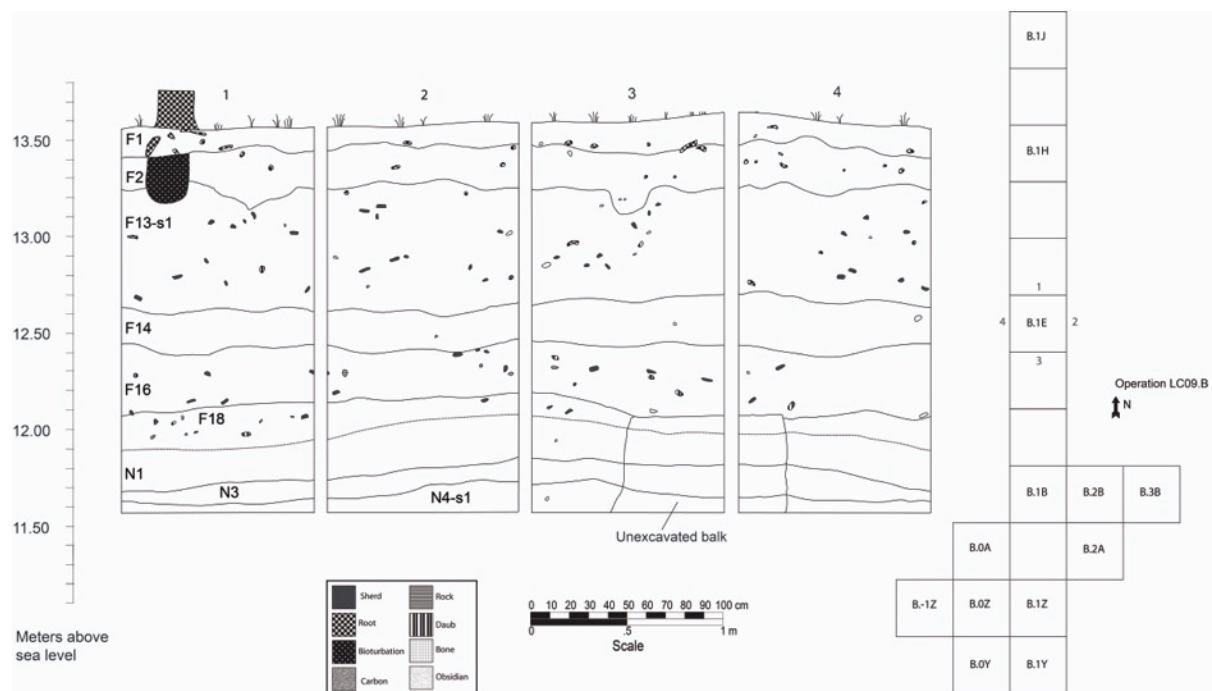
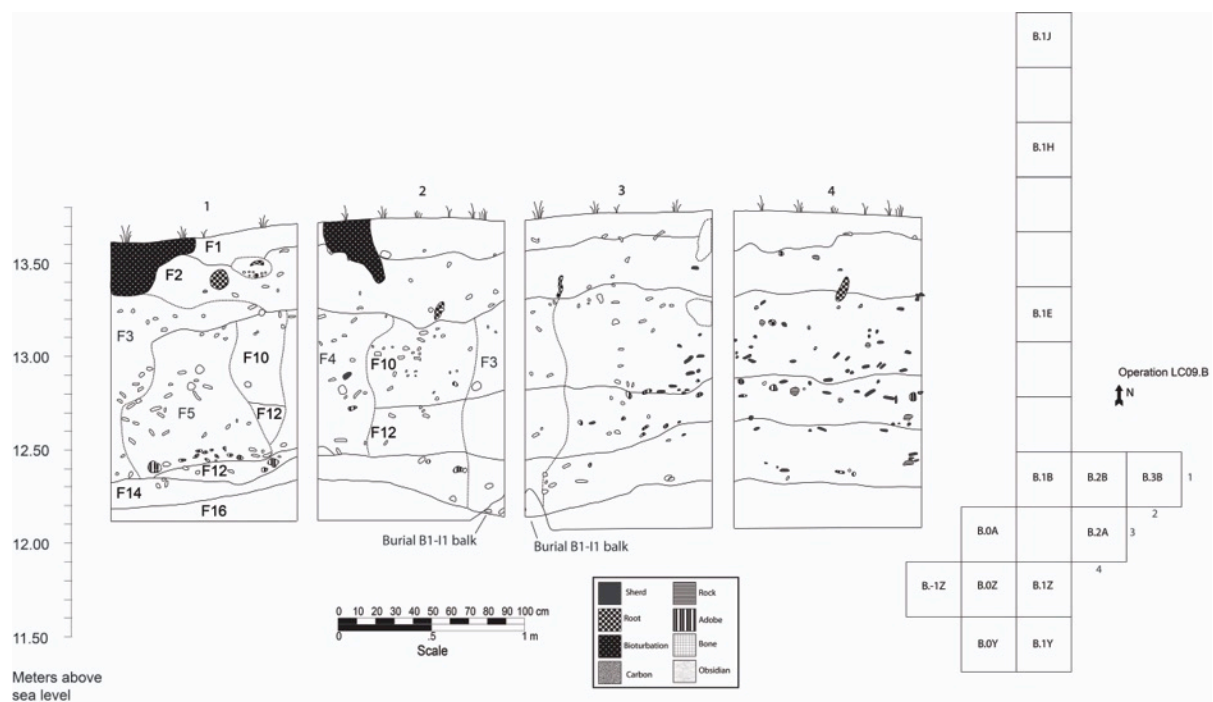
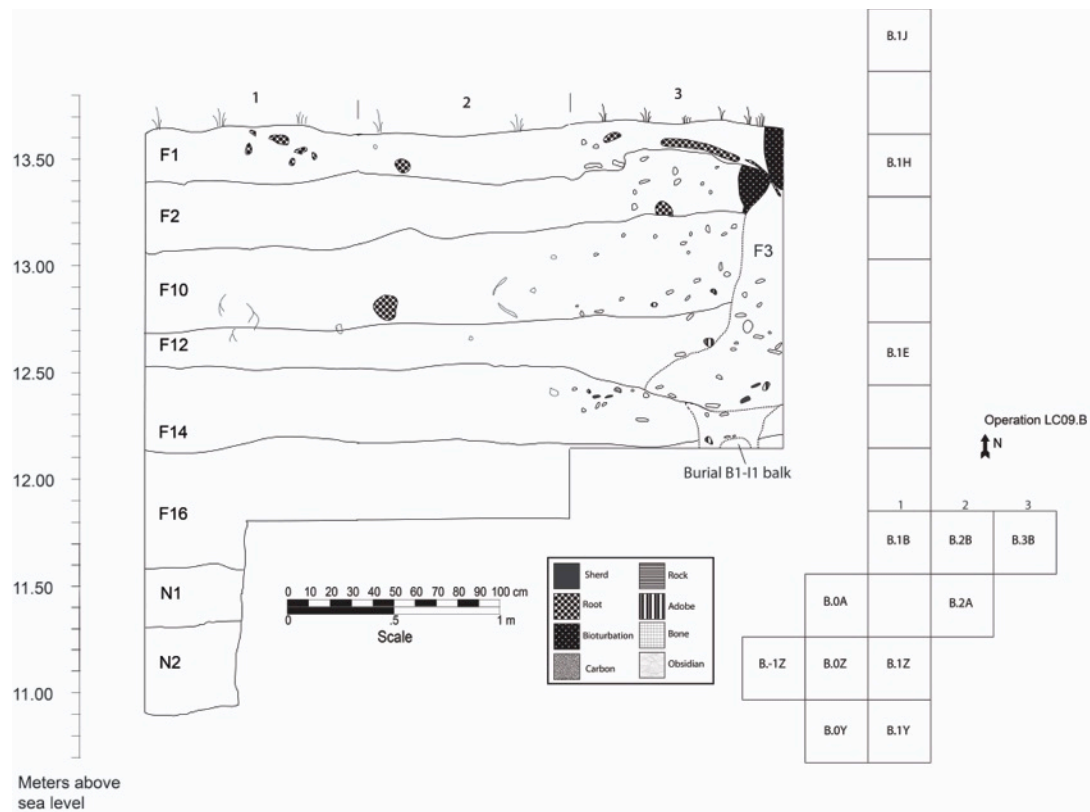


Figure 4.8: Op. LC09 B excavation profile (Unit B.1E)



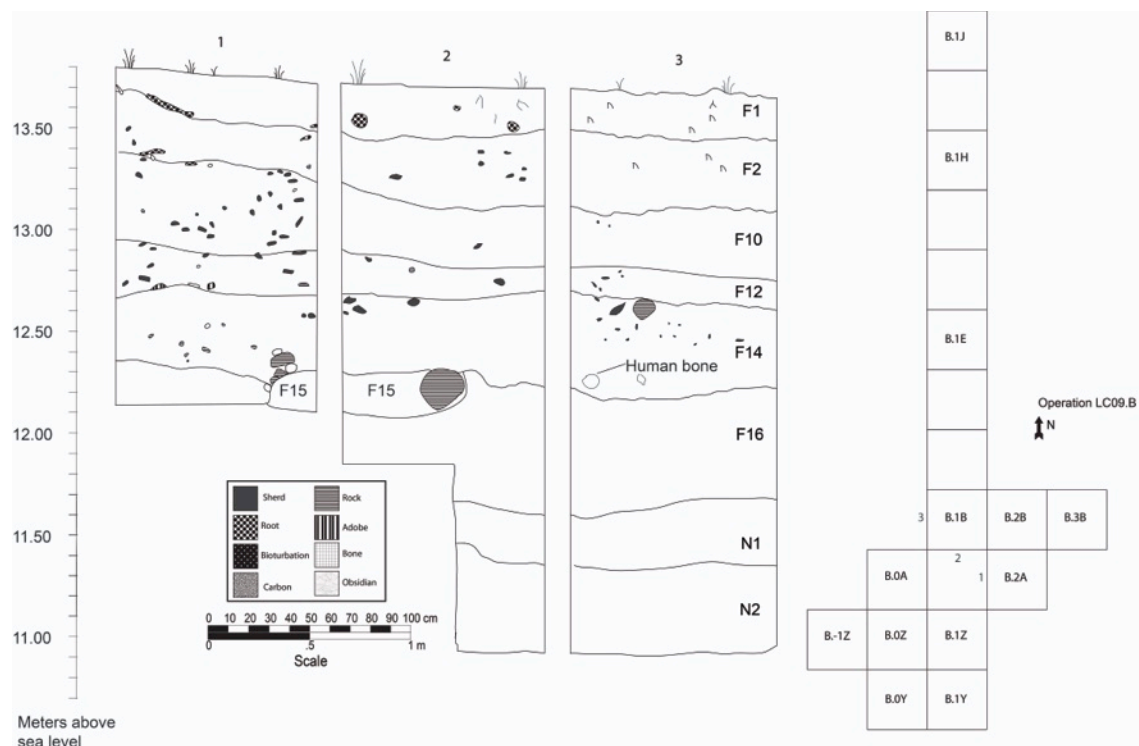


Figure 4.11: Op. LC09 B excavation profile (Units B.1B and B.2A)

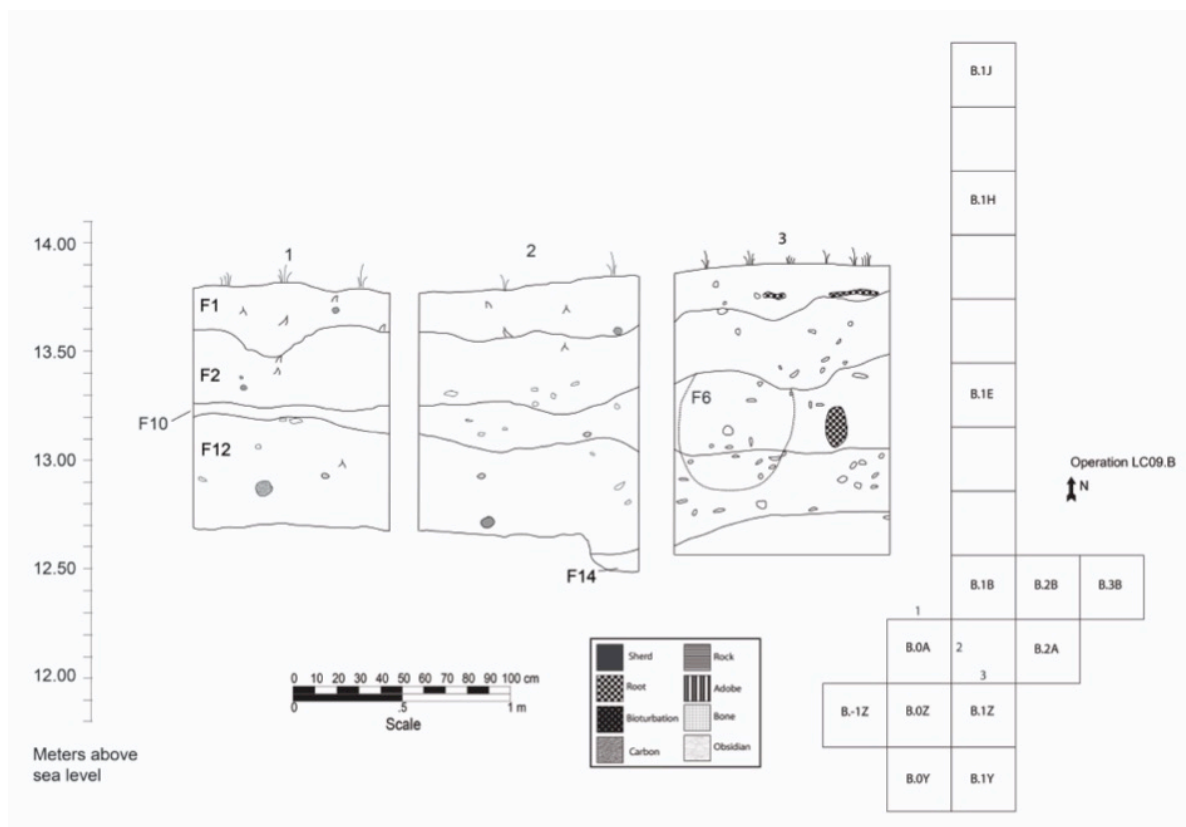


Figure 4.12: Op. LC09 B excavation profile (Units B.0A and B.1Z)

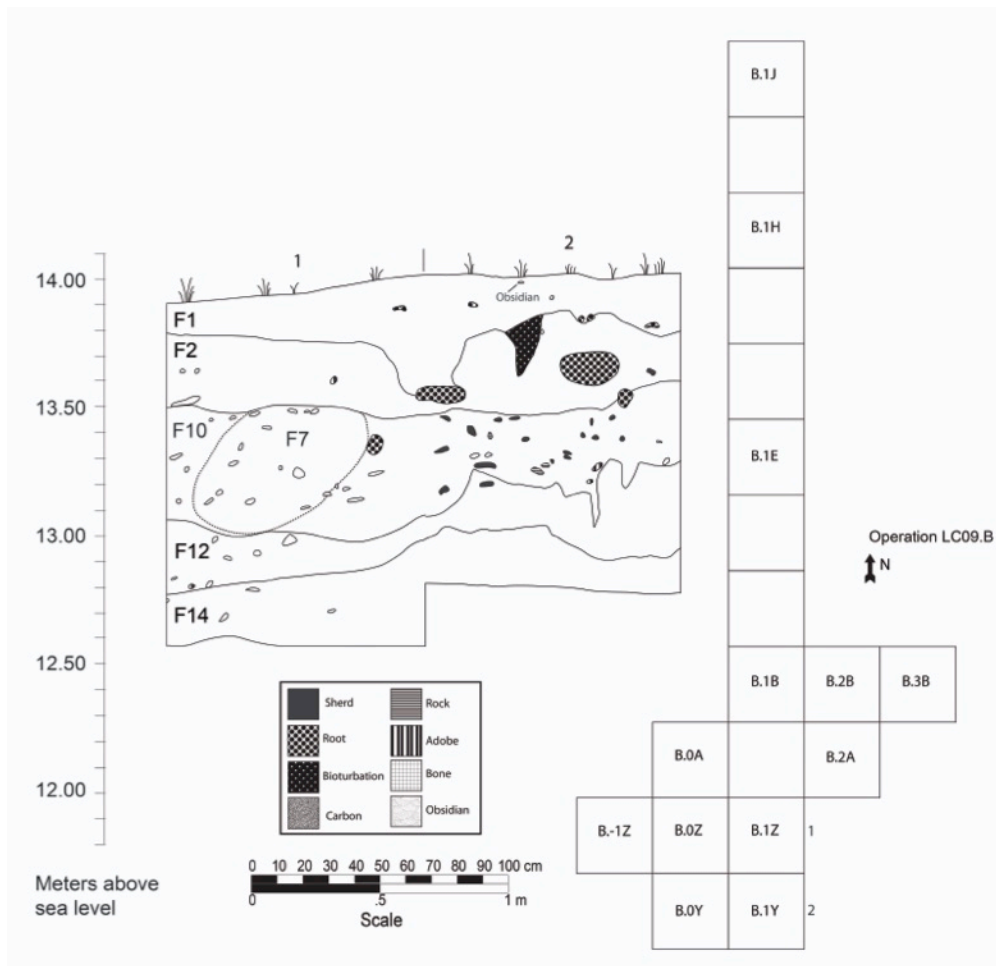


Figure 4.13: Op. LC09 B excavation profile (Units B.1Y and B.1Z)

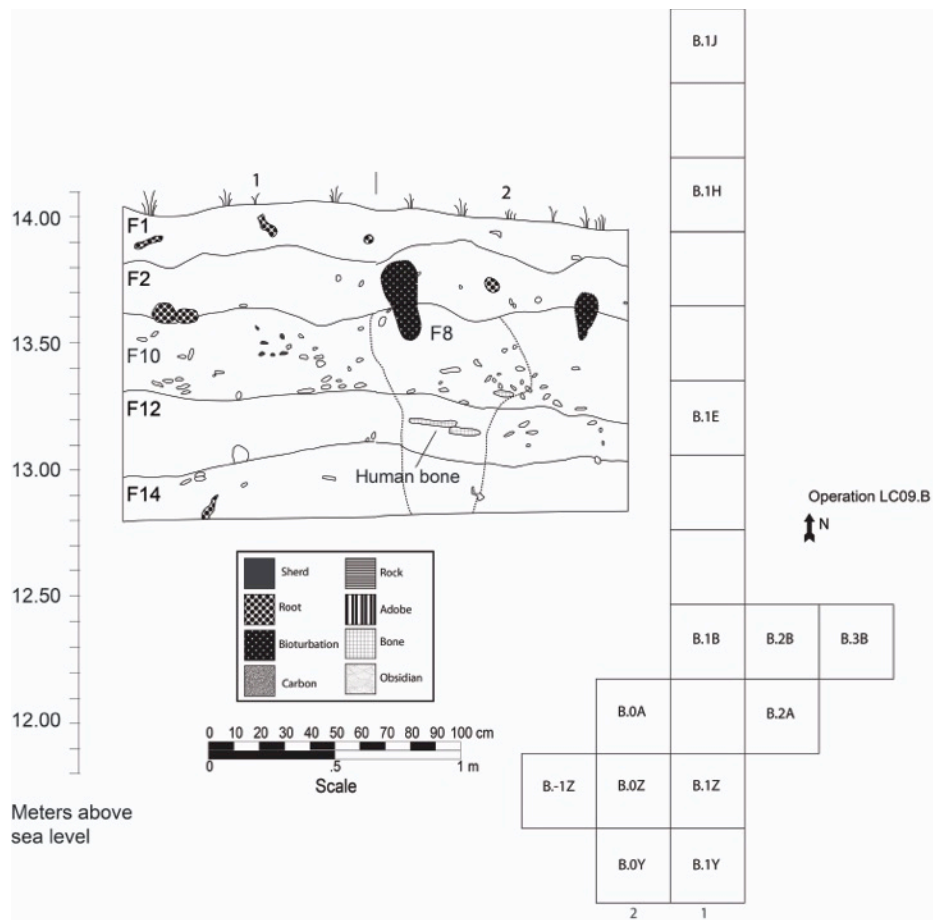


Figure 4.14: Op. LC09 B excavation profile (Units B.0Y and B.1Y)

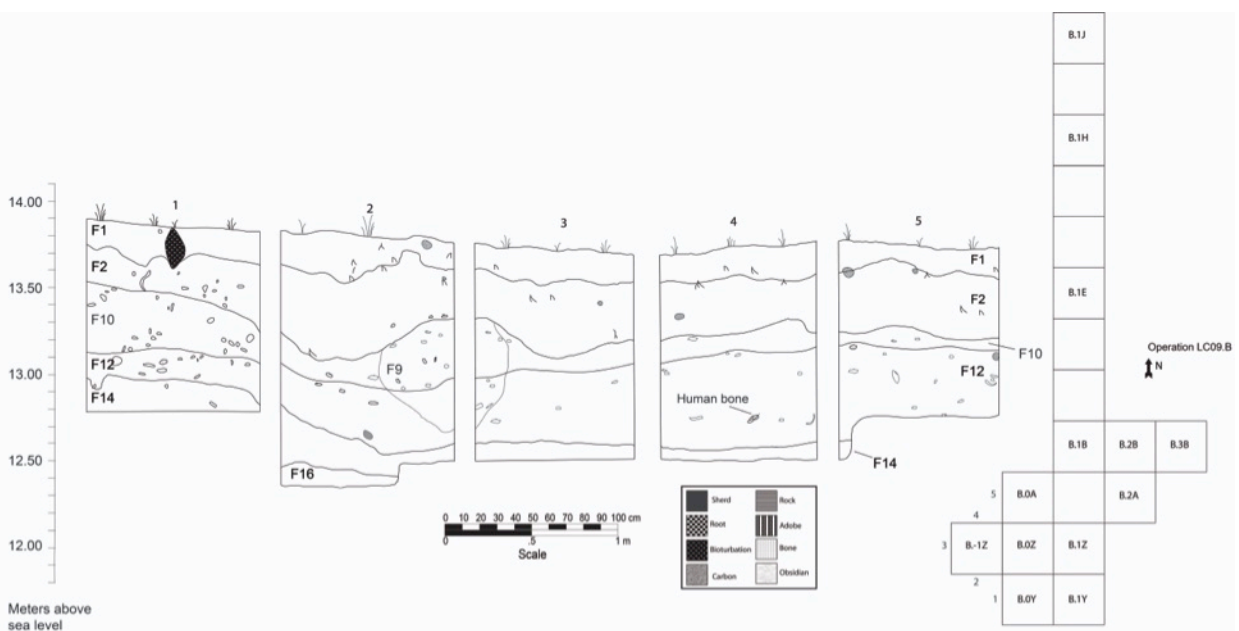


Figure 4.15: Op. LC09 B excavation profile (Units B.-1Z, B.0A, and B.0Y)

Op. LC12 A was excavated as a transect bisecting the northern slope of Platform 1 and Substructure 1 (see Figure 3.8). The purpose of this transect was to expose an uninterrupted section of a large earthen architectural feature from the modern surface down to sterile deposits, in order to better understand construction sequences. The specific location of LC12 A was selected because Substructure 1 is the tallest at the site, and excavating a deep section of its northern margin permitted analysis of the building sequence in the area of the site's largest construction. During preliminary work at La Consentida in 1988, it was proposed (Winter 1989) that parts of the site might have been human modifications to a natural hill or bedrock outcrop. Excavations at Ops. LC12 A and LC12 B have disproven this initial hypothesis. When human burials were identified at the edge of Platform 1 and Substructure 1 in Op. LC12 A, the transect was expanded to investigate mortuary practices at the site. In all, thirty penetrating 1 x 1 m units and one .5 x 1 m unit were opened in this operation. These excavations analyzed approximately 59.2 m³ of sediment.

Table 4.3: Description of natural strata and features from Op. LC12 A (see Figures 4.16–4.26)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	10YR 3/3 Silty clay loam Or 7.5YR 4/4 Clay Or 5YR 4/3 Silty clay	Formative – Modern	Modern soil formed in occupational debris	Extensive root activity and modern soil formation. Dark humus staining.

F2	10YR 3/3 Silty clay loam Or 7.5YR 4/4 Silty Clay	Early Formative	Occupational debris/fill	Similar to F1, but with fewer roots and a less blocky texture. Dark humus staining.
F3	10YR 4/4 Silty clay	Early Formative	Fill	Lacks humus staining of F1 and F2. Distinguished from F4 by color and from F7 by blockier texture.
F4-s1	10YR 5/4 Silty clay Or 7.5YR 5/6 Clay Or 2.5YR 4/1 Clay	Early Formative	Fill/resurfacing layer	Blockier in texture than F7. Becomes darker and chunkier clay towards north end of trench. Possibly affected by flooding in low-lying areas. May correspond to LC12 B-F4.
F4-s2	7.5YR 5/6 Silt	Early Formative	Small inclusion in fill	Small deposit of dissimilar material within F4-s1 fill.
F20	10YR 4/4 Silty clay	Early Formative	Fill within intrusive pit	Pit intrusive into F4-s1 fill. Likely corresponds to human burial.
F5	10YR 5/3 Silty clay	Early Formative	Fill within intrusive pit	Pit intrusive into F4-s1 fill. Contains human bone and likely corresponds to an unexcavated burial.
F6	7.5YR 5/3 Silty clay	Early Formative	Fill within probable burial pit	Probable pit for human burial. May correspond to nearby B6-l8, though human bone in unit wall suggests unexcavated burials nearby. Disturbs stratum F4-s1 and penetrates into stratum F7.

F7	7.5YR 5/4 Silty clay Or 2.5YR 4/3 Clay	Early Formative	Fill consisting of eroded/redeposited midden	Fill layer specific to the edge of Platform 1, in area of human burials. Artifact density and sherd size suggest redeposited midden. More prismatic structure than surrounding sediments such as F4 and F10 suggests an ancient surface. Becomes gradually more clayey at north end of trench. This deposit decreases the angle of Platform 1 and Substructure 1 by adding material at the base of these features.
F8	7.5YR 5/4 Sandy clay	Early Formative	Fill within intrusive pit	Pit intrusive into F7 and possibly also intrusive into F10-s1. Contains human bone and likely corresponds to burial.
F9	7.5YR 5/4 Silty clay	Early Formative	Fill within intrusive pit	Pit intrusive into F7 fill. Contains human bone and likely corresponds to burial.
F10-s1	10YR 5/4 Silty clay Or 5YR 4/6 Silty clay Or 7.5YR 4/4 Silty clay	Early Formative	Fill/possible resurfacing layer	Well-sorted and less crumbly than overlying strata. Slightly darker than F11-s1. Varies in texture and color as it tapers toward the edge of Platform 1. Contains possible eroded midden materials, including refitting decorated bottle fragments, at the northern edge of platform. Becomes dark in color and low in artifact density at north end of trench. May correspond to LC12 B-F5, and may represent a resurfacing layer.

F10-s2	10YR 5/4 Silty loam	Early Formative	Intrusion, bioturbation, or fill from different source material	A series of small intrusions within F10-s1. These are composed of loose, crumbly sediment, and may be a result of bioturbation or basket loads of fill from a different source than F10-s1.
F11-s1	10YR 5/4 Silty clay loam	Early Formative	Fill	May be the first deposit that clearly marks the construction of the Substructure 1 mound. Identified in Units 0A through 0I. Well-sorted, less blocky, and containing fewer roots than overlying strata. Lighter in color than F10-s1. May correspond to LC12 B.F6-s1.
F11-s2	10YR 6/4 Sandy loam	Early Formative	Probable inclusion of different source material	Small area of possible intrusion or basket load of different sediment within F11-s1 fill.
F11-s3	10YR 5/4 Sandy loam	Early Formative	Probable inclusion of different source material	A series of small intrusions or basket loads of different sediment within F11-s1. Composed of a calcified sandy loam.
F11-s4	10YR 5/4 Sandy clay loam	Early Formative	Probable inclusion of different source material	Small deposit of dissimilar material within F11-s1 fill. Possible basket load from a slightly different source material.
F12	10YR 5/4 Silty clay loam	Early Formative	Fill	Contains a small amount of fluvial gravel. Source material from higher energy deposits than overlying strata. May have occupational surface on top contemporary with that of F13.

F13	10YR 5/4 Silty clay loam	Early Formative	Possible occupational surface	Contains more rock and burned daub than overlying sediments. Slightly gray color may indicate ash. Possible occupational surface. May also be fill from a different source than surrounding strata.
F14	7.5YR 5/3 Silty clay	Early Formative	Fill within pit containing ritual cache	Intrusive pit dug into F17- s2 for the placement of F15 ritual cache. Sediment is prismatic. Not visible in profile.
F15	Offering	Early Formative	Ritual cache	Cache placed within F14 intrusive pit. Contains animal remains (complete <i>Heloderma horridum</i> (Mexican beaded lizard) skeleton, fish bones, shell [including oyster], turtle bones, and shark tooth), along with sherds and a likely associated bird ocarina (see Appendix 3). Not visible in profile, though depth is noted.
F16	10YR 5/4 Silty clay	Early Formative	Fill within intrusive pit	Pit intrusive into F17-s2 fill. Likely corresponds to human burial.
F17-s1	10YR 6/4 Silty clay Or 5YR 4/6 Sandy/gritty clay	Early Formative	Fill	Compact and contains possible calcium carbonate staining. Early Platform 1 fill into which F14 intrudes. Slopes sharply downward toward the north in central portion of Op. LC12A excavations. Similar to F17-s3, but softer and with fewer inclusions.

F17-s2	10YR 6/4 Silty clay Or 5YR 4/6 Sandy/gritty clay	Early Formative	Fill	Compact and contains possible calcium carbonate staining. Early Platform 1 fill into which F14 intrudes. Slopes sharply downward toward the north in central portion of Op. LC12A excavations.
F17-s3	10YR 5/4 Calcium and sand	Early Formative	Deposits within fill	Series of sand deposits within F17-s2. Contain calcium concretions. These may represent basket loads of dissimilar material deposited as part of the F17-s2 fill event.
F17-s4	10YR 6/3 Sandy clay loam	Early Formative	Small inclusion in fill	Small deposit of dissimilar material within F17-s2 fill.
F17-s5	10YR 6/4 Silty clay	Early Formative	Small inclusion in fill	Small deposit of dissimilar material within F17-s2 fill.
F18-s1	10YR 5/3 Silty clay	Early Formative	Fill	Substratum of F18 fill that may be disturbed by downslope erosion affecting northern edge of Platform 1.
F18-s2	10YR 5/4 Silty clay loam Or 7.5YR 5/6 Silty clay loam Or 10YR 6/4 Gritty clay	Early Formative	Fill	Silty clay loam fill containing deposits of F18-s3 and F18-s4. Likely represents basket loads of dissimilar material used as part of the F18 fill event. Becomes thinner toward the north edge of Platform 1, and varies somewhat in consistency. Stratum may represent an extension of Platform 1 to the north. Anthropomorphic figurine head fragment (Figure 7.15) found at interface between this deposit and A-F17-s2.

F18-s3	10YR 4/4 Or 10YR 3/4 Silty clay	Early Formative	Fill	Silty clay deposits within F18-s2. Likely represents basket loads of dissimilar fill material.
F18-s4	10YR 4/4 Sand	Early Formative	Fill	Sand deposits within F18-s2 fill layer.
F19	10YR 3/4 Clay	Early Formative (1880– 1665 cal B.C.)	Fill with probable occupation layer	Homogenous clay layer containing large chunks of fired daub. Possible occupational layer at interface with F18. Becomes gritty clay in spots, such as in Unit 0V.
N1	10YR 3/4 Silty clay	Early Formative or earlier	Natural with probable occupation layer	Natural clay layer containing rhizoliths. Probable brief occupation layer at interface between N1 and F19, which predates fill episodes.
N2	10YR 4/4 Loamy sand	Early Formative or earlier	Natural alluvial deposit	Pre-cultural layer containing small clay pockets.

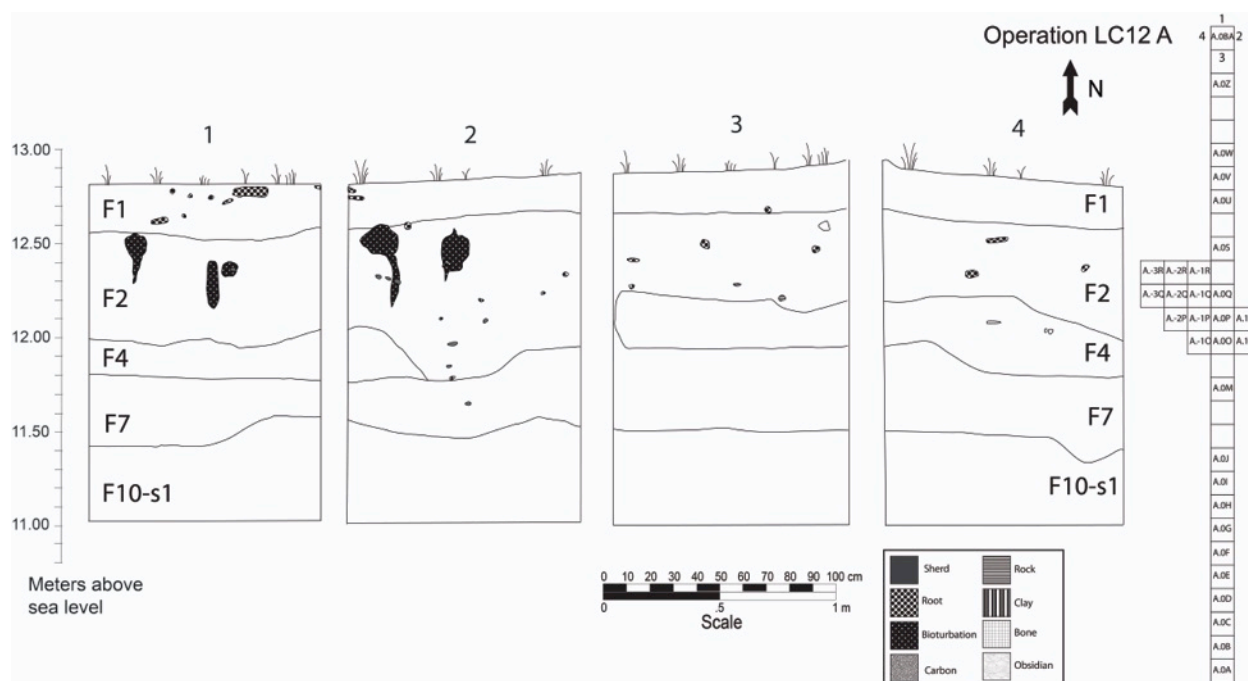


Figure 4.16: Op. LC12 A excavation profile (Unit A.0BA)

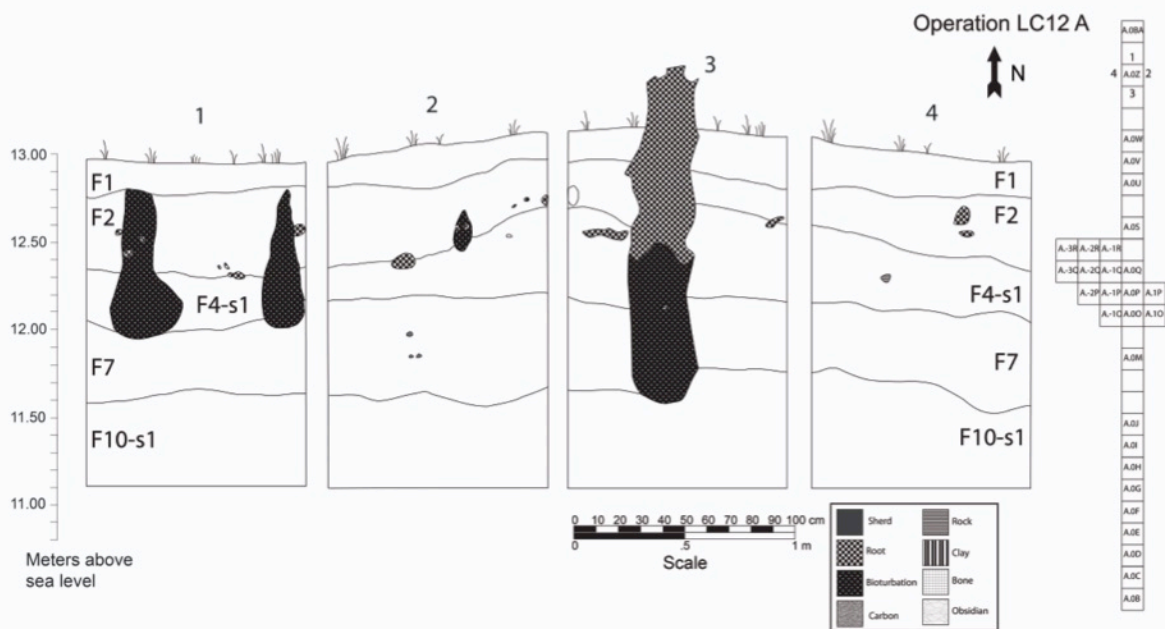


Figure 4.17: Op. LC12 A excavation profile (Unit A.0Z)

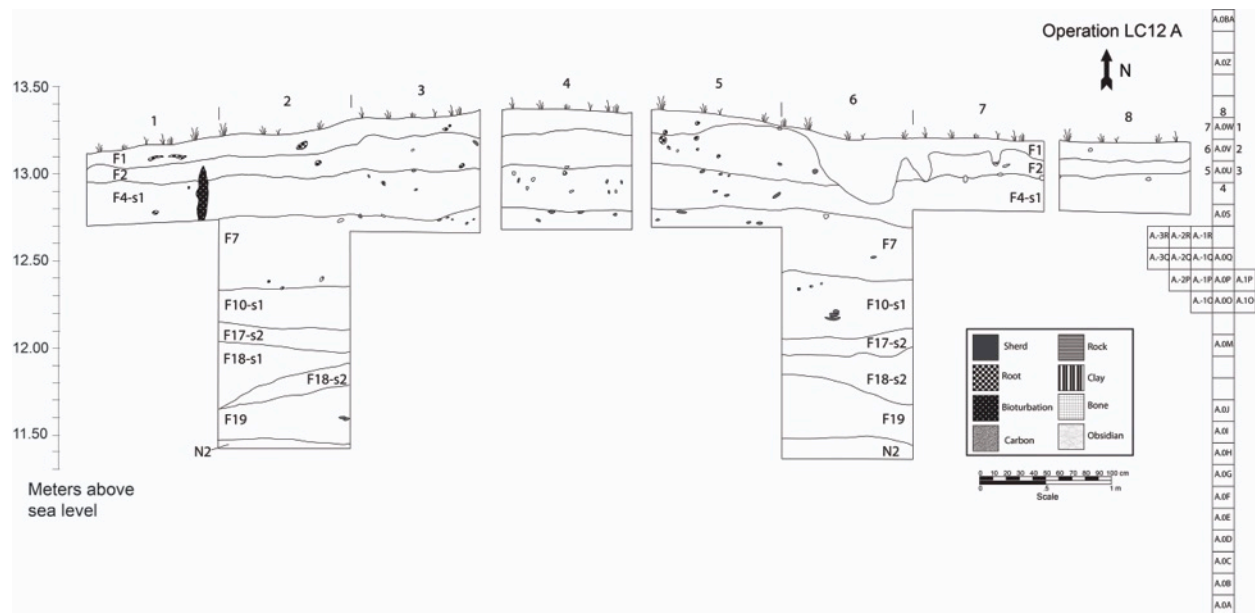


Figure 4.18: Op. LC12 A excavation profile (Units A.0U, A.0V, and A.0W)

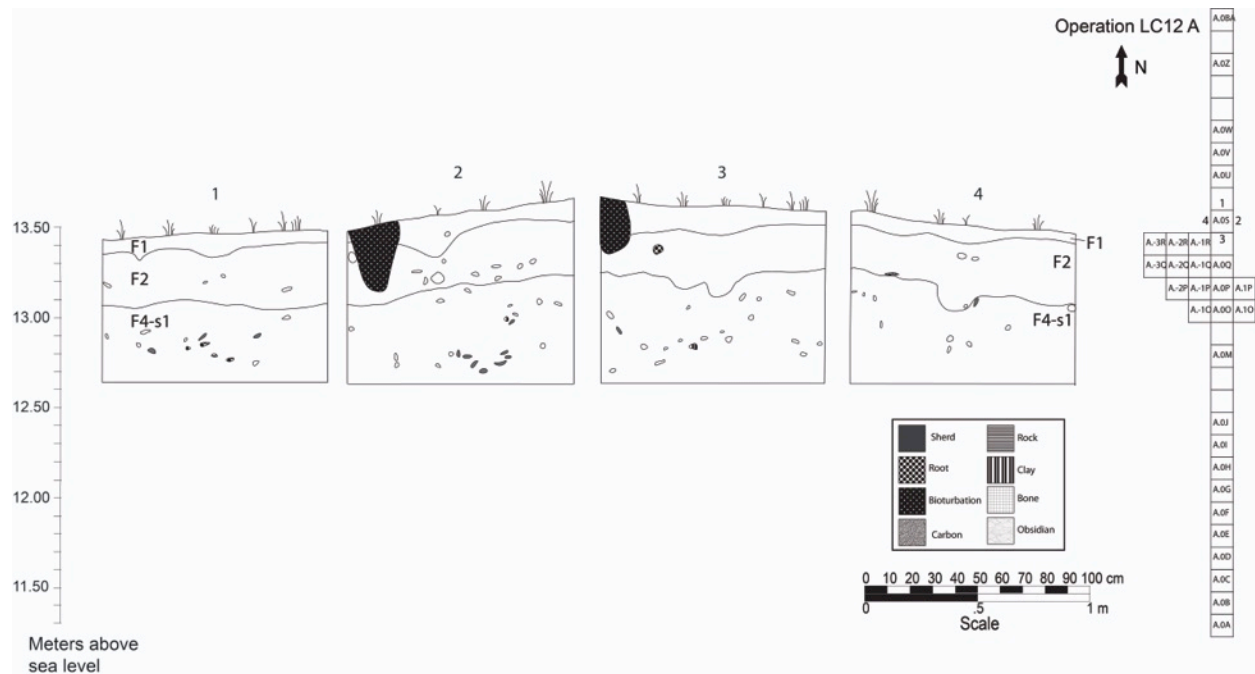


Figure 4.19: Op. LC12 A excavation profile (Unit A.0S)

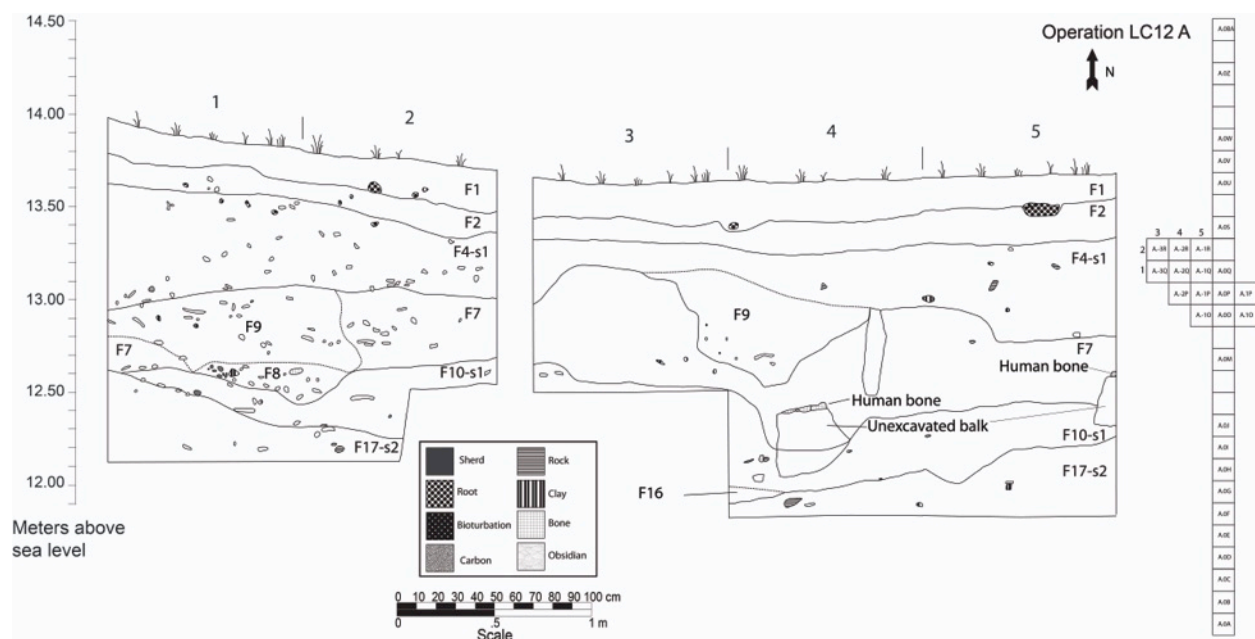


Figure 4.20: Op. LC12 A excavation profile (Units A.-3Q, A.-3R, A.-2R, and A.-1R)

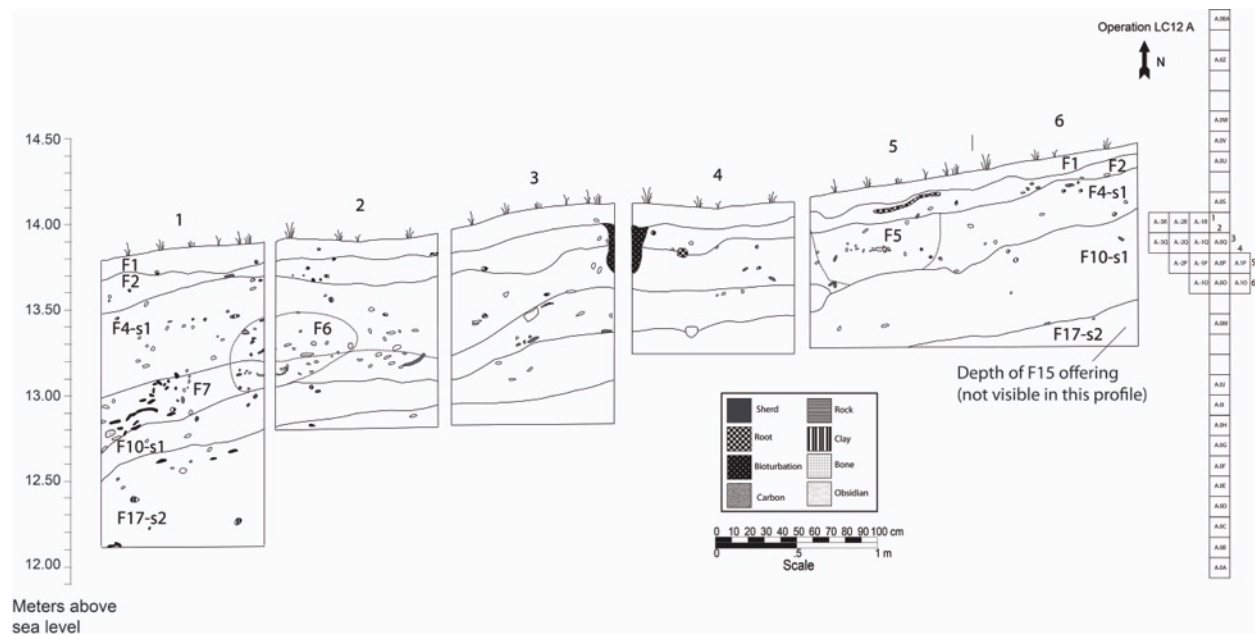


Figure 4.21: Op. LC12 A excavation profile (Units A.-1R, A.0Q, A.1P, A.0O)

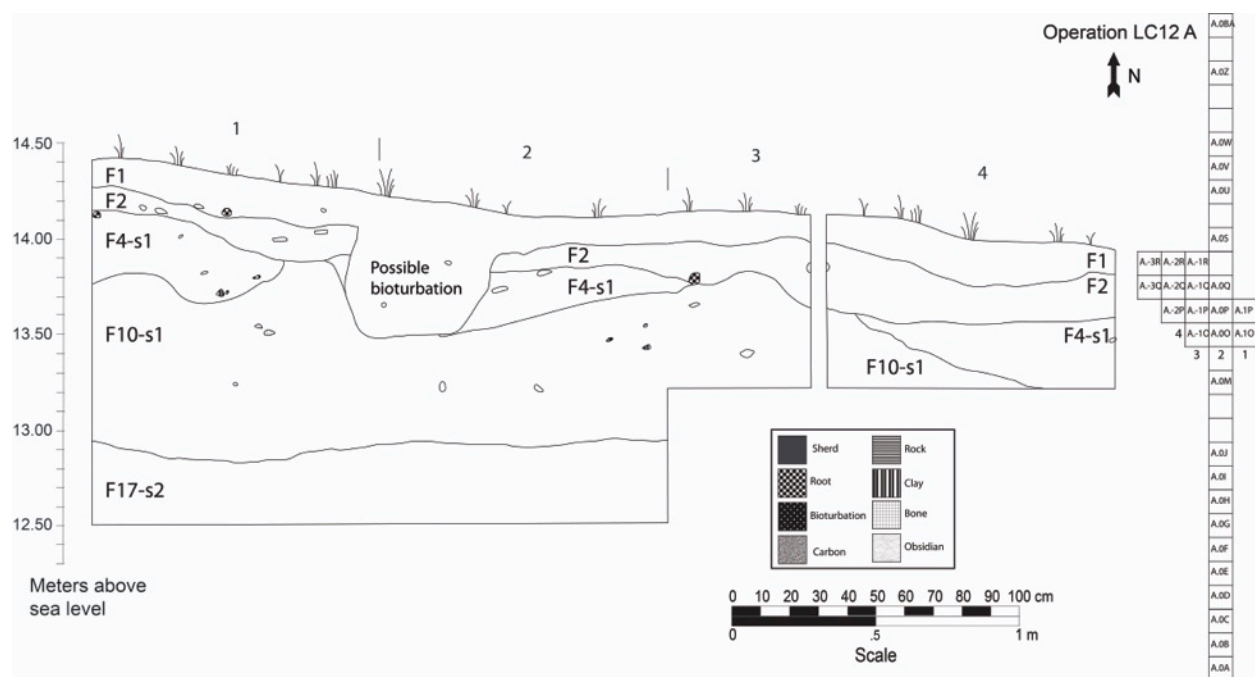


Figure 4.22: Op. LC12 A excavation profile (Units A.-10, A.0O, and A.10)

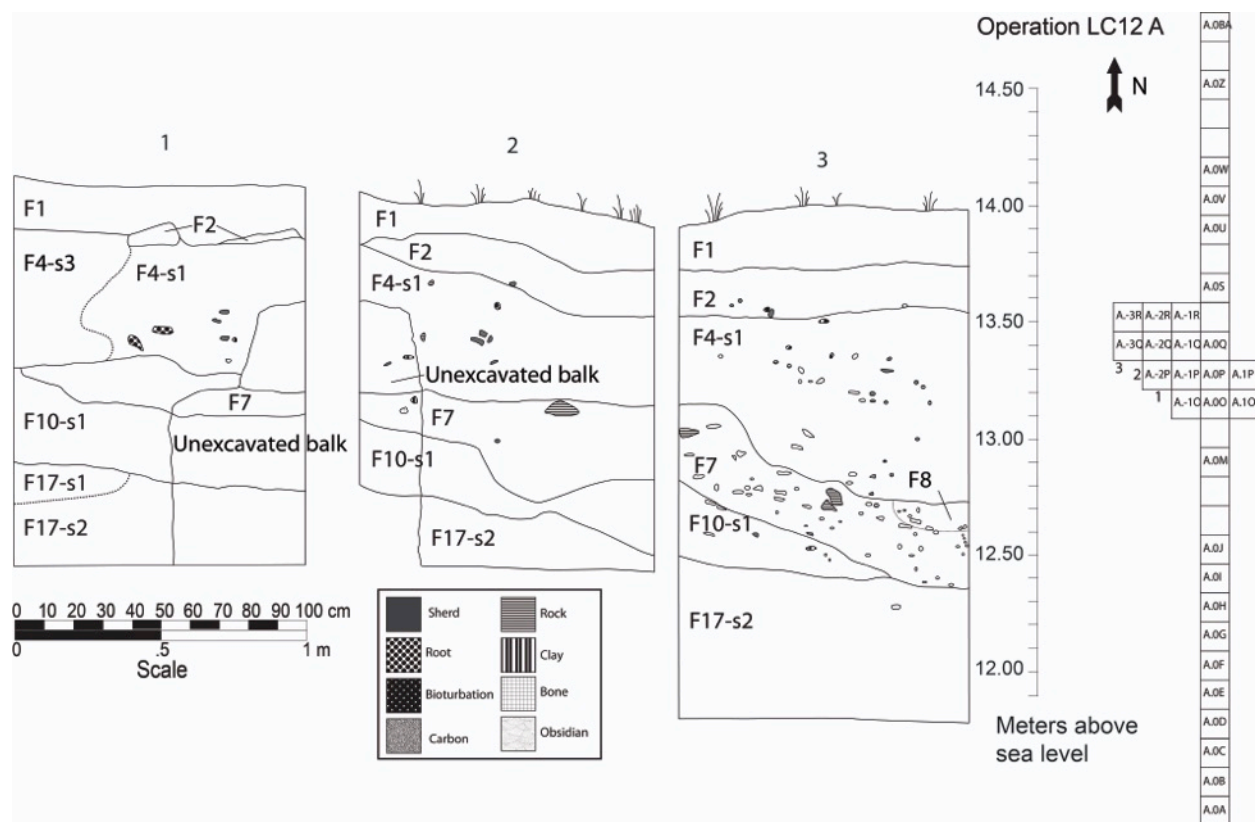


Figure 4.23: Op. LC12 A excavation profile (Units A.-3Q and A.-2P)

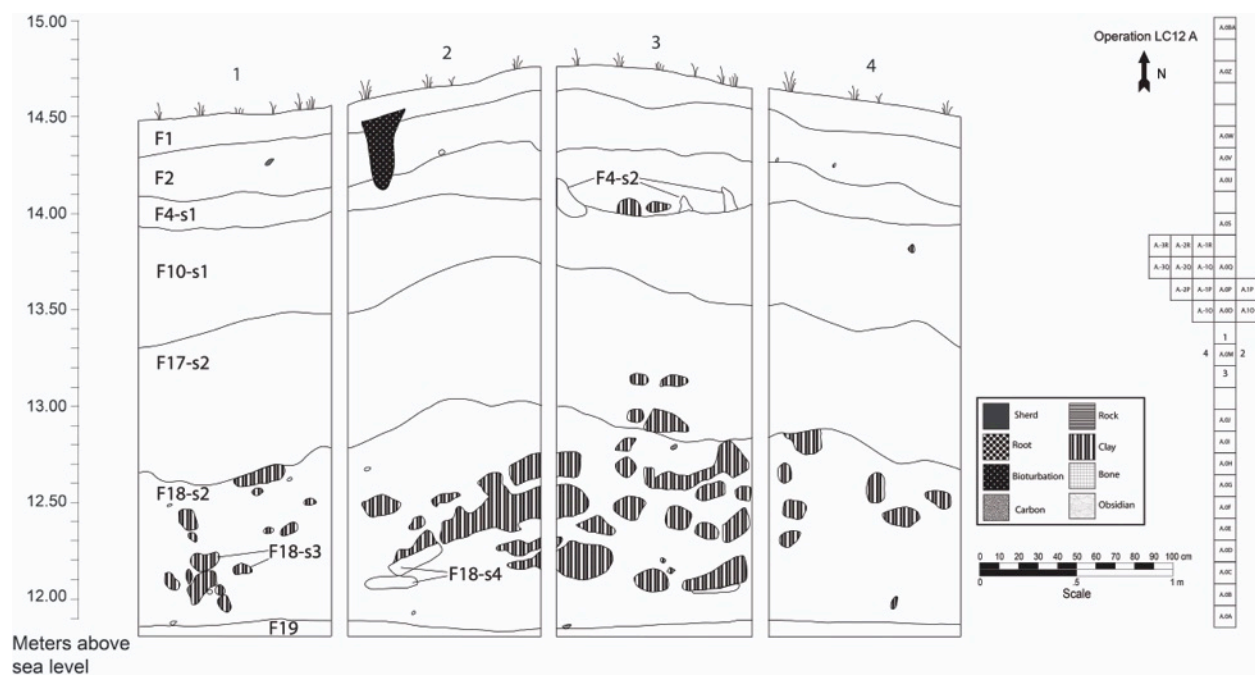


Figure 4.24: Op. LC12 A excavation profile (Unit A.0M)

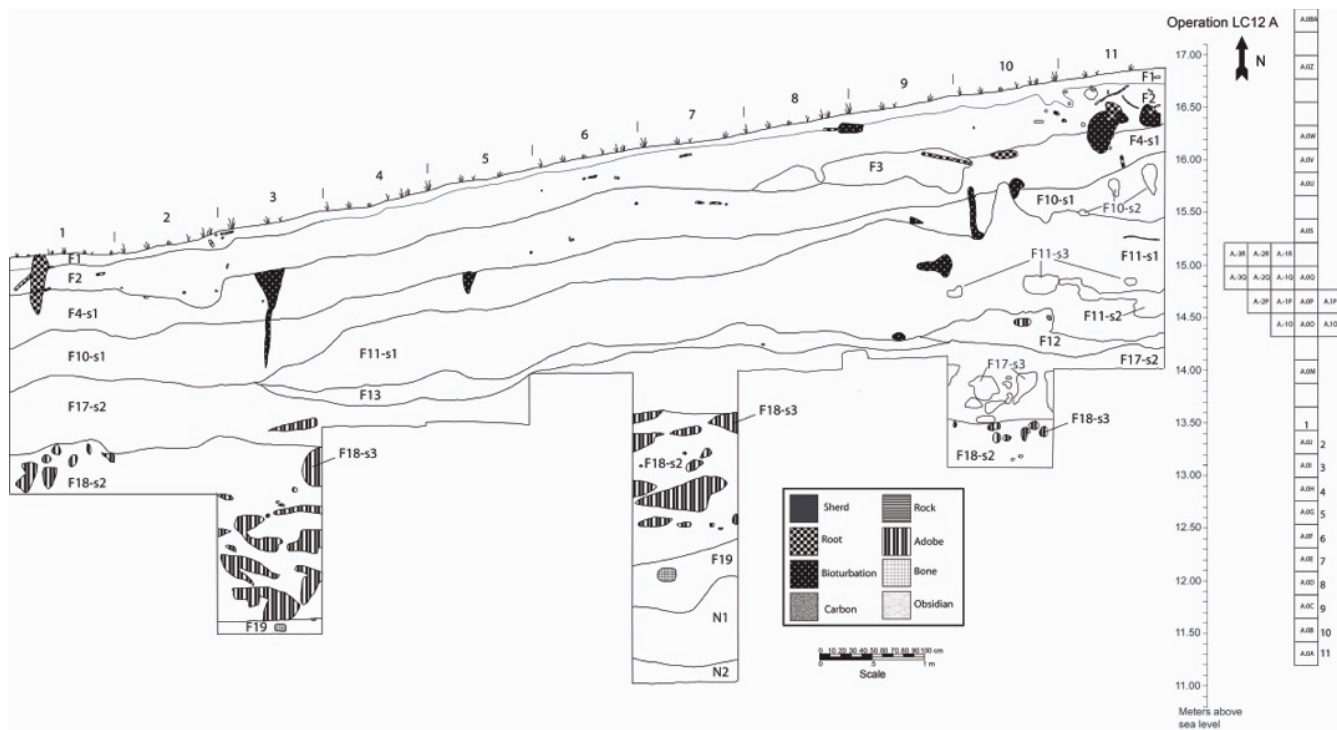


Figure 4.25: Op. LC12 A excavation profile (Units A.0A–A.0J)

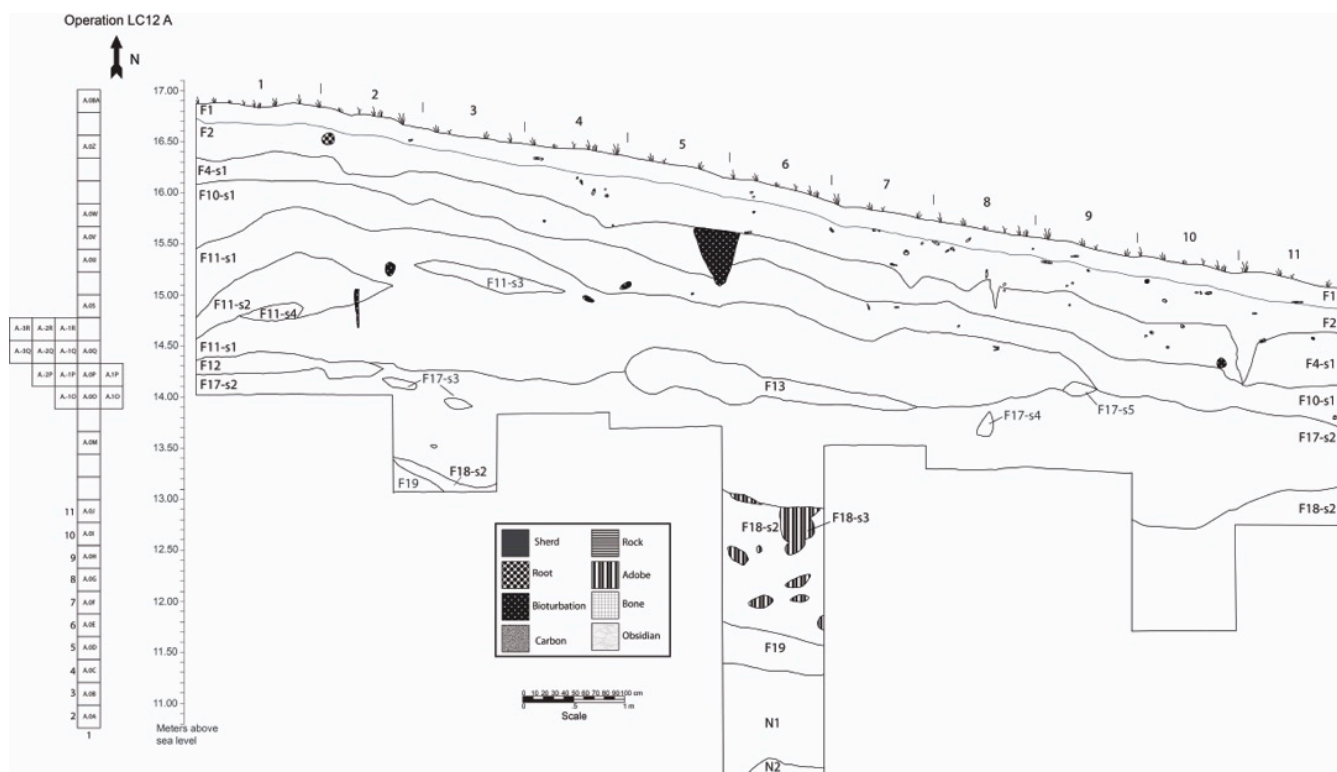


Figure 4.26: Op. LC12 A excavation profile (Units A.0A–A.0J)

Op. LC12 B was planned as a 5 x 7 m horizontal excavation atop Substructure 1, the tallest point on Platform 1 (Figure 3.5). Ten 1 x 1 m units were opened in LC12 B, though all but two of these remained very shallow. The discovery of architectural remnants, including large chunks of burned daub with post impressions, indicated the presence of a building atop the mound. Ceramic evidence from about the upper 30 cm of sediment indicates that this structure was part of a small Early Classic period reoccupation of La Consentida after the site was abandoned in the Formative period. Below the dense artifact layer associated with this late structure, the deep layers of nearly artifact-free construction fill contained only early artifacts, suggesting that the majority of Substructure 1 was constructed in the Early Formative, and that site reoccupation in the Early Classic took place atop a preexisting mound. No other evidence of reoccupation after the Formative has been discovered at La Consentida, though a few Classic and Postclassic artifacts scattered at or near the modern surface indicate that the site was known to and periodically visited by later occupants of the region. In all, 6.4 m³ of sediment was excavated in Op. LC12 B.

Table 4.4: Description of natural strata and features from Op. LC12 B (see Figures 4.27–4.31)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	5YR 3/3 Silty clay loam	Classic Period and modern	Modern soil formed in occupational debris	High degree of bioturbation and surface disturbance. Contains large burned daub chunks indicative of architectural context.
F2	7.5YR 3/4 Silty clay loam	Classic Period and modern	Modern surface and occupational debris	Has rocks mixed in with sediment. Contains large burned daub chunks.

F3	5YR 3/3 Sandy clay	Classic Period	Classic period occupational layer	Very high ceramic content from Early Classic period occupation. Contains daub indicative of architecture. Also contains intrusions, some of which may be rodent burrows or tree root bioturbation.
F4	7.5YR 5/4 Silty clay loam	Formative period	Fill	Artifact content low, but all ceramics are Formative period. May correspond to LC12 A-F4-s1.
F5	7.5YR 5/6 Silty clay	Formative period	Fill	Much less compact than shallower deposits. Artifact content low, but all ceramics are Formative in date. May correspond to LC12 A-F10-s1.
F6-s1	7.5YR 5/6 Silty clay loam	Formative period	Fill	Thick fill layer with sandy clay loam inclusions (F6-s2). May correspond to LC12 A-F11-s1. May represent one of two sources of F6 fill, perhaps brought as basket loads.
F6-s2	10YR 6/4 Sandy clay loam	Formative period	Fill	Small pockets of different sediment within F6-s1 matrix. Artifact content low, but all ceramics are Formative in date. May represent one of two sources of F6 fill, perhaps brought as basket loads.

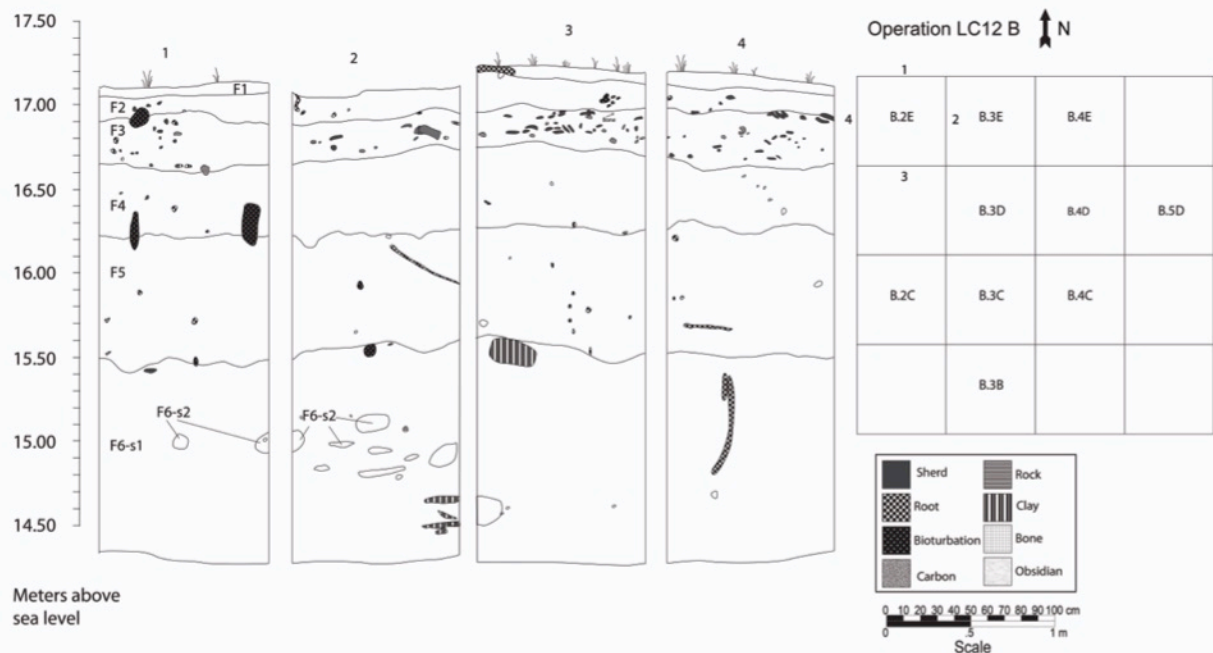


Figure 4.27: Op. LC12 B excavation profile (Unit B.2E)

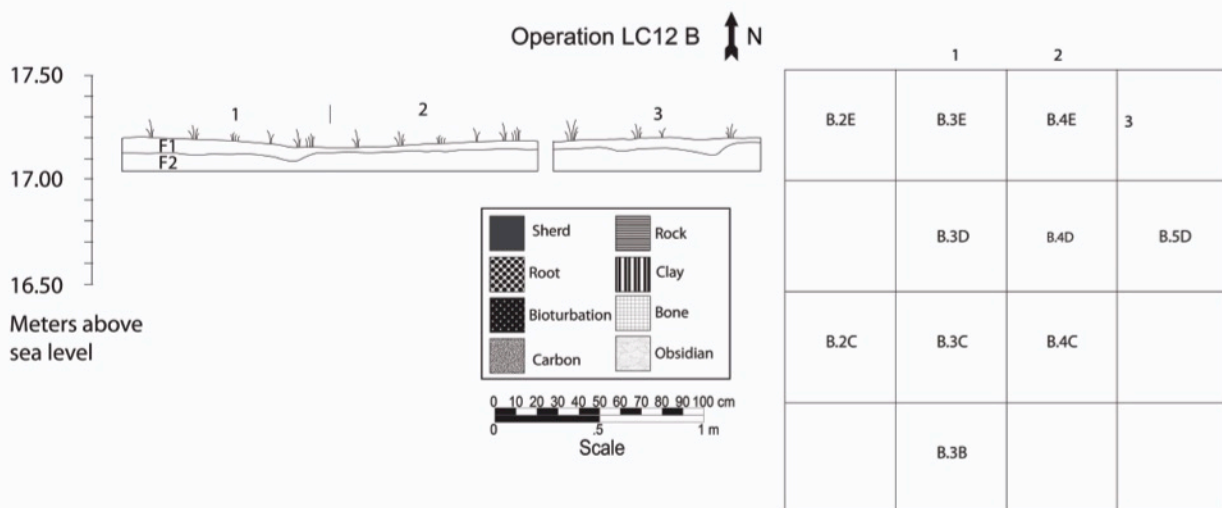


Figure 4.28: Op. LC12 B excavation profile (Units B.3E and B.4E)

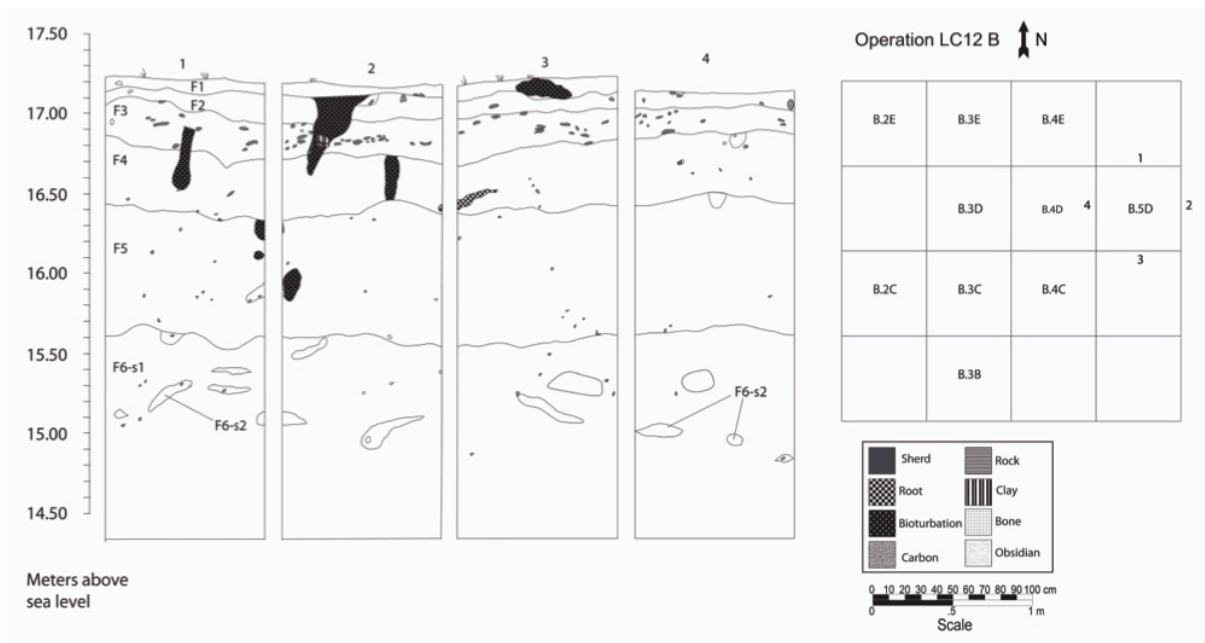


Figure 4.29: Op. LC12 B excavation profile (Unit B.5D)

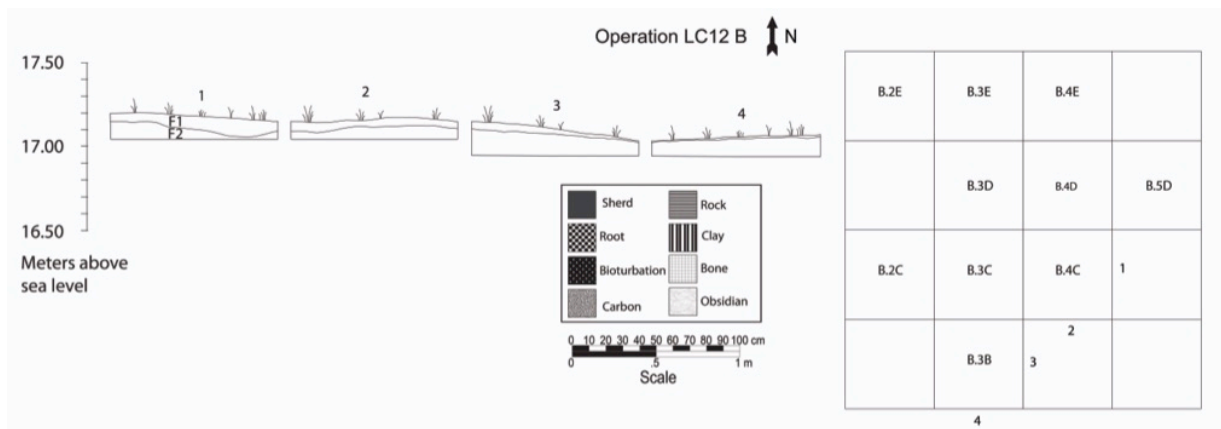


Figure 4.30: Op. LC12 B excavation profile (Units B.3B and B.4C)

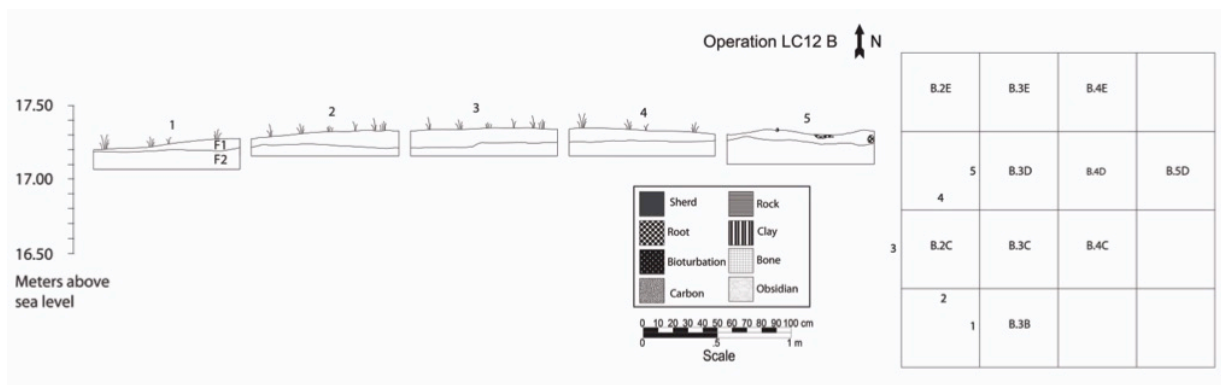


Figure 4.31: Op. LC12 B excavation profile (Units B.2C, B.3B, and B.3D)

Op. LC12 C began as a 5 x 7 m excavation area atop the northern portion of Substructure 2 (Figure 3.5). Most units in this area were shallow, horizontal excavations intended to uncover domestic remains. Despite heavy bioturbation associated with the modern soil, including extensive *camote de agua* root and acacia tree activity (see Figure 3.7), the research team identified several superimposed occupational surfaces with *in situ* artifacts and the foundation of a small structure, hereafter termed Structure 1 (see Figures 5.1–5.3). Ceramic and ground stone evidence suggests that this was probably a domestic area occupied during the latter part of the Early Formative period occupation. The exposure of architectural features resulted in the excavation of some units outside the original 5 x 7 m area. The team excavated fifteen 1 x 1 m units, totaling 9.0 m³ of sediment, in Op. LC12 C.

Table 4.5: Description of natural strata and features from Op. LC12 C (see Figures 4.32–4.40)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	10YR 3/2 Loose silty clay loam	Formative – Modern	Modern soil formed in occupational debris	Modern surface with high artifact content. Bioturbation and surface disturbance significant.
F2	10YR 3/2 Loose silty clay loam	Formative period	Occupational debris	Sediment impacted by modern bioturbation. Possible domestic occupation layer.
F3	10YR Sandy clay loam	Unknown	Fill within possible intrusive pit	Small possible intrusive pit containing ceramic and stone debris. May be a tree root intrusion.

F4	10YR 3/2 Silty clay containing stone architecture	Formative period	Architectural structure floor and foundation fragments	Silty clay fill sediment with spots of darker staining. Possibly a preserved floor. Surrounds manos and metate fragments used as part of foundation or wall construction material. Associated with Structure 1. See Figure 5.3.
F5	10YR 3/2 Silty clay	Formative period	Fill within intrusive pit	Fill within pit feature in F4 structure floor. See Figure 5.3 for plan and profiles.
F6	10YR 3/2 Silty clay	Formative period	Fill within intrusive pit	Fill within pit feature in F4 structure floor (not visible in profile).
F7	2.5Y 4/2 Hard sandy clay loam	Formative period	Fill with occupation layer	Fill with occupation layer and lens of <i>in situ</i> artifacts on top. F4 structure floor overlies this deposit.
F8	10YR 4/3 Clay loam	Formative period	Fill with occupation layer	Fill layer with probable occupation layer and lens of <i>in situ</i> artifacts on upper surface.
F9	10YR 6/6 Sandy clay loam	Formative period	Fill with occupation layer	Thick fill layer with stone and bioturbation. Has probable occupation layer and lens of <i>in situ</i> artifacts on upper surface.

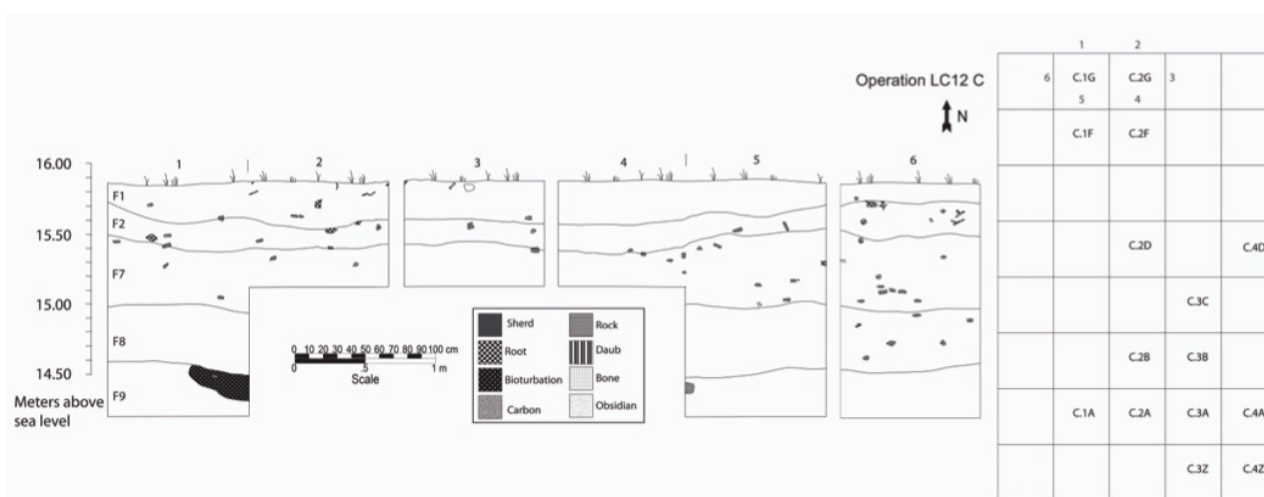


Figure 4.32: Op. LC12 C excavation profile (Units C.1G and C.2G)

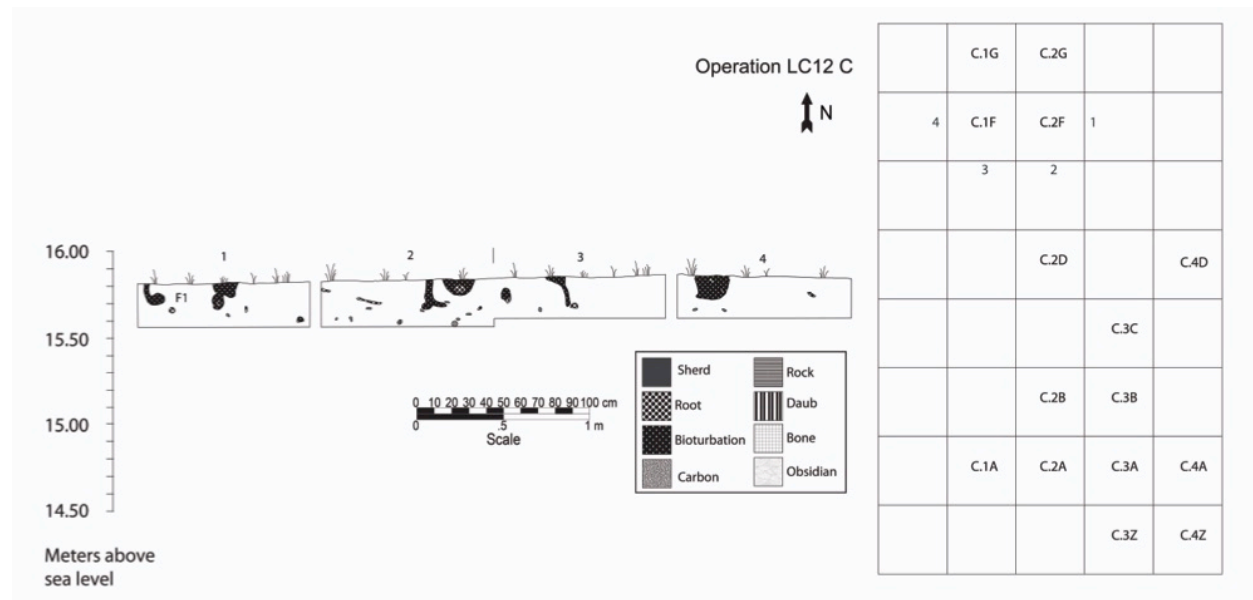


Figure 4.33: Op. LC12 C excavation profile (Units C.1F and C.2F)

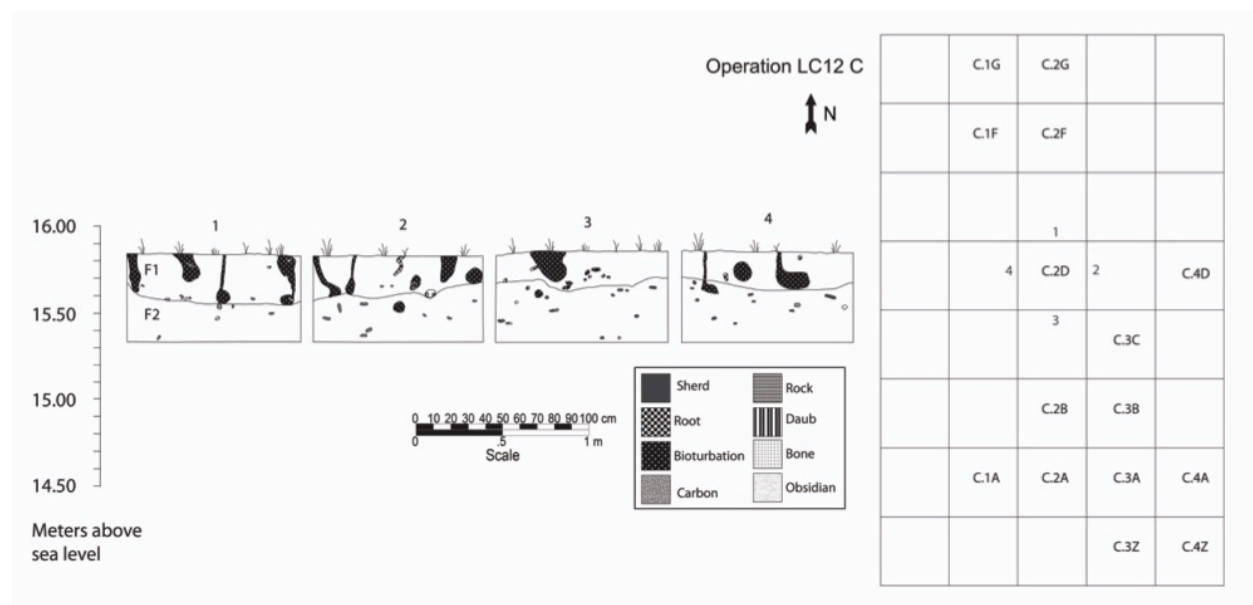


Figure 4.34: Op. LC12 C excavation profile (Unit C.2D)

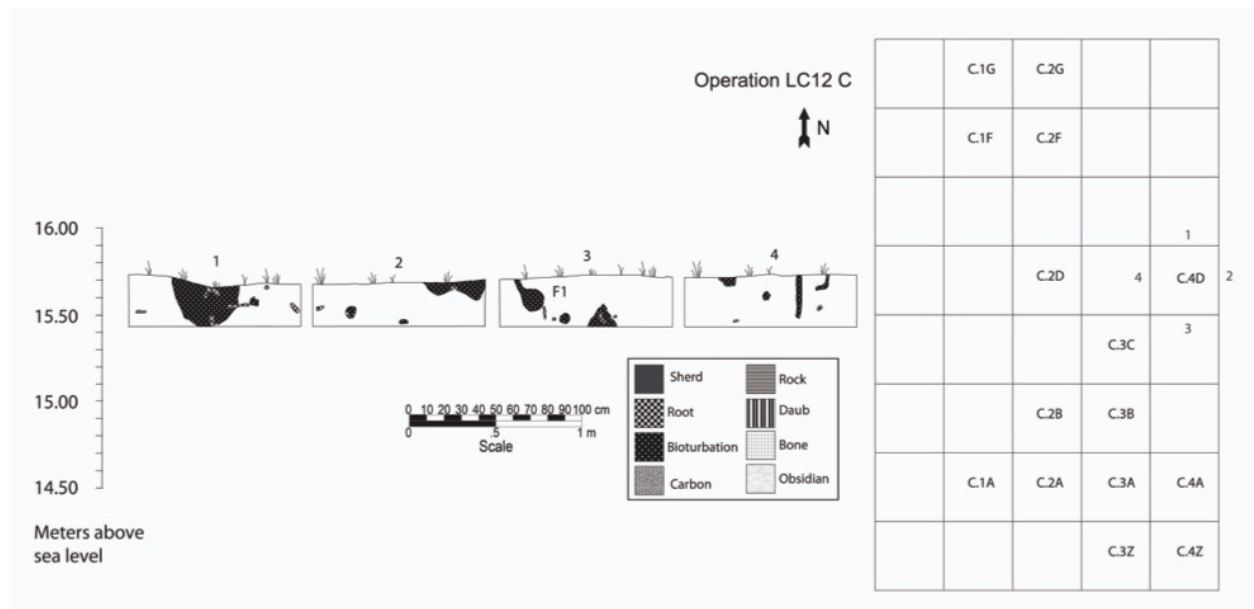


Figure 4.35: Op. LC12 C excavation profile (Unit C.4D)

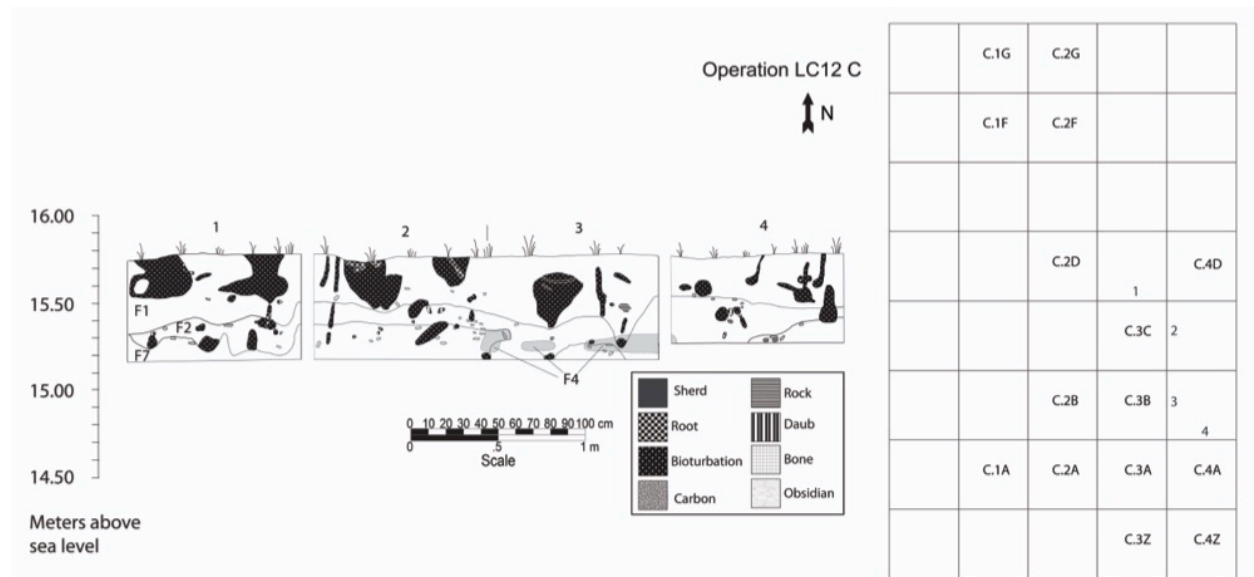


Figure 4.36: Op. LC12 C excavation profile (Units C.3B, C.3C, and C.4A)

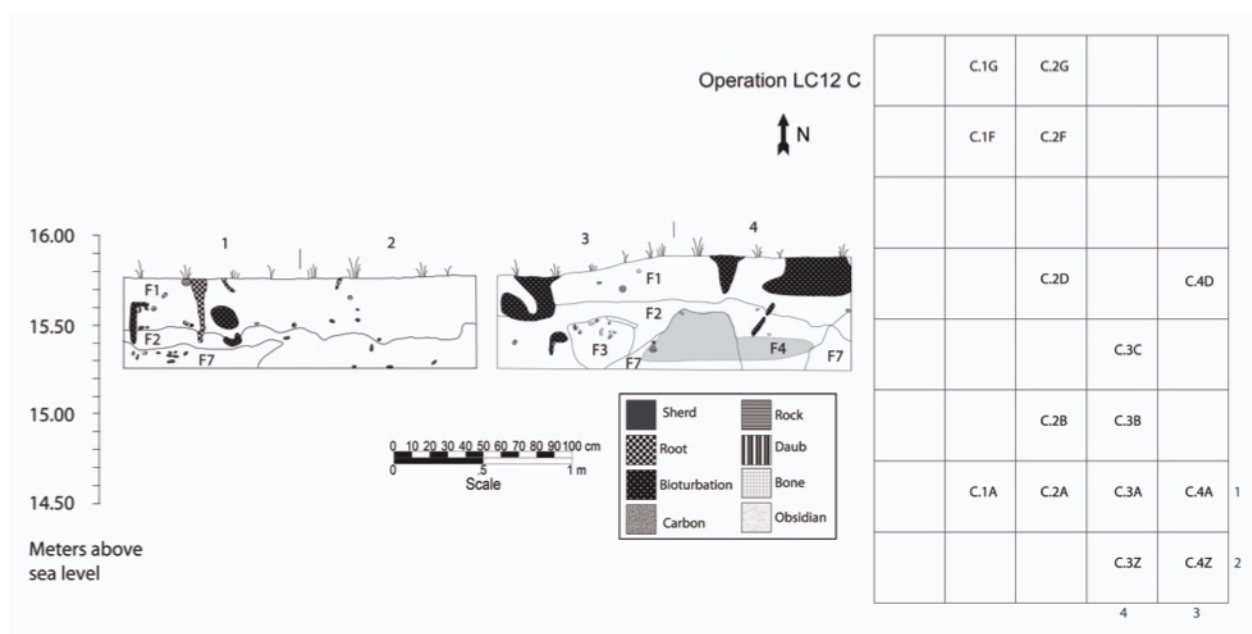


Figure 4.37: Op. LC12 C excavation profile (Units C.3Z, C.4A, and C.4Z)

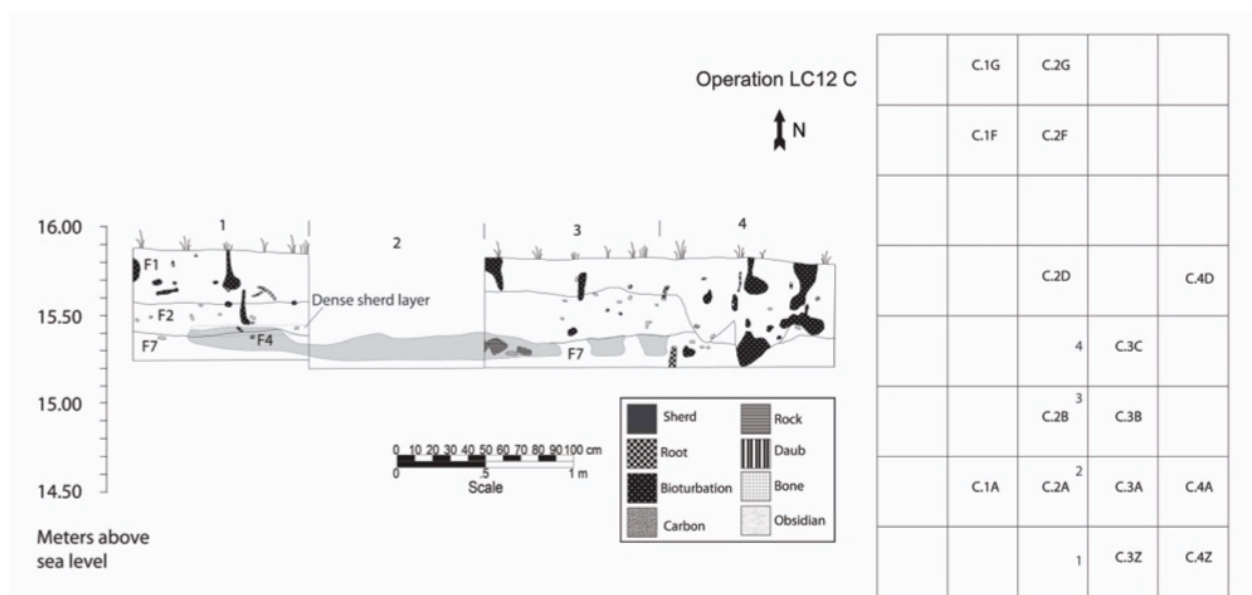


Figure 4.38: Op. LC12 C excavation profile (Units C.3A, C.3B, C.3C, and C.3Z)

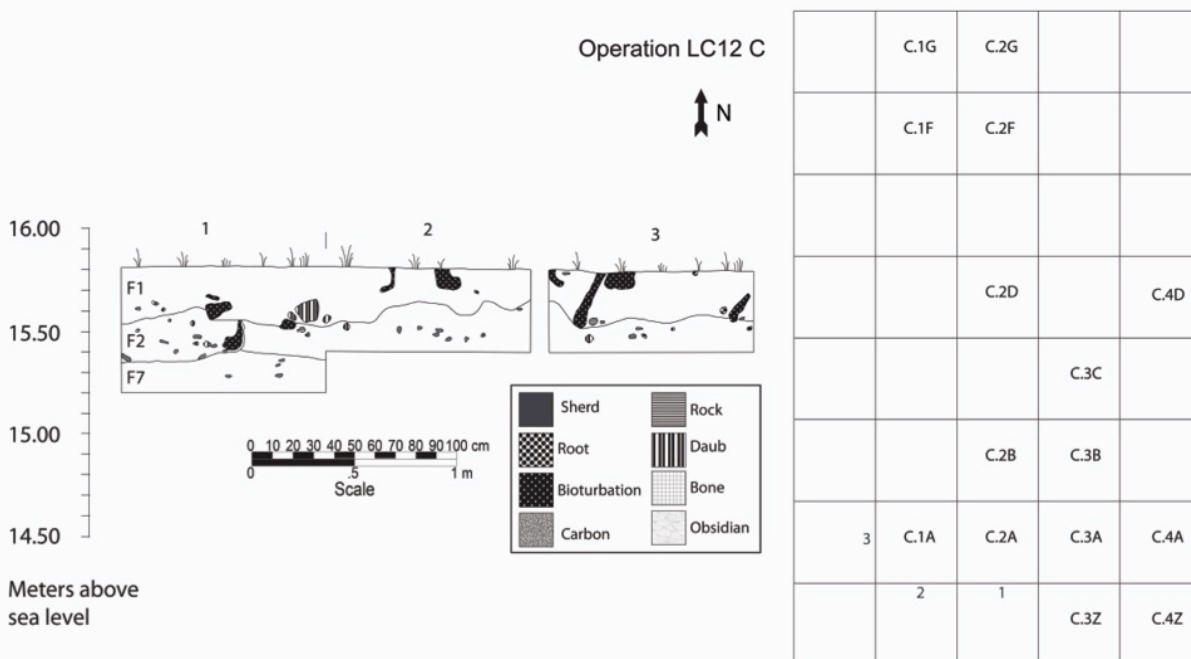


Figure 4.39: Op. LC12 C excavation profile (Units C.1A and C.2A)

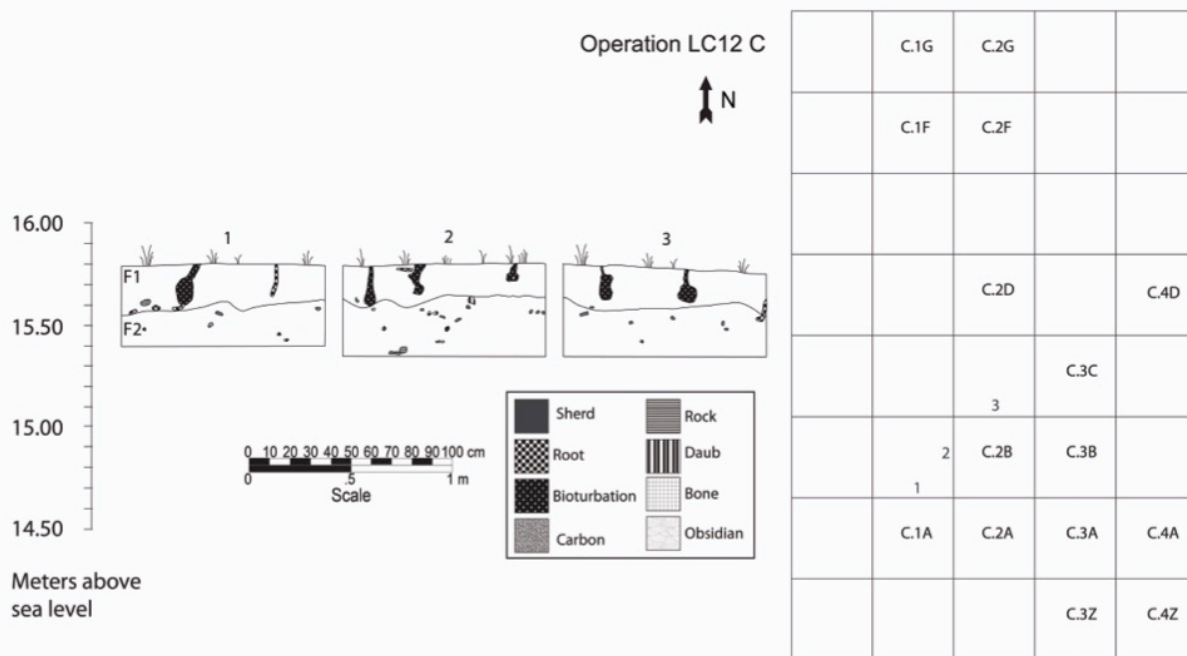


Figure 4.40: Op. LC12 C excavation profile (Units C.1A and C.2B)

Op. LC12 D was a 2 x 2 m excavation area at the northeastern edge of Substructure 2, in an area where Platform 1 is low and nearly even with the modern alluvial plain (Figure 3.5). The purpose of these excavations was to try to recover stratified midden deposits associated with domestic areas atop Substructure 2. In all, two penetrating 1 x 1 m units, totaling 6.1 m³ in volume, were excavated at this operation. Excavation uncovered thin sheets of midden containing ceramic fragments and faunal remains such as bone and shell.

Table 4.6: Description of natural strata and features from Op. LC12 D (see Figures 4.41–4.42)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	10YR 3/3 Silty clay loam	Formative – Modern	Modern soil formed in occupational debris	Extensive root activity and modern soil formation. Dark humus staining.
F2	7.5YR 4/4 Clay loam	Early Formative	Occupational debris/fill	Similar to F1, but with fewer roots and a less blocky texture. May be the B-horizon of the modern soil. Color looks gray.
F3-s1	10YR 5/6 Clay	Early Formative	Fill	Well-sorted fill with intrusions and some root activity.
F3-s2	5YR 5/6 Clay loam	Early Formative	Inclusion of ceramics and daub	Small yellowish red deposit of dense ceramic and daub fragments within F3-s1.
F4	10YR 4/3 Gritty, silty clay	Early Formative	Shell-rich fill deposit	Thin band of probable resurfacing fill with shell mixed into sediment. F5 is intrusive into this deposit.
F5	10YR 5/4 Shell dump	Early Formative	Fill consisting of crushed shell in a pit	Pit intrusive into F4 with extremely dense shell content. Very little sediment besides crushed shell.

F6	7.5YR 5/6 Sandy clay loam	Early Formative	Fill	Small deposit containing mineral concretions and granodiorite. May represent a basket of fill from a different source.
F7	5YR 5/6 Gritty, silty clay loam	Early Formative	Fill	Layer of well-mixed, loose fill. Only subtly different from F9.
F8	10YR 4/4 Sandy clay loam	Early Formative	Possible occupational surface	Thin probable occupation surface with grayish color, likely from ash staining. Compact and contains stones. May also represent minor hearth-cleaning episode. Probable sheet midden atop deposit.
F9	7.5YR 5/6 Gritty, silty clay	Early Formative	Fill	Only subtly different from F7, with a gradual transition between the two. More compact in texture than F7. Probable sheet midden atop deposit.
F10-s1	10YR 5/4 Sandy loam	Early Formative	Fill	Deposit of well-sorted fill with few or no roots.
F10-s2	10YR 4/4 Sandy loam	Early Formative	Probable occupation surface	Probable occupational surface atop F10-s1. Contains same sediment as F10-s1, but is grayer in color due to ash and carbon. Contains gravel. Probable sheet midden atop deposit.
F11	10YR 5/4 Silty loam	Early Formative	Fill	Very loose fill layer mixed with natural river sand. Probable sheet midden atop deposit.
N1	10YR 5/4 River sand	Early Formative	Natural river sand	Natural river sand deposited between F11 and F10-s1. Gray and black flecks mottle color. Medium grain size. Perhaps resulting from a strong flood or hurricane.

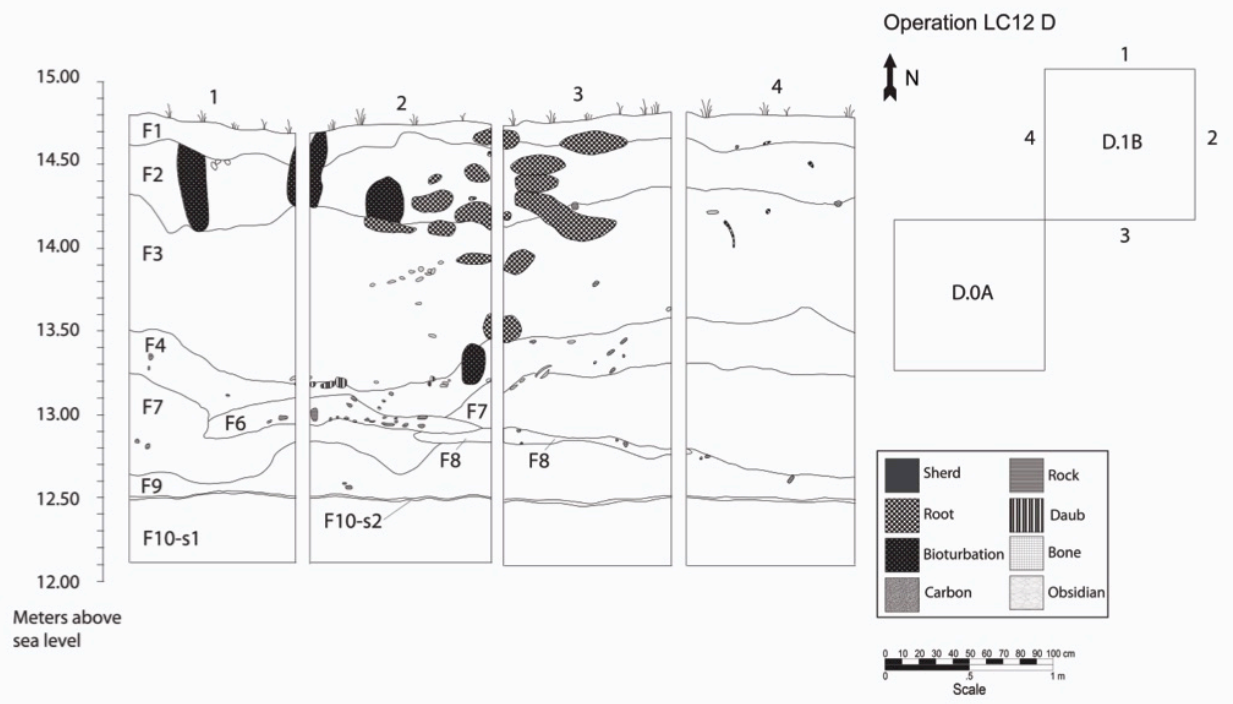


Figure 4.41: Op. LC12 D excavation profile (Unit D.1B)

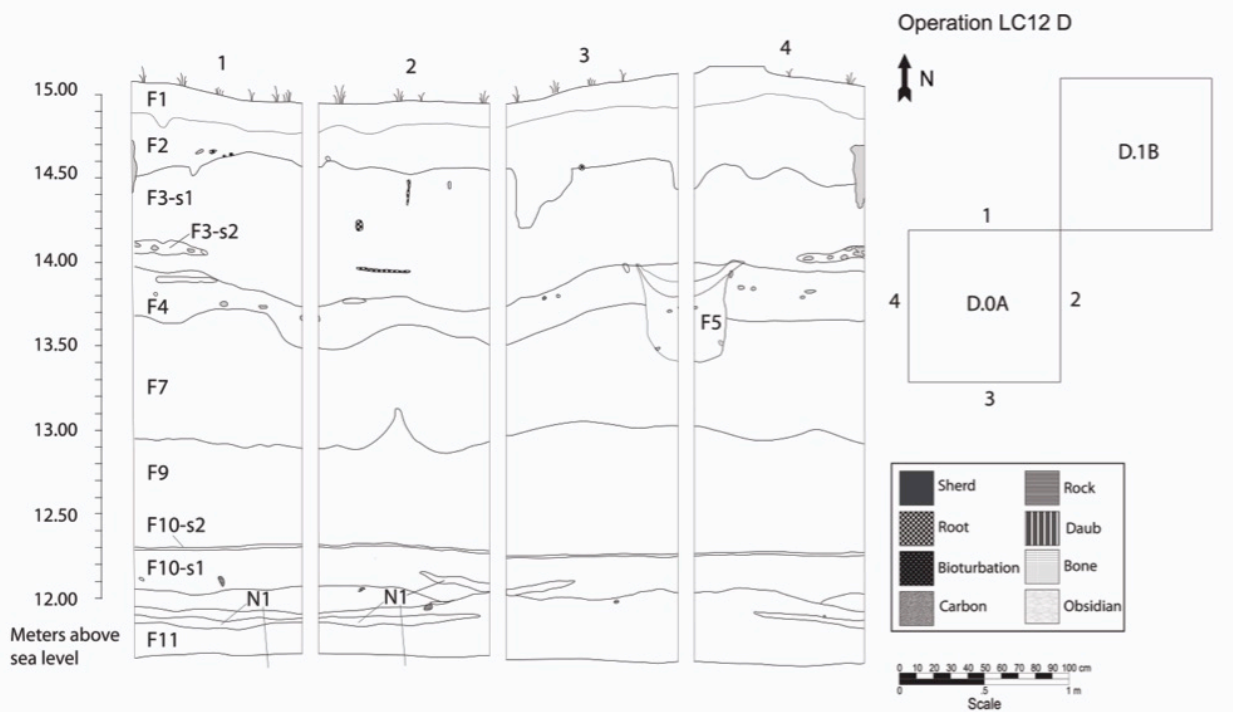


Figure 4.42: Op. LC12 D excavation profile (Unit D.0A)

Op. LC12 E, like Op. LC12 D, began as a simple 2 x 2 m excavation area at the northern edge of Substructure 2, somewhat upslope on Platform 1 and between Substructures 2 and 3 (Figure 3.5). This operation was repeatedly expanded because the research team located a stratified midden with dense shell lenses and an ashy matrix. Though this midden is not located at the edge of Platform 1, its position between two substructure mounds indicates that it may relate to events that took place on one or both of those features. Its overall size and the presence of decorated ceramic vessel fragments (see Appendix 2), tend to suggest communal feasting as the source of the deposit, rather than domestic activities (*for discussions of feasting, see Clark and Blake 1994; Chapters VI and VII; Appendix 2*). Ceramic vessel and figurine fragments indicate that the majority of these deposits date to very early in the occupational history of the site (see Appendix 1). A figurine (Figure 7.19) found in Feature E-F10 for example, may be similar, especially in the form of its eyes, to slightly later Cruz A phase figurines from highland Oaxaca (Jeffrey Blomster, personal communication 2015). The ceramics from around and above this figurine are all initial Early Formative period burnished wares. After exploring this midden, excavations at LC12 E expanded to the west to ascertain the relationship of the midden to a thin stratum filled with bright orange daub that may have come from a structure located slightly upslope and to the west (E-F4). In this western extension of the operation, the research team uncovered architectural evidence in the form of daub wall-fall with wattle impressions. Ceramic evidence suggests that this shallower deposit dates to slightly later in the occupation of the site. In all, eleven 1 x 1 m units were excavated in this operation. These units totaled 18.4 m³ in volume.

Table 4.7: Description of natural strata and features from Op. LC12 E (see Figures 4.43–4.50)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	10YR 3/2 Silty clay	Formative – Modern	Modern soil formed in occupational debris	Extensive root activity and modern soil formation. Dark humus staining.
F2	10YR 3/2 Silty clay	Formative – Modern	Modern soil formed in occupational debris	Decreased root activity and modern surface formation.
F3	10YR 5/6 or 10YR 5/4 Sandy clay	Early Formative	Fill	Fill with less root activity than F1 and F2. Contains dense ceramic deposits and some stones. Also contains probably natural intrusions.
F4	10YR 5/4 or 10YR 5/8 Sandy clay loam	Early Formative	Fill containing architectural debris	Fill layer containing a large quantity of daub. Also contains dense ceramic deposits near interface with F3, especially in Units -5.A and -6.Z.
F5	10YR 6/6 Silty clay	Late Early Formative	Fill within a possible intrusive pit	Fill within a possible pit intrusive into F4. May have been an animal burrow.
F6	10YR 5/6 Sandy clay	Late Early Formative	Possible floor with wall fall	Thin layer of sandy clay with large, possibly <i>in situ</i> sections of daub from wall fall. May be a floor of a collapsed structure. Likely associated with F4.
F7	10YR 5/8 Clay	Late Early Formative	Probable floor	Floor or narrow band of fill below occupational surface. May represent floor below wall fall. Contains shell.

F8	10YR 6/4 Clay	Early Formative	Possible floor or fill below F7	Fill below occupational surface. May represent earlier floor. Contains shell. Lenses of daub may suggest previous construction phases.
F9-s1	10YR 6/3 Sandy clay with shell	Early Formative	Midden deposit	Thick, ashy layer containing decorated vessel fragments, animal bone, and dense shell lenses (F9-s2).
F9-s2	2.5Y 6/4 Silty clay loam with shell	Early Formative	Midden deposit	Dense lenses of ash and shell within midden deposit.
F9-s3	7.5YR 6/4 Sandy loam	Early Formative	Midden deposit	Small midden substratum with daub.
F9-s4	10YR 6/4 Silty loam	Early Formative	Midden deposit	Small, ashy midden substratum.
F10	10YR 6/3 Silty clay loam with shell	Early Formative (1880–1641 cal B.C.)	Possible hearth or shell dump	Dense deposit of shell and ash in possible hearth intrusive into F11. Anthropomorphic figurine (Figure 7.19) found in this deposit.
F11-s1	10YR 6/3 Sandy clay formed into concretion	Early Formative	Calcium concretion formed within midden	Stratum of midden that has formed into a hard calcium concretion, perhaps due to water percolating through ash and shell. Seems to cap much of the deeper midden in the area. May result from same formation processes as F11-s3.
F11-s2	10YR 6/6 Sandy clay	Early Formative	Midden deposit	Small deposit within F11. May represent small filling episode or even sandy fill used to cover midden for hygienic reasons.

F11-s3	10YR 6/3 Sandy clay formed into concretion	Early Formative	Calcium concretion within midden	Small pockets of calcium-rich concretion within midden deposit. May result from same formation processes as F11-s1. Not visible in profiles.
F11-s4	10YR 6/4 Sandy clay loam	Early Formative	Midden deposit	Stratum of midden with shell and ash. Below F11-s1 cap of calcium concretion.
F12	10YR 6/3 Sandy loam	Early Formative	Midden deposit	Stratum of midden with shell and ash. Contains fired daub.
F13	10YR 6/4 Silty clay loam	Early Formative	Midden deposit	Stratum of midden with shell, ash, and stones.
F14	10YR 6/4 Clay or silty clay loam	Early Formative	Midden deposit	Stratum of midden with shell, ash, and carbon flecking. Varies in consistency from clay to silty clay loam.
F15	10YR 6/3 Clay	Early Formative	Midden deposit	Stratum of midden with shell, ash, and carbon flecking. Not visible in profiles.
F16	10YR 5/6 Silty clay with sand	Early Formative	Midden deposit	Stratum of midden with shell, ash, and carbon flecking. Slightly sandier than F14.

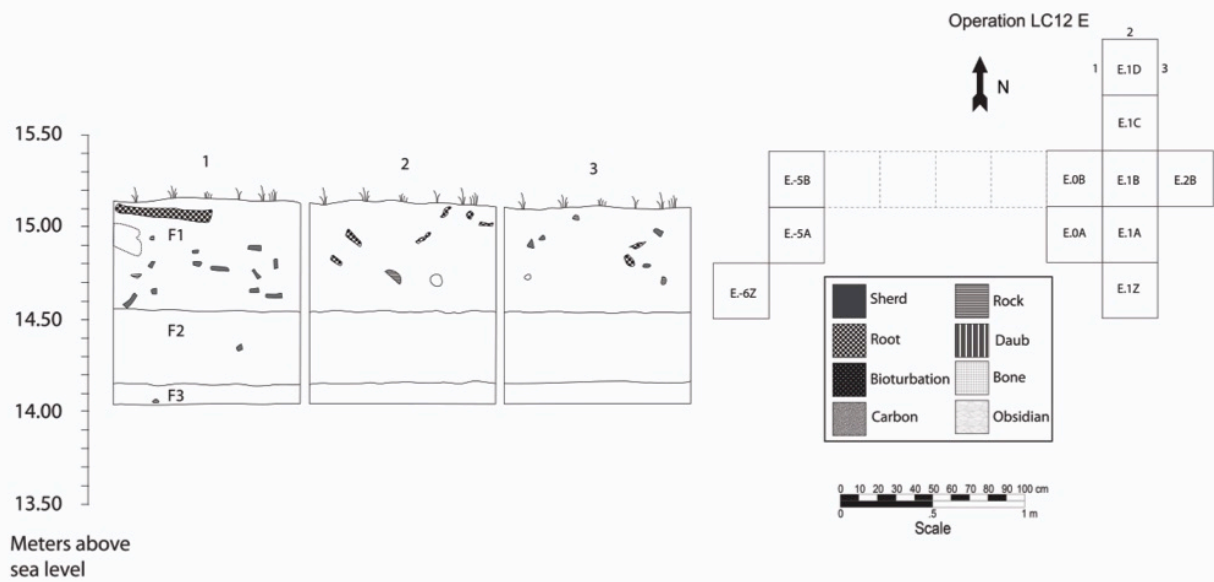


Figure 4.43: Op. LC12 E excavation profile (Unit E.1D)

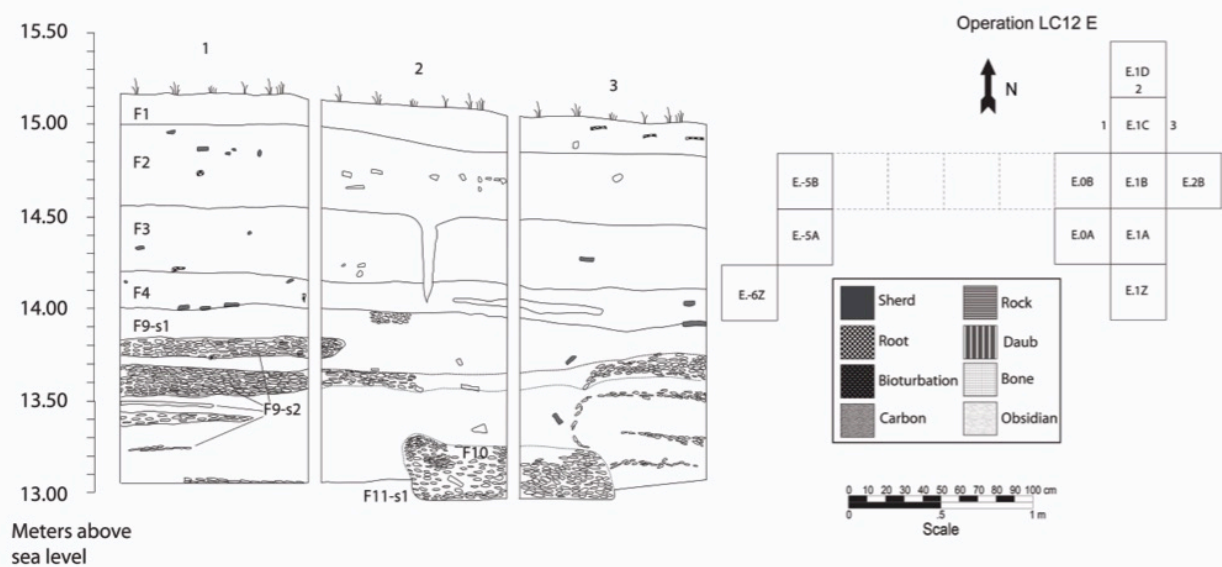


Figure 4.44: Op. LC12 E excavation profile (Unit E.1C)

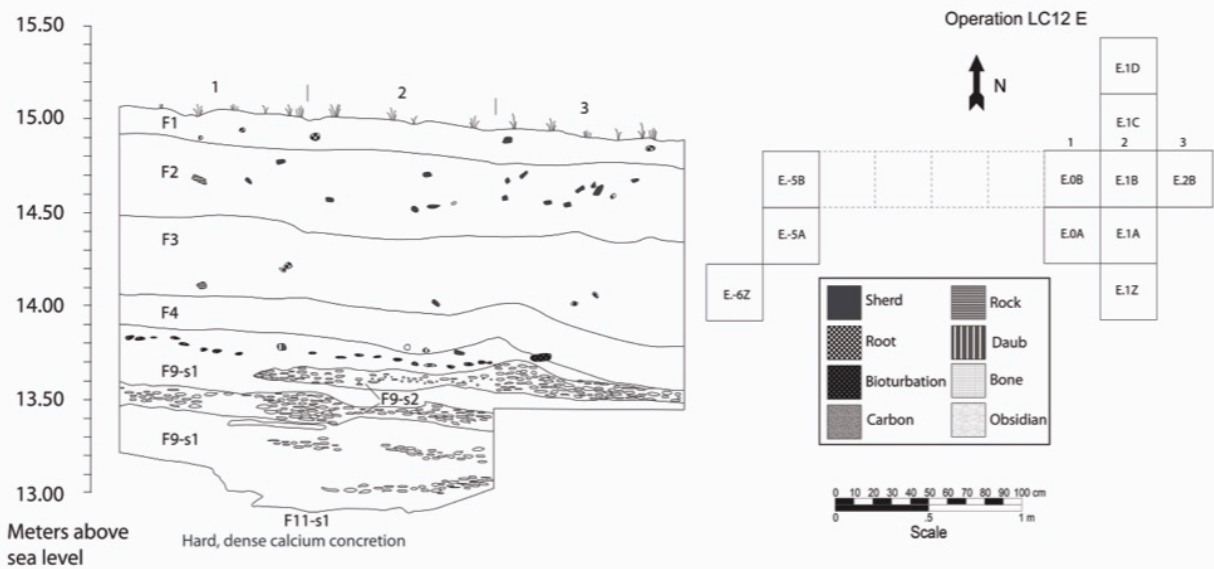


Figure 4.45: Op. LC12 E excavation profile (Units E.0B, E.1B, and E.2B)

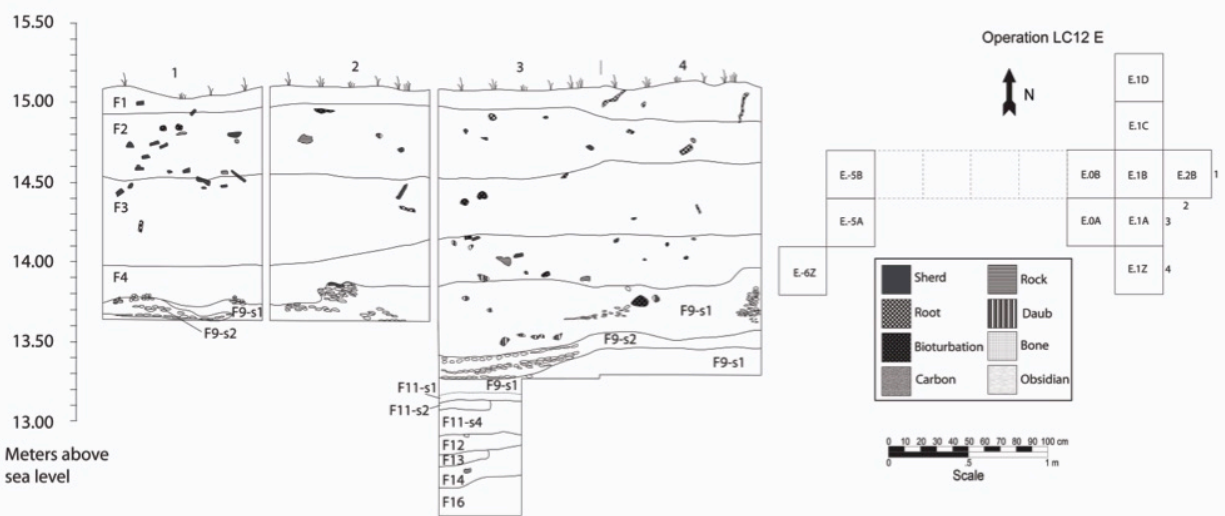


Figure 4.46: Op. LC12 E excavation profile (Units E.1A, E.1Z, and E.2B)

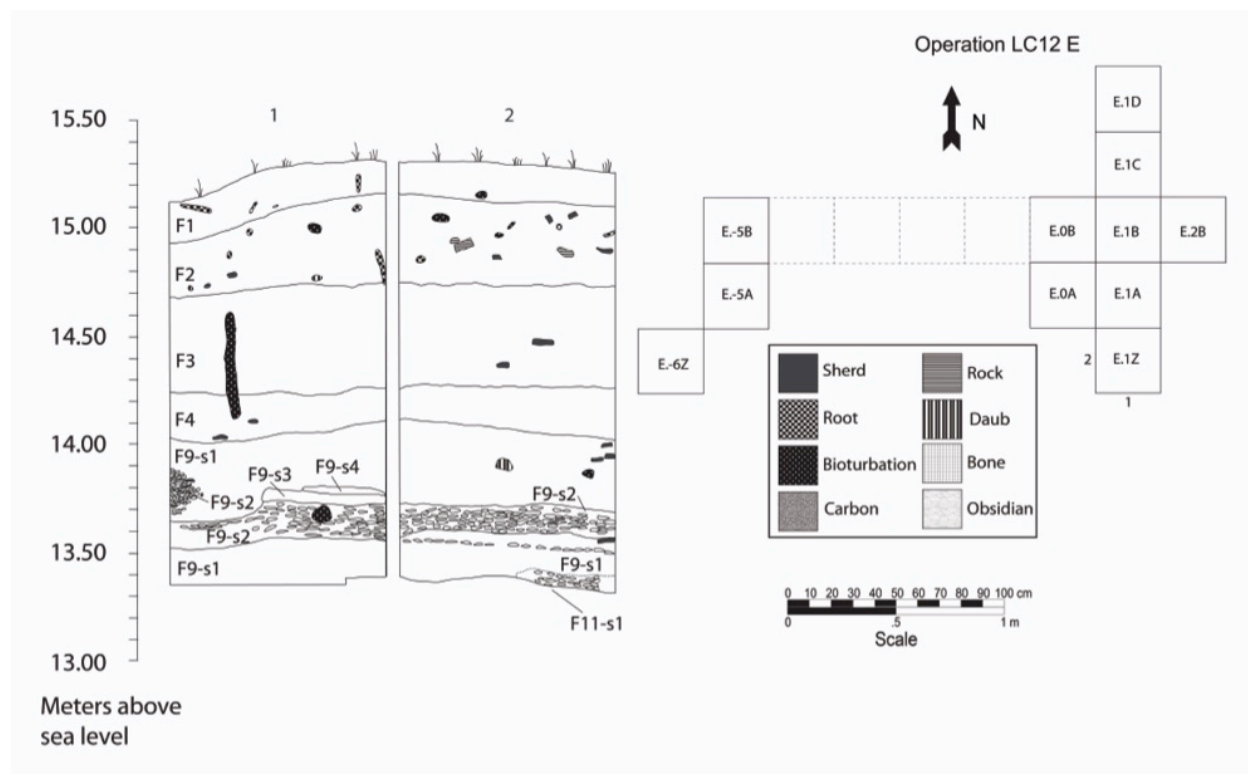


Figure 4.47: Op. LC12 E excavation profile (Unit E.1Z)

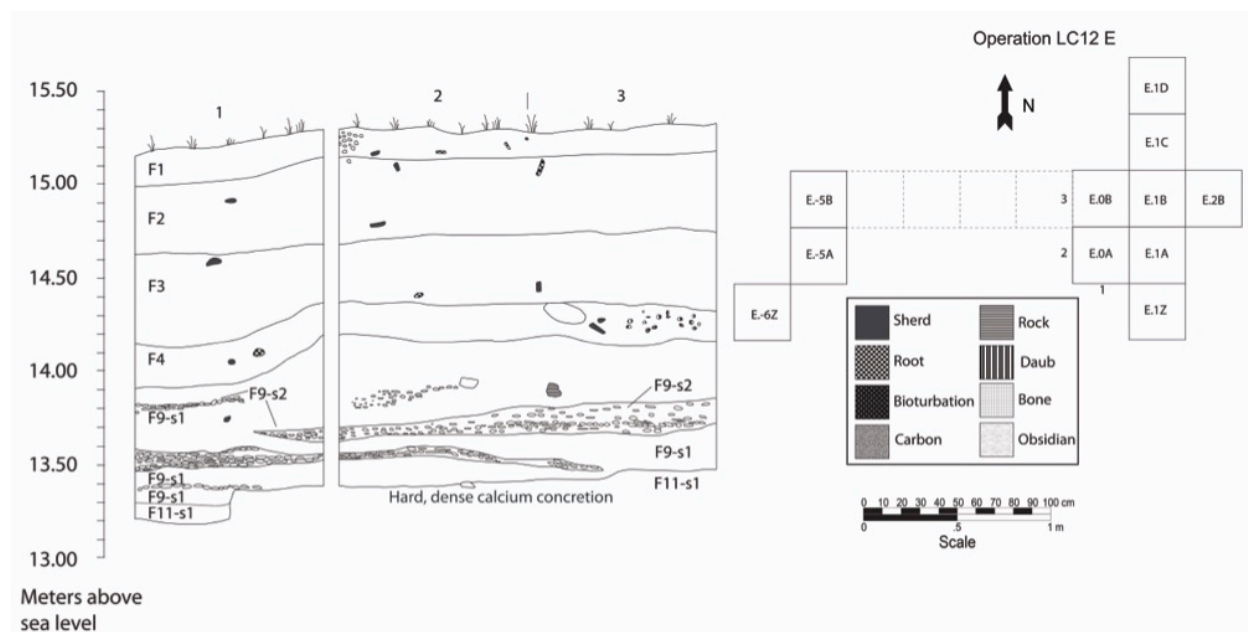


Figure 4.48: Op. LC12 E excavation profile (Units E.0A and E.0B)

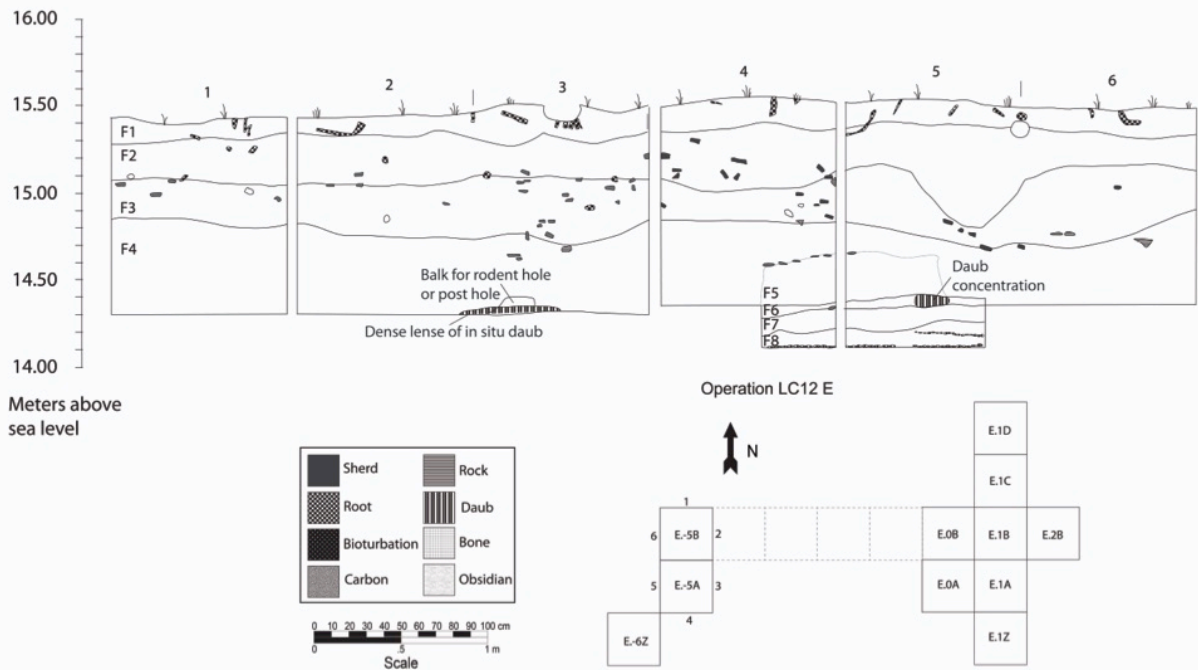


Figure 4.49: Op. LC12 E excavation profile (Units E.-5A and E.-5B)

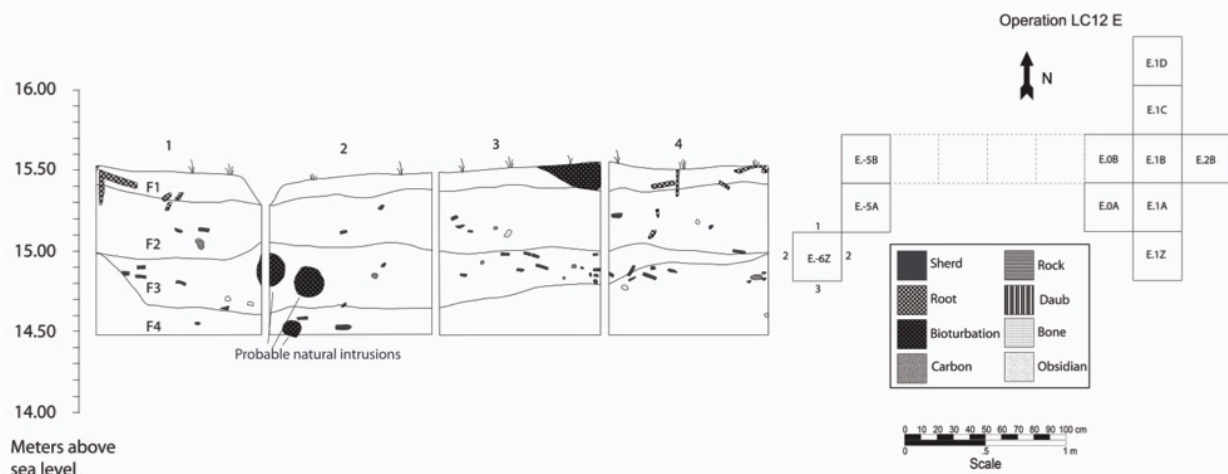


Figure 4.50: Op. LC12 E excavation profile (Unit E.-6Z)

Op. LC12 F was similar in its initial intended purpose to LC12 D and LC12 E. At the western edge of Substructure 2, the excavation team searched for stratified midden deposits with one 1 x 1 m unit totaling 2.7 m³ in volume. Though a dense deposit of ceramic artifacts was recovered here, the sherds were mostly eroded and were thus deemed likely redeposited. The excavated column of LC12 F demonstrates fill layers used to build a central portion of Platform 1 at the base of Substructure 2.

Table 4.8: Description of natural strata and features from Op. LC12 F (see Figure 4.51)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	10YR 5/3 Silty clay	Formative – Modern	Modern soil formed in occupational debris	Modern surface soil forming in F2 fill. Large deposits of ash likely represent modern burning event at the surface. Root activity and bioturbation significant. High artifact density and diversity, even at surface.
F2	10YR 4/3 Silty clay	Formative period	Fill	Likely uppermost layer of fill within which F1 has formed. Semi-compact sediment. Surface root activity continues. Increased artifact content in comparison to F1.
F3	10YR 4/4 Silty clay	Formative period	Fill	Compact sediment with stone and ceramics. Thicker fill deposit. High artifact density.
F4	10YR 5/4 Silty clay	Formative period	Fill with possible occupational surface	Thin fill layer. Artifacts at F4 interface with F3 likely represent occupation layer before subsequent fill episode. High artifact density.
F5	10YR 6/8 Clay	Formative period	Fill	Thick fill deposit with low artifact density.

F6	10YR 5/8 Clay	Formative period	Fill	Clay layer with some stone and calcium concretions. Likely initial fill deposit for Platform 1 in this area.
N1	10YR 7/2 Sand	Early Formative or earlier	Natural river deposit	Natural fluvial sand below fill deposits. Grayer in color than N2. Low artifact density.
N2	10YR 4/6 Sand	Early Formative or earlier	Natural river deposit	Natural fluvial sand. More yellow in color than N1. Culturally sterile by the bottom of excavation.

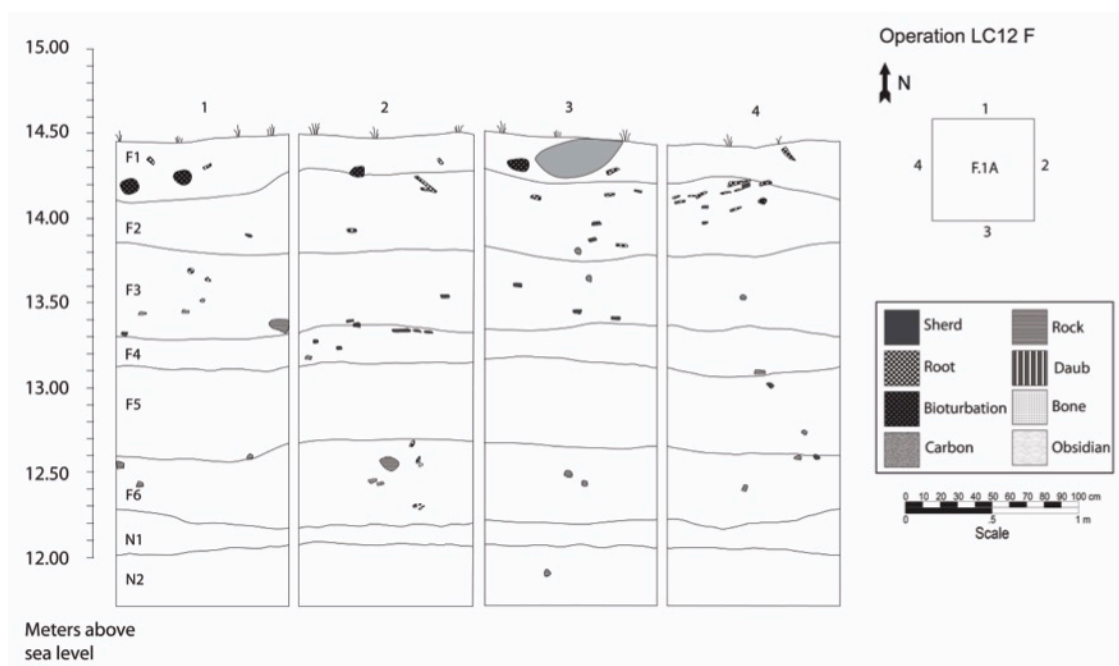


Figure 4.51: Op. LC12 F excavation profile (Unit F.0A)

Op. LC12 G was planned as a 5 x 7 m shallow, horizontal excavation at the southern end of Substructure 2 (Figure 3.5). Because the floor and several floor features from a probable domestic structure (hereafter termed Structure 2) were identified in this operation (see Figures 5.4–5.6), the excavation area was extended to the west and north. Twenty shallow 1 x 1 m units were excavated in this area, totaling 10.7 m³ in volume. Ceramic evidence, including vessel fragments and part of a probable effigy vessel (Figure 7.27), suggests that the structure was

occupied shortly before Formative period site abandonment (refer to Appendix 1 for a discussion of subtle change over time in Tlacuache phase ceramics).

Table 4.9: Description of natural strata and features from Op. LC12 G (see Figures 4.52–4.57)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	10YR 3/2 Silty loam	Formative – Modern	Modern soil formed in occupational debris	Modern surface soil overlying F16 fill stratum. Root activity and bioturbation significant. Relatively high artifact density.
F2	10YR 4/3 Clay with darker, organic staining	Formative period	Earthen floor	Stained and compacted earthen floor of small (approximately 3 x 3 m) probable residential structure. Several pit features with charcoal staining, ceramics, obsidian, and a few stones penetrate F2. Pit features and probable postholes extend below floor. Only a limited section visible in stratigraphic profile. See Figure 5.6 for complete plan and profile drawings. Associated with Structure 2.
F3	10YR 4/3 Clay with charcoal staining	Formative period	Pit feature in F2 floor	Pit feature dug into F2 floor. Fill within pit more charcoal stained than floor, but composed of similar material. Contained a few stones, ceramics, and one piece of bone.

F4	10YR 4/3 Clay with darker, organic staining and stones	Formative period	Pit feature in F2 floor	Pit feature dug into F2 floor. Fill within pit contained stones at top of feature. Contained charcoal staining, a few ceramics, and a ground stone fragment.
F5	10YR 4/3 Clay with charcoal staining	Formative period	Pit feature or entryway at edge of F2 floor	Feature dug into F2 floor. Fill within pit more darkly charcoal stained than surrounding sediments. Contained several alluvial pebbles and a few ceramic fragments. Had ridge of yellowish brown sediment at center/bottom of feature. Possible entryway, based on location.
F6	10YR 4/3 Clay with charcoal staining	Formative period	Pit feature in F2 floor	Pit feature dug into F2 floor. Slightly more charcoal stained than floor. Contained a few ceramics and no stones.
F7	10YR 4/3 Clay with darker, organic staining	Formative period	Pit feature in F2 floor	Pit feature dug into F2 floor. Fill of feature same as overlying floor fill, but slightly darker in color. Contained a few ceramics and bones, but no stone.
F8	10YR 4/3 Clay with charcoal staining	Formative period	Probable pit feature in F2 floor	Probable pit feature in F2 floor. Identifiable as a circular charcoal stain. Contained a few ceramics.
F9	10YR 4/3 Clay with darker, organic staining	Formative period	Pit feature in F2 floor	Pit feature dug into F2 floor. Fill of feature slightly darker in color than adjacent floor surface. Contained a few ceramics but no stones.

F10	10YR 4/3 Clay with darker, organic staining	Formative period	Possible post hole/pit feature just outside structure	Pit feature just outside remains of domestic structure. Fill slightly more charcoal stained than surrounding sediments. Large piece of daub suggests association with architecture. Disturbed by roots. Contained a few ceramics. Possible posthole.
F11	10YR 4/3 Clay with charcoal staining	Formative period	Probable post mold	Probable post mold associated with structure. Extends below level of F2 structure floor, ranging from about 15.00-15.13 masl. Despite possible rodent and plant bioturbation, carbonized wood, generally vertical form, and positioning around edge of structure suggest status as post mold.
F12	10YR 4/3 Clay with charcoal staining	Formative period	Probable post mold	Probable post mold associated with structure. Extends below level of F2 structure floor, ranging from about 15.00-15.13 masl. Despite possible rodent and plant bioturbation, carbonized wood, generally vertical form, and positioning around edge of structure suggest status as post mold.

F13	10YR 4/3 Clay with charcoal staining	Formative period	Probable post mold	Probable post mold associated with structure. Extends below level of F2 structure floor, ranging from about 15.00-15.13 masl. Despite possible rodent and plant bioturbation, carbonized wood, generally vertical form, and positioning around edge of structure suggest status as post mold.
F14	10YR 4/3 Clay with charcoal staining	Formative period	Probable post mold	Probable post mold associated with structure. Extends below level of F2 structure floor, ranging from about 15.00-15.13 masl. Despite possible rodent and plant bioturbation, carbonized wood, generally vertical form, and positioning around edge of structure suggest status as post mold.
F15	10YR 4/3 Clay with charcoal staining	Formative period	Probable post mold	Probable post mold associated with structure. Extends below level of F2 structure floor, ranging from about 15.00-15.13 masl. Despite possible rodent and plant bioturbation, carbonized wood, generally vertical form, and positioning around edge of structure suggest status as post mold.
F16	10YR 4/3 Clay	Formative period	Fill	Uppermost Substructure 2 fill below F2 domestic structure floor. Artifact content relatively high.

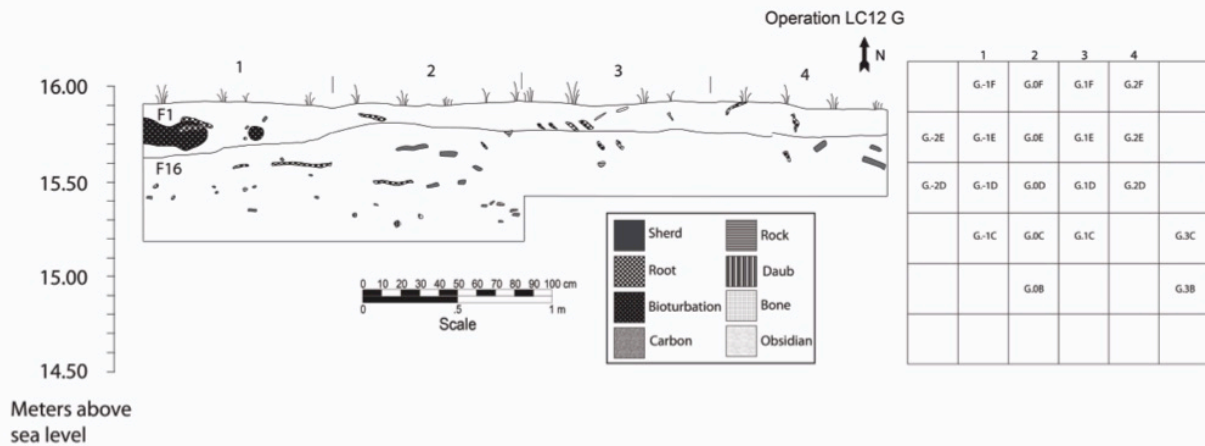


Figure 4.52: Op. LC12 G excavation profile (Units G.-1F, G.0F, G.1F, and G.2F)

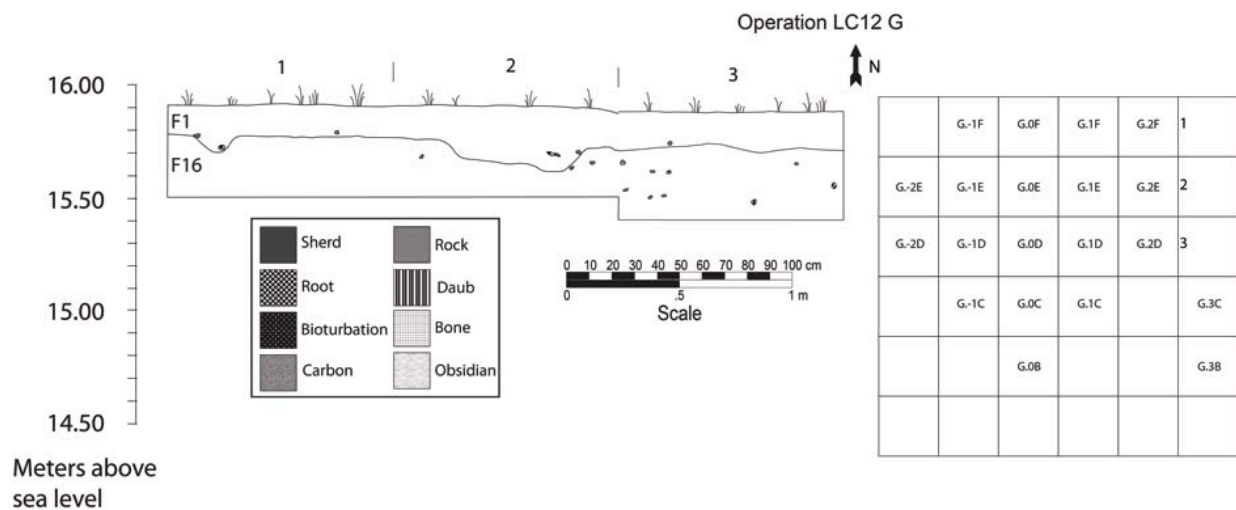


Figure 4.53: Op. LC12 G excavation profile (Units G.2D, G.2E, and G.2F)

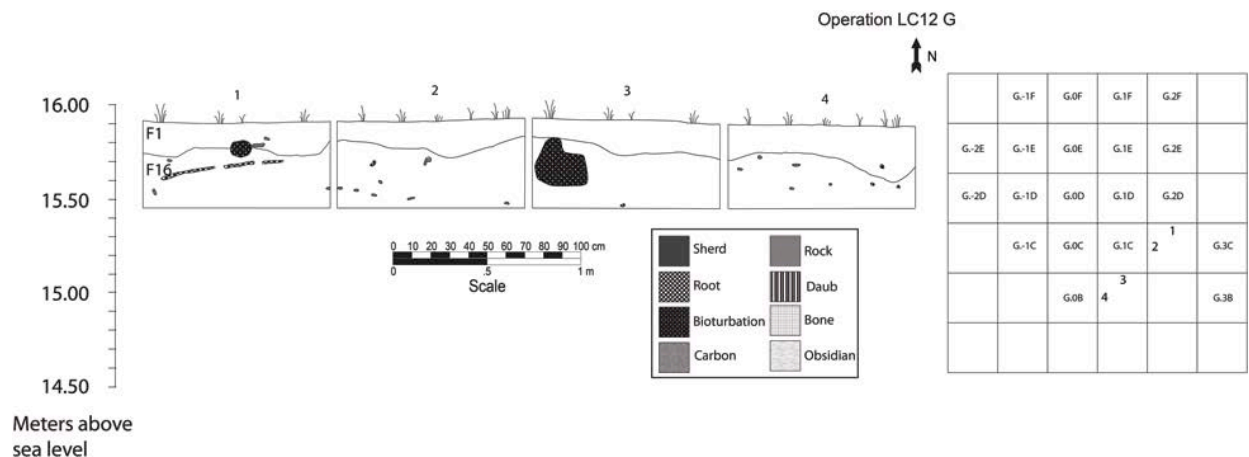


Figure 4.54: Op. LC12 G excavation profile (Units G.0B, G.1C, and G.2D)

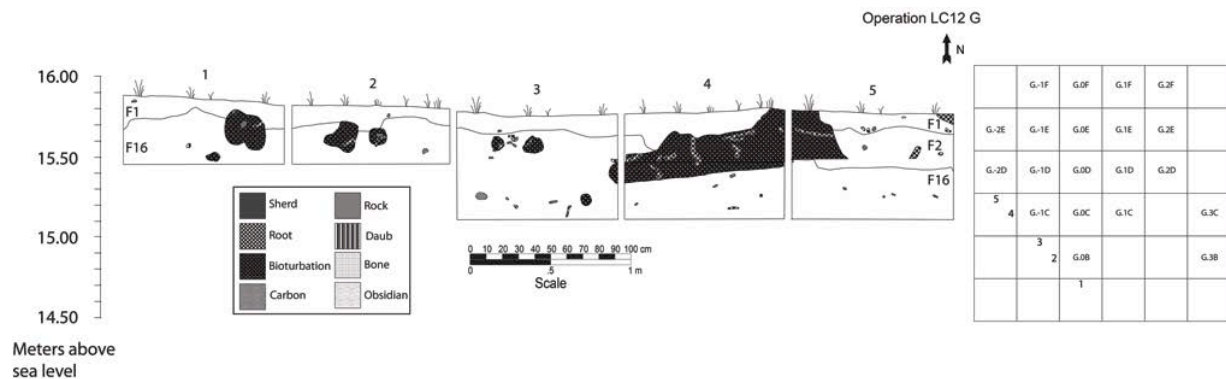


Figure 4.55: Op. LC12 G excavation profile (Units G.-2D, G.-1C, and G.0B)

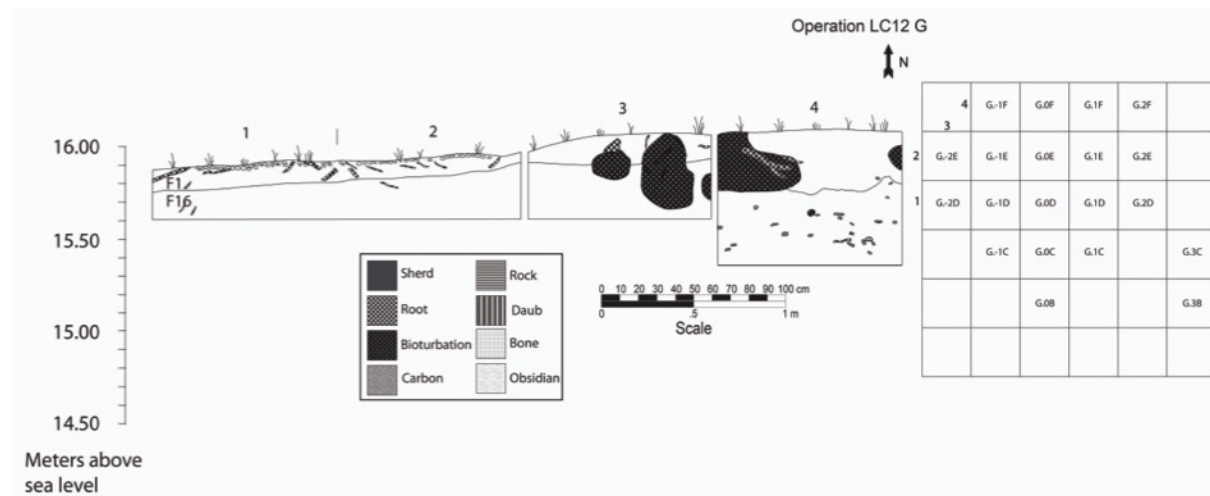


Figure 4.56: Op. LC12 G excavation profile (Units G.-2D, G.-2E, and G.-1F)

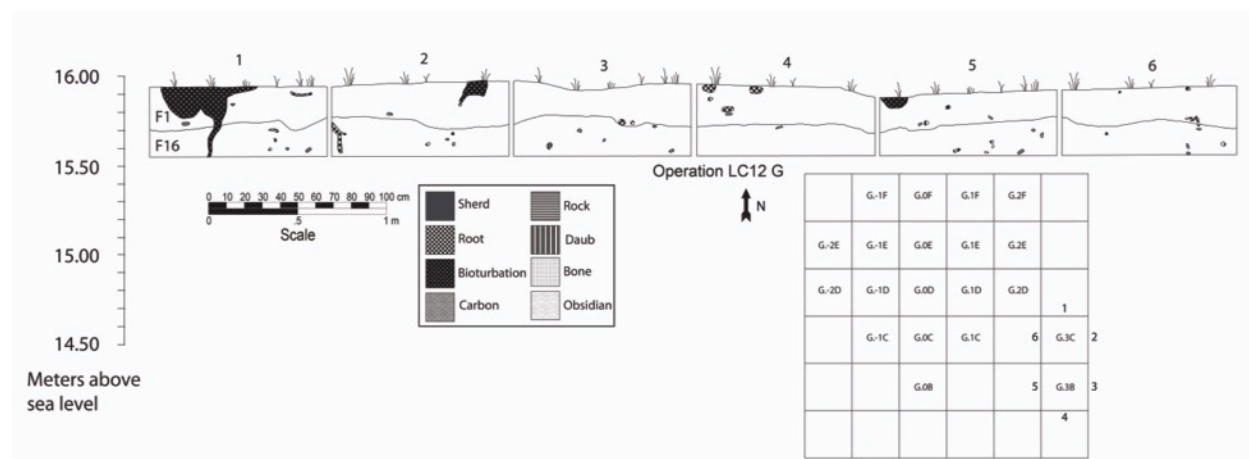


Figure 4.57: Op. LC12 G excavation profile (Units G.3B and G.3C)

Op. LC12 H was a 2 x 2 m excavation area at the base of Substructure 2, where both Platform 1 and the substructure drop off to the level of the natural floodplain. Two deep 1 x 1 m units were excavated here, demonstrating a significant depth of cultural materials below the modern alluvial plain. This circumstance likely results from the rising of the floodplain since site abandonment. These excavations totaled 5.1 m³ in volume. The high percentage of jars in the Op. LC12 H midden deposits (see Appendix 2) suggest food preparation for communal feasting events possibly associated domestic contexts located at the southern end of Substructure 2, where Op. LC12 G was excavated.

Table 4.10: Description of natural strata and features from Op. LC12 H (see Figures 4.58–4.59)

Stratum / Feature no.	Munsell color and sediment description	Probable date	Formation	Notes
F1	10YR 3/2 Silty clay loam	Formative – Modern	Modern soil formed in occupational debris	Extensive root activity and modern soil formation. Dark humus staining.
F2	10YR 4/3 Silty clay	Formative period	Fill and occupational debris	Mixing with F1. Fewer roots.
F3	10YR 4/4 Sandy clay loam with ashy inclusions	Formative period	Fill and occupational debris mixed with midden deposit	Ashy inclusions in this stratum indicate mixing with underlying F4 ashy midden deposits. Also contains some intrusions from overlying F2.
F4-s1	10YR 4/3 Ashy clay loam	Formative period	Midden deposit	Uppermost stratum to contain significant quantities of primary midden deposit. Gradually transitions to F4-s2, with a more visible divide in Unit 0A. Contains some intrusions from overlying F3.

F4-s2	2.5Y 5/2 Very ashy clay	Formative period (1876–1626 cal B.C.)	Midden deposit	Primary midden deposit with ceramics. Denser with ash and ceramics than F4-s1.
F4-s3	2.5Y 5/3 Ashy sandy clay	Formative period	Midden deposit	Primary midden deposit with ceramics. Denser with ash and ceramics than F4-s1, though with perhaps less ash and more sand than F4- s2.
N1	2.5Y 4/2 Sand	Early Formative or earlier	Natural river deposit	Natural fluvial sand below fill and midden. Culturally sterile in Unit -1Z, few artifacts in Unit 0A. Water table encountered during excavation.

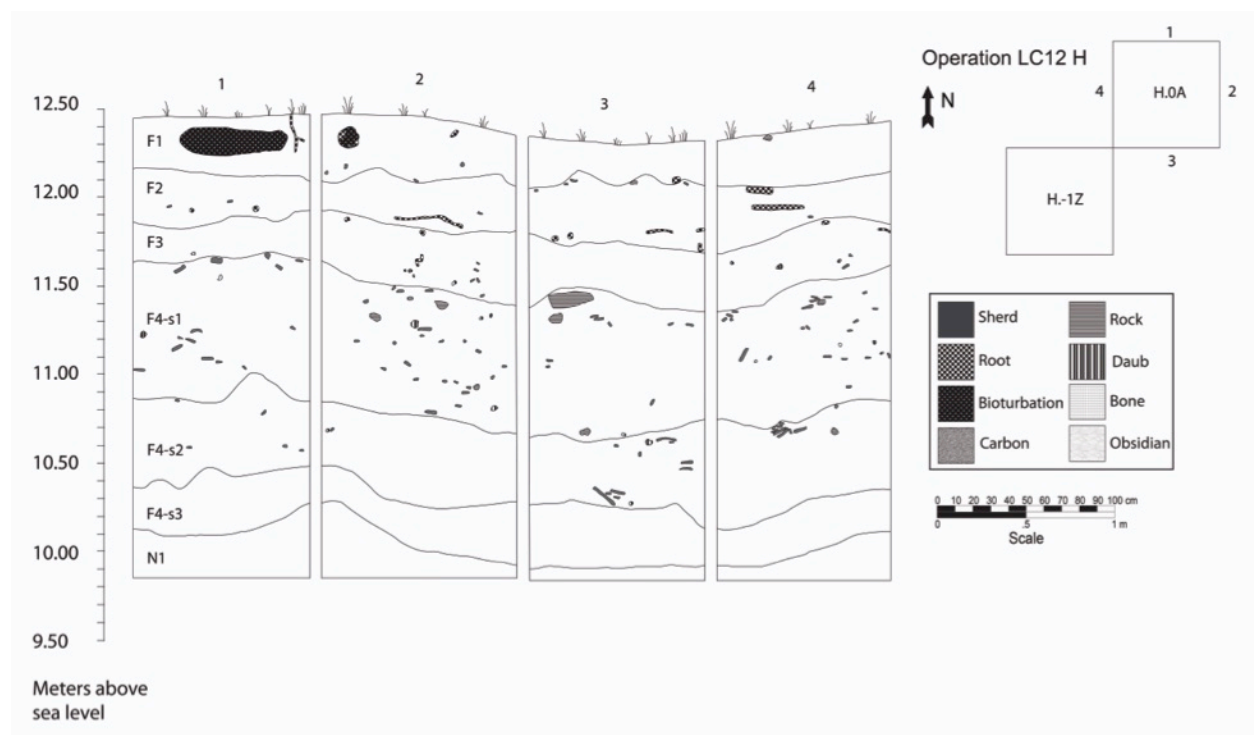


Figure 4.58: Op. LC12 H excavation profile (Unit H.0A)

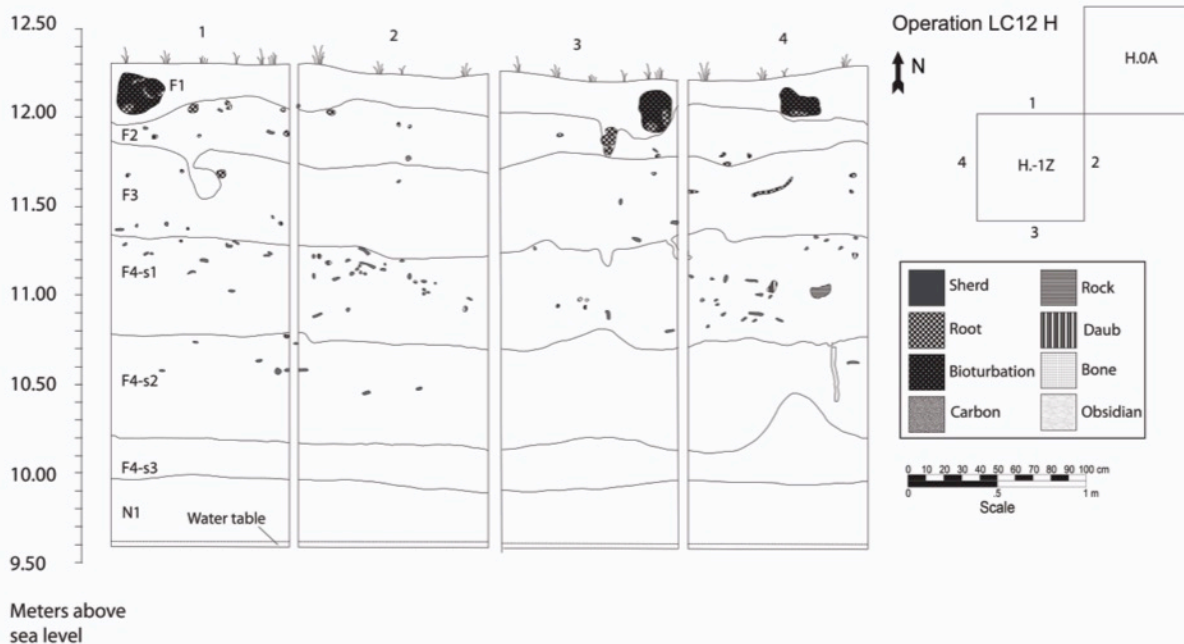


Figure 4.59: Op. LC12 H excavation profile (Unit H.-12)

In all, the 2009 and 2012 excavations at La Consentida totaled one hundred and eight 1 x 1 m units, and a single .5 x 1 m unit, in ten operations. In total, the excavations analyzed approximately 146.0 m³ of sediment. The locations of operations were selected with the goal of answering key project research questions. To examine the occupational history of La Consentida, I now turn to a chronological discussion of the deposits and features identified during excavations.

Pre-occupational stratigraphy at La Consentida

Pre-occupational strata were uncovered in Ops. LC09 A, LC09 B, LC12 A, LC12 D, LC12 F, and LC12 H, most of which were located near the edges of Platform 1. In many areas, alternating strata of natural alluvial and fluvial silt and sand (e.g., LC09 A-N1 through N3, LC09 B

N-1 through N-5, and LC12 A-N1 through A-N2) indicate the migrations of a stream across the site prior to the first stages of platform construction (Figures 4.1–4.9, 4.11, 4.18, 4.25, 4.26). These natural strata tend to occur at about two meters below modern ground surface (10–11.5 masl), depending on the depth of fill at a given location. In one area (Op. LC12 H), excavations were halted at 9.97 masl after they encountered both fluvial sands (H-N1) and the modern water table. La Consentida's natural deposits include sands of various grain sizes, indicating that the depositional force varied over time, likely as the channel of the river or stream migrated. Tiny grains of volcanic glass diagnostic of sediments transported by the Río Verde support the Río Verde's identification as the ultimate source of these materials, though it was likely a smaller stream that finally brought the sediments to La Consentida (Mueller 1991; Mueller et al. 2014). It may have been due to the unpredictable flooding and/or migration of the river that the first layers of architectural fill were constructed, thus raising the site above floodwaters. Fluvial sands at La Consentida often contain carbonized wood fragments, which have not been collected for radiocarbon dating due to the possibility that they were redeposited from earlier burning events upstream. Frequently occurring in these natural strata, and even in some of the deepest cultural strata above them, are rhizoliths, which are calcium deposits formed around the roots of ancient plants (Raymond Mueller, personal communication 2009). Ceramics and bone fragments from both the natural and the deepest cultural strata are sometimes found within similar calcium carbonate concretions.

Test auguring performed by Raymond Mueller and a field assistant helped to assess deposits below the area of some excavations (Mueller et al. 2014). An auger core below the deepest excavation in Unit LC09 B.1H, for example, identified gravel under the fluvial sand at

about 10.10 masl, indicating that deeper strata resulted from higher energy channel deposits. The auguring also identified groundwater at about 9.80 masl. At Op. LC12 A, Mueller performed sediment coring beneath an area of human burials at the very edge of Platform 1 and Substructure 1, at the boundary between Units -1R and -2R. He found fluvial sand at about 10.90 masl and groundwater at about 9.95 masl (Mueller et al 2014). The composition of the deep, natural strata in Op. LC12 A (e.g., A-N2), suggests actions of the river similar to those that produced the Op. LC09 A strata (A-N1 and A-N3) and those elsewhere at the site.

Some of the sands directly below cultural occupations at La Consentida contain a few artifacts likely brought down from shallower deposits by post-depositional processes such as bioturbation. Some artifacts were perhaps interred in natural strata through cultural processes such as excavation of sediment for use as fill material, but these cases are difficult to demonstrate and probably rare. Artifacts from the deepest contexts include a few ceramics and black or gray obsidian flakes. These artifacts are similar to those from the first identified occupation layers deposited immediately prior to, and during, initial Platform 1 construction. The earliest artifacts from the uppermost natural strata and deepest cultural strata (discussed below) included not only slipped and burnished ceramic sherds but also burned bone within calcium concretions. Though a few sherds were recovered in the river sands, these deep levels were mostly culturally sterile. The artifacts recovered at these depths are likely intrusive, though it is possible that they represent brief site occupation prior to platform construction.

Initial site occupation

The earliest occupation surfaces provide a brief glimpse of the material culture of the people who first occupied the site prior to the initial Early Formative period construction of Platform 1. In some cases, as in Ops. LC09 A and LC09 B, no clear occupational surfaces were identified between natural strata (e.g., LC09A-N1 and LC09B-N1) and subsequent platform fill (e.g., LC09 A-F5 and LC09 B-F18; see Figures 4.1–4.5 and 4.8). It is likely that areas such as the extreme western edge of Platform 1, where these operations were carried out, were not intensively occupied prior to platform construction. It is also possible that parts of the site were occupied before the construction of Platform 1, but that the river washed cultural deposits away. Though some of La Consentida's ground stone tools, such as small one-handed manos, are "Archaic period" in style (Clark et al. 2007; Winter and Mateos 2010; Winter and Sánchez Santiago 2014:10–11), it is noteworthy that no pre-ceramic or Archaic component has been conclusively identified at the site. Based on the artifacts recovered in the deepest cultural layers, it appears that the site's first occupants were already producing ceramics.

The clearest example of a pre-architectural occupational surface was uncovered in the Op. LC12 A trench, which was excavated at the northern margin of Platform 1 and Substructure 1 (Figures 3.5 and 3.9). This thin cultural zone, identified at the interface between A-N1 and the A-F19 platform fill layer, included *in situ* ceramics (including a tecomate rim), obsidian, burned daub, animal bone, and a carbon sample that awaits processing (Figures 4.25 and 4.26). This zone suggests a brief occupation atop natural sediments prior to initial construction of Platform 1. The few artifacts were lying flat, suggesting that they were deposited atop the A-N1 surface rather than within fill. Ceramics identified at this depth include highly burnished medium brown

wares with black, orange, and red slipped surfaces. They are generally representative of the earliest of the site's Tlacuache phase ceramics, and indeed of the earliest known ceramics in the entire lower Río Verde region (see Appendix 1). The ceramics were not appreciably different in their paste or surface treatment from those associated with the first phases of Platform 1 construction. The few animal bones identified on this occupational surface included a large deer vertebra (Silvia Pérez Hernández, personal communication 2014; Appendix 3).

Earliest earthen architecture: Platform 1 construction

The first levels of mounded earthen architecture (e.g., LC09 A-F5, LC09 B-F18, LC12 A-F19, D-F11, F-F6, and H-F4-s3) tended to consist of a compact, yellowish silty clay or silty clay loam fill. Due to the relative consistency of these earliest fill strata across the site, and of the redeposited artifacts they contain, it appears that Platform 1 already covered much of its greatest horizontal area by the first phase of platform construction. Some initial fill strata (e.g., LC09 A-F5) contain inclusions of granodiorite and gneiss, which are components of the region's natural bedrock, and are commonly found near the surface in coastal piedmont zones (Raymond Mueller, personal communication 2009). It is likely that the earliest fill layers at various areas of the site differ slightly in clay versus silt content because they include redeposited natural sediments that vary due to the fluvial energies of the ancient river or the position of collected sediments relative to that river. Despite these minor fluctuations, considerable uniformity in initial platform construction across a large area of the site, along with early carbon dates for various initial fill deposits, suggests settlement of a large area by an early date, and probably significant labor investment (see Tables 5.1–5.4). Artifacts associated

with early fill included slipped and burnished black, red, and orange medium or coarse brown ware pottery, essentially identical to artifacts from pre-architectural occupation surfaces in the deepest cultural layers of Op. LC12 A (see Appendices 1 and 2). Also recovered from early fill were anthropomorphic figurines, animal bone, black and gray obsidian flakes, and marine shell.

The tops of several early platform fills (e.g., LC09 A-F5) were used as occupational surfaces before being covered by further construction. Hearths (LC09 A-F4-s1 and LC09 B-F15) that intrude into initial fill layers demonstrate these early platform occupations (Figures 4.60–4.61, 4.63, and 4.64). The LC09 A-F4-s1 hearth was constructed with a circular arrangement of stones and contained burned earth and shell. The A-F4-s1 hearth was 34 cm deep and had a diameter of 125 cm. A smaller possible auxiliary hearth (A-F4-s2), located on the eastern edge of the large hearth, had a diameter of 50 cm. It is possible that A-F4-s2 was used for food preparation activities supplemental to those in A-F4-s1; similar auxiliary hearths are used today in the lower Río Verde Valley (Figure 4.62). Because this hearth intrudes into the A-F5 fill stratum (at an elevation of about 11.88–12.22 masl), its construction must have postdated initial platform construction and have been contemporaneous with occupation atop A-F5. Though few artifacts were found in direct association with A-F4-s1, several medium brown ware sherds were found in and around the hearth. One large sherd appeared either to have been a piece of construction material for making the hearth or to have become affixed in place by the burning of the A-F5 sediments composing it. Although shell is not especially common in Platform 1 fill layers, A-F4-s1 was filled with a compact shell deposit that was about 25 cm thick and was mixed with an ashy silt matrix (Figures 4.2–4.5). The AMS date for the A-F4-s1 hearth is 3482 ± 40 (AA92453; carbon-rich sediment; $\delta^{13}\text{C} = -24.0\text{‰}$) or 1904–1692 cal B.C.



Figure 4.60: LC09 A-F4-s1-s3, Units A.3B and A.4B

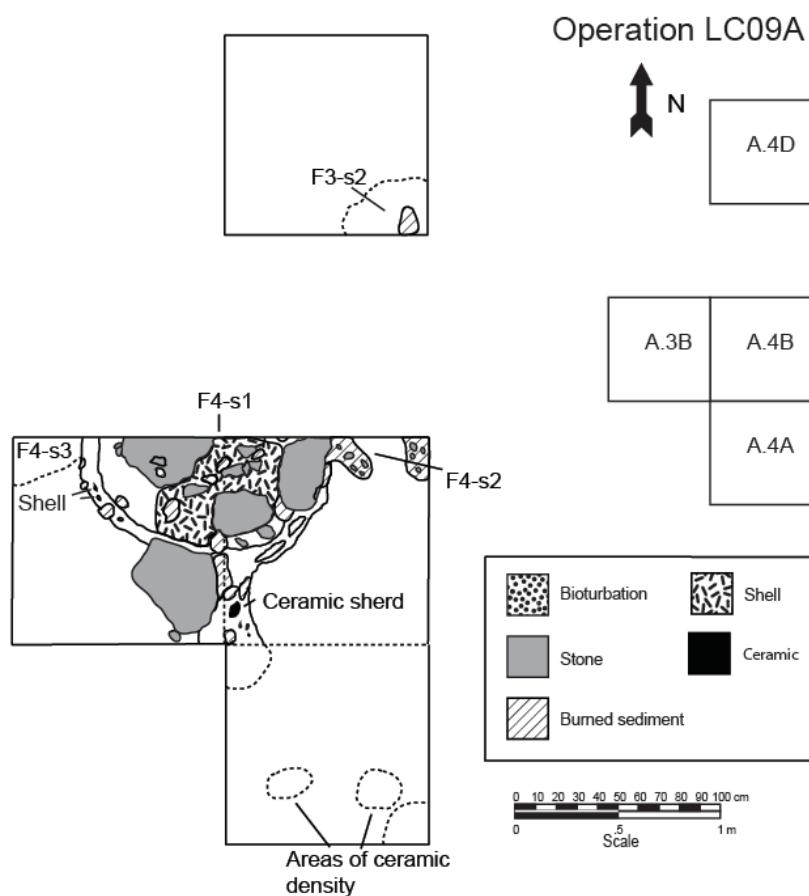


Figure 4.61: LC09 A-F4-s1 hearth plan map



Figure 4.62: A modern cooking hearth in coastal Oaxaca with a smaller side hearth attached. Formally similar to LC09 A-F4-s1 and LC09 A-F4-s2

Another hearth, similar to LC09 A-F4 but slightly postdating it based on the radiocarbon dates (see Tables 4.1 and 4.2), was identified at the northern edge of Platform 1 in the main portion of Op. LC09 B. In this area, B-F18 was likely the initial platform fill layer. B-F16 must have served as an occupational surface, as evidenced by the large B-F15 hearth (Figures 4.63 and 4.64) intrusive into it. B-F15 had something of an irregular form in its northwestern quadrant due to rocks and pieces of burned earth that may have fallen away from the rest of the hearth. This feature had a diameter of 120 cm and consisted of a circular arrangement of stones and burned sediment that may have hardened during cooking episodes. The hearth was

similar in composition, stratigraphic relationships, and perhaps function to LC09 A-F4-s1, though it lacked shell and instead contained dark, carbon-rich sediment. Because B-F15 intrudes into an early Platform 1 fill layer, it was likely constructed relatively early in site occupation. The AMS date collected for the B-F15 hearth is 3358 ± 43 (AA92454; carbon-rich sediment; $\delta^{13}\text{C} = -25.2\text{‰}$) or 1746–1530 cal B.C.



Figure 4.63: B-F15 hearth in Units 1B and 2B of Op. LC09 B.

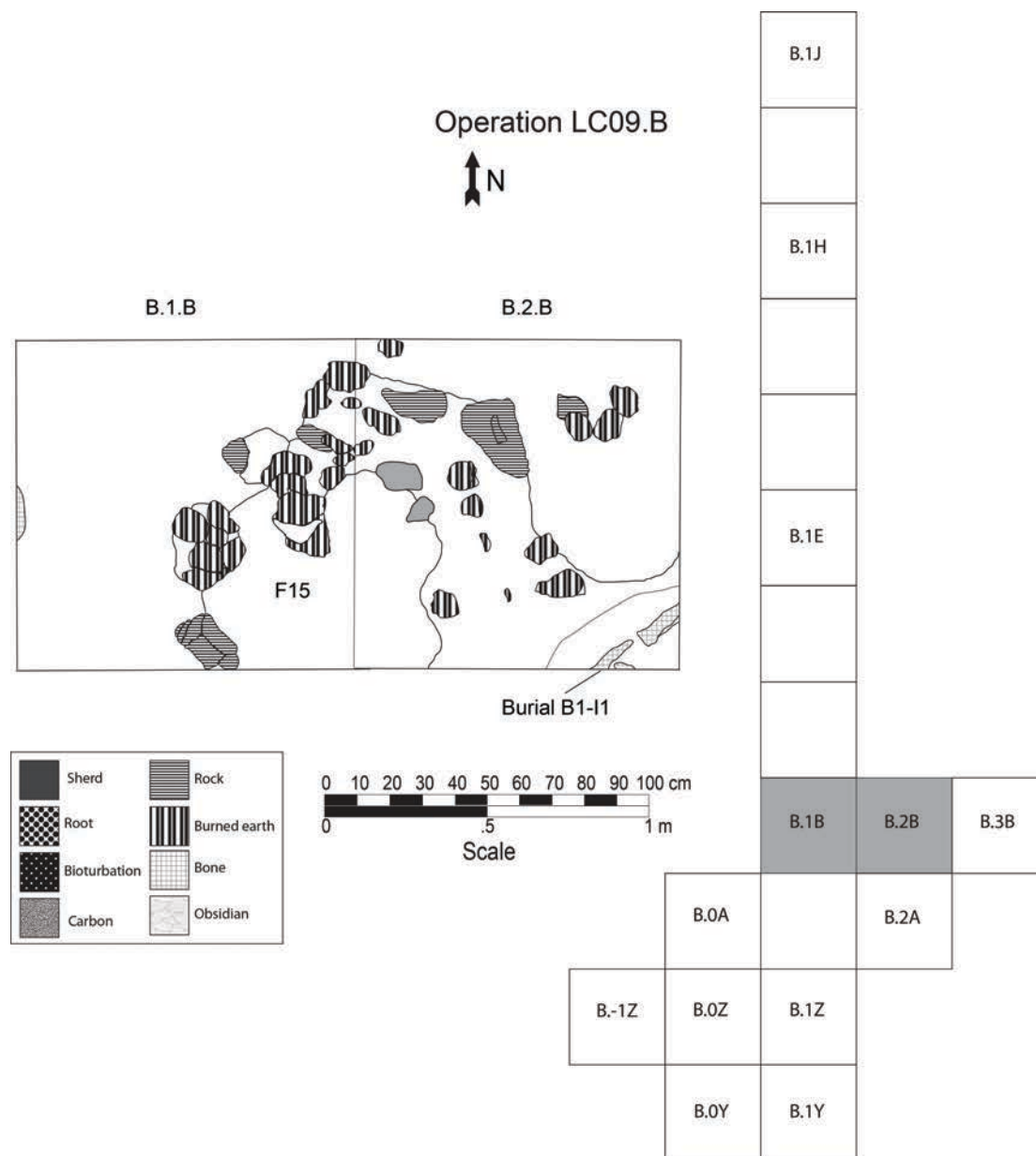


Figure 4.64: Plan map of B-F15 hearth

Early platform fill deposits uncovered in Op. LC12 A, at the northern edge of Platform 1 and Substructure 1, are similar to those in the LC09 A and LC09 B areas. At this northern operation, LC12 A-F19 was the initial stratum of platform fill. Occupation atop this layer is indicated by *in situ* refit sherds, daub, and burned animal bone at the interface between A-F16

and A-F18-s2, and is dated to 1880–1665 cal B.C. (AA101267; plant charcoal; $\delta^{13}\text{C} = -27.2\text{‰}$). In addition to providing a date for architectural construction, occupation atop A-F19 is indicative of a broad trend, wherein Platform 1 experienced sometimes-brief periods of occupation and stability between construction episodes. In terms of chronological crossties within the site, it is likely that this level was roughly contemporaneous with the LC09 A-F4 hearth.

At Op. LC12 D, the initial platform fill (D-F11) was intermingled with substrata consisting of D-N1 fluvial sands, suggesting that the river continued to flood the area or perhaps that a hurricane occurred during the initial construction of Platform 1. A narrow band of probable occupational debris (D-F10-s1) was then deposited atop D-F11. This brief occupation layer is consistent with other areas of the site, such as in Ops. LC09 A, LC09 B, and LC12 A, where fill layers topped with occupational deposits or early hearths (e.g., LC09 A-F4-s1, LC09 B-F15, and LC12 A-F19) indicate occupation of the initial platform before subsequent construction. In the area investigated by Op. LC12 F, initial Platform 1 fill (F-F6 and F-F5) consisted of dense layers of clay with low artifact density. These early fills produced some interesting artifacts, including a complete ground stone tool (FS# 8388) and an early figurine head (FS# 8309) bearing an ear spool and what may be part of a headdress or banded hairdo (see Figures 5.10 and 7.22). Because they were incorporated in the initial platform fill, these artifacts suggest an early, pre-platform occupation nearby.

In the area of Op. LC12 E, occupation in the eastern portion of Platform 1 produced a sequence of midden deposits (E-F16 through E-F9) containing ash, dense shell lenses, well-preserved animal bone, and sherds from vessels such as decorated serving bowls and bottles (see Appendices 1–3). The calcium from the shell and the ash (probably from hearth cleaning

events) likely reacted with natural rainwater percolation to produce an extremely hard concretion layer (E-F11-s1) within the midden. Though this layer appeared to have an intentionally shaped, domed form with a consistent, step-like lip, it probably resulted from natural postdepositional processes. The stratum may indicate the presence of a stable surface within these sediments, or perhaps represents the depth to which rainwater has absorbed into the sediments from subsequent overlying surfaces (see Figure 4.65).



Figure 4.65: Overview of stratum E-F11-s1, an extremely hard layer of probable calcium concretion within the Op. LC12 E midden

Intrusive into the E-F11-s1 concretion layer is a possible hearth or shell pit (E-F10). The contents of this feature returned a calibrated date of 1880–1641 cal B.C. (AA101269; carbon-

rich sediment; $\delta^{13}\text{C} = -25.5\text{‰}$). This date suggests that the Op. LC12 E area was in use at roughly the same time as the LC09 A-F4-s1 hearth and the LC12 A-F19 occupation surface. Also recovered from E-F10 was part of an anthropomorphic figurine (Figure 7.19) reminiscent of Cruz A phase examples from the Mixteca Alta (Jeffrey Blomster, personal communication 2015). Above E-F10, nearly a meter more of ashy, silty clay (E-F9) containing dense lenses of *Mitilidae* mangrove mussel shell (E-F9-s2) was deposited. In some spots, these deposits are mostly shell and contain little sediment. Ceramics found in the midden included decorated bowls and bottles (see Chapter VIII, Appendices 1 and 2, and especially Table A.2.6). The interpretation that the decorated vessels in this deposit suggest feasting is consistent with results of research elsewhere in Mesoamerica and beyond, notably regarding the Barra phase ceramics of the Soconusco region (e.g., Clark and Cheetham 2002:294; Hayden 1990; Lowe 1975; Rosenswig 2007). The presence of refitting fragments of vessels such as a decorated bottle, which were spread horizontally over four 1 x 1 m excavation units and vertically over 20 cm of sediment or more, suggests that much of this midden was deposited quickly, perhaps resulting from just a few events. Such rapid deposition of food-related garbage suggests a large, public event. The general rarity of shell at La Consentida, and the occurrence of finely finished, decorated wares in two of the contexts with the most shell (in Ops. LC12 D and LC12 E) suggest that shellfish was perhaps often a public feasting food rather than a dietary mainstay for the community. Also present in the midden (E-F9 through E-F16) were faunal remains, especially of fish (see Appendix 3).

Whereas the LC12 E midden appears to have been a product of public feasting and the use of decorated serving vessels, a small but dense midden deposit recovered in Op. LC12 H

appears to be the result of different practices (for details on the artifact and faunal discrepancies between middens refer to Appendices 1–4). Op. LC12 H was located at the base of Substructure 2, where Platform 1 meets the surrounding natural floodplain (Figure 3.5). In this area, the research team discovered the remains of a midden consisting of an ashy clay matrix and a primary deposit of broken ceramic vessels. The lowest layers of this midden (H-F4-s3) occurred at a depth of about 10.3–9.9 masl. These deposits likely date to some of the earliest occupations at La Consentida (roughly contemporaneous with the Op. LC12 E midden), and may relate to domestic contexts atop Platform 1. Besides ceramics, other finds from the deepest sediments at Op. LC12 H include a canid mandible fragment from a probable coyote (Figure 6.6), other faunal bone, a small amount of marine shell, and a few obsidian flakes (see Appendix 3).

The densest layers of the Op. LC12 H midden (F4-s1 through F4-s3) contain large cooking jars of a style similar to the Tierras Largas phase vessels from the Valley of Oaxaca (Flannery and Marcus 1994; Marcus Winter and Cira López Martínez, personal communication 2013; Ramírez Urrea 1993). The jars vary in style from inleaning neck examples to outcurving neck jars with large diameters (as much as 53 cm), suggestive of food preparation for communal feasting events (see Chapter VIII and Appendices 1 and 2). The emphasis on jars over other vessel forms such as bottles and bowls (with the notable exception of one large, hemispherical bowl) suggests that the midden resulted from a special-use event. As was the case with the Op. LC12 E midden (E-F16 through E-F9), large Op. LC12 H vessel fragments from depths of over 50 cm apart came from the same vessels and had sharp, uneroded edges. This pattern indicates a rapid deposition of large cooking jars from a single, or very few, events (see Barber 2005:179).

The event or events that produced the Op. LC12 H midden (F4-s1 through F4-s3) may have been related to the adjacent domestic area atop Platform 1, suggesting that even communal feasts could be hosted by one or a few households. As discussed below, the floor of Structure 2 was identified in Op. LC12 G, at the southern end of Substructure 2. Though Ops. LC12 H and LC12 G were close to one another, Substructure 2 and the domestic structure atop it (Structure 2) occur late in the stratigraphic sequence, and likely postdate the initial Op. LC12 H deposits. Very few decorated or serving wares of any kind were recovered in Op. LC12 H, suggesting that the feast itself took place elsewhere, perhaps in a more central location near the middle of Platform 1, such as the area near Op. LC12 E. Carbonized food adhering to a jar fragment from LC12 H-F4-s2 was submitted for AMS radiocarbon analysis, which returned a date of 1876–1626 cal B.C. (see Table 1.1).

Taken together, five of the six reliable radiocarbon samples from secure contexts at La Consentida (one excavated in 1988, two in 2009, and two in 2012) have produced a calibrated AMS radiocarbon date range of 1947–1530 cal B.C. for the site's earliest architecture (Hepp 2014; A. Joyce 1991b; Winter 1989; Table 1.1). Initial occupations almost certainly predated these deposits, and carbon samples that await processing will hopefully demonstrate their antiquity. Because the Op. LC09 A, LC09 B, and LC12 E hearths or probable hearths were intrusive into platform fill, their dates provide conservative chronological estimates for the earliest earthen architecture at La Consentida.

Subsequent platform and mound construction

Following the initial Early Formative construction of Platform 1, subsequent building episodes added to the platform and produced several substructures atop it. At Op. LC09 A, Platform 1 construction continued after the disuse of the A-F4 hearth with the deposition of a thick (up to about 80 cm) fill stratum (A-F3-s1 through A-F3-s3). In the area of Op. LC12 A, platform construction atop A-F19 (the first layer of Platform 1 fill with a probable occupation surface on top) resulted in the deposition of A-F18-s2, a fill layer that is nearly 1.8 m thick in some spots (Figures 4.25 and 4.26). In the southern half of Op. LC12 A, several artifacts found near the interface between A-F18-s2 and A-F17-s2, including ceramics, bone, burned daub, shell, and a figurine head (FS# 10296, Figure 7.15) may indicate an occupation surface between these strata. The burnished and slipped medium brown ware ceramics from this deposit and the style of the associated figurine fragment support an early date for this context, even if some of the artifacts were redeposited as part of the A-F18-s2 fill event.

Platform 1 construction episodes were punctuated by the interment of human remains and ritual deposits. The LC12 A-F15 ritual cache (Figure 4.66) was deposited within a pit feature (A-F14) intrusive into the A-F17-s2 fill. The cache contained faunal remains, ceramics, and probably a musical instrument (FS# 9695, Figure 7.44). The proximity of this ritual offering to an area containing at least nine sets of human remains may be significant, as may be its location at the base of Substructure 1 (see Appendix 5 and Figure A.5.12). The cache, perhaps deposited in a bundle, might have been a dedicatory offering to the burials and/or to the architectural strata of Substructure 1 (Hendon 2000; see Chapter VII). The early style ceramics recovered within A-

F15 (see Appendix 1), as well as its stratigraphic position, suggest that it dates to the Early Formative period.

The location of a reconstructed and playable bird ocarina (Figure 7.44) at the edge of the offering is perplexing. The artifact’s good preservation implies that it was part of a carefully deposited cache or bundle rather than part of the surrounding fill. If the artifact did come from the cache, the A-F14 pit may have been larger than its outline appeared during excavation. If, instead, the ocarina came from A-F17-s2, it may have a slightly earlier date of manufacture. In either case, this bird ocarina stands as one of the earliest examples of a musical instrument thus far recovered in Oaxaca (Hepp et al. 2014).

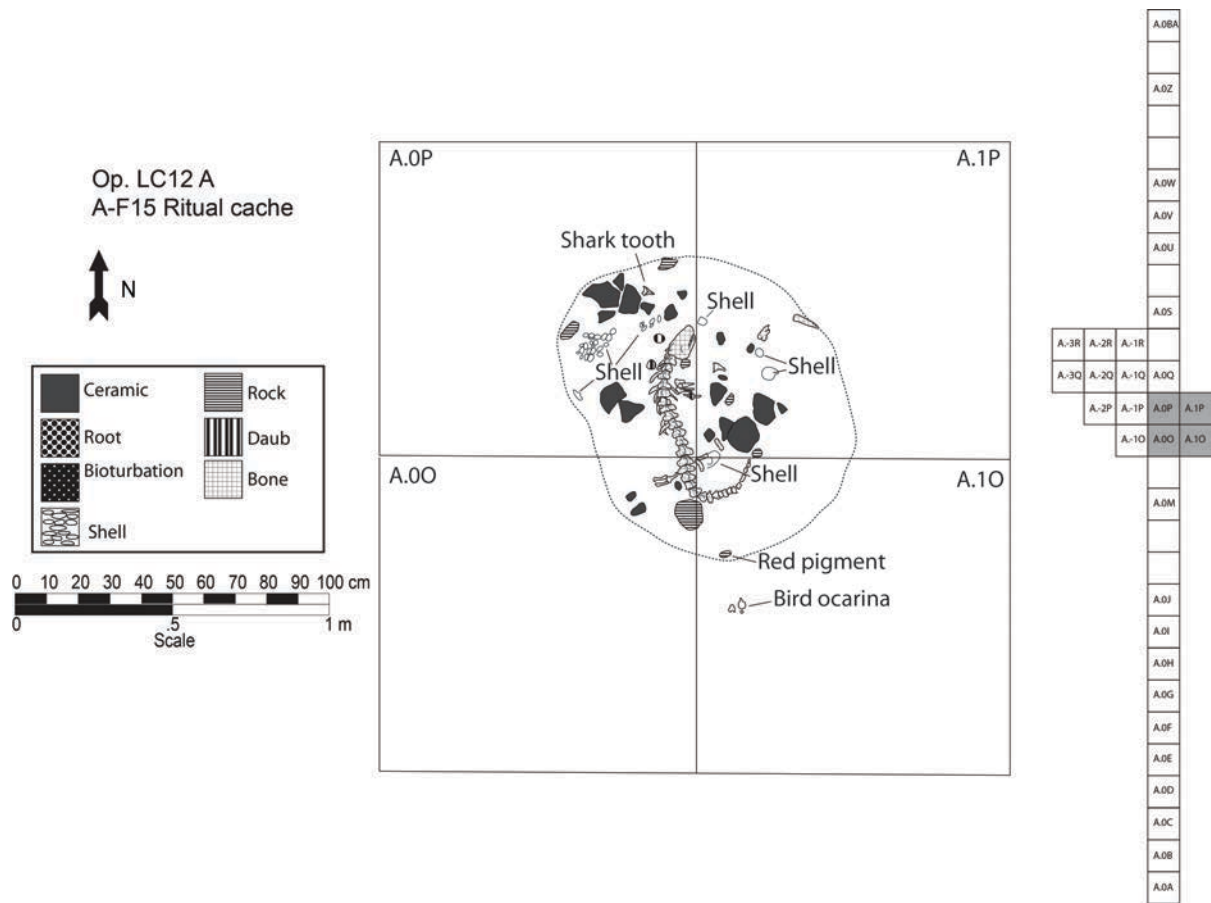


Figure 4.66: A-F15 Ritual cache near human burials in Op. LC12 A

Some of La Consentida's earliest human burials appear to be those deposited in the area of Op. LC12 A (see Appendix 5). B12-I14, B11-I13, and B9-I11 were interred in Early Formative Platform 1 fill layers such as A-F17-s2, which was subsequently capped by later fill deposits and several additional human burials (B5-I6 through B10-I12). In addition to the evidence regarding their stratigraphic positioning, associated ceramics of early style (see Appendix 1) suggest that some of these burials date to early in the site's occupation.

In the southern portion of the Op. LC12 A trench, the relatively thick (approximately 50–70 cm) A-F17-s2 fill deposit was overlain by strata A-F12 and A-F13, which likely represent an occupation surface atop the Early Formative platform. *In situ* artifacts demonstrating occupation of A-F12 and A-F13 included ground stone, burned daub, obsidian, marine shell, bone, and some figurine fragments. Based on the size of daub pieces and the occupation surface identified, burned daub associated with A-F13 may actually be *in situ* architectural remains or wall fall (Figure 4.67). Note that ceramic sherds adhere directly to the daub, indicating the use of recycled ceramics in architecture. Overlying LC12 A-F12 and A-F13 was stratum A-F11-s1. Given the thickness of this deposit, it is apparent this stratum represents a concerted fill episode which raised the height of Platform 1 as much as 115 cm in some areas. Also noteworthy is the shape of A-F11-s1, which increases in thickness to the south, indicating that the Substructure 1 mound was already under construction by this time. Because all the artifacts found in these sediments (and in several overlying strata) are Formative rather than Classic period in style, it is most probable that Substructure 1 was a Formative period

construction, and that its brief Classic period reoccupation (discussed below) represents a minor addition to a substantial and pre-existing earthen mound.



Figure 4.67: LC12 A-F13 occupational surface and burned daub fragments, possibly indicative of in situ architecture

Later fill deposits (e.g., LC12 A-F10-s1, A-F4-s1, and A-F2) were often modest in their alteration of Platform 1 and overlying substructures. Some strata (e.g., LC12 A-F10-s1) taper noticeably, suggesting that they were used to increase or lessen the angle of substructures in relation to Platform 1. Other deposits (e.g., LC12 A-F4-s1, A-F2) raised the overall height of

architecture without marking any distinction between the substructures and the underlying platform. At Op. LC12 B (located atop Substructure 1), thick fill deposits (B-F6-s1 and B-F5) resulted in the final form of Substructure 1, the largest of the mounds atop Platform 1 (see Figure 3.5, 4.27, and 4.29; Table 4.4). The style of the ceramics from these strata (many of which appear to be similar to the earliest ceramics at the site) support the interpretation that Substructure 1 was constructed during the Formative period. Some of the more recent construction layers were perhaps deposited later in the site's Formative period occupation, but utilized redeposited sediment containing artifacts of early style. Given the stratigraphic location of these deposits and the types of artifacts they contain, it is likely that strata B-F6 through B-F4 are related to fill deposits in the nearby Op. LC12 A area. B-F6-s1 likely corresponds to A-F11-s1, B-F5 likely corresponds to A-F10-s1, and B-F4 probably corresponds to A-F4-s1.

At Op. LC09 B, located in the northwest corner of Platform 1, the uppermost fill layers demonstrate periods of both construction and site abandonment (Table 4.2, Figures 4.6–4.15). Following the disuse of the B-15 hearth, earthen architecture was modified by the deposition of the B-F14 fill and resurfacing layer. Next came a thick (up to about 90 cm) stratum of platform fill composed of redeposited midden (B-F12). Both within and atop B-F12, burned sediment and ceramics occurred in horizontal lenses, with refitted sherds immediately beneath burned sediment layers. The formation of a prismatic paleosol within these sediments indicates the stability of an ancient surface. Stratum B-F10 also contains redeposited midden materials and evidence for the formation of an ancient soil on a surface that remained stable for some time. It is likely that B-F10 and B-F12 represent a single ancient surface. This soil was one of the most strongly developed paleosols identified in the entire lower Río Verde region, indicating that it

was a stable surface for a relatively extended period and that this area of the site was likely unoccupied during its formation (Arthur Joyce, personal communication 2009). Intrusive pits (LC09 B-F3 through B-F9) later interrupted strata B-F10, B-F12, and B-F14. These pits appear associated with human burials (B1-I1 through B4-I5) (see Appendix 5). In some cases, human remains were later covered by sediments including dense deposits of ceramic sherds.

In the area of Op. LC12 D, stratum D-F9 represents an early fill episode atop the D-F10-s2 occupational surface. The lack of any soil or occupational surface formation indicates that this layer was covered quickly. The subtle and gradual transition between D-F9 and D-F7 suggests that these two layers may have been deposited in quick succession, providing further evidence of a concerted community construction effort to modify Platform 1. Stratum D-F8 likely represents a preserved fragment of a compact occupational surface containing some stones. D-F4 was a thin platform resurfacing layer containing much more marine shell than surrounding deposits. D-F5 was a small pit intrusive into D-F4 that contained an extremely dense dump of crushed shell. The shells appear to mostly be from local Mytilid mussels (known colloquially as “*tichinda*”), suggesting resource collection in a nearby mangrove environment. The presence of the D-F5 shell dump indicates an occupation atop the D-F4 surface.

The uppermost fill deposits in the area of Op. LC12 F (F-F4, F-F3, and F-F2) varied in thickness, demonstrating different scales of construction efforts to produce this central area of Platform 1. These deposits also contained high densities of eroded ceramics, suggesting the possible use of redeposited midden as fill. Stratum F-F1 likely represents the formation of a modern soil within the F-F2 fill. At the surface in Op. LC12 F, the research team recovered a transformational figurine head (FS# 7828, Figure 7.29). “Transformational” figurines are those

that bear evidence of a blending of human identity with that of animals and/or deities (see Hepp and Joyce 2013; Chapter VII). In total, the approximately two meters of fill deposited above natural strata in this area suggest that even low-lying portions of Platform 1 represent considerable labor investment.

Later site occupation during the Formative period

As discussed in Appendix 1, ceramic evidence for subtle change over time in the Tlacuache phase assemblage suggests that occupation at La Consentida may ultimately be divided into two sub-phases. The results of excavation at Substructures 1 and 2 imply that Substructures 1–7 may also have served as domestic zones supporting ephemeral wattle and daub structures with earthen floors during later occupation at the site (Figure 3.4). Based on the style of ground stone and ceramic artifacts found in these areas (see Appendices 1–4), the upper strata of these substructures (e.g., LC12 B-F4, C-F2, and G-F2) saw later phases of Formative period occupation than did earlier Platform 1 occupation layers (e.g., LC09 A-F5 and LC09 B-F16), which were occupied during the initial Early Formative. Several superimposed occupational surfaces and Structure 1 in Op. LC12 C, along with Structure 2 in Op. LC12 G, indicate that the Substructure 2 mound saw numerous phases of occupation (see Chapter V). The types of ceramics found in Ops. LC12 C and LC12 G suggest that Structure 2 likely postdated Structure 1 (see Appendix 1). The final occupations of these contexts likely took place toward the end of the Formative period occupation of the site.

Op. LC12 C was dug atop the northern portion of Substructure 2 (Figures 3.4 and 3.5). In this area, layers of *in situ* ceramics atop fill strata (C-F9, C-F8, and C-F7), demonstrate that the

area was subject to occupation between construction events. Stratum C-F7 in particular bears evidence of being an occupational surface, as the C-F4 structure floor overlies this deposit. The structure was small (measuring only about 2 X 1.5 meters in its preserved portions) and had large stone tool fragments, including those from broken metates, incorporated in its foundation or walls (Figures 5.1 and 5.3). The lenses of refitting, *in situ* ceramic fragments, manos, and broken metates found in association with this structure suggest that its use may have been domestic. Despite the large, recycled ground stone fragments associated with this floor, the lack of much other preserved construction material suggests that the structure itself was ephemeral. Fragments of burned daub suggest that Structure 1 had wattle and daub walls and a thatch roof. The preserved portions of the structure appear small for a house, and may instead represent a domestic outbuilding. After abandonment, occupational debris (C-F2) probably gradually covered this structure. The upper surface of C-F2 may also have been occupied, as evidenced by a relatively high concentration of ceramic artifacts near the modern surface.

In the area of Op. LC12 D, at the eastern edge of Substructure 2, the shallower deposits of platform fill (e.g., D-F3-s1, D-F2, and D-F1) represent more modest alterations of Platform 1 than did earlier deposits (e.g., D-F9). These shallower layers may represent resurfacing episodes. The Op. LC12 E midden (E-F16 through E-F9) was capped with a thin but consistent layer of fill and/or architectural debris (E-F4). Excavations in this western extension of Op. LC12 E recovered large pieces of daub with wattle impressions (E-F6), suggesting that a structure wall burned and collapsed at that spot. This deposit was also associated with a small ceramic dump that formed part of E-F4 (Table 4.7). The style of associated ceramics, as well as their

stratigraphic location nearer the modern surface of Platform 1, suggests that they date to shortly before site abandonment (see Appendix 1). These architectural remains suggest that structures were placed toward the center of Platform 1 as well as atop the platform's substructures.

Excavations at Op. LC12 G (at the southern end of Substructure 2) uncovered the remains of Structure 2 (G-F2 through G-F15), which contained *in situ* ceramics dating to shortly before Formative period site abandonment (Table 4.9). Though a few small excavation windows penetrated below the floor (G-F2) of Structure 2 to test for postholes, no deep, penetrating vertical excavation was carried out here. It is therefore possible that previous domestic occupation surfaces exist below the identified structure floor. The deepest deposit identified in this operation was stratum G-F16. This fill layer represents part of the construction of Substructure 2 atop the broad, early strata that compose Platform 1. Overlying G-F16 is the G-F2 structure floor (Figures 5.4–5.6), which is associated with several pit features (G-F3 through G-F15). These features likely represent postholes in a ring around the structure and pits dug into the floor following the structure's construction. Based on its shallow depth and the lack of subsequent occupations atop it, Structure 2 represents one of the final occupation areas prior to Formative period site abandonment. A carbon sample from G-F2 returned a Middle Formative date (751–405 cal B.C.). Due to the shallow depth of this sample, possible contamination from modern surface sediments, and an incongruously late date relative to associated ceramics, this sample is considered suspect (Table. 3.1). A plateau in this part of the calibration curve may also affect the sample (Reimer et al. 2013). Following the abandonment of the Op. LC12 G structure, a modern soil formed within G-F16, thus producing stratum G-F1.

Formative period site abandonment

The uppermost strata in most excavation areas (e.g., LC09 A-F1, LC09 B-F1, and LC12 A-F1) contained a mixture of Formative period occupational debris and modern materials. Modern soils have formed in these sediments, producing significant bioturbation. Based on the presence of medium brown ware ceramics and Formative period figurines at the surface of most of the site, and the lack of primary deposits from Late Formative or later occupation in all excavated areas except for Substructure 2, La Consentida was abandoned by the Middle Formative period. Prismatic obsidian blades are generally considered a Middle Formative period technology (Jackson and Love 1991), though in some regions they were present by later in the Early Formative (MacNeish et al. 1967:22; Niederberger 1976; Zeitlin 1978, 1979 [*cited in* D. Williams 2012]; see Chapter VI). The presence of a few prismatic blade fragments despite a complete lack of green (Pachuca) obsidian (which was heavily traded in Late Formative and Classic period times) tends to suggest that site abandonment occurred by the early Middle Formative, if not before (Cobean 2002:41 [*cited in* D. Williams 2012:112]; see Chapter VI).

Classic period occupation and later surface artifacts

Excavations atop Substructure 1 uncovered the remains of a burned Early Classic building. This structure indicates a brief re-occupation of the site after its Formative period abandonment. The stratum of heaviest Classic period artifact density (LC12 B-F3) overlay Formative period fill layers (B-F6, B-F5, and B-F4). B-F3 contained large pieces of daub and lay directly below B-F2, a deposit of architectural refuse containing daub with post impressions. The uppermost layer of sediment in the Op. LC12 B area (B-F1) contained a mixture of Early

Classic occupational debris and modern surface duff. Though the density of ceramic artifacts associated with the Early Classic structure was high, other artifacts indicative of occupation, such as faunal remains and lithics, were lacking. The layers of construction fill below the dense strata of Classic period debris contain far fewer artifacts. All ceramic sherds identified at a depth greater than about 30–50 cm below the surface were Formative in style. This pattern suggests that much of the Substructure 1 fill was constructed before Formative period site abandonment. Another possibility is that the Early Classic period re-occupation resulted in significant Substructure 1 construction using only redeposited earlier materials. The complete lack of Classic period artifacts at a depth of more than about 30–50 cm below the surface, along with radiocarbon dates, make this interpretation unlikely, however (see Table 1.1). It appears instead that the majority of earthen architecture at La Consentida was constructed during Formative period occupation.

The presence of a small number of Classic and Postclassic sherds, including at least one eroded polychrome and two Postclassic *malacates* (spindle whorls), at or near the surface in various parts of the site indicates that La Consentida was known to later peoples in the lower Río Verde region. These people may have visited the site out of interest in and respect for the history of the region, in the process of collecting resources in the rich coastal zone the site occupies, or both. These more recent artifacts do not indicate more than a brief reoccupation of one part of the site during the Early Classic period.

Chapter V: Inferring Residential Mobility at La Consentida

Introduction

As discussed in Chapter II, there are many lines of evidence that can support inferences about an ancient population's practices of domestic mobility. These may include the presence of monumental architecture or community buildings indicating organized communal labor (Drennan 2003:47; Hill and Clark 2001; Marcus and Flannery 1996:109–110). “Durable” domestic architecture consistent in its placement through multiple construction phases (P. Arnold 1999:160) and formal storage features (Kent 1992; Smyth 1989:90, 92; Winter 2009:27–29) can also indicate settlement strategies. Other indices of mobility may include non-portable ground stone tools (Clark et al. 2007; McDonald 1991:85; Torrence 1983) and the presence of cemeteries or other evidence that a community held a specific spot on the landscape to be ritually significant and affiliated with memories, kinship ties, and a deep sense of place (Boyd 2006; Joyce and Goman 2012; Mitchell 2008). As was also outlined in Chapter II, identifying sedentism is a challenging task because all the material correlates discussed thus far have exceptions (e.g., Banning 2011; R. Bradley 1993, 1998, 2000, 2005; Pauketat and Alt 2003; Sherratt 1990; Tilley 1994) and because sedentism and mobile foraging are terms for two extremes within a continuum of domestic mobility (e.g., R. Kelly 1992; Kent 1992; Marshall 2006).

In this chapter, I discuss multiple types of evidence for the settlement practices of the La Consentida community. These sources of data include population estimates, earthen

architectural sequences and associated labor estimates, attributes of probable domestic structures, and patterns identified among ceramic and ground stone artifacts. In many cases, I refer to other chapters or appendices of this dissertation because certain types of data, such as those from the analysis of ground stone tools, pertain to multiple interpretations about ancient life at La Consentida (e.g., domestic mobility and subsistence). After examining relevant evidence, I conclude that the population that initially founded La Consentida was likely somewhat mobile, and probably established the site as one of several seasonally occupied resource-gathering and domestic locales within the lower Río Verde region. By the time of Formative period site abandonment, the community appears to have become dedicated to permanent occupation at the site, though they likely maintained special resource gathering locales in different ecological micro-regions nearby, as did Early Formative communities elsewhere in coastal Mesoamerica (see Blake et al. 1992:90; Lesure, ed. 2009:259; Voorhies 1989:116, 2004; Voorhies and Kennett 2011). In order to discuss shifting settlement practices over time, I begin with the evidence from La Consentida's mounded earthen architecture, which is among the earliest yet identified in Mesoamerica.

Earthen architecture at La Consentida

Stratigraphic evidence (see Chapter IV) suggests that La Consentida was occupied only briefly before the community began to construct Platform 1. Dated hearths (LC09 A-F4-s1 and LC09 B-F15) and a possible hearth (LC12 E-F10) intrusive into the first fill layers (e.g., LC09 A-F5 and LC09 B-F16) demonstrate occupations atop the initial platform before the deposition of subsequent fill. The dates from these hearths (1904–1530 cal B.C.) establish Platform 1 as one

of Mesoamerica's earliest examples of mounded earthen architecture (see Tables 1.1 and 1.2). Specifically, La Consentida's Platform 1 appears to predate late Barra or early Locona phase (1650–1500 cal B.C.) mounds in the Soconusco and Bajío phase (1600–1500 cal B.C.) mounds in the Gulf coast region (Clark 1994:141–142, 376, 462; Cyphers and Zurita-Noguera 2012; Hill and Clark 2001). The Soconusco's Chantuto B phase (3500–2000 cal B.C.) shell mounds, associated with late Archaic period mobile hunter-gatherers, predate the La Consentida platform. While these Archaic shell mounds (e.g., at the site of Tlacuachero) may largely represent seasonal resource gathering refuse, some deposits, such as a possible clay floor, suggest that they may also have been architectural (Voorhies and Kennett 2011:29). Though paleoenvironmental data (such as evidence of burning events for probable landscape clearance) indicate that a late Archaic period human population occupied the lower Río Verde region, no Archaic sites have been identified in the area (Goman et al. 2013; Joyce and Goman 2012).

In most parts of Platform 1, initial fill deposits are modest in comparison to later strata that imply increased labor expenditure, organization of communal labor, and perhaps a larger population (e.g., Figure 4.25). This may indicate the mobilization of less construction labor than in subsequent times, when fill deposits reached nearly 180 cm thick. As discussed in Chapter IV, the earliest layers of Platform 1, while not necessarily very thick, are relatively consistent in their sedimentary composition and associated radiometric dates across large areas of the site, such as between Operations LC09 A and LC12 E (see Figure 3.5). This pattern suggests that Platform 1 was initially broad and low. While it is difficult to quantify the amount of labor responsible for a platform excavated only in ten discrete operation areas and never in complete cross section, rough estimates of the population and labor requirements of La

Consentida's earthen architecture are informative for the discussion of the community's settlement strategies.

Estimating La Consentida's population size and labor investments

At the surface, La Consentida covers about 4.5 hectares in total size. Excavations at the base of Platform 1 indicate that cultural deposits extend out from the platform farther than is apparent at the surface, likely because the level of the natural floodplain has risen since site occupation and has covered the peripheries of the site (Joyce and Mueller 1992; Mueller 1991; Mueller et al. 2013; Mueller et al. 2014; see Chapter IV). Adhering to the 4.5-hectare size determination for La Consentida may thus be somewhat conservative, but it suffices for a preliminary population estimate. Applying Tolstoy's (1989:95 [*cited in* Clark 1994:210]) Coapexco estimation technique (142–164 people per hectare) to La Consentida would produce the very high estimate of 639–738 people. This seems inappropriate for several reasons. First, the 14 sets of human remains identified in the fairly extensive excavations at La Consentida would not seem to indicate a very large population. Also, the seven substructure mounds, if they were generally the exclusive location of houses at the site, seem scarcely capable of supporting such a large community. Applying the Valley of Oaxaca's population estimate guidelines (e.g., Feinman 1991; Feinman and Nicholas 1987, 1990, 1992; Nicholas 1989 [*cited in* Clark 1994:210]) would place La Consentida's population at 45–112, with a midpoint of nearly 80 people (*see also* Parsons 1971; Sanders 1965). The application of highland Oaxacan household occupancy estimates also requires a caveat, however. As discussed by Winter (2009:25), Tierras Largas phase houses in the highlands tended to measure about "18–24 sq m

in extent.” The two fully excavated domestic structures at La Consentida are more in the realm of 9 m² in size.

A population of 80 would fit comfortably in two to three small houses atop each substructural mound, and could also have produced La Consentida’s mounded earthen architecture without requiring much labor from outside the site. Any kin group occupying La Consentida would have included children, the infirm, and the aged. The presence of at least children and older adults is demonstrated by several of the burials recovered at the site (see Appendix 5). Though children and grandparents can fulfill productive labor roles, La Consentida’s population likely had no more than about two healthy adults per household unit of five people (assuming that the households also included two children and perhaps a grandparent) (*see Flannery 2002 for a discussion of probable initial village family units*). The greatest majority of La Consentida’s physical labor was thus likely carried out by a work force of no more than about thirty-two adults (40% of a population of 80 people) at any given time. Though this may sound like a small group to produce Platform 1 and the substructural mounds, the young and the old likely supported these workers in incidental tasks.

Estimates of labor investments for the production of mounded earthen architecture in Mesoamerica have proven a useful measure for inferring lengths of site occupation, construction practices, and aspects of social organization including the mobilization of labor (e.g., Abrams 1994; Joyce et al. 2013; Rosenswig and Masson 2002). Joyce and colleagues (2013:149–153) discussed the energetics estimates and ethnographic analogies appropriate for inferring human labor practices in hot coastal tropical zones such as the western Oaxaca coast. These estimates assume five-hour work days (Erasmus 1965:283), a quantity of 2.6 m³ of

sediment excavated per person per day (Erasmus 1965:285) and the majority of labor for earthen architecture taking place during the dry season (Joyce et al. 2013:151).

Though some substructures at La Consentida are taller than others, and Platform 1 itself is not uniform in its dimensions, a good approximation of the earthen architecture at the site is that it measures 100 x 300 x 5 m, or 150,000 m³ in volume (Figures 3.4–3.6). Based on excavations in areas such as Ops. LC09 A, LC09 B, LC12 A, LC12 D, LC12 E, and LC12 F, it appears that the first iteration of the platform covered much of the maximal horizontal extent of the final platform, but was only about a meter tall (e.g., Figures 4.1, 4.11, 4.25, 4.42, and 4.51). An approximate volumetric assessment of the initial platform (incorporating the first one or two strata of fill) would thus be 100 x 300 x 1 m, or 30,000 m³ of sediment. Though subtle variation is apparent in ceramics over time at the site, all levels of fill contain Tlacuache phase materials (see Chapter IV and Appendices 1 and 2). Early Classic occupation apparently made minimal impact upon pre-existing Formative period architecture. Probable borrow pits are located near Platform 1, some surrounding the platform in an arc to the northeast and in low-lying areas just outside the mapped site boundary (Figure 3.4). I estimate that most of the fill sediments came from within 250 m of the site.

Following the lead of other energetics studies (e.g., Abrams 1994; Erasmus 1965; Joyce et al. 2013; Rosenswig and Masson 2002), I divide the labor to produce La Consentida's earthen architecture into three steps: excavation of fill material, transportation of fill, and construction (Tables 5.1 and 5.2). Unlike in Joyce and colleagues' study (2013:151), I do not discuss the transportation of water or production of adobe blocks, as fill thus far excavated at La Consentida appears to result from the use of basket loads of sediment rather than from

structured fill construction. As previous studies have done (e.g., Joyce et al. 2013), I adopt Aaberg and Bonsignore's (1975:46) method for calculating person days of transport labor:

$$m^3/\text{person days} = Q * 1 / (L/V + L/V') * H$$

Regarding the equation above, Q=container capacity and thus human transportation capacity (which Aaberg and Bonsignore [1975:47] and Joyce and colleagues [2013:152] estimate at 22 kg or .2 m³), L=transportation distance, V=transport speed (estimated at 3 kilometers per hour), V'=return trips (estimated at 5 km per hour), and H=length of work day (Aaberg and Bonsignore 1975; Joyce et al. 2013). Given these estimated aspects of the workload, the completed formula is:

$$m^3/\text{person day} = .2m^3 * 1 / (.25 \text{ km} / 3 \text{ km hr} + .25 \text{ km} / 5 \text{ km hr}) * 5$$

$$m^3/\text{person day} = .2 * 1 / (.25/3 + .25/5) * 5$$

$$m^3/\text{person day} = .2 * 1 / (.083 + .067) * 5$$

$$m^3/\text{person day} = .2 * 6.67 * 5$$

$$m^3/\text{person day} = 6.7$$

As Joyce and colleagues (2013:152) have done before, I adopt Abrams' (1994:50) proposed rate of 4.8 m³ of sediment per person, per day for the final stage of construction. Table 5.1 demonstrates the estimated labor investment, in person days, for the total amount of the La Consentida earthen architecture. Table 5.2 provides an estimate of the labor necessary for the first version of Platform 1, which was constructed shortly after initial site occupation.

Labor step	Step 1: Fill excavation	Step 2: Fill transport	Step 3: Construction	Total
Person day calculation	150,000 / 2.6	150,000 / 6.7	150,000 / 4.8	N/A
Total person days	57,692	22,388	31,250	111,330

Table 5.1: Estimated labor investment in all of La Consentida's mounded earthen architecture. Numbers are rounded

Labor step	Step 1: Fill excavation	Step 2: Fill transport	Step 3: Construction	Total
Person day calculation	30,000 / 2.6	30,000 / 6.7	30,000 / 4.8	N/A
Total person days	11,538	4,478	6,250	22,266

Table 5.2: Estimated labor investment for initial version of Platform 1. Numbers are rounded

As discussed above, several lines of evidence suggest that 80 is an appropriate average community size for La Consentida. Assuming that only 30–40 people were available for heavy labor, and that the young, old, and otherwise unfit could help the laborers by procuring food, water, and other supplies, it is appropriate to propose a variety of possibilities for how long the earthen architecture took to construct. I have done so for the total quantity of architecture at the site (Table 5.3), and for the initial version of Platform 1 (Table 5.4). When the site's population estimate is considered in conjunction with the site's carbon dates (Table 1.1), the five most secure of which suggest that the site was occupied for about 400 years during the Early Formative (when the dates are reported with 2σ probability), one may further refine labor estimates for the site. When the dates are reported with 1σ probability, they suggest a 274-year period of occupation (from 1885–1611 cal B.C.). During that period of occupation, an Early Formative community with only 25–50 healthy workers could have

produced La Consentida's mounded architecture without assistance from outside labor. It is also worth remarking that construction likely did not occur every dry season, as is suggested by the evidence for occupation (e.g., the LC09 A-F4-s1 and LC09 B-F15 hearths) atop some fill layers. Based on the carbon date range for the site, and given that major construction would not have taken place annually, a group of 25–50 laborers likely constructed all of La Consentida's architecture in roughly 250 years or less (Table 5.3). The first version of Platform 1 may have been produced in only a few seasons (Table 5.4), and the limited labor necessary for that construction is consistent with the community initially being semi-mobile. If pressured by impending floodwaters, the community may even have produced an incipient version of Platform 1 in a single season. Further excavation at the site may help to refine its ceramic chronology and thus provide more temporal control for construction phases.

Number of laborers	30-day working season	60-day working season	90-day working season	120-day working season
25	148	74	49	37
50	74	37	25	19
75	49	25	16	12

Table 5.3: Estimates of years necessary to construct all mounded earthen architecture at La Consentida, varying by season length and work force size. Results are rounded to nearest year

Number of laborers	30-day working season	60-day working season	90-day working season	120-day working season
25	30	15	10	7
50	15	7	5	4
75	10	5	3	2

Table 5.4: Estimates of years necessary to construct the first version of Platform 1, varying by season length and work force size. Results are rounded to nearest year

Domestic structures

As discussed in Chapter II, the size and relative durability of architecture is one of several indices of a community's degrees of domestic mobility. The only clear examples of domestic buildings so far uncovered at La Consentida (Structure 1 in Op. LC12 C and Structure 2 in Op. LC12 G) date to relatively late in site occupation (see Figure 3.4). While these probable domestic buildings were relatively ephemeral, the builders of Structure 1 incorporated large stones including recycled metates as construction material (Figures 5.1 and 5.3). Narrow excavation windows below Structure 2 identified postholes associated with that building, but no obvious floors from previous structures (Figures 5.5 and 5.6). It is possible that remains of earlier buildings exist in deeper, unexcavated deposits. Multiple, superimposed lenses of *in situ* artifacts such as ceramics and food processing ground stone tools such as manos and metates identified in Op. LC12 C suggest that Substructure 2 was used as a domestic area over the course of multiple construction phases (see Table 4.5 and Figures 4.32–4.40). As demonstrated by Structure 2 (a square feature measuring 3.05 x 3.05 m in its footprint), some domestic buildings were ephemeral, and could have been erased by subsequent construction or postdepositional processes, or simply remain overlooked in excavation (Figures 5.4–5.6).



Figure 5.1: Ground stone associated with Structure 1



Figure 5.2: Partial outline of Structure 1 with ground stone fragments removed

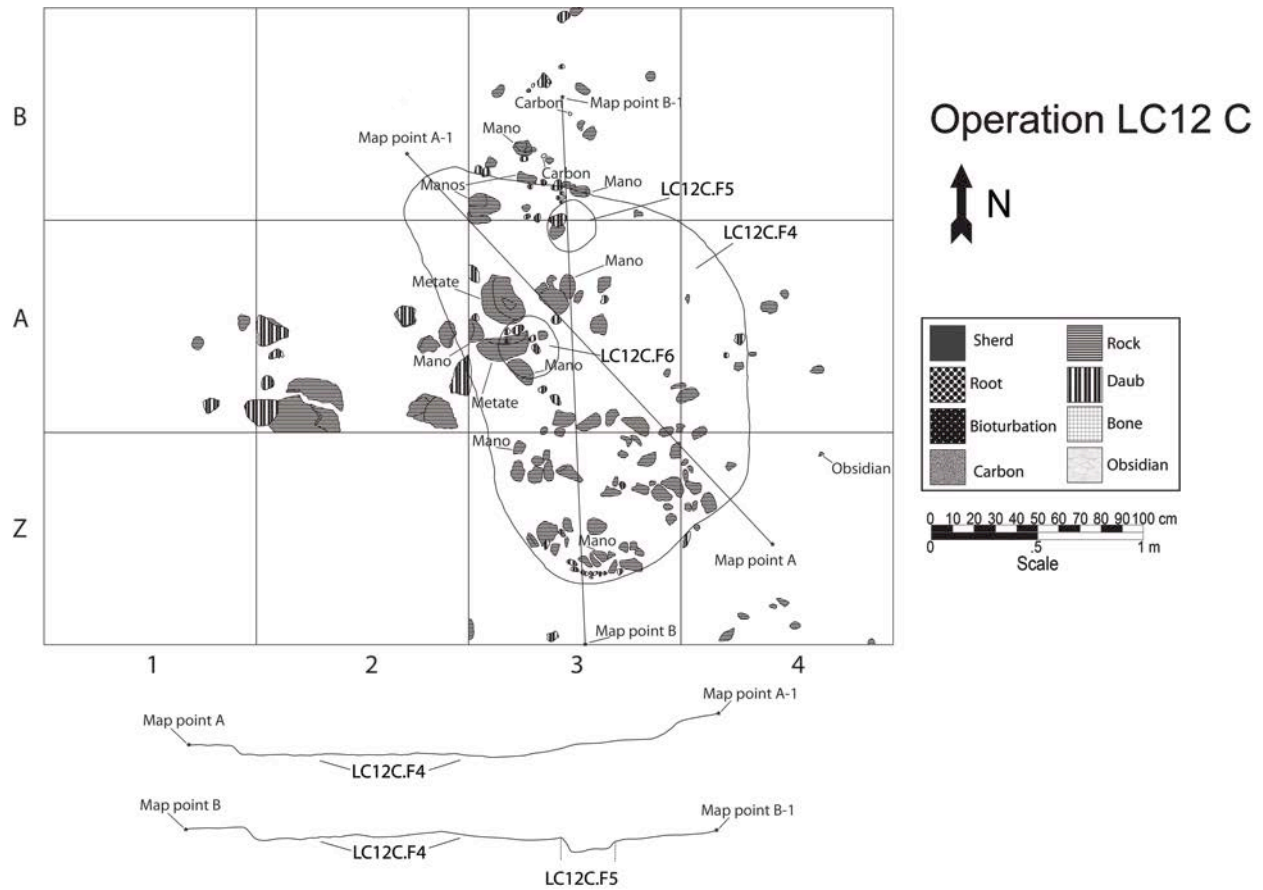




Figure 5.4: Floor and floor features of Structure 2



Figure 5.5: Probable postholes associated with Structure 2

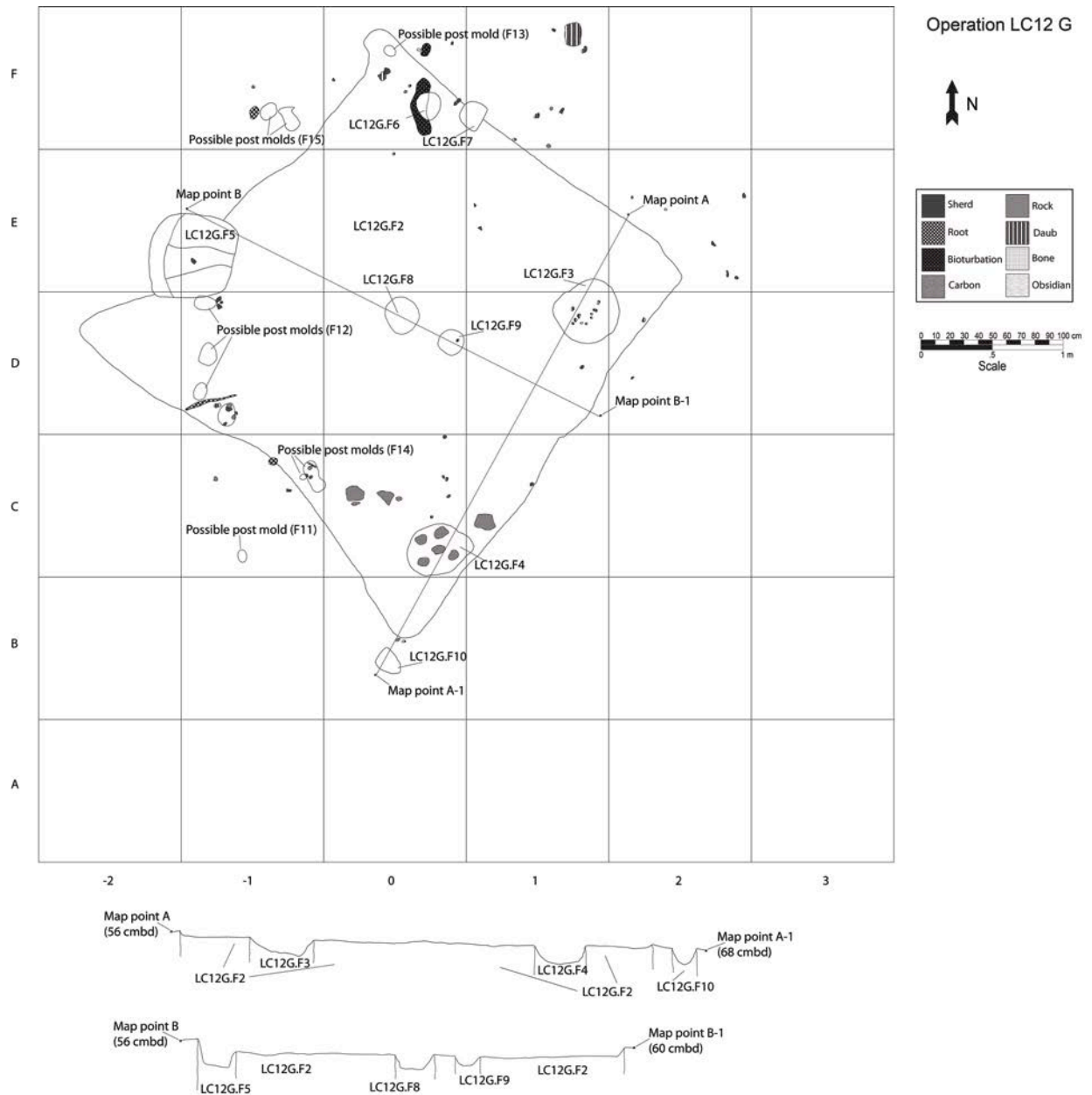


Figure 5.6: Plan and profile maps of Structure 2

While no other obvious Formative period domestic buildings besides Structure 1 and Structure 2 have been fully uncovered at La Consentida, a few noteworthy finds suggest that other parts of the site were also domestic occupational areas. The LC09 A-F4 and LC09 B-F15

hearths, for example, indicate domestic practices such as cooking early in the occupation of Substructure 4 (see Tables 1.1, 4.1, and 4.2 and Figures 3.4, 4.60, and 4.63). Another possible hearth (E-F10) suggests similar practices in the north/central part of the site (see Tables 1.1 and 4.7 and Figure 4.44). Faunal remains (see Appendix 3) and the presence of decorated ceramic serving wares (see Appendices 1 and 2) suggest that the midden deposits (E-F9) overlying E-F10 result from communal feasting, however, rather than domestic cooking (also see discussion in Chapter VII). In the area of Op. LC12 A, a fill deposit (A-F12) and a possible occupational surface (A-F13), were associated with an alignment of large, burned daub chunks. These finds may represent the edge of a building atop an early version of Substructure 1 (see Table 4.3 and Figures 4.25 and 4.67). Given the available evidence, it is unclear whether this probable building was domestic or public in nature.

Structures 1 and 2 on Substructure 2 and the LC09 A-F4-s1 and LC09 B-F15 hearths associated with Substructure 4 suggest that La Consentida's seven substructural mounds were largely domestic areas. In contrast, only a few midden deposits (e.g., in Op. LC12 E and possibly in Op. LC12 H) suggest community gatherings beyond the household level. Both of these deposits occur at the edge of or between substructural mounds, suggesting that the households associated with Structures 1 and 2 (located atop Substructure 2) were involved with communal events. Specifically, individual households may have helped prepare for, or even have hosted, communal feasts. It is worth noting, however, that clear evidence for permanent structures (including probable house floor stains, post holes, and large fragments of ground stone used as foundation or wall construction material) is not present until late in site occupation. Having discussed evidence from domestic structures, I will now turn to patterns

identified among specific artifact types.

Ceramic and ground stone evidence

Like the architectural strata and domestic structures discussed above, La Consentida's subsistence-related artifact assemblage is consistent with a community in the process of shifting from seasonal mobility to committed sedentism. This interpretation requires careful assessment of the material evidence. In Chapter II, I discussed the use of ground stone and ceramic artifacts as indicators of mobility. Research from elsewhere in Mesoamerica (e.g., P. Arnold 1999, 2003, 2009; Rosenswig 2011) has suggested that the transition to sedentism in Mesoamerica was gradual, and that ceramic technology (for example) cannot be considered *a priori* evidence of a sedentary population. Ground stone tools changed from those emphasizing portability and multi-purpose use to larger tools likely intended for more specific tasks as Mesoamericans established sedentary villages (e.g., Clark et al. 2007; Winter and Mateos 2010; Winter and Sánchez Santiago 2014:10–11; *see also* J. Adams 1988). The earliest, pre-architectural occupation layers at La Consentida (see Table 4.3 and Figure 4.25) indicate that the community that established the site was already using ceramics. As discussed in Chapter VIII and Appendix 1, this vessel assemblage is not similar in formal composition to the tecomate-heavy assemblages of the Barra and Tulipan phases (P. Arnold 1999, 2009; Clark and Blake 1994), which Arnold suggested might be evidence of a mobile occupational strategy. Regardless, caching practices or the use of a few portable and multi-purpose vessels may explain how a semi-mobile group could employ ceramics, which further emphasizes that the presence or absence of ceramics is insufficient evidence for domestic mobility (see Chapter II).

The ground stone tools identified in the deepest layers at La Consentida tend to be of a size and weight that would be relatively portable. As shown in Appendix 4 (especially Figures A.4.1 and A.4.2), the relative frequency of portable ground stone *decreases* over time, and non-portable ground stone *increases* over time (along with raw counts of ground stone), at La Consentida. In addition, use wear marks on many of these earliest stone tools indicate their utility for multiple food processing and/or crafting tasks. The tool depicted in Figure 5.7, for example, comes from a very early context (LC12 D-F11), where excavations uncovered thin layers of midden interspersed with fill. This tool bears sheen from grinding or polishing, in addition to probable impact pitting and fracturing from use as a hammer stone or anvil. When possible manos are recovered in La Consentida's earlier deposits, they tend to bear relatively little use wear and are of a lower quality (i.e., grainier) probable granite material than later manos at the site. The grinder or possible mano shown in Figure 5.8 is of a grainy material, and has pitting from its use as a hammer stone or anvil. Figure 5.9 shows a very similar mano or grinder and hammer stone from an early midden context (LC12 E-F14). In general, most of these earliest tools exhibit polish rather than grinding wear, which indicates they were probably not used with metates. The artifact shown in Figure 5.10, for example, is a complete polisher or pestle with a smooth surface and a size and shape that appears to emphasize portability over grinding efficiency. Patterns of ground stone use wear indicative of multifunctional use also indicate an emphasis on portability over efficiency, and serve as supporting evidence for an initially semi-mobile population at La Consentida. Note that the rough-looking surface on some of the ground stone artifacts is the result of postdepositional calcium concretions or sediment that has not been washed off in order to permit future residue analyses.



Figure 5.7: Grinder or polisher and possible anvil from sheet midden atop early fill layer (LC12 D-F11) (FS# 8138)



Figure 5.8: Grinder or mano and hammer stone or anvil with crystalline texture from probable occupation surface atop early fill layer (LC12 D-F10) (FS# 8117)



Figure 5.9: Grinder or mano and possible hammer stone with crystalline texture from early midden (LC12 E-F14) (FS# 10096)



Figure 5.10: Complete polisher or pestle from early fill context (LC12 F-F6) (FS# 8388)

One kind of multifunction tool common in deeper deposits at La Consentida, but which can also be found (possibly redeposited) in shallower contexts, is that of the “polisher/hammer stone” (see Figures 5.11 and A.4.1). These artifacts bear facets from their use as polishers as well as impact or flaking damage from hammering. The artifact shown in Figure 5.12 has polishing and impact wear very similar to the artifact in Figure 5.11, though it comes from a more recent context. Figure 5.13 shows a similar multi-use tool that seems to bear attributes of a miniature mano, polisher, or even pestle, in addition to its impact scarring from use as a hammer stone. In general, a consistent pattern among such artifacts is that, regardless of their other uses, most show evidence of being used for hammering. Such portable and multifunctional ground stone tools and one-handed manos are similar in form and likely use to Archaic period manos, which were probably employed for “processing hard seeds of teosinte or primitive maize” (Winter and Sánchez Santiago 2014:10–11, Fig. 14.a [translation my own]; see *also* Clark et al. 2007; Winter and Mateos 2010). Small “manos” may also have been used for hide processing (J. Adams 1988). Small, “Archaic style” ground stone artifacts (e.g., the mano shown in Figure 5.14) occur throughout excavated and surface contexts at La Consentida, and suggest an interest in portability and multifunctionality, which are emphases of mobile groups (P. Arnold 1999; Clark et al. 2007; McDonald 1991:85; Torrence 1983).

If Archaic style tools remained in use after the community was sedentary and more reliant on agriculture (see Chapter VI), their presence begs explanation. Such artifacts may indicate practices of caching, tool reuse, or the continued production of portable and versatile tools at the site. It is possible that tools best suited for Archaic period subsistence and crafting

activities remained in use in order to conserve materials. A green stone axe or adze (likely made of a fine-grained greenish basalt) demonstrates such conservation (Figure 5.15). As discussed by Clark and Cheetham (2002:305), such artifacts can be used for a variety of tasks including forest clearance and hoeing of dirt for planting crops. This artifact has been broken and refinished for continued use so many times that it has become very small and probably inefficient in comparison to its initial form. It is essentially an “exhausted” adze.



Figure 5.11: Polisher and hammer stone from fill deposit (LC12 F-F5) (FS# 8356)

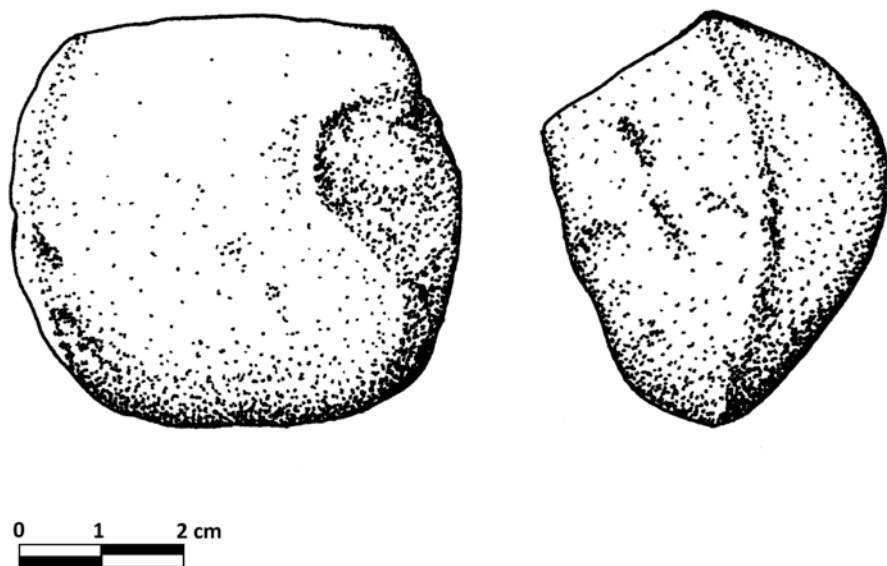


Figure 5.12: Polisher and hammer stone from fill (LC12 E-F2) above midden (FS# 9733)

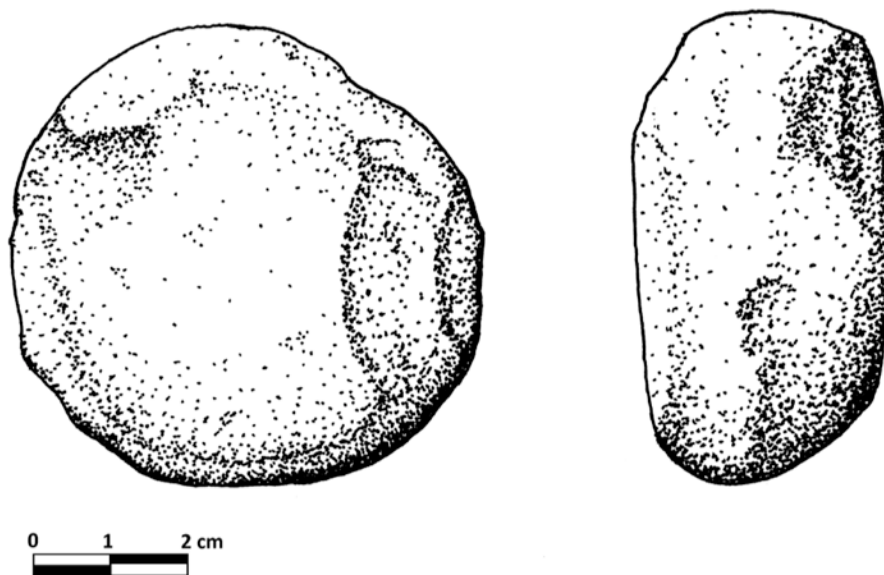


Figure 5.13: Mano, polisher, or pestle and hammer stone from fill (LC12 G-F16) surrounding domestic context (FS# 9013)

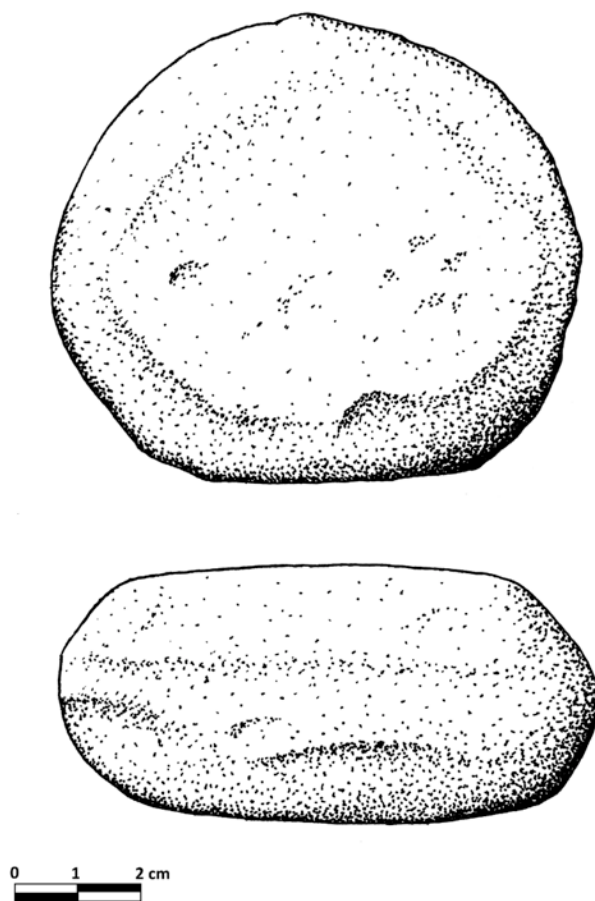


Figure 5.14: Small, one-handed mano from surface at Op. LC12 B (FS# 7281)

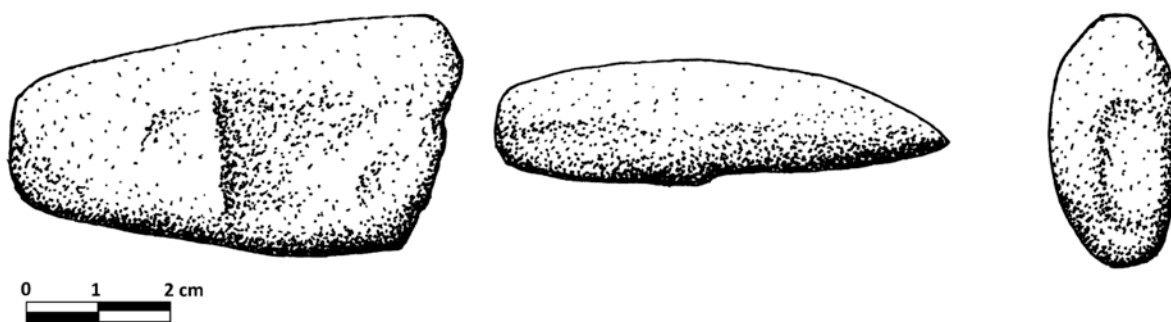


Figure 5.15: Exhausted probable basalt axe or adze from fill with occupation layer (LC12 C-F7) (FS# 7966)

Though many of La Consentida's ground stone tools show evidence of use for multiple tasks (e.g., grinding, polishing, chopping, and pounding), a few examples appear to have had a more specific primary use. In shallower, later deposits at the site, for example, manos are more common (Figure A.4.1). In one case, a mano even appeared as an offering with a burial (see Appendices 4 and 5). Also of note for illuminating practices of domestic mobility are the metates, which (like the manos) remained small and of the "one-handed" variety throughout site occupation (see Winter and Mateos 2010; Winter and Sánchez Santiago 2014:10–11). In later deposits, and particularly in and around Structure 1, large metate fragments were more common (Figure A.4.1). In fact, metate fragments seem to be exclusively located in more recent strata (see Figures 5.1, 5.3, and 5.16). Like the manos, these metates suggest an increasing emphasis on sedentism over time at La Consentida. Significantly, metates and manos do not connote sedentary agriculturalists, *per se*. As discussed by Pohl and colleagues (1996:365; see also Clark and Cheetham 2002:305), late Archaic deposits sometimes contain such artifacts and thus suggest some degree of maize processing in pre-ceramic times. Though large metates and manos could hypothetically be cached at seasonal resource extraction sites used by a mobile group (see Mitchell 2008 *regarding the use of permanent food processing features by mobile groups*), their discovery in conjunction with a wide variety of ceramic vessels (see Appendix 1), probable domestic buildings, and increasing production of mounded earthen architecture all suggest that a semi-mobile early occupation of La Consentida gave way to more constant settlement before Formative period site abandonment. Though La Consentida's later contexts demonstrate a shift toward non-portable grinding technology, likely for the processing of maize flour, it is worth mentioning that the metates never seem to have been very large. The most

complete metate example, shown in Figure 5.16, measures a maximum of only 245 mm in width and 75 mm in thickness. In cases where metate fragments are complete enough to determine original grinding trough dimensions, the metates seem well suited for use with early style, one-handed manos rather than with the larger two-handed manos of later Mesoamerican history (see Clark et al. 2007; Winter and Mateos 2010; Winter and Sánchez Santiago 2014:10–11). The fact that these metates (e.g., Figure 5.16) were ultimately recycled as building material emphasizes the desire of the community to reuse materials as much as possible, even after breakage. These recycling practices probably explain, at least in part, the evidence for multi-function tool use at the site and should promote caution regarding arguments about changes over time in tool types, as tools were likely used for as long as possible.

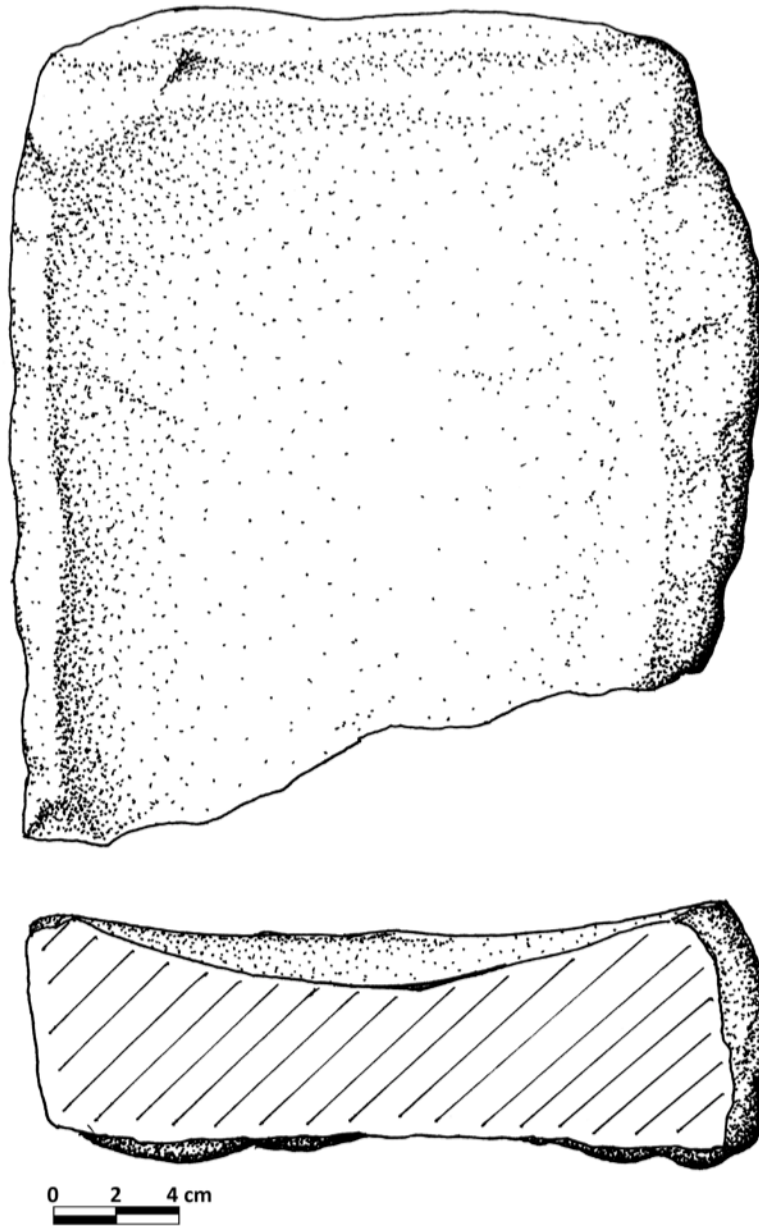


Figure 5.16: Partial metate from Structure 1 domestic context (LC12 C-F4) (FS# 8909)

Discussion: Mounds, monuments, and the built landscape

As discussed in Chapter II, monumental constructions at Göbekli Tepe (Peters and Schmidt 2004; *though see also* Banning 2011), in general across the megalithic landscape of ancient Europe (e.g., R. Bradley 2005; Sherratt 1990; Tilley 2007), and at North American sites

such as Poverty Point (Gibson 2000), demonstrate the ability of semi-mobile groups to produce massive constructions that might have been viewed as evidence for sedentism according to traditional archaeological models (e.g., Childe 1950). Recent research on the European Neolithic has begun to tease apart these tacit associations between monumental architecture, sedentism, and social organization. Authors such as Whittle (2003), Cummings and Whittle (2004), and Cooney (2007:560) have discussed the significance of monuments in Britain and Ireland as markers of “regional indigenous identity” during times of social upheaval or foreign incursion. In such circumstances, monuments may form elements of a group’s cosmology or signify cultural affiliation in contradistinction to those of other peoples (Cooney 2007:560). Other researchers have explored the role of memory as it relates to monuments. With his concept of the “afterlife of monuments,” Bradley (1993) considered continuity and re-interpretations of the historical significance and symbolic meaning of human labor. Bradley (2000) argued that the maintenance of monuments and sacred areas of landscapes (such as long-standing loci for bog offerings and sacred cave shrines) indicate the importance of history, memory, and lineages associated with such places. Whether or not megalithic sites were also zones of domestic occupation is sometimes debated. The Anatolian site of Göbekli Tepe, for instance, has been the focus of debate regarding whether non-sedentary peoples were capable of such impressive architectural constructions (see Banning 2011; Peters and Schmidt 2004). What such discussions of ancient monuments have in common is an emphasis on the construction of symbolic landscapes. Though perhaps not sedentary farmers like their successors, ancient Old World communities occupied an environment constructed in part by anthropogenic modifications and the conceptual associations that they held (e.g., Tilley 2007).

Archaeologists interested in cultural memory have argued that landscape modification is a prime example of how humans build and maintain cosmologies and identity (Van Dyke and Alcock, eds. 2003). The intentional transformation of a landscape through such processes as earthen platform and burial mound construction has also been described in Marxian terms as the translation of the landscape from an “object” of human labor to its “subject,” (Dunham 1999; Meillassoux 1972;). As such, landscape modification is more than merely the epiphenomenal result of resource extraction and environmental degradation. Landscape modification and monumental construction serve to curate culture history and cosmology, preserve the memories of ancestors, and promote a sense of place (de Certeau 1984; Dunham 1999:128). Such constructions as earthen mounds may be markers of territorial holdings or socially constructed “tropes,” which signify for a people (whether mobile or sedentary) shared aspects of ideology and physical markers of territory and/or identity, and perhaps meeting places for large social events (Dunham 1999:120). The labor and memories invested in anthropogenic earthen architecture and other monuments, therefore, were meaningful elements of ancient conceptions of landscapes, and must be considered in discussions of the adoption of sedentism.

Summary

The case for changing practices of domestic mobility at La Consentida is based on stratigraphic, artifact, and contextual data, as well as population and labor estimates. Occupational surfaces below Platform 1, which contain *in situ* vessel fragments, demonstrate that people already producing ceramics founded the site (see Chapter IV and Appendices 1 and

2). While some researchers (e.g., Clark and Cheetham 2002:311) consider ceramics and mounded architecture indicators of sedentism, others (e.g., P. Arnold 1999:160, 2009; Lesure, ed. 2009) argue that certain vessel types such as tecomates are suited to a semi-sedentary lifestyle. On the basis of settlement and ceramic data from the Gulf coast and Soconusco regions, these authors argue that the transition from Archaic period nomadism to Middle and Late Formative period sedentism was gradual. Given such varied opinions, a key question is thus whether ceramics and earthen architecture are evidence of sedentism, or if instead they encouraged transition *toward* it. I argue that La Consentida may exemplify the latter trend.

Data from La Consentida appear to support the interpretation of a gradual shift toward sedentism during the initial Early Formative. Though this evidence does not seem to fit well with the pattern found by Clark and colleagues (2007:35), wherein “village sedentism coincided with the appearance of pottery all across proto-Mesoamerica about 1900–1600 BC,” another pattern discussed by these authors seems better supported by the La Consentida evidence. Specifically, manos and metates seem to gradually replace Archaic-style tools such as mortars and pestles over time at this site (Figure A.4.1). Though no obvious mortars have been recovered at La Consentida, many of the earliest tools bear shapes and grinding or polishing wear that suggest their possible use as pestles (e.g., Figures 5.10–5.13). Though the wholesale replacement of these tool types by manos and metates is not clear at La Consentida (some possible pestles appear in later contexts and some possible manos appear in deep contexts), there is a general pattern wherein heavier ground stone tools specifically tailored to maize processing appear to have gradually replaced the earlier, multi-tool varieties (see Appendix 4). Rather than a stand-alone indicator of sedentism or absolute agricultural reliance, I see this

pattern as one of several lines of evidence (in conjunction with increasing emphasis on earthen architecture and the construction of more permanent and robust domestic architecture) that indicates a gradual trend toward both of these hallmarks of later Mesoamerican history. Much of this argument hinges on evidence for La Consentida's subsistence economy, to which I turn my attention in the following chapter.

Chapter VI: Subsistence Economy

Introduction

In this chapter I discuss results of faunal analysis, the study of dental pathologies, isotopic data from human teeth, and patterns identified among food-processing tools as multiple lines of evidence to reconstruct La Consentida's subsistence practices. Though these diverse sources of information provide a good proxy for understanding diet at the site, further investigation should help to bolster the conclusions presented here. Excavations and sediment sampling have recovered very few macrobotanical remains at La Consentida, for example. It is possible that this trend is a result of poor preservation of floral remains or simply that not enough (and not *large* enough) sediment samples were collected during excavations. Any future research at La Consentida will aim to correct for this absence of data through the collection of more sediment samples and improved flotation techniques.

Following discussion of the various independent lines of evidence for diet at La Consentida, I conclude that subsistence at the site incorporated a wide variety of resources, but was probably based on maize. Dental isotopic indicators suggest that the community consumed more maize than did contemporaneous coastal communities, such as those of the Soconusco (Blake et al. 1992; Chisholm and Blake 2006) and Gulf Coast regions (Killion 2013). As the site's ground stone technology demonstrates, even this more maize-focused subsistence regime at La Consentida was not as fully reliant on agriculture as were later Mesoamerican groups, whose ground stone tools demonstrate a greater emphasis on maize flour grinding efficiency over tool portability and multi-functionality (see P. Arnold 2009; Clark et al. 2007:29). Changes in ground

stone tool form over time at La Consentida suggest a transition in the way maize was processed, perhaps indicating changing culinary practices such as the shift from consuming maize in liquid form to consuming it as a processed flour (see Appendix 4 and especially Figure A.4.1). Such changes in cuisine have been identified in other Early Formative Mesoamerican communities that used foods such as maize and cacao as components of public events tied to the negotiation of status and inter-communal affiliations (Joyce and Henderson 2007).

Faunal analysis results

In Appendix 3, Silvia Pérez Hernández and I present the results of faunal analysis of animal bone from various contexts at La Consentida. We focus in particular on the Ops. LC09 B, LC12 D, LC12 E, and LC12 H middens, along with the LC12 A-F15 ritual cache and a few miscellaneous finds such as a crocodile or caiman mandible fragment recovered with burial B2-13. As discussed in Chapter III and Appendix 3, Pérez Hernández and I followed standard faunal analysis procedure of estimating NISP and MNI for each identifiable taxon (*see for example* Banning 2000:187–211). We did not extrapolate the quantity of meat provided by these animals (*see for example* Wing 1978). Regarding subsistence practices suggested by faunal analysis of the middens, we identify a good deal of variability between contexts. The Op. LC12 E midden (F16–F9) produced about 90 percent fish remains in screened sediments. Many of these remains came from osteichthyes (bony fishes) and a species of catfish known as *Ariopsis guatemalensis* (see Figure 6.1). These fish were also present in the other middens, though the relative frequencies of all fish were higher in LC12 E-F16 through F9 than in any other midden at the site (85 percent of NISP in Op. LC12 D, 66 percent in Op. LC12 H, and only 17 percent in Op.

LC09 B). Large marine fish were also present in the collection, some of which must have provided rare but valuable resource packages, as demonstrated by the sizable vertebra shown in Figure 6.2. Though the dental isotopic data discussed below indicate that fish were not necessarily a primary staple of the La Consentida diet, excavations in several contexts indicate that they represented an important source of animal protein consumed at the site (see A. Joyce 2010:53).

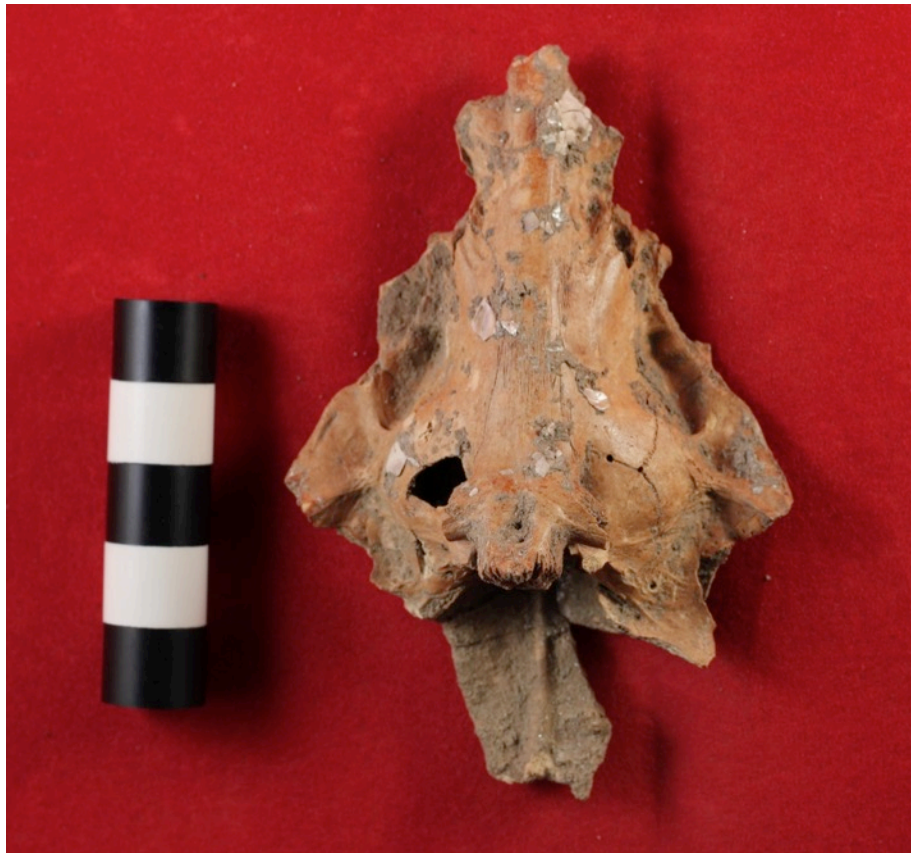


Figure 6.1: Skull fragment from a large catfish recovered in LC12 E-F9-s1 midden context

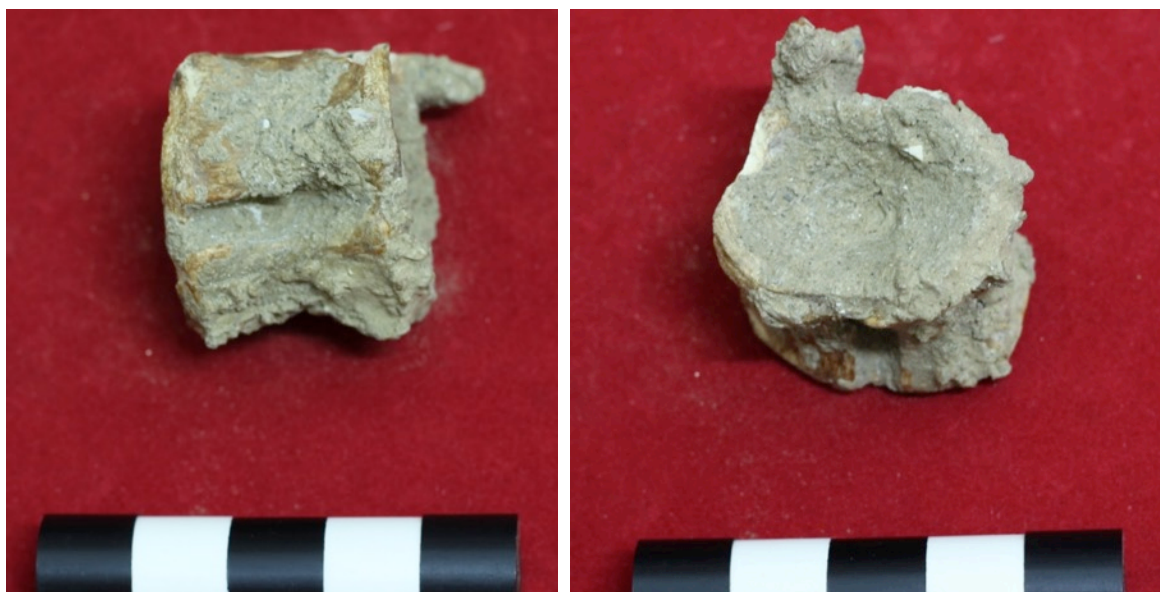


Figure 6.2: Two views of a large marine fish vertebra from LC12 E-F9-s1 midden context

Mammal remains varied in relative frequency among screened deposits at the site, with the Op. LC09 B midden (F17) containing by far the most, at 60 percent of all faunal remains. It is notable that many of the Op. LC09 B mammal bones likely came from just a few deer. In other words, the Number of Identified Specimens (NISP) of mammal remains was high in LC09 B-F17, while the Minimum Number of Individuals (MNI) was five. In general, mammal remains were rarer than expected in all excavated contexts. When they were recovered, deer bones were often burned (see Figure 6.3), indicating that the processing of flesh from large terrestrial mammals (which were likely roasted over an open flame) differed from that of fish and shellfish, the remains of which mostly appear to have been boiled, probably in soups or stews¹. In some cases, the durable long bones of deer were valued for the production of tools (Figure 6.4). When viewed under a microscope (e.g., Figure 6.5), it is clear that these deer bone tools often bore use marks in the form of scratches in a perpendicular orientation to the tools

¹ Silvia Pérez Hernández (personal communication, 2015) interpreted some fish bone from La Consentida as having been boiled, based on discoloration of the bone (see Appendix 3).

themselves, suggesting that they were used on a hard, sharp material. One rare type of mammal remains recovered at La Consentida was that from canids. As demonstrated by the coyote or possible dog mandible fragment shown in Figure 6.6, canid remains sometimes occurred in midden contexts. This provenience perhaps indicates their use as a food resource. Due to the lack of dental crowding on the mandible fragment shown in Figure 6.6, this example likely comes from a coyote rather than from a domesticated dog (Banning 2000:202; Silvia Pérez Hernández, personal communication 2013).



Figure 6.3: Burned deer bones recovered from LC12 E-F9-s1 midden context



Figure 6.4: Deer bone tool from near interface between LC12 E-F4 fill and LC12 E-F9-s1 midden



Figure 6.5: Deer bone tool (same as pictured in Figure 6.4) viewed at 40x magnification



Figure 6.6: Probable coyote mandible fragment from the bottom of a midden (LC12 H-F4-s3)

As demonstrated in Appendix 3, invertebrate marine animal remains were rarer than expected in screened contexts at La Consentida, which was likely close to an open ocean bay at the time of its occupation (Goman et al. 2005; Figure 1.3). Other pacific coastal regions, including the Soconusco, are known for large Archaic period shell middens produced near rich estuarine areas (see Voorhies 1989, 2004; Voorhies and Kennett 2011). Despite the relative lack of shellfish at La Consentida in comparison to sites in other coastal areas, some contexts nonetheless produced shell, including those of mangrove Mytilid mussels (or “*tichinda*”), as well as oyster, clams, occasional barnacles, and crustaceans such as crabs (see Figure 6.7). The presence of *tichinda* mussels suggests that the edges of the ancient bay reconstructed by Goman and colleagues (2005) likely contained a mangrove habitat. Aside from their relationship to subsistence, pieces of shell were also worked to produce jewelry and possibly other decorative artifacts (Figures 6.8 and 6.9). Shell remains from La Consentida do not seem to

indicate the production of shell pendants on the same impressive scale as that demonstrated for Laguna Zope on the Isthmus of Tehuantepec (see Zeitlin 1979:Ch. V). Due to the time constraints of the 2014 faunal analysis project, Silvia Pérez Hernández and I were not able to undertake a detailed analysis of the shell recovered at La Consentida. In order to discuss the relative quantities of shell from different deposits, however, I was able to quantify the shell recovered in sediment samples taken in the Op. LC12 D, LC12 E, and LC12 H middens. The results of flotation heavy fraction analysis are discussed below and are tabulated in Appendix 3.

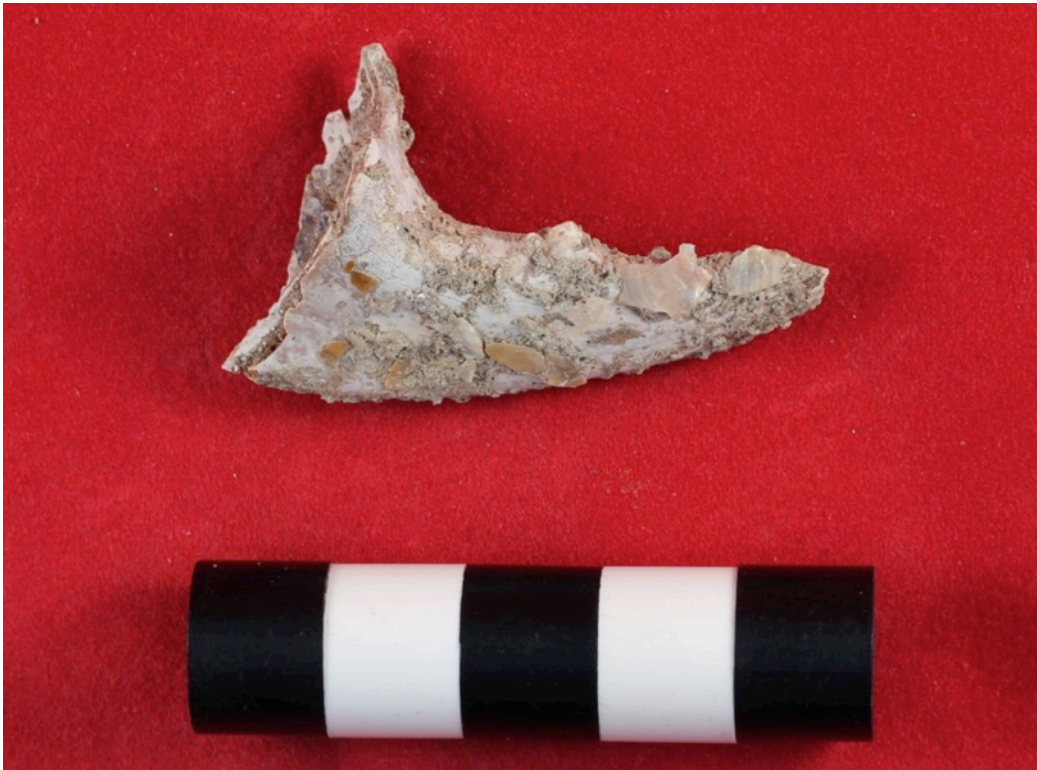


Figure 6.7: Crab claw from LC12 E-F9-s2 midden context



Figure 6.8: Shell bead from LC12 D-F4 fill or LC12 D-F5 fill and shell dump (found in screen)



Figure 6.9: Three views of a small, circular shell ornament from LC12 B-F6-s1 fill

Among screened contexts analyzed, remains of large reptiles (especially crocodiles or caimans) were surprisingly common. For example, the crocodilian MNI was 3 for the Op. LC12 E midden, 4 for the Op. LC12 D middens, 2 for the Op. LC12 H midden, and 2 for the Op. LC09 B midden (see Appendix 3). Many crocodile remains were burned (e.g., Figure 6.10), suggesting that they were used for food rather than occurring at the site naturally or through the scavenging of bone for tools (see discussion below). In some cases, the mandibles of crocodiles or caimans were used as tools, as that particular bone is extremely dense (almost entirely lacking spongy bone when viewed in cross-section) and resistant to wear. The bone fragment recovered with burial B2-I3, for example, came from the mandible of a small crocodile or caiman (Figure 6.11). It is likely that this artifact is a broken tool fragment, as several similar bones were fashioned into punches or awls (Figures 6.12 and 6.13). When these tools are viewed under a microscope (Figure 6.14) it is apparent that they were artificially shaped. Their dense consistency resisted obvious striations from use, however. Such rounded distal ends (see Figures 6.12 and 6.14) may result from the impressing of designs on decorated pottery (see Appendices 1 and 2). Other reptile remains recovered included those of iguanas (which were most common in the Op. LC12 D and LC12 E middens) and the Mexican beaded lizard (*Heloderma horridum*) (Beck and Lowe 1991). While iguanas were certainly used for food, and are in fact still consumed in the region today, the beaded lizard (a venomous predator) was part of the LC12A-F15 ritual cache, and was likely interred whole, with no signs of processing for consumption (see Chapter IV and Figure 4.66).



Figure 6.10: Burned crocodile vertebra from interface between LC12 D-F4 and LC12 D-F6 fill layers



Figure 6.11: Crocodile or caiman mandible fragment from burial B2-I3



Figure 6.12: Crocodile or caiman mandible tool from near interface between LC12 E-F4 fill and LC12 E-F9-s1 midden



Figure 6.13: Crocodile or caiman mandible tool from near interface between LC12 E-F4 fill and LC12 E-F9-s1 midden



Figure 6.14: Distal end of crocodile or caiman mandible tool (same as pictured in Figure 6.12) viewed at 40x magnification

In order to control for the bias toward bones from larger animals that the analysis of screened sediments presents, Pérez Hernández and I sorted and analyzed the heavy fractions of six flotation samples (see Table 6.1 and Appendix 3). Two of these samples came from the Op. LC12 D midden, two from the Op. LC12 E midden, and two from the Op. LC12 H midden. This was done with the specific aims of identifying bones from small animals such as tiny fish and to provide an estimate of the relative frequencies of shell in these deposits. As discussed above, in-field observation demonstrated that the Op. LC12 E midden (F16–F9) contained far more shell than any other context excavated at the site, but that La Consentida in general contains less shell than expected for a circum-coastal occupation (see Voorhies 2004; Voorhies and Kennett 2011). The results of heavy fraction analysis indicated that many small osteichthyes

(bony fish) are represented in floated sediment samples. Some of the tiny bones, and especially vertebrae, recovered in the heavy fractions would surely be lost in screened sediments. These samples also demonstrated variation in the shell content of the middens analyzed, as demonstrated in Table 6.1. Note that the shell quantities varied drastically between midden contexts, suggesting strong differences in the subsistence practices represented by the different deposits. One deposit in Op. LC12 D (from LC12 D-F5) and both deposits sampled in Op. LC12 E were so shell-rich, in fact, that we were forced to sample 50 percent of the shell from the heavy fractions in order to extrapolate total shell quantities. The small fish bones and sometimes very tiny shells recovered in flotation heavy fractions appear to have been boiled whole rather than processed individually. This pattern suggests that the La Consentida community employed relatively advanced fishing technologies such as baskets, nets, traps, or weirs. When tiny marine animals were procured, evidence for boiling rather than individual processing indicates that the cooks of La Consentida may have combined diverse marine resources into a boiling pot to make soups or stews.

Sample number and provenience	Heavy fraction sample weight (2-liter sediment samples)	Shell recovered
D1 (LC12 D-F5 fill and shell dump)	304.3 g (50% sampled)	54.9% of heavy fraction (83.5 g)
D8 (LC12 D-F10-s1 fill with occ. surface)	103.6 g (90% sampled)	10.9% of heavy fraction (10.2 g)
E1 (LC12 E-F9-s1 midden)	494.4 g (50% sampled)	84.6% of heavy fraction (209.2 g)
E21 (LC12 E-F10 hearth or shell dump)	520.6 g (50% sampled)	94.2% of heavy fraction (245.3 g)
H2 (LC12 H-F4-s1 midden)	25.1 g (100% sampled)	4.0% of heavy fraction (1 g)
H4 (LC12 H-F4-s1/F4-s2 midden interface)	24.7 g (100% sampled)	0.4% of heavy fraction (.1 g)

Table 6.1: Relative percentages of shell recovered in flotation sample heavy fractions

In general, the faunal remains from La Consentida demonstrate a broad diet exploiting marine, freshwater, and terrestrial resources. Surprises include the relatively low frequency of terrestrial mammal and avian remains and the relatively high frequency of animals that might be dangerous to hunt, such as crocodiles or caimans. Though many of the crocodilians that appear to have entered the La Consentida subsistence economy were young individuals, some were very large (e.g., Figure 6.10). The importance of catfish in the La Consentida diet is also noteworthy. Catfish varied in relative frequency across midden deposits, but their presence to some degree was ubiquitous among contexts analyzed. Given that the middens studied also varied in terms of the ceramic vessel types they contained (see Appendix 2), the dietary variation identified suggests practices of resource selection that likely correspond to seasonal availability of different animal species and to the social events that produced the middens themselves.

Faunal comparisons with later sites

The La Consentida faunal analysis offers the possibility of comparison with later sites in the lower Río Verde Valley (Fernández 2004). Before making such comparisons, it is worth noting that Pérez Hernández and I did not attempt to extrapolate the quantity of meat represented by identified taxa, but instead restricted ourselves to identification of NISP and MNI (Fernández 2004; *see also* Wing 1978; Chapter III). In general, patterns of animal resource use at La Consentida are similar to those of Middle and Late Formative period sites in the region. Middle Formative deposits at the site of Corozo demonstrated minimal consumption of

mollusks, which appears to be consistent with the pattern identified at La Consentida (Fernández 2004:128). Similarly, Late Formative Cerro de la Cruz and Río Viejo faunal assemblages suggest that mollusks contributed little to the diet in comparison to fish and terrestrial fauna (Fernández 2004:125). Occupants of Río Viejo in particular apparently did not consume much shellfish, though what shells were present indicated the exploitation of diverse coastal settings including lagoons (Fernández 2004:127). These patterns of shellfish exploitation may be complicated by the possibility that people shelled some mollusks at the shore before returning home with the meat. The lack of identified coastal shell middens is not supportive of this hypothesis, however (Fernández 2004:125, 127). By the Terminal Formative period, occupants of the site of Yugüe were obtaining more of their diet from shellfish than had previous communities. This circumstance, coupled with an increased consumption of coastal fish compared to previous sites, suggests overexploitation of faunal resources in their immediate surroundings (Fernández 2004:129; *see also* Barber 2005).

Fernández (2004:124–128) found that Middle and Late Formative occupants of the lower Río Verde Valley consumed both aquatic and terrestrial resources, but that the ratios varied by time period and location. She concluded that Late Formative occupants of Cerro de la Cruz probably gained more meat from terrestrial resources than from aquatic ones, despite higher total numbers of remains from the latter (Fernández 2004:124). Río Viejo, which is located along the Río Verde and closer to the Pacific than is Cerro de la Cruz, appears to have obtained more of its resources during the Late Formative from fish than did Cerro de la Cruz (Fernández 2004:126; A. Joyce 1991b). Though remains from La Consentida also demonstrate the exploitation of both terrestrial and aquatic resources, its location closer to the coast than

the later sites likely influenced the very high percentage of aquatic remains in some deposits (see Appendix 3). As Joyce (1991a:137) demonstrated, proximity to the coast significantly influenced human bone chemistry even within the lower Río Verde Region. Also, the probable formation of coastal estuaries by the Middle Formative period (see Goman et al. 2005, 2013) likely produced dietary changes over time in the region, particularly regarding potential increases in estuarine resource consumption. In general, the importance of catfish, cichlids, and jacks appears to be consistent between the La Consentida and later sites in the region (Fernández 2004:124–128).

Animal remains from La Consentida demonstrate other similarities and differences when compared to Middle and Late Formative sites in the region. The presence of coyote and deer remains at La Consentida is consistent with piedmont fauna identified at Cerro de la Cruz (Fernández 2004:131; see Figures 6.3 and 6.6 and Appendix 3). The recovery of some iguana remains at La Consentida is generally similar to finds at later sites in the region, though the relatively high quantities of iguanas (14% of MNI) at Río Viejo differ from the La Consentida finds, which never were higher than 5% MNI in any context analyzed (Fernández 2004:132, 185; see Appendix 3). Fernández (2004:180, 181) identified 1% MNI of crocodilian remains at Cerro de la Cruz and about 3% MNI of crocodilians at Río Viejo. In contrast, Pérez Hernández and I identified as high as 7% and 14% MNI in screened contexts at La Consentida. Though our smaller overall sample may skew these results, the presence of large and sometimes cooked crocodilian remains (e.g., Figure 6.10–6.14) suggests that these animals were an important resource for the La Consentida community, perhaps due in part to the site's location near coastal lagoons. Another point of worthwhile comparison relates to the order Siluriformes

(catfish). We identified as high as 24% MNI of catfish (especially *Ariopsis* [or *Sciades*] *guatemalensis*) in screened deposits at La Consentida (see Marceniuk and Menezes 2007). The use of catfish is also indicated at Middle Formative Corozo and Late Formative Río Viejo (Fernández 2004:134). The largest amount of catfish remains identified in screened samples at later sites was by was 12% MNI at Río Viejo (Fernández 2004:184). It therefore seems that the La Consentida community placed more emphasis on catfish than did later people in the region. Though catfish are often found in fresh water (Fernández 2004:25), they are also remarkably adaptable to salt water and brackish conditions. Their recovery at La Consentida may thus relate either to the site's location close to coastal lagoons or to use of the river that must have run near the site (see Chapter IV).

One interesting point of contrast between the La Consentida faunal results and those from the later sites is that Fernández (2004:127) found little to no evidence of deep sea fishing in Middle, Late, and Terminal Formative period contexts. As evidenced by some very large fish vertebra (e.g., Figure 6.2), the La Consentida community may have exploited potentially dangerous ocean environments to a greater degree than did later communities. Fernández (2004:132) proposed a tentative model of dietary change over time in the lower Río Verde Valley, which included a shift from a Middle Formative diet emphasizing fish to a broader Late Formative diet of fish, shellfish, and terrestrial mammals, and a Terminal Formative and Classic period diet focused on shellfish and coastal fish (Fernández 2004:133–134). Though La Consentida's location closer to the Pacific than any of the later sites considered by Fernández may complicate such comparisons, the high percentage of fish remains (up to 90% NISP) in some contexts at La Consentida appears consistent with Fernández's model.

Analysis of human teeth

The analysis of human remains, and particularly of teeth, can aid reconstruction of ancient diets (M. Pearson 1999:80–82; Schwarcz and Schoeninger 2011). At La Consentida, both pathological and isotopic indicators are useful for understanding changes in the community's subsistence strategies. While adults in the earlier burials at the site do sometimes have dental caries, overall dental health seems to have initially been good, and thereafter to have declined (refer to Appendix 5). For example, while the earliest burials at the site are of robust people with a comparatively large stature and relatively healthy teeth (Figure 6.15), later burials show an increased presence of caries, dental attrition, and even one example of possibly fatal mandibular abscesses (Figure 6.16). Among later burials (e.g., B5-I6, a probable female aged 20–35 years), even relatively younger individuals bore dental indicators of an agricultural diet such as caries. Though such dental pathologies are a secondary indicator of specific dietary practices, they nonetheless suggest change over time in the community's diet. The health implications of adopting agriculture and particularly of the impacts of a starchy diet and of the abrasive quality of maize flour ground in stone metates, have been identified in a wide variety of archaeological contexts (e.g., Hodges 1987; Larsen 1987). I discuss literature regarding such skeletal and dental markers in Chapter II, but a few are most significant for understanding ancient diet. Porotic hyperostosis may suggest malnutrition, linear enamel hypoplasia might indicate juvenile growth interruption (Cook 1981; Goodman 1991; Skinner and Goodman 1992), and cribra orbitalia is suggestive of anemia. Significant consumption of starchy foods, particularly those prepared using stone mills that leave grit in the processed flour, may result in tooth loss, dental wear or attrition, and caries (Larsen 1995:187–189).



Figure 6.15: Two views of relatively healthy dentition of B12-I14 adult female (aged 45–50 years). (Images courtesy of José Aguilar)



Figure 6.16: Two views of diseased mandible of B1-I1 adult male (aged 35–50 years) with caries and possibly fatal mandibular abscesses. (Images courtesy of José Aguilar)

In addition to their pathological characteristics, teeth can provide evidence of ancient diet through stable isotopic indicators (Blake et al. 1992; Boyd et al. 2008; Katzenberg 2000; Price et al. 2008; Schwarcz and Schoeninger 2011; Sealy 2006; Tykot and Staller 2002; Webster et al. 2005). Tykot and Staller (2002:670; *see also* Ubelaker et al. 1995), reviewed isotopic markers in coastal Ecuador, and argued that “collagen carbon isotope [$^{13}\text{C}/^{12}\text{C}$] ratios of -15‰ to -9‰” suggest maize reliance. Nitrogen isotope values of approximately 9–13‰ have indicated marine resource reliance in some North American contexts (Katzenberg 2000:316–317), and values of 13‰–18‰ suggested marine resource reliance in mid-Holocene South Africa (Sealy 2006:578). In settings where collagen is poorly preserved, the analysis of enamel apatite (which contains a record of an individual’s whole diet) has proven useful (e.g., Mansell et al. 2006). In such cases, $\delta^{13}\text{C}$ values higher than -7 ‰ indicate that more than half of an individual’s carbon came from C_4 sources. Identifying the presence of C_4 plants in human diets is significant in areas such as Mesoamerica, where C_4 (grassy) plants such as maize are relatively rare. If a set of Mesoamerican human remains has strong indicators of a C_4 -based diet, archaeologists tend to attribute that to a maize-reliant (i.e., agricultural) diet (*see* Tykot 2006). In Mesoamerica, dental isotopic studies (e.g., Blake et al. 1992; *see also* Rosenswig 2006) have indicated that coastal populations in regions such as the Soconusco ate relatively little maize during the Early Formative (when the crop was likely a feasting food) and only became reliant on it during the Middle Formative period. Various lines of evidence, including isotopic indicators, patterns of ground stone, and storage practices, indicate a similarly late onset of maize reliance in the Gulf Coast region (Killion 2013).

As discussed in Chapter III, Paul Sandberg and I sampled the dental enamel of nine adult

individuals (Table 6.2) and dentin from eight individuals (Table 6.3). The enamel samples were processed at the University of California Santa Cruz Stable Isotope Laboratory, and the collagen samples were processed at the University of California Davis Stable Isotope Facility. The dentin from burial B3-I4 was not sufficiently preserved for sampling, and only burial B12-I14 produced enough collagen for reliable results. All nine individuals had adequate enamel preservation for analysis. A tooth from a tenth individual (B2-I3) is awaiting enamel and collagen study, the results of which will be included in a forthcoming publication. During the 2014 laboratory season, I collected long bone samples from many of the individuals studied for dental isotopic composition, and the analysis of these samples (pending) will hopefully fill in the data gaps presented by the dental collagen preservation problem.

The $\delta^{13}\text{C}$ values in the enamel apatite data presented in Table 6.2 indicate that the individuals sampled ate a diet consisting of significant quantities of C_4 plants. It should be noted that isotopic indicators of diet in Mesoamerica are complicated by the presence of crassulacean acid metabolism (CAM) plants, which include cacti and agave and metabolize carbon in a way that produces a signature between those of C_3 and C_4 plants. The consumption of CAM plants could produce elevated $\delta^{13}\text{C}$ levels and confuse interpretations of maize consumption (Blake 2006; Blake et al. 1992; Llano and Ugan 2014; Tykot 2006). Though relatively little evidence for CAM plant exploitation has been found in pre-Hispanic contexts in the lower Río Verde Valley, King (2003:265) did identify a few probably imported cactus seeds in Early Postclassic deposits at Río Viejo. The presence of ground stone tools known for use in maize processing, however, further suggests that maize was a component of the La Consentida diet. The $\delta^{18}\text{O}$ levels presented in Table 6.2 indicate qualities of the water sources used by the La Consentida

community, and demonstrate a lack of evidence for significant outliers that might suggest immigration from another region. As mentioned previously, only burial B12-I14 produced enough well-preserved collagen for analysis (Table 6.3). As discussed in Appendix 5, B12-I14 was a healthy and relatively robust adult female with good dentition (see Figure 6.15). This individual had a relatively low $\delta^{15}\text{N}$ value (suggesting little marine input) and a relatively high $\delta^{13}\text{C}$ value (-12.8 permil), which indicates roughly 50% of the carbon in her diet was derived from ^{13}C -enriched foods such as maize. The relative lack of dental attrition experienced by this individual in comparison to some others (e.g., Figure 6.16) suggests that her diet was not gritty despite its relatively high maize component.

Burial number	$\delta^{13}\text{C}$ (‰)	$\delta^{18}\text{O}$ (‰)
(B1-I1)	-3.8	-5.6
(B3-I4)	-4.9	-6.0
(B4-I5)	-6.1	-6.1
(B5-I6)	-6.2	-6.3
(B6-I7)	-7.2	-6.6
(B6-I8)	-5.1	-7.9
(B8-I10)	-5.1	-7.7
(B10-I12)	-6.3	-6.2
(B12-I14)	-6.2	-7.6
Average	-5.7	-6.7

Table 6.2: Oxygen and carbon stable isotopic values from enamel apatite ($\delta^{13}\text{C}$ [‰] range = -3.8 – -7.2)

Burial number	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	C:N ²
(B1-I1)	-29.5	9.3*	141.2*
(B4-I5)	-29.7*	5.2*	15.9*
(B5-I6)	-25.9*	-4.7*	3.4*
(B6-I7)	-25.4*	-12.4*	1.9*
(B6-I8)	-26.0*	2.0*	2.8*
(B8-I10)	-24.7*	9.2*	2.2*
(B10-I12)	-26.4*	-4.5*	4.4*
(B12-I14)	-12.8	7.0	2.8

Table 6.3: Stable isotopic values in collagen from human dentin (* value too small for reliable interpretation)

When bioarchaeological data on dental pathologies are combined with the $\delta^{13}\text{C}$ values from enamel apatite, the general pattern that results is that dental attrition from a gritty diet appears to have increased over time in human remains at La Consentida. The linear regressions displayed in Figure 6.17 are based on the approximate chronological relationships of the burials, which may be stratigraphically clear within an excavation area (e.g., in Op. LC09 B) but less obvious between distant excavation areas (e.g., Ops. LC09 B and LC12 A). Dental attrition is coded simply as 1=minor; 2=moderate; and 3=extreme. The teeth pictured in Figure 6.16 exemplify “extreme” dental attrition. Refer to Appendix 5 for more detailed discussion of the individual pathological characteristics of the human remains.

The remains of nine adult individuals were complete enough for comparisons between chronology, enamel carbon isotope composition, and dental attrition. The relatively low variation in $\delta^{13}\text{C}$ values among these burials suggests that maize consumption stayed reasonably consistent over time. This phenomenon may indicate that the individuals accounted for in the Figure 6.17 graph were interred over a relatively short period of the site’s occupation.

² This ratio is calculated by dividing the total amount (μg , or micrograms) of carbon by the total amount (μg) of nitrogen for each sample.

The apparent increase in dental attrition over time, however, suggests that some other aspect of subsistence was changing even as maize consumption remained fairly constant. The increase over time in the use of manos and metates made of grainy stone for the probable processing of maize flour may account for this change (see Appendix 4). The three worst cases of dental wear (in burials B1-I1, B5-I6, and B10-I12) occurred in the individuals in the fifth, eighth, and ninth chronological positions, respectively. This pattern tends to support the interpretation that dental attrition likely caused by a gritty diet was increasing over time. A possible complicating factor for this argument is the age estimates for the individuals studied. As demonstrated in Table 6.4, however, the oldest individuals were not always those with the most severe dental attrition. When multivariate pairwise correlations (Figure 6.18) are calculated for these three variables using a Pearson product-moment correlation coefficient, it is clear that dental attrition increases over time among the burials. Though the Pearson test is intended for interval/ratio level data rather than ordinal data, it serves as a heuristic device to provide supporting evidence for my interpretations about dental attrition (Kranzler 2011:82–86). On the basis of these analyses, dental attrition in the La Consentida human remains increased over time ($p < 0.05$) (see also Figure 6.17).³ In the following section, I will discuss chronological patterns identified among ground stone tools as the key factor that I believe is responsible for this trend in dental pathology.

³ Note that Figures 6.17 and 6.18, as well as Table 6.4, are restricted to the discussion of nine sets of human remains for which dental attrition, age, and chronological data were available.

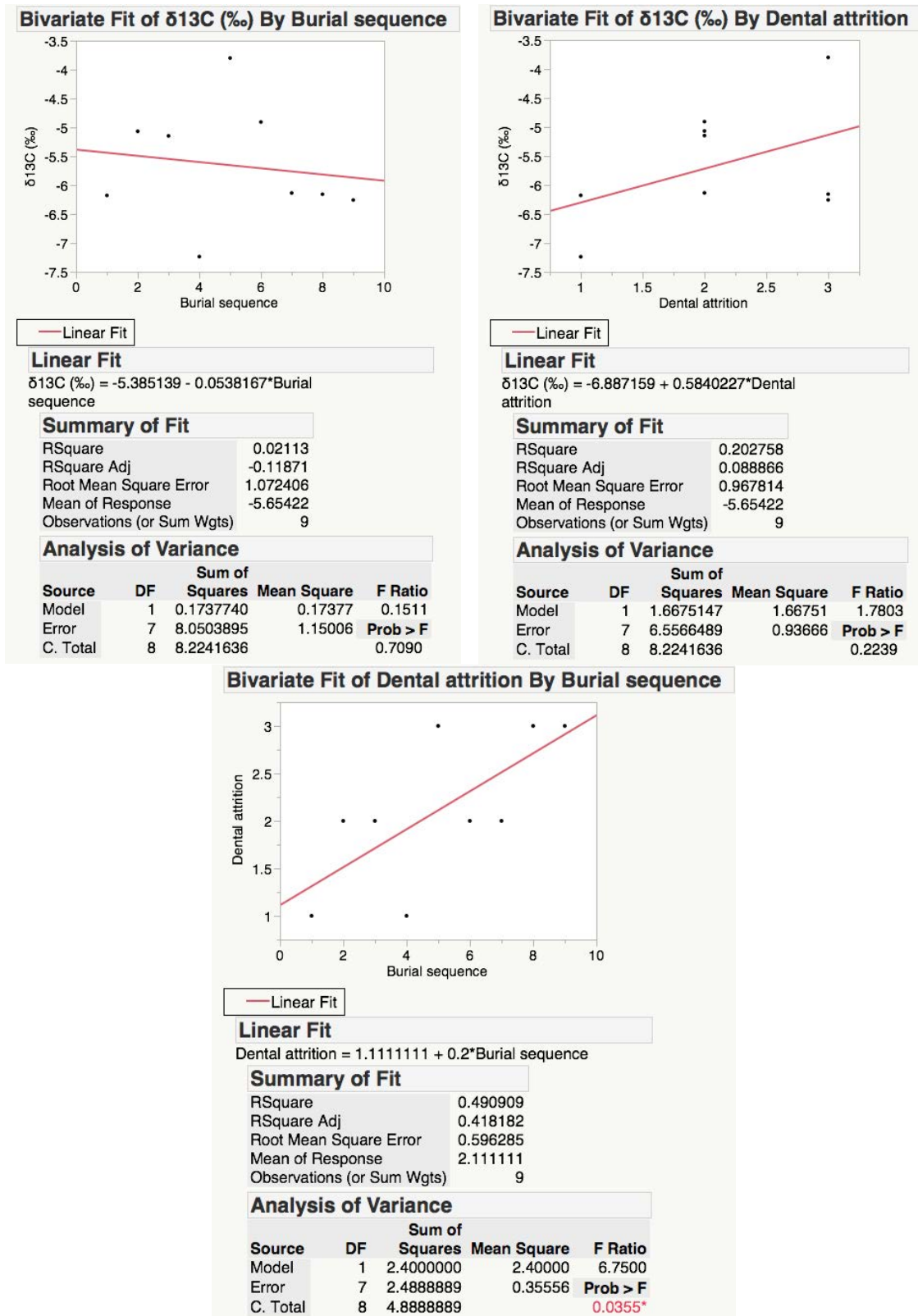


Figure 6.17: Linear regressions demonstrating relationships between enamel apatite $\delta^{13}\text{C}$ values, dental attrition, and approximate burial chronology. Note that only the relationship between dental attrition and burial chronology is statistically significant ($p=0.0355$).

Burial number	Chronological position ⁴	Dental attrition	Age estimate
B12-I14	1 (oldest)	Minor	45–50 years
B8-I10	2	Moderate	15–18 years
B6-I8	3	Moderate	Unknown adult
B6-I7	4	Minor	20–35 years
B1-I1	5	Extreme	35–50 years
B3-I4	6	Moderate	Unknown adult
B4-I5	7	Moderate	Unknown adult
B5-I6	8	Extreme	20–35 years
B10-I12	9 (most recent)	Extreme	20–35 years

Table 6.4: Burial chronology, assessments of dental attrition, and age estimates

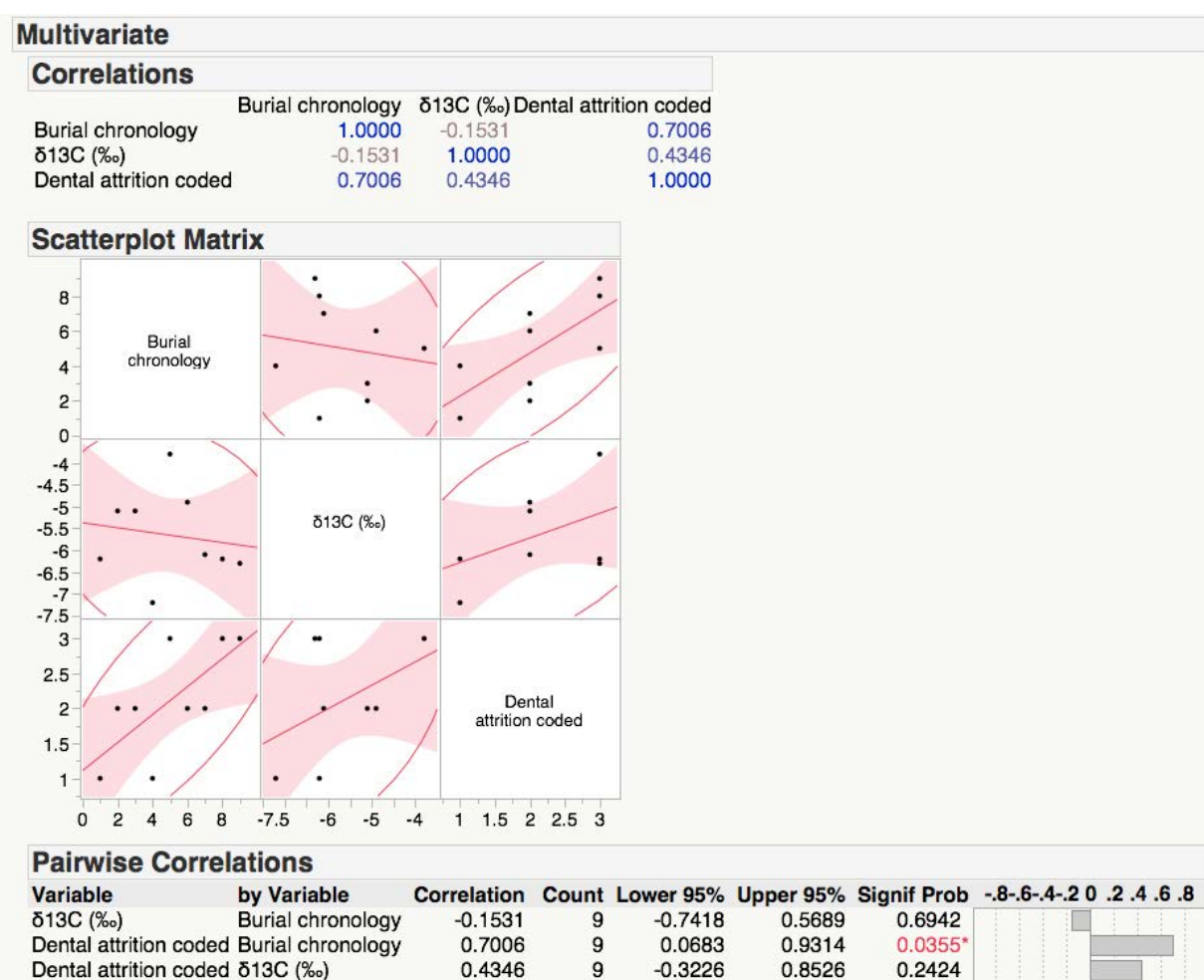


Figure 6.18: Multivariate statistics exploring relationships between burial chronology, dental attrition, and $\delta^{13}\text{C}$ values from enamel apatite⁵

⁴ Note that the burial chronology discussed here pertains just to the nine burials for which all relevant data were available. Chronological positions are thus listed differently than those for the *total* sample of La Consentida burials, which are represented in Table A.5.1.

Ground stone tools

Numerous types of ground stone tools have been recovered at La Consentida. As mentioned in Chapter V, many of these artifacts bear use wear indicating their employment in a variety of food processing and/or crafting activities. Often, as with the examples demonstrated in Figures 6.19 and 6.20, these tools bear impact marks from their use as hammer stones. It is not clear if this hammering was all from food processing or if other pounding activities, such as woodworking or construction of domestic structures, produced some of the use wear. The artifact shown in Figure 6.21 may explain some of the battering damage, as its slightly concave surface indicates its use as an anvil, perhaps for grinding or pounding activities employing small hammer stones. Other fragments of ground stone are more enigmatic in their intended use. The curving fragment demonstrated in Figure 6.22 is made of a fine-grained dark material (likely basalt) and may have been some kind of polisher, on the basis of its fine use wear. This artifact is narrow and almost bladed or lozenge-like in cross-section. Its crescent form appears to have widened at the point where it is broken, challenging interpretations of its original shape. Though it is likely that not all such tools were directly tied to subsistence, their complex wear patterns and portable size suggest that at least the earlier ground stone at La Consentida was well-suited to the portability needs of a semi-mobile people (see P. Arnold 2009:404; Chapter V and Figure A.4.1).

⁵ Results of a Pearson product-moment correlation coefficient calculated in JMP™ Pro 11

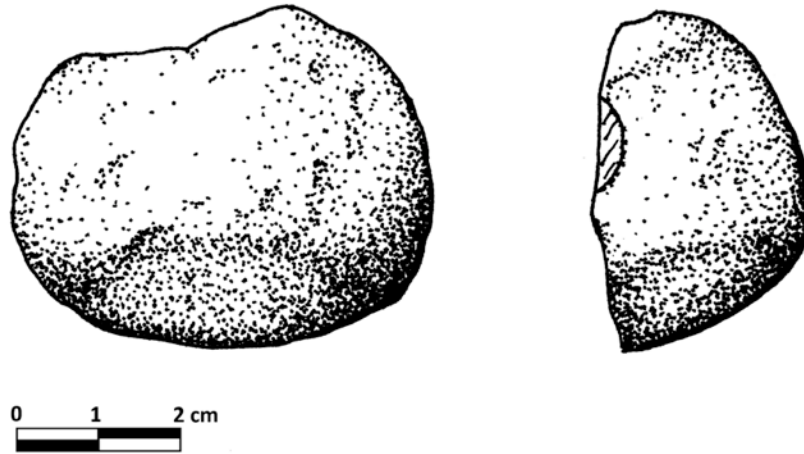


Figure 6.19: Hammer stone or pestle from fill with occupation layer (LC12 C-F8) (FS# 8857)

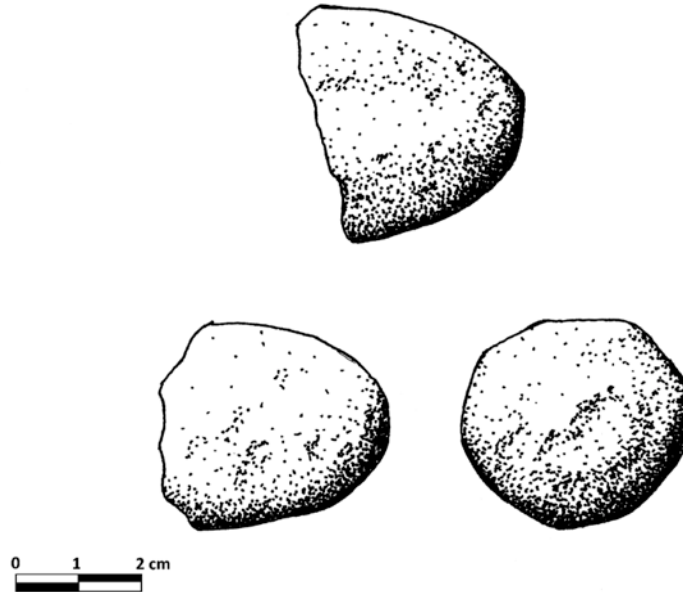


Figure 6.20: Polisher and hammer stone from ancient soil formed in fill (LC09 B-F12) (FS# 6140)

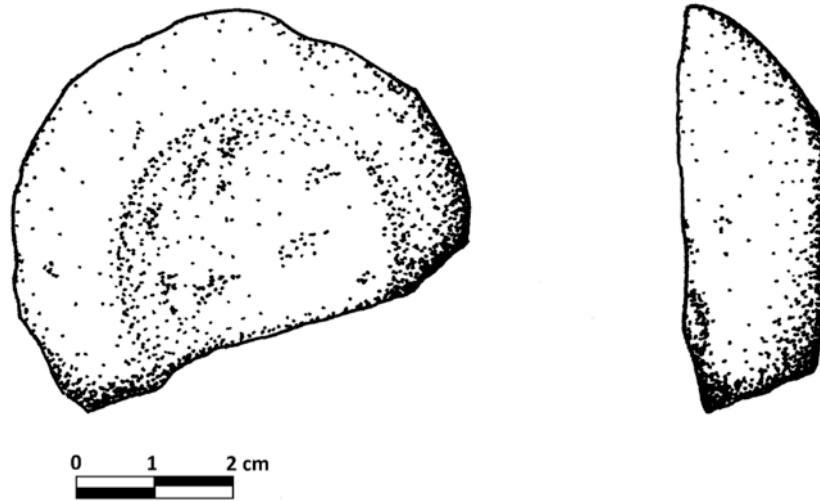


Figure 6.21: Hammer stone or anvil from fill with architectural debris (LC12 E-F4) (FS# 9853)

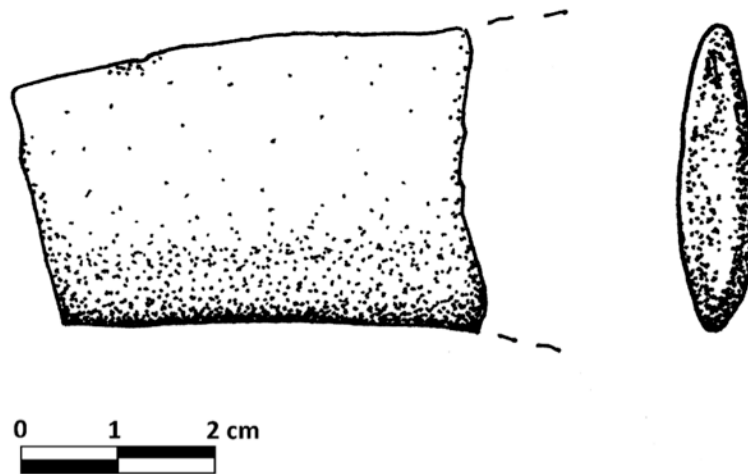


Figure 6.22: Possible polisher from LC12 E-F9-s1 midden context (FS# 10226)

Though excavations uncovered portable and multi-purpose tools in a wide variety of contexts at La Consentida, heavier ground stone artifacts tended to occur in later deposits at the site (see Chapter V). Refer to Appendix 4, and particularly to Figure A.4.1, for a discussion of the data supporting this claim. Where tools can be clearly linked to food processing, as is the case with manos and metates, they suggest that La Consentida's later occupants placed greater

emphasis on the processing of flour from domesticates such as maize than did their ancestors who initially founded the site (*see* Clark et al. 2007). Nonetheless, all manos so far recovered at La Consentida are of the earliest “one-handed” variety, which is a style consistent with ground stone tools of the Archaic period (P. Arnold 2009; Clark et al. 2007; Hard et al. 1996; Winter and Mateos 2010; Winter and Sánchez Santiago 2014:10–11). In fact, one of the best examples of the small size and portability of the manos at the site was actually recovered at the surface (Figure 5.14).

Even the larger manos at La Consentida (e.g., Figures 6.23 and 6.24) are relatively small in comparison to later Mesoamerican examples (Clark et al. 2007:29; Winter and Mateos 2010). La Consentida’s “larger” manos measure up to 140 x 103 x 44 mm in dimensions, but are still well within the realm of “one-handed” tools (Winter and Mateos 2010). Furthermore, most manos at La Consentida bear use wear not only from grinding (probably from processing flour on a metate) but also show some additional form of wear such as impact marks on one or both ends from use as a hammer stone (e.g., Figure 6.25) or pitting and concavity on at least one flat side from use as an anvil (e.g., Figure 6.26). Arnold (2009:404) has described one-handed manos as “associated with a multiplicity of tasks,” (perhaps *not* focused on maize processing) in contrast to the “targeted grinding” (especially for maize flour) performed with later, two-handed manos. Combinations of diverse types of use wear on most of La Consentida’s ground stone may indicate an interest in conserving stone. As they pertain more specifically to diet, such palimpsests of use wear also suggest that the community, even in the later years of site occupation when diet appears to have become increasingly based on maize flour, required of their tools a wide variety of tasks, likely to compliment a diet that was still in a state of

transformation from the diverse foraging on wild resources that was a hallmark of the Archaic to the more dedicated agriculture of the later Formative and Classic periods.

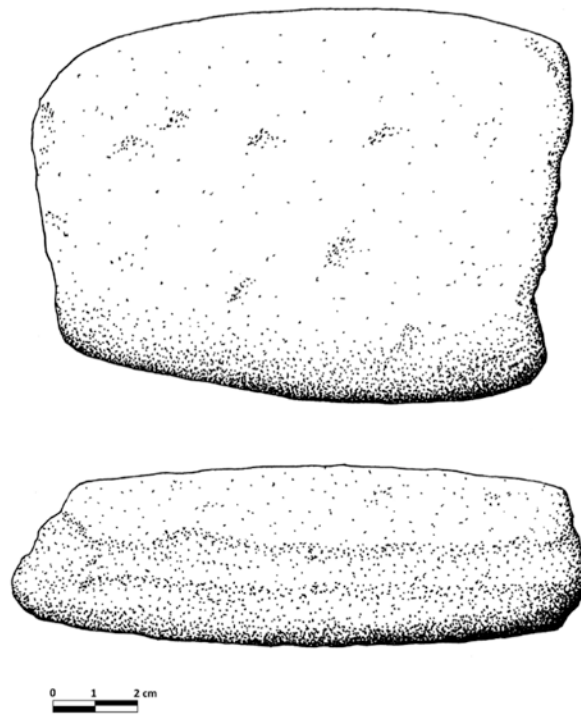


Figure 6.23: Mano and possible anvil from occupational debris/surface (LC12 C-F2) (FS# 7693)

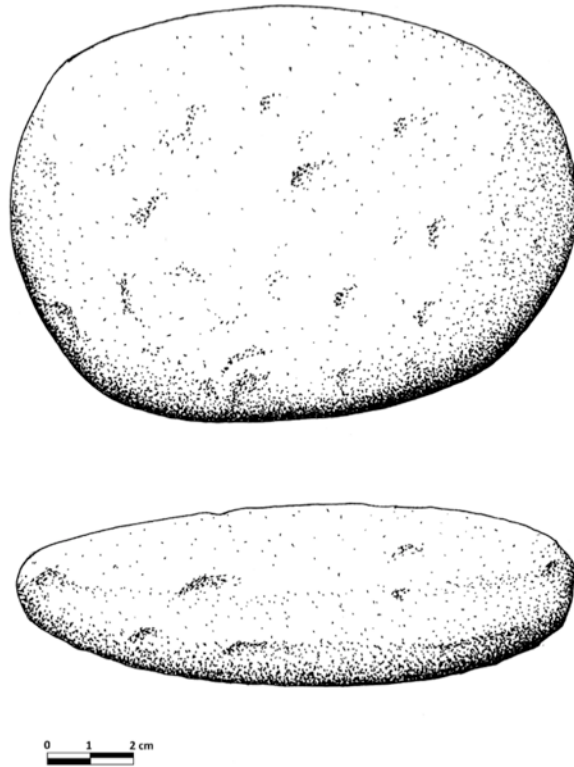


Figure 6.24: Mano from Structure 1 domestic architecture (LC12 C-F4) (FS# 8913)

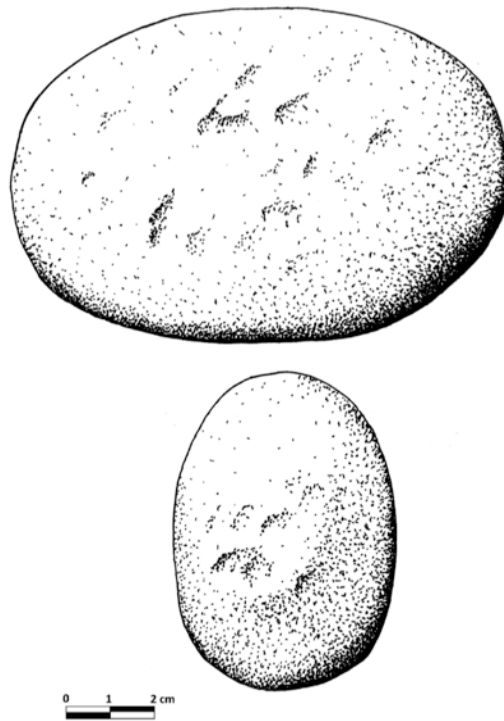


Figure 6.25: Mano and probable hammer stone from burial B2-I3) (FS# 6217)

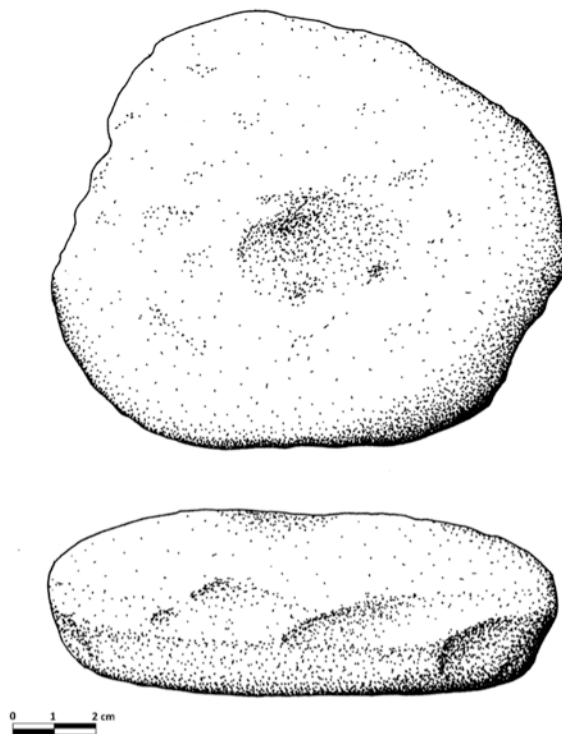


Figure 6.26: Mano and anvil from occupational debris/surface (LC12 C-F2) (FS# 8030)

Metates have been recovered at La Consentida only in fragmentary form, though in some instances (e.g., Figure 5.16) these fragments are complete enough to give a good impression of the original shape and dimensions of the artifact. Some metates (e.g., Figure 6.27) have heavily concaved upper surfaces indicating relatively significant grinding wear. Other tools bear grinding wear like a metate but lack the concave shape typical of most metates. Such artifacts may more appropriately be termed grinding platforms (e.g., Figure 6.28). Though their intended use is not as apparent as that of the more obvious metates, they may have been employed for maize flour processing and/or other grinding activities. As discussed below, their recovery in domestic contexts (sometimes the same contexts where the obvious metates are recovered) further supports their use in household activities such as food preparation. Arnold

(2009:404-405) has discussed a similar discrepancy between “multi-purpose metates (grinding slabs)” and “single-purpose metates,” which were more exclusively used for producing flour by grinding.

The majority (75%) of La Consentida’s metates are made of fairly coarse-grained granite (e.g., Figures 5.16, 6.27, 6.29, 6.30). This pattern differs from the overall sample of ground stone, which is composed of 29% coarse, 30% fine, and 41% medium-texture material. A few examples of large grinding implements (e.g., Figure 6.28) are made from a softer, more fine-grained material, at least some of which is also granite. This slight difference in material preference may further indicate the subtly different uses to which true metates versus grinding platforms were put. Also, while most of the metate fragments came from large artifacts unsuitable to transportation across great distances, at least a few (e.g., Figure 6.30) indicate that the community also used smaller grinding implements. Finally, it is worth noting that most of the metates do not appear to have been particularly heavily used prior to breakage or discard. This pattern contradicts that among some other ground or polished stone implements at the site, which bear use wear indicative of employment for a variety of tasks, sometimes to the point of exhaustion (e.g., Figure 5.15). Whether this pattern indicates change over time in material availability or patterns of use is not clear based on the existing evidence. Almost without exception, the ground stone from La Consentida has not been washed subsequent to excavation, and a planned pollen, starch grain, and/or phytolith study will hopefully further clarify subsistence practices employing these artifacts (see Morell-Hart et al. 2014).



Figure 6.27: Metate fragment from Structure 1 domestic architecture (LC12 C-F4) (FS# 8911)



Figure 6.28: Refitting grinding platform fragments from Structure 1 domestic architecture (LC12 C-F4) (FS# 8910 and 8916)



Figure 6.29: Metate fragment from Structure 1 domestic architecture (LC12 C-F4) (FS# 8931.b)



Figure 6.30: Metate or grinding platform fragment from Structure 2 domestic architecture (LC12 G-F2) (FS# 9161)

Both manos and metates recovered at La Consentida are most common in domestic contexts (see Chapters IV and V), and this pattern is especially strong with the metates. Of eight obvious metate or grinding platform fragments, six (75 percent) come from the areas of the Structure 1 and 2 domestic buildings. Among thirty-two manos, fragmentary manos, or possible manos, fifteen (47 percent) came from within or near Structures 1 and 2. The domestic nature of manos and metates at the site is not surprising, and underscores the importance of the household scale of social interaction and economic production in the community's subsistence practices. Notable exceptions to this pattern include the mano (Figure 6.25) and the large grinding platform or grave marker stone (Figure 6.31) recovered with burial B2-I3. The latter bears little use wear, but does have a circular, ground depression (approximately 2 cm in diameter) on one side. The artifact was placed atop the torso of the B2-I3 individual, probably at the time of interment (see Figure A.5.2). Though it is not clear for what sort of activities the tabular stone might have been intended, the mano at least indicates that food processing tools held meanings beyond the household, and could even be included as mortuary offerings.



Figure 6.31: Grinding platform and/or marker stone from burial B2-I3 (FS# 6216)

Chipped stone tools and other subsistence/crafting technology

The majority of chipped stone recovered at La Consentida occurs as informal flakes of clear-grey and grey obsidian (D. Williams 2012:64–68; see Chapter VIII of this dissertation for a discussion of obsidian sources). Black obsidian, chert, chalcedony, and quartzite are less common material types present at the site (D. Williams 2012; Figures 6.32 and 6.33). In general, the informal bipolar flaking technology (and lack of many formalized tools or prismatic obsidian blades) is similar to what archaeologists have found in other Early Formative contexts (e.g., Clark 1987; Clark and Lee 2007:113; Lowe 1967, 1975, 1977) and fits the pattern that prismatic blade technology did not become common in Mesoamerica until later in the Early Formative and Middle Formative periods (Jackson and Love 1991). As I discussed in Chapter II, the ostensibly “random” nature of Early Formative obsidian reduction has interested researchers for many years, with some suggesting subsistence-related activities such as manioc processing

as possible explanations (e.g., Davis 1975; Lowe 1967, 1975, 1977; *but see* DeBoer [1975:431] *and* Lewenstein and Walker [1984] *for cautionary remarks*). Recent plant microfossil analyses of chipped stone artifacts (e.g., Morell-Hart et al. 2014) are beginning to provide more concrete evidence for the use of obsidian in root crop processing. In the case of the La Consentida obsidian, macroscopic analysis encountered little use wear (D. Williams 2012). Future microscopic use wear study may help to identify the crafting and food production practices for which these artifacts were used. The analysis of starch grains on unwashed obsidian samples may indicate whether some of these tools were used to process manioc.



Figure 6.32: Typical chipped stone from La Consentida. Scale in centimeters. (Image courtesy of David T. Williams)



Figure 6.33: Typical chipped stone from La Consentida. Scale in centimeters. (Image courtesy of David T. Williams)

Based on his analysis of the obsidian recovered during the 2009 excavations at La Consentida (Hepp 2011a, 2011b), Williams (2012:68) reported that no prismatic blades have been found at the site. This is no longer the case. The more extensive 2012 excavations uncovered a few of these artifacts in shallower deposits, particularly in the area of Substructure 2, where the Structure 1 and 2 domestic contexts were excavated. These strata, such as LC12 C-F1 and C-F2, include occupational refuse and artifacts from after site abandonment, and are generally not considered primary contexts. The possibility remains, however, that some of the prismatic blades date to Formative period occupation. Several authors (MacNeish et al. 1967:22; Niederberger 1976; Zeitlin 1978, 1979 [*cited in* D. Williams 2012]) have noted that prismatic blades do sometimes occur in Early Formative and possibly even Archaic period deposits. In the Mixteca Alta, for instance, prismatic obsidian blades are present by the Cruz B phase (Blomster and Glascock 2010:192). The few blades at La Consentida may either help date

the site's Formative period abandonment to the later Early Formative period or indicate an early adoption of this technological innovation more common in Middle Formative contexts (Jackson and Love 1991). The provenience of some of these prismatic blades in near-surface deposits such as LC12 C-F1 suggests that some are likely later, intrusive artifacts deposited at the surface subsequent to Formative period site abandonment. Despite those few blades, the overwhelming majority of La Consentida's obsidian falls into the category of "expedient" lithic reduction. In the lower Río Verde Valley, Workinger (2002:313–329) identified Pachuca obsidian in Late Formative, Terminal Formative and Classic period contexts at San Francisco de Arriba. To date, no green obsidian from the Pachuca source has been recovered at La Consentida. This lack of green obsidian emphasizes the site's early date, as Terminal Formative and Early Classic period sites in the region often contain high quantities of this material (Joyce et al. 1995; D. Williams 2012:76, 77). This observation is consistent with a general pattern identified by Cobean (2002:41 [*cited in* D. Williams 2012:112]), wherein Pachuca obsidian was not widely traded in Mesoamerica until 1200 BCE or about 1450 cal B.C.

Though a few obsidian artifacts from La Consentida may exhibit light use wear, most appear to be flakes and shatter with only a few formal unifacial or bifacial tools (D. Williams 2012:65; Figure 6.34). In general, the lithic assemblage suggests the use of relatively informal flake tools for a variety of cutting purposes. Despite this pattern, formal tools do occur. The chert blade or knife pictured in Figure 6.35 represents one such tool type. This artifact occurred as an offering with B2-I3, the same burial that was accompanied with the mano (Figure 6.25) and tabular stone (Figure 6.31) discussed above, as well as a ceramic bottle (Figure 8.34) and partial figurines (Figure 7.4; see also Appendix 5). Another special type of artifact, chert drills,

indicates the use of specific material and tool forms for some type of crafting activity (Figure 6.36). Note that one of the drills pictured in Figure 6.36 also was also recovered with burial B2-13. Such drills have been identified in other archaeological contexts as a component of “an elaborate economic system that was based on maritime exchange” (Gamble 2002:301). Archaeological research on maritime economies has found evidence for the more generalized use of “chert macrodrills” in activities including the drilling of shell for the production of fishhooks (Arnold and Bernard 2005). There is precedent for similar use of stone tools in coastal Oaxaca, as Robert Zeitlin (1979:Ch. V) discussed flaked quartz tools used as shell working implements at Formative period Laguna Zope. Coastal populations elsewhere in the New World have also used similar stone drills (Gamble 2002; Jones and Klar 2005). For example, “trifacial stone drills” made of chert have been associated with sewn-plank canoe production among the Chumash of California (Gamble 2002:306). Though not directly tied to food processing, the production of boats, nets, traps, weirs, and other technologies for exploiting the mangrove, bay, and open-ocean habitats adjacent to La Consentida would nonetheless be intricately involved with the subsistence economy in this coastal environment (see Figure 1.3). Other specialized crafting tools identified at La Consentida include worked sherd discs (Figure 6.37). Though it is not immediately clear what purpose these discs served, similar examples occur in Tierras Largas phase deposits in the Valley of Oaxaca (Ramírez Urrea 1993:Fig. 72).



Figure 6.34: Probable bifacially flaked tool from initial Platform 1 fill deposits (LC09 A-F5). Scale in centimeters. (Image courtesy of David T. Williams)



Figure 6.35: Two views of chert blade or knife with probable retouch flaking and use wear. From burial B2-I3. Scale in centimeters. (Images courtesy of David T. Williams)



Figure 6.36: Chalcedony and chert drills. Left: from early fill (LC09 B-F14); Center: from early fill (LC09 B-F14 or F-16); Right: From burial B2-I3. Scale in centimeters. (Images courtesy of David T. Williams)



Figure 6.37: Sherd disc artifacts from Structure 2 and surrounding domestic context

Summary

A key distinction for discussions of Early Formative diet is that between horticulturalists (for whom domesticates are a minor component of a diet based on wild resources) and agriculturalists who rely on their crops (P. Arnold 2009; Clark et al. 2007; Kennett et al. 2010; Killion 2013; VanDerwarker 2006). For that reason, dietary reconstructions for Early Formative period communities should not seek to identify the absolute presence or absence of domesticated maize as sufficient evidence for subsistence strategies. The date of 6700 cal B.C. for maize domestication in the Río Balsas region (Piperno 2011; Piperno et al. 2009; Ranere et al. 2009:5015) indicates that early communities like La Consentida had access to maize, at least as a supplemental or feasting food (Blake et al. 1992; Clark and Blake 1994; Goman et al. 2005, 2013; Smalley and Blake 2003).

Dental isotopic data indicate a greater degree of maize consumption at La Consentida than identified in other coastal regions of Early Formative Mesoamerica (e.g., Blake et al 1992; Chisholm and Blake 2006). Though issues of preservation hampered collagen analysis, the tooth samples from La Consentida (and particularly the bone apatite from enamel) represent a valuable addition to subsistence reconstructions for the site. Taken together, the enamel and collagen data indicate a greater degree of C_4 and/or CAM plant consumption than that recorded for the initial Early Formative in other coastal regions of Mesoamerica such as the Soconusco. As indicated by the general lack of evidence for CAM plant consumption in the region in pre-Hispanic times (see King 2003:265), C_4 plants such as maize are likely the main contributor to this pattern. Planned isotopic studies of faunal samples (both terrestrial and marine) and human long bone samples should further illuminate and contextualize the dietary

data for La Consentida.

The analysis of faunal remains collected from various contexts at La Consentida, and especially from middens, bolsters the maize data with evidence for animal resources used at the site. The prevalence of *Ariopsis guatemalensis* in the Op. LC12 E midden (F16–F9) is intriguing. These adaptable fish are capable of thriving in marine, brackish, and freshwater conditions, and may have migrated seasonally up freshwater channels such as the Río Verde and/or frequented mangrove habitats, where the La Consentida community could capture them in large numbers during certain times of the year (Kailola and Bussing 1995). The presence of these fish remains in Op. LC12 E corresponds to that of decorated ceramics in an ashy midden context indicative of large cooking and food consumption events (see Table A.2.6). This correlation suggests intermittent feasting, perhaps timed to correspond to natural catfish behavior or to mangrove harvesting events, and during which community members could negotiate aspects of the novel social identities of the Early Formative period through practices such as displaying fancy, decorated pottery (see Clark and Blake 1994 *regarding the role of decorated ceramics in feasting*).

The transition over time from small, multi-purpose, portable ground stone tools in earlier occupation levels to the much larger metates used shortly before La Consentida's abandonment appears significant (see Figure A.4.1). These results suggest that the site's earliest food-processing tools may have met the needs of a semi-sedentary people, though isotopic data indicates significant maize consumption (see P. Arnold 2009; Clark et al. 2007; Killion 2013; VanDerwarker 2006). The increase over time in the size and grinding or flour processing efficiency of the site's ground stone suggests a transition towards a more grain-

based diet, probably focusing on maize flour. Based on the small size of artifacts such as manos throughout the site's Formative period occupation, however, it is possible that the community was not fully reliant on maize until closer to site abandonment, if even then. What is clear, based on the ground stone evidence, is that the La Consentida diet (or at least culinary practices) changed between initial occupation and site abandonment.

I have argued in this chapter that practices of maize processing using ground stone tools may have changed over time even as maize consumption itself remained fairly constant (see Figure 6.17). This may reflect a shift from consumption of maize in beverages to consumption of maize flour produced with stone manos and metates. Such a shift provides a useful example of the way in which practices of consumption and processing, or conceptions of socially appropriate "cuisine" (see Joyce and Henderson 2007) may significantly impact the subsistence strategies of a community, even as absolute quantities of a product such as maize remain fairly stable. This dietary transition is supported by what appears to be a concurrent change in skeletal health and especially dental pathology, with tooth wear increasing over time. In conclusion, the faunal, dental, and ground stone data indicate that maize flour consumption likely increased over the course of the La Consentida occupation. From early in site history, however, maize consumption (perhaps initially in liquid form) appears to have been a more important component of the diet than it was for contemporaneous Soconusco and Gulf Coast communities (Blake et al. 1992; Killion 2013). In the interest of specific comparison, note that Chisholm and Blake (2006:166) reported a Locona phase $\delta^{13}\text{C}$ (‰) value of -19.3 (reconstructed diet = -23.8). Compare this with the La Consentida $\delta^{13}\text{C}$ (‰) range of -3.8 – -7.2, (average = -5.7). No good samples from the Barra phase are available (Chisholm and Blake 2006:166).

Chapter VII: Evidence for Social Organization

Introduction

As discussed in Chapters I and II, the timing and nature of initial social complexity have been major concerns of Early Formative period archaeology (Blake and Clark 1999; Clark 2004a; Clark and Blake 1994; Flannery 1968b; Flannery and Marcus, eds. 2003; Hill and Clark 2001; R. Joyce 2004a; Lesure and Blake 2002; Love 2007). In this chapter, I will discuss various lines of evidence for social organization at La Consentida. Layers of earthen architecture demonstrate the community's practices of communal labor. Anthropomorphic imagery, particularly from ceramic figurines, provides clues that can help us see La Consentida's occupants as they perhaps saw themselves or wished to show themselves. Evidence of ancient jewelry and clothing support the figurine data by suggesting that there was variety in the dress of community members. I will argue that these dissimilar costumes represent differences in embodied identity. Indications of ceremonial practices, particularly regarding mortuary ritual and community events such as music, dancing, and feasting, can help us better grasp the sensory experience of life at ancient La Consentida, and perhaps understand how the community's diverse members interacted (Howes 2003, 2006; Seeger 1987). Calling on these lines of evidence, I will argue that the La Consentida community was heterarchically complex, though it bears little evidence for the hereditary hierarchies of later pre-Colombian history (Adams 1966; Drennan 2009; Feinman and Nicholas 1989; A. Joyce 2000, 2010; Kowalewski 1990; Lesure and Blake 2002; Parsons 1974; Sanders and Nichols 1988; Spores 1997).

Earthen architecture and communal labor

As discussed in Chapter V, a population of approximately 80 people, of whom perhaps half or slightly fewer were suited for heavy labor at a given time, could have constructed all of La Consentida's earthen architecture in 250 years or less. As demonstrated in Chapter IV (e.g., Figures 4.16–4.25) building phases composing Platform 1 and its seven substructures varied in volume and in the amount of labor each required for its construction. When analyzing the various excavation profiles for information about the community's practices of architectural construction, a few general patterns emerge. First, initial fill layers tend to be thinner than some of the later fill episodes, an observation which is consistent with the interpretation that the first occupants may have only seasonally occupied the site (see Chapter V). Second, at least some of the substructural mounds were under construction from early in the site's occupational history, indicating that these probable domestic zones were planned from an early date (see LC12 A-F11-s1, for example). Finally, later construction layers (represented by strata such as LC12 A-F4-s1) became relatively uniform in their thickness (see Figure 4.25). One potential explanation for the relative uniformity of the uppermost fill deposits (e.g., LC12 A-F10-s1, A-F4-s1, and A-F2) is that construction of Platform 1 and the substructures may have become a routine occurrence, perhaps taking place in distinct but regular intervals when subsistence interests permitted, as suggested by the "working season" component standard to most labor estimate models (e.g., Erasmus 1965; Joyce et al. 2013; see Tables 5.1–5.4). These explanations for variation in earthen fill strata are speculative, but may suggest increasing organization of labor. From early fits and starts of varied and intermittent construction, the

community developed a more regular set of architectural practices indicated by increasingly uniform construction layers. As indicated by the early planning for the substructural mounds (note the shape and extent of stratum LC12 A-F11-s1, for example) certain aspects of community planning appear to have increased over the course of site occupation (see Figure 4.25).

Anthropomorphic iconography

The analysis of ceramic figurines and similar objects has proven useful for helping to understand social dynamics in ancient Mesoamerica (e.g., Blomster 2009; Cyphers Guillén 1993; Faust and Halperin 2009; Hepp 2007, 2009; Hepp et al. 2014; Hepp and Joyce 2013; Hepp and Rieger 2014; R. Joyce 2000a; Lesure 1997a, 1999a, 2011b; Marcus 1998, 2009). Patterns apparent in anthropomorphic figurines in particular can shed light on constructions of social roles pertaining to such variables as status, gender, age, and occupation. Ceramic figurines are very common at La Consentida, with over 250 different examples recovered (often represented by small fragments) during the 2009 and 2012 excavations. Figures 7.1–7.3 demonstrate basic patterns among figurines, musical instruments, and other iconographic ceramic artifacts. Findings of note include the predominance of anthropomorphic imagery among identifiable artifacts and the emphasis on feminine and female anthropomorphic imagery among humanoid forms. The musical instruments demonstrate the prominence of ocarinas (ceramic aerophones with finger stops for playing multiple notes) rather than simple whistles. This pattern indicates a relatively sophisticated instrumentality present at this early site. Similar ceramic musical instruments have been identified in highland Oaxaca during the Tierras Largas phase (Ramírez

Urrea 1993:143). As discussed elsewhere (Hepp et al. 2014), these early musical instrument traditions share the attribute of top-oriented apertures. They also share an emphasis on avian imagery, as discussed in greater detail later in this chapter.

Though a systematic analysis of these iconographic artifacts will be the subject of a future study, a brief discussion of the most complete and/or diagnostic among them is appropriate here. As discussed above, many of La Consentida's figurines are anthropomorphic, and are often female or appear feminine in identity. As discussed elsewhere (Hepp and Joyce 2013), when discussing anthropomorphic artifacts it is useful to make a distinction between *sex* (i.e., primary or secondary indications of biological sex) versus *gender* (i.e., clothing, jewelry, or other attributes not directly indicating sex but which are correlated with identities such as feminine and masculine). Even in the earliest fill layers, where redeposited artifacts must date to very early in site occupation, these figurines bear a variety of head garments, hairstyles, and iconographic elements. Some figurines have generalized or schematic features while others have more individualized faces. Other research in the region (e.g., Barber and Hepp 2012; Hepp et al. 2014) has suggested that such variations in facial styles indicate that some musical instruments and figurines represent individual people (either living or dead), while others may suggest more generic categories of "ancestor," "deity," "spirit," and the like. Another intriguing interpretation for figurine use was suggested by Parsons (1936:71), who noted that wax anthropomorphic figurines were used during the early 20th century in the Zapotec towns of Mitla and Zaachila to pray to the saints for children. In these cases, male figurines were used to pray for a boy and female figurines for a baby girl.

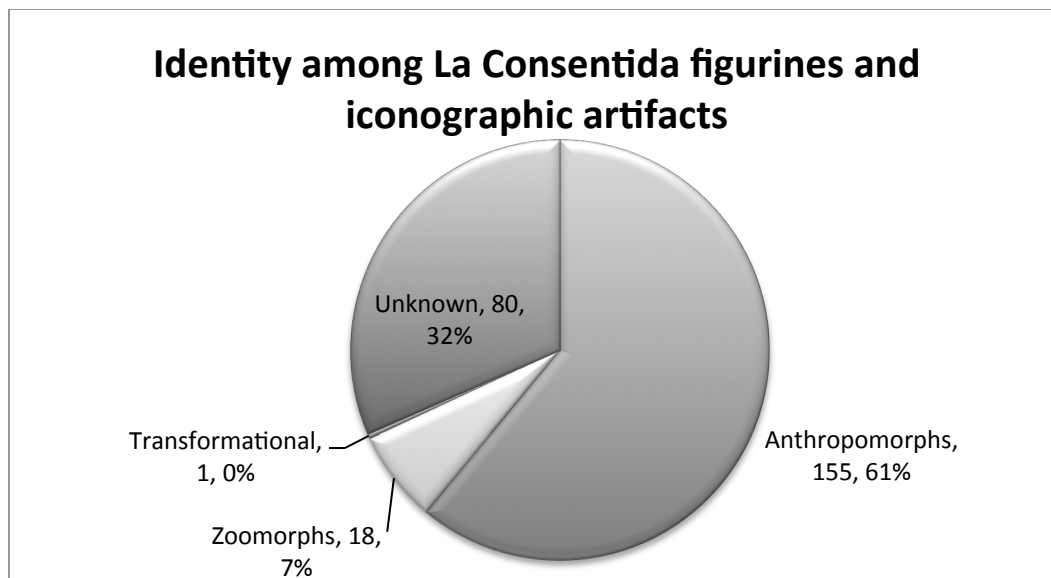


Figure 7.1: Basic identity categories among La Consentida figurines and iconographic artifacts

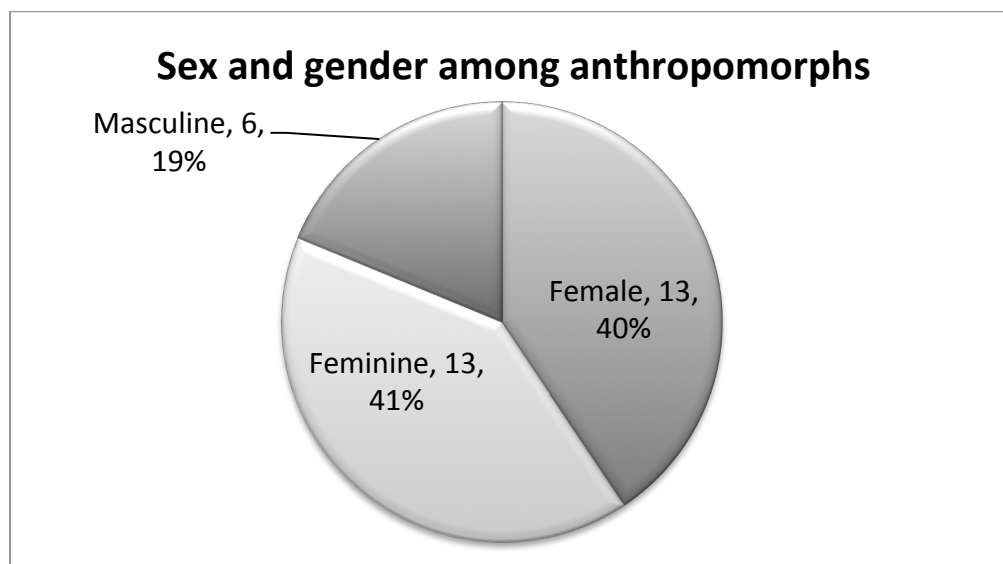


Figure 7.2: Sex and gender among anthropomorphic figurines and iconographic artifacts

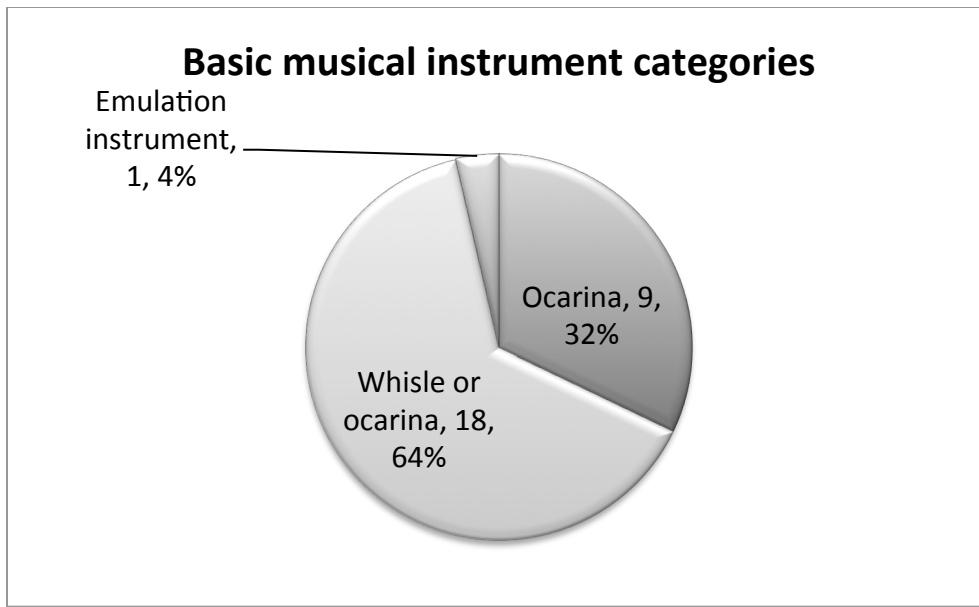


Figure 7.3: Basic musical instrument categories among ceramic aerophones

One of the basic figurine types at La Consentida is represented by nude or nearly nude anthropomorphs, which almost exclusively appear to possess anatomical traits of women. The figurines shown in Figure 7.4, for example, are nearly identical broken female torsos recovered with or near Burial 2. The B2-I3 individual was an adult male, indicating that figurines left as burial offerings need not have represented the interred individual in a strictly anatomical sense (see Appendix 5). These and many others of the La Consentida figurines appear intentionally broken, perhaps as part of a termination ritual (R. Joyce 2009:416; Shafer and Taylor 1986:51; Smith 2005 [1932]). Figure 7.5 depicts a similar nude female torso. Note that this figurine and others have been broken at some of their thickest points, suggesting intentional breakage.

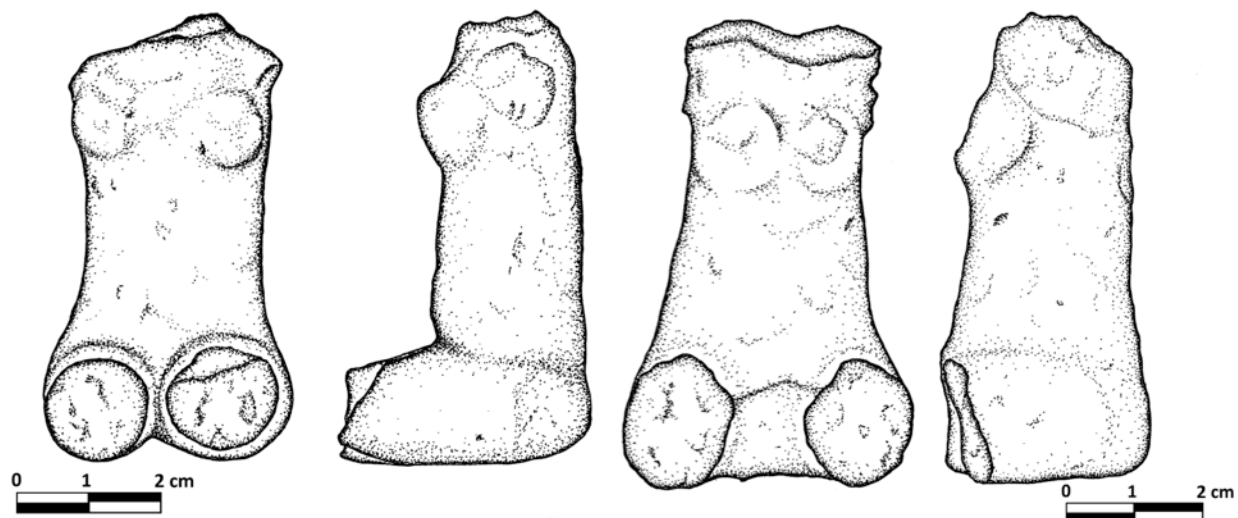


Figure 7.4: Partial anthropomorphic figurines. Left: possible burial offering from B2-I3; Right: From LC09 B-F12 fill near burial B2-I3

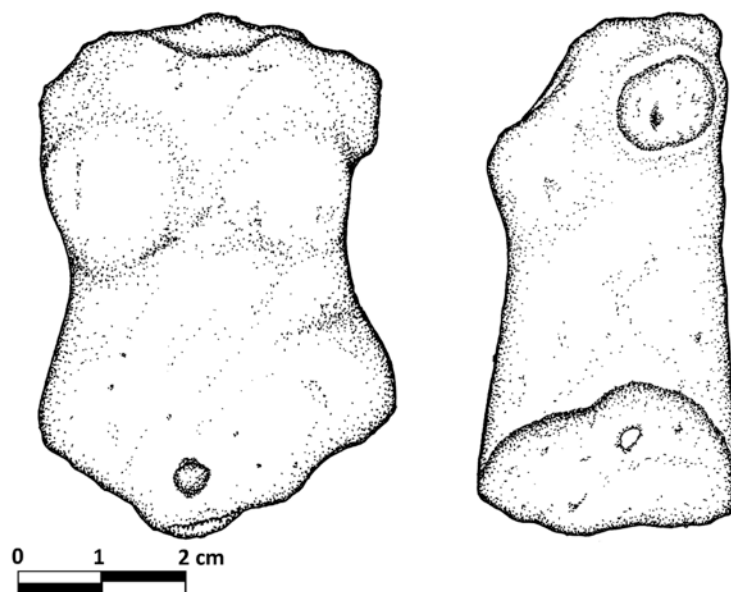


Figure 7.5: Partial anthropomorphic figurine from LC09 B-F16 early fill near hearth and burials

When basic anthropomorphic forms are more complete, as pictured in Figures 7.6 and 7.7, it is clear that the original artifacts often depicted people in a seated position. As these two artifacts also indicate, figurine provenience is diverse, with examples occurring in mortuary,

midden, fill, and domestic contexts. Other artifacts, such as the example represented in Figure 7.8, demonstrate that some figurines were constructed to show standing figures. This object (see also Figure 7.7) also exemplifies the interest of figurine makers in depicting the human form in a full-figured, even corpulent style. As Guernsey and others (2012:121–122; Lesure 1999a) have discussed, seated figures with big bellies likely suggest high status in many Formative period Mesoamerican contexts. Some standing figurines from La Consentida (e.g., Figure 7.9) demonstrate that limbs were often represented in a simplified manner.

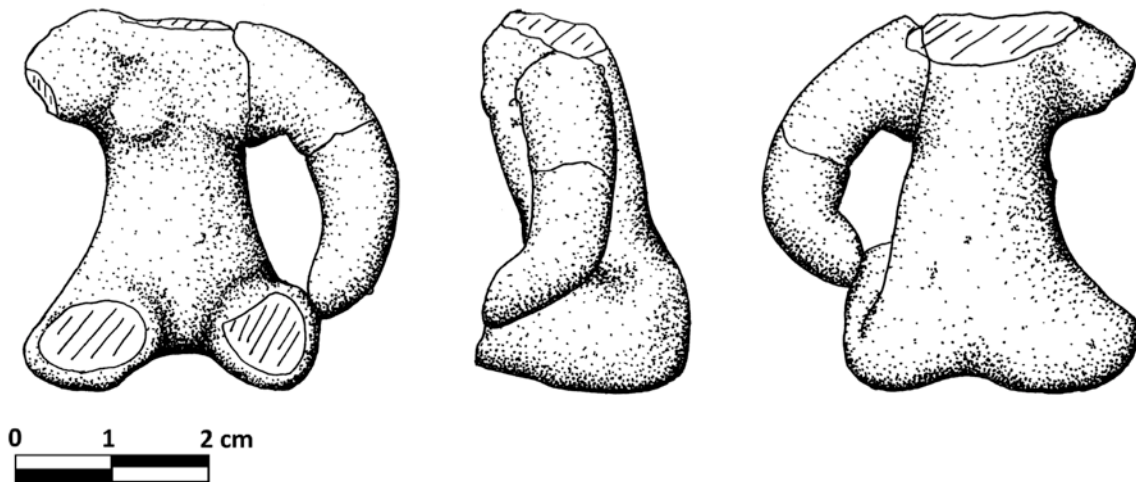


Figure 7.6: Partial anthropomorphic figurine from floor of Structure 2 house

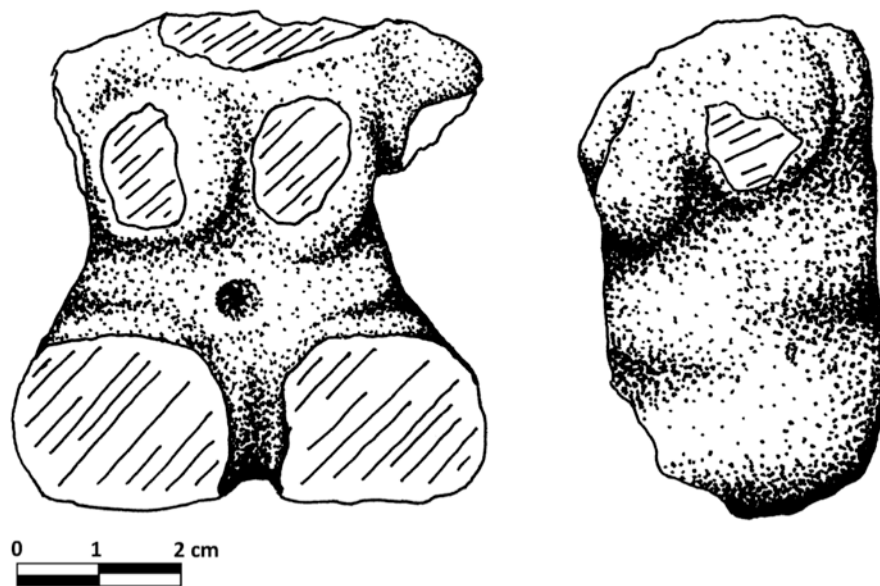


Figure 7.7: Partial anthropomorphic figurine from LC12 G-F1 surface and domestic context

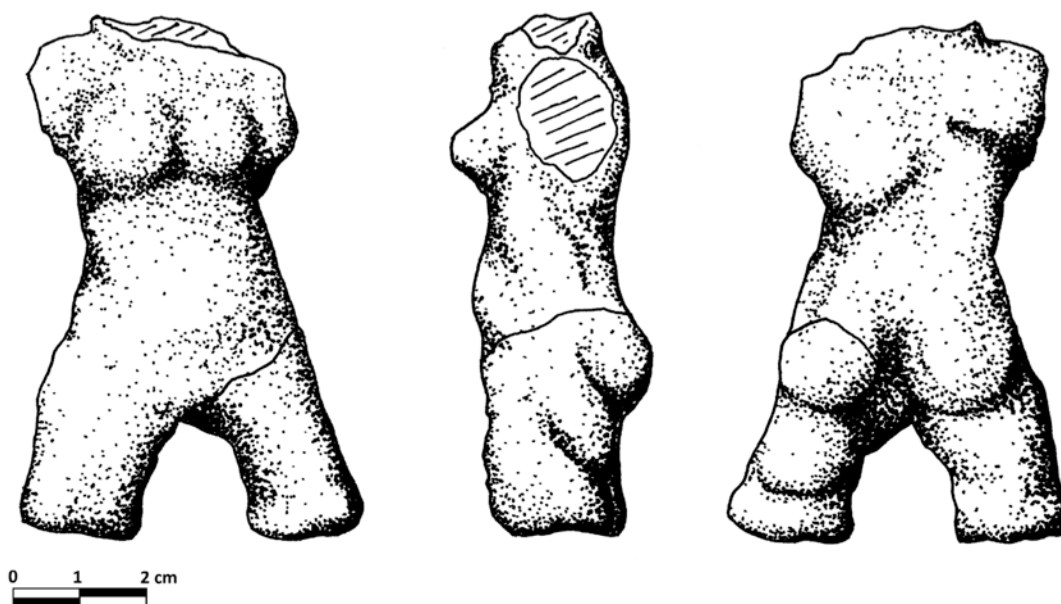


Figure 7.8: Partial anthropomorphic figurine from LC12 A-F4-s1/F7 interface (fill with burials)

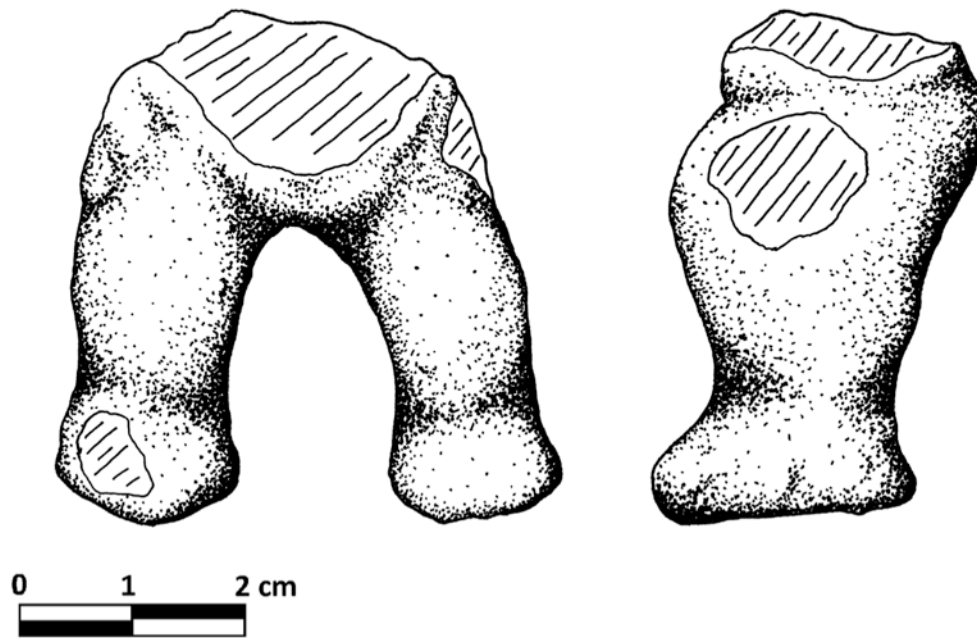


Figure 7.9: Partial anthropomorphic figurine from LC12 C-F2 domestic occupational debris

The attention of figurine makers at La Consentida was often focused on overall body postures, and (as discussed below) accoutrements, heads, faces, and headgear. Limbs seem to have served to demonstrate posture but were not generally a primary locus for the display of obvious social indicators. Figurines that emphasize some parts of the human body at the expense of others are common in Formative period Mesoamerica, as discussed by authors such as Rosemary Joyce (2009:410). The figurines discussed in Joyce's example tended to accentuate the human torso at the expense of the head and face. Figurines demonstrating a similar trend occur at La Consentida, as indicated by two figurines found close to one another at the edge (perhaps against the wall) of the Structure 1 domestic building (Figures 7.10 and 7.11). These artifacts bear only the most vague resemblance to real human bodies, and have simplified facial characteristics akin to some of the earliest Archaic and Early Formative period figurines known for regions such as Texas and central Mexico, respectively (Niederberger 1976, 1987, 2000:176;

Shafer 1975 [cited in R. Joyce 2009:409–410]). The figurine head pictured in Figure 7.12 demonstrates that even figurines from shallow deposits at the site bear these early-style, simplified features. Furthermore, this artifact (in comparison with others such as the examples in Figures 7.10 and 7.11) demonstrates the considerable variability at the site in terms of artistic style and conventions governing the depiction of the human face.

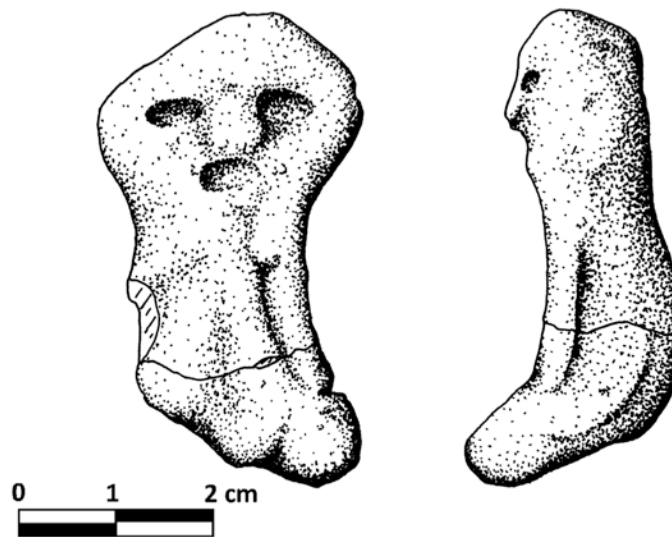


Figure 7.10: Anthropomorphic figurine from edge of Structure 1 domestic building

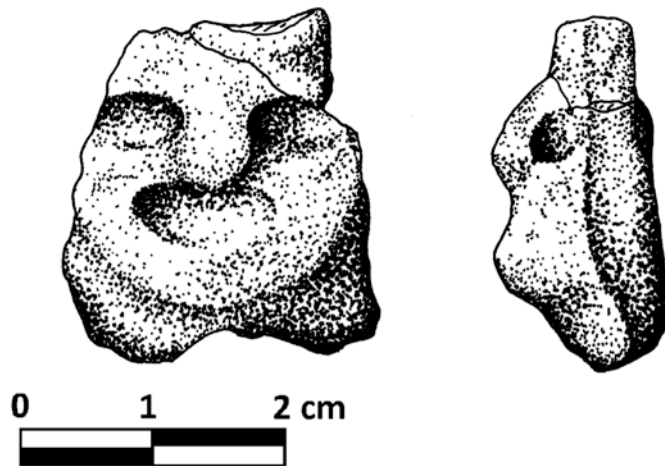


Figure 7.11: Anthropomorphic figurine fragment from edge of Structure 1 domestic building

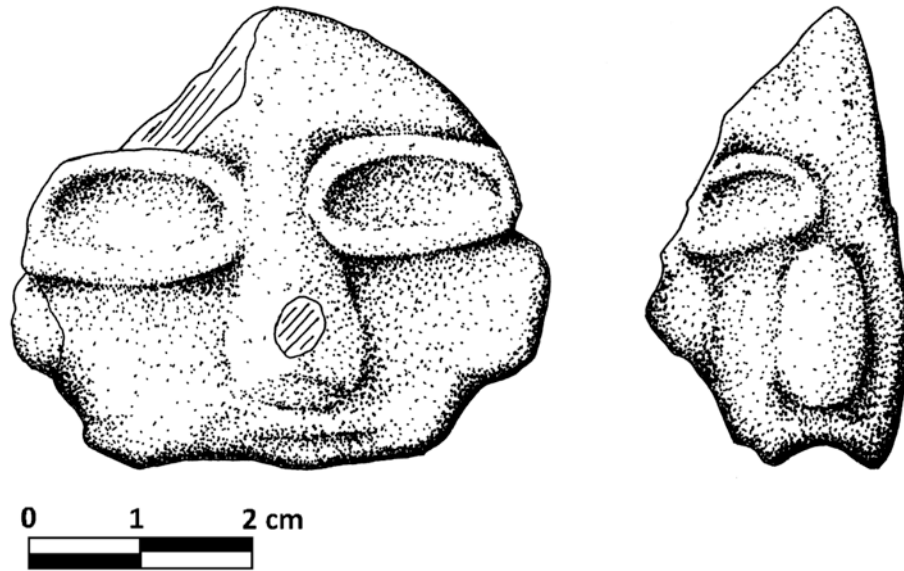


Figure 7.12: Anthropomorphic figurine fragment from LC12 A-F2 occupational debris and fill

Though many of the La Consentida anthropomorphic figurines appear to be nude, some show indications of minimal clothing. The figurines displayed in Figures 7.13 and 7.14, for example, demonstrate the depiction of simple skirts, loincloths, or “G-strings.” Both of these figures appear to represent females, though the artifact pictured in Figure 7.14 has fewer obvious indications of sex due to the locations of its breakage in antiquity. It is not possible to be completely sure that the minimal skirts and loincloths of the La Consentida figurines represent the actual clothing worn by members of the ancient community, but archaeological, ethnohistoric, and ethnographic research in various regions of Mesoamerica (e.g., Altman and West 1992; Brumfiel 2006:866, 868; King 2003:81–82, 217–222, 301–303; Klein 1997; Stephen 1991:107–107; Urcid and Joyce 2001) has demonstrated the use of similar outfits by indigenous peoples dating from ancient through colonial and modern times. Systematic study of various scales of anthropomorphic imagery in coastal Oaxaca has found evidence for probable linkages between the outfits shown on figurines, carved stelae, and other media and the human groups

they represented (Hepp and Rieger 2014; Jennings 2010). For example, study of Formative period anthropomorphic iconography in coastal Oaxaca has indicated that fancy hairstyles and headgear are more frequently depicted with female or feminine characters than with masculine, male, or gender-neutral imagery (Hepp and Rieger 2014:123). While figurines and stelae suggest that men wore pendants more often than women, some accoutrements, such as ear spools, crosscut gender categories (Hepp and Rieger 2014:133). Ubiquitous recovery contexts of figural artifacts indicate that portraying the human form in Formative period coastal Oaxaca was not restricted by social status (Hepp and Rieger 2014:134).

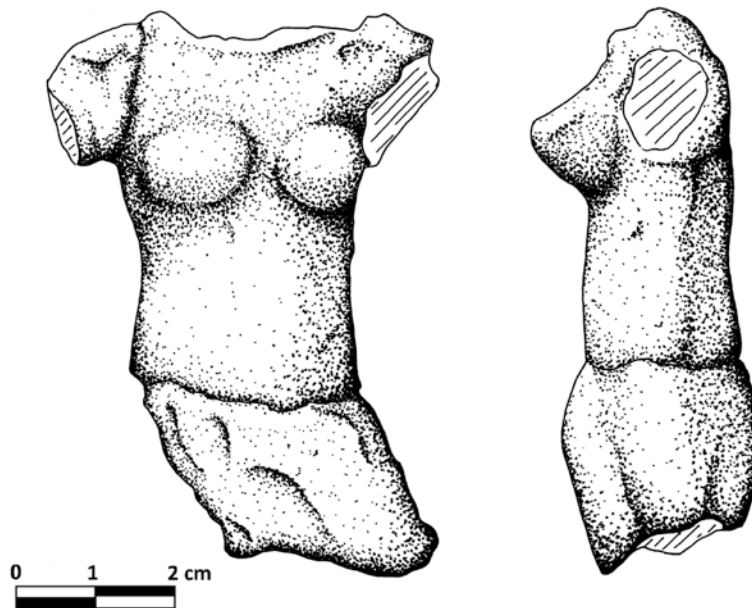


Figure 7.13: Partial anthropomorphic figurine from LC12 A-F4-s1, A-F7, A-F8, and A-F9 fill and intrusive pit context. Likely associated with burial B12-I14

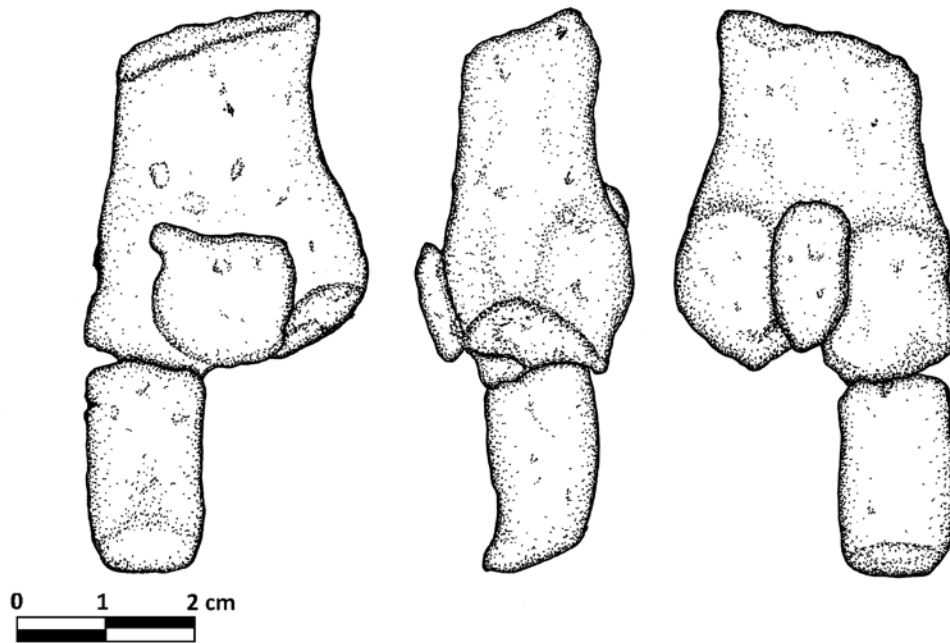


Figure 7.14: Partial anthropomorphic figurine from LC09 B-F12 fill near burials

Figurine heads were often the medium for numerous types of appliques and other details that apparently served to personalize the figurines at the site. The artifact pictured in Figure 7.15, for example, shows a good deal of attention paid to the hair. As argued by Marcus (1998:4, 158), the depiction of elaborate hairstyles in Formative period Oaxaca was mostly associated with representations of women. Another interesting aspect of this figurine is its very early date. Recovered from the interface between two deep fill strata (LC12 A-F17-s2 and A-F18-s2), it was likely redeposited and therefore dates to very early in site occupation. The depiction of individualized identity or at least of femininity was thus a long-standing tradition at La Consentida. The artifact pictured in Figure 7.16 also bears an elaborate hairstyle, and is one of numerous similar artifacts (see also Figures 7.4, 7.17, and 7.18) to occur in close association with a human burial. In fact, the artifacts in Figures 7.16 and 7.17 were found facedown near

the remains of interred individuals, some of whom were also in a prone position. The artifact shown in Figure 7.16 was found beside and at the same depth as burial B5-16 (see Figure A.5.3). The artifact depicted in Figure 7.17 was recovered about 5 cm above burials B6 and B7 (see Figures A.5.4 and A.5.5). This pattern of artifact recovery may further emphasize the links between figurines and mortuary practice at La Consentida.

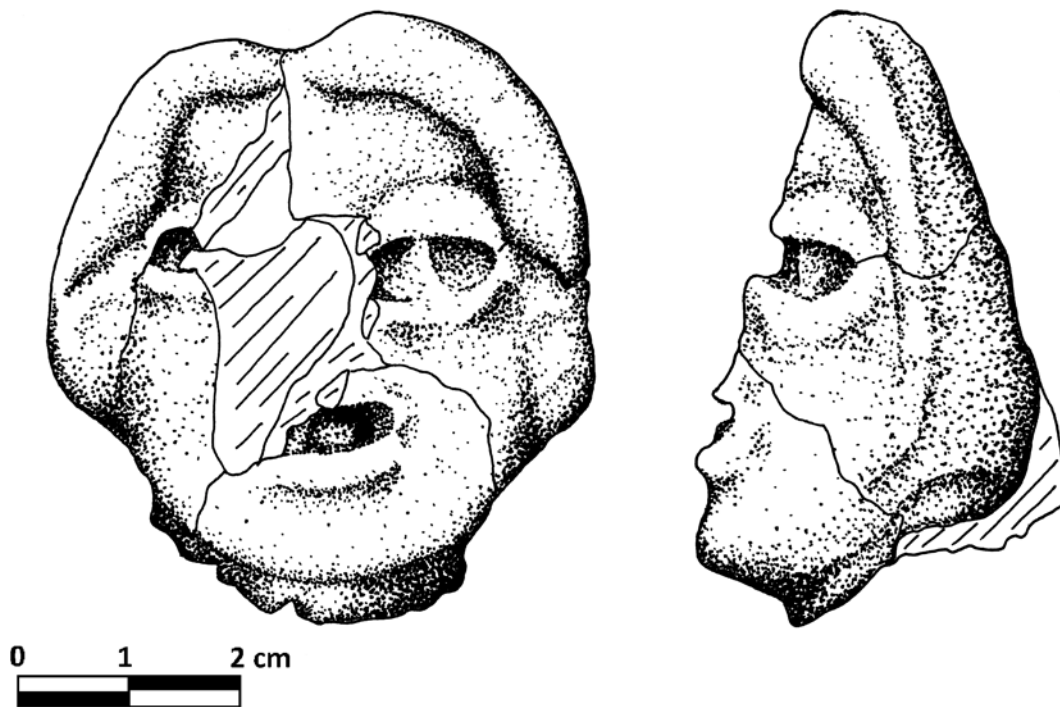


Figure 7.15: Anthropomorphic figurine fragment from LC12 A-F17-s2 and A-F18-s2 interface

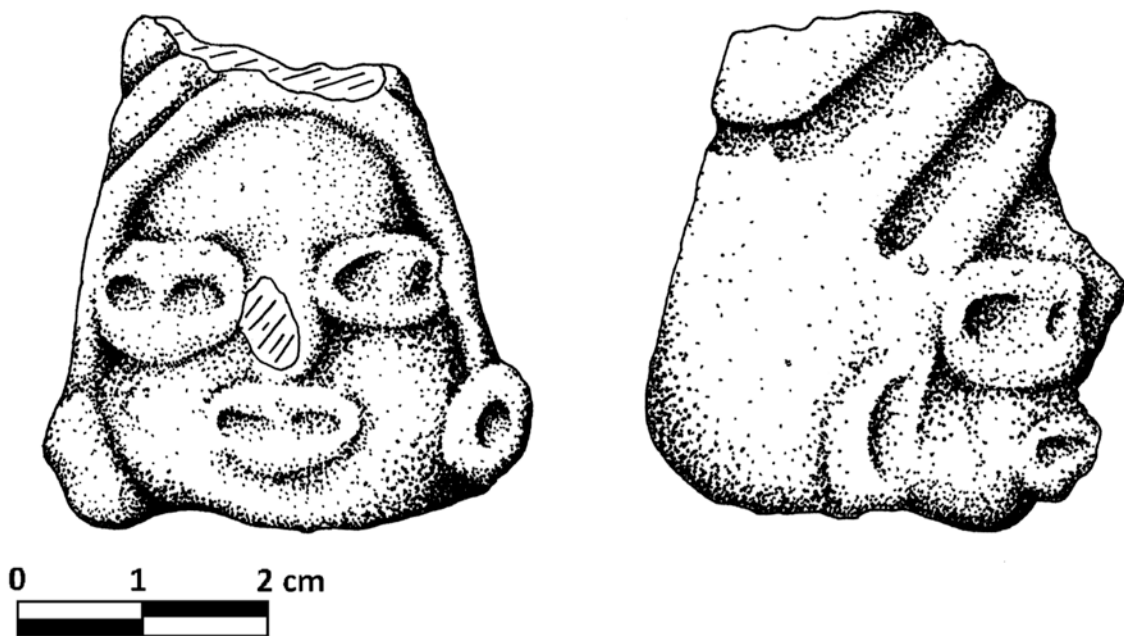


Figure 7.16: Anthropomorphic figurine fragment from burial B5-16

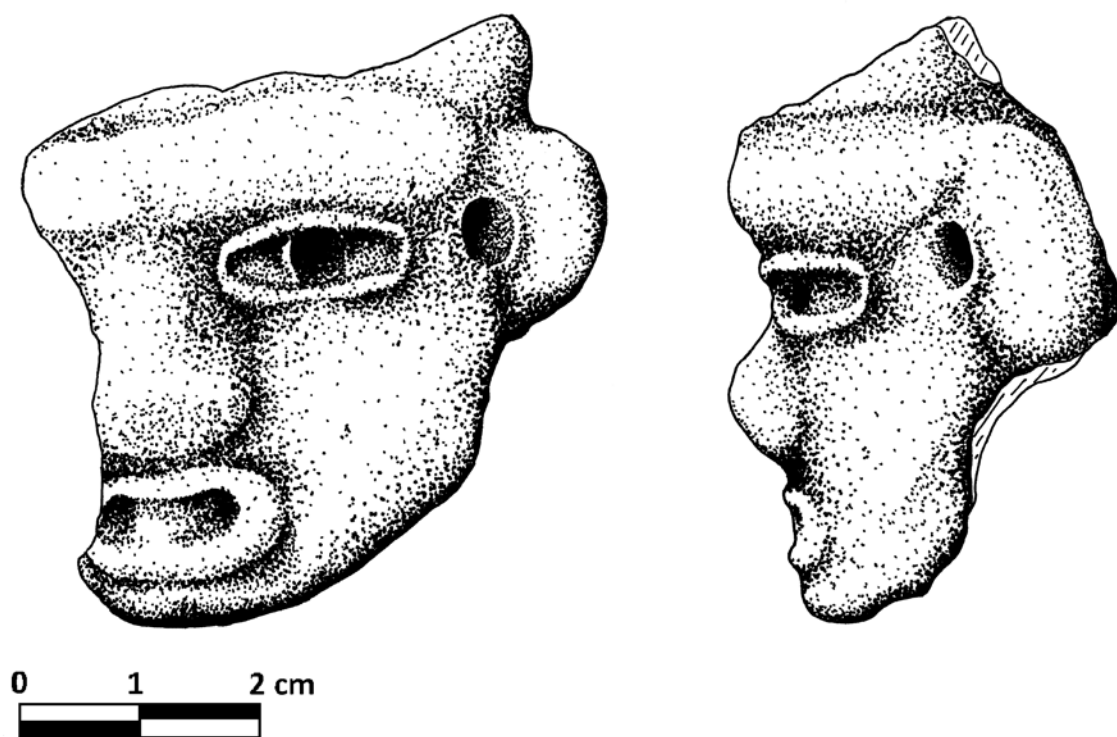


Figure 7.17: Anthropomorphic figurine fragment from the area of burials B6 and B7

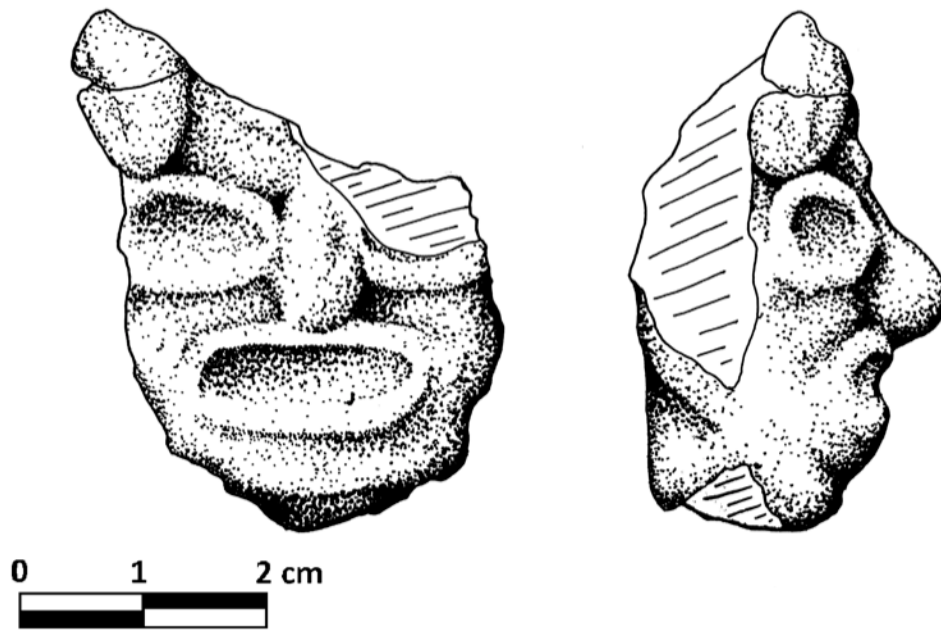


Figure 7.18: Anthropomorphic figurine fragment from burial B8-I10

One of the earliest figurines recovered at La Consentida is also among the most enigmatic. Complete with what appears to be a bald head and masculine face with aquiline features, this figurine (Figure 7.19) bears interesting raised markings on the chest that likely represent an arm and a breast, some kind of iconography, or even scarification (see Hepp and Rieger 2014). Julia Guernsey has commented that this figurine has jowly cheeks that link it to a series of figurines she has identified in the Soconusco and elsewhere, including in the lower Río Verde Valley, whose traits anticipate key features of later Late Preclassic “potbelly” sculptures (see Guernsey 2012:107–108, Ch. 7 [Note 3]; Hepp 2007:176 [Photo 81], 180 [Photo 181]; Hepp et al. 2014:Fig. 4.d). Guernsey (personal communication, 2015) noted that this particular figurine lacks the puffy eyes diagnostic of the figurines that are precursors to the “potbelly” sculptures that share the same puffy eye attribute; however, the position of this figurine’s arms, wrapped around the body, relate not only to widespread Middle Preclassic figurine

traditions but also later “potbelly” sculptural forms. Guernsey (2012:143) has interpreted such figurines as representations of “vital ancestors” imbued with references to communication and intimately involved with domestic ritual. Such imagery began with figurines during the Early Formative, and some of their iconographic elements were later coopted for larger-scale sculptural art (likely with different symbolic value than the preceding figurines) by the Middle Formative and Middle-Late Formative period transition (Guernsey 2010). Also of note regarding the artifact from La Consentida are the figurine’s rounded, hollow shape and the hole through the neck, which suggests it was worn as a pendant or was otherwise suspended. Jeffrey Blomster (personal communication, 2015) has suggested that this figurine may be iconographically similar to examples from the Cruz A phase in the Mixteca Alta. Significantly, the figurine comes directly from a possible hearth that has been dated to 1880–1641 cal B.C. (see Table 1.1). This means that the object was already used, broken, and discarded by early in La Consentida’s occupation. Another early figurine (Figure 7.20) had a large and skillfully executed face with what appears to have been colored pigment, slip, or paint. Unfortunately, the small fragment that remains from this artifact gives few impressions of its initial form. What is clear is that some of La Consentida’s earliest figurines were well made. Other general attributes of the figurine collection include that all appear to have been hand formed and most are solid-bodied. About 76 percent are of medium brown ware paste, and about 24 percent are coarse brown ware artifacts. Pendants are rare but present in the collection. Sizes vary considerably, with one large, hollow figurine or statue leg measuring nearly seven cm in height and five cm in width. Figural artifacts occur across the full range of contexts at La Consentida.

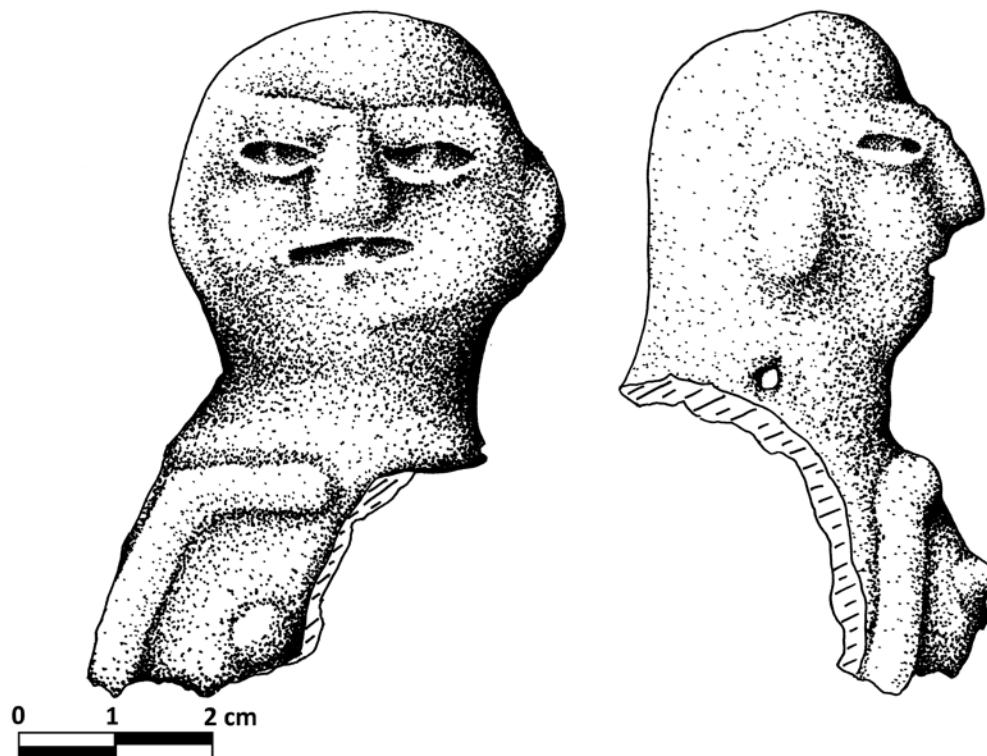


Figure 7.19: Partial Anthropomorphic figurine from LC12 E-F10 hearth or shell pit

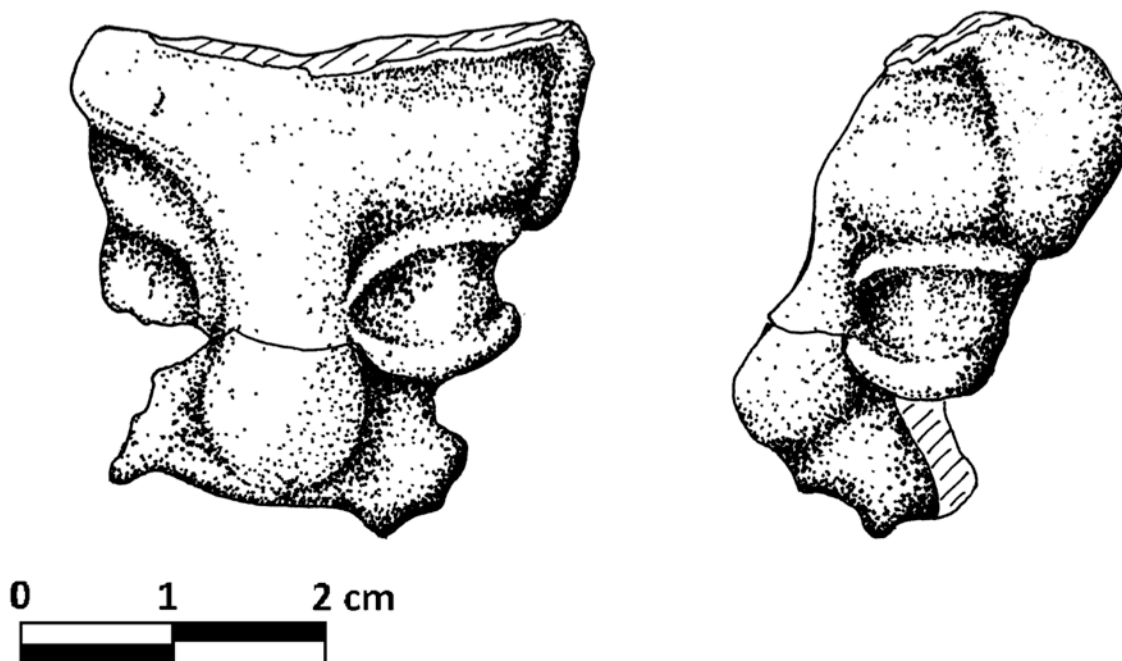


Figure 7.20: Anthropomorphic figurine fragment from LC12 E-F9-s1 midden context

Though many of La Consentida's figurines are fragmentary, several examples are complete enough to show how accoutrements likely signified key aspects of status and identity. The figurine pictured in Figure 7.21 demonstrates how some of La Consentida's "simple" anthropomorphic torsos were likely connected to detailed heads bearing elaborate hairstyles, headgear, and jewelry. This artifact also wears minimal clothing in the form of a loincloth or "G-string" similar to the artifact pictured in Figure 7.14. Though not necessarily directly linked to social status, the knotted headband, hairstyle, and ear spools depicted on this figurine have later Formative period counterparts in the lower Río Verde Valley that correlate with the display of social identity (Hepp and Joyce 2013; Hepp and Rieger 2014). Artifacts from other contexts at La Consentida (e.g., Figures 7.22–7.25) also include diverse forms of headgear, headdresses, and jewelry. Given the site's early date and the wide variety of contexts in which such artifacts occur, it seems clear that the display of accoutrements representing aspects of social identity was a significant concern from a very early date on the western Oaxaca coast.

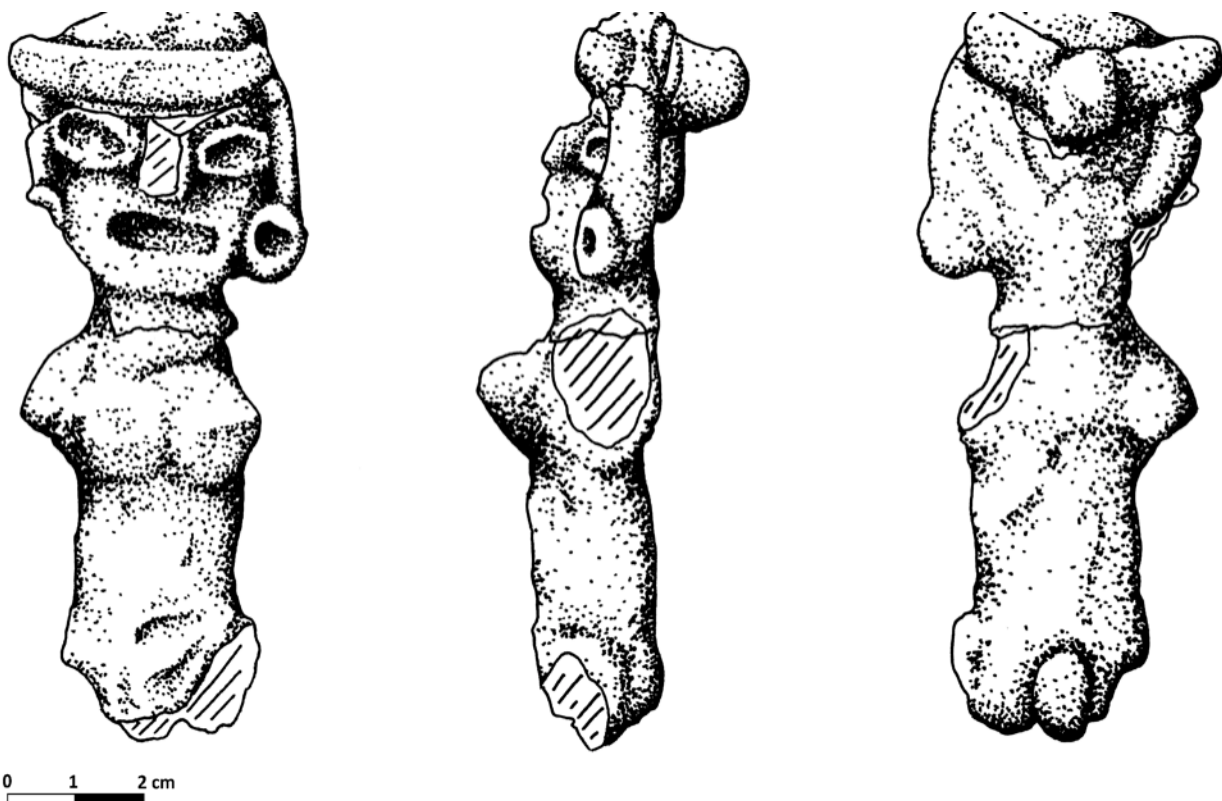


Figure 7.21: Partial anthropomorph from LC12 A-F7/A-F10-s1 interface (fill with burials)

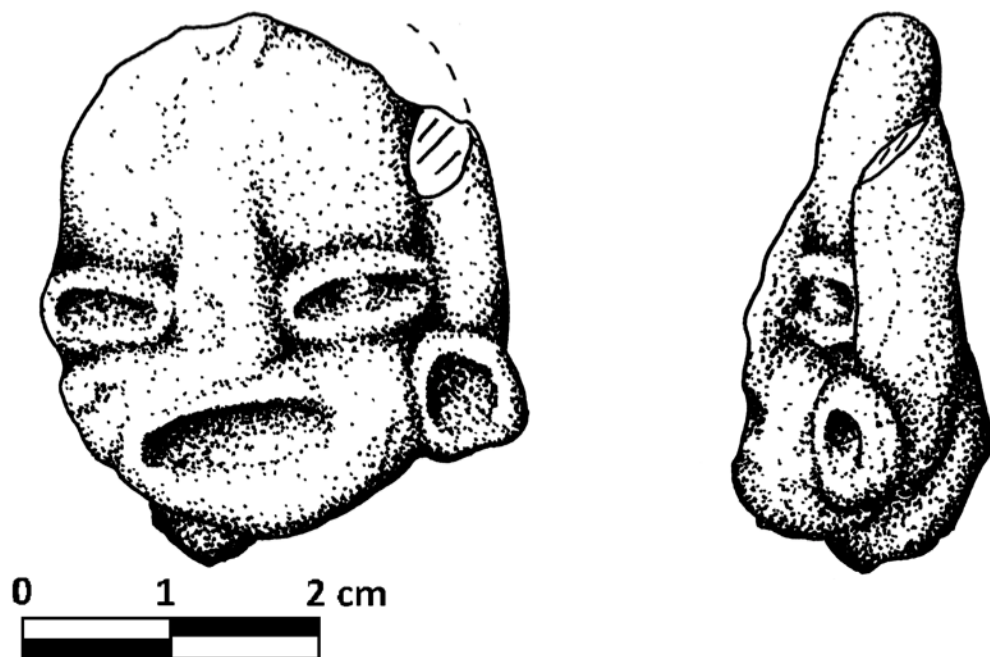


Figure 7.22: Anthropomorphic figurine fragment from LC12 F-F5 fill with occupation surface

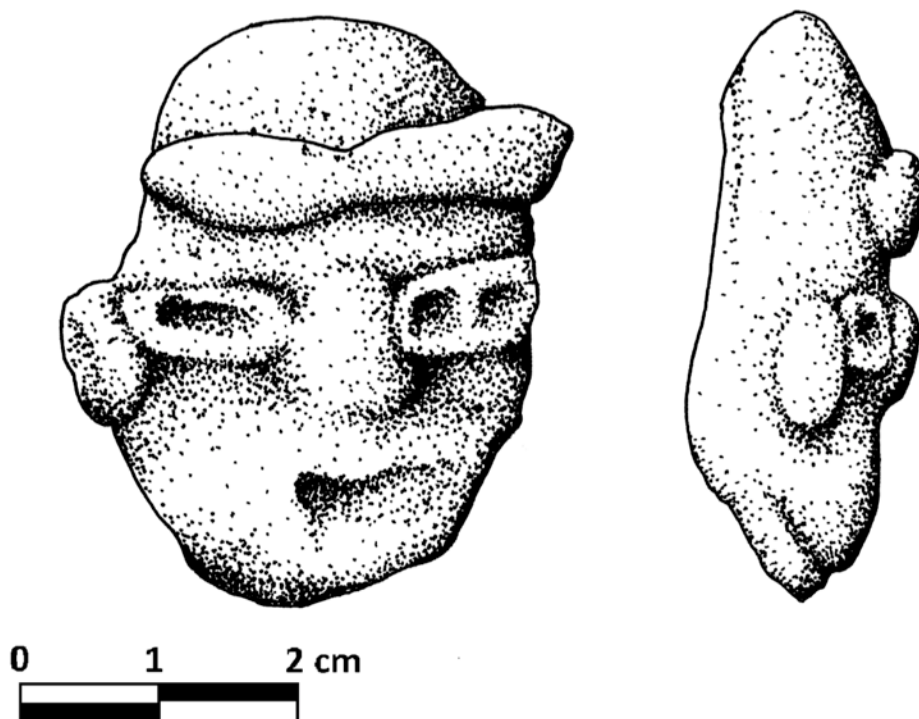


Figure 7.23: Anthropomorphic figurine fragment from LC12 A-F7 fill or burial B8-I10 intrusion

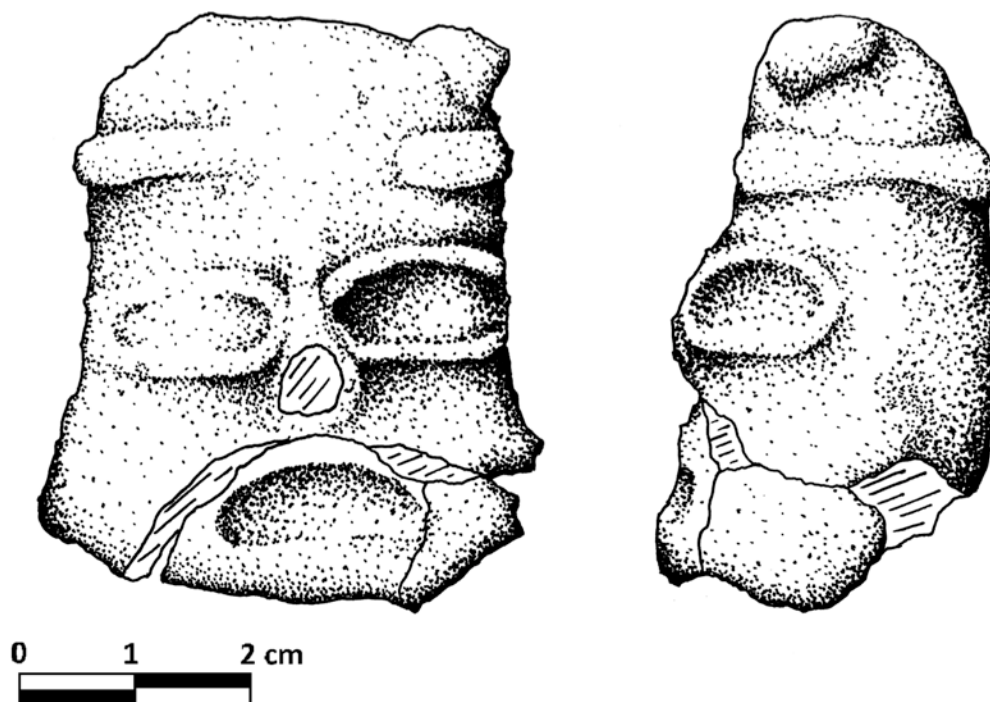


Figure 7.24: Anthropomorphic figurine fragment from LC12 G-F1/G-F16 fill and domestic context. Likely associated with Structure 2

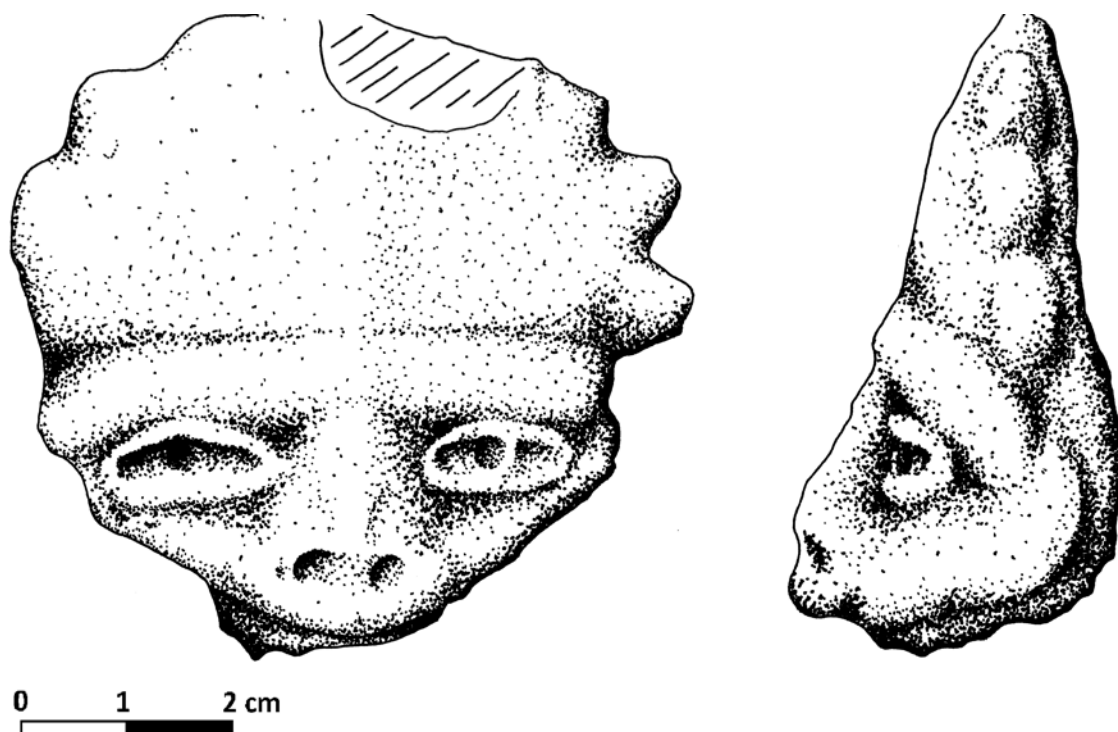


Figure 7.25: Anthropomorphic figurine fragment from Structure 2 fill context

Two artifacts from very different contexts (the figurine shown Figure 7.26 from the LC12 E-F9-s1 midden and the possible effigy vessel represented in Figure 7.27 from just outside Structure 2) further demonstrate the use of ceramic iconography to display individual identity at La Consentida. The artifact shown in Figure 7.26 is from an early deposit and the artifact pictured in Figure 7.27 was probably discarded shortly before Formative period site abandonment. Though likely representing different artifact classes, found in different parts of the site, occurring in different sorts of deposits, and probably coming from different times in the site's occupation, these artifacts nonetheless bear a striking resemblance to one another. The half-lidded eye apparent in the Figure 7.26 artifact, according to Mesoamerican conventions identified in other Preclassic contexts, may represent death (e.g., Guernsey 2010). As a matter of speculation, the exposed teeth may also represent death, as the lips of the

decaying human body tend to pull away from the teeth and thus give the impression of a smile or grimace. Notably, the “frowning teeth” depicted in the Figure 7.27 artifact convey an expression that is impossible for the human face to produce, further suggesting that very deliberate attention has been paid to giving the face that particular appearance. It is not possible, given available data, to determine whether these artifacts represent a deceased and revered ancestor, a powerful god or spirit, a ritual practitioner wearing a mask, or perhaps a specific community member known for a fearsome, intimidating gaze. Whatever the case, this seems to have been an artistic trope with some longevity at the site.

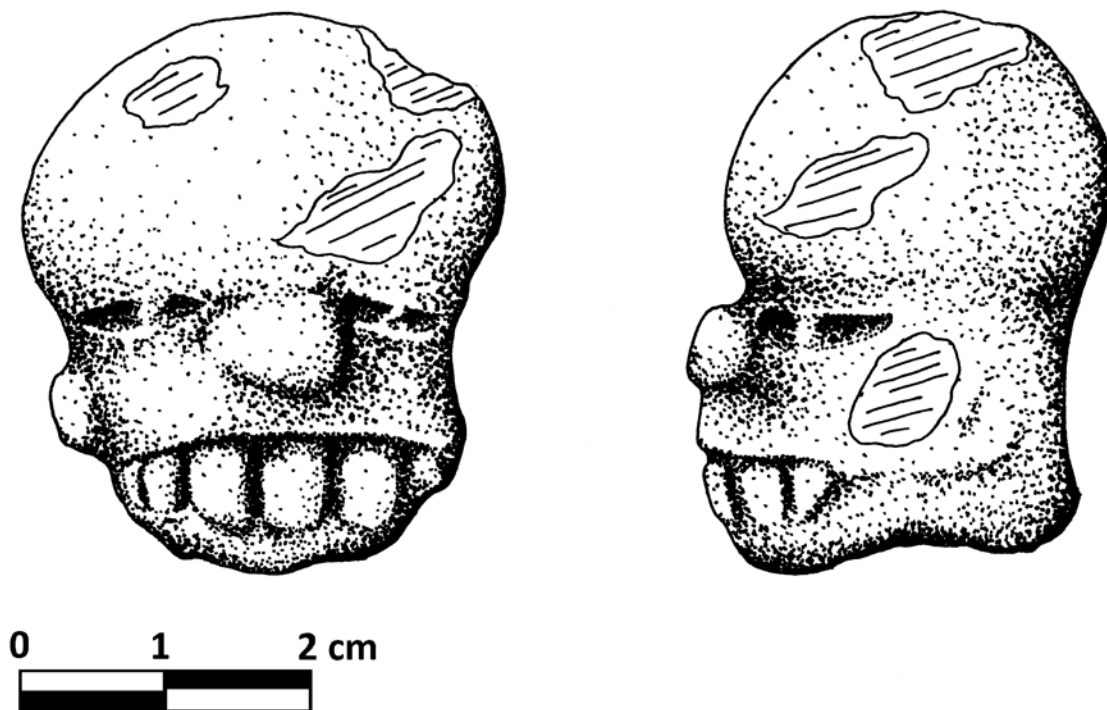


Figure 7.26: Figurine fragment from LC12 E-F9-s1 midden context

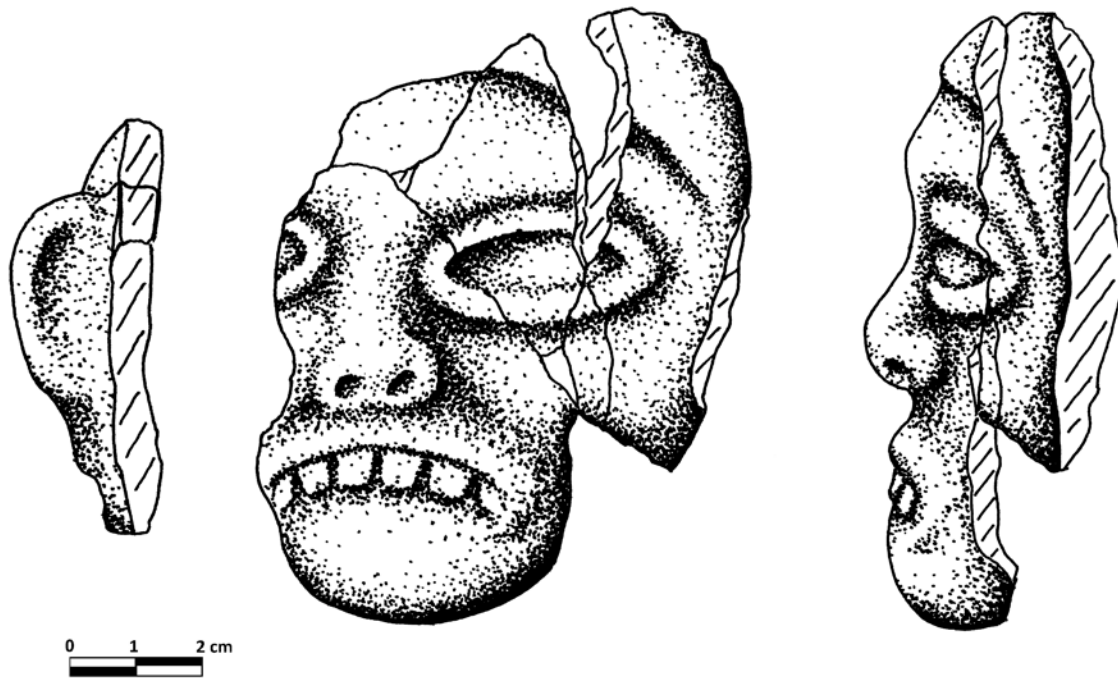


Figure 7.27: Fragments of probable effigy vessel from LC12 G-F16 fill. Likely associated with Structure 2 domestic building

Though many figural artifacts permit only conjecture about the types of social roles they represented, a couple of examples from La Consentida appear to more specifically refer to activities or roles carried out by community members. The figurine shown in Figure 7.28 comes from an early midden context (LC12 H-F4-s1), and appears (by virtue of its thick “belt”) to represent a ballplayer (see Table 1.1). Some authors (e.g., Hill and Clark 2001) have suggested that the ball game may have been one of the primary catalysts for sparking initial social complexity in Mesoamerica. As discussed briefly in Chapter II, the colossal heads of the later Early Formative Olmec appear to represent ballplayers, further emphasizing the important role of these community members in the early establishment of chiefly power (Clark 2007:30; Hill and Clark 2001). Though a single figurine fragment is not sufficient evidence to suggest that

some class of athletes or ritual practitioners ruled La Consentida, the discovery of this artifact nonetheless demonstrates the site's connections to broader traditions of symbolism and representation in Mesoamerica.

Other figurines also provide tantalizing clues about the social roles fulfilled by La Consentida's occupants. By the time of the site's abandonment, a figurine combining human and animal features was discarded at or near the surface at Op. LC12 F (Figure 7.29). Though perhaps produced very late in the site's occupational history, this artifact appears to be executed in an Early Formative period style. Ethnographic, ethnohistoric, and archaeological data from many regions of Mesoamerica (e.g., Foster 1944; Gutiérrez and Pye 2010; Hepp and Joyce 2013; Kaplan 1956; Rojas 1947; Sahagún 1950–1982 [1540–1585]) demonstrate the long-held tradition of ritual practitioners, or *naguals*, who can transform into animals. Along with later Formative period transformational figurines from the lower Río Verde Valley, this artifact suggests the deep historical significance of such shamanistic activity (Hepp and Joyce 2013).

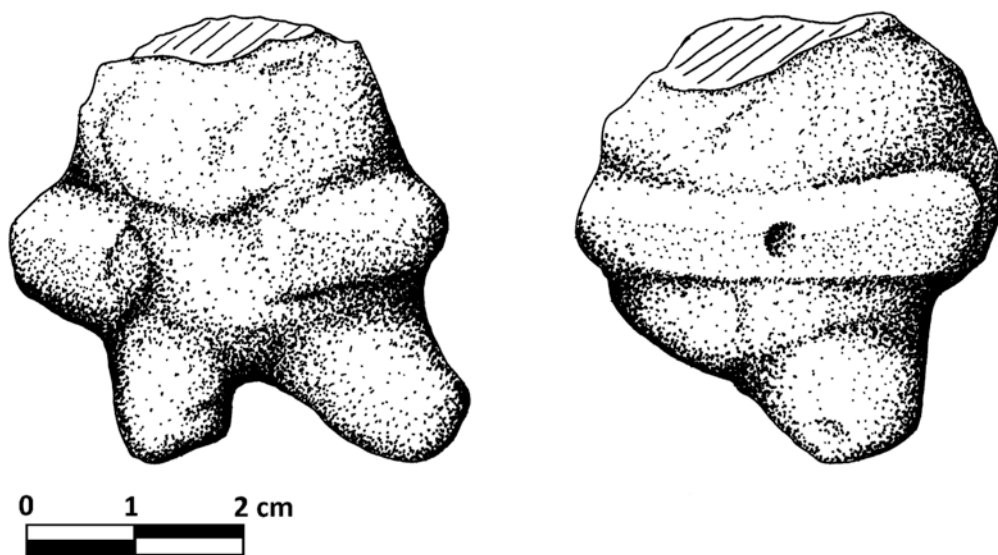


Figure 7.28: Possible ballplayer figurine from LC12 H-F4-s1 midden context

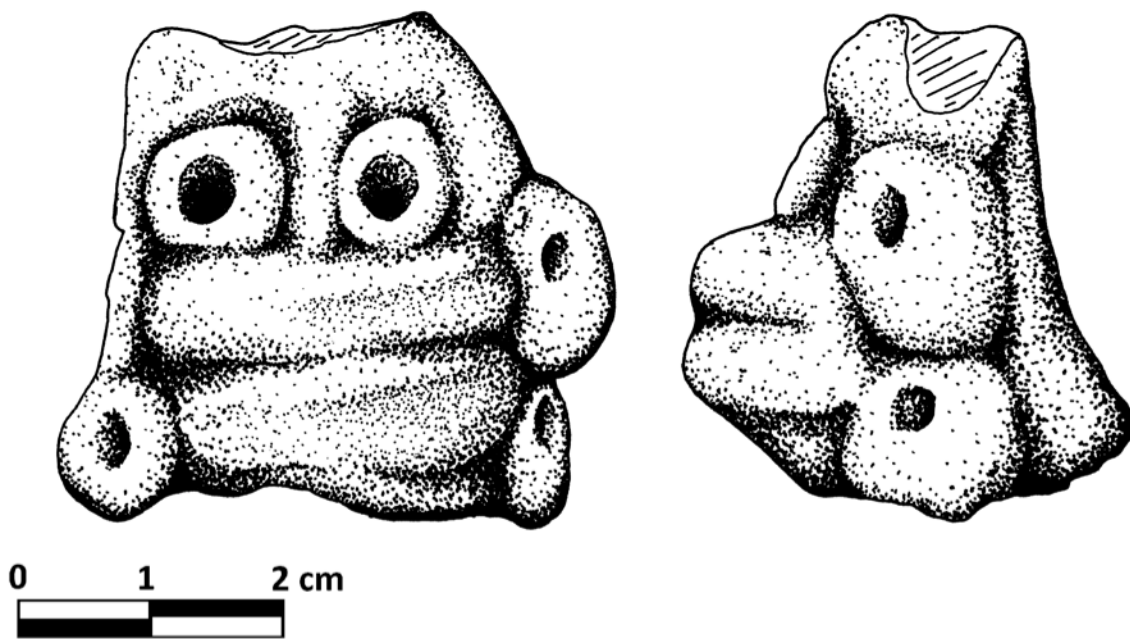


Figure 7.29: Transformational figurine fragment from surface at Op. LC12 F

Though at times necessarily speculative, the analysis of figurines is a crucial aspect of understanding social dynamics in ancient Mesoamerica (Lesure 2011b). I thus contend that the study of such artifacts must be a central aspect of understanding social organization at sites like La Consentida. Such considerations must be cautious, as the probable importance of ancestor veneration and the depiction of deities in ancient Mesoamerica mean that many figurines may not represent actual living people (e.g., Hepp and Joyce 2013; Marcus 1998). Furthermore, the identities of humans and divinities may not always have been completely distinct, and aspects of identity and social status represented on figurines are not necessarily self-evident. Also, figurine attributes may at times indicate the prescription of social ideals rather than reflecting actual dress and comportment (Hepp and Rieger 2014; R. Joyce 2000b; Lesure 1997a, 1999a).

Nonetheless, it is in the medium of the figurine, along with rarer artifacts such as carved stones, decorated pottery, and musical instruments, that ancient Formative period peoples left us a record of their communities, ancestors, and deities, according to how they saw themselves.

The patterns identified in the figurine sample from La Consentida may appear simple but are nonetheless important. The key emphases of the site's figurine makers included the human, and particularly the *female*, form. This pattern is not unique to La Consentida, and is in fact a general trend throughout much of Formative and Classic period Mesoamerica (R. Joyce 2000a, 2002, 2003; Marcus 1998; Wolf 1959:57). Though in many cases the nude or nearly nude bodies represented underscore the figurine makers' concern for basic concepts of humanity, sex, and gender, other figurines tell a different story. Numerous headdresses, various types of headgear, hairstyles, and jewelry, for example, imply that differentiation and expression of individual identities were also concerns. Rare artifacts that may represent a specific deity, ancestor, or community member further emphasize this pattern. Finally, some figurines even appear to portray individuals carrying out important and uncommon social roles, including that of ballplayer and perhaps that of ritual practitioner or shaman. Though hardly solid evidence for a formalized social hierarchy, the figurines thus represent the interests of a heterarchical community of people who saw themselves as diverse, and appear to have differentiated themselves according to sex and/or gender, age, accoutrements and dress, personal comportment, and occupation.

Further evidence for bodily adornment

Though few elements of Early Formative attire preserve beyond what was portrayed

on ceramic figurines, some tantalizing clues to the ways in which La Consentida's occupants dressed and distinguished themselves do remain. Table 7.1 summarizes the recovery context and typology of remnants of jewelry recovered at La Consentida. Beads, often made of ceramic (Figure 7.30), but sometimes made of shell (Figure 6.8), black stone (Figures 7.31 and 7.32), or greenstone (Figure 7.33–35) are fairly common at the site. Though often recovered in fill or in domestic contexts, they also occur as burial offerings (see Figures 7.30 and A.5.3). The recovery of more ceramic and greenstone beads (Figures 7.33–7.35) from primary deposits would be necessary to support any claims about their possible role as markers of status distinction. At the very least, the diverse sorts of beads recovered at the site, in both earlier and later deposits, serves to confirm what the figurines also suggest, namely that community members distinguished themselves through different styles of attire. Furthermore, specialized goods such as delicate shell beads and imported, exotic, often difficult to work greenstone beads (see Tremain 2014) suggest either that considerable craft specialization took place at the site, or at least that La Consentida had access to such goods through its interaction networks (Carballo 2009; see Chapter VIII).

Op.	Unit	Lot	FS#	Context	Artifact type
LC09 B	0Z	4	6135	LC09 B-F10 ancient surface formed in fill	Bead, ceramic
LC12 A	-1P	4	7948	Burial B5-I6	Bead, ceramic
LC12 A	-2Q	4	8327	Burial B6-I7 intrusion	Bead, ceramic
LC12 A	-2Q	8	8907	Burial B6-I7	Bead, ceramic
LC12 A	-1R	3	9094	LC12 A-F4-s1 fill/resurfacing context	Bead, ceramic
LC12 A	-1R	7	9221	LC12 A-F4-s1/F7 interface	Bead, ceramic
LC12 C	4D	3	10257	LC12 C-F1 occ. debris	Bead, ceramic
LC12 C	3Z	5	10267	LC12 C-F2 occ. debris/fill	Bead, ceramic
LC12 E	2B	10(2)	9644	LC12 E-F9-s1 midden	Bead, ceramic
LC12 E	-6Z	6	10021	LC12 E-F4 fill with architectural debris	Bead, ceramic
LC12 F	1A	9	8241	LC12 F-F3 fill	Bead, ceramic
LC12 F	1A	8	10280	LC12 F-F3 fill	Bead, ceramic
LC12 A	0J	3	7350	LC12 A-F4-s1 fill/resurfacing layer	Bead, greenstone
LC12 A	-1Q	6	8878	Burial pit near burials B6 and B7	Bead, greenstone
LC12 G	1D	3	9056	Occ. debris above Structure 2 floor	Bead, greenstone
LC12 D	0A	10	7887	LC12 D-F4 or F5 fill or shell dump	Bead, shell
LC12 A	-3Q	B.8	9887	Burial B12-I14	Bead, stone
LC12 E	1C	6	9530	LC12 E-F9-s1 midden	Bead, stone
LC12 B	5D	13	10340	LC12 B-F5 fill	Bead or ring, shell
LC12 C	3B	3	8250	LC12 C-F1 occ. debris near Structure 1	Mirror fragment (possible)
LC12 A	0C	3	7022	LC12 A-F2 occ. debris/fill	Mirror or pectoral fragment (possible)

Table 7.1: Typology and recovery context of jewelry from La Consentida



Figure 7.30: Two views of a ceramic bead recovered as a probable offering with burial B5-I6



Figure 7.31: Black stone bead from LC12 E-F9-s1 midden context



Figure 7.32: Black stone bead from burial B12-I14



Figure 7.33: A greenstone bead from LC12 A-F4-s1 fill/resurfacing context



Figure 7.34: A greenstone bead from occupational debris above Structure 2 floor

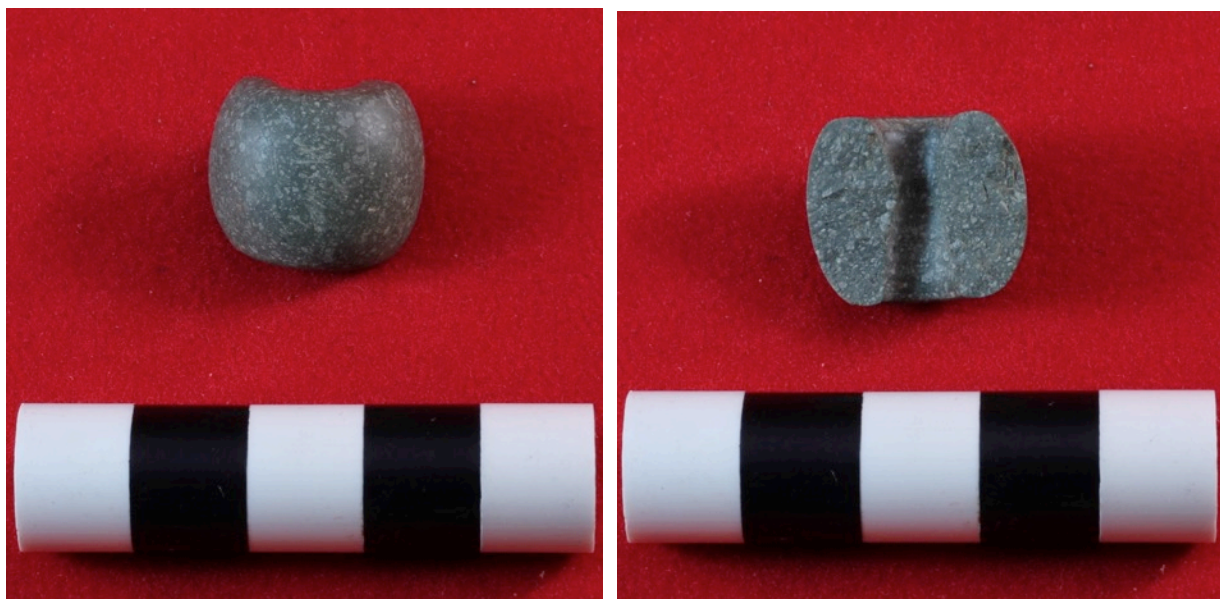


Figure 7.35: Two views of a partial, biconically drilled greenstone bead from burial pit near burials B6 and B7

Other artifacts from La Consentida provide secondary evidence of clothing. Probable bone needles, such as the one pictured in Figure 7.36, imply sewn fabrics or skins that have not survived the millennia in the site's tropical climate. Tiny pieces of other jewelry and accoutrements, such as the possible polished hematite (Raymond Mueller, personal communication 2014) mirror fragment pictured in Figure 7.37, may be more directly related to Early Formative status distinction. As several archaeologists (e.g., Ashmore 2004:184–185; Blomster 2004:85, 186; Clark 1994:126; Heyden 1991:195; Saunders 2001) have argued, accoutrements such as mirrors and headdresses are sometimes associated with other markers of elevated social status in Mesoamerica. Such connections between elements of dress and social differentiation have been suggested for coastal Oaxaca during the later Formative period (Barber and Olvera Sánchez 2012; Hepp and Rieger 2014). Despite evidence for possible social inequality, demonstrating that status distinctions were hereditary is another matter.



Figure 7.36: Fragments of a probable bone needle from fill near burial B12-I14

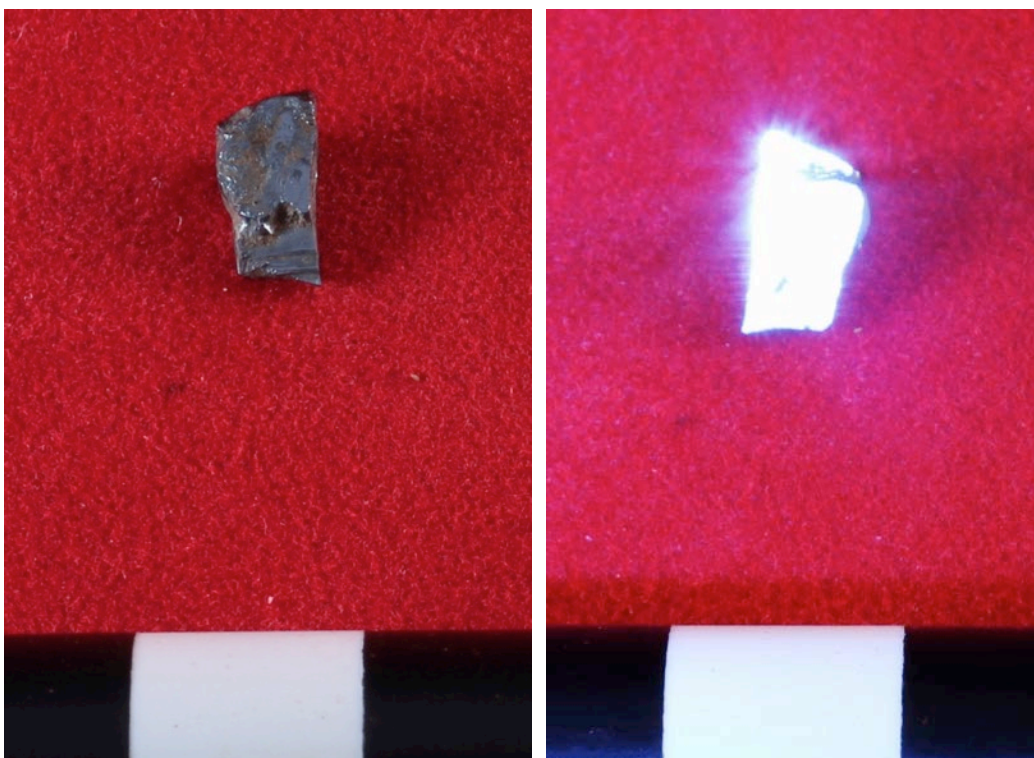


Figure 7.37: Two views of possible hematite mirror fragment from LC12 C-F1 occupational debris near Structure 1. Left: no light reflecting off surface; Right: light reflecting off surface

Ritual practice at La Consentida

Archaeologists have long used mortuary evidence to infer aspects of social organization (Binford 1971; Clark 1994:126; Gillespie 2001; R. Joyce 1999; Saxe 1971; Spencer and Redmond 2004; Whalen 1983:30–33; Winter 2002:68). As I discussed in Chapter II, some scholars (e.g., Carr 1995; Love 2007) have attempted to refine mortuary archaeology by problematizing the degree to which mortuary data are used to assume aspects of social organization, particularly in instances where social value placed on grave offerings in the past is not well understood. I agree that assuming ancient social dynamics are somehow “fossilized” in the patterns identified in mortuary contexts, and that some burial offerings have universal meaning, are problematic. Accompanying a grave with offerings of textiles or other perishables may have been a sign of great respect or social preeminence in Early Formative Oaxaca, but such a grave might appear barren when exposed by the archaeologist’s trowel after thousands of years of organic deterioration. Despite these complications and the caution that they rightly instill in an archaeologist hoping to understand past social dynamics, it would be misguided to overlook patterns of mortuary variation as one of several lines of inquiry for piecing together ancient social organization. In the following paragraphs, I will summarize variations in mortuary treatment and grave offerings at La Consentida. I will also discuss evidence for other ceremonial deposits that may relate to mortuary practice (refer to Appendix 5 for more detail on human remains and burial offerings).

Burials at La Consentida tend to be accompanied with relatively few offerings in comparison to later examples in coastal Oaxaca and other regions of Mesoamerica (e.g., Barber 2005:382–406; A. Joyce 1991b:718–787; Marcus and Flannery 1996:97–106; Whalen 1981

[*cited in* A. Joyce 2010:101–104]). Burials at the site appear to be relatively simple primary inhumations, rather than the secondary interments of mummy bundles seen later in Oaxaca (e.g., Levine 2011:192–194) or the elaborate tombs found in later contexts in such regions as highland Oaxaca, Colima, and Jalisco (Caso et al. 1967:447; Feinman et al. 2002:261; Marcus 2008; Mountjoy 2006, 2012:212). Some fragmentary burned human bones occur in fill and midden contexts at La Consentida, but it is not clear if these indicate accidental burning or very early cremation (Silvia Pérez Hernández, personal communication 2014).

Though several burials are accompanied by offerings of ceramic vessels, figurines, or stone tools, there appears in general to be little differentiation between them in terms of offerings. The burial B2-I3 individual (a male aged 40–50 years) was buried with more numerous and diverse offerings than others (see Figures 6.11, 6.25, 6.31, 6.35, 6.36, 7.4, 8.29, 8.34; Appendix 5). Accomplishments during life, rather than inheritance of status by birthright, may easily explain that circumstance, however. The burial B12-I14 adult female (aged 45–50 years) appears to have been interred with only a single stone bead, perhaps from a bracelet (Figure 7.32). The early date of the woman's burial in relation to most of the others, her age or gender, or some aspect of her social identity may explain the relative lack of offerings. The evidence is equivocal. Interestingly, some of La Consentida's only complete or fully reconstructable ceramic vessels occur as burial offerings with children. Two individuals in particular (B11-I13, aged 2–4 years and B9-I11, aged 3–4 years) were buried early in the site's history, each with a grater bowl and one also accompanied by a small jar (see Figures 8.8, 8.9, and A.1.19; Appendix 5). Though it is unclear whether most children at the site were interred with some sort of offering, at least one other child (burial B1-I2, aged 1–2 years) was not.

Interestingly, Marcus and Flannery (1996:96, Fig. 87) identify the “mat motif” as incised on San José phase ceramic vessels as an early indication of political authority. It is not clear if the geometric designs found in the La Consentida grater bowls (see Chapter VIII and Appendix 1) refer to woven textiles or *petate* “mats.” If so, they represent a very early example of these symbols. I do not argue that these designs are evidence of hierarchical social organization, though they may refer to the sorts of textiles and mats that later became emblematic of Mesoamerican nobility and are found on later Mesoamerican pottery (see Carrasco and Englehardt 2015; Cheetham 2010:180; Marcus and Flannery 1996:96).

Additional evidence for ritual practice at La Consentida comes in the form of a ceremonial cache (LC12 A-F15) that was deposited at the base of Platform 1, at the foot of Substructure 1, and near the burials identified in Op. LC12 A (see Table 4.3, Figures 4.66, 7.38–7.44). This cache incorporates the complete skeletal remains of a large, predatory reptile (*Heloderma horridum*), remains of terrestrial turtles, shell, a reconstructable and playable ceramic ocarina in the form of a bird (see discussion below), and a shark tooth. Taisuke Inoue (2014; personal communication, 2014) has studied shark teeth in Olmec iconography and believes that the tooth from the La Consentida cache comes from a mako shark. As Flannery (2009:344) suggested, shark teeth were likely sometimes used in bloodletting ceremonies. Comparison of the tooth with photographs of various shark teeth during the 2014 faunal study also indicates that it is consistent with those of a bull shark, whose extremely broad natural range includes the Pacific Ocean along the Oaxaca coast (Fernández 2004:178). Karl Taube (2010) has discussed the significance of symbolic unions between the earth, the sky, and the sea in Maya cosmology. Though many of Taube’s examples are Classic or Postclassic in date,

similar beliefs in areas as distant as western Mexico and the American Southwest suggest the great geographic breadth (and likely historical depth) of concepts such as reptilian sea monsters, earth turtles, and sky symbolism as connected with everything from the movements of the sun to flooding to the watery Underworld of the afterlife. Though the La Consentida cache would be an extremely early example of these symbolic motifs in Mesoamerica, it bears many of the elements of this “primordial sea” concept, itself linked to broader notions of human creation and the Underworld (Reilly 1994; Taube 1986, 1992, 1993, 2000). Following Taube’s (2010) research, the La Consentida cache may refer to the individuals buried in the Op. LC12 A area entering the watery Underworld, the movements of the sun, cardinal directions, the primordial power of the sea, and/or calendrical ritual.



Figure 7.38: Overview close-up photograph of LC12 A-F15 ritual cache



Figure 7.39: Plan view photograph of LC12 A-F15 ritual cache. Partially excavated



Figure 7.40: Plan view of LC12 A-F15 ritual cache. Mostly excavated



Figure 7.41: Diagnostic bones of *Heloderma horridum* from LC12 A-F15 ritual cache Left: Cranial fragments; Right: Mandibular and dental fragments



Figure 7.42: Close-up of shark tooth associated with LC12 A-F15 ritual cache. In situ



Figure 7.43: Close-up of shark tooth from LC12 A-F15 ritual cache. Buccal side

Music also appears to have been an important aspect of ritual life at La Consentida, and to have been incorporated into the LC12 A-F15 cache. The site's ceramic whistles and ocarinas may be some of Oaxaca's earliest examples, as they appear to predate similar instruments of the Tierras Largas phase (Hepp et al. 2014; Ramírez Urrea 1993:143). I mentioned earlier in this chapter that most of La Consentida's figural iconography is anthropomorphic. The few zoomorphic artifacts often represent birds (Figures 7.44–7.50; though also see Figure 8.38). These artifacts are often musical instruments (specifically aerophones), two of which (Figures 7.44 and 7.45) still play. The example pictured in Figure 7.44 almost certainly comes from the aforementioned LC12 A-F15 cache, as its recovery in adjacent fill seems like more than mere coincidence (see Figure 4.66). Its association with the cache further emphasizes the cosmic

union of sea, earth, and sky as a possible meaning of the offering. Whistles and ocarinas like those pictured in Figures 7.44 and 7.45 play consistent patterns of notes suggesting their use in unison performances, perhaps for public events such as dedicatory rituals, contacting ancestors, and feasts (Hepp et al. 2014). Though the La Consentida examples are the oldest known musical instruments in the region, their complex instrumentality suggests that they may come from a long tradition of Archaic period instruments constructed of perishable materials. The ocarina pictured in Figure 7.44 is capable of playing notes from B5 to G6. It was likely originally covered with a red slip or paint, as indicated by a few remaining traces of pigment. The ocarina pictured in Figure 7.45 plays notes from D6 to G6. It has a coarser paste than the more complete instrument represented in Figure 7.44. Other artifacts from La Consentida (e.g., Figures 7.46–7.48) are from definite or probable ceramic aerophones, though they have been broken and no longer play (see Barber and Hepp 2012; Barber Olvera Sánchez 2012; Hepp et al. 2014; and King and Sánchez Santiago 2011 *for discussion of coastal Oaxacan aerophones*).

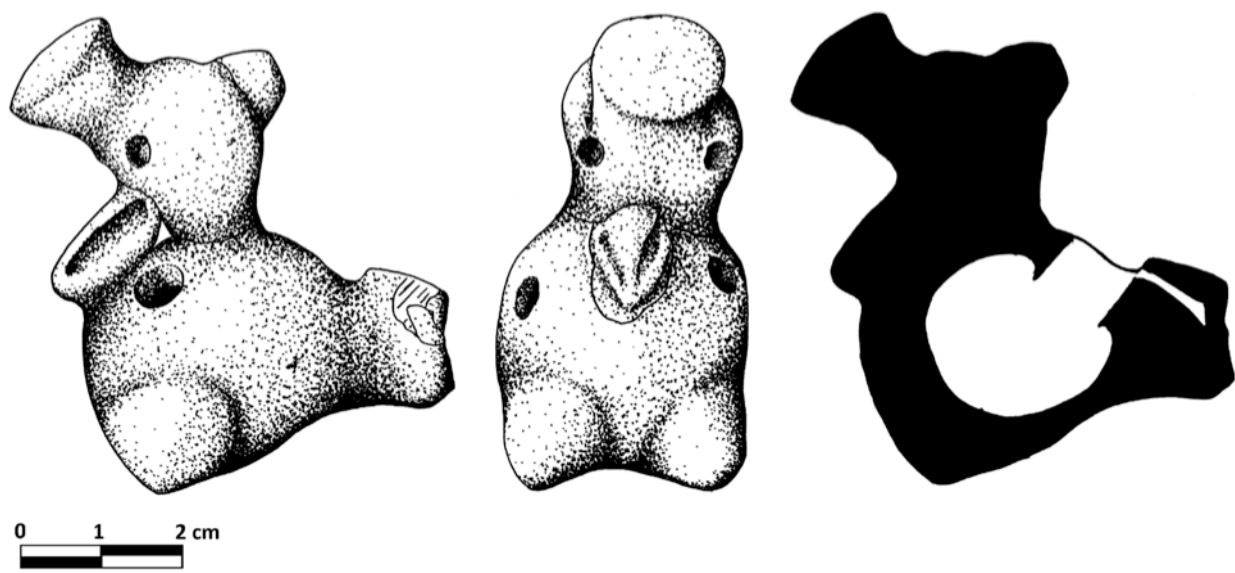


Figure 7.44: Ceramic bird ocarina probably associated with LC12 A-F15 ritual cache

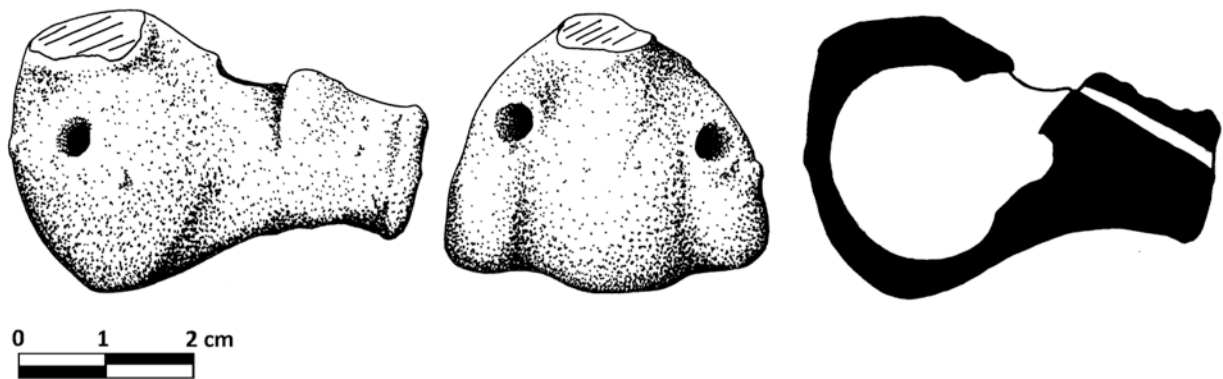


Figure 7.45: Ceramic bird ocarina from fill near burial B6-I7

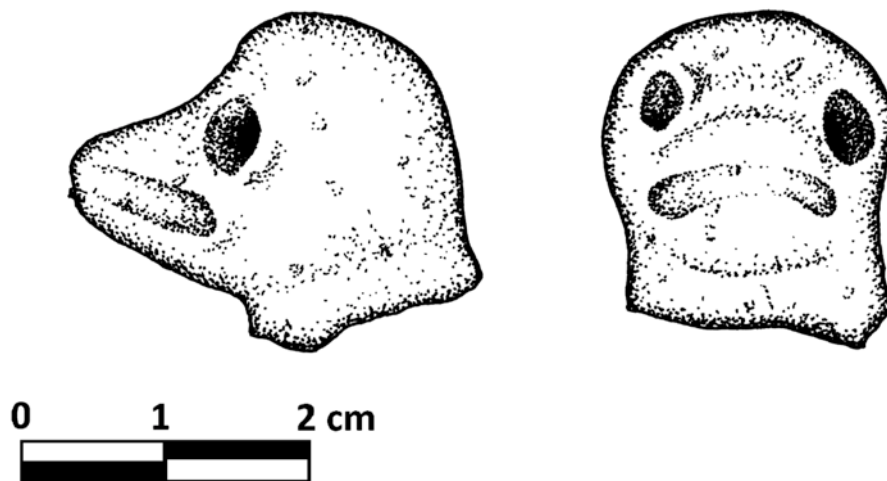


Figure 7.46: Probable ceramic bird ocarina fragment from LC09 B-F14 fill or B1-I1 burial intrusion

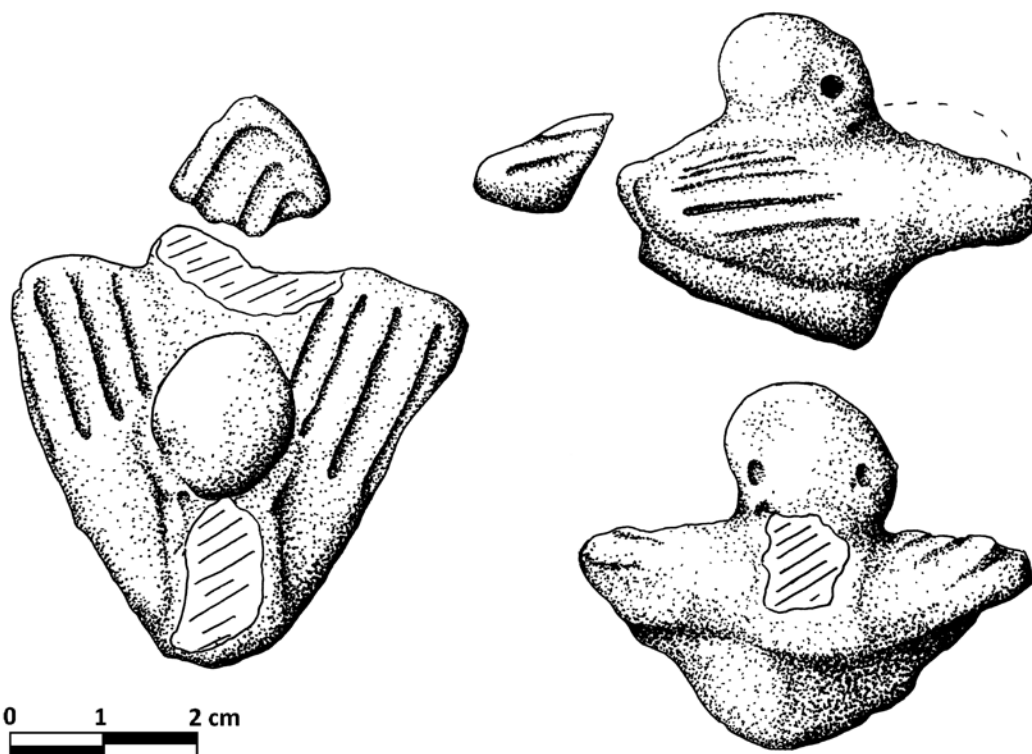


Figure 7.47: Possible bird instrument fragment from fill likely associated with burial B8-I10

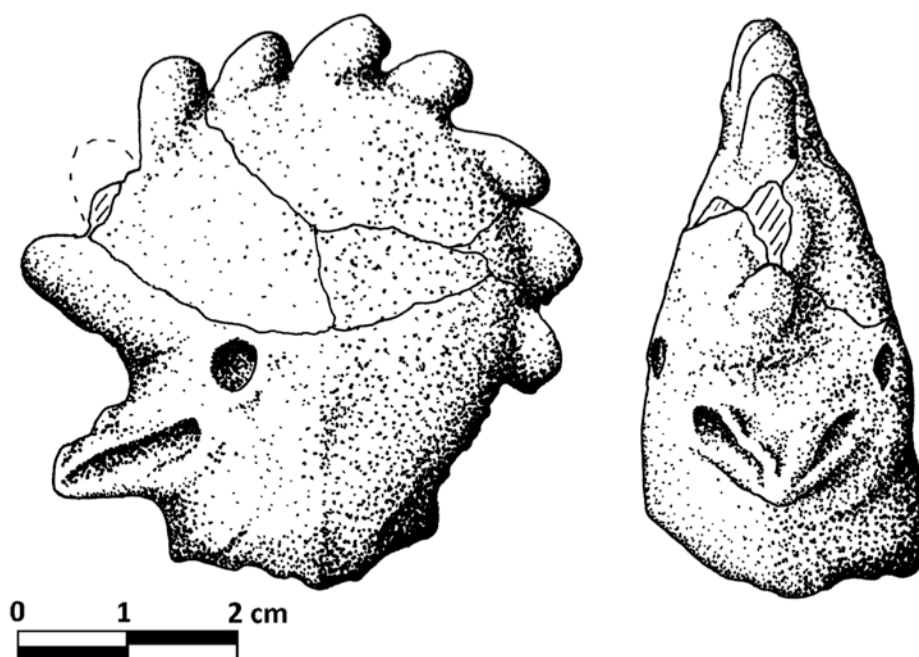


Figure 7.48: Partial ceramic bird instrument from LC12 A-F10-s1 early fill near burial B11-I13

A few rare artifacts (Figures 7.49 and 7.50) are likely bird representations that were not musical instruments. The artifact pictured in Figure 7.50, for example, appears to be an unplayable and solid-bodied emulation of a ceramic bird ocarina, perhaps made by a child (Hepp et al. 2014). Though ceramic bird instruments and similar artifacts may not immediately appear to be related to social organization, I argue that the opposite is true. As evidence of probable public events in which ritual practitioners utilized well-established tropes of Mesoamerican bird symbolism to communicate with an audience, such instruments suggest cosmological and social sophistication (see Hepp et al. 2014). As birds were considered messengers between the worlds of the living and the dead in ancient Mesoamerica (Marcus 1998; Urcid 2005:41–42, 62–63), these artifacts may even suggest that some community members fulfilled the role of ritual specialists, as discussed above with respect to figurines (see Hepp et al 2014; Hepp and Joyce 2013; Figure 7.29).

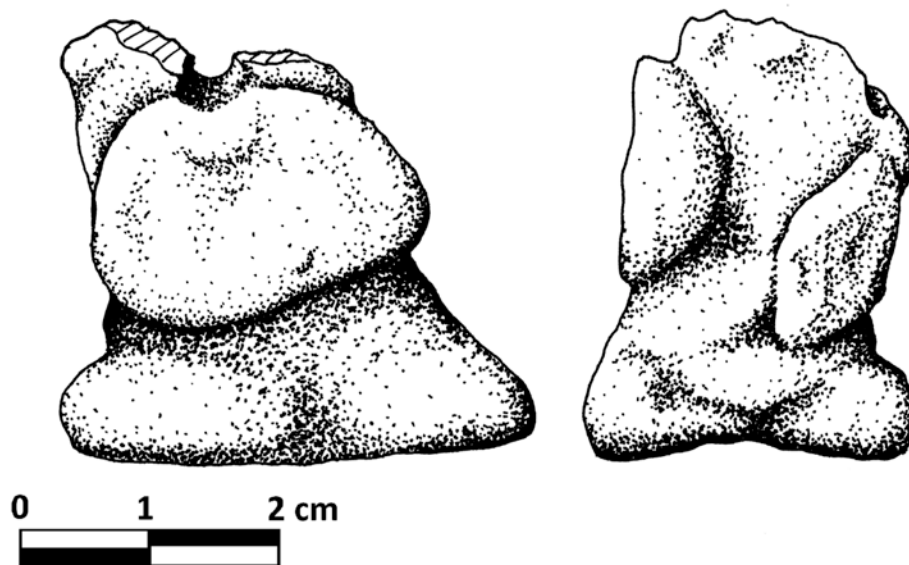


Figure 7.49: Possible bird figurine fragment from fill near burials B6 and B7 and above B9-I11

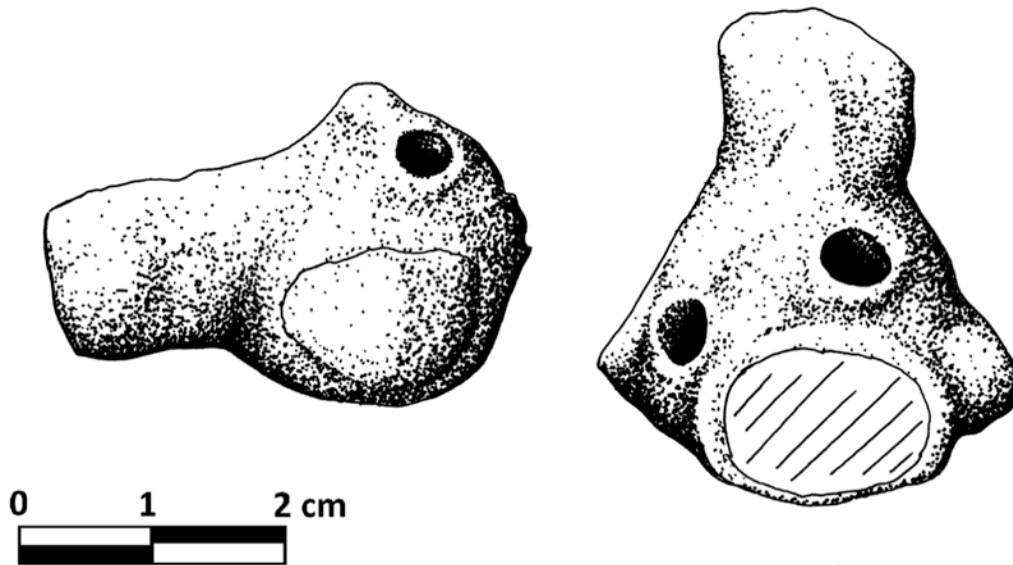


Figure 7.50: Possible emulation instrument, perhaps made by a child. From LC12 E-F3 fill

Further evidence for public ceremony at La Consentida comes in the form of ceramic figurine and mask fragments (Figures 7.51–7.55) that suggest dancing and costumes likely used in public performance. The figurine fragment pictured in Figure 7.51 may represent a human leg festooned with bells, probably for making noise during dances or other performances. Its recovery in close association with burial B8-I10, a feature that also included the crushed remains of at least one ceramic musical instrument, may even suggest that certain community members fulfilled specialized roles of musicians and dancers for public events. The recovery of female figurines with the adult male interred in Burial 2 serves as a cautionary reminder not to assume that figurines represent interred individuals, but the recovery of both an instrument and the “dancer” figurine fragment with B8-I10 slightly strengthens the case that the individual was a musician, dancer, and/or ritual specialist. At the very least, the presence of numerous ceramic aerophones demonstrates the community’s emphasis on sound.

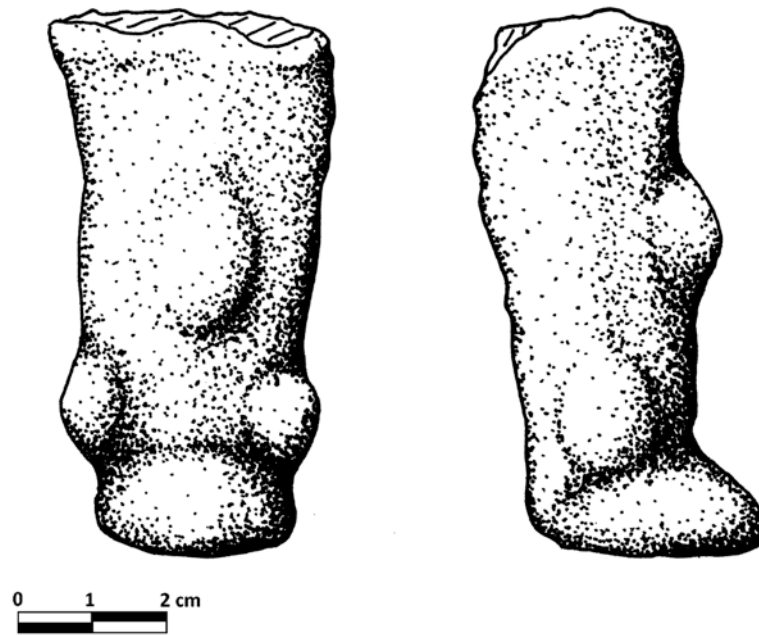


Figure 7.51: Anthropomorphic leg fragment, possibly depicting a dancer. From burial B8-I10

Life-size fragments of anthropomorphic ceramic faces (e.g., Figures 7.52–7.55) represent another class of artifacts suggesting public performances likely related to music and dancing. Though in some cases it is not clear if these finds come from masks, statues, or effigy vessels, the holes at the top and side of the artifact pictured in Figure 7.53 suggest that at least some of these faces may have been tied to the head of a dancer or performer, as is often done with modern ritual masks in Oaxaca. The Figure 7.53 artifact even appears to have had eyeholes for allowing a dancer or performer to see while wearing the mask. Only eyes and noses from these probable masks have been recovered, so it is not possible to know if the mouths may have resembled the toothy frown of the aforementioned figurine and probable effigy vessel pictured in Figures 7.26 and 7.27, or if the mouths were perhaps left uncovered to allow for clearer speaking or singing. The red paint or slip on the example pictured in Figure 7.52 and the

traces of a similar pigment on the nose represented in Figure 7.55 provide another clue as to the original appearance of these artifacts. Much like the diverse figurines, musical instruments, and elaborate ritual offerings discussed above, these probable masks suggest diverse occupational and ritual roles enacted by La Consentida's community members.



Figure 7.52: Ceramic mask or statue fragment from LC09B-F17-s1 midden

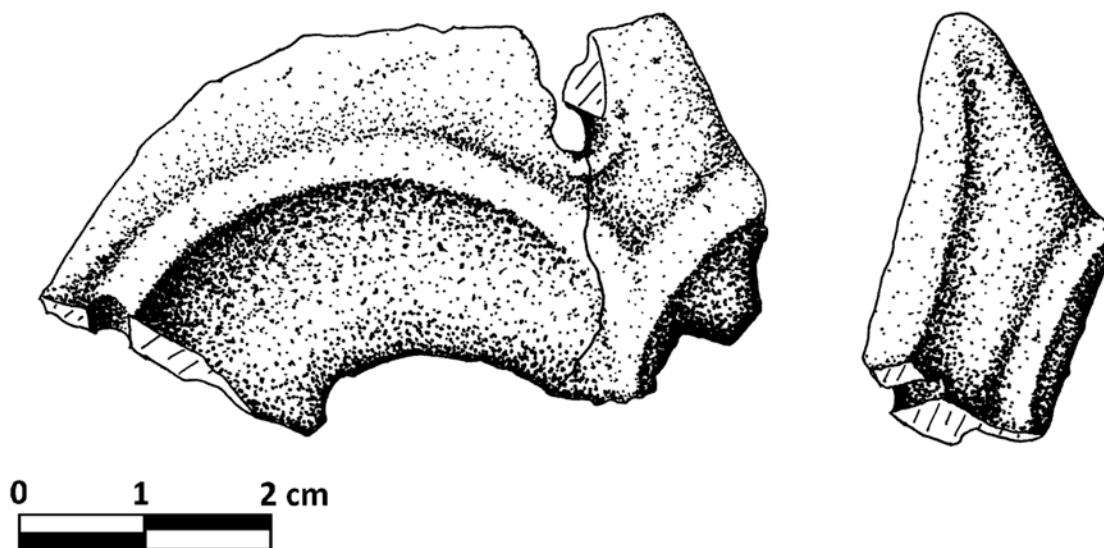


Figure 7.53: Probable ceramic mask fragment from LC12 A-F4-S1 fill near burials B6 and B7

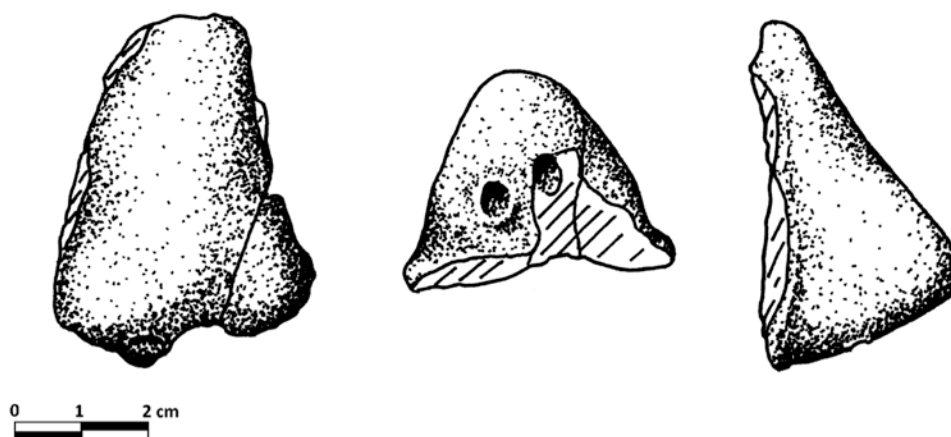


Figure 7.54: Possible ceramic mask fragment from fill likely associated with burial B12-I14

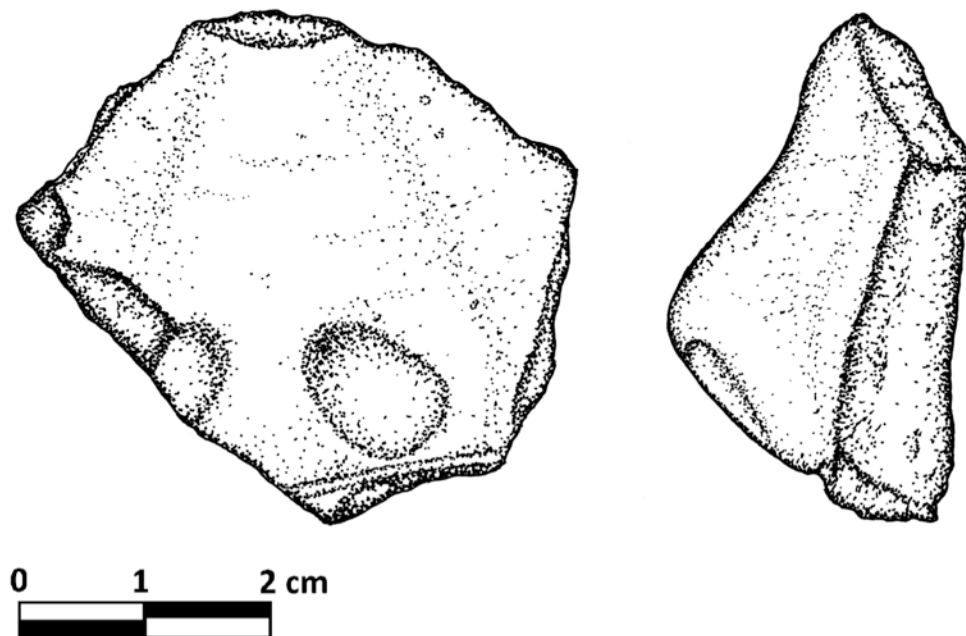


Figure 7.55: Possible ceramic mask fragment from LC09 A-F5 initial fill context

Feasting and its implications for social organization

Feasting is suggested by the presence of faunal remains (Chapter VI and Appendix 3), decorated ceramics (Chapter VIII and Table A.2.6) and rapid deposition of ceramics identified in various midden contexts at La Consentida. As discussed in Chapter IV and Appendix 2, two main midden deposits, excavated in Ops. LC12 E and LC12 H, provide evidence of feasting. As demonstrated in Appendix 2, the Op. LC12 H midden (LC12 H-F-4) contained about 93 percent utilitarian jars (Figure A.2.9). These vessels were deposited quickly, with cross fitting sherds occurring throughout the midden. This pattern suggests that the ceramics came from just one or a very few events, likely tied to the preparation for some large community gathering. The Op. LC12 E midden (F-16 through F-9) was also deposited quickly, but contained a wider variety of vessel types and included a number of decorated vessel fragments (Figure A.2.6) in addition to high percentages of marine animal remains among the fauna (see Chapter VI and Appendix

3). As discussed in Appendix 2, many of the vessel fragments recovered in the LC12 E-F16–F9 midden were serving wares such as bowls (25% of all diagnostic vessel fragments) and bottles (12% of all diagnostic vessel fragments). Contrast this with the pattern identified in the LC12 H-F4 midden, where 93% of all diagnostic remnants came from jars likely used for storage or cooking, and only about 6% of diagnostic sherds came from bowls and bottles combined.

The LC12 H-F4 midden produced some of the most complete and well-preserved ceramic vessel fragments thus far at La Consentida. As exemplified by the vessels pictured in Figures 8.2–8.5, these vessels were mostly undecorated, globular jars with outcurving or outleaning necks. The large hemispherical bowl pictured in Figure 8.6 indicates some variability within the midden, though it is made of the same paste as the jars and also lacks decoration. I interpret these vessels as evidence of a large, rapidly produced deposit of cooking vessels, probably discarded after the preparations for one or a very few communal feasting events. The rapid deposition of these ceramics is demonstrated by the fact that several refitting vessel fragments (e.g., Figure 8.5) come from both the LC12 H-F4-s1 and H-F4-s2 substrata, and the fact that the deposit's largest and most complete hemispherical bowl fragment (Figure 8.6) is composed of refitting sherds from up to five lots apart. These five lots (three of which contained identified fragments of the bowl) represent approximately 60 cm of excavated depth within Unit H.0A. The interpretation that these vessels come from feasting preparation, rather than from domestic consumption, is supported by the presence of very large jars in the sample, with one reaching 53 cm in rim diameter.

As discussed in Chapter II, archaeologists working in various regions have considered public events such as feasts to be among the primary loci for social maneuverability in ancient

communities (e.g., Blake and Clark 1999; Clark and Blake 1994; Hayden 1990; Hill and Clark 2001). “Aggrandizers” displaying prestige goods such as exotic imports or decorated pottery at such occasions, and establishing lasting relationships of indebtedness with other community members, may have been one of the main catalysts for shifting social organization in transegalitarian communities (Blake and Clark 1999; Hayden 1995, 1999). Similarly, feasts could have been one of several venues for the solidarity-promoting activities of social collectives as a precursor to later development of more exclusionary forms of hierarchical social organization (R. Joyce 2004a; Joyce and Henderson 2001, 2007). I do not claim that evidence of feasting at La Consentida necessarily indicates that the community was moving toward the establishment of hereditary hierarchical inequalities. As argued by Kuijt (2009:643; *see also* Twiss 2008 [*cited in* Kuijt 2009]), archaeological and ethnographic evidence both demonstrate that “feasting occurs in the social context of coexisting integrative and competitive processes, not just competition.” Public events such as feasts at La Consentida certainly could have provided appropriate venues for competition and transitions to increasing social complexity, however. The presence of decorated ceramics in some of these midden deposits at La Consentida (see Table A.2.6) suggests that community members did have an interest in the display of prestige items that may indicate increasing economic/craft specialization.

Summary

Rather than strictly focusing on degrees of hierarchical social inequality, I have striven in this chapter to use multiple lines of evidence in order to paint a picture of the rich social life led by members of La Consentida’s ancient community. Regarding the social organization/social

hierarchy component of the central LCAP research question, however, a few comments are worthwhile here. The case for social complexity at La Consentida seems to hinge upon how one defines the term (J. Arnold 1996; McGuire 1983; Paynter and McGuire 1991). If we stay wedded to identifying it as inherited hierarchical inequality, the evidence appears relatively scant. As implied by increasing standardization of communal labor evident in later deposits of earthen fill discussed earlier in this chapter (see also Chapters IV and V), some community members may have come to organize group labor efforts at the site toward the end of its occupation in the Formative period. Perhaps La Consentida's best evidence for both heterarchical and hierarchical social complexity comes from small-scale ceramic iconography. The presence of seated, big-bellied, and headdress-wearing figurines is consistent with the depiction of elevated social status, perhaps held by community elders represented in Early and Middle Formative period contexts elsewhere in Mesoamerica and in later contexts in the lower Río Verde Valley (Guernsey 2012:108, 121–122; Hepp and Joyce 2013; Hepp and Rieger 2014; Lesure 1999a:121). Anthropomorphic imagery and remnants of actual jewelry from the site suggest diverse social roles and personal adornment (such as headdresses and jewelry) that are associated with elevated status in later Mesoamerican contexts (e.g., Ashmore 2004:184–185; Blomster 2004:85, 186; Clark 1994:126; Heyden 1991:195; Saunders 2001). Architectural, mortuary, public ceremony, and feasting evidence also seems to suggest heterarchical social differences.

As Lesure and Blake (2002) discussed, identifying the initial stages of social complexity is difficult because it is to be expected in discontinuous and regionally variable patterns. Due to the nature of the artifacts recovered and contexts excavated during the 2009 and 2012

fieldwork at La Consentida, I have relied heavily in this chapter on iconography as one of several lines of evidence for understanding social organization at the site. Inferences promoted by analysis of figurines and similar artifacts, when bolstered by evidence provided by architectural, mortuary, personal adornment, public ceremony, and feasting data, can support productive discussions of ancient social organization. What these various lines of evidence suggest for the La Consentida community, I argue, is that it was heterarchically complex, with diverse social roles including communal labor organizers, dancers, musicians, ball players, feasting facilitators, and ritual specialists. Given evidence for the significance of these roles in later Mesoamerican hierarchical social complexity (e.g., the Olmec “ballplayer chiefs” discussed by Clark [2007]), I argue that the evidence for social organization at La Consentida suggests that the community bore the seeds of hereditary social hierarchy. As discussed in Chapter II, most research regarding Mesoamerican social complexity has focused on identifying formalized social hierarchies rather than understanding the role of heterarchical complexity (*though see* J. Arnold 1996; Crumley 1995; McGuire 1983; Paynter and McGuire 1991). Social heterarchy at sites like La Consentida, I suggest, was fundamental in the eventual establishment of hereditary social hierarchy in Mesoamerica.

Chapter VIII: Evidence of Interregional Interaction and Trade

Introduction

In the preceding three chapters I have focused on the main components of my research question regarding the interrelatedness of domestic mobility, subsistence, and social organization at La Consentida. In this chapter, I turn my attention to evidence for the site's role in networks of interregional interaction. Understanding La Consentida's relationships beyond the lower Río Verde region is important for addressing questions about settlement, subsistence, and social organization for multiple reasons. First, in order to argue that the social and economic changes identified at initial Early Formative period La Consentida are related to those in better-documented Mesoamerican regions and time periods, it is necessary to demonstrate the site's participation in that larger cultural sphere. Second, understanding the nuances of La Consentida's interregional relationships may help to explain its uniquely early date and the particulars of its ceramic assemblage. In this chapter, I discuss styles of ceramic vessel form and decoration that suggest contact with regions such as West Mexico, the Valley of Oaxaca, and Central Mexico. I propose that the Tlacuache ceramic complex represents the earliest known example of the Red-on-Buff horizon (*see* Clark 1991; Winter 1992; Winter and Sánchez Santiago, eds. 2014). Furthermore, Tlacuache ceramics may represent part of a western Pacific coastal interaction sphere evinced by decorative styles held in common with those from the Capacha phase (*see* I. Kelly 1980). I also consider obsidian sourcing data, the presence of metamorphic greenstone, and figurine iconography to support my argument that

La Consentida was not an isolate or anachronistic anomaly, but was instead an important early locus for many of the traditions, beliefs, and practices that came to exemplify Mesoamerican culture in subsequent centuries (Clark 2004b; R. Joyce 2004b; Kirchhoff 1943).

Comparing Barra and Tlacuache ceramics

The Barra phase of the Soconusco region is widely recognized as the earliest well-dated ceramic tradition in Pacific coastal Mesoamerica. Barra ceramics are “remarkably sophisticated,” often bear decoration, and are composed largely of tecomates. Specifically, Clark and Blake (1994:25) reported that the assemblage is composed of 89.4 percent tecomates and 10.6 percent bowls. Many Barra phase vessels are phytomorphic, or designed to resemble plants (Clark and Blake 1994). Numerous authors have argued that these ceramics were instrumental in competitive feasting that helped spark the development of social complexity in the Soconusco (Clark 2004a; Clark and Blake 1994; Clark et al. 2007:25; *see also* Hayden 1990, 1998, 2009). Though Tlacuache ceramics were contemporaneous with the Barra phase (see Tables 1.1 and 1.2), they are dissimilar in form because they include far fewer tecomates and highly decorated phytomorphic vessels, and instead consist of a majority of jars, followed in relative emphasis by bowls, bottles, and more specific variants of these basic vessel types (see Table 8.1, Figure 8.1, and Appendix 1). While tecomates and a few probable phytomorphic vessels are present at La Consentida (see Figures A.1.25, A.1.27, and A.1.28), they are rare. The early dates for the Tlacuache phase, when considered in conjunction with basic differences between Barra and Tlacuache ceramic complexes, force us to question the argument Mesoamerica’s earliest ceramics were all introduced from Central America along the Pacific

coast of Chiapas and Guatemala (Clark and Blake 1994; Lowe 2007). Certainly, early Central American sites with ceramics are candidates for interaction with some of Mesoamerica's first ceramicists (see J. Bradley 1994; Hoopes 1994). In addition to those southeastwardly connections, a very early ceramic tradition seems to have appeared west of the Isthmus of Tehuantepec by as early as 1900 cal B.C. As I will discuss below, Tlacuache wares seem to exemplify the Red-on-Buff ceramic horizon, rather than the Locona horizon to which the Barra ceramics arguably belong (see Clark 1991; Winter 1992). These ceramic macro horizons (Locona and Red-on-Buff) may relate to broad patterns of cultural and linguistic distribution (see Clark 1991; Josserand et al., eds. 1984; Winter 1992; Winter and Sánchez Santiago, eds. 2014).

The Tlacuache complex as early exemplar of the Red-on-Buff Horizon

In Oaxaca, the Espiridión and Tierras Largas phases, the former of which is now in question as distinct from Tierras Largas, have previously been recognized as producing the earliest ceramic complexes and the first examples of Red-on-Buff horizon wares (see Winter 1992; Table 1.2). In this section, I compare Tlacuache ceramics with these other early Oaxacan traditions (see Table 8.1 and Figure 8.1). As I will demonstrate, despite some similarities, these ceramics differ significantly and must be assigned to discrete phases (refer to Appendix 1 for a description of Tlacuache ceramics). Table 8.1 and Figure 8.1 demonstrate the statistical differences between the Tlacuache, Barra, and Tierras Largas phases.¹ Of note are the general similarities in vessel ratios between Tierras Largas and Tlacuache, both of which are very different from the Barra phase, which lacks jars and bottles and is mostly composed of

¹ All statistical tests and graphical outputs produced using JMPTM Pro 11

tecomates.² Between Tlacuache and Tierras Largas phases, important differences include the higher percentages of bottles and tecomates in the former. For these comparisons, vessel varieties were collapsed into simple designations of “bowls,” “jars,” “bottles,” etc. As the higher percentage of bottles and the presence of special vessel types such as grater bowls suggests, the Tlacuache assemblage is more diverse than Tierras Largas. Though the nonexistence of jars and bottles in the Barra phase and the very low percentages of tecomates in the other phases make a Chi-square statistical comparison useless, a Fisher’s exact test demonstrates that these phases differ in a statistically significant way (see Kranzler 2011). When just the Tlacuache and Tierras Largas phases (which have similar percentages of jars and bowls) are compared using a Fisher’s exact test, the differences between them are statistically significant ($p < 0.0001$).

Ceramic phase	Vessel type	Percentage
Tlacuache	Jars	76.8
Tlacuache	Bowls	16.6
Tlacuache	Bottles	5.6
Tlacuache	Tecomates	1.0
Barra	Jars	0.0
Barra	Bowls	10.6
Barra	Bottles	0.0
Barra	Tecomates	89.4
Tierras Largas	Jars	77.3
Tierras Largas	Bowls	17.5
Tierras Largas	Bottles	0.16
Tierras Largas	Tecomates	0.4

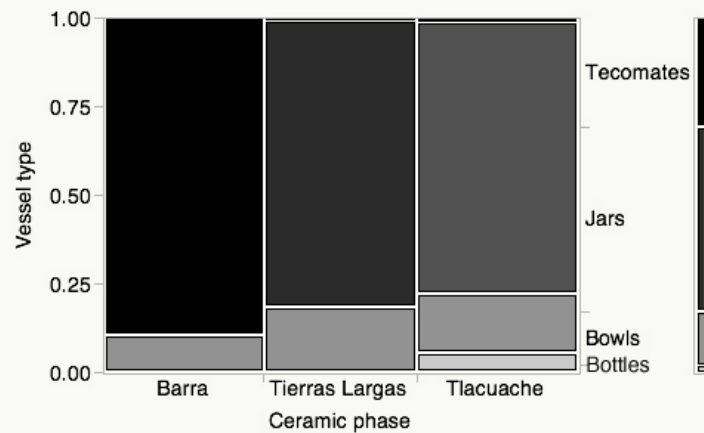
Table 8.1: A comparison of Tlacuache, Barra, and Tierras Largas vessel types by percentage

² Comparison based on published reports of Barra phase vessel ratios (Clark and Blake 1994:25) and my own estimated percentages from several Tierras Largas contexts (Flannery and Marcus 1994:Tables 10.1, 10.2, and 11.1). Tierras Largas percentages based on counts of diagnostic sherds, and Tlacuache ratios based on grams of diagnostic sherds. Tierras Largas percentages do not add up to 100 due to unidentified sherds counted in aforementioned tables.

Contingency Analysis of Vessel type By Ceramic phase

Freq: Percent

Mosaic Plot



Contingency Table

Ceramic phase	Vessel type				
	Bottles	Bowls	Jars	Tecoma tes	
Barra	0	11	0	89	100
	1.95016	15.1341	52.1736	30.7421	
Tierras Largas	0	18	77	0	95
	1.85967	14.4319	49.7528	29.3157	
Tlacuache	6	17	77	1	100
	1.95016	15.1341	52.1736	30.7421	
	6	45	154	91	295

Tests

N	DF	-LogLike	RSquare (U)
295	6	160.69160	0.5110

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	321.383	<.0001*
Pearson	260.756	<.0001*

Warning: 20% of cells have expected count less than 5, ChiSquare suspect.

Fisher's Exact Test	Table	Two-sided
	Probability (P)	Prob ≤ P
	0	<.0001*

Measures of Association

Measure	Value	Std Error	Lower 95%	Upper 95%
Gamma	-0.7225	0.0520	-0.8245	-0.6205
Kendall's Tau-b	-0.5808	0.0481	-0.6750	-0.4866
Stuart's Tau-c	-0.5555	0.0465	-0.6466	-0.4644
Somers' D CIR	-0.5556	0.0467	-0.6470	-0.4642
Somers' D RIC	-0.6071	0.0510	-0.7071	-0.5070
Lambda Asymmetric CIR	0.6329	0.0406	0.5534	0.7124
Lambda Asymmetric RIC	0.4597	0.0396	0.3820	0.5374
Lambda Symmetric	0.5324	0.0303	0.4730	0.5917
Uncertainty Coef CIR	0.5110	0.0312	0.4499	0.5722
Uncertainty Coef RIC	0.4953	0.0258	0.4447	0.5459
Uncertainty Coef Symmetric	0.5031	0.0273	0.4496	0.5565

Figure 8.1: Fisher's exact test comparing Tlacuache, Barra, and Tierras Largas vessel types

As was briefly discussed in Chapter IV, ceramics from the LC12 H-F4 midden consisted almost entirely of globular jars (see Appendix 2). These vessels (e.g., Figure 8.2–8.5) appear formally similar to Tierras Largas phase jars (Flannery and Marcus 1994:Frontispiece A, 45–101, Fig. 8.37; Ramírez Urrea 1993:Figs. 48, 57–59). Some Tierras Largas phase jars have rounded bases, while bases among all styles of Tlacuache complex vessels are usually flatter (see Ramírez Urrea 1993:Figs. 36, 38). Undecorated semi-spherical bowls (e.g., Figure 8.6) are also similar between the two phases. Four small fragments of a finely burnished and slipped “kidney-shaped bowl” (Figure 8.7) from the LC12 E-F9-s1 midden also appear similar to Tierras Largas phase hemispherical kidney-shaped bowls (Flannery and Marcus 1994:Fig. 7.2). Such kidney-shaped bowls are not a particularly diagnostic vessel type, however, as they also appear at Zohapilco (Niederberger 1976:Lám. LII.16, 25, Lám. LIV.16, Foto 37) and at Tlatilco (Piña Chan 1958:Fig. 40.j, Lám. 21). Similarly, globular jars are not a very diagnostic form during the Early Formative. Tlacuache jars are generally similar to some from Tlatilco (e.g., Piña Chan 1958:Fig 36.c; Fig 41.b), and Zohapilco (Niederberger 1976:Lám. LIX).

Tierras Largas phase ceramics are less formally diverse than those of the Tlacuache phase. Specifically, Tierras Largas ceramics lack the types of bottles and grater bowls identified at La Consentida, and what few bottles are present in Tierras Largas are rarer than Tlacuache bottles (see Ramírez Urrea 1993; Appendix 1). Though Tierras Largas and Tlacuache ceramics have relatively similar vessel form ratios (Table 8.1), the assemblages are markedly different in terms of both plastic and painted decoration styles. The “rocker stamping” found on some Tierras Largas ceramics (e.g., Flannery and Marcus 1994:Fig. 8.18) is completely absent from

the Tlacuache ceramics. Furthermore, bands of red paint on Tierras Largas bowls and jars (e.g., Flannery and Marcus 1994:Figs. 8.22–8.26) are dissimilar to Tlacuache painted decorations. Both phases share the use of red paint and/or slip for exterior vessel decoration, however. Generally, vessel forms of greatest similarity between the Tlacuache and Tierras Largas phases are generic types that are also shared in common with other early ceramics of the Red-on-Buff horizon (see discussion below) rather than particularly diagnostic forms. Tlacuache ceramics predate the Tierras Largas phase, at least as it is currently categorized. As demonstrated in Table 1.1 and Table 4.10, carbonized food remains from the interior of a jar fragment found in the LC12 H-F4-s2 midden deposit returned an AMS radiocarbon date of 1876–1626 cal B.C. Both the Tierras Largas and Tlacuache ceramics differ markedly from the more tecomate-emphasizing and highly decorated Barra tradition (Clark and Blake 1994).



Figure 8.2: Refit jar rim from LC12 H-F4-s2 midden context



Figure 8.3: Jar rim, neck, and base from LC12 H-F4-s2 midden context

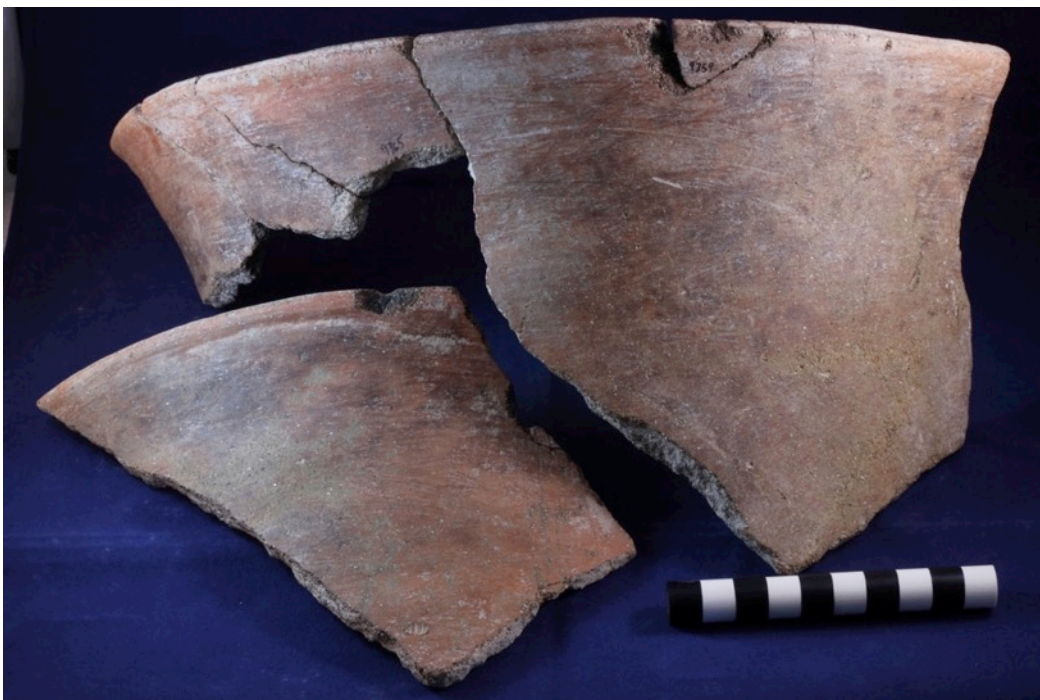


Figure 8.4: Partial jar from LC12 H-F4-s1 midden context



Figure 8.5: Partial jar from LC12 H-F4-s1 and H-F4-s2 midden context



Figure 8.6: Partial hemispherical bowl from LC12 H-F4-s1 midden context



Figure 8.7: Rim fragment of hemispherical kidney-shaped bowl from LC12 E-F9-s1 midden

The similarity between coastal and highland undecorated, utilitarian cooking jars and hemispherical bowls, despite marked dissimilarity between the decorated vessels of these traditions, deserves some explanation. For example, contrast the decorated Tlacuache wares with those from the Tierras Largas phase (Flannery and Marcus 1994:Figs. 8.22–8.27, 8.30, 8.31, and 8.34; Ramírez Urrea 1993:Figs. 62–65). A tentative interpretation of this discrepancy is that utilitarian wares at La Consentida adhered to traditions of jar manufacture shared with communities in highland Oaxaca and Central Mexico. A Pacific coastal interaction sphere of the kind proposed by Kelly (1980; *see also* Anawalt 1998), and involving navigation along the Pacific coast in boats, likely explains why the decorated wares share more in common with coastal traditions far to the west than they do with highland Oaxacan ceramics (see discussion below). If fancy serving vessels such as bowls and bottles were meant for public display employing

decorative motifs meaningful to visitors from nearby and distant coastal zones sharing a decorative tradition, that would explain why these vessels appear in probable feasting middens (LC12 E-F16 through E-F9), rather than in cooking middens (LC12 H-F4) (see Chapter VII and Appendix 2; *see also* Clark and Blake 1994 *regarding the use of decorated wares in feasting*).

Though some of La Consentida's ceramics suggest a degree of interaction with highland Oaxaca and Western Mexico, other vessels are of a style whose interregional affiliations are more difficult to trace. Small ceramic grater bowls from La Consentida (e.g., Figures 8.8–8.15) come in various forms, including as rounded conical bowls with flat bottoms (Figure 8.8) and (more rarely) as conical bowls with pouring spouts (Figure 8.9), as square bowls (Figure 8.10), and possibly as hemispherical bowls. As discussed in Chapter VII, the two most complete of these ashtray-sized vessels were recovered as offerings with children's burials. These bowls may not be totally without counterparts in other regions. Vessels bearing similar weaving or textile-inspired incised motifs have been identified in highland Oaxaca (Marcus and Flannery 1994:Figs. 12.142 and 12.143, 1996:96), at Cantón Corralito (Cheetham 2010:180), and in other regions of Formative period Mesoamerica as a possible reference to woven mats or *petates* (see Carrasco and Englehardt 2015; Chapter VII). Notably, such geometric designs in other traditions tend to appear on the exterior of vessels, while Tlacuache grater bowls bear their incised lines on the interior base and sometimes on the interior wall all the way to the rim.

Formative period grater bowls with interior incising are found in highland Oaxaca, but are rare, executed in gray rather than brown paste, and occur in later phases such as San José and Guadalupe (see Flannery and Marcus 1994:Fig. 12.74, 12.101). Perhaps the best-known examples of grater bowls among later Oaxacan ceramics can be found in the G-12 type of the

Pe (500–100 BCE) and Nisa (100 BCE – CE 200) phases (see Caso et al. 1967:Fig.130b; A. Joyce 2010:150, 187, Fig. 5.7c). Much later examples also occur in the Xoo phase (500–800 CE), and these again tend to be gray wares (Martínez López et al. 2000:165–166). The bowl shown in Figure 8.8 does have a similar pattern of rim notching to some non-grater hemispherical bowls of the Tierras Largas phase (Flannery and Marcus 1994:Fig. 8.9). This vessel also seems to bear extensive use wear (Marcus Winter, personal communication 2014). Some of the interior-incised bowls at Tlatilco (e.g., Piña Chan 1958:Fig. 38 a, b, *see also geometric designs demonstrated in Fig. 47*) have incisions similar to Tlacuache grater bowls, though the examples from La Consentida appear smaller in diameter and lack tripod supports (e.g., Figure 8.9). As with the Tlatilco examples, Zohapilco bowls with interior incision in geometric patterns (Niederberger 1976:Lám. XXXVI, Lám. XLV.22, Lám. LI) are somewhat similar to Tlacuache grater bowls. Despite minor similarities with decorative patterns on vessels from other regions, the La Consentida grater bowls seem to be a relatively distinctive category at the site. Regarding relationships with West Mexican ceramics (see discussion below), Kelly (1980:31) pointed out that both the Capacha and Opeño phases lack grater bowls.

Given their consistencies in form and in the placement of their interior incisions, it appears that the Tlacuache grater bowls served some food processing or crafting need. Because the complex, incised designs in these bowls were carefully executed (perhaps drawing inspiration from the geometric patterns of woven textiles and/or basketry), their formal qualities or artistic value must also have been significant. Because two examples (Figures 8.8 and 8.9) were recovered with child burials, it seems possible that grater bowls were used to

process food for weaning infants.³ Absorbed residue analysis may be the only way to definitively identify their uses, however (see Morell-Hart et al. 2014; Seinfeld et al. 2009). Also, future investigations of nearby Early Formative sites such as Cabeza de Vaca may indicate whether grater bowls are represented in the ceramic collections of other early coastal communities.



Figure 8.8: Grater bowl with extensive use wear recovered as offering with Burial B9-I11

³ According to Bartolomé and Barabas (1996:170–172), modern Chatino children are weaned at about two years of age and quickly begin to take on mature social roles within the family, with girls, for example, making tortillas by only three or four years old. Ethnographic evidence from elsewhere in Oaxaca suggests that other native groups (such as the Zapotec) wean early and transition their children to an adult diet and adult economic roles quickly (Nader 1969:356; Parsons 1936:85–86; Sellen 2001; R. Taylor 1960:192, 195, 328). Such information may conflict with the interpretation that the grater bowls were used to prepare weaning foods, though the La Consentida population would have had different subsistence practices than modern groups.



Figure 8.9: Complete grater bowl with spout recovered as offering with Burial B11-I13



Figure 8.10: Partial grater bowl from LC12 C-F2 domestic occupational debris at edge of Structure 1



Figure 8.11: Unusual, incised dish or bowl rim fragment from intrusive pit associated with burials B6 and B7



Figure 8.12: Grater bowl rim fragments from debris within Structure 2 domestic building



Figure 8.13: Grater bowl rim fragment from intrusive pit associated with burials B6 and B7



Figure 8.14: Grater bowl rim fragment from LC12 A-F15 ritual cache



Figure 8.15: Grater bowl fragments from multiple contexts (mostly fill) in Ops. LC09 A and LC09 B

The Ojochi and Bajío phase ceramics of the Gulf Coast region are combined into a single phase by some researchers (e.g., P. Arnold 2003; Rodríguez and Ortiz C. 1997:82 [cited in P. Arnold 2003]). These ceramics include long-necked bottles, sherd disks, zoned and impressed banded decoration, globular jars, decorated tecomates, and possible phytomorphic vessels that are generally similar to a few of the Tlacuache complex types (see YPM ANT 255088, 255093, 255099, 255101, 255105, 255109; 255207, 255221; Appendix 1).⁴ Powis and colleagues (2011:8597, 8599) noted that an Ojochi phase bottle and a Bajío phase “necked jar” and “open bowl” tested positive for cacao use. Bottles emulating plants such as squashes, bearing “geometric designs painted in red,” and which were used for cacao consumption have also

⁴ Various type specimens for Ojochi and Bajío phase ceramics. Courtesy of the Peabody Museum of Natural History, Division of Anthropology, Yale University; <http://peabody.yale.edu>

been identified in the coastal Honduran Ocotillo phase (Joyce and Henderson 2007:645).

Bottles from La Consentida generally resemble these cacao vessels, though residue analysis is necessary to identify their uses. As demonstrated by Powis and colleagues (2007, 2008), some early Soconusco ceramics were also used for cacao, emphasizing that chocolate was widely consumed in the Early Formative regardless of specific vessel types used to contain it.

Additional parallels between the La Consentida ceramics and those from other Early Formative sites are evident. The probable effigy vessel shown in Figure 7.27, for instance, appears to be similar to one discussed by Piña Chan (1958:32) from a burial at Tlatilco. A few bottles from Tlatilco (e.g., Piña Chan 1958:Fig. 34.i, j, k; Fig. 35.v, w; Fig 37.ñ, o, p, r, s; Fig. 39.y, z, a¹, b¹, Fig 43.r, Fig 44.k, Fig 46.f) also resemble Tlacuache bottles. Though some of the bold geometric designs of the Tlatilco decorated wares are reminiscent of those from the Tlacuache phase, the Olmec-inspired iconography found on some of the Tlatilco vessels is absent at La Consentida, as the site's entire occupation appears to predate the Olmecoid horizon. Similar bottles were also recovered at Zohapilco, and likely date to the Manantial phase (approx. 1250–1050 cal B.C.) (Niederberger 1976:Lám. XXXVI.11, 12).

Ceramic evidence for a Pacific coastal interaction area

Styles of ceramic decoration identified among La Consentida's Tlacuache phase ceramics imply interaction with regions as distant as West Mexico. Decades ago, Isabel Kelly (1980:37) suggested that archaeologists should focus more attention on what she believed was a Formative period Pacific coastal interaction sphere in western Mesoamerica, which perhaps brought ceramic technology and decorative inspiration northward out of lower Central and

South America. Citing evidence for a broadly dispersed ceramic tradition with ties to the Capacha phase, Kelly believed that West Mexican decorative motifs likely had Formative period counterparts in coastal zones further to the southeast. She noted (1980:37) that Capacha may have been merely one of several “landfalls along the Pacific coast” for this tradition, and that a lack of information for early deposits in other coastal areas (such as Oaxaca and Guerrero) represented a challenge to understanding that potential interaction network. A few of the decorative elements visible in La Consentida’s Tlacuache ceramics may be related to this poorly defined western macro-tradition, which includes the Capacha and Opeño phase ceramics.

Though decorated ceramics are fairly rare at La Consentida, midden, sheet midden, and eroded/redeposited midden contexts (e.g., LC09 B-F17, LC12 A-F7, LC12 D-F10 through F8, and LC12 E-F16 through F9) have provided a good sample of the various styles of decoration at the site (see Chapter IV, Appendices 1 and 2, and especially Table A.2.6). One of the most compelling pieces of evidence for including La Consentida in a broad Pacific coastal interaction area with distant western traditions can be found in the “sunburst” decorations on some vessels of Colima’s Capacha phase bottles and jars (e.g., Figure 8.16–8.18) and on several decorated fragments from La Consentida (Figures 8.19–8.22). At La Consentida, sunburst designs often appear on probable bottles, as is most clear in the example pictured in Figure 8.19 (for an illustration of this vessel fragment, see Figure A.1.25). Though different in form than the elaborate “stirrup” bottles of the Capacha phase, decorated Tlacuache bottles nonetheless bear a strikingly similar design to some of the Capacha wares (see I. Kelly 1974, 1980:Figs. 15–19, 21, 24, 25; Mountjoy 1994, 1998:Fig. 2). The Capacha phase stirrup bottles may come from later Middle Formative period deposits, and often lack good contextual

information due to their having been looted from tombs and other burials (I. Kelly 1974, 1980; Mountjoy 1994). While the most elaborate forms are not recognized in the Tlacuache collection, a few fragments from composite silhouette or “belted” vessels, such as the sherd pictured in Figure 8.23, indicate that more complex vessel forms existed at La Consentida, but are not well understood due to fragmentation and small sample sizes. The impressed, teardrop-shaped dots or dashes visible in the Figure 8.24 conical bowl base fragment are also similar to some of the Capacha designs and to Middle Formative ceramics from the Jalisco’s Mascota Valley (see I. Kelly 1974, 1980:Figs. 18, 21, 26, 29; Mountjoy 2012:Fig. 119, 280).

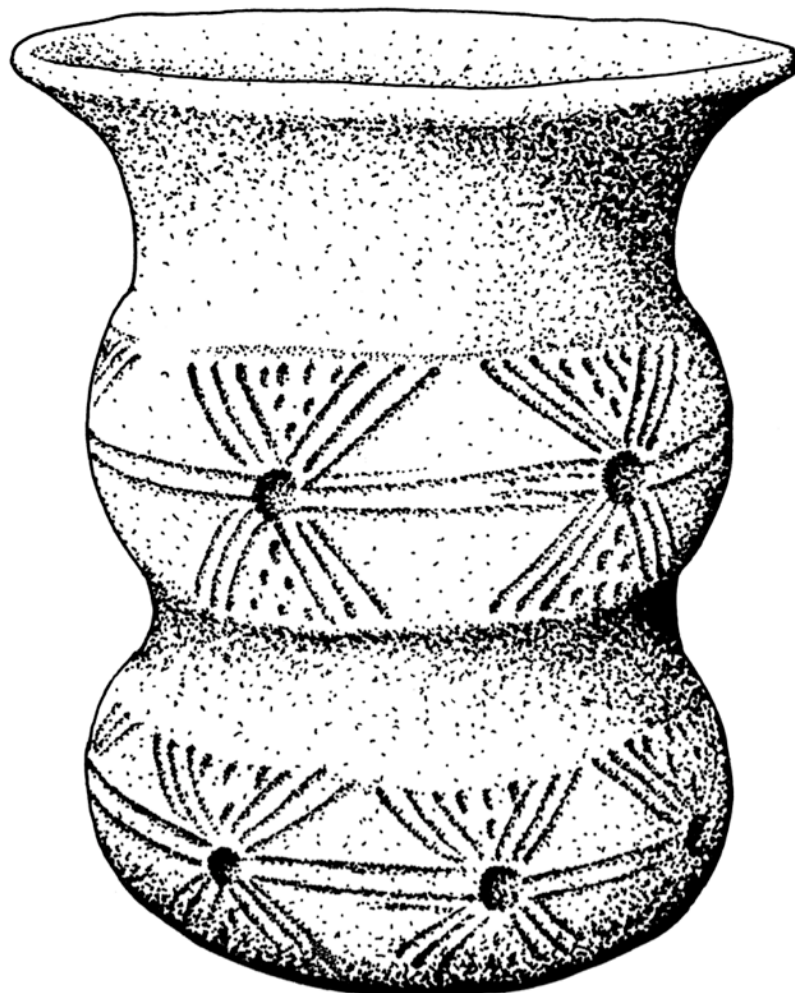


Figure 8.16: Capacha phase belted jar. Redrawn from Mountjoy (1994:40). No scale

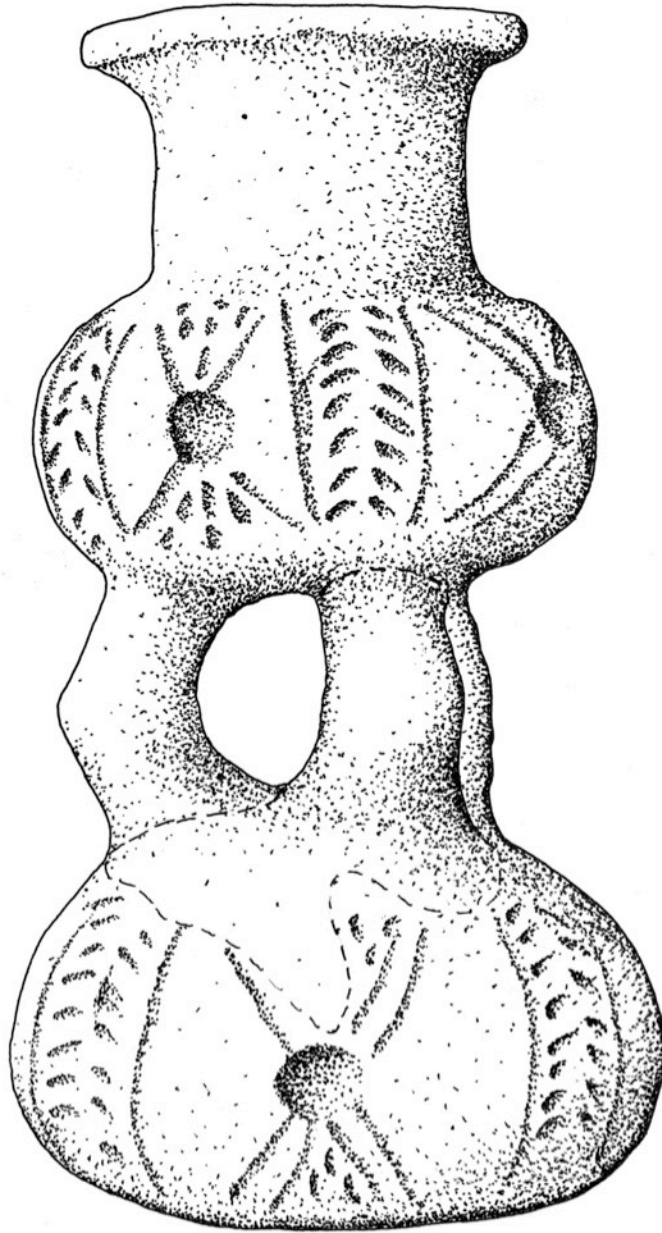


Figure 8.17: *Capacha phase “stirrup” or “double” jar. Redrawn from Mountjoy (1994:41). No scale*

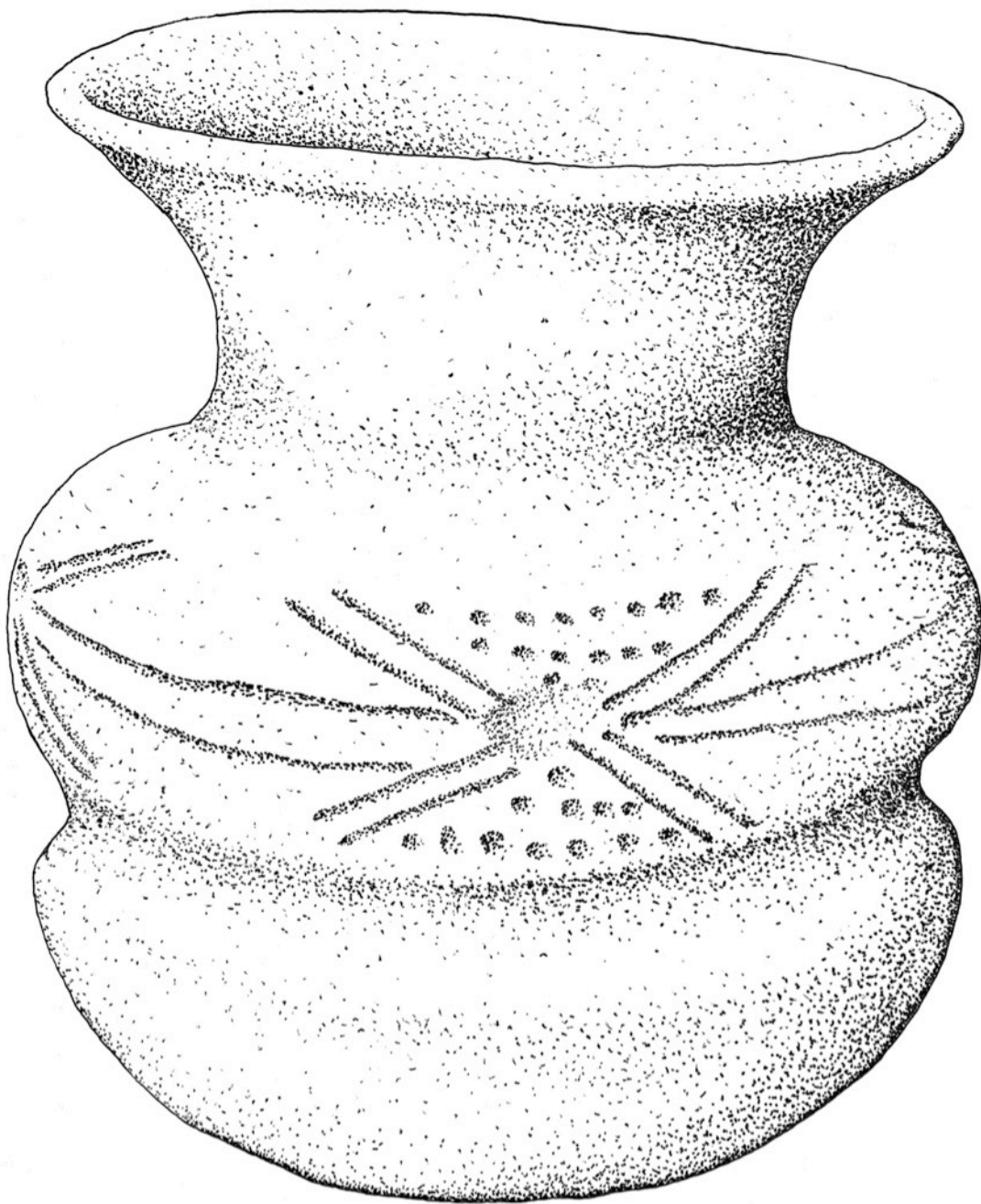


Figure 8.18: Capacha phase belted jar. Redrawn from Schoenberg (2006). No scale



Figure 8.19: Decorated probable bottle fragment from LC12 A-F7 eroded/redeposited midden (also see illustration in Figure A.1.25)



Figure 8.20: Decorated fragment with sunburst-like design from LC09 B-F14 fill near burials and LC09 B-F15 hearth



Figure 8.21: Decorated fragments with sunburst-like designs from in and around Structure 2



Figure 8.22: Decorated vessel fragment with edge of possible sunburst design from LC09 B-F14 fill near LC09 B-F15 hearth

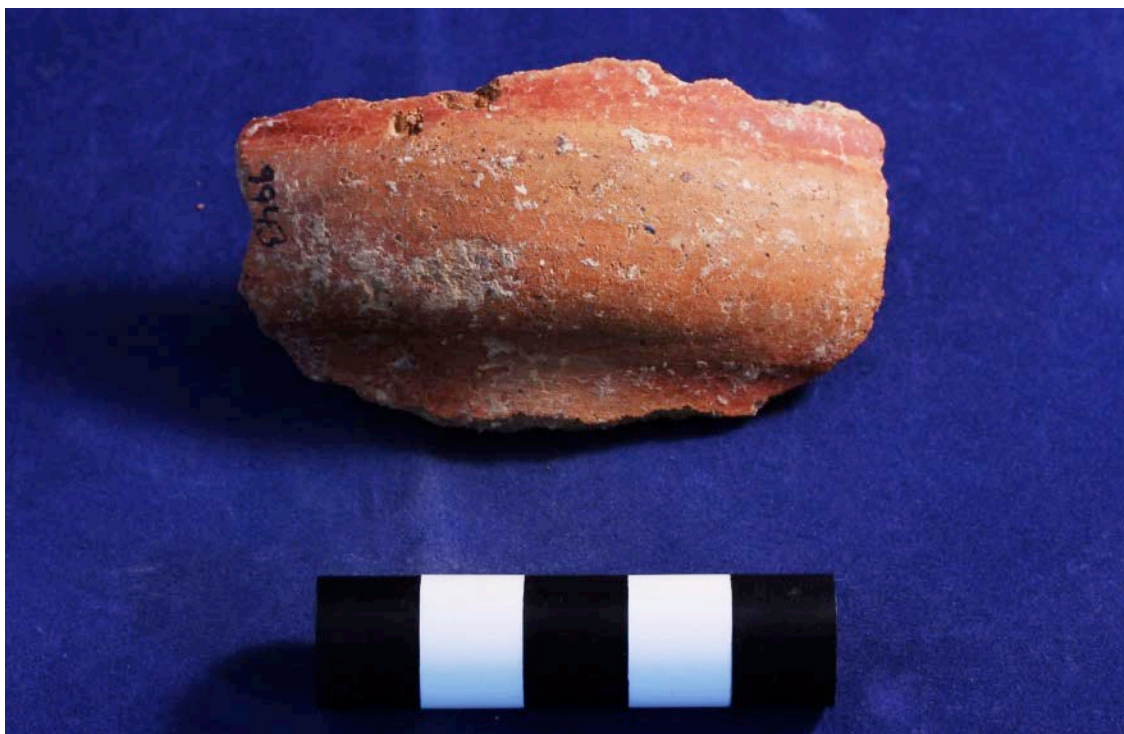


Figure 8.23: *Fragment of composite silhouette or belted bottle or jar from burial B11-I13. Note bands of red slip or paint*



Figure 8.24: *Decorated conical bowl base fragment from LC09 B-F17 midden*

Recently, Mountjoy (1994, 2006, personal communication, 2015) has voiced skepticism regarding the early dates originally attributed to Capacha by Kelly, and has suggested that the phase belongs to the Middle Formative. Kelly (1974, 1980:4, 18–19) herself described the dismal conditions under which the carbon dating for the phase was secured. Mountjoy (personal communication, 2015) agrees that similarities between the Tlacuache and Capacha “sunburst designs” are suggestive of possible interaction between the two regions. La Consentida’s early dates indicate that a direct association between Capacha and Tlacuache is unlikely, even if Kelly’s initial dates are accepted without Mountjoy’s modifications. I am not arguing that La Consentida ceramics represent direct contact with or importation of ceramics from West Mexico, or vice-versa. Rather, I agree with Kelly (1980:37; *see also* Anawalt 1998) that certain decorative styles among Pacific coastal traditions beg further investigation into a possible exchange and interaction network including these distant regions and possibly serving as examples of early Red-on-Buff ceramics (Clark 1991; Winter 1992). The earliest ceramics from much of Pacific coastal Mesoamerica (west of the Isthmus of Tehuantepec) are poorly understood, and it may be that a more systematic study of them would indicate that ceramic traditions in the intervening areas between Oaxaca and West Mexico share even more in common with the Tlacuache phase (*see* Brush 1965, 1969; I. Kelly 1980; Mountjoy 1994; E. Williams 2007).

Although the Tlacuache sunburst motif is similar to that found on some Capacha wares, a more general similarity can be seen between the simple, bold, geometric and impressed decorative style of the La Consentida vessels and those of both the Capacha and Opeño phases (e.g., I. Kelly 1980:Fig. 30; Mountjoy 1994; Oliveros 1974; E. Williams 2007; *see* Figures 8.25–

8.232). Unfortunately, the friable nature of the sandy medium brown paste from which many of the finest decorated Tlacuache wares were constructed means that sherds tend to be small and are often eroded, leaving designs rarely visible in their entirety. Nevertheless, when they are at least somewhat well preserved, these vessels (e.g., Figures 8.19–8.32) are notable for their finely slipped and burnished surfaces and geometric, impressed designs. The decorative motifs seem to have more in common with West Mexican ceramics than they do with Barra phase (Clark and Blake 1994) or Tierras Largas phase wares (Flannery and Marcus 1994).



Figure 8.25: Burnished or decorated conical bowl fragments from LC12 E-F9 and E-F11 midden



Figure 8.26: *Burnished or decorated conical bowl fragments from sheet middens associated with fill strata LC12 D-F4, D-F9, and D-F10*



Figure 8.27: *Fragments of a decorated bottle from near LC12 A-F4-s1 and A-F3 fill interface*



Figure 8.28: Decorated partial bottle from top of LC12 E-F9-s1 midden deposit



Figure 8.29: Decorated probable bottle base from burial B2-I3



Figure 8.30: Decorated probable bottle base from LC09 B-F17 midden context



Figure 8.31: Decorated probable bottle neck fragment from LC12 A-F18-s2 deep fill context



Figure 8.32: Decorated possible platter or dish fragment from domestic occupational layer at transition between LC12 C-F2 and C-F7 fill deposits

Patterns of ceramic decoration and general vessel form also indicate some intriguing similarities with areas even more distant than West Mexico. James Ford's (1969; *see also* Anawalt 1998) extensive comparison of Formative cultures in the New World provides some useful points of comparison between the La Consentida artifacts and those of other early traditions in the Americas. Decorated sherds from Valdivia, for example, bear a resemblance to some of the La Consentida ceramics (Ford 1969:Fig. 14; Figure 8.33). Bottles from early Machalilla contexts in Ecuador and Tehuacán deposits in Central Mexico appear similar to the La Consentida examples (Ford 1969:Fig. 18.i, Chart 16; *see* Figure 8.34 and Appendix 1). More recently, Anawalt (1998) summarized the evidence for contact between West Mexico and Ecuador during Early Formative through Postclassic times, which may include patterns of attire and figurine iconography, in addition to ceramics. Given the available data, it is not possible to

make any strong claims about possible connections between La Consentida and distant areas such as Machalilla and Valdivia, though Kelly (1980) found such potential crossties intriguing.



Figure 8.33: *Decorated sherds with impressed dots or dashes. Left: from LC12 C-F8 fill near domestic occupation layers; Right: from LC12 G-F16 fill just outside Structure 2*



Figure 8.34: *Partially reconstructed bottle recovered as offering with burial B2-13*

Obsidian trade

Following the 2009 excavations at La Consentida, 40 obsidian artifacts from Ops. LC09 A and LC09 B were selected for sourcing analysis (Hepp 2011c; D. Williams 2012:92–97). Due to the nature of the deposits excavated in the 2009 season, the obsidian artifacts chosen for sourcing were largely from fill, redeposited midden, and burial fill contexts. Some were also associated with the early LC09 A-F4 and LC09 B-F15 hearths. All obsidian sampled from the site is from Early Formative period deposits. These obsidian samples were submitted for X-ray Fluorescence (XRF) analysis at the University of Missouri Archaeometry Laboratory (MURR) (Glascok 2011; Hepp 2011c, 2014; D. Williams 2012:97; see Figure 8.35⁵). The results of this XRF study are consistent with an analysis of five pieces of obsidian collected during test excavations at La Consentida in 1988 (Joyce et al. 1995). Figure 8.36 summarizes the sources of the total of 45 samples analyzed by these two studies. These XRF data indicate La Consentida's involvement in an extensive trade network stretching to Central and Gulf coastal Mexico (Figure 8.37). The results also provide an opportunity for comparison with studies of obsidian elsewhere in Oaxaca. In the Nochixtlán Valley, for example, Blomster and Glascok (2010:189) determined that somewhat later Early Formative communities imported their obsidian from several sources including Paredón, Otumba, Guadalupe Victoria, El Chayal, and Ixtepeque.

⁵ XRF results provided by the Archaeometry Laboratory at the University of Missouri Research Reactor. Figure 8.35 plot indicates Y (Yttrium) versus Sr (Strontium) and ellipses indicate discrete obsidian sources with 90% confidence.

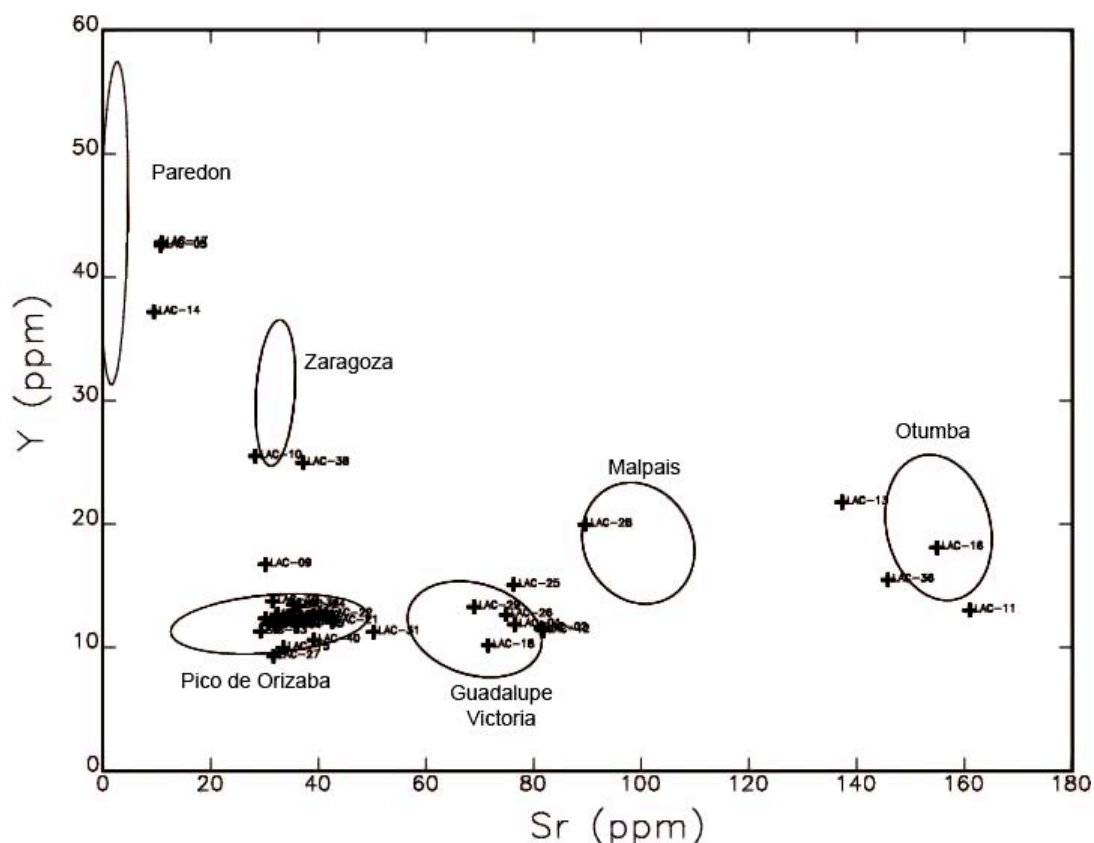


Figure 8.35: Results of X-ray fluorescence analysis of forty obsidian samples from 2009 excavations at La Consentida. Results indicate the use of six obsidian sources

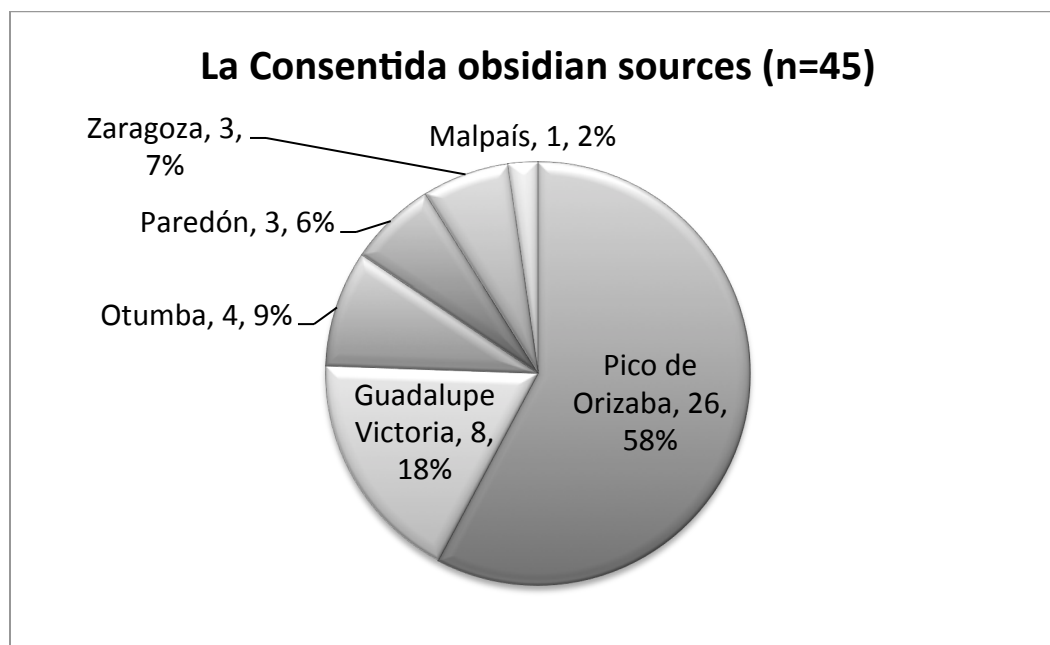


Figure 8.36: Results of X-ray fluorescence analysis of forty-five obsidian samples from La Consentida. Results include five samples published by Arthur Joyce and colleagues (1995:6)



Figure 8.37: Map with locations of La Consentida and the site's six known obsidian sources

Notably, the lack of obsidian imported from Central America indicates that La Consentida had different interregional relationships than did communities in the Mixteca Alta, the Valley of Oaxaca, the southern Isthmus of Tehuantepec, or the Soconusco region of Chiapas and Guatemala during the Early Formative period (Blomster and Glascock 2010:189; Clark and Salcedo Romero 1989; Pires-Ferreira 1978, 2009:293; Zeitlin 1982). Zeitlin (1982:266–267) noted that obsidian in use in the southern Isthmus of Tehuantepec during the Early Formative included material from Guadalupe Victoria and the Guatemalan source of El Chayal. Blomster and Glascock (2010:189) found that Cruz A and Cruz B phase communities in the Mixteca Alta imported up to five percent of their obsidian from El Chayal. In highland Oaxaca, Blomster and Glascock (2010:192) noted a transition away from the Early Formative period use of the “low quality” Guadalupe Victoria obsidian and toward an emphasis on central Mexican sources such

as Paredón in later Formative times. The greater emphasis demonstrated at La Consentida for Guadalupe Victoria over Paredón material is therefore consistent with the site's early date. Blomster and Glascock (2010:192) also noted discrepancies between regions of highland Oaxaca, where sites in the Nochixtlán Valley used little West Mexican material (such as that from Ucaréo) while Valley of Oaxaca sites such as San José Mogote used more obsidian from western sources in addition to that from Zaragoza and Otumba. The lack of West Mexican obsidian at La Consentida is intriguing given styles of ceramic decoration discussed above, which suggest that the regions were in contact and shared elements of decorative style.

Other imported materials and foreign-inspired iconography

Though the best data for La Consentida's networks of interregional interaction comes from ceramic style comparisons and obsidian sourcing, it is worth making brief mention of some other indications of the site's connections with other areas. Greenstone beads recovered at the site (Figures 7.33–7.35, Table 7.1) serve as one example of possible prestige items traded between people in numerous regions of Mesoamerica during the Formative period (Carballo 2009:492; A. Joyce 1991a:141, 2013:24; Tremain 2014). It is not yet clear whether La Consentida's greenstone comes in the form of jadeite, serpentine, or some combination of materials, but Figures 7.33–7.35 demonstrate its considerable variability at the site in terms of color and texture. Some greenish stone items recovered at La Consentida may also be made of fine-grained basalt. Though greenstone distributions recorded thus far at La Consentida do not easily lend themselves to discussions of hierarchical social inequality, the presence of the apparently diverse stone types from which these artifacts are made nonetheless suggest down-

the-line interaction with distant regions such as Central Mexico, the Gulf coast, and Guatemala (Gendron et al. 2002; Pool 2013; Reilly 1995). Other worked stone such as small, one-handed manos from La Consentida are similar to those at Zohapilco (Niederberger 1976:Lám. XXVIII.2, XXIX.1) and Tierras Largas phase sites in the Valley of Oaxaca (Winter and Sánchez Santiago 2014:10–11; see Chapters V and VI, Appendix 4). I do not suggest that manos were imported to La Consentida, but rather that they demonstrate stylistic and perhaps functional similarities with those from elsewhere.

Figurines and musical instruments may also indicate La Consentida's relationships with distant regions. I have already discussed one figurine (Figure 7.19) that may resemble Cruz A examples from the Mixteca Alta (Jeffrey Blomster, personal communication 2015). At Zohapilco, Niederberger (1976:Lám. II.16–18) found ceramic avian artifacts from various Formative period phases that are similar to La Consentida's bird imagery (e.g., Figures 7.44–7.50). As discussed in Chapter VII, one of the earliest anthropomorphic figurines at Zohapilco (Niederberger 1976:Lám. XCV, Foto 16) perhaps shares stylistic similarities with La Consentida's simplest anthropomorphs (Figures 7.10 and 7.11). Another figurine, which appears to represent a monkey, is pictured in Figure 8.38. The shape of this artifact's head is consistent with that of New World primates such as capuchins and spider monkeys (Marroig and Cheverud 2005:Fig. 2). A recent study (Ortiz-Martínez and Rico-Gray 2007) has suggested that spider monkeys today sometimes live as far north as the southern Isthmus of Tehuantepec. People of the western Oaxaca coast may have seen monkeys in nearby regions, been aware of monkeys elsewhere, or imported monkeys or monkey skins from outside the area. Based on the paste of this figurine, there is no reason to suspect that it was imported.

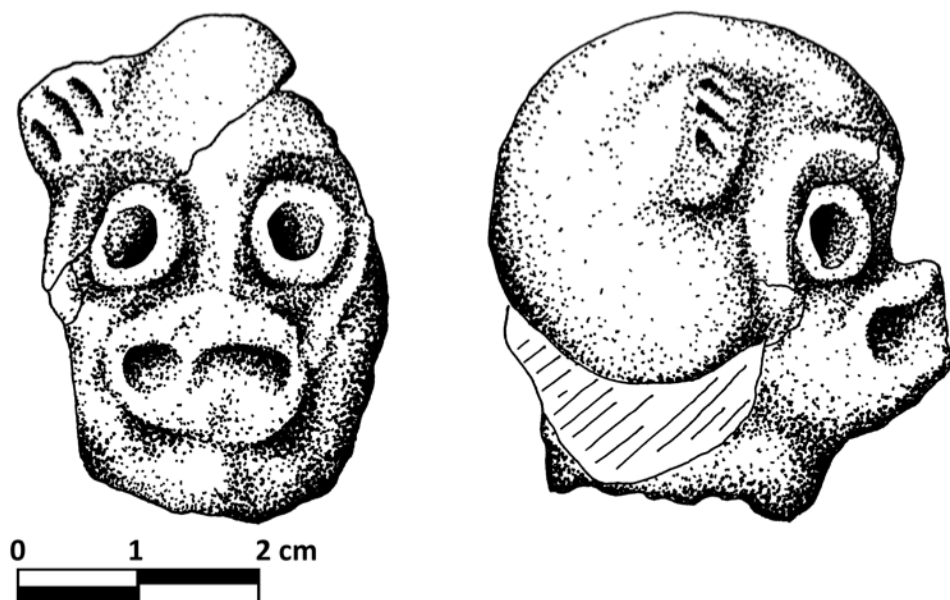


Figure 8.38: Probable monkey figurine fragment from occupational debris above Structure 2 domestic building

Summary

As mentioned elsewhere in this dissertation, a significant interpretation that arises from La Consentida's early dates relates to current explanations for how ceramics originated in Mesoamerica. Clark (e.g., Clark and Blake 1994) has argued that some of Mesoamerica's earliest ceramics arrived as a fully realized technological and stylistic tradition from Central America. On the basis of carbon dates recovered in context with Tlacuache sherds, ceramics from at La Consentida may represent the first well-dated examples of a ceramic tradition contemporary with the Barra phase but formally dissimilar to it. I suggest that early ceramics of western Mesoamerica, including Tlacuache, Tierras Largas, and West Mexican phases such as Capacha and Opeño, exemplify what other archaeologists have termed the Red-on-Buff horizon (see Clark 1991; Winter 1992; Winter and Sánchez Santiago, eds. 2014). This interpretation

explains why La Consentida's Tlacuache ceramics (see Appendices 1 and 2) share little in common with the tecomate-emphasizing Barra phase (Clark and Blake 1994). In general, such marked differences between western Mesoamerican Red-on-Buff ceramics and the Locona horizon (i.e., Barra and Locona phase) ceramics of the Soconusco may represent ancient cultural and linguistic divides between speakers of early Otomanguean versus Mixe-Zoque languages, as well as independent origins for ceramic technology itself (see Clark 1991; Josserand et al., eds. 1984; Winter and Sánchez Santiago, eds. 2014). Based on available evidence, including the AMS radiocarbon dates from secure contexts that are discussed in Table 1.1, Tlacuache ceramics appear to be the earliest known example of the Red-on-Buff horizon in Mesoamerica.

The exchange of and interregional influence regarding ceramic styles, greenstone, iconographic imagery, and obsidian suggest a complex network of interregional relationships in which La Consentida was involved. At times, these probable exchange routes differ from one another. XRF sourcing has determined that La Consentida's obsidian was imported from central Mexican and Gulf Coast sources. The lack of West Mexican and Central American obsidian sets La Consentida apart from some of its Early Formative period contemporaries and sites occupied shortly thereafter (Blomster and Glascock 2010; Clark and Salcedo Romero 1989; Zeitlin 1982). This pattern seems at odds with ceramic decoration styles that appear to have the most in common with West Mexico, as well as imported greenstone that may have come from Central America. What these various lines of evidence do clearly suggest is that La Consentida was well integrated into broad interaction networks of the Early Formative period. It is not yet clear what goods La Consentida exported in exchange for its obsidian, though research in the areas

surrounding the site is beginning to provide promising results. For example, Lock and colleagues (2014; *see also* Goman et al. 2005) noted that carbon dates in the salt flats adjacent to La Consentida suggest possible Early Formative salt procurement. Salt may have been a valuable trade good for exchange with networks providing imported obsidian and greenstone. As Lesure and Wake (2011:84) argued, tecomates recovered at Early Formative period coastal sites may have been used for salt production. Though tecomates are rare at La Consentida in comparison to early Soconusco sites, they are nonetheless present, and may have played a role in the site's resource exchange relationships.

Isabel Kelly (1980:37; *see also* Anawalt 1998) believed that the Capacha phase corroborated the hypothesis of Ford (1969:166), who argued that the early ceramics of Pacific coastal Mexico should have more in common with early South American pottery from "Puerto Hormiga, Machalilla, or Valdivia," than with the early traditions of Central Mexico, such as that of the Tehuacán Valley. Kelly (1980:37) wrote that the sunburst motif appeared to be unique to Capacha, but as I have already discussed, she did predict the possible existence of other "landfalls" of this decorative style along the Pacific coast. I believe that the presence of the sunburst motif at La Consentida is highly suggestive that Kelly's predictions about a Pacific coastal interaction sphere need to be revisited. It may be that two contemporaneous ceramic traditions vied for influence in Early Formative Mesoamerica. This supports the model that the Locona ceramic horizon (exemplified by the Barra and Locona phases and coming out of Central America via the Soconusco), met with a contemporaneous Red-on-Buff horizon that included the Tlacuache, Tierras Largas, and other western ceramic traditions and emphasized the use of jars, bowls, and bottles over that of tecomates (Clark 1991; Winter 1992; Winter and Sánchez

Santiago, eds. 2014; see Appendix 1).

It is worthwhile, I think, to make a final point about identifying ancient networks of interaction and establishing chronologies on the basis of similarities in artifact classes such as ceramics. As discussed in this chapter, there are numerous similarities in ceramic styles between La Consentida's Tlacuache phase and those of other regions such as the Valley of Oaxaca, Central Mexico, and West Mexico. None of these other phases, however, contains all of the vessel forms and decorative styles identified in the Tlacuache complex. This finding serves as a warning against facile associations between the Tlacuache complex and other traditions such as Tierras Largas. Numerous Early Formative ceramic traditions, which seem to exemplify the Red-on-Buff horizon, include similar styles of jars, bottles, hemispherical kidney-shaped bowls, and interior-incised bowls (Clark 1991; Winter 1992). Rather than indicating direct ties between the Tlacuache and Tierras Largas ceramic traditions, for example, these stylistic similarities indicate broad patterns of interaction and exchange across large geographic areas during the Early Formative period (*see the proposed ceramic interaction map in Clark 1991:Fig 8*). Perhaps most significantly, the ceramics from La Consentida appear support the model for two initial Early Formative period ceramic traditions (Locona and Red-on-Buff), the former coming north from Central America via the Soconusco and represented by the Barra phase, and the latter developing in or arriving to western Mesoamerica and exemplified by the Tlacuache complex as its earliest known variant (Clark 1991; Winter 1992).

Chapter IX: Summary and Conclusions

Introduction

In the preceding chapters I have sought to accomplish two main goals. First, I have summarized the results of several seasons of fieldwork (2008, 2009, and 2012) and laboratory analyses (2008, 2010, 2013, and 2014) at La Consentida. Second, this dissertation has been designed to answer the central research question of the LCAP: *what were the nature of and relationships between practices of mobility, subsistence, and social organization at La Consentida during the initial Early Formative period?* I dedicated separate chapters to each component of this question. These chapters have often referred to one another, emphasizing the interconnectedness between the different aspects of the LCAP research question. Because of the segmented organization employed here, however, I have thus far not dedicated sufficient attention to discussing how domestic mobility, subsistence, and social change were interrelated. In this chapter, I will briefly summarize the main results of this dissertation and pay special attention to the interconnectedness between different aspects of social transformation at the site.

Key chronological implications

La Consentida's AMS radiocarbon dates (Table 1.1) indicate its very early chronological position (relative to other Mesoamerican sites) for hallmarks of the Formative period such as ceramic vessels and mounded earthen architecture (see Table 1.2). Ceramics from La Consentida appear to be among the earliest in Mesoamerica. The site's ceramic assemblage is

not redundant with any previously identified ceramic complex, and therefore justifies the establishment of a new phase, which I am calling Tlacuache (see Chapter VIII and Appendices 1 and 2). One of the most intriguing aspects of this very early ceramic tradition is that it complicates existing models for the arrival of ceramic technologies to Mesoamerica (e.g., Clark and Blake 1994). While I do not argue that the Tlacuache phase supplants the Barra phase as Mesoamerica's oldest ceramic tradition, I do contend that the secure carbon dates associated with ceramic vessel fragments at La Constantia (e.g., with sherds directly associated with the LC09 A-F4 hearth) demonstrate that Tlacuache ceramics are *at least as early* as the Barra phase. The first ceramics of the Soconusco region and those of the western Pacific coast may have begun influencing Mesoamerican ceramic traditions at about the same time during the initial Early Formative period, despite the marked formal dissimilarities between them and their likely different points of origin.

Styles of ceramic decoration provide tantalizing clues that La Consentida may represent a very early example of the Red-on-Buff ceramic horizon (Clark 1991; Winter 1992). The Tlacuache phase may also represent one component of a little-known Pacific coastal interaction sphere that included ceramic traditions as distant as the Capacha and Opeño phases, and may even bear evidence of influence from South America (Anawalt 1998; Ford 1969:37; I. Kelly 1980:166; Mountjoy 1994; E. Williams 2007). Styles of more "utilitarian" ceramics such as undecorated globular jars and hemispherical bowls suggest that La Consentida maintained contact with its closer neighbors, such as those in the Valley of Oaxaca (see Chapter VIII and Appendix 1). Other ceramic similarities (such as those with Tlatilco, Zohapilco, the Ojochi/Bajío phase, and the Ocotillo phase of Honduras) contextualize Tlacuache ceramics within a broader

Mesoamerican interaction sphere likely related to the Red-on-Buff horizon (P. Arnold 2003; Clark 1991; Clark and Blake 1994; Flannery and Marcus 1994; Ford 1969; Joyce and Henderson 2007; I. Kelly 1980; Niederberger 1976; Piña Chan 1958; Ramírez Urrea 1993; Rodríguez and Ortiz C. 1997:82; Winter 1992; YPM ANT 255207; see Chapter VIII and Appendices 1 and 2).¹ Imported greenstone and possibly foreign-inspired figurine imagery also evince the broad nature of La Consentida's interregional connections. Obsidian sourcing data demonstrate that the site participated in an expansive trade network reaching as far as Central and Gulf coastal Mexico (Glascok 2011; Hepp 2011c; D. Williams 2012).

Mounded earthen architecture at La Consentida may predate any other currently known examples from Mesoamerica (see Chapters I, IV, and V). Based on changes over time in the thickness and form of earthen construction layers, the community appears to have increased its emphasis on building mounded earthen architecture at the site after an initial period of relatively modest labor efforts. Evidence for domestic structures in the later deposits demonstrates that the people living at the site shortly before its abandonment were building houses, at least some of which contained recycled stone metate fragments, perhaps as part of their foundations or walls. Population and labor estimates indicate that a group of about 80 people, of whom probably half or slightly fewer were capable of heavy labor at a given time, could have constructed all of La Consentida's architecture in less than 250 years. Labor estimates for an early version of Platform 1 demonstrate that the site probably saw its first phases of earthen architectural construction and occupation over a relatively brief period of time (see Chapter V).

¹ Type specimens for Ojochi and Bajio phase ceramic bottle necks. Courtesy of the Peabody Museum of Natural History, Division of Anthropology, Yale University; <http://peabody.yale.edu>

Ceramic and ground stone data indicate that La Consentida's occupants modified their food processing technologies over the course of site occupation. They transitioned from more portable, multi-purpose tools early in site's history to heavier tools with apparently more specialized purposes by closer to site abandonment (see Chapters V and VI and Figures A.4.1 and A.4.2). This transition from portable to non-portable ground stone technology is consistent not only with a transition to sedentism, but also with transitions in food processing practices (see P. Arnold 2009). Human skeletal remains show evidence of increasing dental attrition over time, which is consistent with the adoption of a grainy diet processed with stone manos and metates (see Chapter VI). This pattern is concurrent with evidence from stable isotopic study of human teeth that demonstrates that the community consumed more maize than did initial Early Formative populations in the Soconusco region (e.g., Blake et al. 1992; Chisholm and Blake 2006). On the basis of these lines of evidence, La Consentida may have always had a relatively maize-based diet. The increasing use of non-portable ground stone is contemporaneous with an apparent decline in the use of ceramic bottles (see Appendices 1 and 2). These bottles were perhaps used to serve beverages at feasts, as evidenced by their decoration and recovery context in probable feasting middens. These patterns suggest that culinary preferences at the site changed over time. Specifically, the community may have shifted from consuming maize in a non-grainy (i.e., perhaps liquid) form to the consumption of maize flour processed with ground stone manos and metates (see Joyce and Henderson 2007).

Several lines of evidence demonstrate the complex social heterarchy of the La Consentida community. Changes over time in the form of earthen fill strata suggest increasing sedentism and possibly growing labor organization (see Chapters IV and V). Anthropomorphic

figurines, possible effigy vessels, and masks suggest people fulfilling diverse roles such as dancers, musicians, and possibly ballplayers and ritual specialists. Such artifacts display diverse types of dress and body modification that include headgear and costumes possibly associated with specialized social roles (see Chapter VII). Comparison of figurines from the site with those found in other Early Formative contexts (e.g., Guernsey 2012:121-122; Lesure 1999a) suggests that some may portray community leaders and/or elders. Remnants of actual jewelry and related artifacts, including stone and ceramic beads (Figures 7.30–7.35), a possible mirror fragment (Figure 7.37), and a probable bone needle (Figure 7.36) perhaps used to fashion clothing, suggest that figurines sometimes reflected actual practices of dress and comportment, rather than just the prescription of social ideals or mere artistic fancy. The dancing and music implied by ceramic aerophones, a possible dancer figurine (Figure 7.51) and ceramic mask fragments further emphasize the roles of community members specializing in ritual and public performance (see also Figures 7.3 and 7.44–7.48). The recovery of a ceremonial cache (LC12 A-F15) containing shell, ceramic sherds, a bird ocarina, a shark tooth, and the complete skeleton of a *Heloderma horridum* reptile suggests the presence of sophisticated ritual practice at the site (Figures 7.38–7.44). A comparison of the relative quantities of decorated ceramics recovered in several middens (Table A.2.6), in conjunction with faunal remains recovered in those middens, suggests public feasting (see Appendices 1–3). As discussed by numerous scholars (e.g., Clark 2004a; Clark and Blake 1994; Hayden 1990, 1995; Hill and Clark 2001; Joyce and Henderson 2007), feasting was likely one of a suite of significant communal events integral in sowing the seeds of social complexity in transegalitarian societies, and decorated ceramics such as those of the Barra and Tlacuache phases likely played a role in the public displays such

feasts entailed (see Chapter II). These various lines of evidence indicate that the La Consentida community was complex in a heterarchical sense, but generally provide poor support for ascribed hierarchical inequality. As discussed in Chapter II, previous research in Mesoamerica has tended to focus on formalized hierarchy rather than heterarchy in the origins of complex social systems. In future research, I hope to more fully explore the ways in which heterarchically diverse communities like La Consentida were vital in the origins of later social hierarchies in Mesoamerica.

Relationships between transitions in settlement, diet, and social organization

If there is one consistent theme throughout this entire dissertation, I propose that it is: *change*. Changes over time in domestic mobility are logically tied to concurrent changes in subsistence. In fact, evidence for change in one is often some of the best evidence for change in the other, to the extent that some authors (e.g., P. Arnold 2009:404) choose to discuss an Early Formative “settlement-subsistence strategy,” rather than separate these socioeconomic aspects of ancient life. As the La Consentida community shifted toward more permanent occupation of the site, they also began to transform their food processing technologies and the culinary choices behind the foods they ate, particularly regarding the processing of maize (see Chapter VI). It may have been the removal of the limiting mechanism of domestic mobility as a size and weight constraint on technologies such as ground stone metates that allowed the population to efficiently process maize flour. Though perhaps an important part of their diet since the site was first occupied, the transition from consuming maize in probable liquid form to the processing and consumption of maize flour on stone manos and metates had significant

impacts on material culture and dental health at La Consentida (see Chapter VI, Appendices 4 and 5). It is difficult, if not impossible, to know exactly which of these changes came first. The apparently late advent of metates at the site may indicate that the adoption of a diet based on maize flour came sometime after the transition to sedentism. I would further argue, in part because other early traditions such as Tierras Largas also have metates (see Ramírez Urrea 1993:Fig. 86), and because not all metates and grinding platforms were necessarily used strictly for maize processing (see P. Arnold 2009:404-405) that the mere presence of these artifacts does not constitute absolute, *a priori* evidence of a truly agricultural diet. In the La Consentida case, isotopic analysis of human teeth demonstrates more maize consumption than at contemporaneous Soconusco sites. Increases in the size of ground stone tools and the presence of dental carries, mandibular abscesses, and dental attrition among later burials is suggestive that the La Consentida diet was significantly agricultural and that culinary practices may have changed over time at the site (see Chapter VI and Appendix 4).

Though perhaps easiest to distinguish from discussions of mobility and subsistence, evidence for social organization is also intimately related with these other topics. As the community became increasingly settled and began to eat a more traditionally “agricultural” (i.e., flour-based) diet, they may also have grown in population size. The argument that shifting to a more agricultural diet may lead to higher rates of reproduction (perhaps despite increasing morbidity *per capita*) is hardly new (see Binford 1968; Hodges 1987; Larsen 1987). To the already fundamental social reorganizations of living in permanent proximity to one’s neighbors was added the need to find novel ways to facilitate peaceful coexistence and to organize community events such as labor for earthen architectural construction projects, dances, music,

feasts, and ritual activity. I believe that the large numbers of anthropomorphic figurines at La Consentida bear testament to the desire to explore these new social dynamics. Through their use the site's occupants sought to discover ways to distinguish certain identities while also remembering important ancestors and probably forming a more cohesive "idea of community" (sometimes referred to as "*communitas*") than had been necessary or, in fact, even *possible* during the preceding Archaic period (see Hepp and Joyce 2013; Hill and Clark 2001; Turner 1969:131-165). The presence of musical instruments, probable ceramic masks, a figurine perhaps depicting shamanic transformation (Figure 7.29), and a complex ritual offering (LC12 A-F15) all suggest the presence of ritual practitioners who may have possessed the sorts of specialized knowledge attributed to Mesoamerican nobility in later times (Barber and Hepp 2012; Clark 1997; Hepp et al. 2014; Hepp and Joyce 2013; A. Joyce 2010:61–63; Schele and Freidel 1990; see Chapter VII).

Transitions to living more permanently in a village community, to eating a more agricultural diet, and to fulfilling increasingly heterarchically diverse social roles (with perhaps some of the first glimmers of the hierarchical social complexity that would become more formalized in later Mesoamerican history, or at least increased opportunities for developing achieved status differentiation) occurred more or less simultaneously. One could not have existed without the others. Determining what actually *caused* these changes could in some ways be the topic of an entirely different dissertation, but I will attempt in the conclusion that follows to pull together some of the diverse strands of evidence presented in this dissertation as a way to discuss Early Formative period change in a synthesized fashion.

Concluding thoughts

As Lesure and Blake (2002) argued, the sweeping socioeconomic changes of the Early Formative period probably took on different forms in different areas, and we should thus expect the archaeology of this period to be a patchwork of diverse forms of evidence for those changes that varied for a wide range of social, economic, and ecological reasons. My impression of the evidence I have gathered for this dissertation is that the Archaic-Formative period transition at La Consentida must have been cumulative and, to a certain degree, self-perpetuating. As a group changed its dietary practices, for example, they might also gradually change the tools they used to process their food, the cultural values behind how that food was consumed, and the amount of time they spent tending to it and nurturing it (particularly concerning domesticates). In increasingly permanent settlements where horticultural goods could be better tended, new social dynamics and more permanent neighbors necessitated new modes of social interaction and community organization, with the production of anthropomorphic imagery as one avenue to negotiating novel social relationships. In a different (hypothetical) Early Formative community, dissimilar ecological conditions may have meant that maize and other domesticates were unnecessary as staple foods, and thus that the group could remain semi-mobile until a later date (e.g., P. Arnold 2009). In some places, decorated pottery employed in public events such as feasts may have helped tie villagers to their communities and provide an avenue for the display and negotiation of social status (e.g., Clark and Blake 1994; Hayden 1990, 1995, 1998, 2009), while in others, semi-mobile populations may have adapted new ceramic technologies to the ancient practices of domestic mobility they maintained (P. Arnold 1999). Where my speculative proposal differs from some models

proposed previously (e.g., Coe and Flannery 1967; Flannery 1968a, 1972b; Flannery, ed. 1986) is that it does not rely on “prerequisites” or specific ecological conditions for social change, nor on a monolithic assumption that ceramics must always indicate sedentism (Clark and Blake 1994) or that Early Formative people and social coalitions lacked the foresight to see what some of their social machinations might imply for future generations (R. Joyce 2004a).

Here I am deliberately not proposing a new model for Early Formative period social change precisely because a single causal model seems inappropriate given diverse material records, social conditions, and ecological settings across Mesoamerica. Although a community in one area may have begun its transition toward the settled farming of the later Formative period through a shift to more maize consumption (which may be suggested by the isotopic indicators in the La Consentida population) another group may have grown more sedentary and socially complex through the influence of a different set of ecological and social variables and the use of different cultigens such as manioc and malanga (see Sheets et al. 2012). The apparent lack of evidence for significant maize consumption in the initial Early Formative period Soconusco region, when contrasted to data from La Consentida, confirms the need for flexible and multivariate explanations for social change. Finally, I also agree with John Clark (Clark and Cheetham 2002; Clark et al. 2007) that the impetus for some of the major socioeconomic changes identified for the Early Formative should actually be sought in the late Archaic period. Nobody woke up in an Archaic campsite on the morning of 2000 cal B.C. and decided it was time to begin the Early Formative period. Something about the social relationships, economic dynamics, and ecological contexts of the late Archaic precipitated massive (though perhaps gradual) socioeconomic change. It is also likely that some transitions took the form of

punctuated equilibria as socioeconomic thresholds were surpassed. Unfortunately, Archaic period sites in many regions of Mesoamerica, including in coastal Oaxaca, are notoriously difficult to locate (Borejsza et al. 2014). The investigation into that portion of western coastal Oaxacan history will have to wait until Archaic period sites in the region are (re)discovered and studied in great detail. On the basis of paleoecological data (e.g., Goman et al. 2005, 2013), however, I believe it will only be a matter of time.

La Consentida represents the traces of a community in transformation. Radiocarbon dates demonstrate that the site has some of the earliest ceramics and mounded earthen architecture currently known in Mesoamerica. Evidence for the community's settlement practices, including that from ground stone tools, platform construction phases, and domestic architecture, suggests that its people may have been seasonally migratory when they founded the site, and that they transitioned to dedicated sedentism thereafter. Dietary evidence from studies of ground stone, faunal remains, human dental isotopes, and skeletal pathologies suggests that the community's subsistence practices transitioned from a broad-based diet including maize consumption (perhaps in beverage form) to a more agricultural one (emphasizing maize flour consumption) by the time of site abandonment. There was apparently a greater degree of maize consumption throughout the site's occupation than has been identified for the initial Early Formative period Soconusco coast (e.g., Blake et al. 1992; Chisholm and Blake 2006). Mortuary and figurine data suggest that social differentiation among community members was real, though likely heterarchical and/or achieved in its form. Evidence for ascribed status differences in Mesoamerica by later in the Formative period implies that the first sparks of social differentiation at sites like La Consentida ultimately led to more formalized

social hierarchies (Clark and Blake 1994; R. Joyce 2004a). Indeed, evidence from La Consentida's earthen architectural sequences (Chapters IV, V, and VII), as well as from diverse forms of anthropomorphic iconography and other evidence of ritual specialization (Chapter VII) suggest that La Consentida may have been experiencing nascent stages of hierarchical social inequality, though the evidence remains scant. Data from this site have the potential to contribute to debates concerning the origins of and relationship between sedentism, agriculture, and social complexity. These issues are generally recognized as being among the most important research topics confronted by archaeologists worldwide. In fact, La Consentida may serve as an example of a "transegalitarian" society, which I described in Chapter II (see Blake and Clark 1989, 1999; Clark 2004a; Hayden 1990, 1995, 2009).

As a community transitioning from egalitarian to hierarchical social organization, the residents of La Consentida maintained interregional contacts to obtain utilitarian and prestige goods, participated in crafting activities (likely for their own subsistence as well as for export in exchange for goods such as obsidian and greenstone), practiced communal feasting utilizing decorated serving wares, and perhaps participated in ball games. Radiocarbon dates demonstrate that these practices were occurring very early in Mesoamerica's Formative period history. Indeed, La Consentida has some of the earliest well-dated pottery and perhaps *the* earliest mounded earthen architecture yet identified in Mesoamerica. In future research, I will continue to explore the ramifications of the Tlacuache phase ceramics, which appear to represent a very early example of the Red-on-Buff horizon that was contemporaneous with the earliest ceramics adopted in the Soconusco region (Clark 1991; Winter 1992). These two early ceramic horizons may serve as material evidence for macro-regional patterns of southeastern

and northwestern Mesoamerican cultural diversity (such as divisions between the Otomanguan and Mixe-Zoque language families) that have long been the subject of research and speculation by archaeologists, linguists, and sociocultural anthropologists, but which remain poorly understood in terms of their ancient histories (e.g., Josserand et al., eds. 1984; Lowe 1977; Winter and Sánchez Santiago, eds. 2014).

In this dissertation, I have sought to demonstrate that data from La Consentida have the potential to contribute to ongoing debates concerning the relationship between sedentism, agriculture, and social complexity in Mesoamerica. We may never find conclusive evidence to support a single model explaining these socioeconomic transitions, and perhaps that is in part because no single model can hope to encompass all of the cultural diversity present even within Mesoamerica. Continuing to refine our understandings of the Archaic-Early Formative transition is a worthwhile goal, however, and one that we must strive to attain if we are to understand the fascinating social developments of later pre-Columbian history. On an interregional and even continental scale, La Consentida represents the remains of an early community as it transitioned from an Archaic to a Formative period lifestyle, an event which represents a watershed moment in human history shared by ancient peoples across much of the New World and beyond (P. Arnold 2009; Blake and Clark 1999; Clark 1991, 2004a; Ford 1969; R. Joyce 2004b; I. Kelly 1980; Lesure and Wake 2011; Michaels and Voorhies 1999; Pool 2013).

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Appendix 1: The Tlacuache Phase Ceramic Typology

Introduction

In this appendix, I present a summary of the ceramic vessel assemblage of the Tlacuache phase (approx. 1600–1350 BCE or 1950–1500 cal B.C.), which includes narrative descriptions, along with illustrations and photographs, of the various vessel types. This appendix refers to the Tlacuache phase as a whole, while Appendix 2 presents my context-specific analysis of ceramics from the site. The Tlacuache phase is so far well represented only at La Consentida, though the nearby site of Cabeza de Vaca also contains Early Formative contexts and medium brown ware ceramics similar to those discussed here (Joyce et al. 2009b:542–545; see Figure 1.3). Additionally, redeposited artifacts, survey data, and anecdotal information suggest that other nearby sites with deeply stratified occupation levels (such as Charco Redondo and Río Grande) may contain Early Formative materials that have yet to be excavated (Gillespie 1987; Grove 1988; Zárate Morán 1995). It is therefore possible that future investigations at these nearby sites will promote refinement of the Tlacuache phase typology. Though relative frequencies of vessel types identified during analysis of diagnostic ceramics from several contexts are presented here, this appendix is primarily narrative. Refer to Appendix 2 for a discussion of the relative quantities of different vessel forms recovered from different contexts at La Consentida. See Table A.2.6 for a comparison of the relative quantities of decorated ceramics recovered in several middens at the site.

As discussed in Chapter III, ceramic typological analysis for this dissertation follows the methodological framework set by previous studies in highland Oaxaca (e.g., Caso et al. 1967; Martínez López et al. 2000) and also applied in the lower Río Verde Valley (Baillie 2012:62–130; Hedgepeth 2009:77–150; A. Joyce 1991b:121–173). To summarize, ceramics are categorized first according to paste. The Tlacuache phase assemblage consists of medium and coarse brown ware ceramics, which I have differentiated according to a visual assessment of their inclusion sizes. The most frequent inclusions are angular pieces of white stone such as quartzite, though organic temper, sand, gravel, shell, and grog (recycled and crushed ceramic material) are also present. Though a good deal of variation exists within coarse wares (which have large and ubiquitous inclusions) and medium wares (which tend to have a sandy paste) vessels do generally fall into one of these two categories. Though there is some color variation (with some sherds appearing gray or reddish, and with reds being especially common among the coarser pastes), all Tlacuache phase vessels are considered brown wares, and were likely fired in oxidizing, open-air settings rather than in formal kilns. Open-air ceramic firing is still practiced today by native potters on the coast of Oaxaca and Guerrero (Ahern 2010:31). All Tlacuache phase wares have a micaceous paste, with mica fragments tending to be very small and likely occurring as a natural component of clays deposited by the Río Verde, rather than representing an intentional temper additive (A. Joyce 1991b:834–836). A few fine brown and gray ware sherds have been recovered near the modern surface at La Consentida, but these are considered later refuse and are not discussed in detail here.

Due to a shortage of storage space for archaeological materials and regulations of the *Centro INAH Oaxaca*, many non-diagnostic ceramic fragments (especially undifferentiated body

sherds) were discarded following initial cleaning and analysis. The categorization of all vessel fragments recovered during the LCAP according to paste characteristics prior to this vetting process permits discussion of the relative emphases of the La Consentida community on the paste types represented in the Tlacuache phase assemblage. In summary, medium brown ware pastes are the most common type in all excavated contexts at the site. Due to the highly friable nature of Tlacuache ceramics, weight totals are a more meaningful measure for comparison than are sherd counts, and I will thus primarily use weights (by gram) here and in Appendix 2. Figure A.1.1 demonstrates the relative frequency of ceramic pastes for all sherds recovered at the site during the 2009 and 2012 excavations.

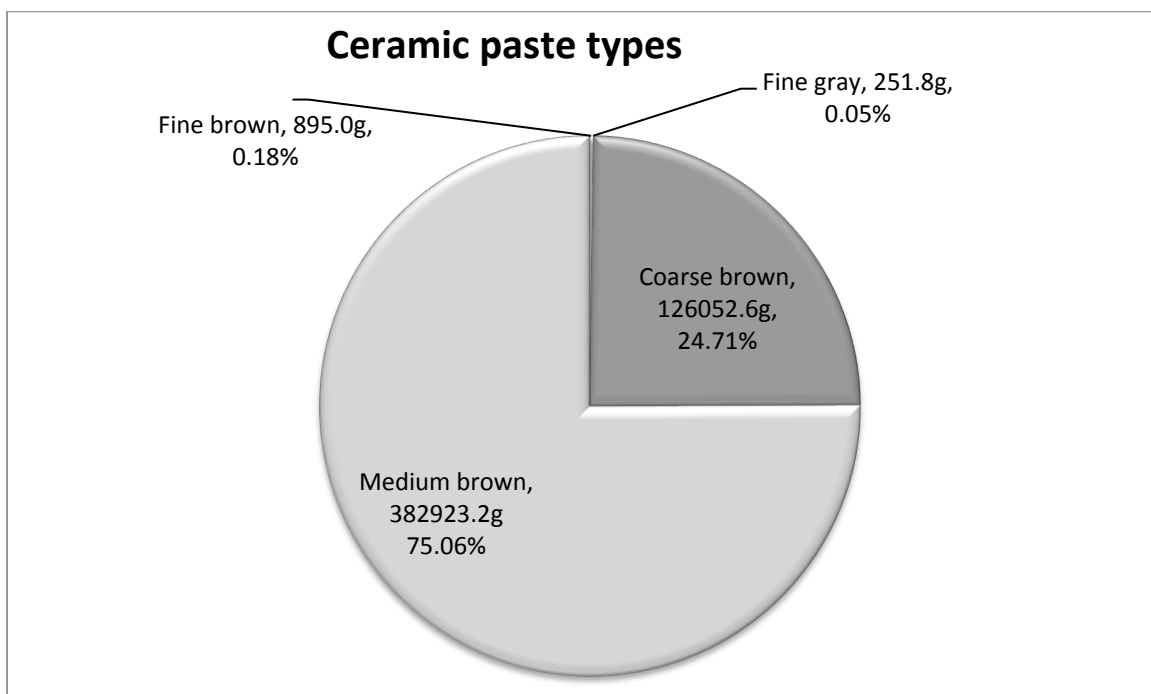


Figure A.1.1: Pie chart demonstrating percentages of paste types among all ceramics recovered at La Consentida in 2009 and 2012

Following their categorization according to paste, I organized the diagnostic Tlacuache phase ceramics into basic vessel types, including jars, bowls, bottles, and tecomates. Each of these categories included various subtypes, such as conical versus hemispherical bowls, globular jars with inleaning versus outcurving necks, and bottles with short versus long necks. As described below, minor variations in the form of rims, lips, or bases, as well as aspects of surface treatment, allow further refinement of this typology. As I will also discuss, there seem to have been minor changes in the Tlacuache phase vessel assemblage over time. Because most vessel categories are represented throughout the excavated contexts at La Consentida, it is impossible at present to divide the ceramics into rigidly defined subphases. Instead, I will describe subtle chronological variations notable in the assemblage with the hope that future research may promote the further refinement of this categorization.

Basic formal analysis demonstrates the relative frequencies of Tlacuache phase vessel forms within paste categories. Due to time constraints, only those diagnostics ceramics from primary contexts including middens, burials, and a ritual offering, were analyzed for this study. Note that, while Figure A.1.1 refers to all ceramics excavated at La Consentida in 2009 and 2012, Figures A.1.2–A.1.4 refer to a smaller collection of artifacts, as they discuss only *diagnostic* fragments from the Op. LC12 D sheet middens (associated with interfaces between LC12 D-F11 through F8), the LC12 E-F16–F9 midden, the LC12 H-F4 midden, the domestic areas in and around Structures 1 and 2, the occupational surfaces atop LC12 A-N1, LC12 A-F19, and LC12 A-F13, a possible small midden deposit at the LC09 B-F16 and LC09 B-F18 interface, and the LC09 B-F17 midden. When all diagnostic vessel fragments from primary contexts are compiled into a single summary for each paste category (Figures A.1.2 and A.1.3), it becomes

clear that there was a good deal of overlap in the types of vessels constructed of coarse and medium pastes, but also that there are significant and likely meaningful differences between paste categories. As demonstrated in Figure A.1.2, coarse ware vessels of the Tlacuache phase are primarily globular jars. In some cases, ceramic remains are complete enough to be identified as jars or bowls, but not as a particular subcategory of vessel within that type. When globular jars, collared jars, and generic (i.e., unidentified) jars are combined, they account for 85 percent of all diagnostic coarse wares analyzed for this dissertation. Combined subcategories of bowls make up 9 percent, bottles 5 percent, and other miscellaneous vessel types make up the remainder. In summary, coarse ware vessels are usually jars. These are often undecorated and were likely used for utilitarian purposes such as cooking, storage, and water transportation. Medium brown ware vessels (Figure A.1.3) also consist of a high proportion of jars (68 percent when subtypes are combined) but are more diverse in form, consist of a higher frequency of bowls (24 percent) and bottles (6 percent) than coarse wares, and are more likely to be decorated and perhaps used in public events such as feasting (see Chapter VII and Appendix 2).

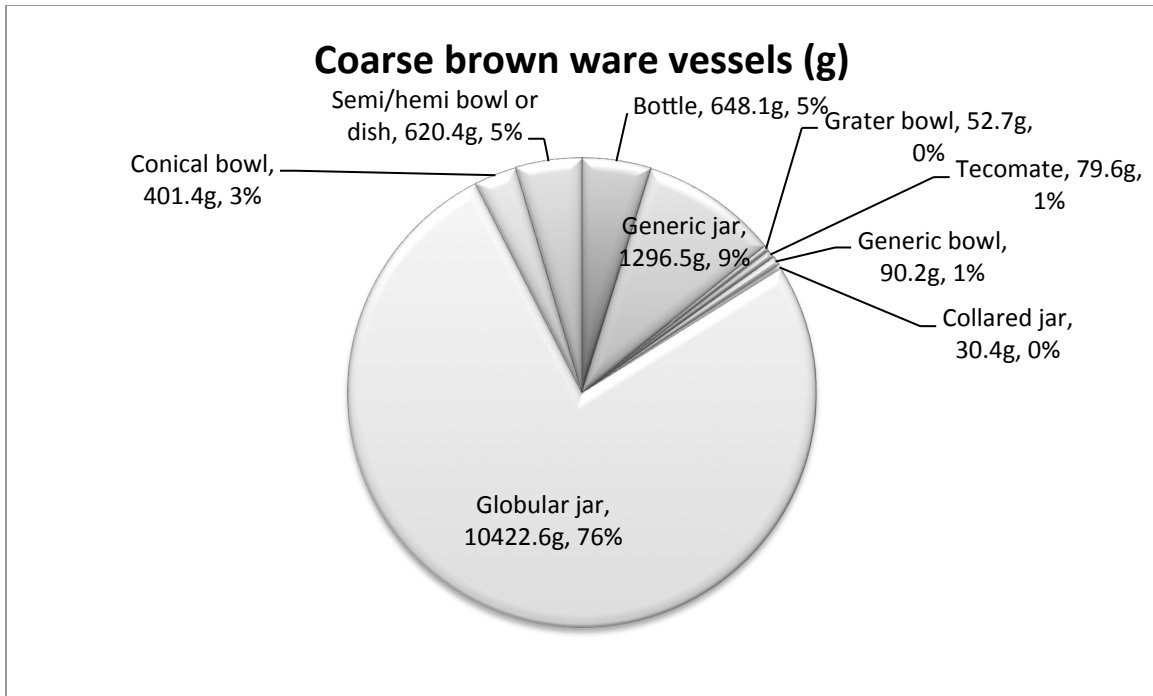


Figure A.1.2: Pie chart demonstrating the frequency of diagnostic coarse brown ware vessel fragments from several contexts

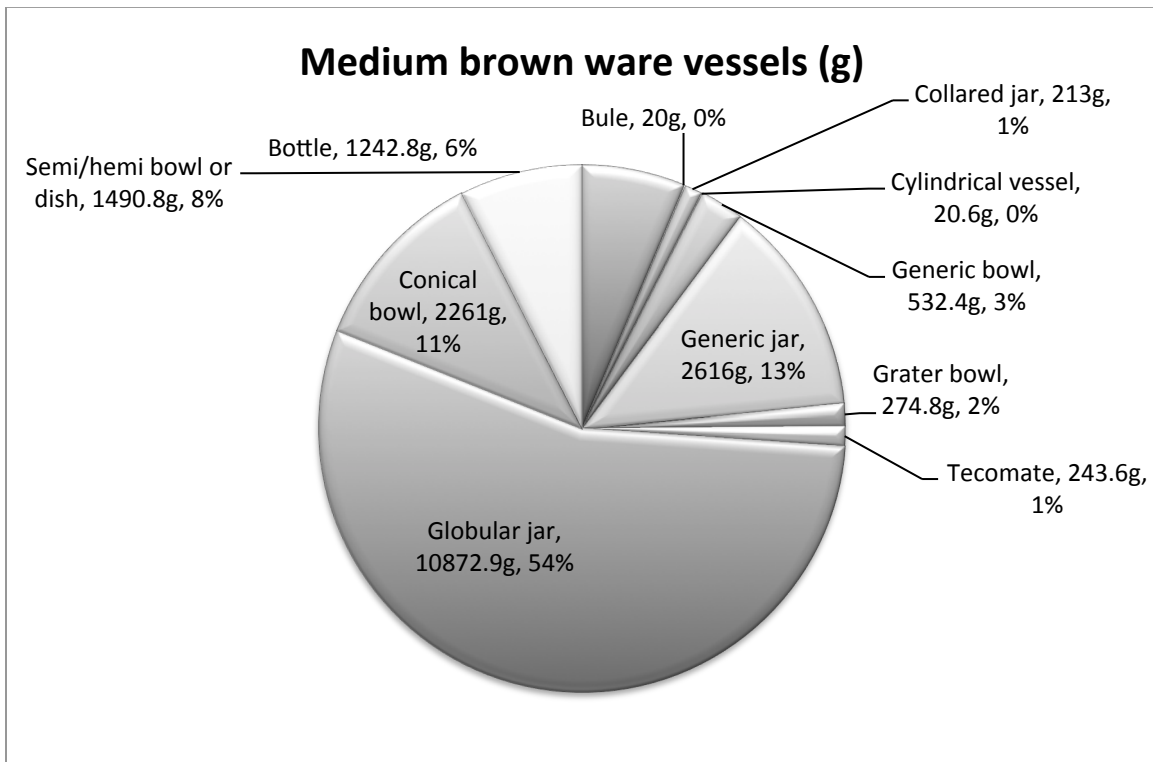


Figure A.1.3: Pie chart demonstrating the frequency of diagnostic medium brown ware vessel fragments from several contexts

Together, diagnostic remains from combined medium and coarse ware ceramics indicate an emphasis on jars, bowls, and bottles in order of decreasing frequency (Figure A.1.4). Special types such as tecomates and grater bowls are much less frequent. In the following sections, I will describe each of the main vessel categories within the coarse and medium brown ware types, and provide example illustrations where appropriate.

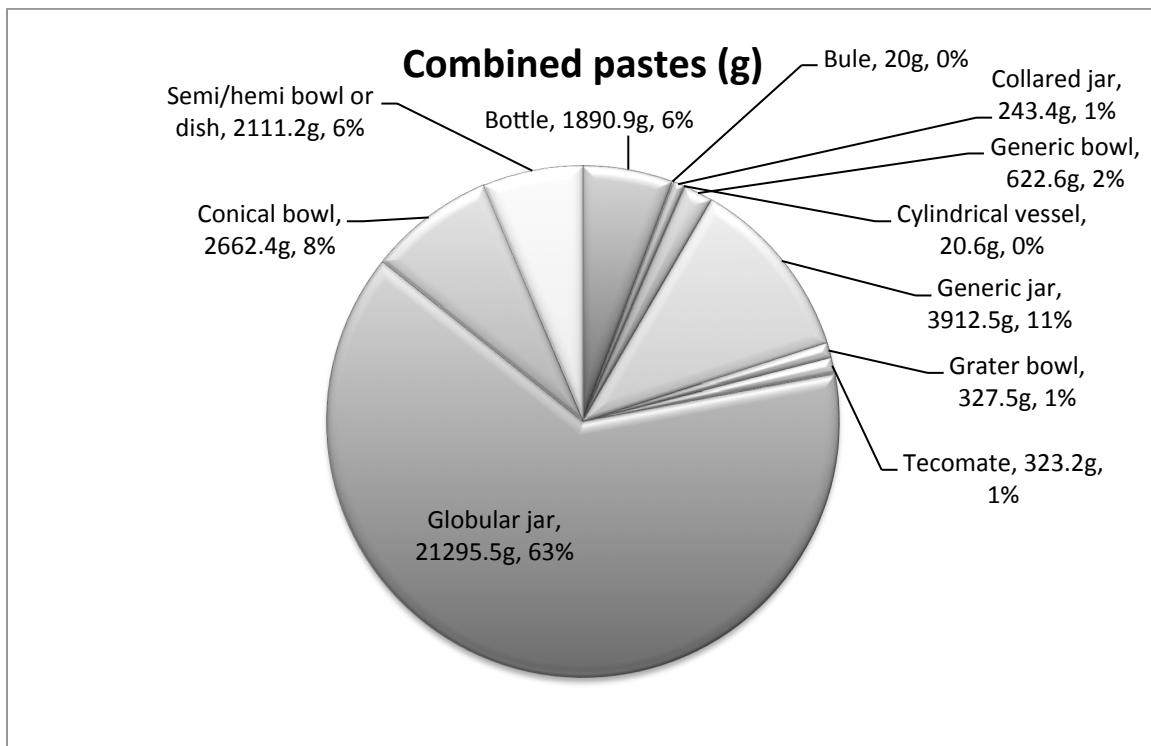


Figure A.1.4 Pie chart demonstrating the frequency of diagnostic vessel fragments of both medium and coarse brown paste from several contexts

Coarse brown ware vessels

Bowls

Coarse brown ware bowls (see Figures A.1.5–A.1.7) occur in generally the same vessel types (conical and hemispherical) as medium ware bowls, which are described below. Conical

coarse ware bowls include mostly outleaning and outcurving wall forms. Coarse ware conical bowls are less common than medium ware examples, but are generally similar in form. Varying wall angles and heights mean that some conical coarse ware bowls are relatively deep vessels while others are more akin to low dishes. Rims are often direct, but may be outleaning, outcurving, or inleaning. Lip variants among the conical coarse ware bowls include flat, rounded, beveled, and interior or exterior thickened shapes. These vessels tend to have thicker walls than the medium ware examples, with a wall thickness of 10 mm or more not being uncommon. Conical coarse ware bowls exhibit decoration and fine surface treatment less frequently than do their medium ware counterparts, suggesting that they were more rarely employed as serving vessels (see Appendix 2). Some surfaces of these coarse ware bowls are nicely smoothed, burnished, and slipped, though they tend not to exhibit the high degree of surface finishing attention that the medium ware examples often do.

Among coarse ware hemispherical bowls, subcategories are very similar to those for medium brown ware hemispherical bowls. These coarse ware hemispherical bowls are less common than medium ware examples, and tend to bear nicely slipped and burnished surfaces less frequently than their medium brown ware counterparts. As with other bowls, the rims of these vessels are often direct but may be outleaning, outcurving, or inleaning. Lips are usually flat or rounded, but may in some cases be beveled. Thickening is common, particularly on the exterior of the rim and lip. Some of the coarse ware hemispherical bowls are very shallow, almost like a plate or low-walled dish. The pastes and slips of coarse ware hemispherical bowls are more likely to be reddish or orangish in color than those of medium ware examples. Hemi- and semispherical bowls are considered variants on a general theme of vessel type, with the

only difference being that hemispherical examples represent half of a sphere in their form, while semispherical forms are less than half of a sphere.

Grater bowls are typically ashtray-sized vessels. Their most common form is that of a conical bowl with interior incisions, often in intricate geometric patterns. In rarer cases, they may be semispherical. Rims are typically direct, but may be slightly outcurving. Lips vary from flat to rounded. In rare cases, lips may bear ticking or scalloping, though it is not clear whether this is restricted by paste type. In general, coarse and medium brown ware grater bowls are identical in form, with the only exception being that coarse ware examples have larger inclusions in their paste. In rare cases, spouts molded into the rim of grater bowls indicate that they were used to process something that could then be poured as a liquid. For this analysis, grater bowls have been considered as an independent vessel category, though they might also have been analyzed as variants of other bowl types such as that of conical bowls.

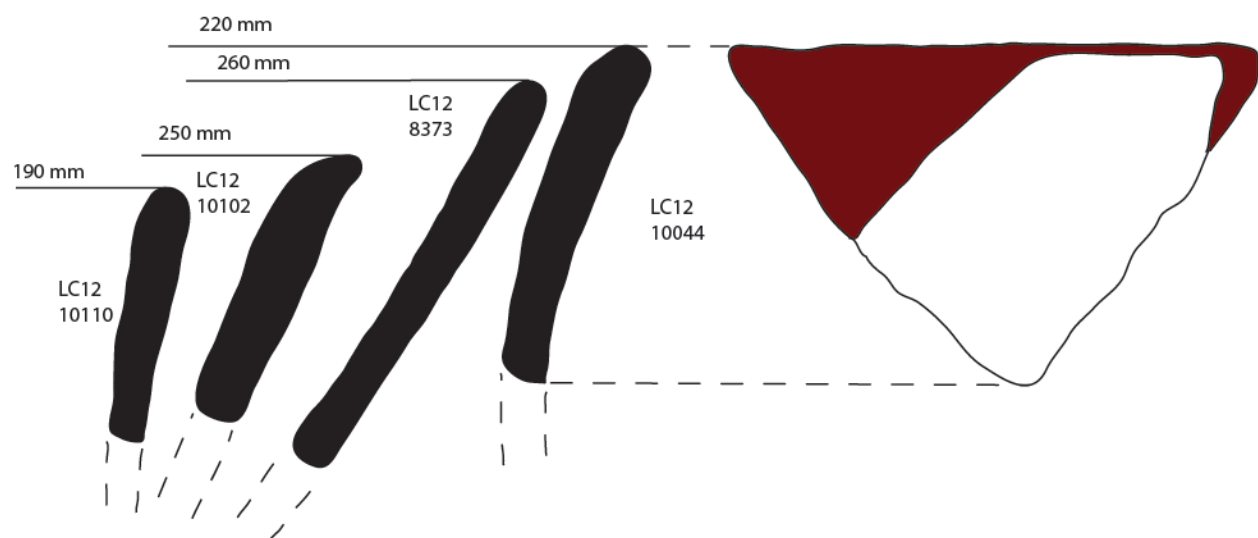


Figure A.1.5: Coarse brown ware conical bowls. Note painted design

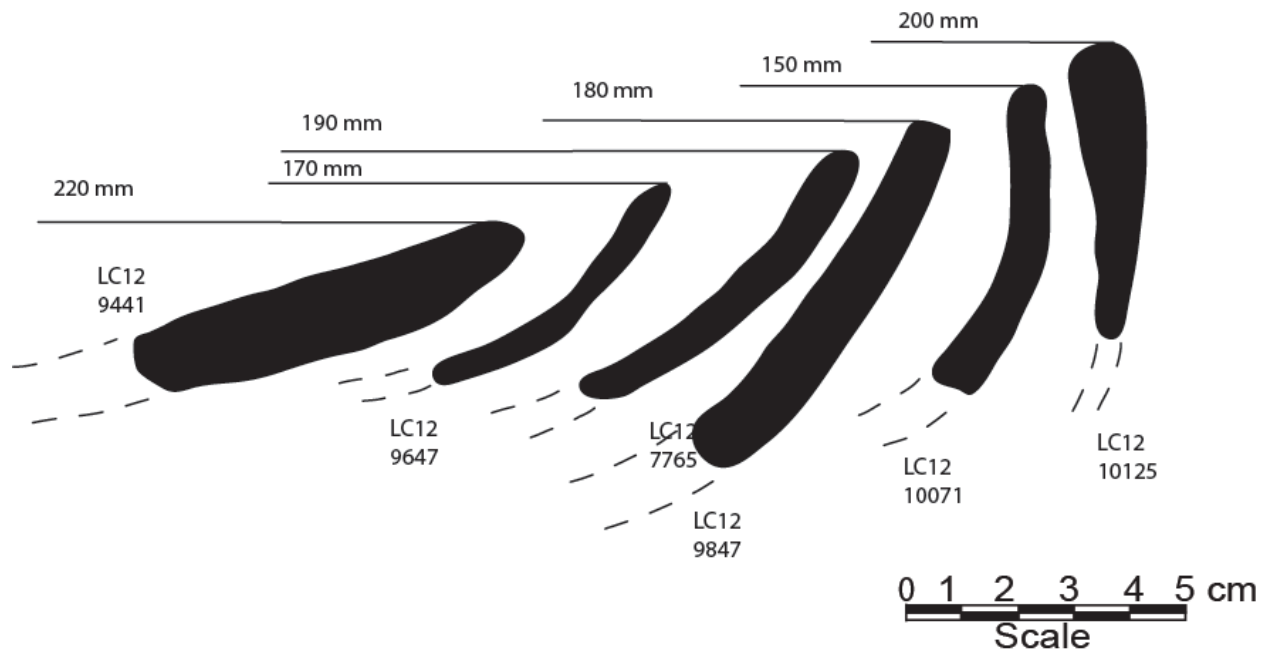


Figure A.1.6: Coarse brown ware semi- and hemispherical bowls

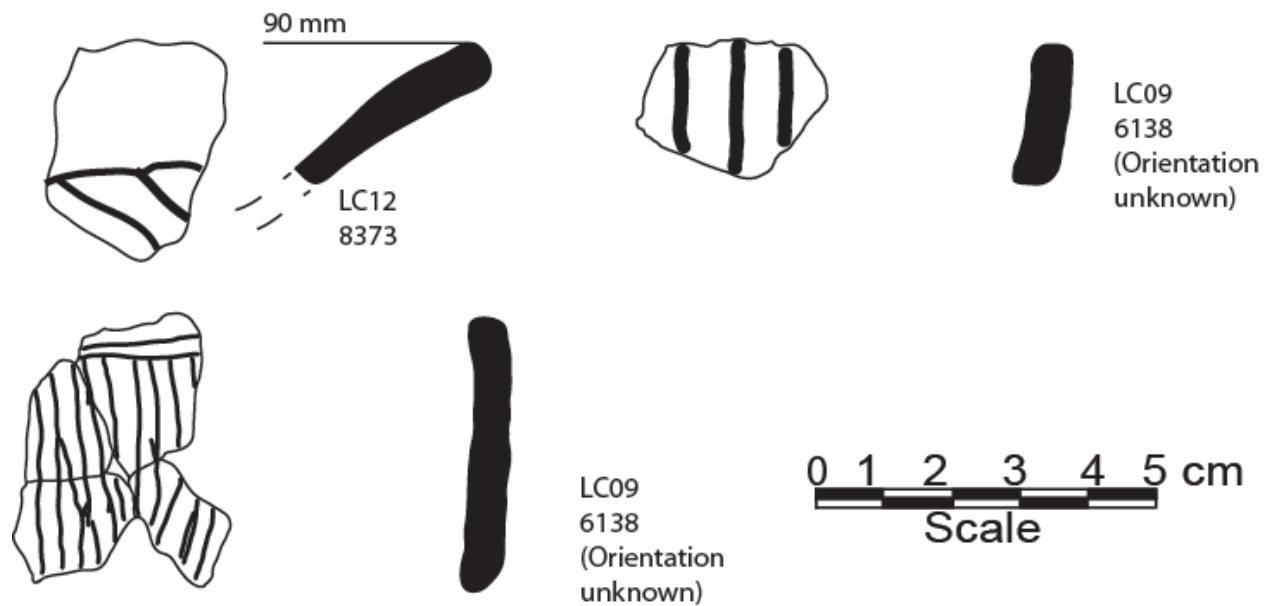


Figure A.1.7: Coarse brown ware grater bowl fragments

Jars

Coarse brown ware jars (see Figures A.1.8 and A.1.9) are one of the most abundant ceramic types among Tlacuache phase vessels, probably due to their extensive use for daily

cooking activities. Basic vessel divisions include globular and non-globular body shapes, among which globular examples are by far the most common. Among globular coarse ware jars, neck variants include outleaning, outcurving, and inleaning examples. Inleaning neck jars are generally distinguished from inleaning wall bowls (where basal fragments are absent) by the lack of interior finishing. This method of identification is supported by the presence or absence of interior surface treatment on vessel fragments with a preserved basal angle. Coarse ware jars are often reddish in color and may have an extremely coarse paste with heavy inclusions of angular white stone or gravel. Sometimes these inclusions may be exposed on even well preserved interior and exterior surfaces. Inleaning neck jars seem to be almost exclusively coarse wares. These vessels often have interior thickening of the rim, round or flat lips, and the interior of the neck appears to be scraped in some instances. Slip and paste color variants within this vessel type include red, orange, brown, and black. Paints are most often red. Some jars with inleaning necks may have outcurving rims, which gives them a “collared” appearance, though collared jars are more common among medium ware vessels, as discussed below.

Outcurving neck coarse ware jars may have a smoothed or unfinished neck interior. Rims tend to be direct, and often have subtle exterior or interior thickening. Lips vary, but tend to be round or flat. Rims may also be outcurving. Some of the vessel necks are subtle in their outcurving shape. These vessels appear to mostly have had flat bases, though they may be rounded or angled at the edges, giving them an almost composite silhouette form near the base. Outleaning neck coarse ware globular jars are similar to the outcurving neck varieties, and the distinction between the two forms is often subtle. Some of these vessels have only a slightly outleaning neck, while other neck angles are more severe. These vessels are generally similar to

inleaning neck examples in that they are often formed from a very coarse reddish paste, which may have taken on some of its coloration during firing. The necks are often scraped, roughened, or unfinished on the interior. Lips tend to be round, but can also be flattened or pointed (beveled on both interior and exterior), and often bear exterior or interior thickening.

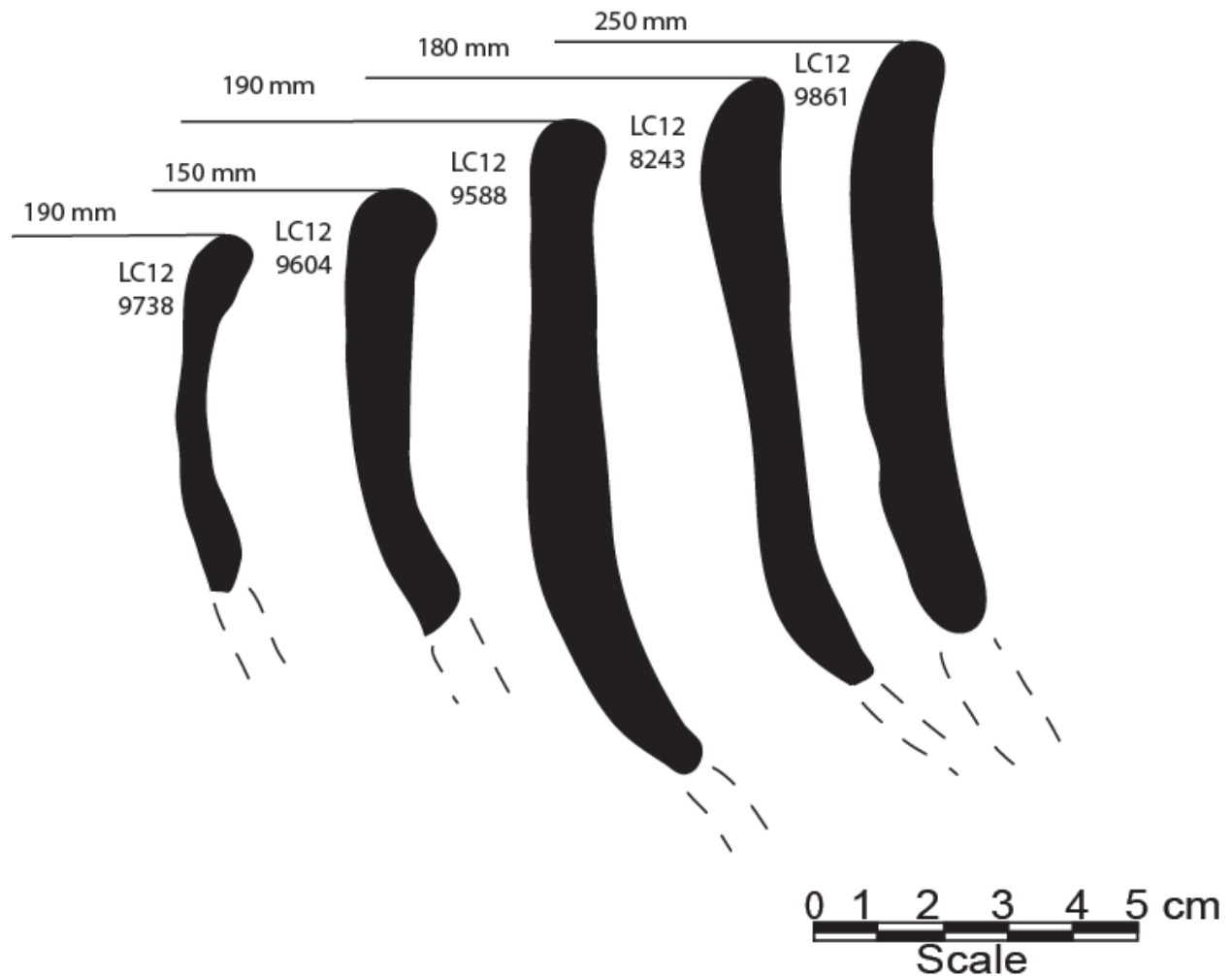


Figure A.1.8: Coarse brown ware inleaning neck globular jars

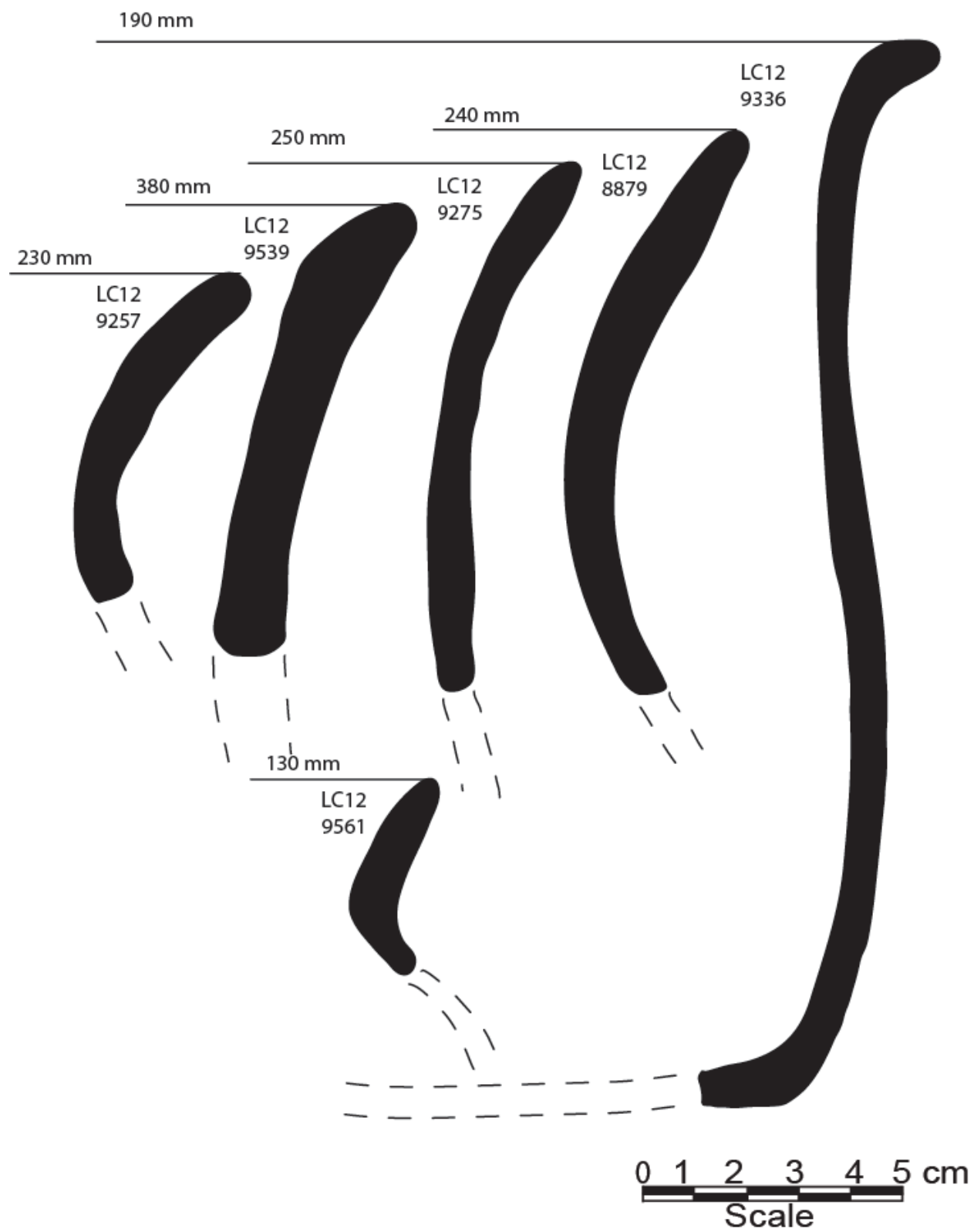


Figure A.1.9: Coarse brown ware outleaning/outcurving neck globular jars and collared jar

Bottles

Coarse brown ware bottles (see Figure A.1.10) most frequently have long, slightly outflaring necks and globular bodies. They appear to be less common than medium brown wares bottles, which are described below. This discrepancy may explain why greater formal variation is identified among the medium brown ware bottles so far recovered at La Consentida than is the case for coarse brown ware examples. Coarse ware bottles sometimes bear slips in brown or red and may have impressed decoration. These bottles appear to mostly have had flat bases. In general, the coarse ware bottles fall within the range of vessel form variation described below for medium brown ware bottles.

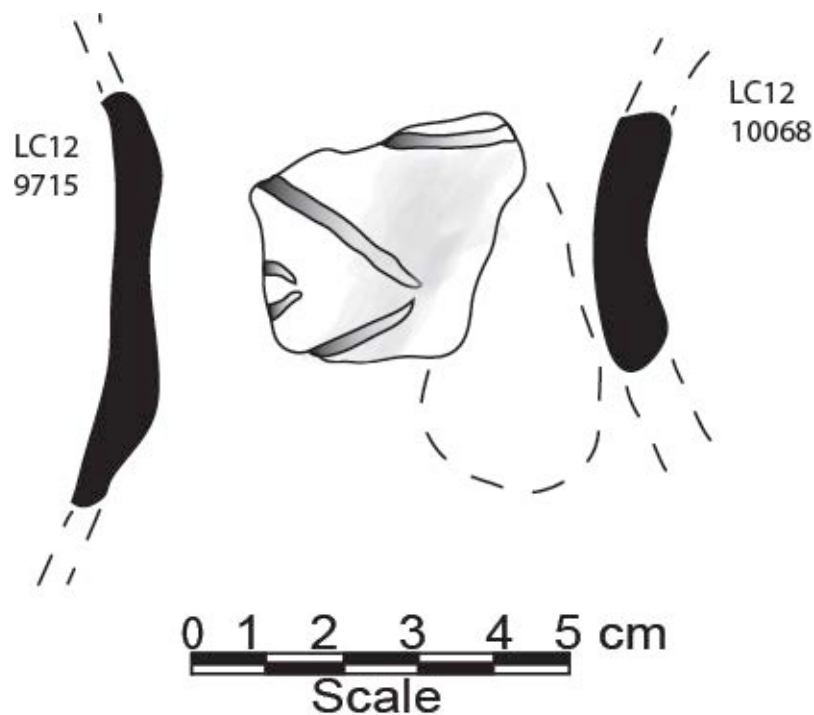


Figure A.1.10: Coarse brown ware probable bottle fragments with composite silhouette or decoration (a possible face). For a better example of a probable effigy vessel, see Figure 7.27

Tecomates

Coarse ware tecomates (see Figure A.1.11) are generally similar in their form and surface treatment variation to the medium paste examples described below. This is one of the rarer vessel types identified among the Tlacuache phase assemblage. The interior of these vessels is often unfinished due to the difficulty of reaching past the restricted vessel mouths. Rim variants include those with interior thickening and/or exterior flattening or beveling. Vessel lips tend to be either round or flat. These vessels are usually less well finished than medium brown ware examples, though they may bear burnishing and slipping in brown, gray, or orange. Due to the similarity of tecomate body sherds and those from globular jars, tecomates are generally only recognized when rim fragments are identified. For that reason, their relative frequency in the Tlacuache assemblage may be understated, and their original vessel dimensions are difficult to ascertain.

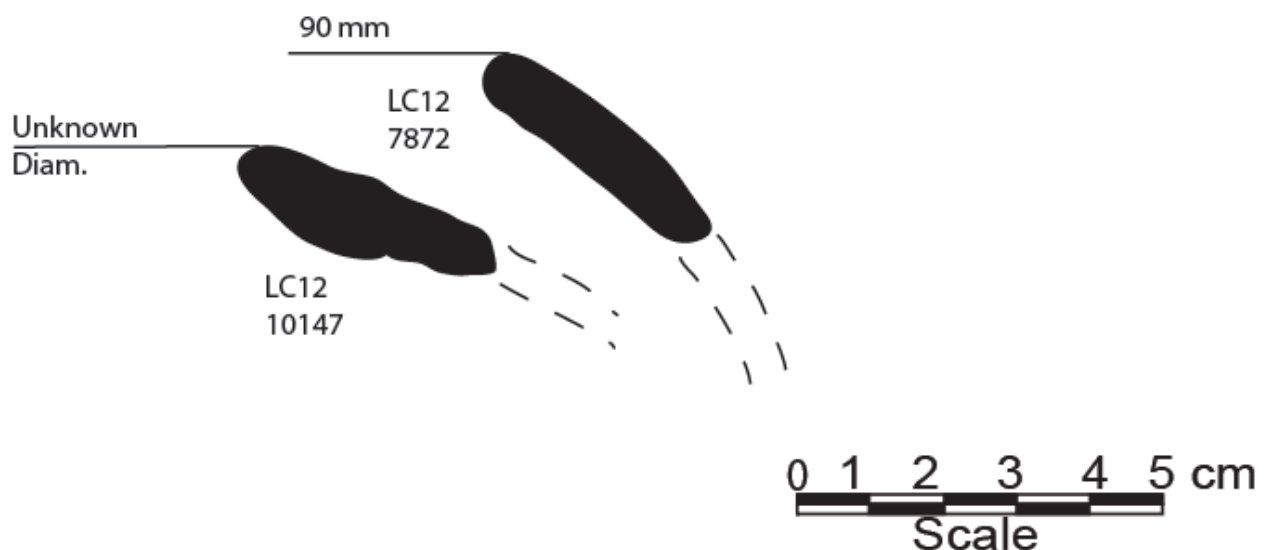


Figure A.1.11: Coarse brown ware tecomates

Medium brown ware vessels

Bowls

Medium brown ware bowls (see Figures A.1.12–A.1.18) are a relatively common vessel types in the Tlacuache phase assemblage. In broad terms, they can be divided into conical and semispherical forms. Within those categories, conical bowls consist of outleaning wall, outcurving wall, and inleaning wall bowls. Wall angles and heights vary considerably, with some vessels being deeper bowls while others are more like low dishes. Similarly, significant variation in vessel rim diameter (of at least 70–330 mm) indicates that some bowls were small while others were quite wide. Some of these vessels have interior incisions that classify them as grater bowls. Grater bowls tend to have low walls, direct rims, and rounded lips. Occasionally these vessels have unusual attributes such as spouts or a square shape. Outcurving wall and outleaning wall conical bowls can be further divided according to rim and lip styles. Rims are often direct, and frequently have interior thickening. Lips may be flat, round, or beveled either uniformly or with greater beveling on the interior or exterior. Conical bowls tend to have flat bases, though some of the better finished and elaborate bowls in early deposits (particularly in the sheet middens associated with LC12 D-F10, F9, and F8 and in the LC12 E-F16–F9 midden) have a circular foot attached to the base. Cylindrical vessels are rare but also present in the Tlacuache collection, and may be considered a type of bowl.

Surface treatment on conical bowls frequently includes smoothing, burnishing and slipping in brown, gray, red, and orange. Interior smoothing and/or burnishing is very common among these bowls, and is a useful way to identify conical bowl fragments from jar fragments, even where basal angles are not preserved. As discussed above, this inference is supported by

instances where vessels do retain basal angles. Decorations on conical bowls include impressed and occasionally incised geometric patterns and zones of paint or slip, most often in red. The fine surface finish on many conical bowls, along with occasional decoration, indicates that these vessels were likely fancy serving wares more frequently than were other vessel types such as jars. As discussed in Appendix 2, relative frequencies of these finely finished bowls and other decorated vessels aids in the identification of feasting middens. Among conical bowls, outcurving wall examples frequently have the most attention paid to their surface treatment and decoration. Outcurving wall conical bowls often have well finished, smoothed and burnished surfaces with interior thickened rims. They tend to occur in brown, orangish-red, or black colors.

In rare instances, semispherical bowls have an eccentric rim form that leaves them “kidney-shaped,” similar to some vessels of the Tierras Largas phase (Flannery and Marcus 1994:Fig. 7.2), as well as some from Tlatilco (Piña Chan 1958:Fig. 40.j, Lám. 21) and Zohapilco (Niederberger 1976:Lám. LII.16, 25, Lám. LIV.16, Foto 37; see Chapter VIII). A few semispherical bowls of the Tlacuache phase have interior incisions that categorize them as grater bowls, though these are less common than conical grater bowls. Most semispherical bowls are undecorated and have direct rims. Some rare examples have notched rims. These vessels tend to lack extensive surface treatment and almost always lack decoration.

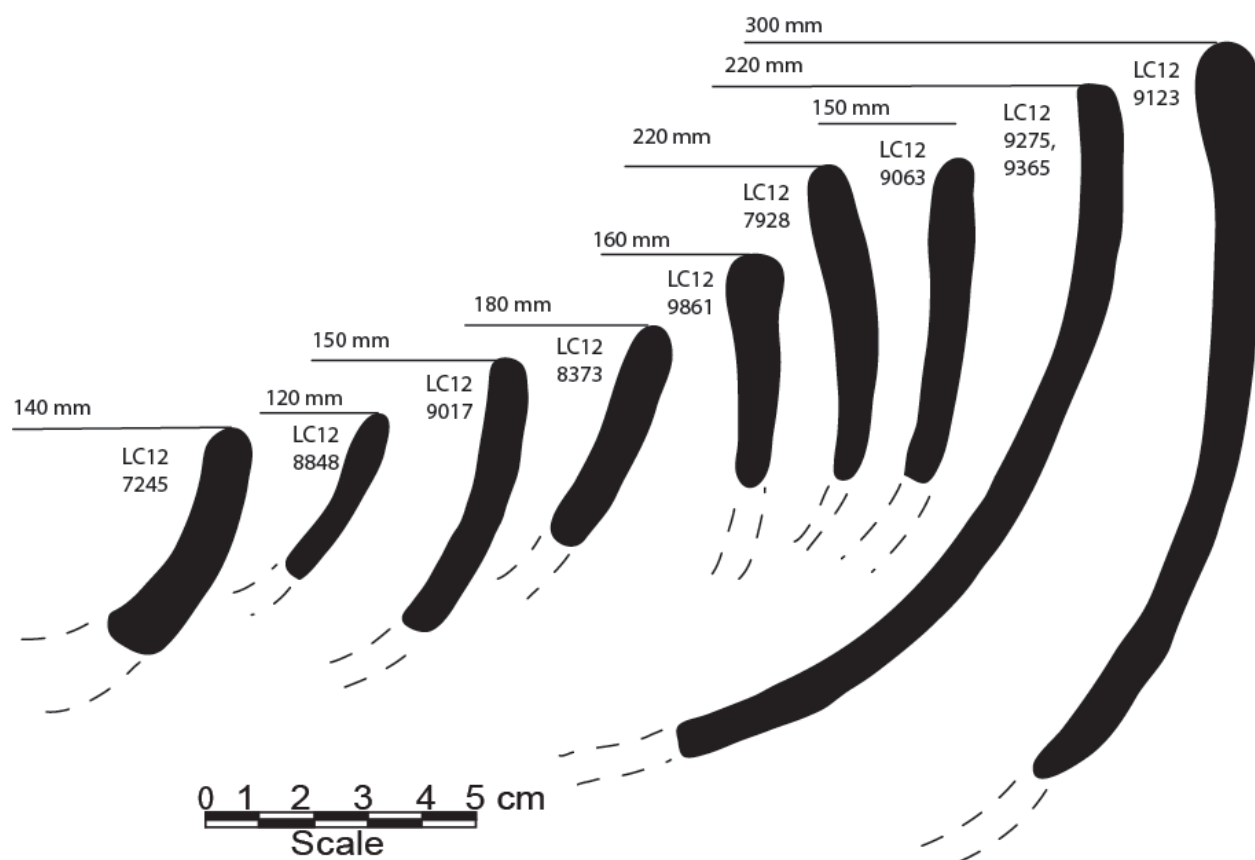


Figure A.1.12: Medium brown ware semispherical bowls

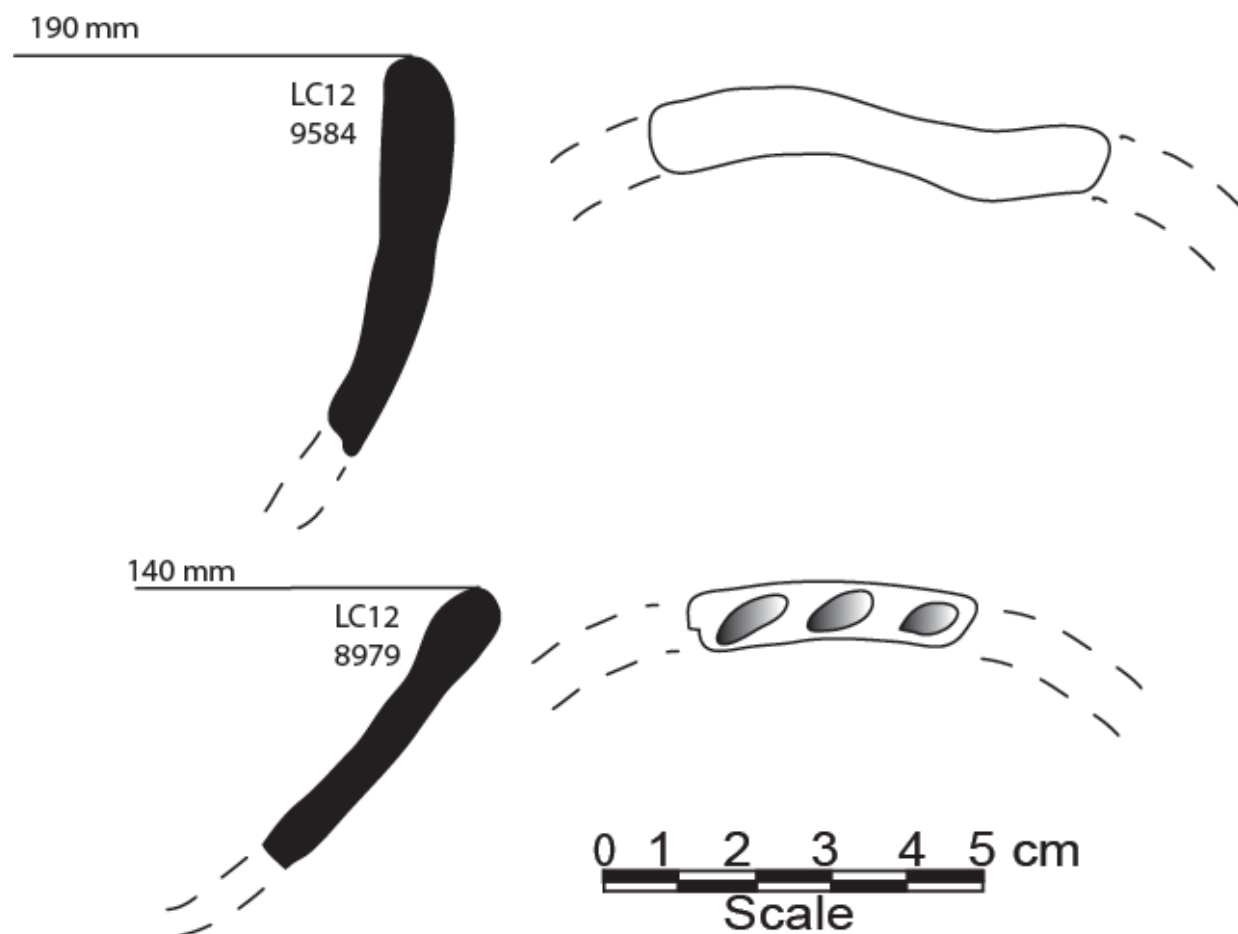


Figure A.1.13: Medium brown ware semispherical bowls with unusual rim or “kidney” shape

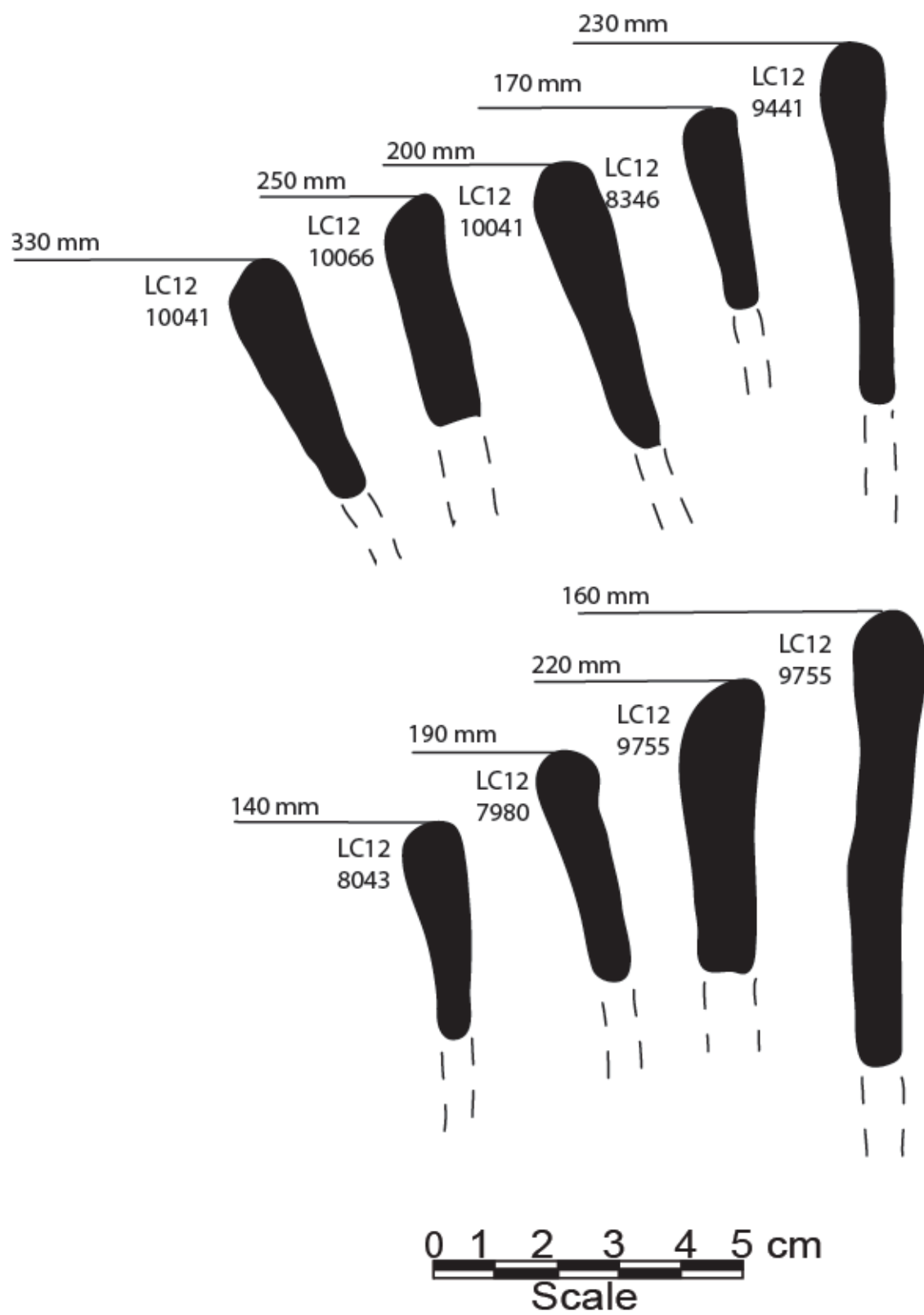


Figure A.1.14: Medium brown ware cylindrical and inleaning wall conical bowls

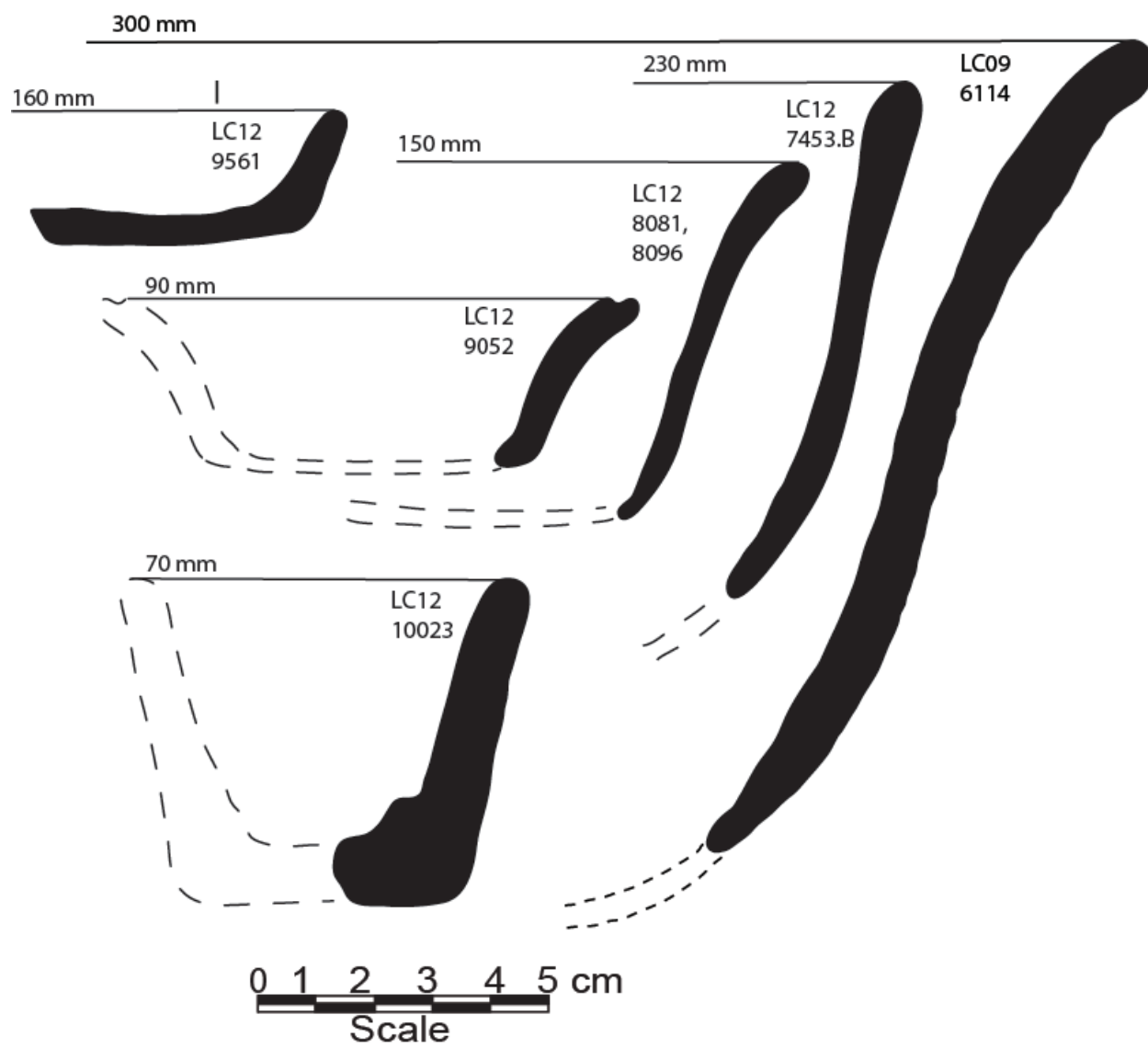


Figure A.1.15: Medium brown ware outcurving and outleaning wall conical bowls

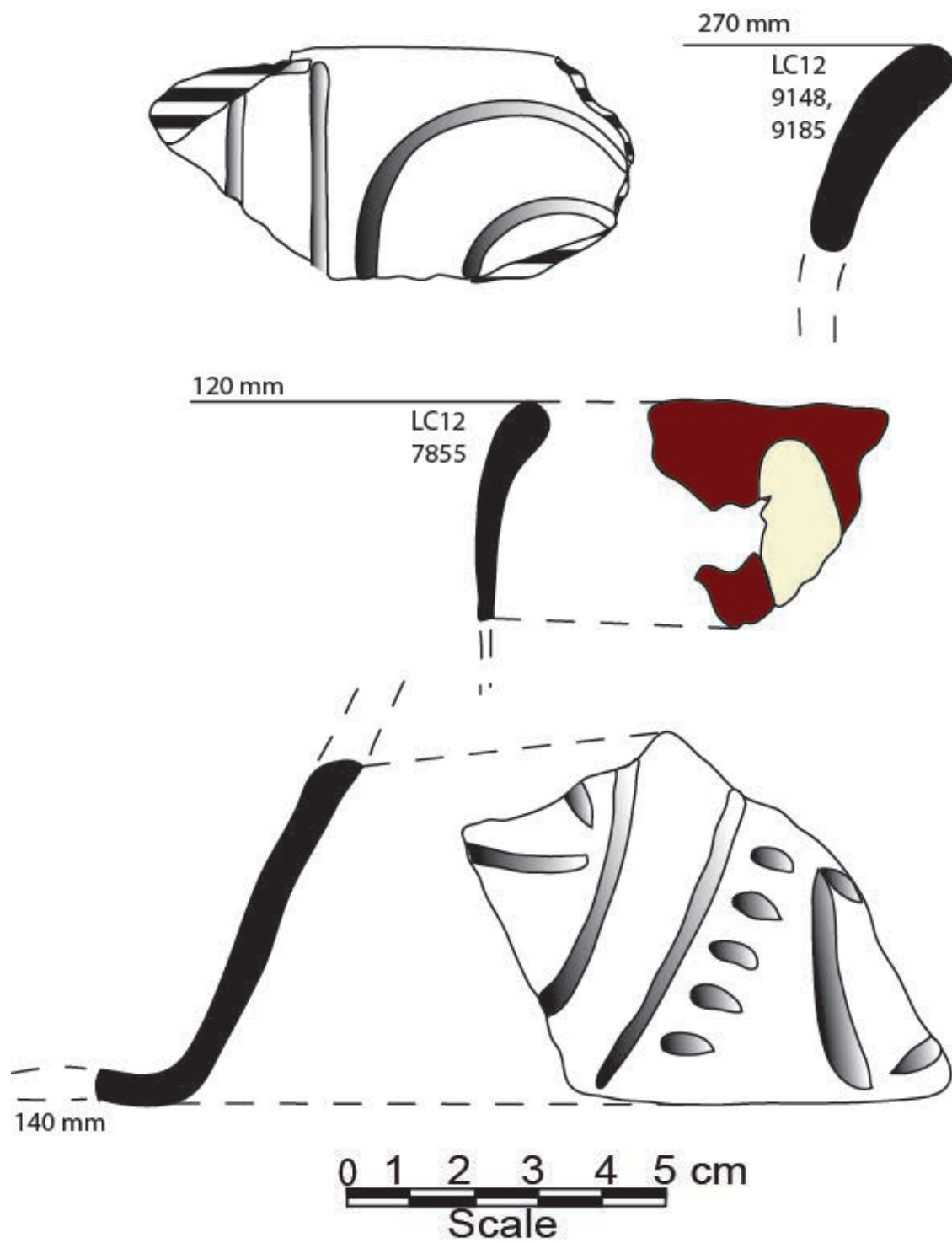


Figure A.1.16: Medium brown ware decorated conical bowls

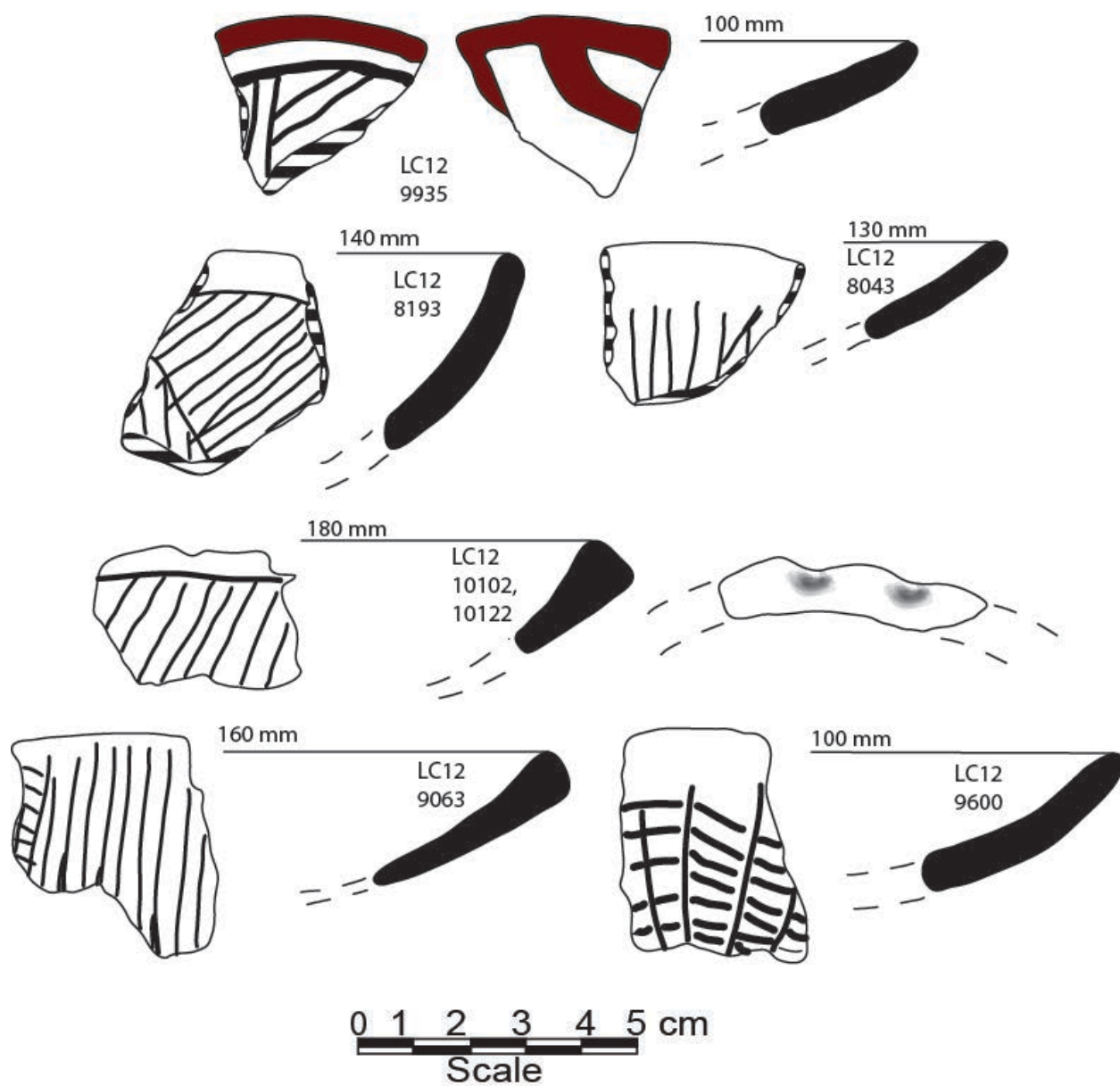


Figure A.1.17: Medium brown ware grater bowls

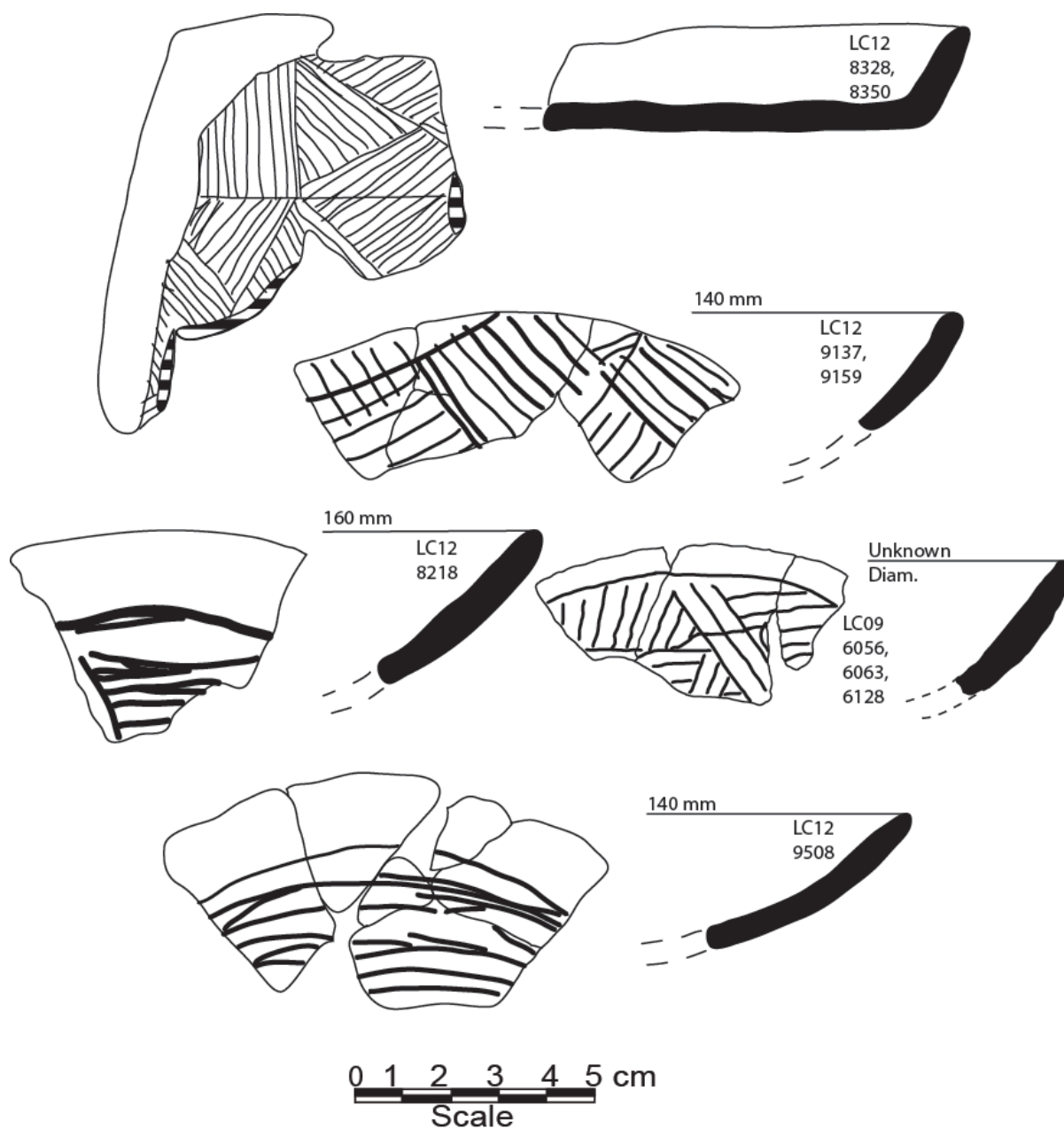


Figure A.1.18: Medium brown ware grater bowls

Jars

Medium brown ware jars (see Figures A.1.19–A.1.23) are a common vessel type in the Tlacuache assemblage. While their coarse ware counterparts seem often (by virtue of context and a lack of surface finish) to have been used in daily cooking and other utilitarian activities,

medium ware jars appear to have enjoyed a more diverse set of uses in the La Consentida community, including as burial offerings and likely as serving vessels (see Appendices 2 and 5). Almost all of these vessels are globular, with a few examples lacking the rounded lower vessel wall that would define them as such. Among globular medium paste jars, the basic formal distinctions are similar to those for the coarse ware vessels described above, and include outcurving neck, outleaning neck, and collared examples. Inleaning neck jars seem to have been almost exclusively a coarse ware vessel form.

Variations within the outcurving and outleaning neck categories occur according to distinctions in interior rim thickening, lip form (which tends to be rounded or flat), and neck angle. Exterior rim thickening is rare but sometimes does occur. Some rims also have a deliberate interior flattening. Many of vessels have flat bases, though the edges of the bases may be somewhat rounded, leaving the impression of a composite silhouette near the base of the vessel. Wall thickness varies considerably, with some examples reaching 28 mm in thickness at the vessel shoulder. Medium ware jars are sometimes very large, and the most well preserved examples (from the LC12 H-F4 midden) bear exterior and sometimes interior smoothing, wiping, and even burnishing. These surfaces tend not to be as nicely finished as those of serving bowls, however.

Paste and slip color variants among globular medium ware jars include brown, orange, and dark gray. Interiors of the vessel necks are sometimes scraped or roughened below a narrow band of finishing and even burnishing at the vessel rim. Some of these vessels have impressed decoration that coincides with zones of pigment decoration, typically using a red slip or paint. Examples from the LC12 E-F16–F9 midden, where remnants of fancy serving bowls and

bottles were recovered, tend to exhibit more complete surface finishing and have a smaller overall vessel size than other jars (see Appendix 2). These vessels were likely for serving rather than cooking. Some small collared jars have suspension holes impressed into the clay before the vessel was fired. These vessels at least sometimes have rounded bottoms, a form permitted by the suspension of the jar rather than resting it upon the ground or a cooking surface. It is also possible that the “suspension holes” could have been used to securely affix a lid to the vessel. Importantly, these holes are not “repair holes” that were drilled through the wall of a vessel cracked in antiquity, but were instead an intentional aspect of the vessel’s form and intended use, and appear to have been most common among, if not exclusive to, relatively small collared jars. The most complete example of a vessel with such suspension holes was recovered as an offering with burial B9-I11 (Figure A.1.19).



Figure A.1.19: Small medium brown ware collared jar with suspension holes. Recovered as offering with child burial B9-I11. Still contains sediment

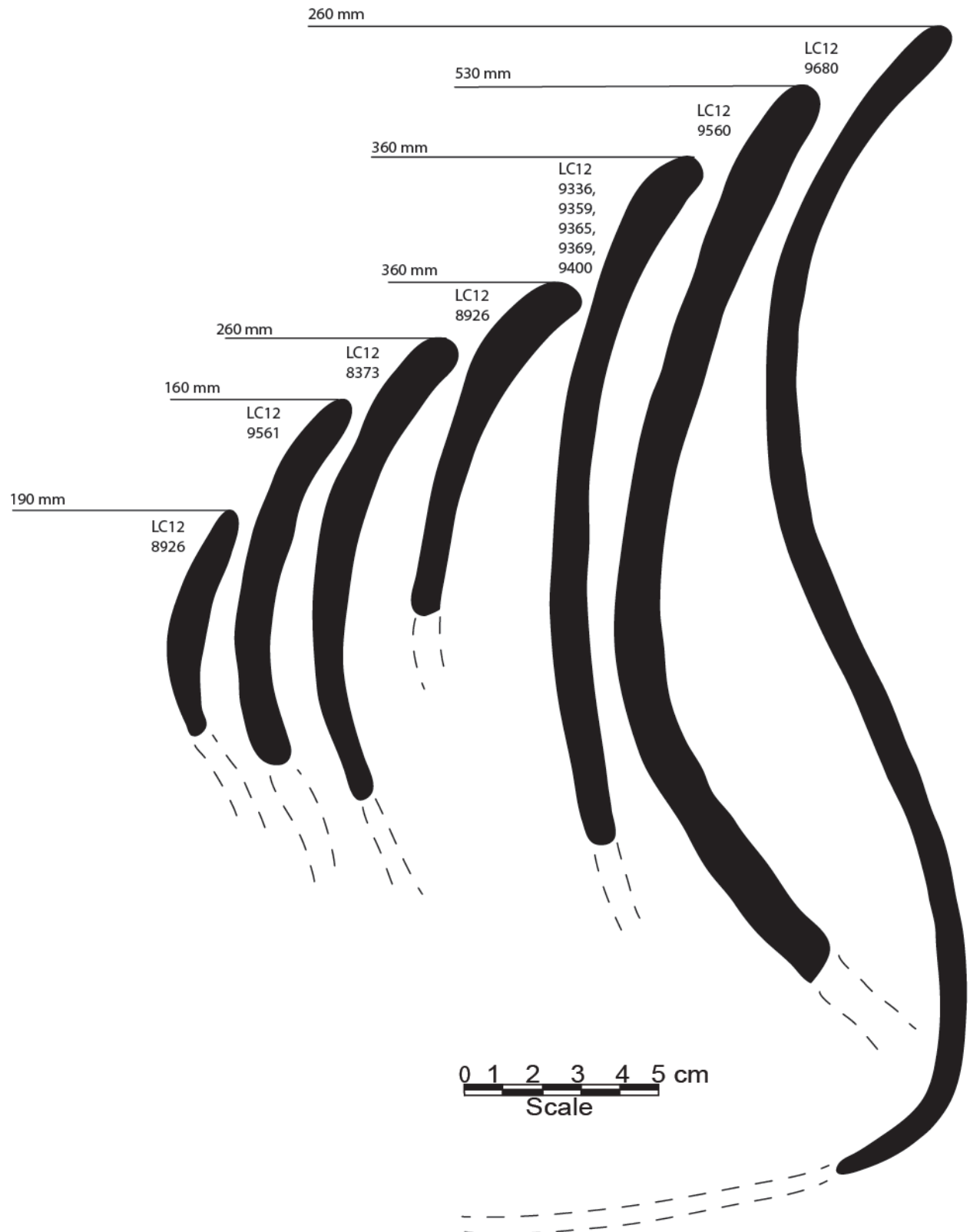


Figure A.1.20: Medium brown ware globular jars with outcurving necks

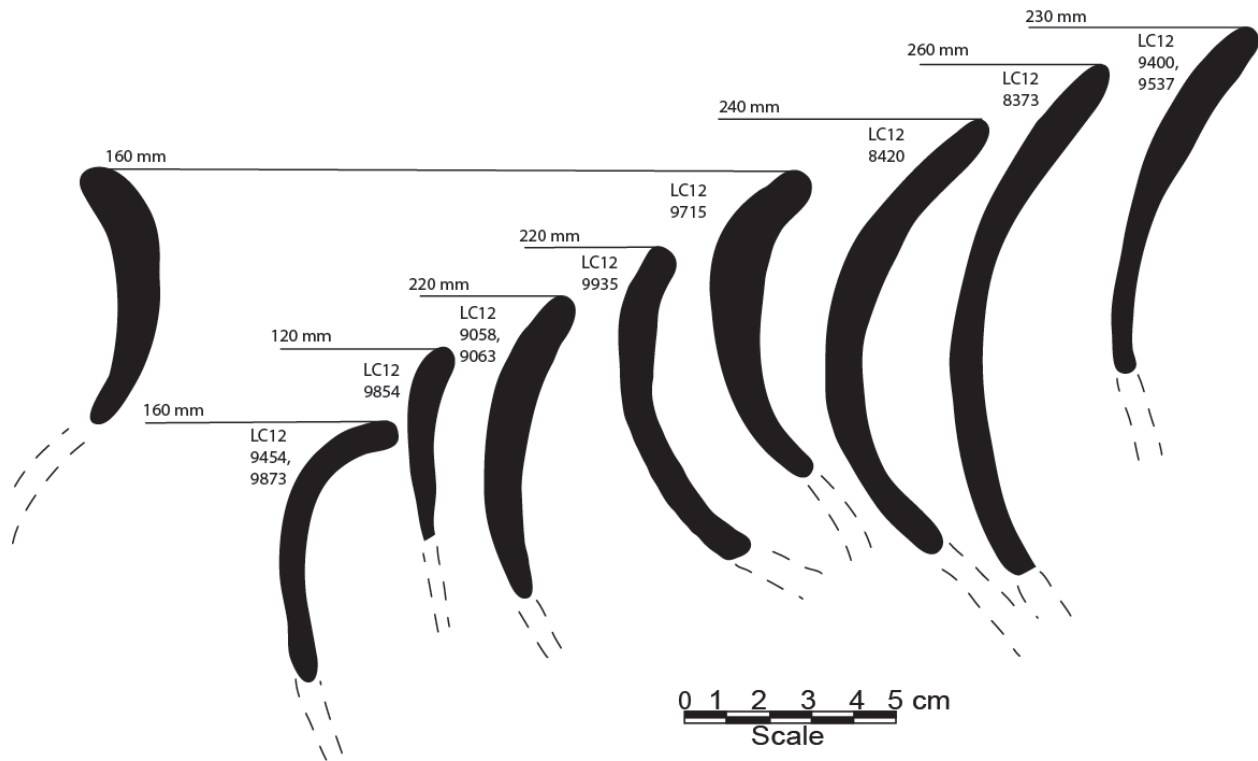


Figure A.1.21: Medium brown ware globular jars with outcurving necks

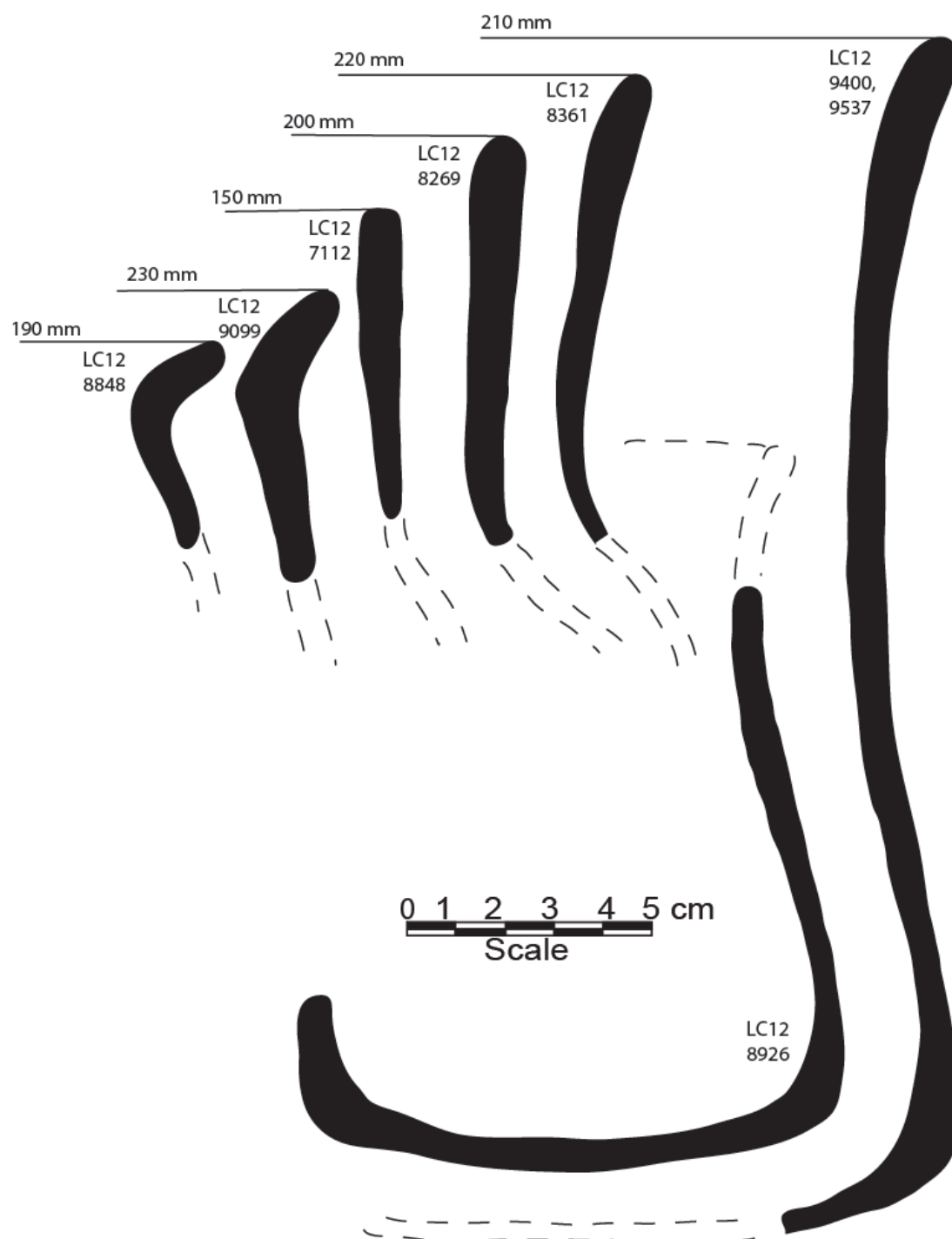


Figure A.1.22: Medium brown ware globular and non-globular jars

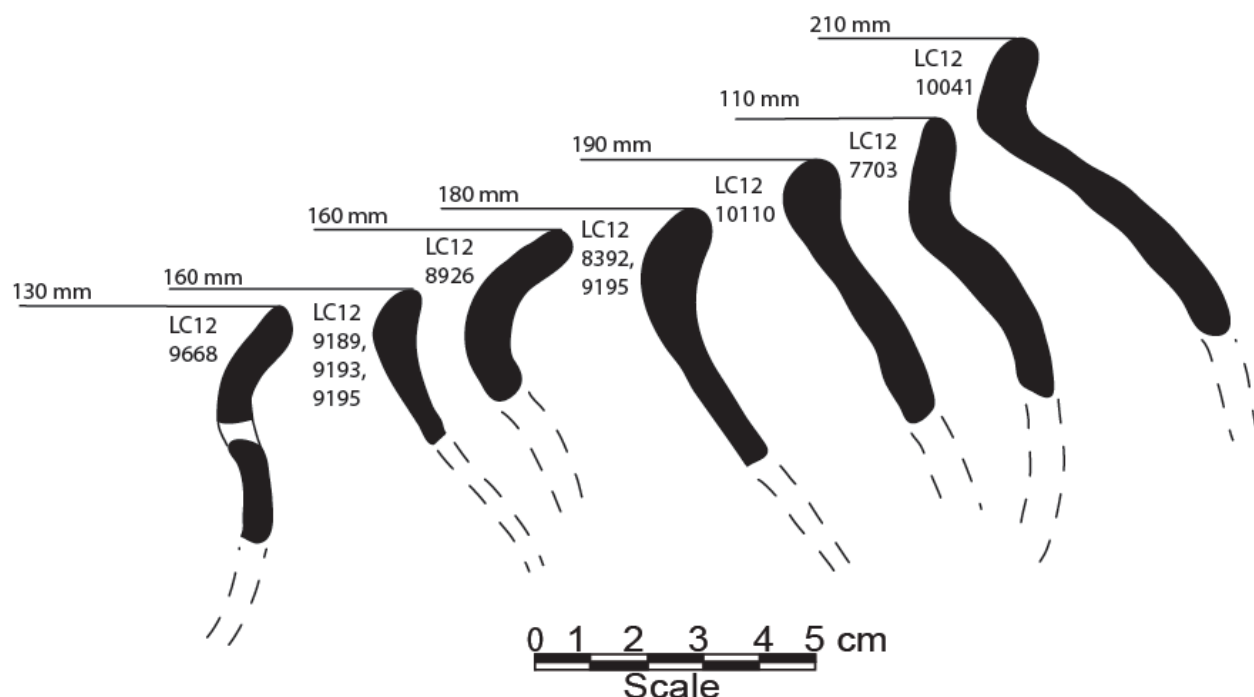


Figure A.1.23: Medium brown ware collared jars

Bottles

Medium brown ware bottles (see Figures A.1.24–A.1.26) are globular in body form, and include straight long neck, outflaring long neck, and outflaring short neck varieties. Outflaring and straight long necked bottles tend to differ from one another only subtly, and are more common than short-necked examples. Among the straight neck bottles, further division is possible between those with flat versus rounded lips. All the bottles appear to have had flat bases. Where preservation permits its identification, a brown or red slip is common among medium brown ware bottles, and orange slip is also present. They tend to have unfinished interiors below the top few centimeters of the rim, due to the restricted nature of the bottles' necks. Decoration on bottles includes impressed lines, bands, and geometric patterns, and these sometimes correspond to zones of paint or slip decoration, typically utilizing red pigment. Decorations sometimes go all the way to the vessel base, and occasionally also occur on bottle

necks. Decorations include “sunbursts,” bands, and other simple geometric patterns (see Chapter 8). The decorations on some bottles tend to suggest their use as fancy serving vessels.

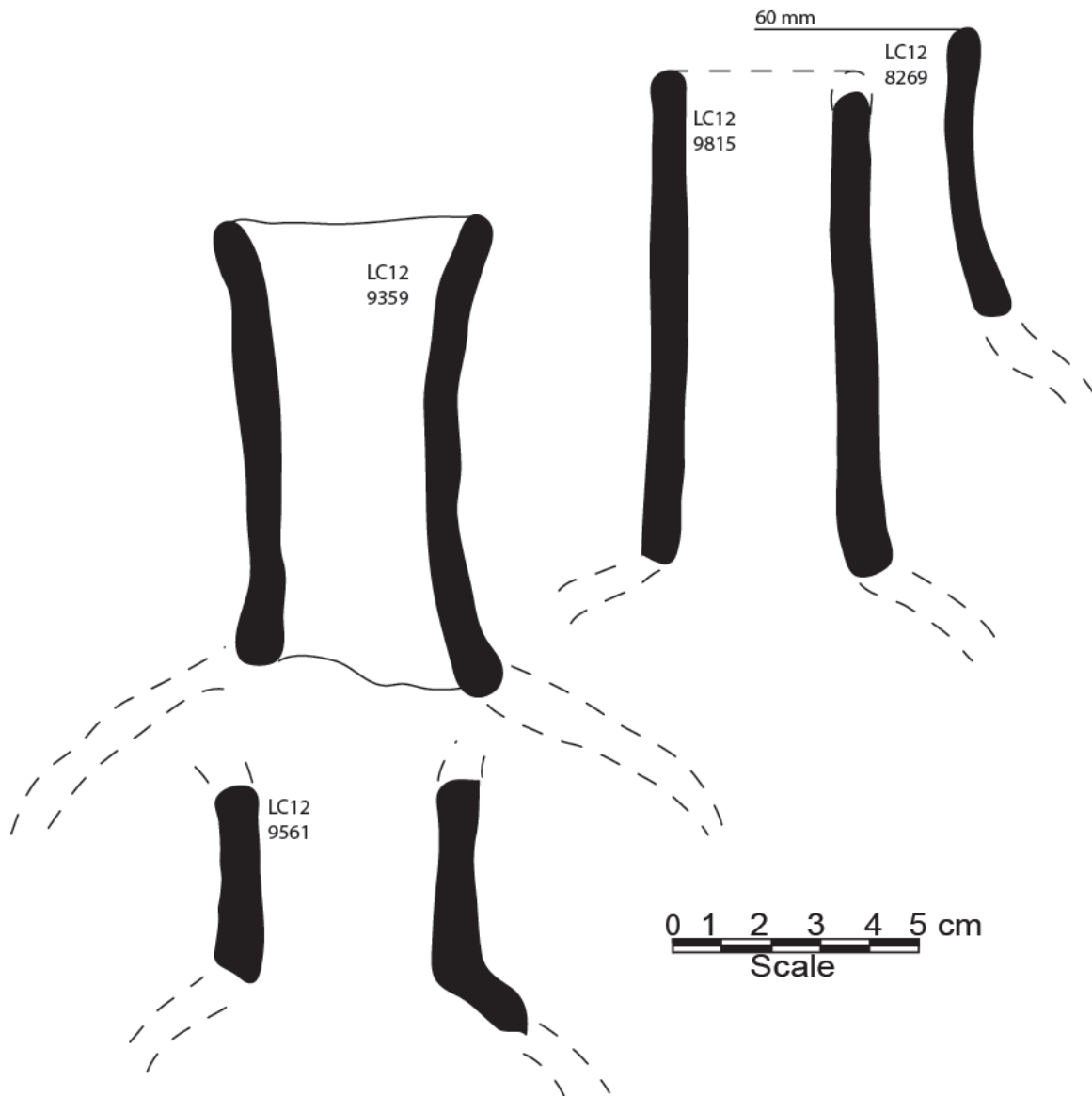


Figure A.1.24: Medium brown ware bottles

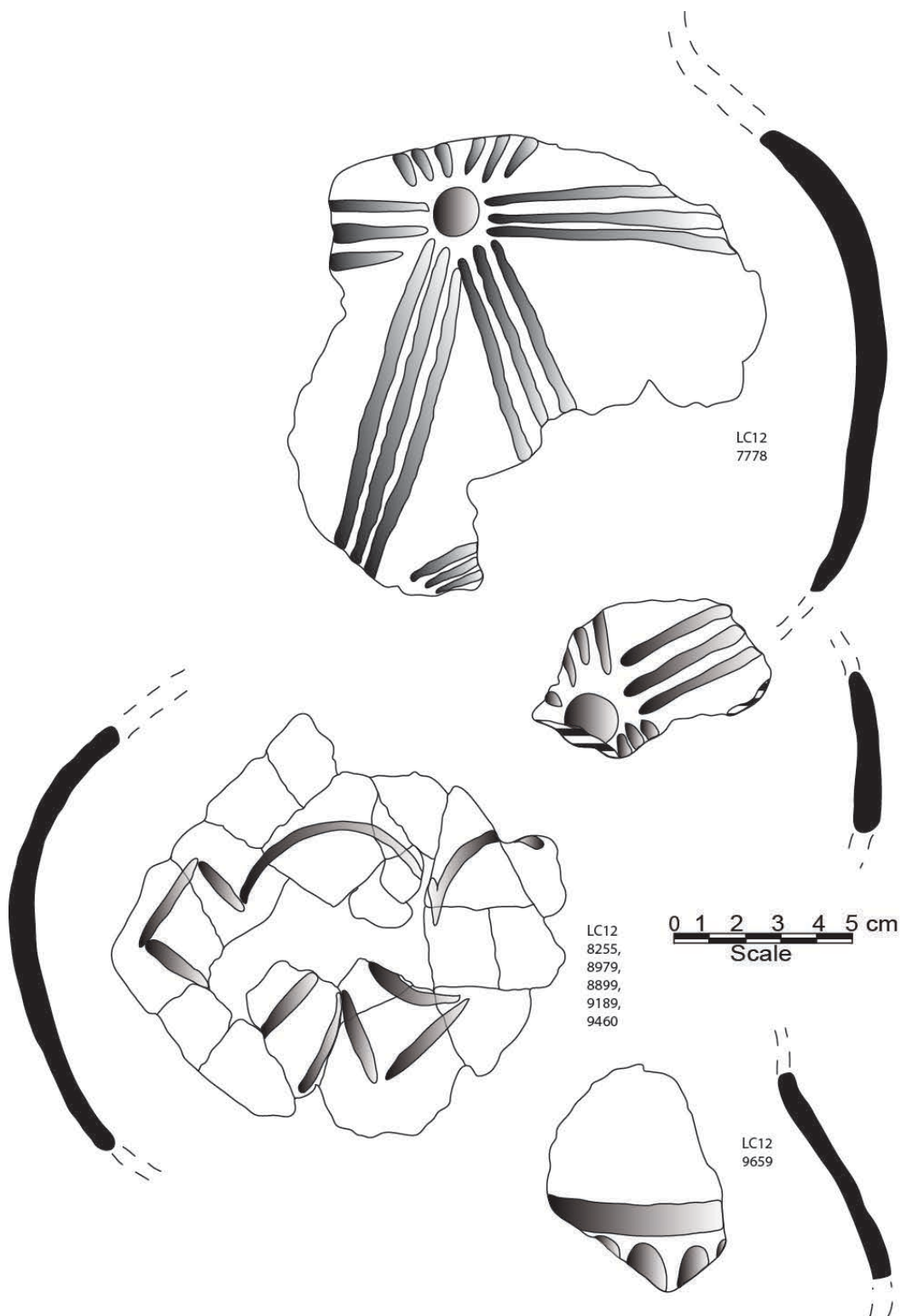


Figure A.1.25: Medium brown ware decorated bottles

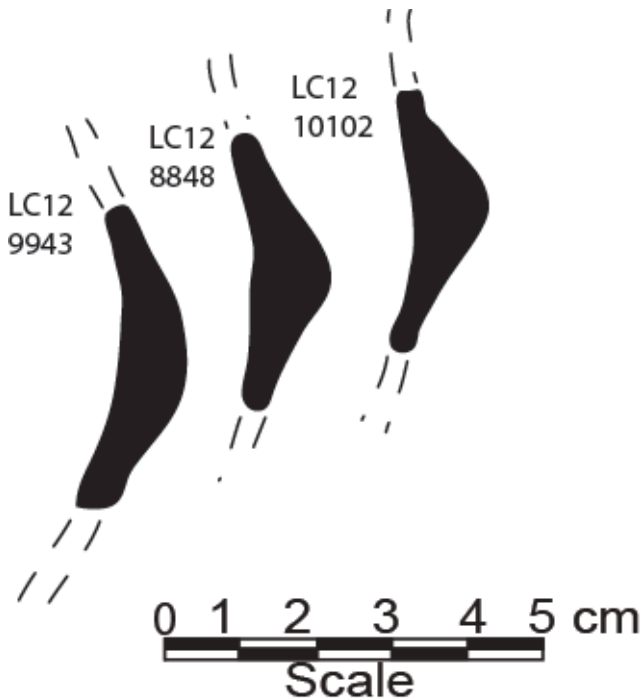


Figure A.1.26: Medium brown ware composite silhouette fragments (possible bottles)

Tecomates

Medium brown ware tecomates (see Figures A.1.27–A.1.28) are a rare vessel category in the Tlacuache phase, though they do occur in diverse contexts at La Consentida, and notably in each of the LC12 D-F4, D-F9, and D-F10, LC12 E-F16 through E-F9, and LC12 H-F4 midden deposits. Some tecomates had large rim diameters of up to at least 260 mm. Rim variations among tecomates include those with interior thickening and others with a very slightly outcurving lip. Variants within the tecomate form also include miniature tecomates and *bule*-shaped vessels. Tecomates sometimes had nicely slipped and burnished surfaces in brown, gray, orange, or black, and occasionally bore impressed decoration in the form of bands around the rim and radiating grooves, somewhat akin to the “gourd-like” phytomorphic form of some Barra phase vessels (see Clark and Blake 1994; Figure A.1.28). Some tecomate rim fragments also have traces of red pigment from a painted decoration that included bands radiating out at

roughly a 45-degree angle from the vessel mouth. As discussed above for coarse ware tecomates, the similarity between body sherds from globular jars and those from tecomates means that the latter are only identified in cases where rims are recovered. For this reason, their relative frequency is likely underrepresented in descriptions of the Tlacuache assemblage.

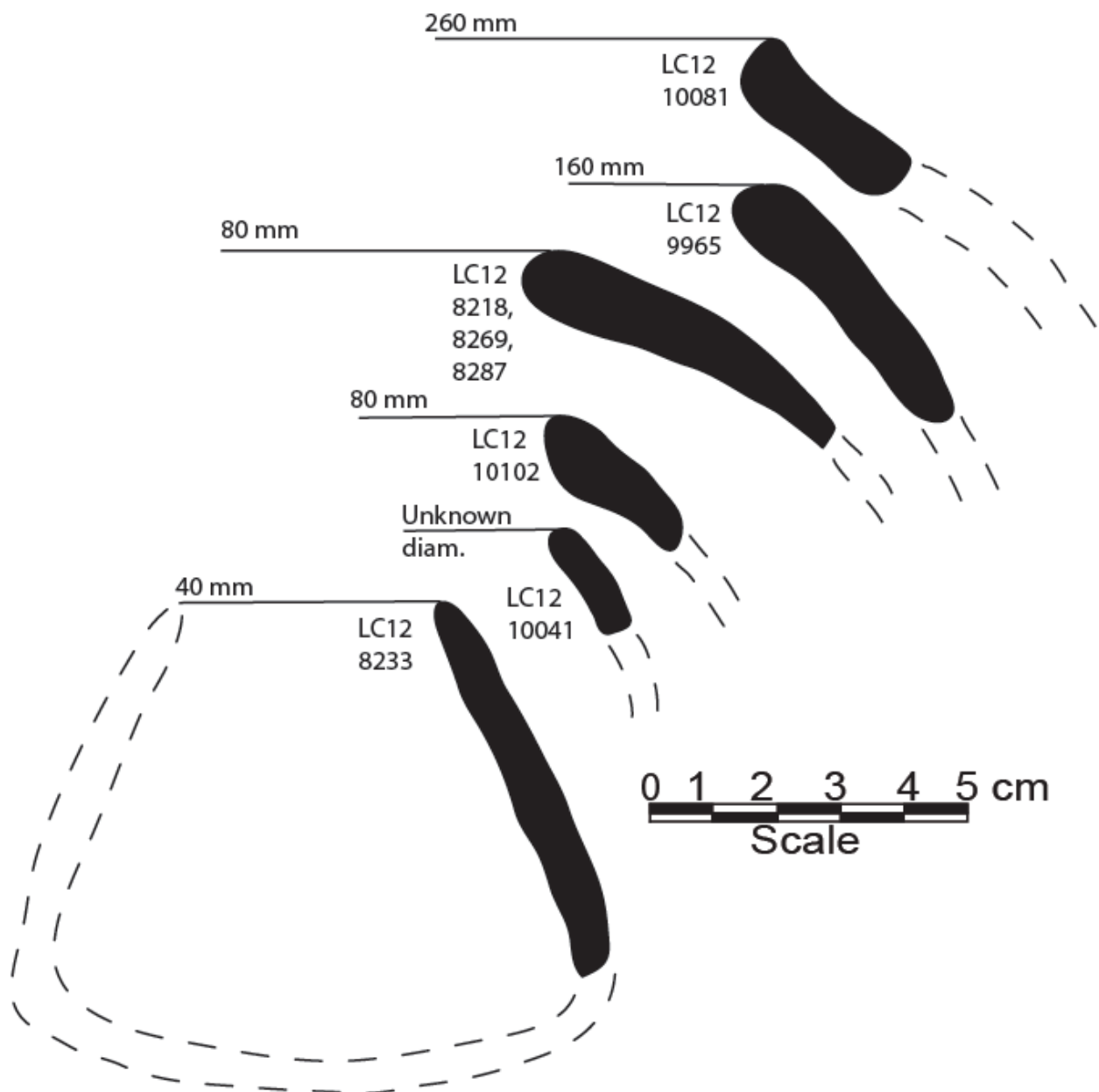


Figure A.1.27: Medium brown ware tecomates and bules

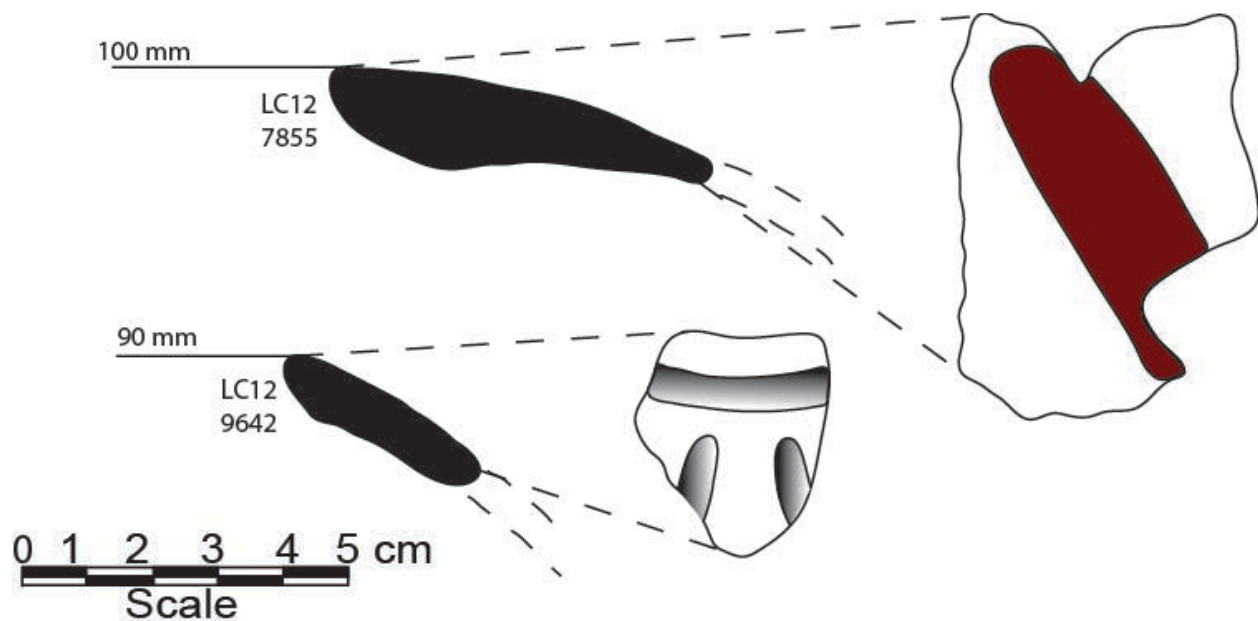


Figure A.1.28: Medium brown ware decorated tecomates

Change over time within the Tlacuache phase assemblage

The vessel forms described above vary in their relative frequencies by excavated context at La Consentida (see Appendix 2). In general, however, the diverse forms of the Tlacuache phase seem to be present throughout the history of site occupation. Nevertheless, there do appear to have been changes over time in the relative frequencies of vessel types, which may indicate that the ceramic styles at the site were changing subtly over the course of occupation. While evidence of these vessel form variations does not yet permit the division of the Tlacuache phase into formal subcategories, the observation of these changes may promote refinement of the ceramic chronology following future research at La Consentida and/or at contemporaneous sites nearby.

It was initially reported (Hepp 2011c) that La Consentida likely saw two phases of occupation, the first resulting in the production of an early version of Platform 1 composed largely of a yellowish silty clay and associated with ceramics bearing well burnished and slipped

surfaces. The second proposed occupational phase resulted, according to initial interpretations, in a more significant effort to construct Platform 1 and the earthen substructures atop it, as well as the interment of several human burials in the area of Op. LC09 B and the use of ceramics with a less well-finished surface that were more susceptible to erosion. The diachronic assessment of ceramics from a deep fill column in Op. LC12 A (analyzing strata F19 through F1) in unit A.0E (see Figure 4.25, Table 4.3) has cast some doubt on the presence of two distinct phases or subphases. Instead of a clear change over the course of site occupation in the vessel types present at La Consentida, the primary vessel categories, including globular jars, conical bowls, and bottles, are present throughout the sequence. Even the interpretation that the construction of Substructure 1 happened later in the occupational history of the site is now in doubt, due to the relatively early deposition of Stratum LC12 A-F11-s1 (see Figures 4.25 and 4.26, Table 4.3, and Chapters V and VII). Instead of clearly discernable phases of occupation, then, it seems more appropriate to discuss minor variations in the relative frequency of certain specific vessel categories at the site.

One type of vessel that seems to have become more common over time during the occupation of La Consentida is the grater bowl. As demonstrated in Figure A.2.21 and Table A.2.3, grater bowls are up to about ten times higher in relative frequency in the domestic contexts associated with the Structure 1 (in Op. LC12 C) and Structure 2 (in Op. LC12 G) as they are in earlier contexts (e.g., LC12 H-F4 and LC12 E-F16 through E-F9). This observation is complicated by two other pieces of information. First, as discussed in Appendix 2, part of the variation in the presence of grater bowls is likely due to the context of their use within the site. As artifacts likely associated with some sort of crafting or food preparation in the domestic

sphere, grater bowls are more commonly recovered in domestic contexts. Second, two relatively early burials of children (B9-I11 and B11-I13) were accompanied by offerings of the most complete examples of grater bowls yet recovered from La Consentida. Nonetheless, the earliest fill deposits throughout the site (e.g., LC09 A-F5, LC12 A-F19, LC12 D-F11) do seem to produce fewer grater bowl fragments than later domestic occupational, fill, and midden deposits (e.g., LC09 B-F10, LC12 G-F1, F2, F16, and LC12 C-F2). One probable change over time in the Tlacuache phase assemblage, therefore, is an increase in the production and use of grater bowls.

Even as grater bowls likely became more common over time at La Consentida, bottles seem to have decreased in frequency. As demonstrated in Figure A.2.22 and Table A.2.4, bottles were ten times more common among diagnostic ceramics in the early LC12 E-F16 through E-F9 midden context than they were in and around the Structure 2 domestic structure excavated in Op. LC12 G. As with the grater bowls discussed above, this observation is complicated by the probable public feasting nature of the Op. LC12 E midden as contrasted to the domestic nature of Structure 2 (see Appendix 2). If bottles were used to serve and consume beverages in public settings, one would expect their recovery in higher numbers in feasting deposits than in households. Several other lines of evidence tend to support the decrease over time of bottles at the site, however. As discussed in Chapter VI, dietary evidence in the form of ground stone food processing tools and indicators of dental attrition indicate that La Consentida's diet shifted from consumption of maize in a non-gritty diet (i.e., likely in beverage form) to the consumption of maize flour processed on stone manos and metates that increased tooth wear even as stable isotopic indicators support relative consistency in absolute C₄ plant

consumption over time (e.g., Figures 6.15–6.30, Tables 6.2–6.4, Appendices 4 and 5). At the risk of somewhat circular reasoning, the apparent decrease over time in the use of ceramic bottles is consistent with a shift from the consumption of maize beverages (perhaps often in feasting contexts) served in bottles to the use of maize flour produced on larger ground stone tools that became more common over time (see Figure A.4.1). Depending on the tasks for which grater bowls were used, their apparent relative increase over time at the site may also be linked to the dietary shift that affected bottle use and ground stone tool variation. Future studies will hopefully include the analysis of sediment trapped in the interior incisions of the grater bowls in order to identify any plant microfossils (such as phytoliths) perhaps preserved therein (see Morell-Hart et al. 2014).

Despite the complicating factors of contextual variation and preservational issues that cause me to question the initial attribution of two occupational phases to La Consentida, a few observations remain accurate. The very earliest ceramics at the site (associated with initial fill such as LC09 A-F5 and LC12 A-F19, natural strata such as LC12 A-N1 and LC12 H-N1, and early dated features such as the LC09 A-F4 hearth) are unequivocally dated to initial occupation and are exceedingly well made. Though of a soft, friable paste likely fired at a low temperature, these mostly medium brown ware vessel fragments are almost all well finished with nicely slipped and burnished surfaces. They occasionally bear decoration in geometric patterns of impressed lines on their exterior (perhaps produced with rounded bone tools such as the crocodilian jawbone tools pictured in Figures 6.12–6.14), and appear to bear more resemblance to later ceramics from West Mexico than they do to contemporaneous ceramics from other early traditions such as the Barra phase (Clark and Blake 1994; I. Kelly 1980; see Chapter VIII).

Later ceramics at La Consentida, while similar enough in overall vessel type variation to preclude separation into a second phase or subphase (on the basis of current data, at least) are often less well preserved than the early examples, lack the well slipped and burnished surfaces of those early sherds, and are more frequently coarse ware vessels with higher relative frequencies of grater bowls and lower relative frequencies of bottles than their forerunners. Even when later ceramics of the Tlacuache phase are well-preserved, their surfaces rarely attain the burnished luster of the earliest examples. They more frequently have pastes that are “sandwiched” in cross section, indicating perhaps a change in vessel firing techniques. Somewhat like the “embarrassingly well decorated” tecomates of the Barra phase, the first vessels of the Tlacuache phase were more finely made than would be necessary for mere utilitarian use, and were likely at least partly intended for use in public events such as feasting (Clark and Blake 1994; Lesure and Wake 2011:85).

In its present form, the Tlacuache phase assemblage is diverse. It includes various kinds of jars, especially those with a globular shape. Bowls are mostly conical, but semispherical examples are also present. The interior incisions of small grater bowls suggest some kind of specific food preparation or crafting activity. Bottles may have been used to serve beverages, and decorated examples were likely used in public events such as feasts. Most vessels had flat bottoms, though some collared jars had round bottoms and likely were suspended by cords, perhaps from house rafters (*see* Clark 1991). Ceramic pastes varied from a sandy medium brown ware to a very coarse brown ware that often took on a reddish, oxidized color during open-air firing. These diverse vessels served the needs of a dynamic community. Refer to Figure A.1.29 for a reconstruction of many of the vessel forms based on all ceramic analyses to date.



Figure A.1.29: A reconstruction of some of the Tlacuache phase vessels

Appendix 2: Within-site Ceramic Vessel Context

Introduction

A key step in understanding the uses of Tlacuache phase ceramics at La Consentida is identifying the contexts within which different vessel types occurred at the site. Depending on how one categorizes these vessels, such intra-site patterns may vary. For example, the ratio of bowls to jars may shift if one chooses to lump both medium and coarse brown ware vessels into single categories of “bowl” and “jar” rather than keeping them divided according to paste. Through experimenting with these varying patterns, one can begin to identify what vessel categories might have been meaningful to the ancient occupants of La Consentida. In this appendix, I discuss variations in the vessel types and relative quantities of decorated ceramics recovered in several key contexts. I pay particular attention to variation between middens, as the vessel types identified in those deposits serve as supporting evidence for arguments made in the body of the dissertation, notably regarding public feasting and food preparation (see Chapters VI and VII). I consider various levels of vessel distinction (e.g., classification according to paste types as well as according to simple macro-categories such as “bowl” and “jar”) in the hopes of identifying practices of vessel use meaningful to the ancient community. I report vessel type variation according to grams of diagnostic fragments recovered. This method causes some distortion of reported vessel values. Large jars, weighing more than most decorated bowls, will be overrepresented, for example. The method is more effective than using sherd counts, however, particularly because the sandy, medium brown ware pastes common in the

Tlacuache phase assemblage are extremely friable. In very few circumstances are vessels complete enough to get an accurate idea of minimum vessel counts, so I have avoided this method for purposes of consistency. Note that any vessel type referred to as “generic” (e.g., “generic jars”) is not a unique vessel category, but instead represents vessel fragments diagnostic enough to be identified as jars (for example), but not diagnostic enough for more specific identification (i.e., globular versus non-globular). The analysis of “generic” fragments permits a more thorough analysis of the contextual variations in basic vessel categories. Finally, at the end of this appendix I present comparisons between analyzed contexts using Chi-square and Fisher’s exact test nonparametric statistics (see Kranzler 2011).¹

Vessel context

Op. LC12 D sheet middens

Thin sheet midden deposits in Op. LC12 D were indicated by the presence of large, well-preserved ceramic sherds at the interfaces between deep fill strata (LC12 D-F11 through F8). These contexts produced 2153.9 g of diagnostic sherds. Other material types in these deposits included shell and burned bone. As demonstrated in Figures A.2.1–3, sherds identified in these strata come from a diverse set of vessel categories including jars, bowls, and bottles. This context produced more tecomate fragments than many others, with tecomates representing 13 percent of medium brown wares (Figure A.2.1). When vessel categories of different pastes in the Op. LC12 D middens are compared (Figures A.2.1 and A.2.2), it is notable that most of the coarse wares are jars (92 percent), while the medium wares are more evenly divided among

¹ All statistical tests and graphical outputs produced using JMPTM Pro 11

several vessel types. This is consistent with site-wide patterns of vessel variation by paste (see Appendix 1). Though jars alone make up 50 percent diagnostic sherds recovered in the Op. LC12 D middens, the deposits appear to result from a mixture of uses rather than from a specific food preparation or serving practice (Figure A.2.3). Relatively high percentages of serving wares such as bottles (15 percent) and conical bowls (17 percent) suggest the deposition of some feasting refuse. Though decorated ceramics could obviously occur in non-feasting deposits such as domestic areas or cooking refuse middens, I refer to their relative frequencies here to support arguments for probable feasting deposits (see Clark and Blake 1994).

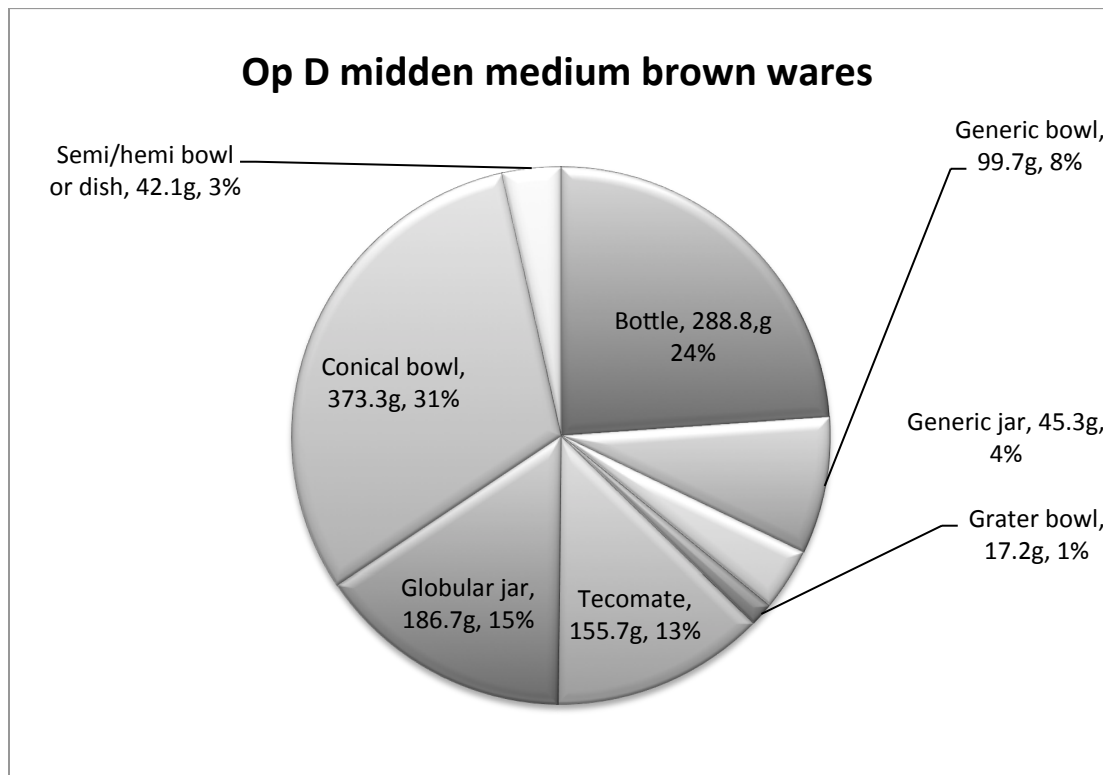


Figure A.2.1: Medium brown ware vessel types in the LC12 D-F11 through F8 middens

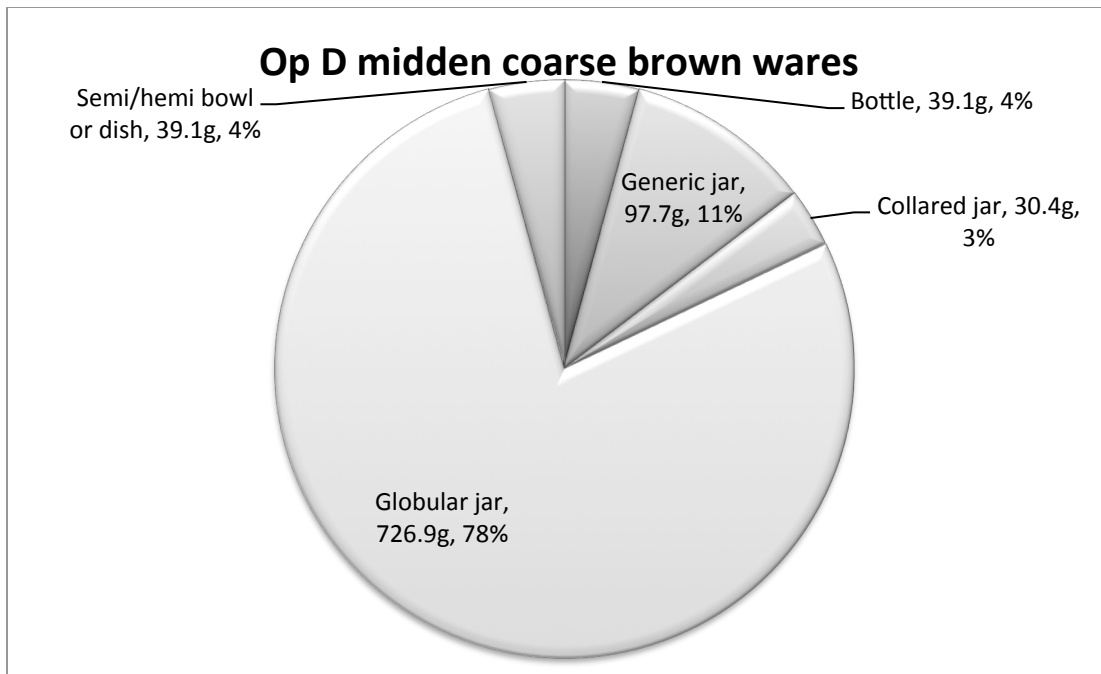


Figure A.2.2: Coarse brown ware vessel types in the LC12 D-F11 through F8 middens

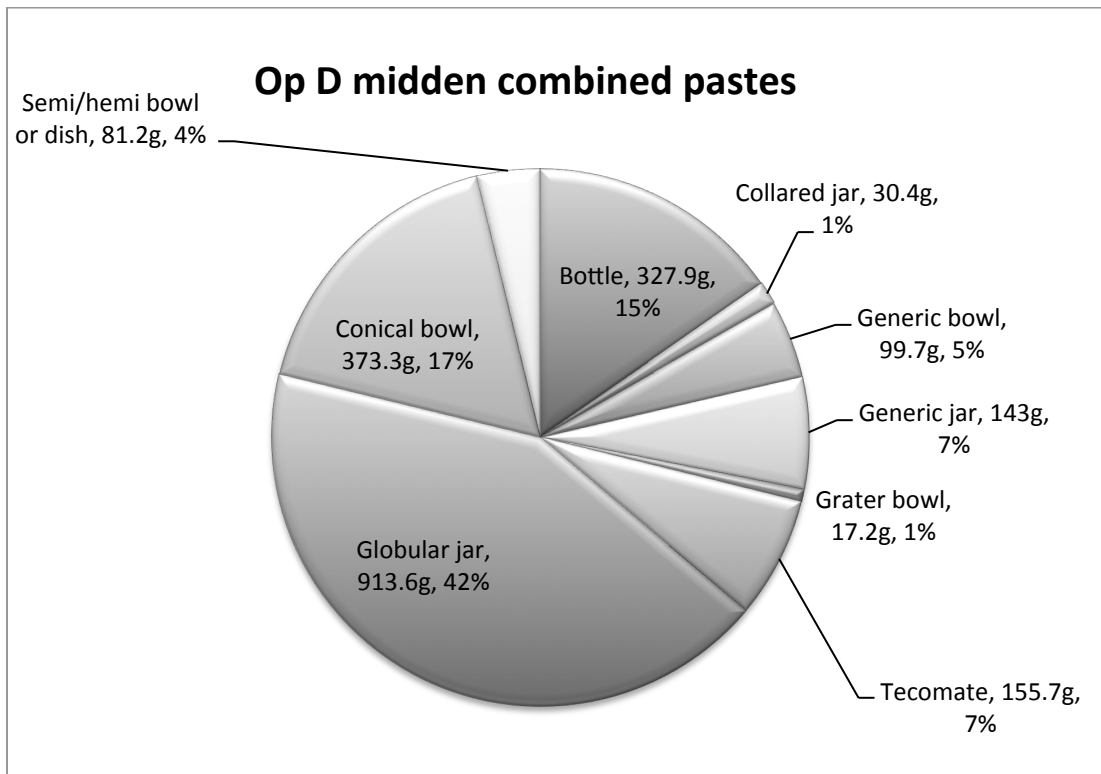


Figure A.2.3: Combined paste vessel types from the LC12 D-F11 through F8 middens

Op. LC12 E midden

The Op. LC12 E midden (LC12 E-F16–F9) was an ashy deposit containing shell, animal bone, and ceramic vessel fragments (see Chapter IV). Among the sherds recovered here were some of La Consentida’s best examples from decorated vessels (see Chapter VIII). The Op. LC12 E midden produced ceramic remains from a variety of vessel types (Figures A.2.4–2.6). Rapidly deposited decorated serving wares (with cross-fits across multiple excavated lots) and well-preserved faunal remains (see Appendix 3 and discussion of decoration below) suggest that the LC12 E midden is likely at least partly the result of public feasting (see Clark 2004a; Clark and Blake 1994; Clark et al. 2007:25; Hayden 1990, 1998, 2009).

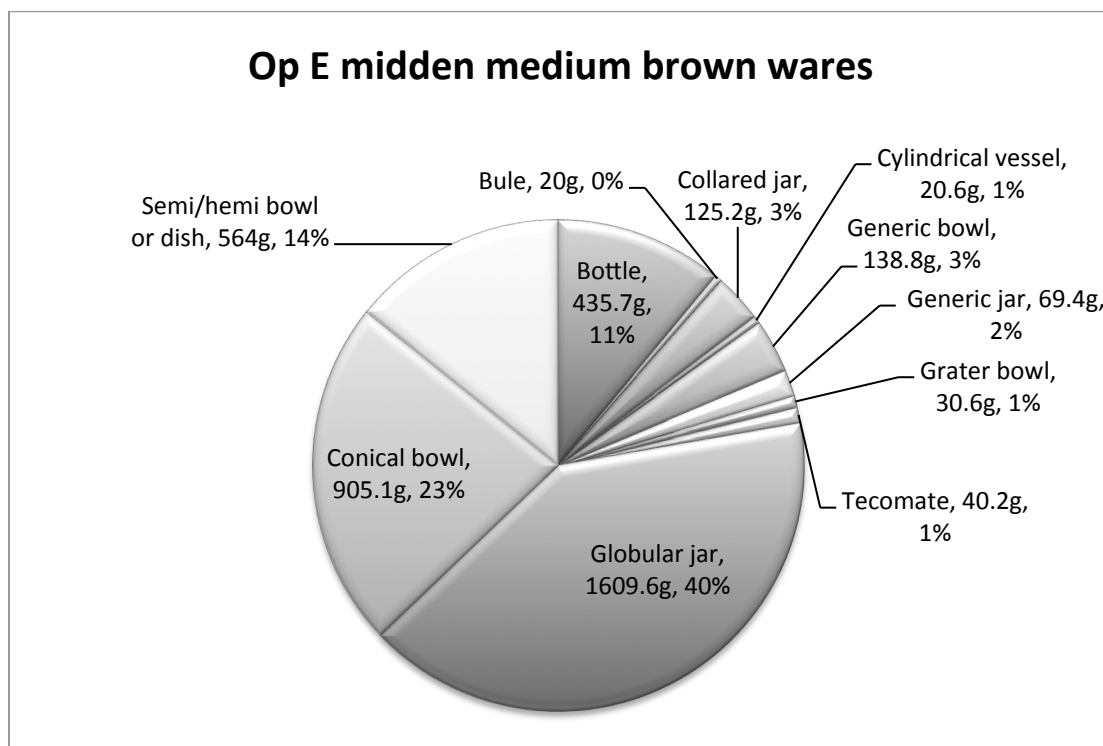


Figure A.2.4: Medium brown ware vessel types from the LC12 E-F16–F9 midden

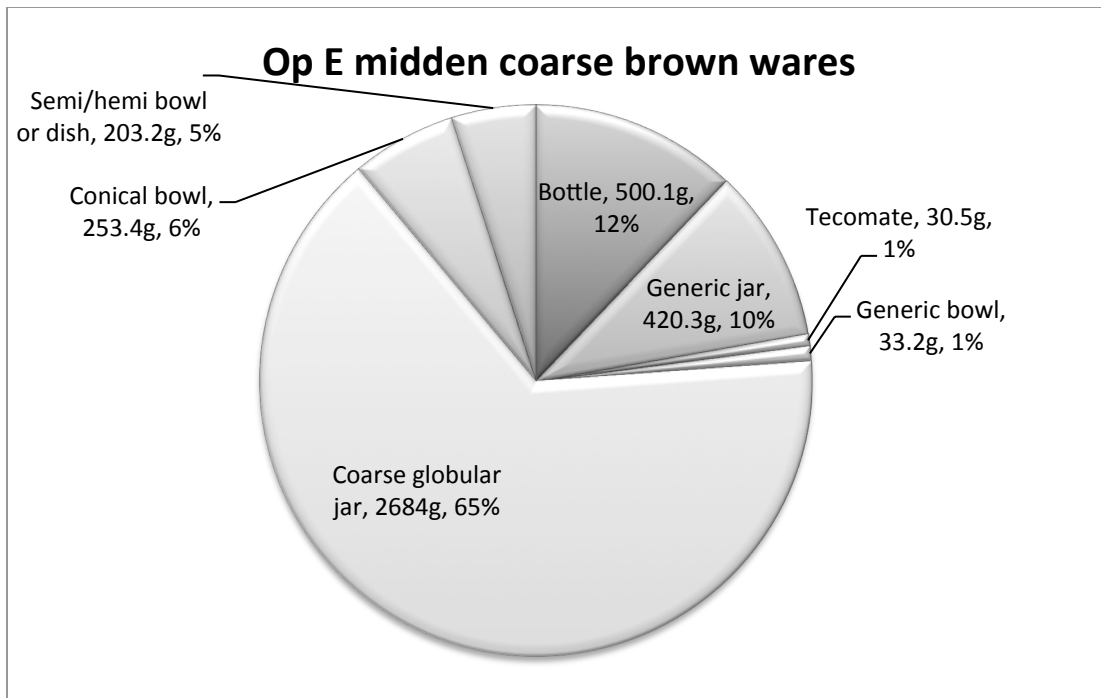


Figure A.2.5: Coarse brown ware vessel types from the LC12 E-F16–F9 midden

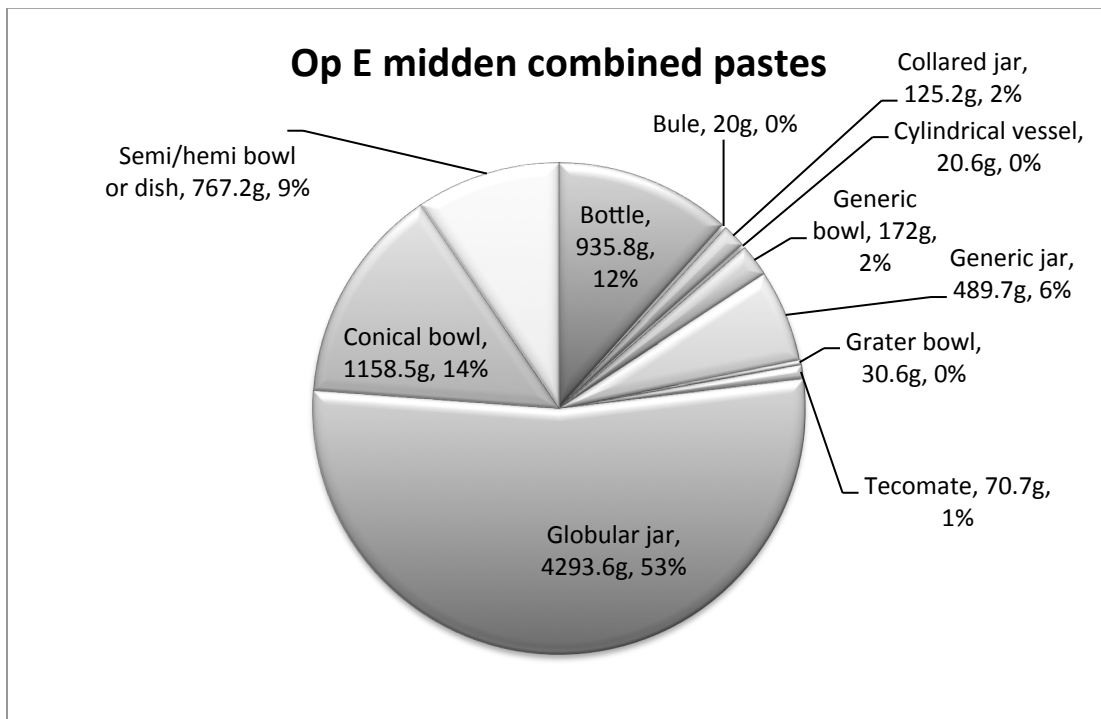


Figure A.2.6: Combined paste vessel types from the LC12 E-F16–F9 midden

Op. LC12 H midden

The Op. LC12 H midden (LC12 H-F4) consisted of a dense deposit of ash and ceramics at the base of the southern end of the Substructure 2 mound (see Figure 3.4). The deposit was immediately notable for its large, well-preserved vessel fragments, some of which refit across about 60 cm of depth. As discussed elsewhere in this dissertation, this pattern indicates the rapid deposition of the midden in only one or a very few dumping episodes (see Chapters IV and VII). The context produced 11519.2 g of diagnostic vessel fragments. What the pie charts displayed below (Figures A.2.7–A.2.9) most clearly indicate is the heavy emphasis on jars in this deposit. Though “generic jars” occur alongside globular jars, it is probable that most of the generic jar fragments are also from globular vessels that were not complete enough to be identified in more detail. Among medium brown wares in the deposit, jars account for 91 percent of diagnostic vessel fragments. Jars account for 98 percent of coarse wares identified in the midden. Among all pastes, jars comprise 93 percent of diagnostic fragments, and many of these were identifiable as globular examples, mostly with outleaning or outcurving necks (e.g., Figures 8.2–8.5).

Because the category of “hemi/semispherical bowl or dish” is largely composed of a single partial vessel (see Figure 8.6), the ceramics from the Op. LC12 H midden are best described as almost exclusively globular jars. Such a high occurrence of a particular vessel type seems to indicate the specific, perhaps almost singular use to which the deposit’s vessels were put. In various global contexts, Prudence Rice has noted that jars often serve as storage vessels (1999) and/or water containers (1987:113). Elsewhere Rice (1987:209–210) has stated that storage jars and cooking vessels overlap considerably. In Oaxaca, jars are often identified as

cooking vessels, by virtue of the carbonized food remains they sometimes contain (Cira Martínez López, personal communication 2014). Jars at La Consentida include a variety of outcurving, outleaning, and inleaning neck types (see Appendix 1). Such variation suggests that Tlacuache phase jars may have served a variety of different purposes. At least some of these jars bore carbonized food remains on the interior, suggesting that they were used for cooking. The radiocarbon date from this vessel fragment, which was collected in stratum LC12 H-F4-s2, is calibrated to 1876–1626 cal B.C. (see Table 1.1).

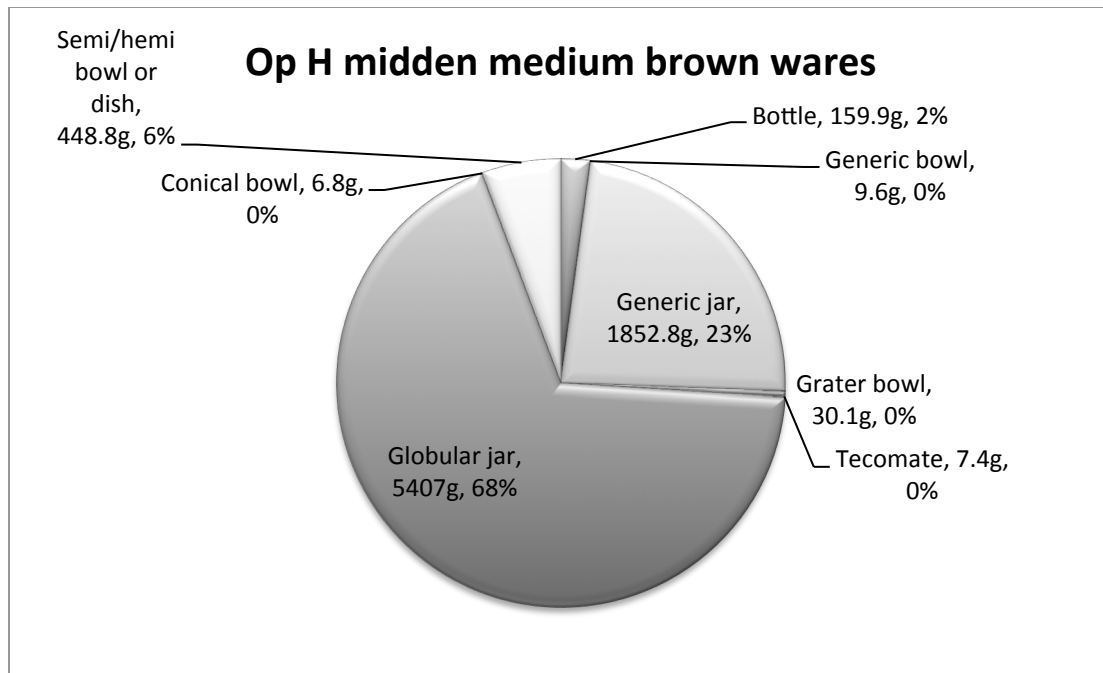


Figure A.2.7: Medium brown ware vessel types from the LC12 H-F4 midden context

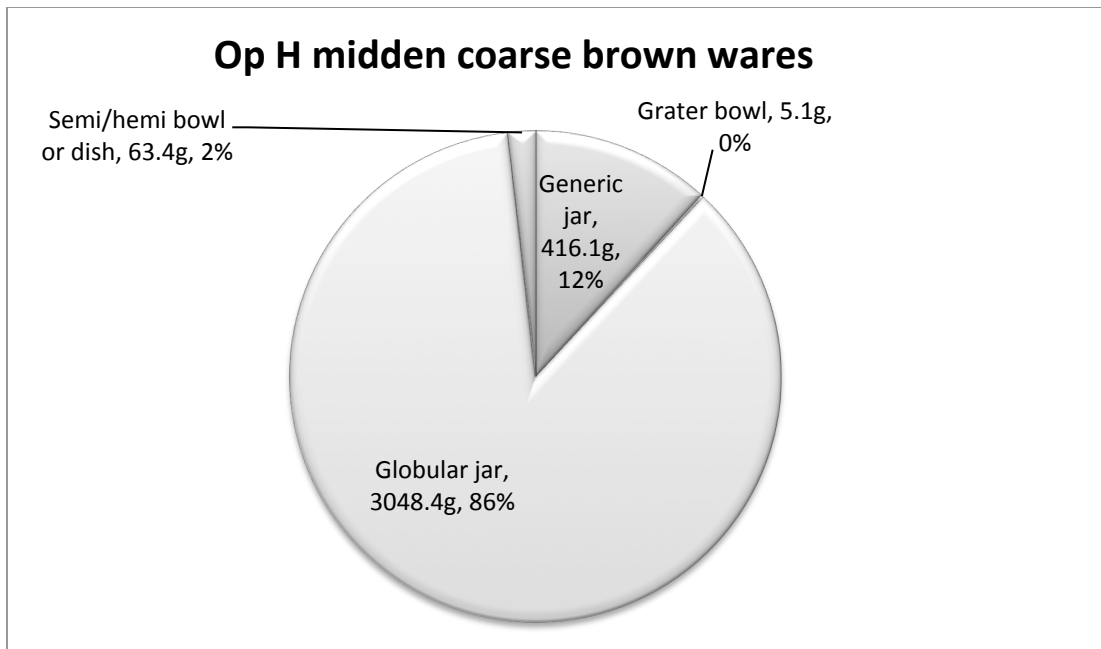


Figure A.2.8: Coarse brown ware vessel types from the LC12 H-F4 midden context

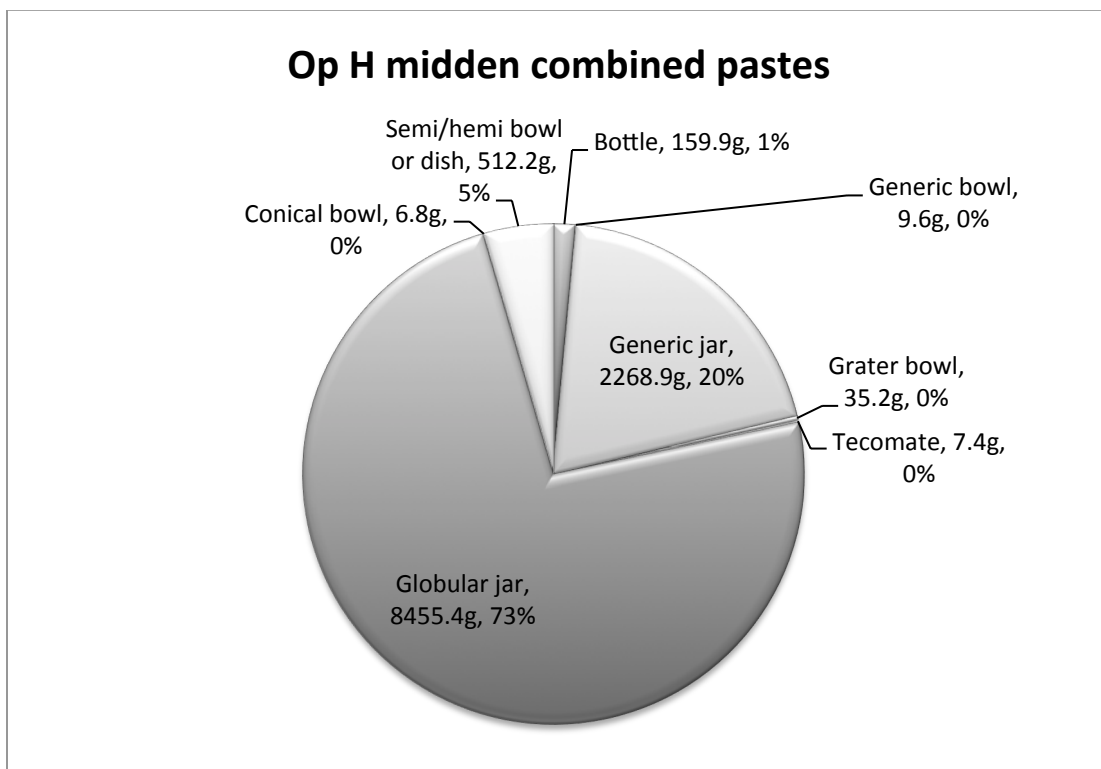


Figure A.2.9: Combined paste vessel types from the LC12 H-F4 midden context

Op. LC09 B Unit 1H, 1J midden

In the northern-most extension of the Op. LC09 B area, excavations uncovered a deep layer of ashy sediment (LC09 B-F17) that contained a modest number of well preserved, and often decorated ceramic vessel fragments and other artifacts (e.g., Figures 7.52, 8.24, and 8.30). Though LC09 B-F17 produced fewer diagnostic ceramics (791.1g in total) than did other deposits discussed in this appendix, it is nonetheless interesting as an example of the vessel assemblage from a context containing ceramics of the earliest style present at La Consentida (see discussion of chronological change in Appendix 1) and as a deposit at the extreme western end of Platform 1 (see Figure 3.5). Analysis of this deposit demonstrates an emphasis on bowls, which comprised 47 percent of medium wares and 48 percent of coarse wares (Figures A.2.10–A.2.12). It is likely due to this relatively high frequency of bowls that the deposit produced such a high percentage of decorated sherds (see discussion below). The context also has low percentages of jars, which comprised 34 percent of medium wares and 46 percent of coarse wares. It is worth noting that the midden's small sample may bias these results. On the basis of the high frequency of bowls (some of which are well-finished and decorated), the relative lack of storage or cooking jars, and iconographic artifacts such as a mask fragment (Figure 7.52), it is likely that this ashy midden deposit results from a feasting event or events.

Op LC09B 1H, 1J midden medium brown wares

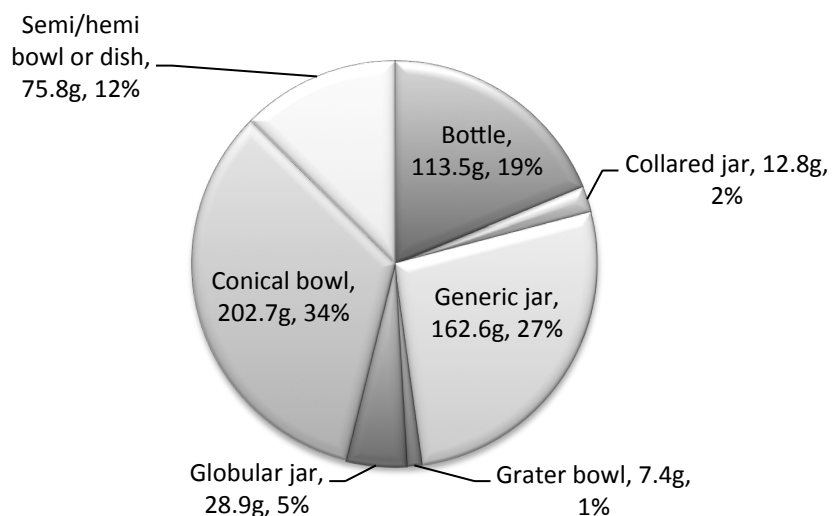


Figure A.2.10: Medium brown ware vessel types from the LC09 B-F17 midden deposit

Op LC09B 1H, 1J midden coarse brown wares

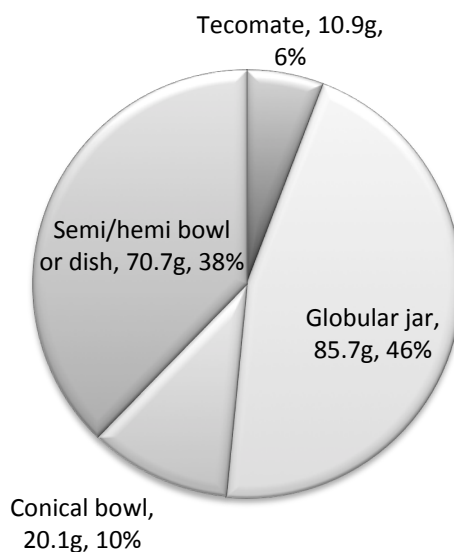


Figure A.2.11: Coarse brown ware vessel types from the LC09 B-F17 midden deposit

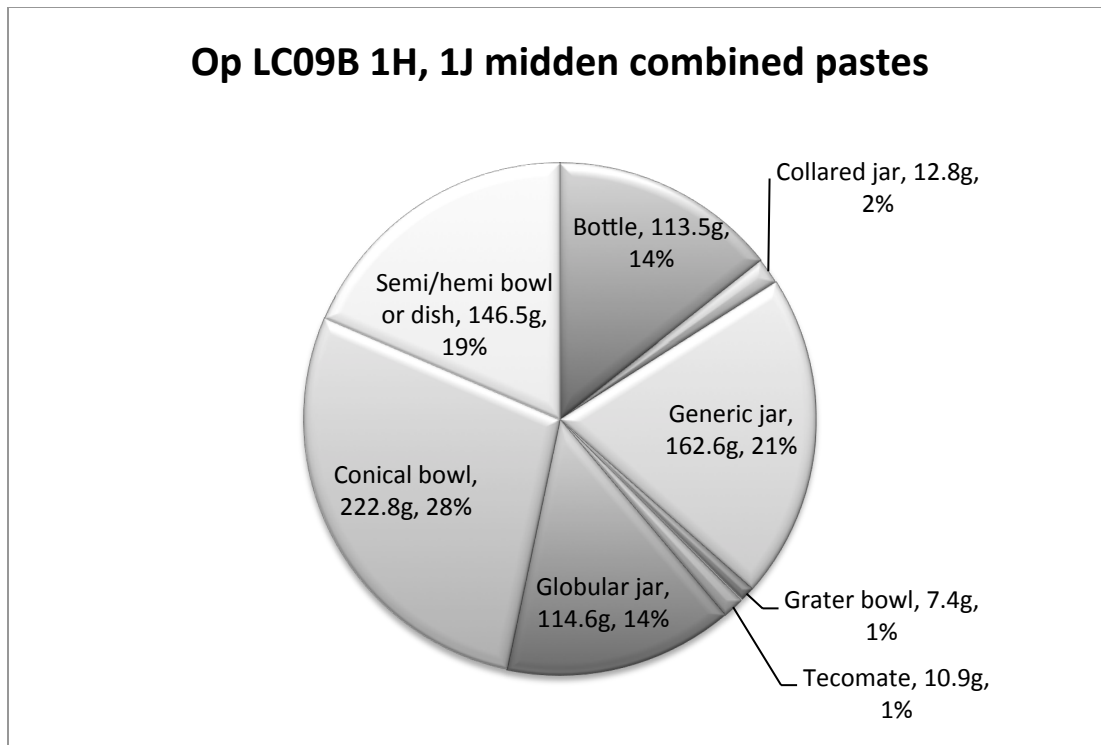


Figure A.2.12: Combined paste vessel types from the LC09 B-F17 midden deposit

Op. LC12 C domestic context

The Op. LC12 C domestic area was defined as the Structure 1 domestic building (a possible house or domestic outbuilding) and surrounding occupational surfaces (LC12 C-F9 through C-F2). While this approach likely combines artifacts from deposits that range somewhat in their chronology, it permits a more holistic analysis of the vessel types associated with probable households atop the northern end of the Substructure 2 mound than would an analysis restricted to materials recovered within Structure 1 itself (see Chapters IV and V). Jars tend to dominate the sample, particularly among the coarse wares. Serving wares, such as bottles and bowls, are also present.

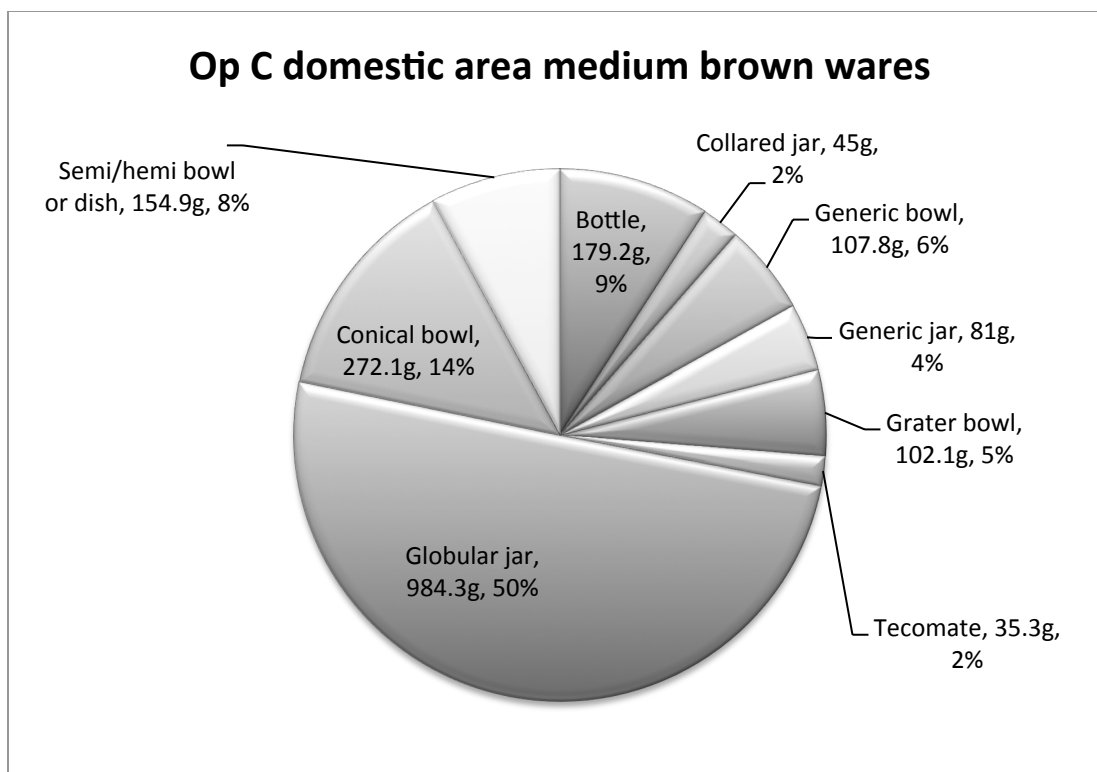


Figure A.2.13: Medium brown ware vessel types from domestic area near Structure 1

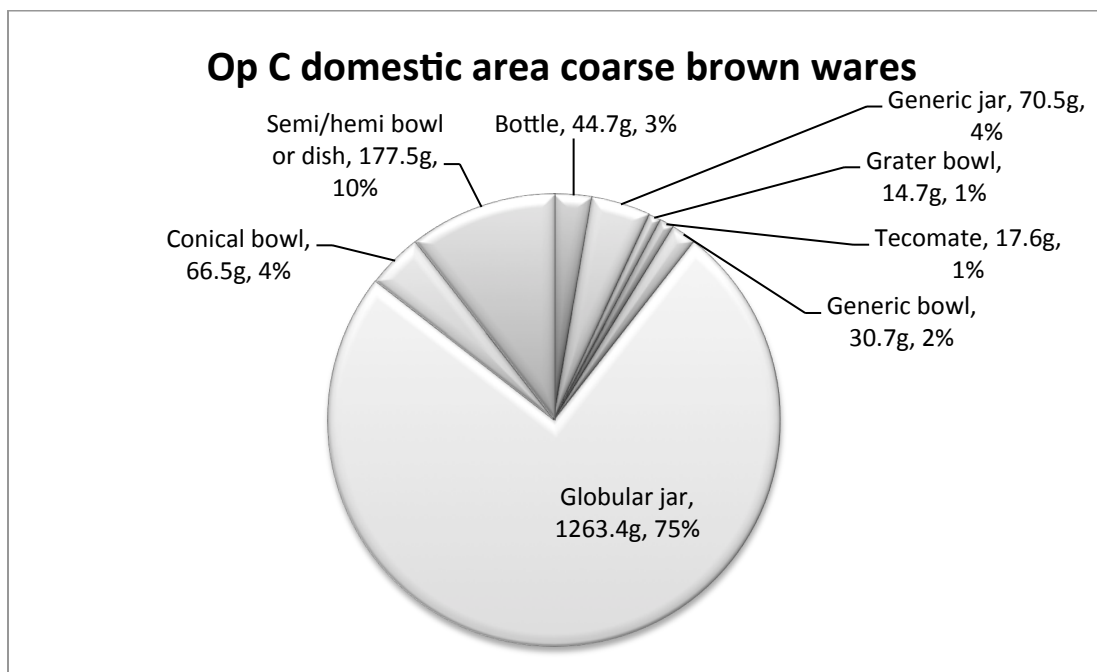


Figure A.2.14: Coarse brown ware vessel types from domestic area near Structure 1

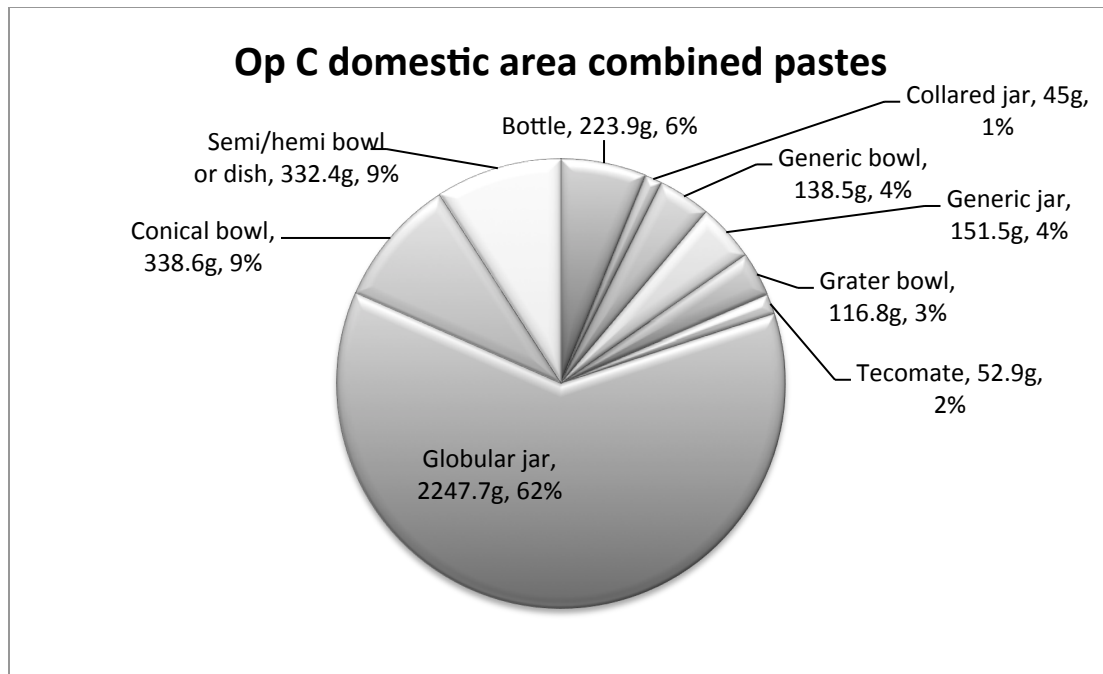


Figure A.2.15: Combined paste vessel types from domestic area near Structure 1

Op. LC12 G domestic context

The Op. LC12 G domestic area was identified as the Structure 2 house remains and surrounding occupational area (LC12 G-F13 through G-F2) with probable domestic refuse (see Chapters IV and V). The context is located just south of the Op. LC12 C domestic area on Substructure 2, and just upslope of the Op. LC12 H midden (see Figure 3.5). The Op. LC12 G domestic area produced 6725.5 g of diagnostic vessel fragments (see Figures A.2.16–18). The context is notable for its high relative quantity of jars (86 percent) and low relative quantities of bowls (10 percent) and bottles (1 percent) when paste types are combined.

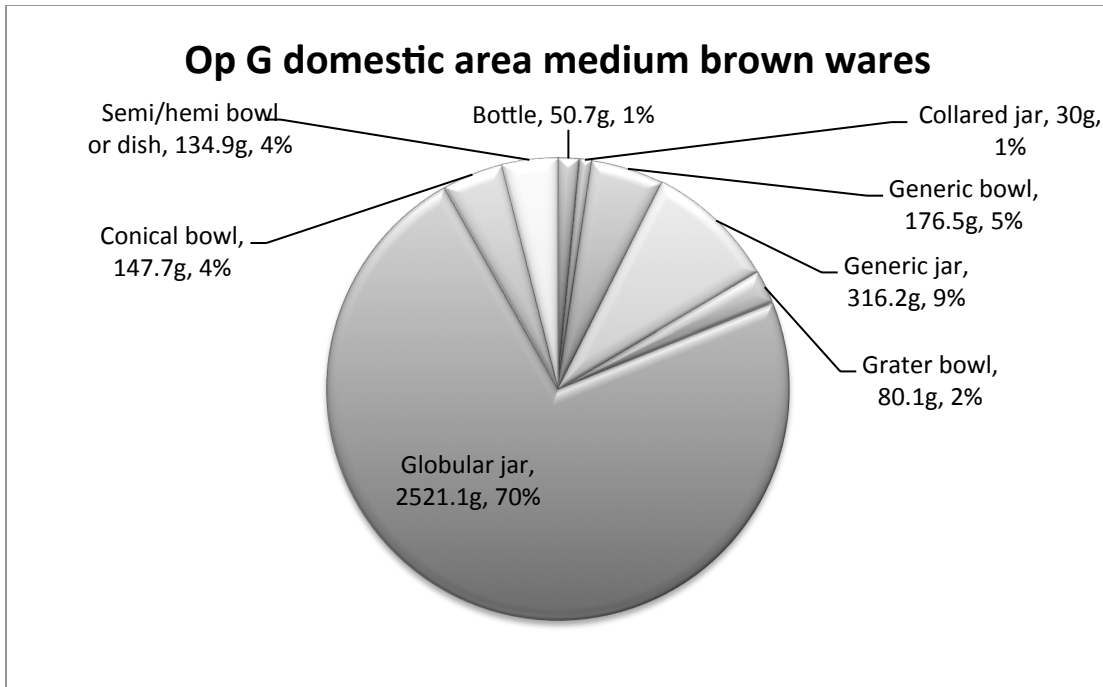


Figure A.2.16: Medium brown ware vessel types from domestic area near Structure 2

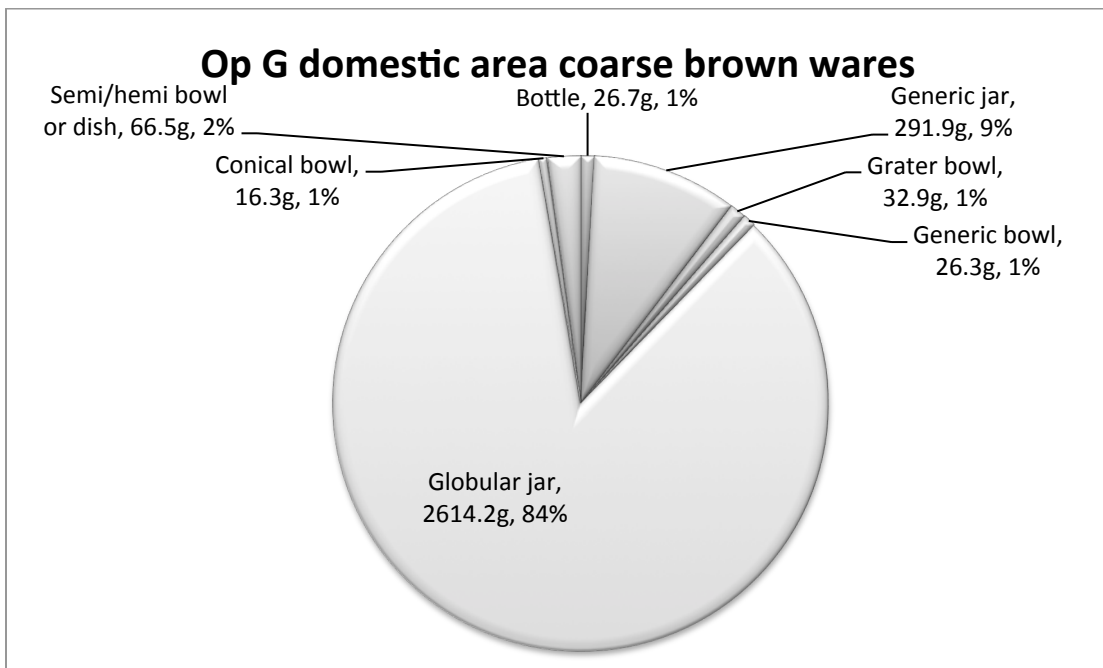


Figure A.2.17: Coarse brown ware vessel types from domestic area near Structure 2

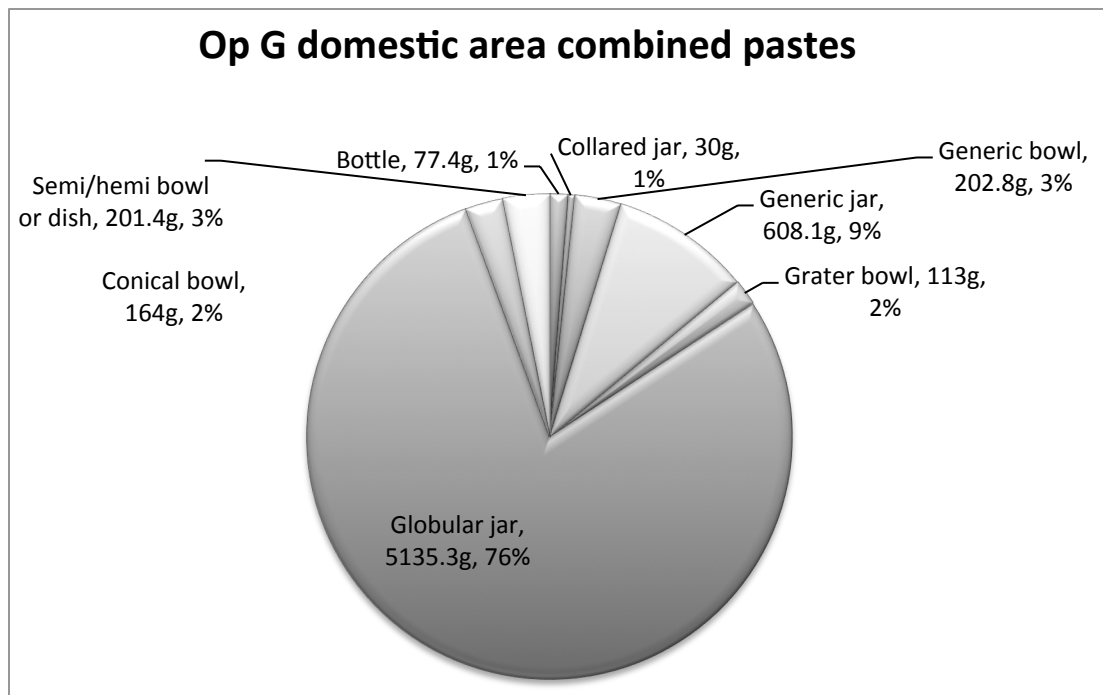


Figure A.2.18: Combined paste vessel types from domestic area near Structure 2

Site-wide variation among vessel types

For the purpose of studying site-wide distributions of vessel categories I combined diagnostic vessel fragments of each vessel type regardless of paste. Among vessel types identified at the site, the high percentage of jars in the collection as a whole is noteworthy. Describing jar variation by context, one can assess the relative percentages of jars between deposits in more detail. The resulting data (Figure A.2.19 and Table A.2.1) indicate the heavy emphasis on jars in all the contexts analyzed, but particularly in the LC12 H-F4 midden and, to a lesser extent, the Structure 2 domestic area. Jars are least common in the LC09B-F17, LC12 D-F11 through F8, and LC12 E-F16–F9 midden contexts. As aforementioned ethnographic information suggests, jars are likely associated with storage, transport, food preparation, or cooking practices rather than with serving. This interpretation is supported by their relative lack

of decoration (see Chapter VIII, Appendix 1, and discussion of decoration below). The relatively lower emphasis on jars in the LC12 D-F11 through F8, LC12 E-F16–F9, and LC09B-F17 middens, and the relatively greater emphasis on serving wares and decorated vessels in those contexts, supports their identification as probable feasting deposits.

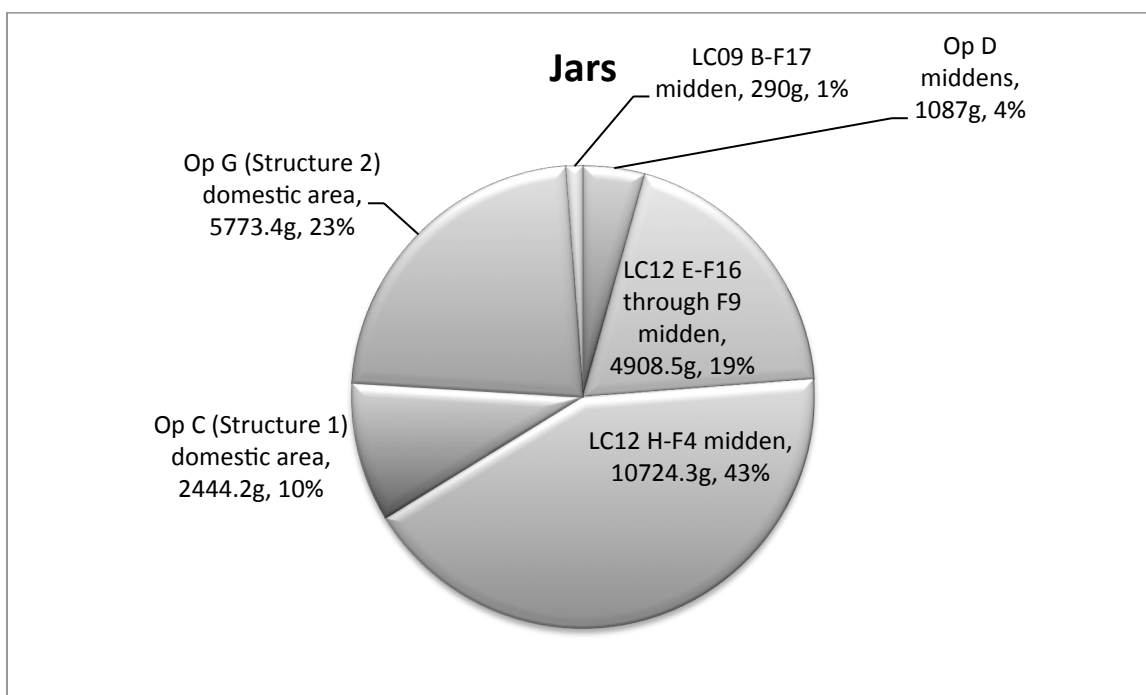


Figure A.2.19: Jars by context

Context	Total diagnostics (g)	Jars (g)	Percentage of jars relative to all diagnostics
Op D middens	2153.9	1087.0	50.5
LC12 E-F16 through F9 midden	8117.5	4908.5	60.5
LC12 H-F4 midden	11519.2	10724.3	93.1
Op C (Structure 1) domestic area	3647.3	2444.2	67.0
Op G (Structure 2) domestic area	6725.5	5773.4	85.8
LC09 B-F17 midden	791.1	290.0	36.7
Averages	5492.4	4204.6	65.6

Table A.2.1: Jars by context

Bowls are the second most common basic vessel category identified in the Tlacuache phase assemblage. Their patterns of within-site distribution (Figure A.2.20 and Table A.2.2) demonstrate that the LC09B-F17, LC12 D-F11 through F8, and LC12 E-F16–F9 middens and the Op. LC12 C (Structure 1) domestic area produced a notably higher percentage of bowls than did the Op. LC12 G (Structure 2) domestic area or the LC12 H-F4 midden. The Op. LC12 E midden produced the largest number of bowl fragments among analyzed contexts, and the LC09B-F17 midden produced by far the highest percentage of bowl remains relative to all diagnostic ceramics. Middens with the highest percentages of bowl fragments were likely associated with events that included the use of serving vessels, as would be the case with public feasts. The lack of bowls and emphasis on jars in the LC12 H-F4 midden supports its identification as a food production midden. The notable differences between the two domestic areas highlight possible economic differences between households, or perhaps some chronological variation not otherwise accounted for. A more detailed discussion of the use of specific bowls is possible with the analysis of grater bowl recovery context, as presented below.

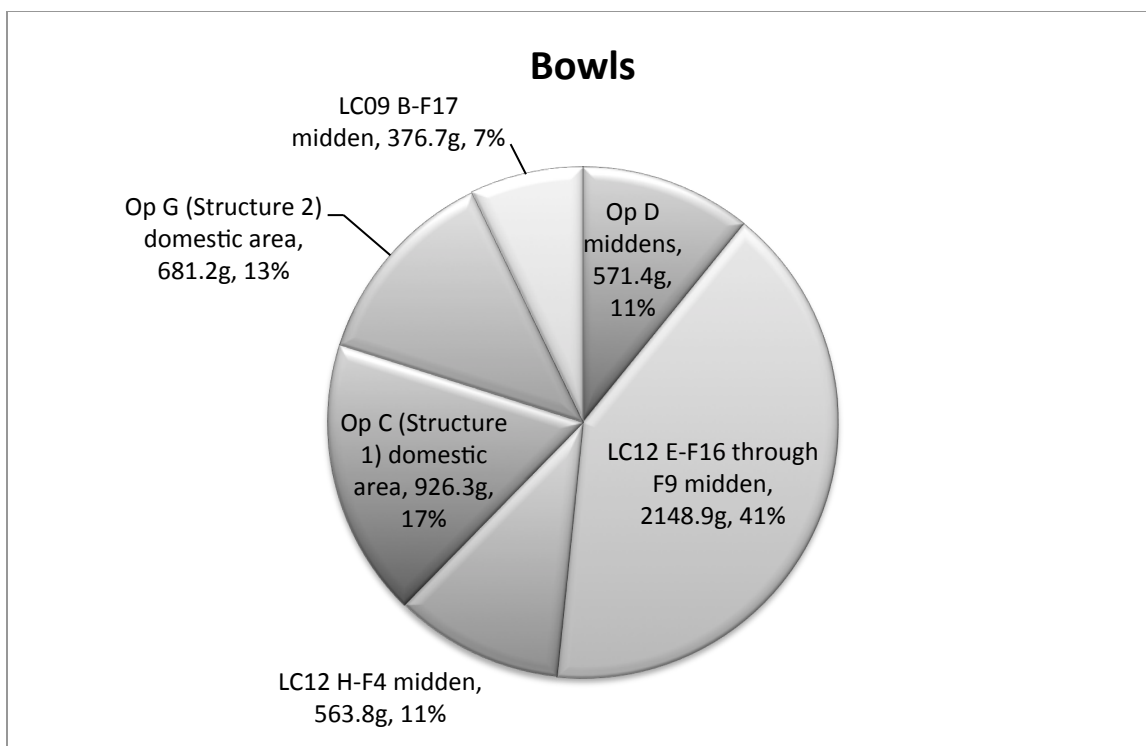


Figure A.2.20: Bowls by context

Context	Total diagnostics (g)	Bowls (g)	Percentage of bowls relative to all diagnostics
Op D middens	2153.9	571.4	26.5
LC12 E-F16 through F9 midden	8117.5	2148.9	26.5
LC12 H-F4 midden	11519.2	563.8	4.9
Op C (Structure 1) domestic area	3647.3	926.3	25.4
Op G (Structure 2) domestic area	6725.5	681.2	10.1
LC09 B-F17 midden	791.1	376.7	47.1
Averages	5492.4	878.1	23.4

Table A.2.2: Bowls by context

Grater bowls among the Tlacuache phase ceramics are a relatively infrequent but ubiquitous vessel type at La Consentida. As demonstrated by the data summarized below (Figure A.2.21 and Table A.2.3), grater bowl fragments occur in all contexts discussed in this

appendix. The identification of grater bowls is aided by their diagnostic interior incisions, which may artificially inflate their numbers relative to other vessel types due to the fact that rim and base fragments are often not necessary for their identification. Conversely, the small size of these artifacts means that the grams of grater bowls recorded may underestimate the numbers of the actual vessels. Regardless, the comparison of relative quantities of grater bowls between contexts suggests some possibly significant patterns about craft production. Notably, the two contexts producing the highest percentages of grater bowls are both identified as domestic areas. The Op. LC12 C (Structure 1) domestic area produced the most grater bowl fragments per unit of diagnostic sherds, with nearly double the percentage calculated for the Op. LC12 G (Structure 2) context. The relative scarcity of grater bowls in deposits interpreted as feasting middens (LC09B-F17, LC12 D-F11 through F8, and LC12 E-F16–F9) suggests that, despite their intricate patterns of interior geometric incisions, these artifacts were infrequently used as fancy serving vessels. As discussed below with regard to worked sherd discs, differences between domestic contexts in the percentages of grater bowl fragments recovered relative to other vessel types may suggest a degree of economic specialization between households. This interpretation is further supported by the inference that grater bowls, perhaps more than any other single vessel type in the Tlacuache phase assemblage, may have been used for some specific activity such as food or pigment processing (*for discussion of grater bowls in other parts of Mesoamerica, see Flannery and Marcus 1994:Fig. 12.74, 12.101; Martínez López et al. 2000:165–166*). These possible economic differences between households could also account for discrepancies in relative frequencies of worked sherd discs, as discussed below.

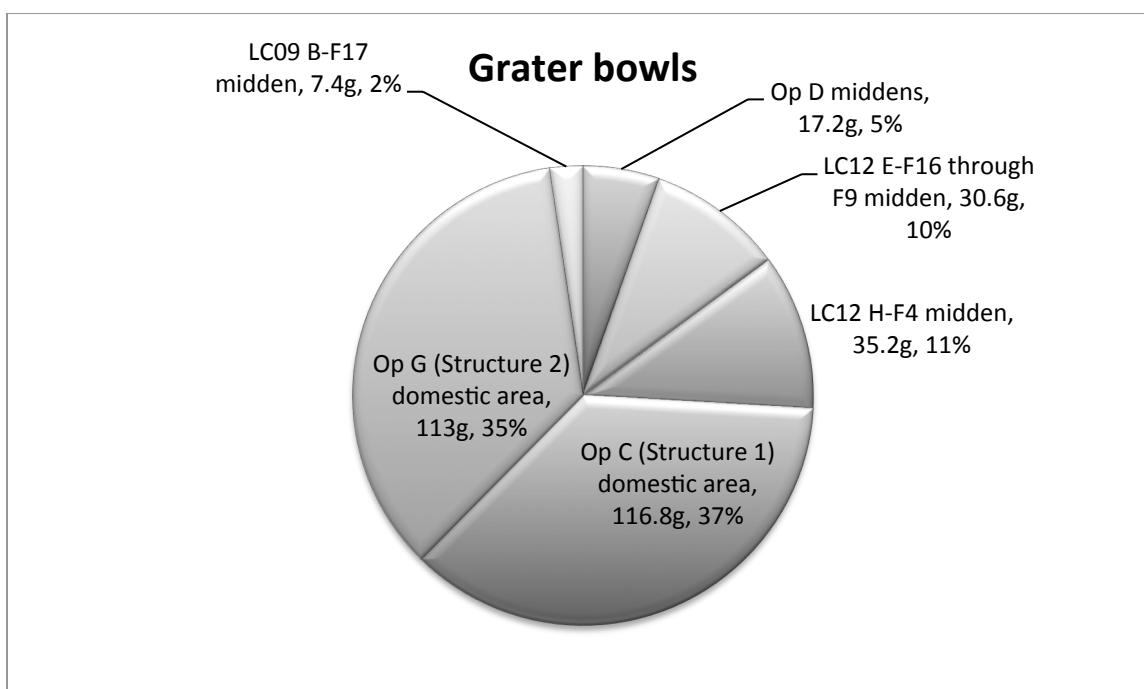


Figure A.2.21: Grater bowls by context

Context	Total diagnostics (g)	Grater bowls (g)	Percentage of grater bowls relative to all diagnostics
Op D middens	2153.9	17.2	.8
LC12 E-F16 through F9 midden	8117.5	30.6	.4
LC12 H-F4 midden	11519.2	35.2	.3
Op C (Structure 1) domestic area	3647.3	116.8	3.2
Op G (Structure 2) domestic area	6725.5	113.0	1.7
LC09 B-F17 midden	791.1	7.4	.9
Averages	5492.4	53.4	1.2

Table A.2.3: Grater bowls by context

Among basic vessel categories of the Tlacuache phase, bottles are the third most common type, behind jars and bowls. Their greater relative frequency in the LC09B-F17, LC12 D-F11 through F8, and LC12 E-F16–F9 middens, in comparison with the Structure 1 and Structure 2 domestic areas and especially with the LC12 H-F4 midden, is noteworthy (Figure

A.2.22, Table A.2.4). In general, the discard context of bottles appears to be associated with remains of feasting deposits rather than storage/cooking middens (i.e. LC12 H-F4) or domestic areas. Within domestic contexts, their relative frequencies once again suggest some differences between the Op. LC12 C (Structure 1) and LC12 G (Structure 2) household areas. Rosemary Joyce (2003:249–250) has identified bottles as among the vessel types used for serving at public functions in ancient Mesoamerica, along with “finely-finished and decorated serving bowls.” Their presence in some of La Consentida’s middens further suggests the probable feasting events associated with these deposits, while their occurrence at the Op. LC12 C domestic area may indicate a locus of their production, decoration, storage, or a staging area for public feasts.

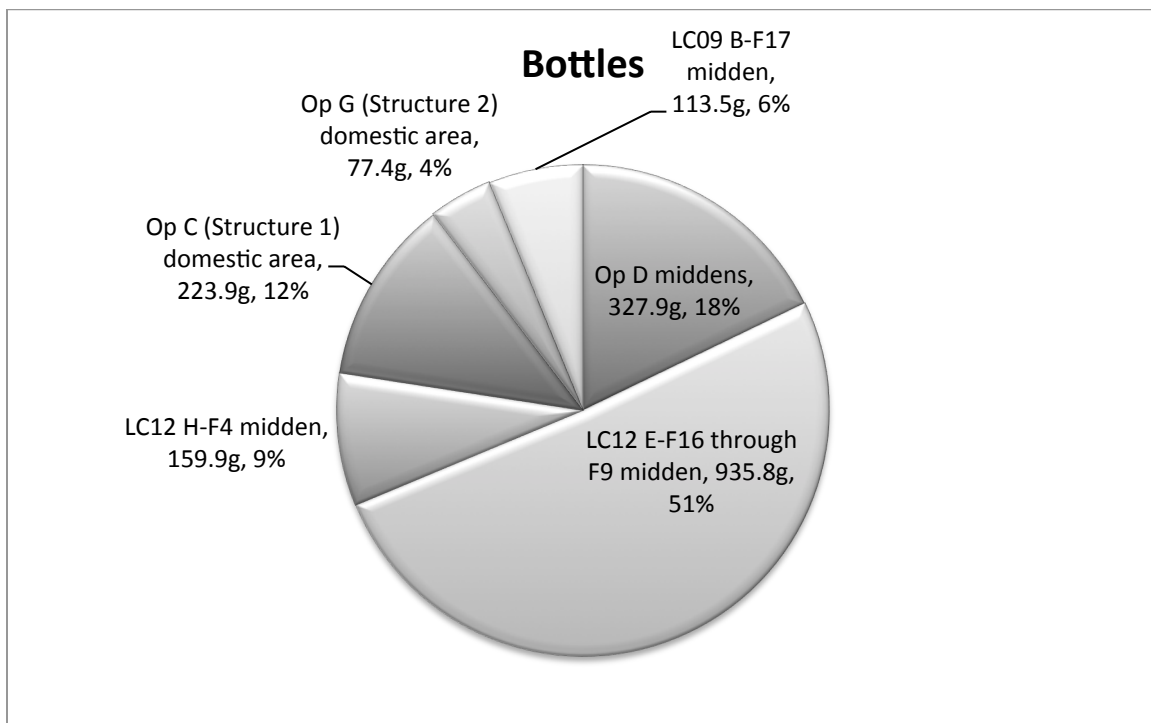


Figure A.2.22: Bottles by context

Context	Total diagnostics (g)	Bottles (g)	Percentage of bottles relative to all diagnostics
Op D middens	2153.9	327.9	15.2
LC12 E-F16 through F9 midden	8117.5	935.8	11.5
LC12 H-F4 midden	11519.2	159.9	1.4
Op C (Structure 1) domestic area	3647.3	223.9	6.1
Op G (Structure 2) domestic area	6725.5	77.4	1.2
LC09 B-F17 midden	791.1	113.5	14.2
Averages	5492.4	306.4	8.3

Table A.2.4: Bottles by context

One category of relatively rare ceramic artifact that is not a vessel type *per se*, but which may indicate a specific crafting activity or set of related activities, is that of worked sherd discs. These perhaps served as grinders, weights, lids, or for some unknown purpose. As discussed in Chapter VI, similar sherd disc tools occur in the Valley of Oaxaca's Tierras Largas phase (Ramírez Urrea 1993:Fig. 72). It is noteworthy is that nearly 3 percent (193.5 g) of the diagnostic ceramics from the Op. LC12 G (Structure 2) domestic context are worked sherd discs. While this amount may seem small, when all contexts are compared with regard to the presence of sherd disc tools, the Op. LC12 G domestic area produced 64 percent of all examples for contexts discussed in this appendix, regardless of the amount of sediment excavated or the quantity of diagnostic sherds recovered (see Figure A.2.23). The Op. LC12 G domestic area had nearly five times as high a percentage of worked sherd discs as any other context discussed in this appendix, and may have been involved in different crafting activities than other areas. (Table A.2.5).

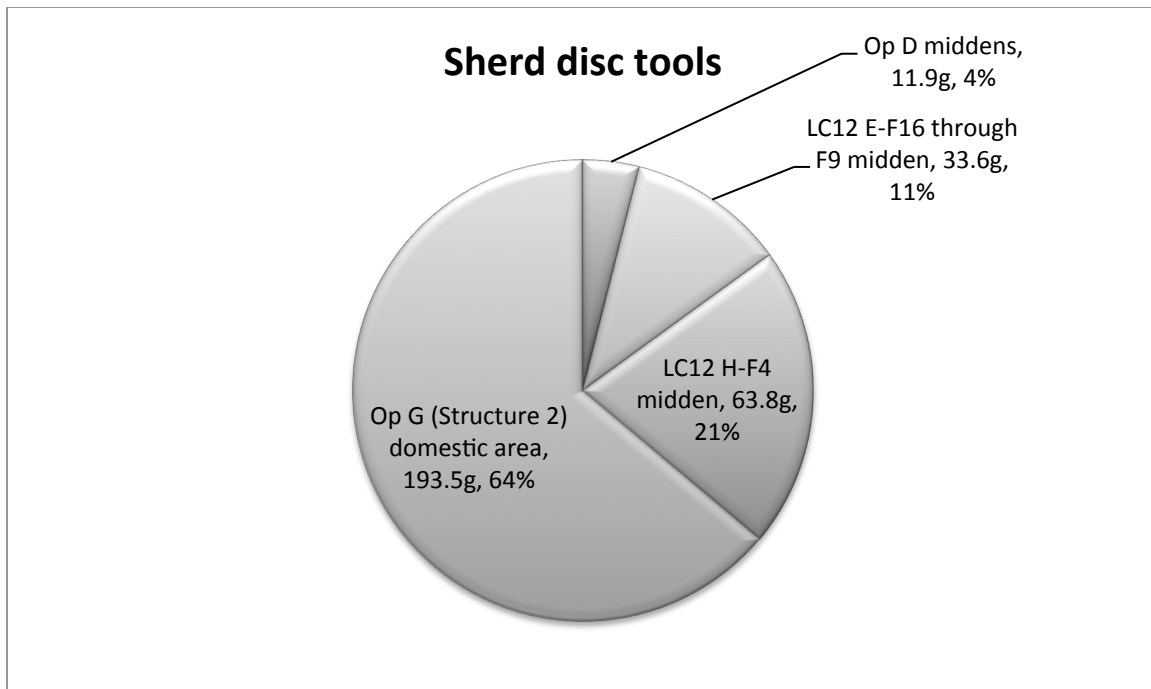


Figure A.2.23: Sherd disc tools by context

Context	Total diagnostics (g)	Sherd disc tools (g)	Percentage of sherd disc tools relative to all diagnostics
Op D middens	2153.9	11.9	.6
LC12 E-F16 through F9 midden	8117.5	33.6	.4
LC12 H-F4 midden	11519.2	63.8	.6
Op C (Structure 1) domestic area	3647.3	0.0	0.0
Op G (Structure 2) domestic area	6725.5	193.5	2.9
LC09 B-F17 midden	791.1	0.0	0.0
Averages	5492.4	50.5	0.8

Table A.2.5: Sherd disc tools by context

Vessel decoration

The argument that some middens, such as the one in Op. LC12 E, resulted from feasting is in part based on the presence of decorated ceramic vessels. Authors such as Clark and Blake (1994) have argued that decorated pottery such as that of the Barra phase was used

in public feasting events. While decorated vessel fragments are generally rare at La Consentida, their recovery in different quantities, and in conjunction with other evidence of feasting such as serving wares (i.e., bowls and bottles) and faunal remains, suggests the use of decorated ceramics in public events such as feasts. When the percentages of decorated ceramics in different midden contexts at La Consentida are compared, it is clear that the Op. LC12 H midden contained a far lower relative quantity (1.9 percent) of decorated ceramics than did other deposits (Table A.2.6). The Op. LC12 E midden and Op. LC12 D sheet midden deposits (located at the interfaces of the LC12 D-F11 through F8 fill layers) contained relatively high quantities of decorated ceramics (9.5 and 8.5 percent, respectively). The Op. LC09 B midden (LC09 B-F17) produced by far the highest relative quantity of decorated ceramics (53.5 percent), though the small sample of diagnostic ceramics excavated from this context may partly explain this circumstance. Many scholars (e.g., Clark and Cheetham 2002:294; Hayden 1990; Lowe 1975; Rosenswig 2007) view feasting as part of a suite of communal events sparking initial social complexity. Possible feasts at La Consentida, in which decorated ceramics were apparently employed, may also have been one of the public venues for the use of artifacts such as musical instruments and ceramic masks.

Context	Total diagnostics (g)	Decorated ceramics (g)	Percentage of decorated ceramics relative to all diagnostics
Op D middens	2153.9	184	8.5
Op E midden	8117.5	773	9.5
Op H midden	11519.2	218	1.9
Op LC09 B 1H, 1J midden	791.1	428	53.5
Averages	5645.4	400.8	18.4

Table A.2.6: Relative frequencies of decorated ceramics by midden context

Comparing analyzed contexts

As discussed above, comparison of the middens excavated at La Consentida suggests that they were produced by different activities. Comparisons of domestic areas indicate that they were relatively similar to one another, but nonetheless demonstrate some differences when carefully analyzed. In this section, I discuss similarities and differences between various contexts and apply Chi-square and Fisher's exact test nonparametric statistics (Figures A.2.24–26) to test my interpretations.² Two contexts that contained surprisingly similar artifact assemblages are the Op. LC12 D sheet middens and the Op. LC12 E midden. The Op. LC12 E midden produced a slightly lower percentage of medium brown ware bowls (42 percent, counting cylindrical vessels) than the Op. LC12 D middens (43 percent) (Figures A.2.1 and A.2.4). The Op. LC12 E midden also contained a lower percentage of jars (75 percent) among coarse wares than the Op. LC12 D middens (Figures A.2.2 and A.2.5). In general, the Op. LC12 D and LC12 E middens contained similar ratios of vessel types, though the latter produced a lower percentage of tecomates, a lower percentage of bottles, and a higher percentage of jars overall (Figures A.2.3 and A.2.6). Both the Op. LC12 D and LC12 E middens contained nicely slipped and decorated sherds, though more complete examples occurred in the more extensively excavated

² Comparisons between all contexts are likely affected by sample sizes. For example, the Op. LC12 E midden produced nearly four times as many grams of diagnostic ceramics as the LC12 D middens produced, at 8117.5 g. The statistical tests employed here are therefore performed on percentages of vessel types to control for the sizes of excavated areas. Because rare artifact classes such as *bules*, tecomates, and worked sherd discs needed to be eliminated in order to comply with the theoretical requirements of Chi-square analyses, percentages per contexts do not equal 100 (see Kranzler 2011). This is not problematic, since vessel category percentages are treated as real numbers to control for sample sizes. Note that each analysis presented compares the contexts in question with site averages (produced by combining the six contexts discussed in this appendix) to demonstrate where particular deposits deviate from the norm.

LC12 E area (see Figures 8.25 and 8.28). As demonstrated in Table A.2.6, both these contexts produced relatively high percentages of decorated ceramics compared to a probable food preparation midden (LC12 H-F4), though neither context produced the extremely high relative proportion of decorated vessels that the LC09 B-F17 midden context did.

The similar assemblages of the Op. LC12 D and LC12 E middens suggest that the deposits result from similar activities, which likely differed from those producing the Op LC12 H midden (see discussion above). The high percentage of jars and a near lack of bowls (particularly of conical bowls, which bear fancy surface treatment and decoration more frequently than do hemi/semispherical examples) suggest different uses for the ceramics in the LC12 H-F4 midden than those in the other two areas. Based on the ethnographic evidence regarding jar use that I discussed above, as well as the ashy nature of the midden matrix itself, it is probable that the Op. LC12 H midden resulted from food preparation (see Skibo and Feinman, eds. 1999). The rapid deposition of numerous large jars in just a single or a very few discard events may suggest that the refuse resulted from an infrequent event such as cooking food for a public feast.

On the basis of its domestic nature, the Op. LC12 C context is most comparable to the LC12 G domestic area. It is worth noting that the vessel assemblage in the Op. LC12 C area is diverse and that the ratios are similar to those of the Op. LC12 D and LC12 E middens. In comparison with the Op. LC12 C domestic context, Op. LC12 G produced more jars (80 percent among medium brown wares and 93 percent among coarse wares). This context contained a high percentage of jars second only to that in the LC12 H-F4 midden, which is located nearby, and which may result from activities on the same southern end of Substructure 2 (see Figure 3.5). This emphasis on jars in the Op. LC12 G domestic area also means that percentages of

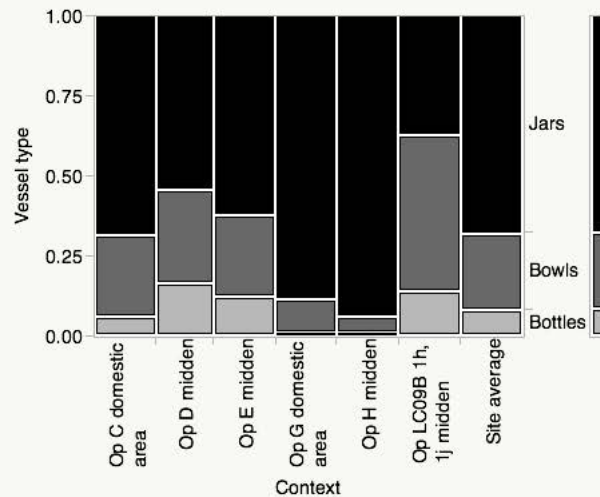
other vessel types such as hemi/semispherical bowls, conical bowls, grater bowls, and bottles are generally lower than they are for the Op. LC12 C domestic context. Based on the presence of the probable domestic structures in these areas, and the relative proximity of the two operations to one another (see Figure 3.5), one might expect their vessel assemblages to be more similar. The fact that they are not may underscore economic differences between households or some other subtle differentiation between probable domestic contexts. Discrepancies in the quantities of worked sherd discs and grater bowls further underscore the subtle differences between these domestic contexts, as discussed above.

When all contexts discussed in this appendix are compared using Chi-square nonparametric statistics (Figure A.2.24), one of the most notable patterns is the high frequency of jars in the Op LC12 H midden and the LC12 G domestic area. With the exception of the LC12 H cooking midden, the other middens have high relative frequencies of serving vessels such as bowls and bottles. When middens are compared with one another (Figure A.2.25), the patterns are clear. Ceramics in the Op. LC12 H cooking midden are nearly exclusively jars. Middens that likely resulted from public feasting contain more serving wares, as is especially clear when analyzing the Op. LC09 B midden. These results are consistent with the comparison of vessel decoration (Table A.2.6). When the Op. LC12 C (Structure 1) and LC12 G (Structure 2) domestic areas are compared, the low number of bottles makes Chi-square analysis unreliable. Instead, a Fisher's exact test, demonstrates that the two contexts are significantly different (Figure A.2.26). All Chi-square and Fisher's exact test analyses produced statistically significant results ($p < 0.05$) and are presented with their respective measures of association (Figures A.2.24–26).

Contingency Analysis of Vessel type By Context

Freq: Percent

Mosaic Plot



Contingency Table

Context	Vessel type			Count
	Bottles	Bowls	Jars	
Op C domestic area	6	25	67	98
Op D midden	15	27	50	92
Op E midden	12	25	61	98
Op G domestic area	1	10	86	97
Op H midden	1	5	93	99
Op LC09B 1h, 1j midden	14	48	37	99
Site average	8	23	66	97
	57	163	460	680

Tests

N	DF	-LogLike	RSquare (U)
680	12	58.454502	0.1055

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	116.909	<.0001*
Pearson	106.982	<.0001*

Measures of Association

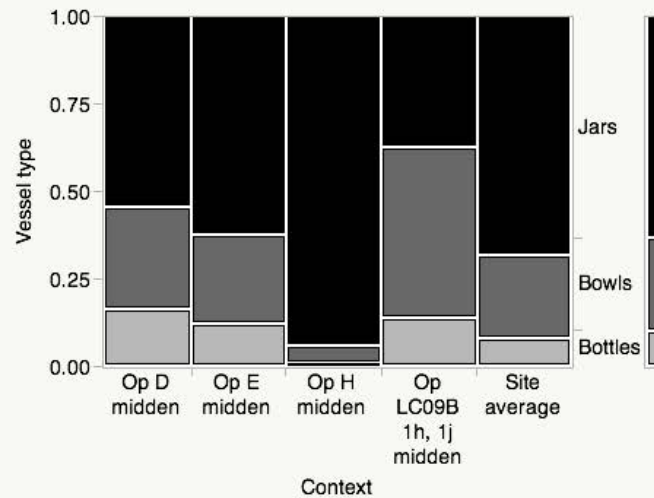
Measure	Value	Std Error	Lower 95%	Upper 95%
Gamma	-0.0075	0.0524	-0.1103	0.0953
Kendall's Tau-b	-0.0049	0.0342	-0.0719	0.0622
Stuart's Tau-c	-0.0047	0.0328	-0.0690	0.0597
Somers' D CIR	-0.0036	0.0255	-0.0537	0.0464
Somers' D RIC	-0.0065	0.0458	-0.0963	0.0832
Lambda Asymmetric CIR	0.0500	0.0408	0.0000	0.1301
Lambda Asymmetric RIC	0.0981	0.0136	0.0715	0.1247
Lambda Symmetric	0.0849	0.0189	0.0479	0.1219
Uncertainty Coef CIR	0.1055	0.0171	0.0721	0.1389
Uncertainty Coef RIC	0.0442	0.0073	0.0299	0.0585
Uncertainty Coef Symmetric	0.0623	0.0102	0.0423	0.0822

Figure A.2.24: Chi-square statistical comparison of all analyzed contexts

Contingency Analysis of Vessel type By Context

Freq: Percent

Mosaic Plot



Contingency Table

	Vessel type			
	Bottles	Bowls	Jars	
Count				
Expected				
Op D midden	15	27	50	92
	9.48454	24.2804	58.2351	
Op E midden	12	25	61	98
	10.1031	25.8639	62.033	
Op H midden	1	5	93	99
	10.2062	26.1278	62.666	
Op LC09B 1h, 1j midden	14	48	37	99
	10.2062	26.1278	62.666	
Site average	8	23	66	97
	10	25.6	61.4	
	50	128	307	485

Tests

N	DF	-LogLike	RSquare (U)
485	8	43.076921	0.1015

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	86.154	<.0001*
Pearson	76.392	<.0001*

Measures of Association

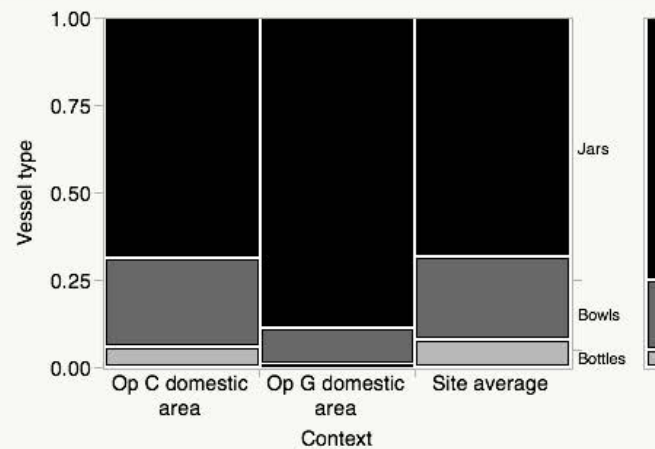
Measure	Value	Std Error	Lower 95%	Upper 95%
Gamma	0.0185	0.0623	-0.1037	0.1406
Kendall's Tau-b	0.0122	0.0413	-0.0687	0.0932
Stuart's Tau-c	0.0118	0.0399	-0.0664	0.0901
Somers' D CIR	0.0099	0.0333	-0.0554	0.0751
Somers' D RIC	0.0152	0.0513	-0.0853	0.1157
Lambda Asymmetric CIR	0.0618	0.0502	0.0000	0.1601
Lambda Asymmetric RIC	0.1477	0.0199	0.1087	0.1866
Lambda Symmetric	0.1206	0.0263	0.0690	0.1721
Uncertainty Coef CIR	0.1015	0.0188	0.0646	0.1383
Uncertainty Coef RIC	0.0552	0.0104	0.0349	0.0755
Uncertainty Coef Symmetric	0.0715	0.0133	0.0454	0.0976

Figure A.2.25: Chi-square statistical comparison of analyzed middens

Contingency Analysis of Vessel type By Context

Freq: Percent

Mosaic Plot



Contingency Table

Context	Vessel type			
	Bottles	Bowls	Jars	
Op C domestic area	6	25	67	98
	5.03425	19.4658	73.5	
Op G domestic area	1	10	86	97
	4.98288	19.2671	72.75	
Site average	8	23	66	97
	4.98288	19.2671	72.75	
	15	58	219	292

Tests

N	DF	-LogLike	RSquare (U)
292	4	8.7638997	0.0435

Test	ChiSquare	Prob>ChiSq
Likelihood Ratio	17.528	0.0015*
Pearson	15.564	0.0037*

Warning: 20% of cells have expected count less than 5, ChiSquare suspect.

Fisher's Exact Test	Table	Two-sided
	Probability (P)	Prob ≤ P
	2.673e-7	0.0017*

Measures of Association

Measure	Value	Std Error	Lower 95%	Upper 95%
Gamma	-0.0110	0.1147	-0.2359	0.2138
Kendall's Tau-b	-0.0058	0.0600	-0.1233	0.1118
Stuart's Tau-c	-0.0044	0.0462	-0.0950	0.0861
Somers' D CIR	-0.0044	0.0462	-0.0950	0.0861
Somers' D RIC	-0.0075	0.0779	-0.1601	0.1452
Lambda Asymmetric CIR	0.0000	0.0000	0.0000	0.0000
Lambda Asymmetric RIC	0.1082	0.0629	0.0000	0.2315
Lambda Symmetric	0.0787	0.0465	0.0000	0.1698
Uncertainty Coef CIR	0.0435	0.0185	0.0072	0.0799
Uncertainty Coef RIC	0.0273	0.0119	0.0041	0.0506
Uncertainty Coef Symmetric	0.0336	0.0144	0.0053	0.0619

Figure A.2.26: Fisher's exact test statistical comparison of domestic areas

Discussion

The patterns of vessel type variation discussed in this appendix demonstrate similarities and differences between excavated contexts at La Consentida. In general, the LC09B-F17, LC12 D-F11 through F8, and LC12 E-F16–F9 middens contain the serving wares (i.e., bowls and bottles) and a relative lack of jars consistent with their identification as feasting deposits. Their relative quantities of vessel decoration support this interpretation (Table A.2.6). The faunal remains in the Op. LC12 E midden serve as evidence of a large event or a few events incorporating food consumption (see Appendix 3). Cross-fitting ceramic remains from various depths within the LC12 E midden suggest that the deposit resulted from a small number of large events. The LC12 H-F4 midden, where the ceramics consisted almost entirely of globular jars, appears to have resulted from the rapid deposition of specific-use ceramics. The very ashy nature of the Op LC12 H midden matrix (see Chapter IV) suggests that it is a cooking midden, perhaps resulting from the preparation of a feast like those that produced the other middens discussed here. On the basis of this evidence, and on the decorated ceramics found in certain deposits, I argue that public feasting events were a key component of initial Early Formative social interaction at La Consentida.

The nature of possible economic differences between domestic contexts in Ops. LC12 C and LC12 G is difficult to identify on the basis of the relatively modest quantities of diagnostic ceramic remains recovered there. Nonetheless, discrepancies in the relative frequencies of jars, bowls, grater bowls specifically, bottles, and worked sherd discs suggest that the households may have fulfilled different roles in the community. Whether those roles result entirely from economic differences, or whether sampling effects or fine-grained chronological variation are

partly responsible, is not clear. The differences in relative quantities of bottles and grater bowls may suggest that the Structure 2 house slightly postdates the Structure 1 house, as those two vessel types appear to have varied in their relative frequencies over the course of site occupation (see Appendix 1).

Other contextual questions could be asked of the diagnostic ceramics at La Consentida. Small primary contexts, such as briefly occupied surfaces below and within fill deposits in Op. LC12 A, are not discussed here due to the low quantities of ceramics they produced. Refer to Appendix 1 for discussion of these contexts as a component of the overall assemblage of domestic vessel fragments of the Tlacuache phase. Coarse-grained chronological data could also be gleaned from a comparison of fill deposits in Op. LC09 A, LC12 F, and the deep LC12 A trench. These results are not presented here because I chose to prioritize the analysis of primary contexts. Future study of curated materials from the 2009 and 2012 excavations at La Consentida, as well as that of artifacts recovered in subsequent research projects at the site, will likely shed light on the general patterns of vessel variation I have identified.

Appendix 3: Results of Faunal Analysis

By Silvia Pérez Hernández and Guy David Hepp

Introduction

The La Consentida faunal material analyzed for this dissertation consisted of a sample of 1668 elements. Of those, 1276 bones came from screened material and 392 came from the heavy fractions resulting from sediment sample flotation. In this appendix, we will present our study of these materials by excavated context. We will mention identified or probable species for each context, list the NISP (number of identified specimens), provide an estimated MNI (minimum number of individuals) for each context, and briefly discuss the possible use or significance of animal species for the ancient community. We discuss any identifiable use wear or marks on the faunal material that could have been produced by either taphonomic or anthropogenic means. Taphonomic wear results from physical and chemical processes, while anthropogenic modifications may result from cultural practices of tool production and/or food preparation. Throughout the appendix, we present tables and charts summarizing the results of analysis for each of the contexts we have considered. Note that pie charts in this appendix are calculated according to NISP, while tables list both NISP and MNI for each context.

Methodology

The first step of our study was to clean the faunal material collected from the contexts in which we were interested. We next proceeded to identify the species or probable species represented in the samples. When species-level of specificity was not possible, we attempted

to at least classify remains to the level of their superclass (in the case of fish) or to their order or family (in the case of mammals and reptiles). We undertook our analysis using an osteological reference collection for deer, dog, rabbit, and catfish. We also used manuals for mammals and fish (e.g., Cannon 1987; Gilbert 1980). Once we had identified the remains, we proceeded to look for indications of wear and modification from taphonomic or anthropogenic processes, as these may suggest patterns in the use of animal products at La Consentida. We next classified the material by context for our estimation of MNI. We recorded all data in a digital spreadsheet.

Op. LC12 E midden

The Op. LC12 E midden (LC12 E-F16–F9) produced the largest quantity of animal remains we analyzed for this study (Figure A.3.1 and Table A.3.1). The vast majority of bones from this context were from fish, a large percentage of which come from a single species of catfish (*Ariopsis guatemalensis*), which sometimes bore evidence of having been burned. As discussed in Chapter VI, this species of catfish is adaptable to marine, brackish, and freshwater conditions (Marceniuk and Menezes 2007). Mammal remains identified in the Op. LC12 E midden included those from deer, peccary, rabbit, and coyote or dog. We identified reptile remains from terrestrial turtles and crocodilians.

Two fragments of probable crocodile mandibles and one piece of deer bone were cut and worked to form tools such as punches, awls, or ceramic decorating tools. As discussed in Chapter VI, several examples of crocodilian mandible and deer bone tools were found at La Consentida. Both crocodilian and deer bone is of a dense consistency ideal for making durable

tools. These artifacts indicate the importance of animal products for more than just subsistence at La Consentida, and suggest that animals were often processed for different uses related to the economy of the community. On the basis of several lines of evidence, including ash indicative of a large burning event or events and the presence of decorated pottery, the Op. LC12 E midden likely resulted from public feasting (see Chapters IV and VI, Appendix 2, and especially Table A.2.6).

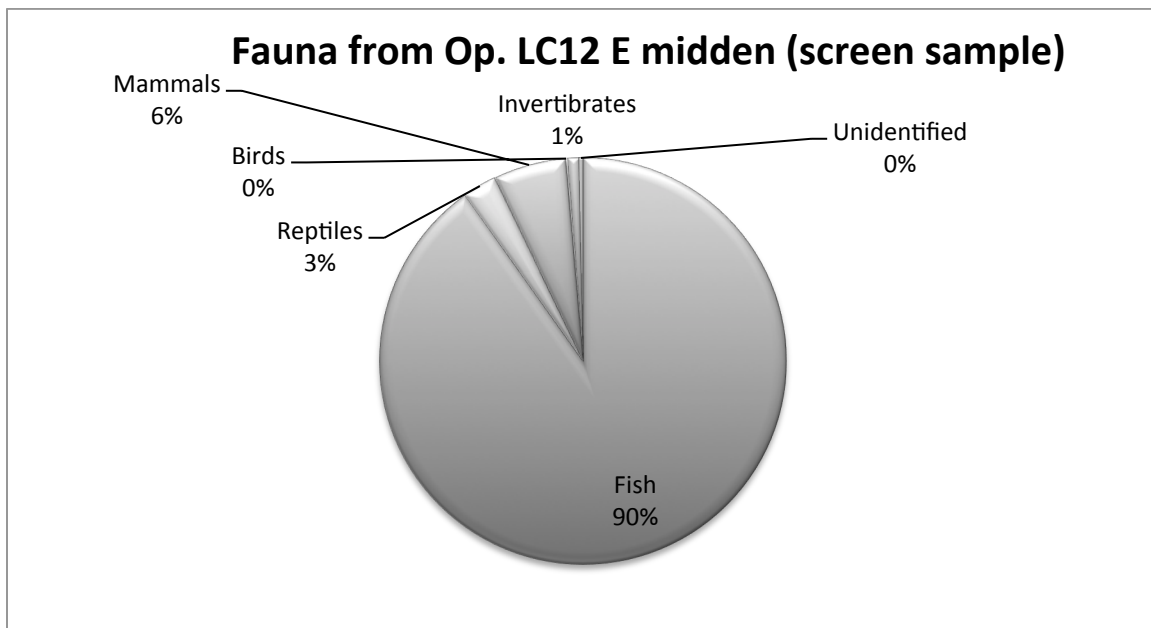


Figure A.3.1: Pie chart demonstrating the types of faunal remains in the Op. LC12 E midden

Op. LC12 E						
Class and order	Family	Species and common name	NISP	%NISP	MNI	%MNI
Fishes						
Osteictio	Various	Various	774	84.1%	159	69.73%
Siluriformes	Ariidae	<i>Ariopsis guatemalensis</i> Catfish	51	5.55%	24	10.52%
Aves						

Ciconiformes	Ardeidae	<i>Ardea sp.</i> (possible) Heron	1	0.1%	1	0.43%
Reptilia						
Crocodylia	Crocodylidae	<i>Crocodylus acutus</i> or <i>Crocodylus moreleti</i> Crocodile	3	0.32%	3	1.31%
Lacertilia	Iguanidae	<i>Iguana iguana</i> Green iguana	3	0.32%	3	1.31%
Testudines	Kinosternidae	<i>Kinosternon integrum</i> or <i>Kinosternon scorpooides</i> Mexican mud turtle or Scorpion mud turtle	13	1.41%	7	5.7%
Unidentified			7	0.76%	0	0%
Mammalia						
Carnivoro	Canidae	<i>Canis latrans</i> or <i>Canis familiaris</i> Coyote or dog	1	0.1%	1	0.43%
Lagomorpha	Leporidae	<i>Lepus sp.</i> or <i>Sylvilagus sp.</i> Hare or rabbit	2	0.21%	1	0.43%
Artiodactyla	Tayassuidae	<i>Pecari tajacu humeralis</i> Peccary	2	0.21%	2	0.87%
Artiodactyla	Cervidae	<i>Odocoileus virginianus</i> Deer	34	3.7%	12	5.26%
Artiodactyla	Tayassuidae or Cervidae	<i>Pecari tajacu humeralis</i> or <i>Odocoileus virginianus</i> Peccary or deer	2	0.21%	2	0.87%
Unidentified						
		Various	11			0%
		TOTAL	918	98.71%	228	102.54 %

Table A.3.1: List of the faunal remains identified in screened samples from the Op. LC12 E midden

Op. LC12 D middens

The Op. LC12 D middens were a series of sheet midden deposits associated with interfaces between early fill layers (LC12 D-F11 through F8). Faunal material identified in these contexts (Figure A.3.2 and Table A.3.2) includes the remains of different species of fish (such as *Ariopsis guatemalensis*), reptiles (including crocodilians), turtles, and mammals such as deer and peccary. Several types of faunal remains (including those of various fishes, turtle, and deer) show signs of burning, indicating probable practices of food production and suggesting that the contexts result at least in part from the discard of food production residues.

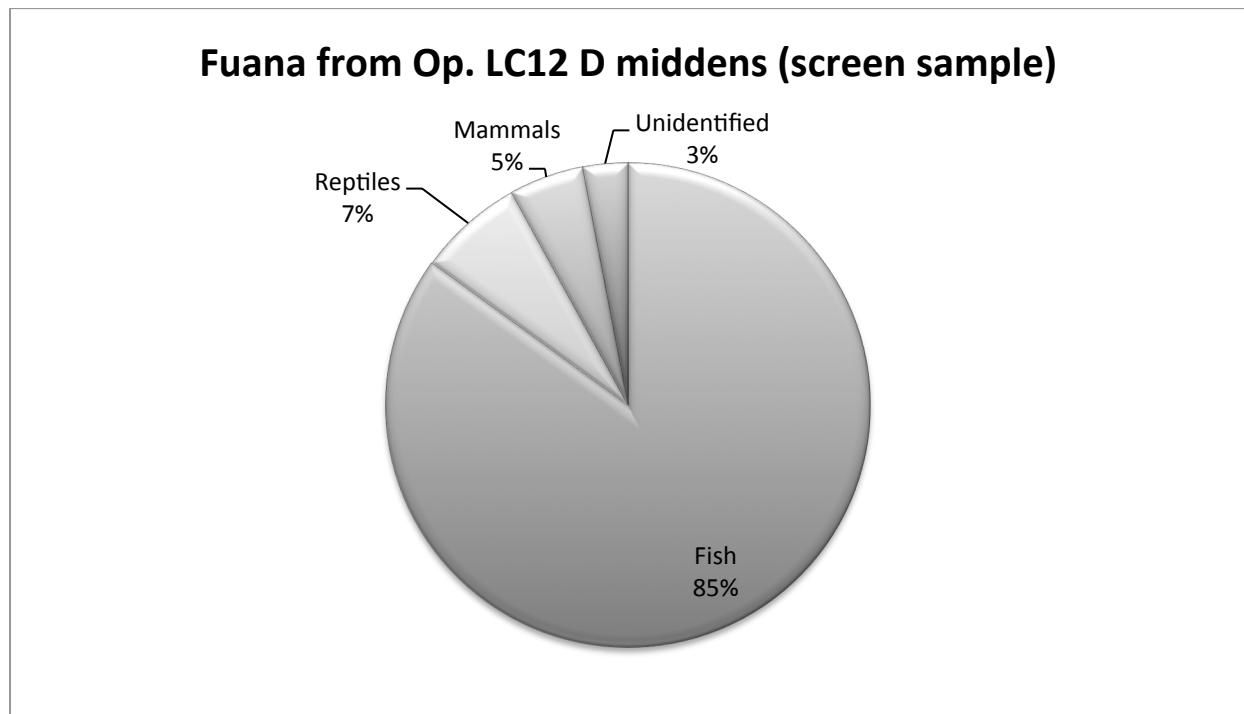


Figure A.3.2: Pie chart demonstrating the types of faunal remains in the Op. LC12 D middens

Op. LC12 D						
CLASS AND ORDER	FAMILY	SPECIES AND COMMON NAME	NISP	%NISP	MNI	%MNI
Fishes						
Osteictio	Various	Various	115	44.23%	24	40.67 %
Siluriformes	Ariidae	<i>Ariopsis guatemalensis</i> Catfish	105	40.38%	14	23.72 %
Lepisosteiformes	Lepisosteidae	<i>Atractosteus tropicus</i> (possible) Tropical gar	3	1.15%	3	5.08%
Reptilia						
Crocodylia	Crocodylidae	<i>Crocodylus acutus</i> or <i>Crocodylus moreleti</i> Crocodile	8	2.99%	4	6.77%
Lacertilia	Iguanidae	<i>Iguana iguana</i> Green iguana	2	0.76%	2	3.38%
	Iguanidae	<i>Ctenosaura sp.</i> Black iguana	1	0.38%	1	1.69%
Unidentified			1	0.38%	1	1.69%
Crocodylia	Crocodylidae	<i>Crocodylus acutus</i> or <i>Crocodylus moreleti</i> Crocodile	8	2.99%	4	6.77%
Lacertilia	Iguanidae	<i>Iguana iguana</i> Green iguana	2	0.76%	2	3.38%
Testudines	Kinosternidae	<i>Kinosternon integrum</i> or <i>Kinosternon scorpooides</i> Mexican mud turtle or Scorpion mud turtle	6	2.3%	4	6.67%
Mammalia						
Artiodactyla	Cervidae	<i>Odocoileus virginianus</i> Deer	7	2.69%	5	8.47%

Artiodactyla	Tayassuidae or Cervidae	<i>Pecari tajacu</i> <i>humeralis</i> or <i>Odocoileus</i> <i>virginianus</i> Peccary or deer	1	0.38%	1	1.69%
Unidentified			4	1.53%		0%
UNIDENTIFIED				7%	2.69	
		TOTAL	260	99.86%	59	99.83 %

Table A.3.2: List of the faunal remains identified in screened samples from the Op. LC12 D middens

Op. LC12 H midden

The Op. LC12 H midden (LC12 H-F4) was an ashy deposit that contained a high frequency of well-preserved ceramic jars and likely resulted from a cooking event (see Chapter VIII and Appendix 2). The deposit produced few animal remains, but is included here to facilitate comparison between middens at La Consentida. Animal remains in this deposit come from many of the same species found elsewhere at the site, including *Ariopsis guatemalensis*, other fresh and saltwater fish, crocodilians, and deer or peccary. This deposit also produced two fragments of probable sea turtle bone, which were apparently burned. As demonstrated by Figure A.3.3 and Table A.3.3, fish remains were somewhat less dominant in this deposit than they were in some other middens at the site (see Figures A.3.1 and A.3.2). Although it was not possible to identify the species of all fish remains recovered here, it is worth noting that some of the fish bone from the Op. LC12 H midden bore signs of burning, indicating that some were likely cooked over a flame rather than boiled. We also identified burning on deer or peccary bones in this context. A canid mandible fragment (see Figure 6.6) was recovered at the bottom of the Op. LC12 H midden. Based on the spacing between the three premolars on this well-

preserved sample, we tentatively identify this individual as a probable *Canis latrans*, or coyote.

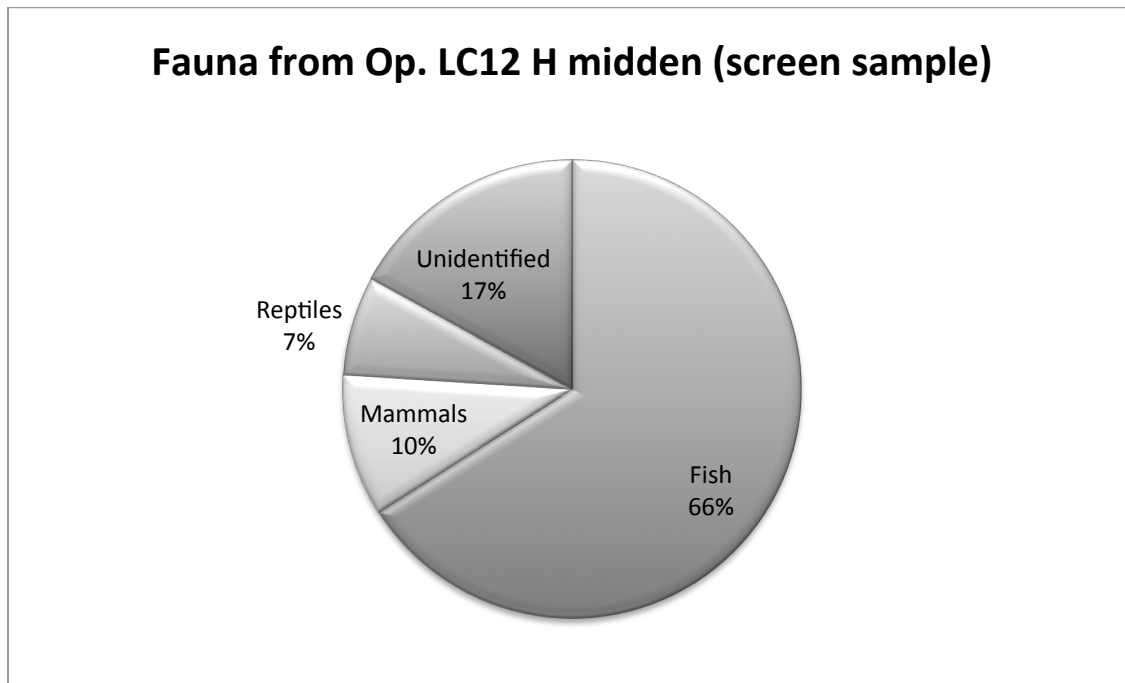


Figure A.3.3: Pie chart demonstrating the types of faunal remains in the Op. LC12 H midden

Op. LC12 H						
CLASS AND ORDER	FAMILY	SPECIES AND COMMON NAME	NISP	%NISP	MNI	%MNI
Fishes						
Osteictio	Various	Various	26	44.82%	8	28.56 %
Siluriformes	Ariidae	<i>Ariopsis guatemalensis</i> Catfish	12	20.68%	5	17.85 %
Reptilia						
Crocodylia	Crocodylidae	<i>Crocodylus acutus</i> or <i>Crocodylus moreleti</i> Crocodile	2	3.44%	2	7.14%

Testudines	Kinosternidae	<i>Kinosternon integrum</i> or <i>Kinosternon scorpooides</i> Mexican mud turtle or Scorpion mud turtle	2	3.44%	2	7.14%
Mammalia						
Carnivoro	Canidae	<i>Canis latrans</i> or <i>Canis familiaris</i> Coyote or dog	1	1.72%	1	3.57%
Lagomorpha	Leporidae	<i>Lepus sp.</i> or <i>Sylvilagus sp.</i> Hare or rabbit	1	1.72%	1	3.57%
Artiodactyla	Cervidae	<i>Odocoileus virginianus</i> Deer	1	1.72%	1	3.57%
Artiodactyla	Tayassuidae or Cervidae	<i>Pecari tajacu humeralis</i> or <i>Odocoileus virginianus</i> Peccary or deer	1	1.72%	1	3.57%
Unidentified			2	3.44%	1	3.57%
Unidentified			10			
		TOTAL	58	82.7%	22	78.54%

Table A.3.3: List of the faunal remains identified in screened samples from the Op. LC12 H midden

LC12 A-F15 ritual cache

The LC12 A-F15 ritual cache was identified at the edge of Platform 1 and Substructure 1, in close proximity to several human burials (see Chapter IV, Figure 4.66, and Figure A.5.12). In this deposit, we identified the nearly complete remains of a large, venomous reptile (*Heloderma horridum*), which was likely interred while still fleshed and complete (see Figures 7.38–7.41). These remains were recovered in association with several other artifacts and faunal remains, including a shark tooth (likely from a mako or bull shark [see Figures 7.42–7.43]),

fragmentary remains of fish and a terrestrial turtle, ceramics, shell, and a reconstructed and playable musical instrument (see Table A.3.4 and Figure 7.44). The identification of the *Heloderma horridum* (also known as a Mexican beaded lizard) was made possible by the presence of diagnostic anatomical traits, including small bony plates from the animal's skin that can become fused to the skull (see Figure 7.41). The Mexican beaded lizard is a close relative of the Gila monster, is currently a threatened species, and subsists on a diet including avian and reptile eggs (Beck and Lowe 1991). The shark tooth identified with the beaded lizard skeleton was in primary context. It is possible that the fish and turtle remains were components of the fill surrounding the cache rather than intentional components of it.

LC12 A-F15					
CLASS AND ORDER	FAMILY	SPECIES AND COMMON NAME	NISP	MNI	%MNI
Fishes					
Osteictio	Various	Various	13	4	44.44%
Siluriformes	Ariidae	<i>Ariopsis guatemalensis</i> Catfish	3	3	33.33%
Reptilia					
Lacertilia	Helodermatidae	<i>Heloderma horridum</i> Mexican beaded lizard	Nearly complete skeleton	1	11.11%
Testudines	Kinosternidae	<i>Kinosternon integrum</i> or <i>Kinosternon scorpooides</i> Mexican mud turtle or Scorpion mud turtle	1	1	11.11%
		TOTAL	17	9	99.99%

Table A.3.4: List of the faunal remains identified in LC12 A-F15 ritual cache

Op. LC09 B (Units 1H and 1J) midden

The midden deposit identified in the northern extension (Units 1H and 1J) of Op. LC09 B consisted of an ashy deposit of sediment (LC09 B-F17) that contained a high relative proportion of decorated ceramics (see Table A.2.6), as well as faunal remains. Noteworthy results of the analysis of faunal remains from this deposit include the higher relative frequency (compared to other middens at La Consentida) of mammal bones, particularly those of deer (Figure A.3.4 and Table A.3.5). The deer bones in this deposit likely represent four different individuals. These deer remains bear indications of having been burned at a high temperature, suggesting that they were roasted or barbecued.

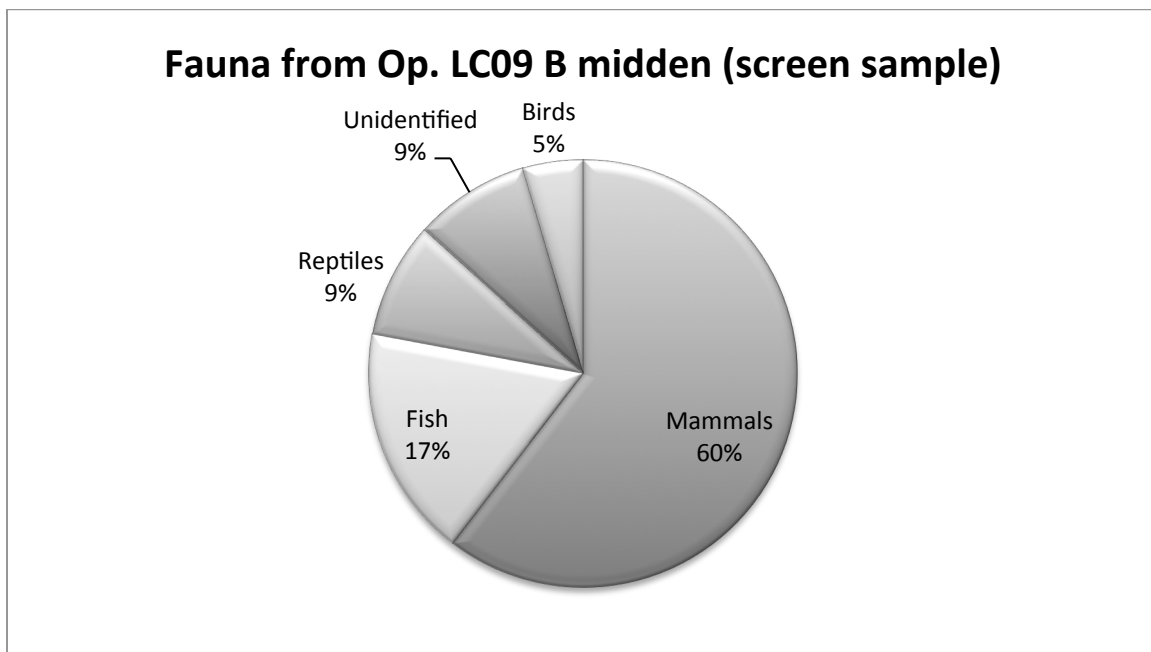


Figure A.3.4: Pie chart demonstrating the types of faunal remains in the Op. LC09 B midden

Op. LC09 B						
CLASS AND ORDER	FAMILY	SPECIES AND COMMON NAME	NISP	%NISP	MNI	%MNI
Fishes						
Osteictio	Various	Various	3	11.53%	2	14.28%
Siluriformes	Ariidae	<i>Ariopsis guatemalensis</i> Catfish	1	4.34%	1	7.14%
Osteictio	Various	Various	3	11.53%	2	14.28%
Aves						
Unidentified	Unidentified	Unidentified	1	4.34%	1	7.14%
Reptilia						
Crocodylia	Crocodylidae	<i>Crocodylus acutus</i> or <i>Crocodylus moreleti</i> Crocodile	2	8.69%	2	14.28%
Unidentified			1	4.34%	1	7.14%
Mammalia						
Artiodactyla	Cervidae	<i>Odocoileus virginianus</i> Deer	12	52.17%	4	28.57%
Artiodactyla	Tayassuidae or Cervidae	<i>Pecari tajacu humeralis</i> or <i>Odocoileus virginianus</i> Peccary or deer	1	4.34%	1	7.14%
Unidentified			2	8.69%	2	14.28%
		TOTAL	23	98.44%	14	99.97%

Table A.3.5: List of the faunal remains identified in screened samples from the Op. LC09 B midden

Faunal material from sediment sample heavy fractions

In addition to the faunal material from the screened samples discussed above, we also analyzed animal remains from six heavy fractions of sediment samples subjected to flotation. Due to the tiny size of many of the animal remains recovered in these samples, identification to the species level was often impossible. Nonetheless, we were able to identify basic patterns in

the smallest preserved animal remains from the contexts sampled, which serve to compliment the screened samples by controlling for small bones often lost in screened deposits. We analyzed two sediment sample heavy fractions each from the Op. LC12 D, LC12 E, and LC12 H middens (see also Chapter VI and Table 6.1 for discussion of these samples).

The heavy fraction fauna from the Op. LC12 D middens consisted entirely of very small fish remains, some of which showed signs of having been burned (Figure A.3.5). These fish remains included those of *Ariopsis guatemalensis*, as well as of probable small freshwater fish.

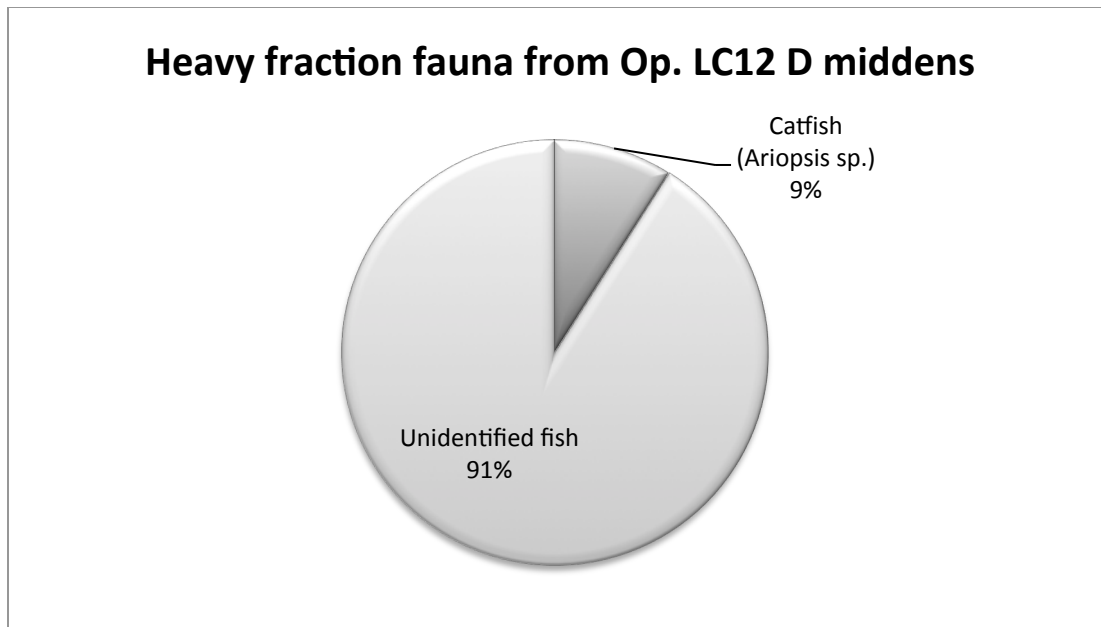


Figure A.3.5: Pie chart demonstrating the types of faunal remains in the Op. LC12 D midden heavy fractions

Faunal remains from the Op. LC12 E midden sediment sample heavy fractions (Figure A.3.6) included those of fish (such as *Ariopsis guatemalensis*) as well as a probable burned iguana bone. The vast majority of bones identified were small fish remains, some with evidence of having been burned.

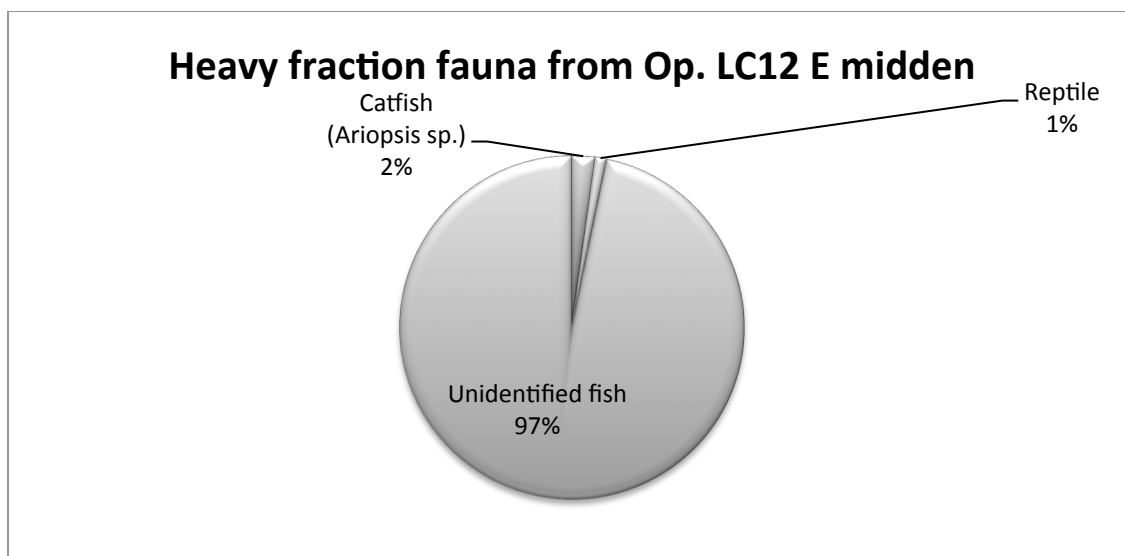


Figure A.3.6: Pie chart demonstrating the types of faunal remains in the Op. LC12 E midden heavy fractions

As discussed above with respect to screened samples, sediment sample heavy fractions from the Op. LC12 H midden produced very few faunal remains. Those bones that were identified came from small fish, including *Ariopsis guatemalensis* (Figure A.3.7). Some of these remains bear evidence of having been burned.

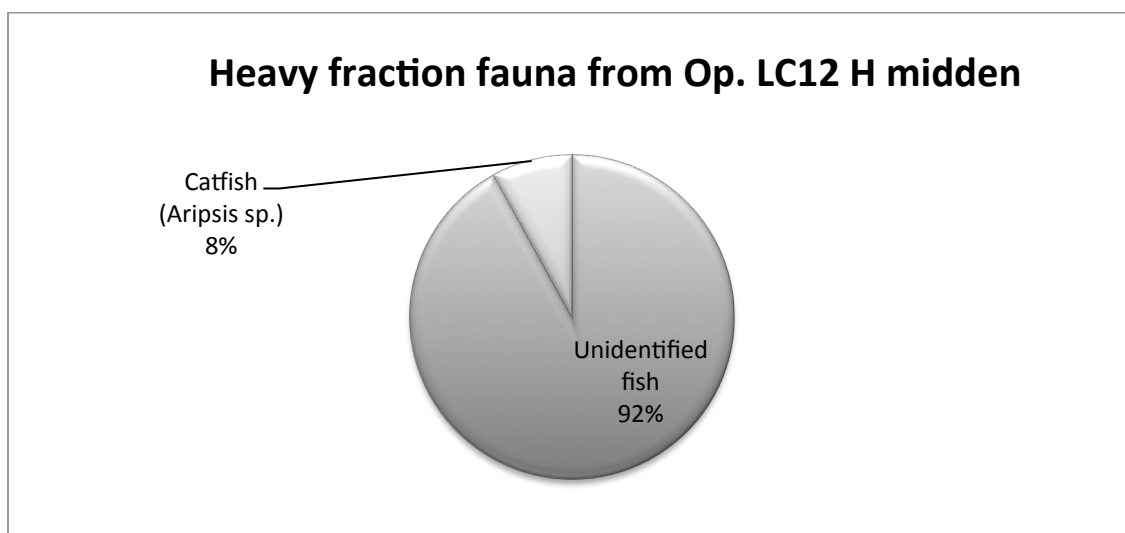


Figure A.3.7: Pie chart demonstrating the types of faunal remains in the Op. LC12 H midden heavy fractions

In general, most of the faunal remains identified in the combined heavy fractions of sediment samples analyzed for this dissertation came from small fish (see Figure A.3.8 and Table A.3.6). Many of the fish remains found in these samples were too small for confident identification to the species level. These bones included vertebrae and skull fragments, most of which were smaller than 5 mm in width and length. Partly on the basis of their size, it is probable that many of these smallest fish remains came from freshwater species. Freshwater species identified or probably identified at the site (such as in the screen sample from Op. LC12 D discussed above) include tropical gar. Even when we could not identify them to the species level, results from screened deposits and sediment samples (Figure A.3.8 and Table A.3.6) demonstrate the preponderance of fish remains among the smallest animal bones at La Consentida.

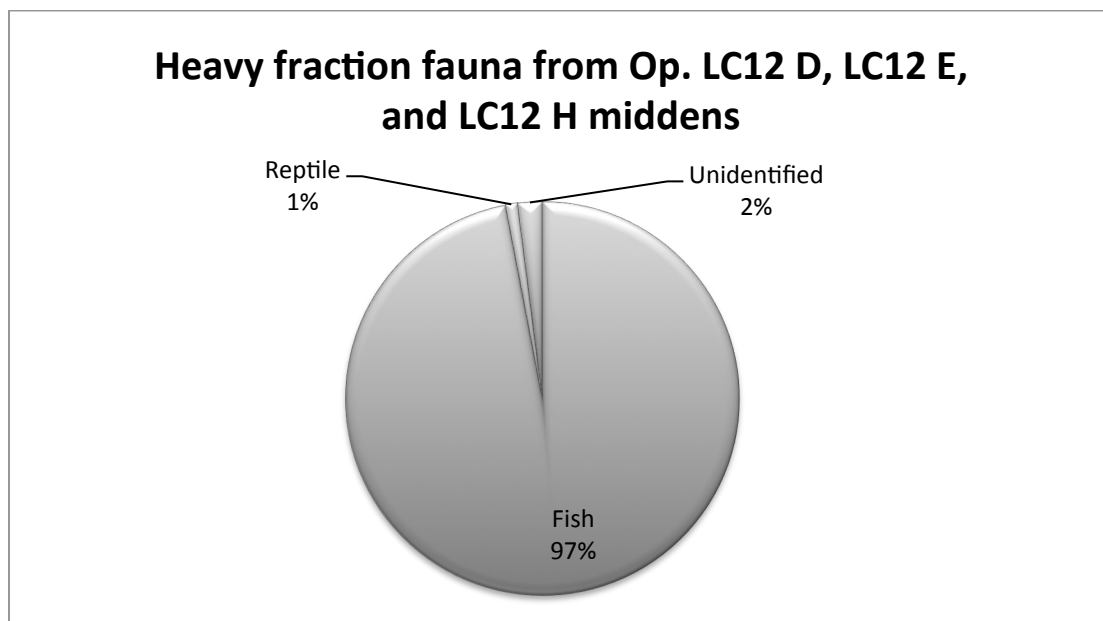


Figure A.3.8: Pie chart demonstrating the types of faunal remains in combined heavy fractions of sediment samples analyzed from the Op. LC12 D, LC12 E, and LC12 H middens.

Heavy fraction samples						
CLASS AND ORDER	FAMILY	SPECIES AND COMMON NAME	NISP	%NISP	MNI	%MNI
Fishes						
Osteictio	Various	Various	352	89.79%	27	84.37 %
Siluriformes	Ariidae	<i>Ariopsis guatemalensis</i> Catfish	29	7.39%	4	12.5%
Reptilia						
Lacertilia	Iguanidae	<i>Iguana iguana</i> Green iguana	1	0.25%	1	3.12%
Unidentified			10	2.55%		
		TOTAL	392	99.98%	32	99.99 %

Table A.3.6: List of the faunal remains identified in heavy fractions of sediment samples analyzed from the Op. LC12 D, LC12 E, and LC12 H middens

Discussion

To summarize, our analysis of faunal remains from La Consentida remain relatively preliminary and have focused on only a few specific contexts at the site. Many fish remains were not identifiable to the species level due to their small size, fragmentary nature, and the natural abundance and diversity of fishes in Oaxaca's coastal waters. Also, we have identified a need for a better comparative faunal collection to aid future faunal analyses of coastal Oaxacan archaeological contexts. For example, it is probable that La Consentida's fish remains include those of carp and mojarra (see Fernández 2004). Since we lacked the extensive comparison collection used by Fernández, our identification of these remains is tentative. All deposits we have analyzed thus far demonstrate an emphasis on exploitation of fish. Many of these fish remains were probably boiled, and others show signs of having been subjected to fire. Many

faunal samples (especially those from the Op. LC12 E midden) bear calcium concretions resulting from their postdepositional proximity to dense shell deposits. Our 2014 faunal analysis did not allow time to identify many of the shell species represented, though they certainly include *Mytilidae* (saltwater mussel), clams, and oysters (Farías Sánchez 2006). Many of the shellfish and fish remains we identified were too small to have been collected individually. We thus infer that many were likely collected in traps or nets and then boiled whole in soups or stews. The recovery of some very tiny fish and shellfish remains in sediment sample heavy fractions supports this interpretation. Other food animals identified include reptiles such as iguanas, turtles, and crocodilians. Mammal remains include those of deer, peccary, and canids. Bird remains are rare. Deer and crocodile bones were used to make tools, likely due to their density and durable nature. We suggest that additional faunal study at La Consentida would help to more specifically identify the animal remains recovered at the site.

Appendix 4: Ground Stone

Introduction

Arguments in this dissertation about changes over time in residential mobility (Chapter V) and the increasing adoption of material culture associated with agriculture (Chapter VI) are in part based on chronological changes in ground stone tools at La Consentida. Figure A.4.1 demonstrates chronological patterns in the numbers of manos, metates, and polisher/hammer stones as compared to total numbers of ground stone tools. For the purposes of this figure, excavation lots (which increase in number with greater depth) are taken as a general proxy of chronology. As Figure A.4.1 demonstrates, the majority (85.4%) of ground stone tools and tool fragments were collected within the upper ten lots of excavation throughout the site. The figure also demonstrates that manos and metates are most frequent in about the first seven lots of excavation. Though part of this pattern is driven by the overall recovery context of ground stone, that circumstance alone cannot account for the shallow (i.e., “more recent”) recovery contexts of the manos and metates. For example, 74.0% of all ground stone was recovered from the first seven lots, while 87.5% of metates and 81.3% of manos were recovered in those shallowest seven lots. Manos peak in the second lot, while overall ground stone tools peak in lots four, five, and seven. Metate fragments are entirely absent from anything deeper than lot eight, despite the twenty-three pieces of ground stone recovered in those deeper (i.e., earlier) contexts. Polisher/hammer stones seem to be a particular kind of multi-use tool identified in some of the earlier contexts at La Consentida. These tools exemplify well the “Archaic-style” tradition of multi-use tools that emphasize portability over task-specific

efficiency (Clark et al. 2007; McDonald 1991:85; Torrence 1983). As Figure A.4.1 demonstrates, these multi-use tools do not seem to follow the general pattern of ground stone at La Consentida, wherein most examples occur near the surface. In fact, only 57.1% of them occurred within the first seven lots, and 21.1% of them occurred in lots 19, 20, and 21. These polisher/hammer stones were located in earlier contexts than most manos and all metates. For the purposes of producing Figure A.4.1, I ignored any stone fragments that might be natural, but included any “possible” manos, metate fragments, and polisher/hammer stones. This decision provides more artifacts for analysis, but also means that some grinders or grinding platforms (for example) may slightly dilute the patterns represented. My interpretation of these data is that larger (i.e., more difficult to transport) and more task-specific food processing tools such as manos and metates were disproportionately recovered from shallow excavation contexts at La Consentida. Smaller and more multi-purpose tools were more likely to occur in earlier deposits. Where polisher/hammer stones do occur in more recent layers, some may be redeposited. The chronological patterns discussed here are probably most clearly demonstrated by metates, which would be the most difficult tools for a semi-mobile population to transport. In general, ground stone seems to have become much more common over time at the site. I find these ground stone data consistent with an increase over time in domestic sedentism and the use of task-specific tools associated with agriculture, and particularly the processing of maize flour.

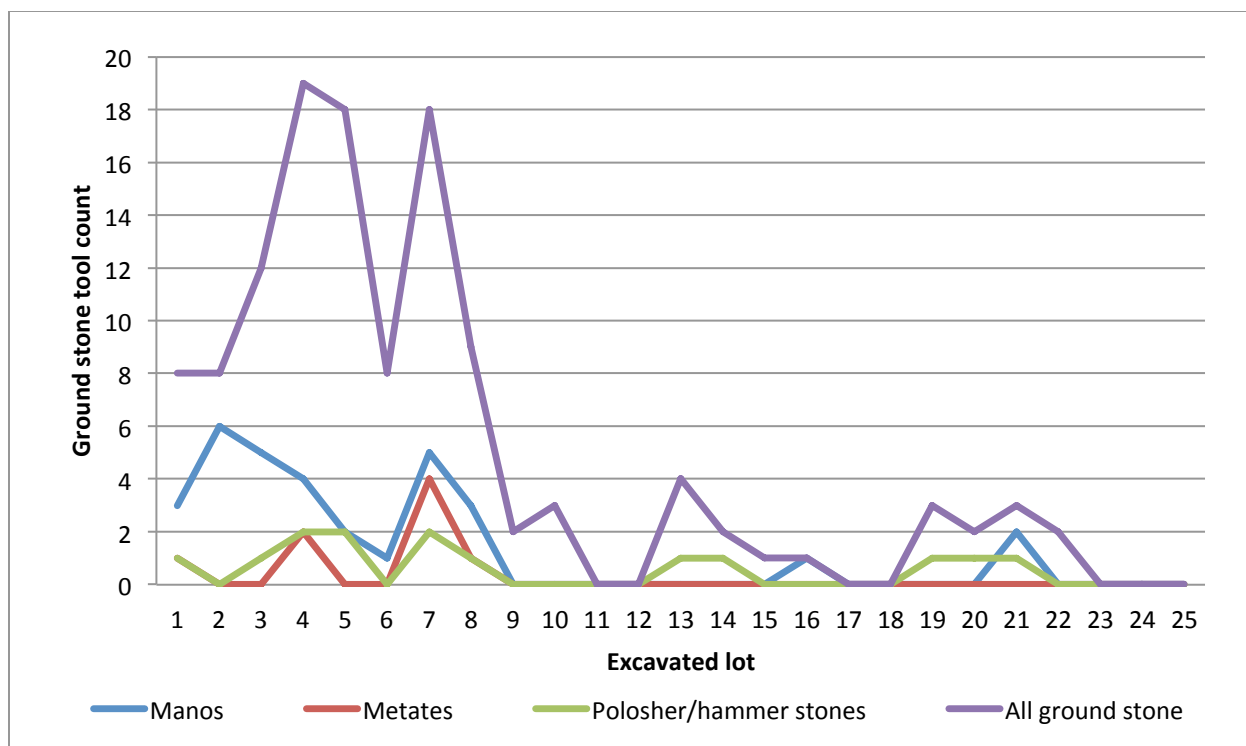


Figure A.4.1: Selected ground stone tool categories by excavated lot

One potential critique of the argument discussed above is that the results might be skewed by the fact that more units were excavated to ten or fewer lots than to greater depths. This condition would tend to dilute the pattern identified regarding polisher/hammer stones, however, and so does not negate arguments above regarding a gradual shift away from portable, multi-use technologies and toward manos and metates. Furthermore, the deep excavations in numerous areas, including in Ops. LC09 B, LC12 A, LC12 D, and LC12 E, should help mitigate issues of excavation depth bias (for example, see Figures 4.7, 4.25, 4.26, 4.41, 4.42, and 4.46).

In general, ground stone tools at La Consentida follow the same chronological pattern as other artifact classes. Figure A.4.2 displays total ground stone tool counts as compared to grams of ceramic sherds, according to excavated lot. To control for the vastly different

quantities of artifacts compared (123 pieces of ground stone versus 499,199.9 grams of ceramic sherds), I have calculated the percentage of the total quantity of each artifact class accounted for per excavated lot. To summarize, the ground stone and ceramic artifacts follow the same pattern, wherein they experience their greatest quantities between about lots three and seven. The ceramics experience a more gradual decrease in the earlier contexts, likely because their exponentially greater quantity provides for more normally distributed data. It is against the backdrop of these general trends that I contextualize my arguments about chronological patterns in the provenience of polisher/hammer stones, manos, and metates (Figure A.4.1)

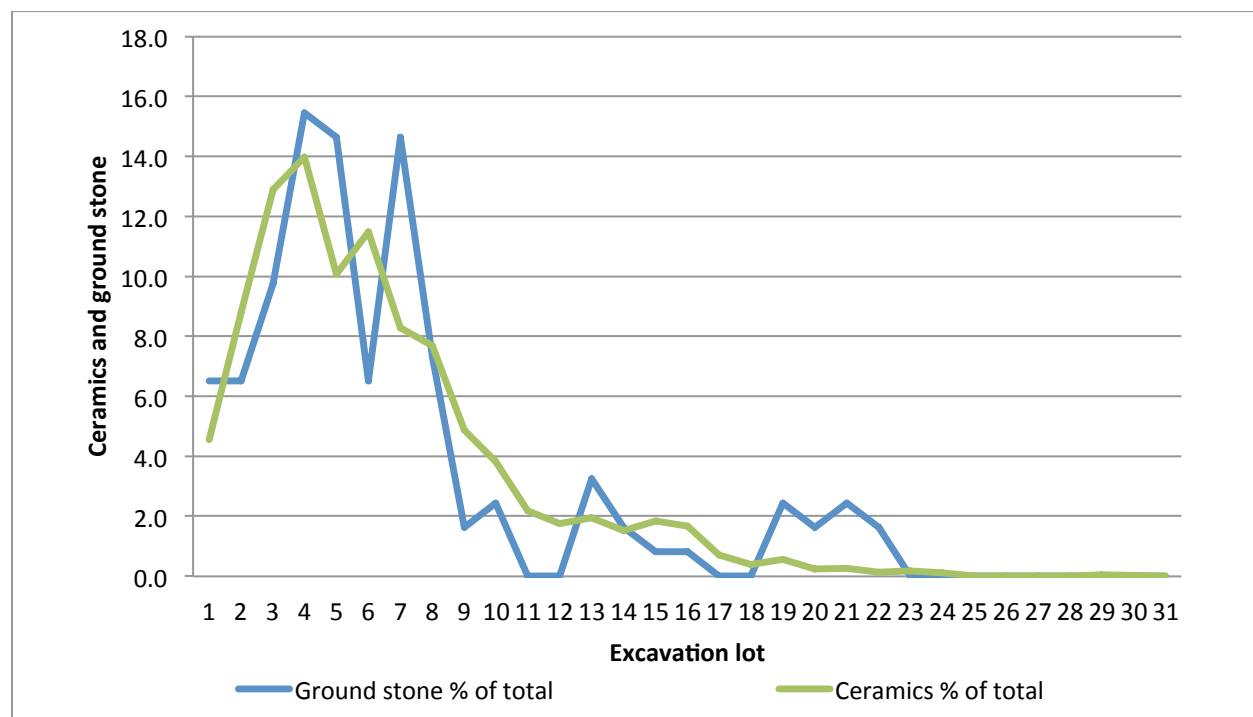






Figure A.4.2: Percentages of total ground stone artifacts (count) and ceramics (g) by excavated lot

Artifact catalog



This appendix also includes a catalog of the ground stone tools recovered during the 2009 and 2012 excavations at La Consentida (Table A.4.1). For each ground stone fragment, I provide basic provenience and dimension data, as well as inferred tool type. A photograph also accompanies most examples, especially the diagnostic pieces. Refer to Chapters V and VI for illustrations of some of the ground stone tools. In order to permit future studies of residues, phytoliths, and starch grains absorbed into the surfaces of these artifacts, many of which were likely used for food processing, they have not been washed following excavation (see Morell-Hart et al. 2014). This decision may have slightly complicated use wear analysis. Also, photographs of the artifacts thus accurately indicate the shapes of the tools but may not always clearly convey their textures. Simple categorizations of these artifacts are difficult to produce and might be misleading, as many of them bear use wear from multiple types of use. General patterns among the ground stone are discussed in Chapters V and VI.




Table A.4.1: La Consentida ground stone catalog


FS#	Op.	Unit	Lot	Weight (g)	Inferred tool type	Context	Photograph
6073	LC09 A	4A	13	6.8	Hatchet or hammer stone	LC09 A-F5 initial fill deposit	
6183	LC09 A	4B	1	16.7	Grinder / possible hammer stone	LC09 A-F1 fill and surface	N/A



6144	LC09 B	0Z	5	25.7	Grinder	Fill with burials	
10149	LC09 B	1J	8	45.1	Hammer stone	LC09 B-F17 midden	N/A
6217	LC09 B	N/A	B2-I3	740.1	Mano	Burial	
6216	LC09 B	N/A	B2-I3	1500+	Marker stone	Burial	
9994	LC09 B	1E	5	19.6	Polisher / hammer stone	Fill	N/A
6065	LC09 B	1B	4	6.3	Possible grinder / hammer stone	Fill with burials	N/A




6116	LC09 B	1B	6	268	Possible grinder / hammer stone	Fill with burials	
6140	LC09 B	2B	4	59.9	Grinder, hammer stone, or pestle	LC09 B-F12 ancient soil formed in fill	
10050	LC09 B	3B	7	7.8	Possible hatchet or polisher	Fill with burials	N/A
6140	LC09 B	2B	4	87.2	Possible hammer stone, anvil, or grinder	LC09 B-F12 ancient soil formed in fill	
9979	LC09 B	1H	5	30.8	Possible hammer stone, grinder, or anvil	Fill	N/A




10339	LC09 B	2B	3	2.2	Possible mirror, pectoral, or ornament	Fill with burials	
6146	LC09 B	2B	3	0.8	Possible polisher	Fill with burials	N/A
6058	LC09 B	1B	3	13.7	Possible polisher, grinder, or burnisher	Fill	
6140	LC09 B	2B	4	12.4	Possible polisher / hammer stone	LC09 B-F12 ancient soil formed in fill	N/A
10242	LC09 B	1E	7	44.9	Possible polisher / hammer stone	Fill above midden	N/A
6058	LC09 B	1B	3	0.3	Possible polisher / hammer stone or hatchet	Fill	N/A





6167	LC09 B	-1Z	4	100.3	Possible polisher / hammer stone / chopper	Fill with burials	
7071	LC12 A	0C	8	61.1	Mano or grinder	LC12 A-F4-s1 fill	N/A
7029	LC12 A	0A	4	390.8	Metate	Fill	
7160	LC12 A	0F	1	29.2	Metate	LC12 A-F2 occupational debris and fill	N/A
7594	LC12 A	0P	5	10.9	Polisher	Fill with burials	





7313	LC12 A	0F	9	48.8	Polisher	Occupational surface	
7143	LC12 A	0A	14	57.6	Polisher	Fill	N/A
8348	LC12 A	0Q	5	6.7	Possible hatchet or polisher	Fill with burial B6-I8	
9037	LC12 A	-1Q	9	24.5	Possible hatchet or polisher	Fill with burials	
7213	LC12 A	0A	15	32	Possible hammer stone, anvil	Fill	N/A





8320	LC12 A	0Q	4	178.6	Possible hammer stone / grinder / anvil	Fill with burial B6-I8	
8424	LC12 A	-2Q	6	5.8	Possible natural	Fill with burial B6-I7	N/A
7096	LC12 A	0A	11	12.9	Possible natural or anvil / polisher	Fill	N/A
7014	LC12 A	0E	3	0.2	Possible natural or polisher	Fill	N/A
7203	LC12 A	0F	4	8.4	Possible natural or polisher	Fill	N/A
7594	LC12 A	0P	5	2	Possible natural or polisher	Fill with burials	N/A
8348	LC12 A	0Q	5	32.4	Possible natural or polisher	Fill with burial B6-I8	
8424	LC12 A	-2Q	6	13.3	Possible natural or polisher	Fill with burial B6-I7	N/A




9752	LC12 A	-2R	12	18.9	Possible natural, pigment, or polisher	Fill with burials	
7058	LC12 A	0A	8	40.2	Possible polisher / hammer stone	Fill	
7827	LC12 A	0I	13	11.2	Possible polisher / hammer stone	LC12 A-F18-s2 deep fill context	N/A
8398	LC12 A	-2Q	5	19.9	Possible polisher / hammer stone or hatchet	Fill near burial B6-I7	N/A
7987	LC12 A	0U	6	80.3	Possible polisher / hammer stone or hatchet	Eroded fill	





7977	LC12 A	0W	1	10.8	Possible polisher / mano / hammer stone	Fill and surface	N/A
7827	LC12 A	0I	13	1.5	Unknown	Fill	N/A
7281	LC12 B	3E	1	513	Mano / hammer stone	Modern surface	
7298	LC12 B	3B	2	3	Possible polisher	Architectural debris	N/A
8325	LC12 C	3B	6	111.2	Grinder or polisher	Domestic area near Structure 1	
8325	LC12 C	3B	6	115.9	Grinder or polisher	Domestic area near Structure 1	



8286	LC12 C	3B	5	128.5	Grinder or polisher / hammer stone	Domestic area near Structure 1	
7966	LC12 C	1G	7	60.7	Hatchet	LC12 C-F7 fill with occupation layer	
8857	LC12 C	1G	10	79.8	Probable hatchet	LC12 C-F8 fill with occupation layer	
8857	LC12 C	1G	10	27.1	Hammer stone or pestle	LC12 C-F8 fill with occupation layer	



8915	LC12 C	3A	7	476.9	Mano	Structure 1 domestic building	
8913	LC12 C	3A	7	908.6	Mano	LC21 C-F4 Structure 1 domestic building	
8931	LC12 C	3Z	8	190.9	Mano	Domestic area near Structure 1	
8030	LC12 C	3A	4	833.6	Mano, anvil	LC12 C-F2 occupational debris / surface	




7693	LC12 C	2G	4	904.3	Mano, anvil	LC12 C-F2 occupational debris / surface	
8930	LC12 C	3Z	8	87.1	Mano, anvil	Domestic area near Structure 1	
8912	LC12 C	3A	7	235.9	Mano, hammer stone	LC12 C-F4 Structure 1 domestic building	
8917	LC12 C	3A	7	852.2	Mano, hammer stone	LC12 C-F4 Structure 1 domestic building	




8911	LC12 C	3A	7	Greater than 1500	Metate	LC12 C-F4 Structure 1 domestic building	
8909	LC12 C	3A	7	Greater than 1500	Metate	LC12 C-F4 Structure 1 domestic building	
8910, 8916	LC12 C	3A	7	2086.7	Metate or grinding platform	LC12 C-F4 Structure 1 domestic building	
8931. B	LC12 C	3Z	8	1152.4	Metate	LC12 C-F4 Structure 1 domestic building	
8914	LC12 C	3A	7	613.8	Metate, possible hammer stone	Structure 1 domestic building	


8030, 8128	LC12 C	3A	4	24.7	Polisher or chopper	LC12 C-F2 occupational debris / surface	
8048	LC12 C	3A	5	5.6	Polisher or chopper	Domestic area near Structure 1	
10202	LC12 C	4Z	5	34.1	Polisher or sharpener	Domestic area near Structure 1	
8286	LC12 C	3B	5	8.6	Polisher, hammer stone	Domestic area near Structure 1	





8098	LC12 D	0A	20	25.7	Grinder or polisher	LC12 D-F10 early fill and sheet midden	N/A
8220	LC12 D	1B	13	162.3	Grinder or polisher, hammer stone	LC12 D-F4 fill and sheet midden	
8138	LC12 D	0A	22	74.8	Grinder or polisher / possible anvil	LC12 D-F11 early fill context and sheet midden	
8138	LC12 D	0A	22	19.9	Grinder or polisher / possible anvil or hatchet	LC12 D-F11 early fill context and sheet midden	N/A
8117	LC12 D	0A	21	147.7	Mano / hammer stone, anvil	LC12 D-F10 fill with probable occupation surface	





7816	LC12 D	1B	4	17.3	Polisher	Fill	
7816	LC12 D	1B	4	26.8	Polisher	Fill	N/A
7923	LC12 D	1B	5	27.1	Polisher or grinder	Fill	N/A
7816	LC12 D	1B	4	3.5	Possible natural or polisher	Fill	N/A
8245	LC12 D	1B	14	9.7	Possible natural or polisher	LC12 D-F4 fill and sheet midden	N/A
8273	LC12 D	1B	15	112.2	Possible natural, hammer stone, or polisher	LC12 D-F4 fill and sheet midden	N/A
7816	LC12 D	1B	4	40	Possible polisher	Fill	N/A
10015	LC12 E	-6Z	5	7.3	Hatchet, probable	Architectural debris	





9071	LC12 E	0A	5	317.1	Hammer stone / possible anvil	LC12 E-F9-s1 midden	
9837	LC12 E	-5B	2	400.8	Mano	Surface, fill, architectural debris	
9884	LC12 E	-5B	3	78.3	Mano	Architectural debris	




9884	LC12 E	-5B	3	43	Mano	Architectural debris	
9989	LC12 E	6Z	3	541.8	Mano, anvil	Architectural debris	
9950	LC12 E	-6Z	2	99.1	Mano, possible hammer stone	Surface, fill, architectural debris	

10217	LC12 E	1C	5	36	Polisher	LC12 E-F9-s1 midden	
9262	LC12 E	1A	1	272.2	Polisher / hammer stone	Surface, fill	
9989	LC12 E	-6Z	3	121.3	Polisher / hammer stone	Fill with architectural debris	
9898	LC12 E	-5A	4	9.9	Possible hatchet or polisher	LC12 E-F3 Fill with architectural debris	

9853	LC12 E	-5B	7	3.9	Possible hatchet	LC12 E-F4 Fill with architectural debris	
9853	LC12 E	-5B	7	62.9	Possible hammer stone or anvil	LC12 E-F4 Fill with architectural debris	
9733	LC12 E	1D	4	166.2	Polisher / hammer stone	LC12 E-F2 fill above midden	
10091	LC12 E	1A	20	84.5	Polisher / hammer stone	Early midden context	





9667	LC12 E	2B	7	16.3	Possible hatchet	LC12 E-F9-s1 midden	
10225	LC12 E	1Z	8	4.6	Possible hatchet	LC12 E-F9-s1 midden	
10225	LC12 E	1Z	8	7.5	Possible hatchet or polisher	LC12 E-F9-s1 midden	
9884	LC12 E	5B	3	32.4	Possible mano	Architectural debris	



10096	LC12 E	1A	21	163	Possible mano	LC12 E-F14 early midden deposit	
9372	LC12 E	1C	2	57.8	Possible mano or hammer stone	Fill above midden	
9372	LC12 E	1C	2	26.8	Possible mano or hammer stone	Fill above midden	
9989	LC12 E	6Z	3	2.1	Possible natural	Architectural debris	




10082	LC12 E	1A	19	77.3	Possible pestle / grinder	Early midden context	
9626	LC12 E	1D	1	31.2	Possible polisher	Modern surface and occupational debris	
9081	LC12 E	1B	5	26.2	Possible polisher	LC12 E-F9-s1 midden	



9814	LC12 E	-5B	5	16.7	Possible polisher	Architectural debris	
9835	LC12 E	1D	6	63.2	Possible polisher	LC12 E-F9-s1 midden	
8903	LC12 E	0B	7	62.7	Possible polisher	LC12 E-F9-s1 midden	
9690	LC12 E	2B	8	90.4	Possible polisher	LC12 E-F9-s1 midden	

10226	LC12 E	1B	10	19.4	Possible polisher	LC12 E-F9-s1 midden	
10022	LC12 E	-1Z	6	51.3	Possible polisher or sharpener	LC12 E-F9-s1 midden	
10082	LC12 E	1A	19	4.1	Possible polisher / grinder	Early midden context	
9156	LC12 E	0A	7	20.3	Possible polisher / hammer stone	LC12 E-F9-s1 midden	

10082	LC12 E	1A	19	9.9	Possible polisher / hammer stone	Early midden context	
10096	LC12 E	1A	21	15.9	Possible polisher / hammer stone	LC12 E-F14 early midden deposit	
9925	LC12 E	-5A	6	165.1	Possible polisher / mano / hammer stone	Architectural debris	
8356	LC12 F	1A	14	142.7	Polisher / hammer stone	LC12 F-F5 fill	

8388	LC12 F	1A	16	246.4	Pestle, polisher, or mano	LC12 F-F6 early fill context	
9473	LC12 G	0C	G.3	300.9	Hammer stone	Structure 2 domestic building	
9064	LC12 G	1C	1	43.7	Mano	Domestic and surface	N/A
9161	LC12 G	0C	4	10.8	Mano	LC12 G-F2 Structure 2 domestic building	N/A
9392	LC12 G	1D	5 G.1	21.2	Mano	Structure 2 floor	N/A
9133	LC12 G	0C	2	59.6	Mano, hammer stone	Domestic and surface	N/A

9013	LC12 G	2D	5	156	Mano / polisher, or pestle / hammer stone	LC12 G- F16 fill and domestic context	
9856	LC12 G	-1F	3	48.2	Mano, possible hammer stone	Domestic area near Structure 2	N/A
9059	LC12 G	1D	4	200.5	Mano / anvil or grinding platform	Debris within Structure 2 domestic building	
9161	LC12 G	0C	4	79.2	Metate or grinding platform	LC12 G-F2 Structure 2 domestic building	

9248	LC12 G	1E	3	51	Polisher or grinder	Domestic area near Structure 2	
10236	LC12 G	2E	1	59.1	Polisher or sharpener / grinding platform	Domestic and surface	
9258	LC12 G	0B	2	107.7	Possible grinding platform	Domestic and surface	N/A
9431	LC12 G	0E	4	146	Possible grinding platform	Domestic area near Structure 2	N/A

Appendix 5: Analysis of Human Remains

By José Aguilar and Guy David Hepp

Introduction

In this appendix, we present basic data on fourteen sets of human remains identified in twelve burials at the site of La Consentida during the 2009 and 2012 excavation seasons. In some cases (e.g., B6 and B10), comingled and/or poorly preserved human bones make the attribution of some remains to specific individuals difficult. In the case of B10, excavation records suggest two sets of human remains, while laboratory analysis of recovered remains could not definitively establish the presence of more than one individual. This pattern is due in part to the extremely poor preservation of bone in some of the La Consentida sediments, particularly those close to the surface. Paradoxically, deeper/older burials at the site (e.g., B11-I13 and B12-I14) are often in much better condition. The shallow depth of deposition among some later burials (e.g., B10) may suggest more expedient interment of human remains.

Though basic skeletal analysis on the human remains recovered from La Consentida was performed in 2010 and 2012, analysis of samples from those burials, including teeth and longbone samples extracted for isotopic study, is ongoing. To date, results on dentin indicate that collagen preservation is very poor at the site, even among the best preserved of the burials. Nonetheless, results of these specialized analyses offer the possibility of understanding ancient diet and health among the oldest sets of human remains thus far identified on the Oaxaca coast. Furthermore, analysis of exported samples of long bones from several individuals is pending, and may identify collagen to help bolster existing dietary data (see Chapter VI).

The following summaries provide basic information on each set of human remains recovered at La Consentida, as well as plan view drawings of the burials and their surrounding artifacts, ecofacts, and features. Finally, schematic overviews of the Op. LC09 B and LC12 A burial areas demonstrate the La Consentida community's burial practices as they developed over time. These mortuary practices included interring multiple individuals in discrete areas of the site and in relatively consistent patterns of orientation. Such practices suggest the initial stages of producing communal burial areas (perhaps cemeteries or kin-group burial areas) deposited away from households, as was the case for early cemeteries in highland Oaxaca (Whalen 1981, 2009:78). Unlike in those highland contexts, however, current data from La Consentida does not indicate the practice of interring children and infants under the floors of houses (Whalen 2009:78). Cemeteries are common in later Formative period contexts in the lower Río Verde region, and several previous studies provide analysis of them (e.g., Aguilar 2010; Barber et al. 2013; A. Joyce 1991b).

Burial 1: primary double

Individual 1

Location: Op. LC09 B, Units 2B, 3B, 2A

Gender/Age: Male/35–50

Orientation: head 75 degrees east of north

Position: extended, prone, arms above head

Head to: northeast

Condition: moderate

Possible burial offering: probable effigy vessel fragment

Pathologies: Skeletal pathologies include eburnation of left femoral condyle and lipping of vertebrae. Dental pathologies include extreme attrition, caries (n=1), abscesses, periodontitis, and linear enamel hypoplasias (n=6; age of onset 3 and 4 years). Septic infection due to dental abscesses is possible cause of death.

Date: Tlacuache phase

I1 Comments: B1-I1 was detected in 2009, but was left in place due to the short field season. The burial was originally interpreted as having the head to the southwest. Excavations in 2012

demonstrated that the individual's head was to the northeast, and that the partial remains of a second individual (B2-I2) were present. A left mandibular M3 molar was extracted for isotopic study. This burial was originally recorded in the field as LC09B.1a.

Burial 1: primary double

Individual 2

Location: Op. LC09 B, Unit 3B

Gender/Age: Unknown/1-2

Orientation: unknown

Positon: unknown

Head to: south (probable)

Condition: poor

Date: Tlacuache phase

I2 Comments: B1-I2 was identified only as a fragmentary infant skull near B1-I1. This burial was originally recorded in the field as LC09B.1b.

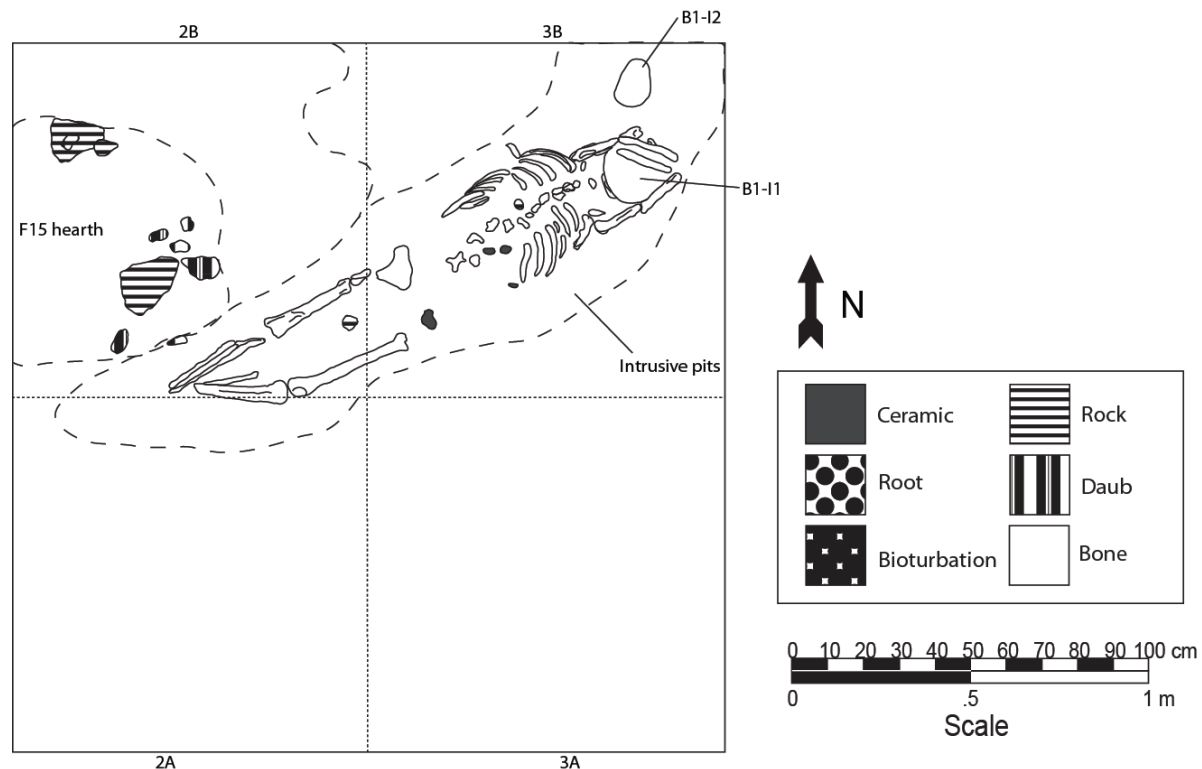


Figure A.5.1: Plan view of B1-I1 and B1-I2

Burial 2: primary single

Individual 3

Location: Op. LC09 B, Units 0Z, -1Z, 0A

Gender/Age: Male/40–50

Orientation: head 225 degrees east of north

Positon: extended, prone (probable)

Head to: southwest

Condition: moderate

Burial offerings: tabular stone, ground stone mano, ceramic bottle, chert knife

Possible burial offerings: figurines, animal bone

Pathologies: minor childhood linear enamel hypoplasias

Date: Tlacuache phase

I3 Comments: B2-I3 and B3-I4 overlapped, with the B3-I4 burial event likely disturbing the lower legs of B2-I3. A molar was extracted for isotopic study (pending). This burial was originally recorded in the field as LC09B.2.

Burial 3: primary single

Individual 4

Location: Op. LC09 B, Units 0Z, 1Z

Gender/Age: Female (probable)/over 18

Orientation: head 90 degrees east of north

Positon: extended, on left side

Head to: east

Condition: poor

Possible burial offerings: large stone under skull, chert flake

Date: Tlacuache phase

I4 Comments: B2-I3 and B3-I4 overlapped, with the B3-I4 burial event likely disturbing the lower legs of B2-I3. A left mandibular M3 molar was extracted for isotopic study. This burial was originally recorded in the field as LC09B.3.

Burial 4: primary single

Individual 5

Location: Op. LC09 B, Units 0Y, 1Y, 1Z

Gender/Age: Unknown/unknown

Orientation: head 65 degrees east of north

Positon: extended, prone (probable)

Head to: northeast

Condition: poor

Date: Tlacuache phase

I5 Comments: B4-I5 was in very poor condition, perhaps partly due to its shallow interment. This burial was not removed due to its advanced fragmentation. A left maxillary M3 molar was extracted for isotopic study. This burial was originally recorded in the field as LC09B.4.

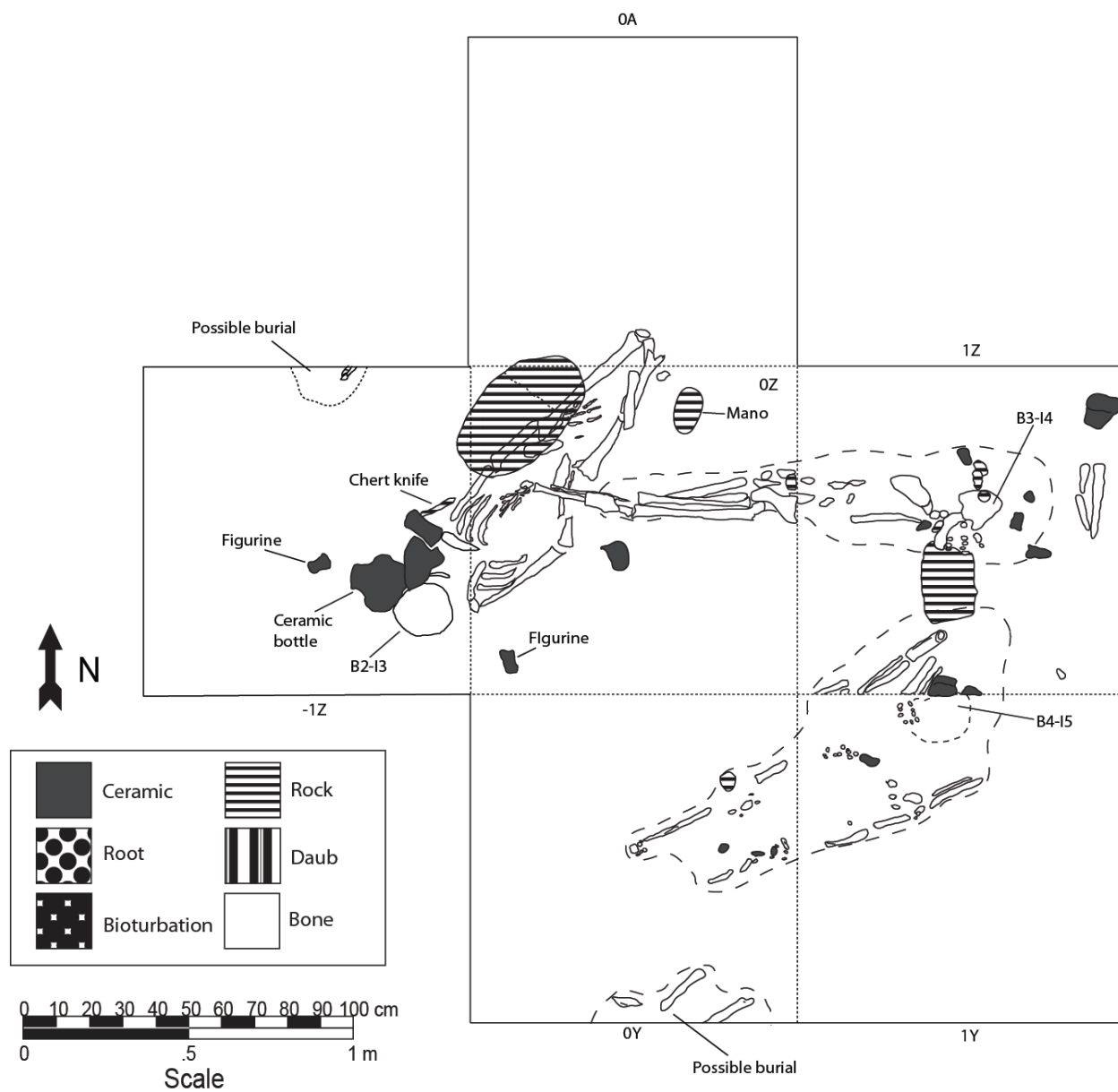


Figure A.5.2: Plan view of B2-I3, B3-I4, and B4-I5

Burial 5: primary single

Individual 6

Location: Op. LC12 A, Units 0P, -1P

Gender/Age: Female (probable)/25-30

Orientation: head 240 degrees east of north

Positon: unknown

Head to: southwest

Condition: poor

Possible burial offerings: two stone tools, white stone flake, river stone, groundstone fragment, ceramic bead

Pathologies: dental caries (n=1), linear enamel hypoplasias (n=48, age of onset 3, 4, and 6 years)

Date: Tlacuache phase

I6 Comments: A right maxillary M1 molar was extracted for isotopic study. This burial was originally recorded in the field as LC12A.1.

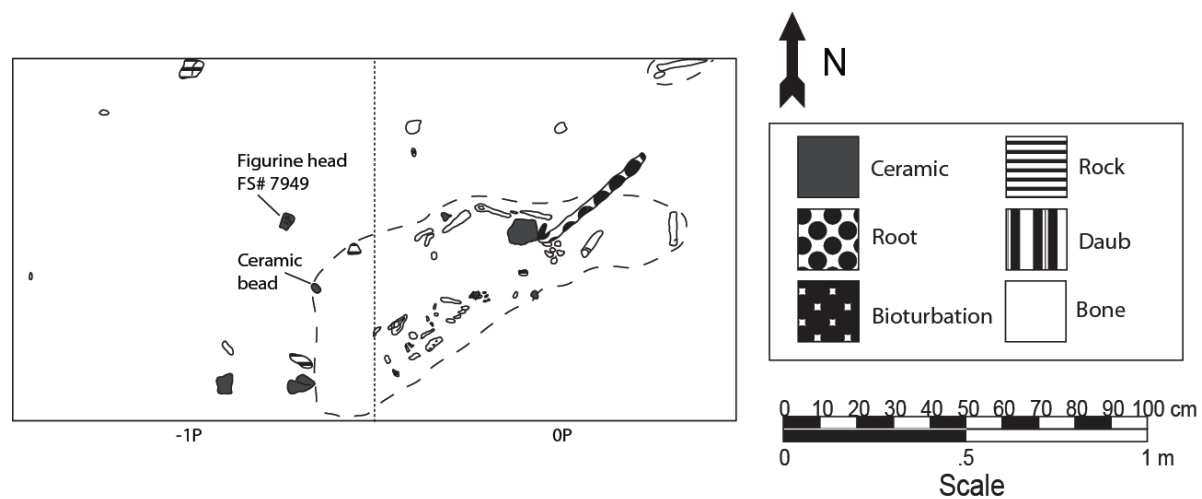


Figure A.5.3: Plan view of B5-I6

Burial 6: primary double

Individual 7

Location: Op. LC12 A, Units -2P, -1P, -2Q, -1Q

Gender/Age: Male/20–35

Orientation: head 250 degrees east of north

Position: extended, prone (probable)

Head to: southwest

Condition: moderate

Possible burial offerings: figurine fragments, complete jar (association probable), ceramic bead, most of a broken jar, partial ocarina

Pathologies: Skeletal pathologies include eburnation of humeral heads and right glenoid fossa, periostitis in both tibiae, slight deformation of right mandibular condyle, roughness in mandibular fossae (osteoarthritis?). Dental pathologies include caries (n=2) and linear enamel hypoplasias (n=5, age of onset 3, 5, and 6 years)

Date: Tlacuache phase

I7 Comments: This individual was part of a multiple burial that was later disturbed by the interment of B7-I9. The resulting mixing of human remains resulted in a significant amount of “comingled” material. A right mandibular M3 molar was extracted for isotopic study. This burial was originally recorded in the field as LC12A.2a.

Burial 6: primary double

Individual 8

Location: Op. LC12 A, Units -1Q, 0Q

Gender/Age: Male (probable)/unknown

Orientation: head 60 degrees east of north

Position: extended, supine (probable)

Head to: northeast

Condition: poor

Possible burial offerings: ceramic fragments, possible crocodile bone

Pathologies: dental pathologies include caries (n=4) and periodontitis (both maxilla and mandible)

Date: Tlacuache phase

I8 Comments: This individual was part of a multiple burial that was later disturbed by the interment of B7-I9. The resulting mixing of human remains resulted in a significant amount of “comingled” material. A left mandibular M2 molar was extracted for isotopic study. This burial was originally recorded in the field as LC12A.2b.

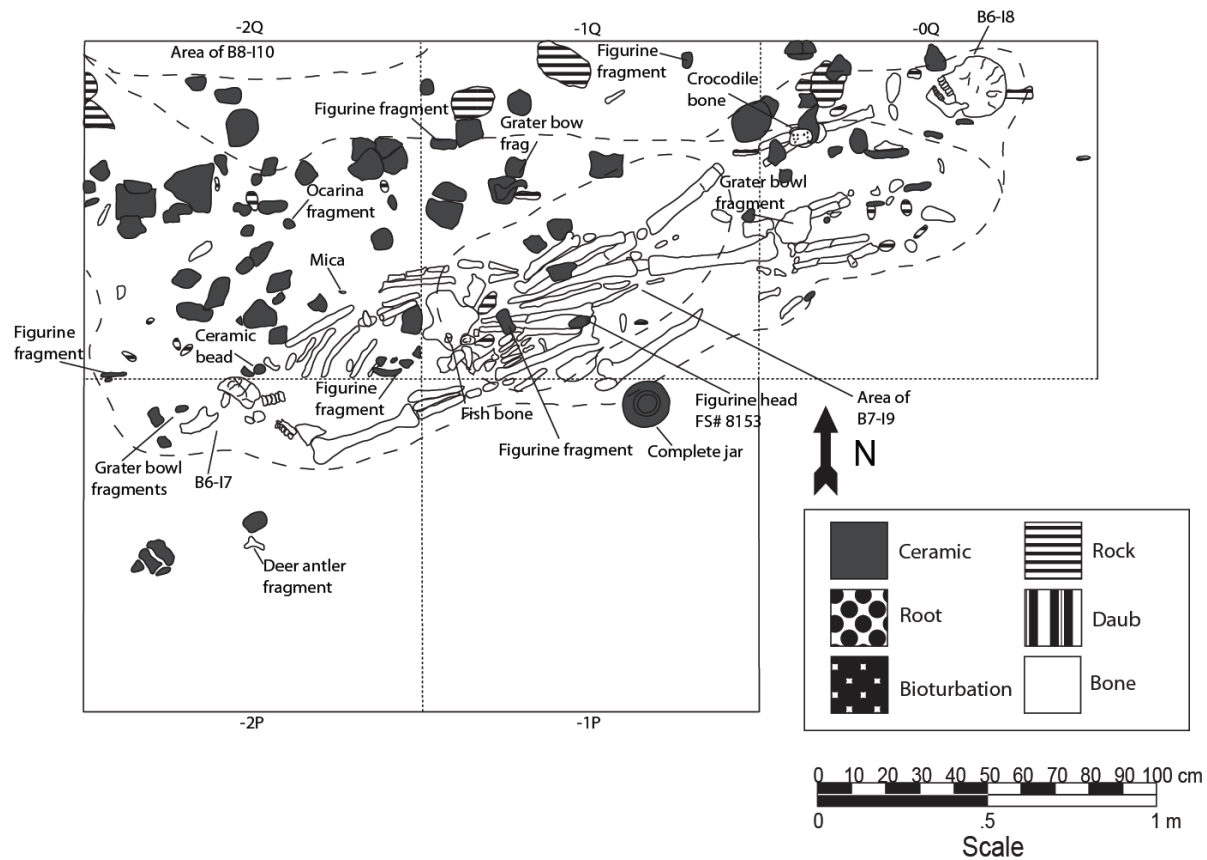


Figure A.5.4: Plan view of B6-17 and B6-18

Burial 7: primary single

Individual 9

Location: Op. LC12 A, Units -1Q

Gender/Age: Male (probable)/20–35

Orientation: head 240 degrees east of north (probable)

Positon: unknown

Head to: southwest

Condition: poor

Pathologies: skeletal pathologies include porotic hyperostosis and eburnation of the right mandibular condyle

Date: Tlacuache phase

I9 Comments: The interment of this individual disturbed the underlying B6 feature. The resulting mixing of human remains resulted in a significant amount of “comingled” material. This burial was originally recorded in the field as LC12A.3.

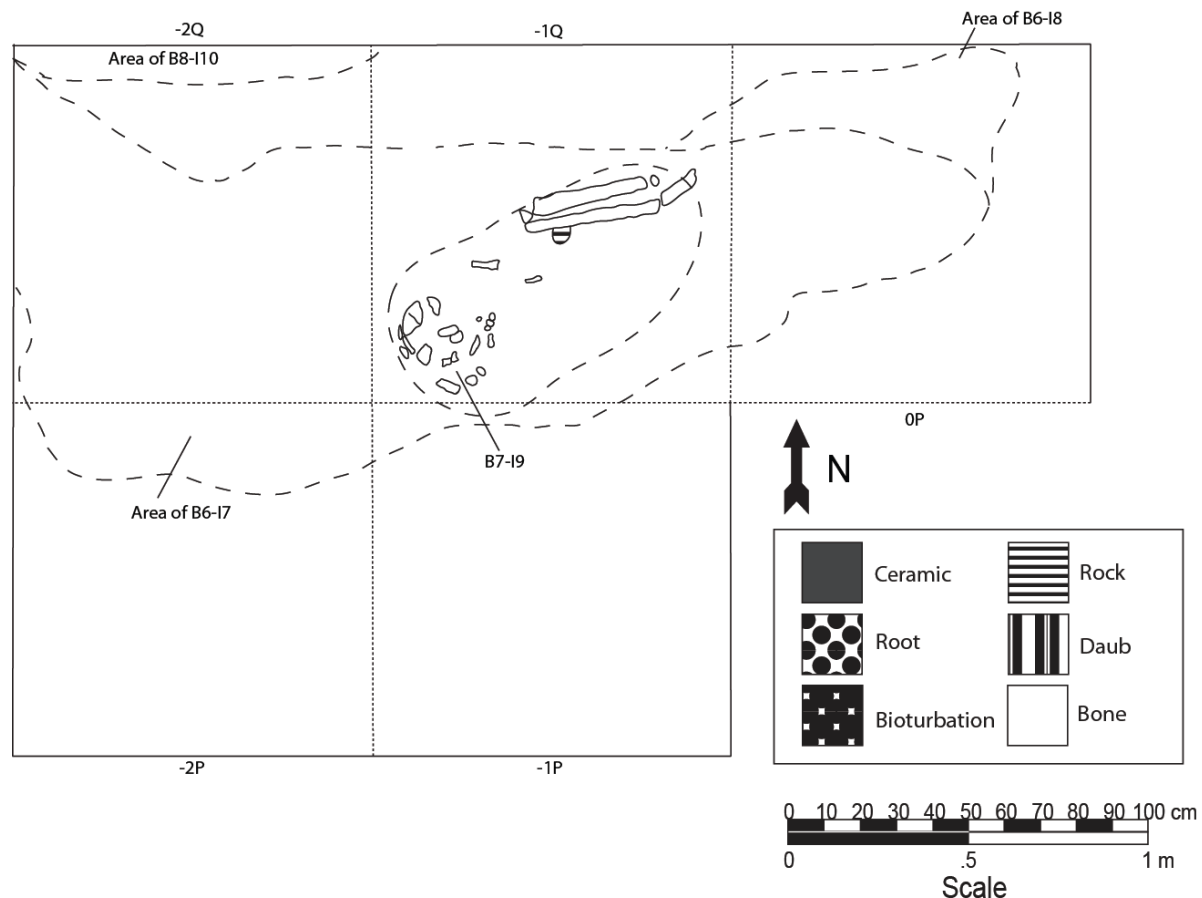


Figure A.5.5: Plan view of B7-I9

Burial 8: primary single

Individual 10

Location: Op. LC12 A, Units -2Q, 3Q, -2R, -3R

Gender/Age: Male/15–18

Orientation: head 90 degrees east of north

Position: extended, prone

Head to: east

Condition: moderate

Possible burial offerings: figurine fragments, partial ocarina, large ceramic vessel fragments, and a large, carbonized seed

Pathologies: dental pathologies include caries (n=1), linear enamel hypoplasias (n=?, age of onset unknown), calculus (mandible), and periodontitis

Date: Tlacuache phase

I10 Comments: A mandibular M2 molar was extracted for isotopic study. This burial was originally recorded in the field as LC12A.4.

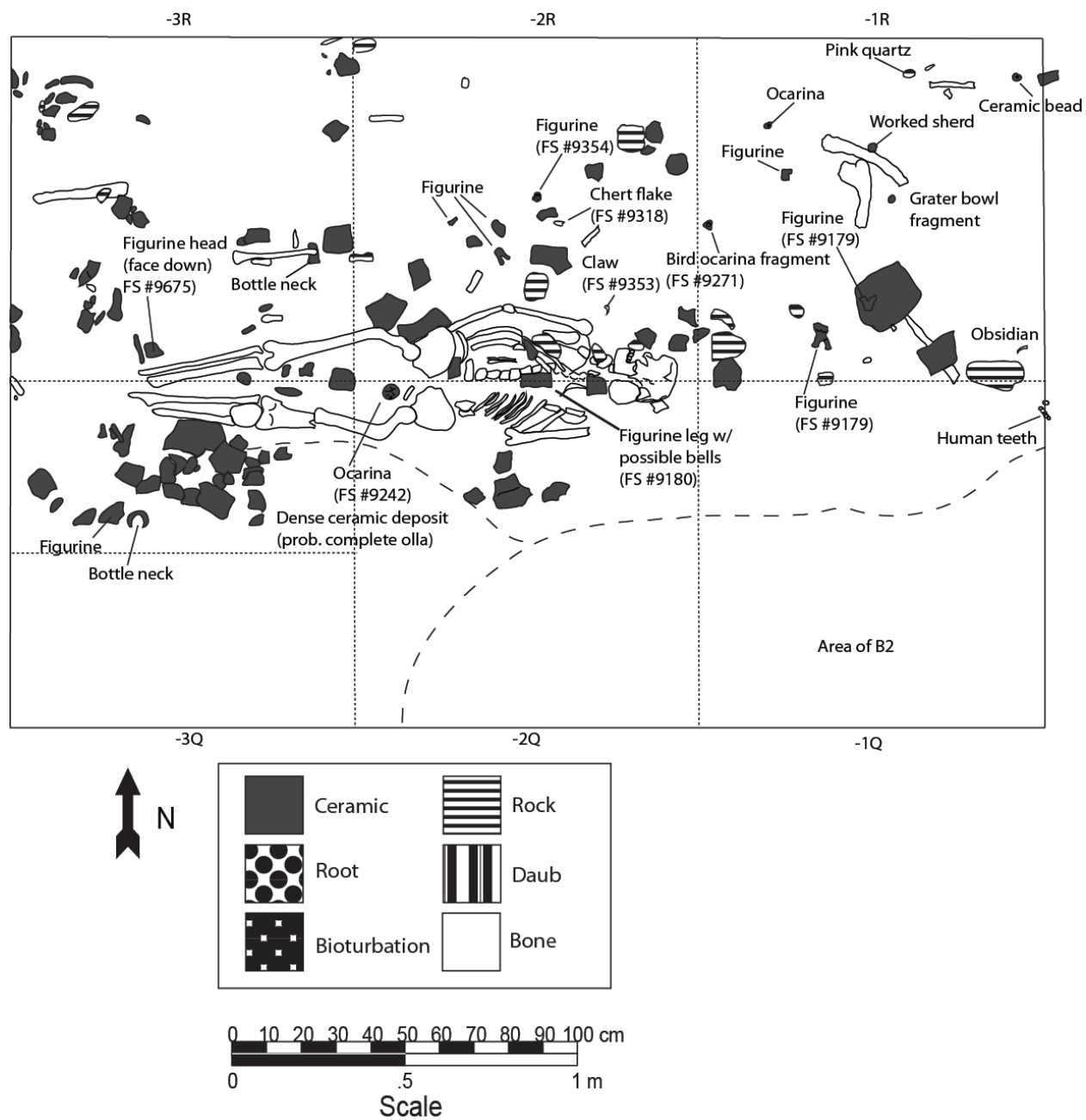


Figure A.5.6: Plan view of B8-I10

Burial 9: primary single

Individual 11

Location: Op. LC12 A, Units 0Q

Gender/Age: Unknown/3–4

Orientation: head 240 degrees east of north

Positon: extended, prone

Head to: southwest

Condition: good

Burial offerings: complete collared jar, nearly complete grater bowl

Possible burials: unidentified green mineral, unidentified black mineral

Date: Tlacuache phase

I11 Comments: The lower legs appear to be missing from this burial, perhaps due to distrubance from later burial events. Individual has some dental wear despite young age. This burial was originally recorded in the field as LC12A.5.

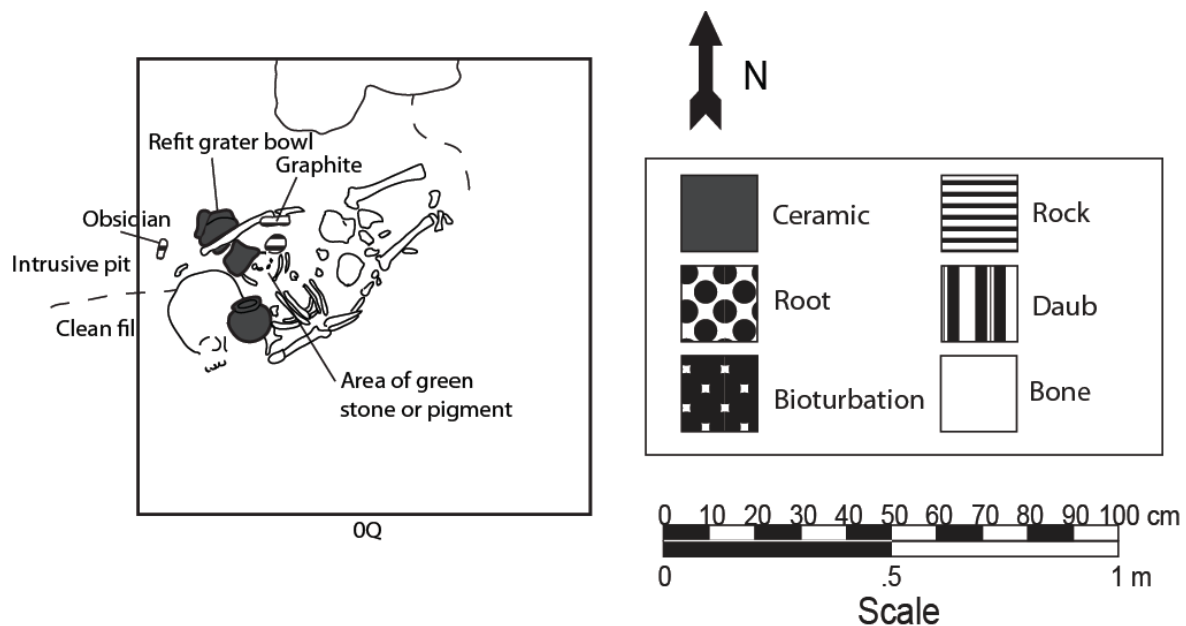


Figure A.5.7: Plan view of B9-I11

Burial 10: primary single

Individual 12

Location: Op. LC12 A, Units 1P, 1O, 0O

Gender/Age: Female (probable)/20–35

Orientation: head 50 degrees east of north (possible)

Positon: extended, prone (probable)

Head to: northwest (probable)

Condition: poor

Possible burial offerings: ceramic fragments, white stone flake

Pathologies: dental pathologies include minor periodontitis

Date: Tlacuache phase

I12 Comments: A right mandibular M2 molar was extracted for isotopic study. The burial illustration suggests two individuals may be represented in this burial (one with the head to southwest and one with the head to the northeast), but skeletal analysis found convincing evidence of only one individual. Preservation of bone is very poor, probably due to shallow interment. This burial was originally recorded in the field as LC12A.6.

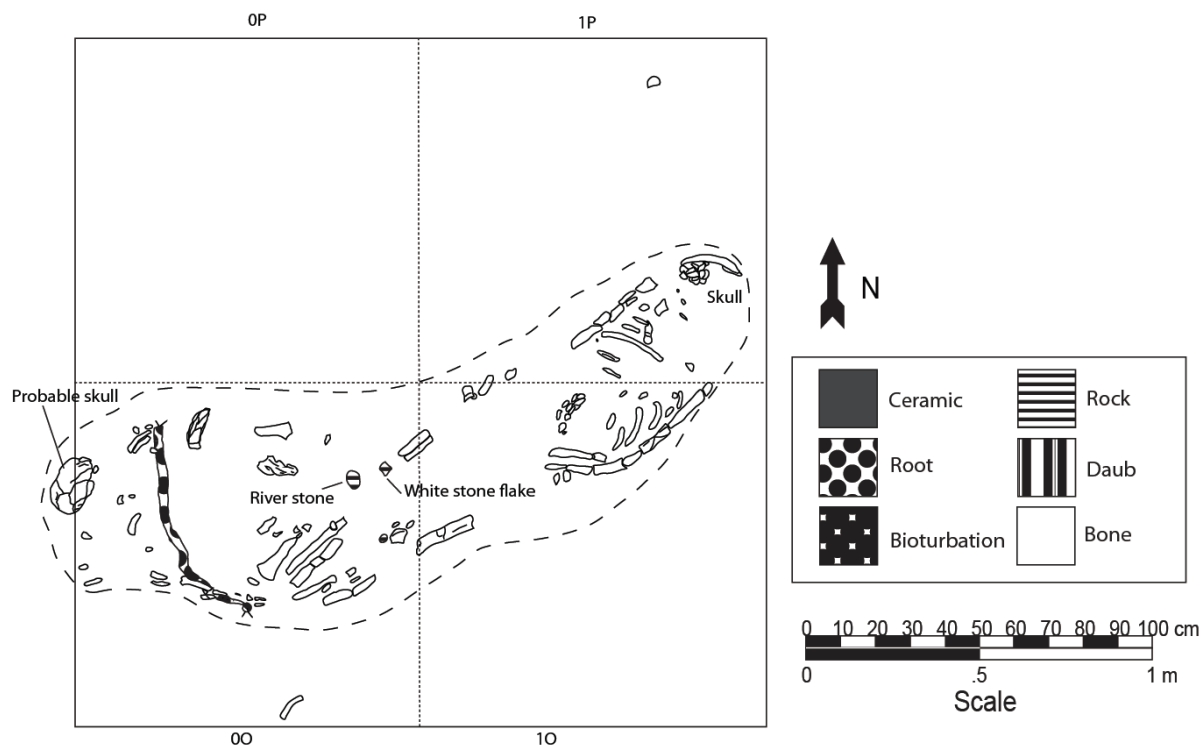


Figure A.5.8: Plan view of B10-I12

Burial 11: primary single

Individual 13

Location: Op. LC12 A, Units -1R, -2R

Gender/Age: Unknown/2–4

Orientation: head 65 degrees east of north

Positon: extended, supine (probable)

Head to: northeast

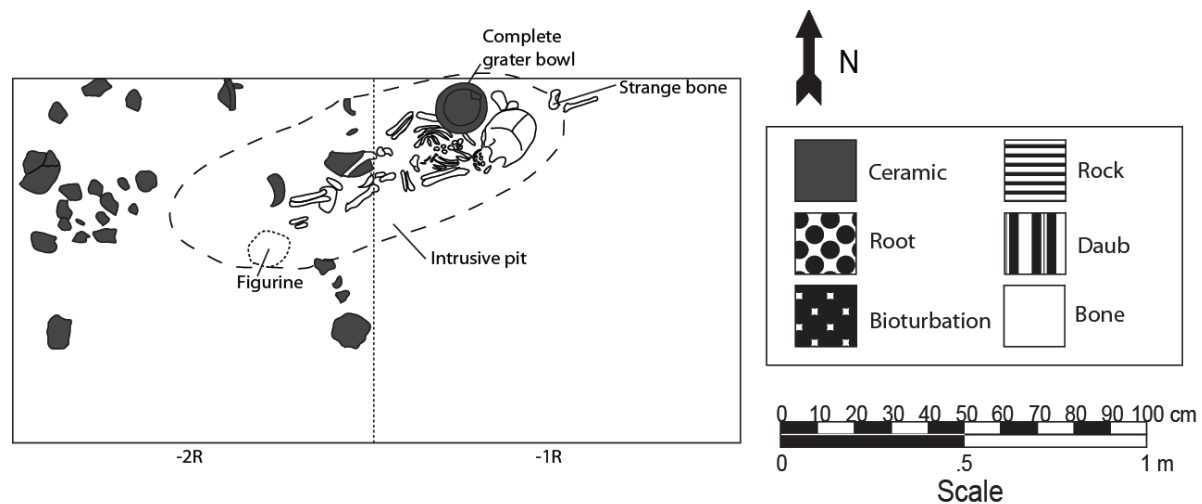
Condition: good

Burial offering: complete grater bowl

Possible burial offerings: lithics, ceramic fragments, figurine fragment

Date: Tlacuache phase

I13 Comments: A complete grater bowl was interred upside-down near individual's head. This burial was originally recorded in the field as LC12A.7.



Burial 12: primary single

Individual 14

Location: Op. LC12 A, Units -3Q, -2Q, -2R

Gender/Age: Female/45–50

Orientation: head 240 degrees east of north

Positon: extended, prone

Head to: southwest

Condition: good

Burial offering: black stone bead near wrist (possible bracelet)

Pathologies: Skeletal pathologies include porotic hyperostosis with an early age of onset, eburnation of the femoral condyles, lipping of the vertebrae, slight lipping of the right glenoid fossa, and signs of occupation stress in the form of squatting facets on both tibiae. Dental pathologies include caries (n=2), a mild case of periodontitis, and premortem loss of the left mandibular M2 molar (with alveolar bone regrowth).

Date: Tlacuache phase

I14 Comments: In general, this individual was a healthy, robust adult who likely had a good, diverse diet with comparatively little evidence of pathology. A left mandibular M3 molar was extracted for isotopic study. This burial was originally recorded in the field as LC12A.8.

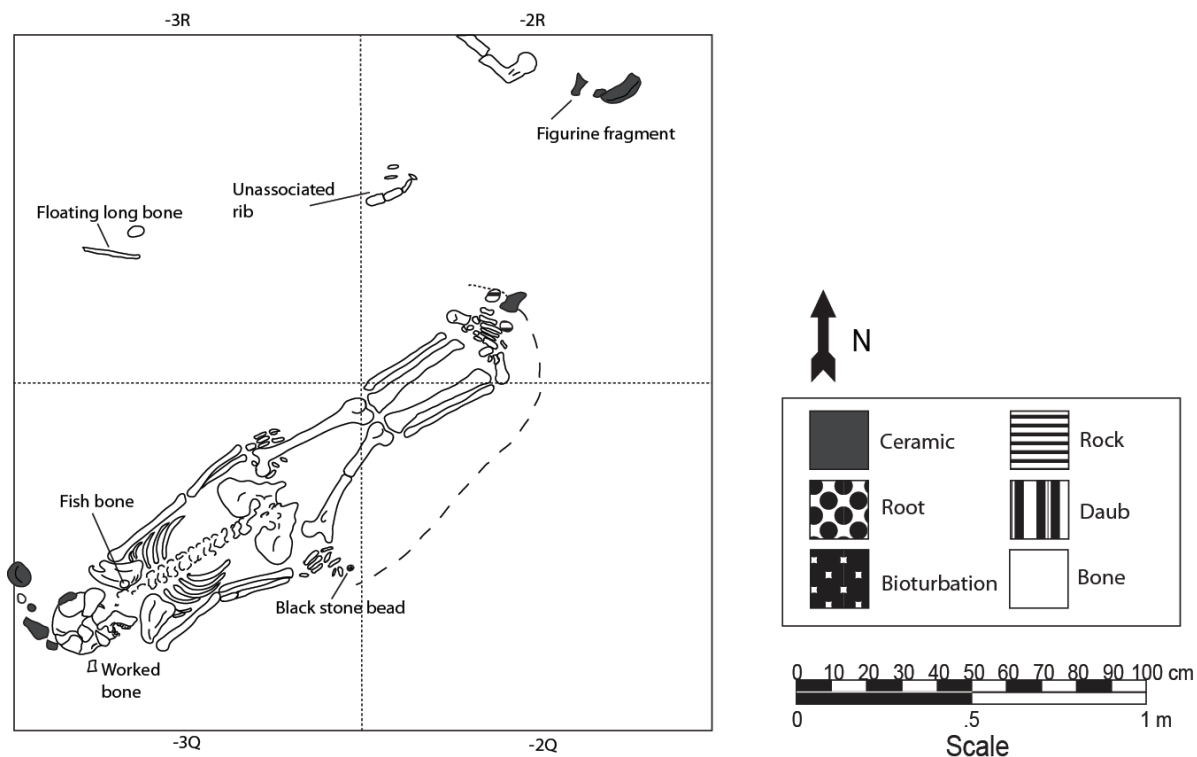


Figure A.5.10: Plan view of B12-I14

The Op. LC09 B and LC12 A Burial areas

The Op. LC09 B and LC12 A burial areas identified at La Consentida were both located at the northern margin of the site, where platform and substructure mound deposits slope down toward the level of the modern surrounding floodplain (see Figure 3.5). Though both of these burial areas were located relatively near mounds that likely supported domestic contexts atop Platform 1, they were not directly associated with any known domestic structures. The closest domestic context possibly associated with any of the burials was the LC09 B-F15 hearth, which was only a few centimeters from burial B1-I1. The burials located near this feature (especially B1) were likely later burial events that are only coincidentally associated with domestic contexts (see Figure A.5.11). As discussed above, the apparently non-domestic nature of the La Consentida burials differs from some highland Oaxacan Early Formative burials (Whalen 1981, 2009). As demonstrated by Joyce (1991b; 2010:181–185) later Formative burials on the Oaxaca coast at sites such as Cerro de la Cruz contain formal cemeteries and human burials associated with domestic structures.

The burials in Op. LC12 A in particular seem to have been placed in consistent spots over time, with later burials frequently disturbing the preceding ones in the area (Figure A.5.12). This suggests that a particular, ostensibly non-domestic area was considered the appropriate venue for human burial over some portion of the site's occupational history. Though it is not possible given available data to know if the individuals located in each of the burial areas were close relatives or members of the same kinship groups, it is clear that these portions of the site were used for human interment away from households and over time, perhaps for generations. While several individuals buried in a single area (at least nine individuals in Op. LC12 A) may not

constitute a cemetery, *per se*, we suggest that these burials nonetheless demonstrate some early stage in the development of formalized, extra-household burial areas. That the northwest edge of the platform was considered an especially appropriate mortuary area is also suggested by the lack of human remains in other excavated contexts at the site. Only a few redeposited human bone fragments have been identified anywhere at the site besides in Ops. LC09 B and LC12 A (Silvia Pérez Hernández, personal communication 2014).

Another interesting pattern among the La Consentida burials is that many of them are oriented northeast-southwest, and several were interred in a prone position. The northwestern quadrat of the site itself (where the burials were located) is oriented in a northeast-southeast fashion, and it is possible that the burials follow this orientation intentionally, leaving many of the human bodies aligned with the form of the site itself (see Figure 3.4). Another possibility is that the burials are aligned to face the direction of the rising and setting sun as measured on some particular day in the solar cycle, such as the summer solstice. We attempted to measure the angle of the rising sun on the summer solstice in 2012, but were unable to reach the site due to flooding from hurricane Carlota, which had recently hit the Pacific coast of Mexico. The angle of the rising sun from the closest point we were able to reach that day (June 21st, 2012) was 61 degrees east of north, which is roughly equivalent to the orientation of some of the burials (either of the head or the feet of individuals in question). Estimates of the angle of the rising sun in the days shortly preceding the solstice suggest that it approximately coincides with both the angle of the northwest edge of Platform 1 and with the burials themselves. Future research may indicate whether other features at La Consentida align with celestial bodies during specific times of the year (*for an example of previous archaeoastronomy research in*

coastal Oaxaca, see Sánchez Nava and Šprajc 2012). The prone positioning of the bodies themselves is rare in the lower Río Verde region (see Barber 2005:Appendix F; A. Joyce 1991b:Appendix 1). While the reason for this change over time in burial positioning in the region is not known, future excavations at La Consentida and other early sites should help to determine whether the prone positioning of human remains is diagnostic of the Early Formative period on the western Oaxaca coast.

It is worthwhile to make a final note regarding associations between La Consentida's human burials and adjacent features. As discussed in Chapter IV and Chapter VII, the LC12 A-F15 ritual cache is located just a few centimeters from some of the Op. LC12 A burials (see Figure A.5.12). The combination of marine and terrestrial faunal remains in this deposit, along with the bird ocarina that suggests more celestial ideological connotations, may represent significant aspects of mortuary ritual at the site. As with the burials themselves, this ritual deposit may have astronomical significance, as the movement of the sun, in conjunction with marine and reptile symbolism, formed part of the "watery underworld" ritual trope associated with death in ancient Mesoamerica and discussed by scholars such as Taube (2010).

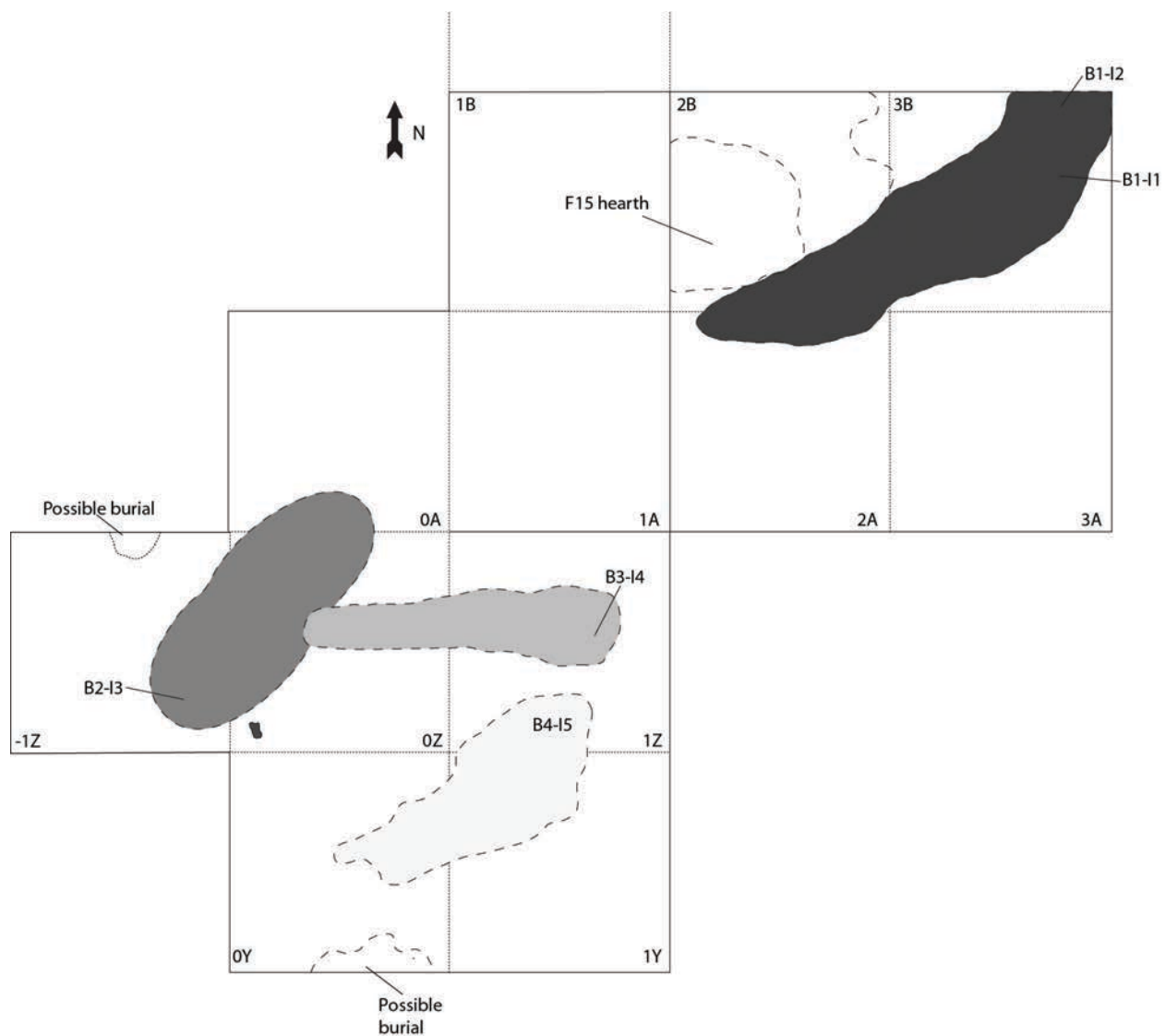


Figure A.5.11: Simplified plan view of Op. LC09 B burial area. Shaded areas demonstrate approximate burial chronology, with darker colors indicating older burials

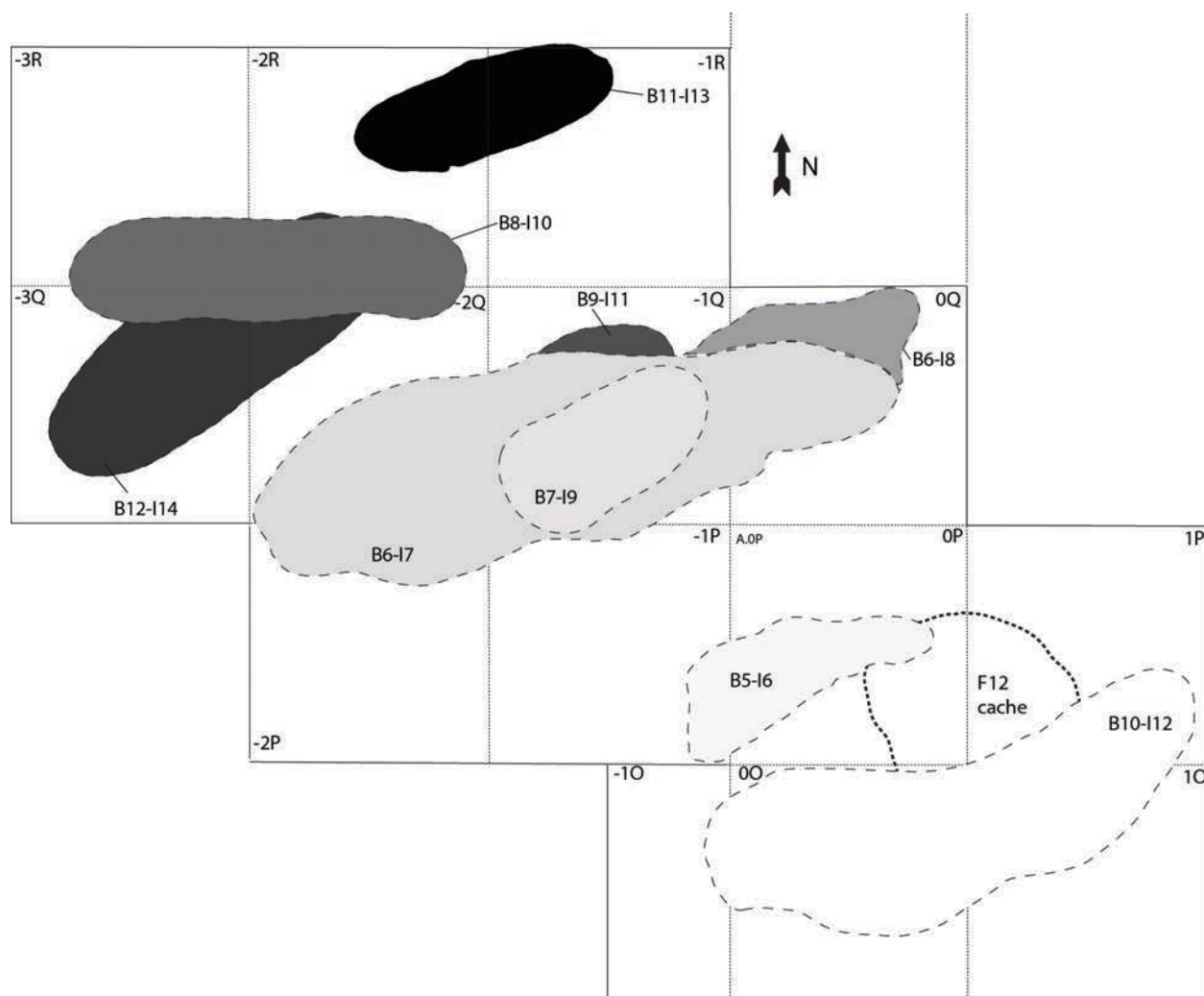


Figure A.5.12: Simplified plan view of Op. LC12 A burial area. Shaded areas demonstrate approximate burial chronology, with darker colors indicating older burials

As discussed in Chapter VI, establishing the relative chronology of the La Consentida burials is an exercise in approximation, as the Op. LC09 B and LC12 A burial areas are located too far from one another to permit definite correlation of their stratigraphy. Nonetheless, stratigraphic sequences within the burial excavation areas, as well as identification of early Platform 1 fill layers (e.g., LC09 B-F14 and LC12 A-F17-s2) versus later fill deposits (e.g., LC09 B-F10 and LC12 A-F4-s1) allows us to approximate the chronological sequence of the burials so far excavated at La Consentida, which we present in Table A.5.1 (see also Table 6.4).

Burial number	Chronological position	Sex	Age estimate	Orientation
B11-I13	1 (oldest)	Undetermined	2–4 years	Head to NE
B12-I14	2	Female	45–50 years	Head to SW
B9-I11	3	Undetermined	3–4 years	Head to SW
B8-I10	4	Male	15–18 years	Head due E
B6-I8	5	Probable male	Unknown adult	Head to NE
B6-I7	6	Male	20–35 years	Head to SW
B7-I9	7	Probable male	20–35 years	Head to SW (possible)
B1-I1	8	Male	35–50 years	Head to NE
B1-I12	8	Undetermined	1–2 years	Head to S (possible)
B2-I13	9	Male	40–50 years	Head to SW
B3-I4	10	Probable female	Over 18 years	Head due E
B4-I5	11	Undetermined	Unknown adult	Head to NE
B5-I6	12	Probable female	20–35 years	Head to SW
B10-I12	13 (most recent)	Probable female	20–35 years	Head to NE, SW (if two individuals present)

Table A.5.1: Approximate chronology of burials excavated at La Consentida in 2009 and 2012