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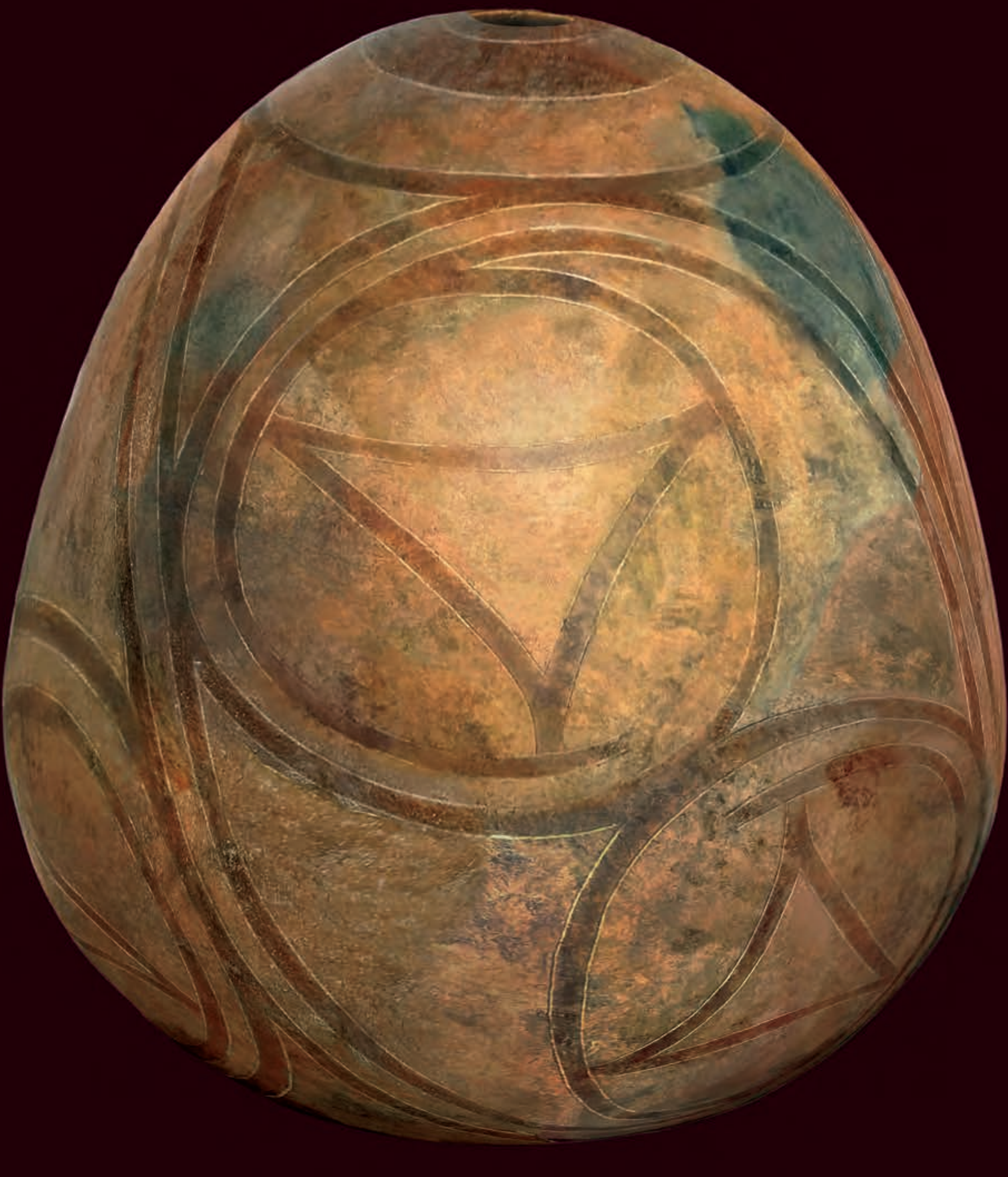

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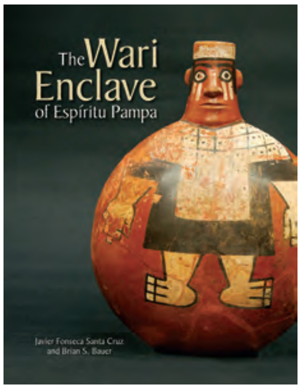

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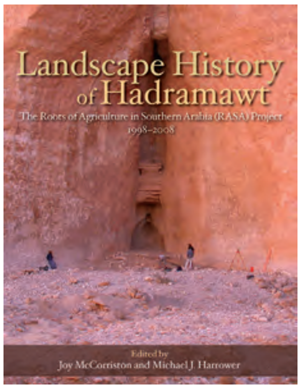

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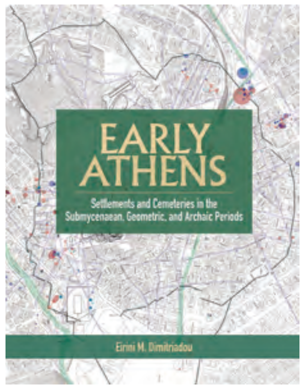

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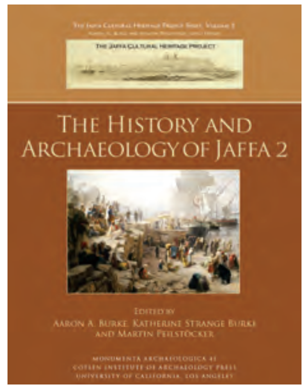

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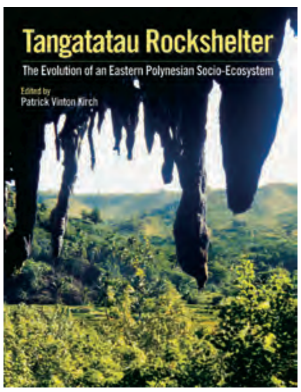

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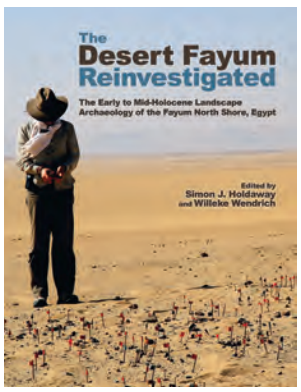

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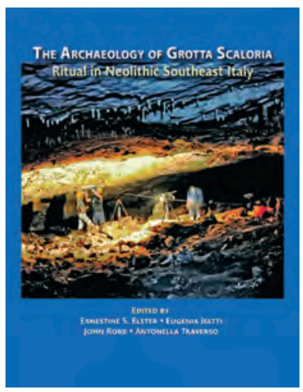

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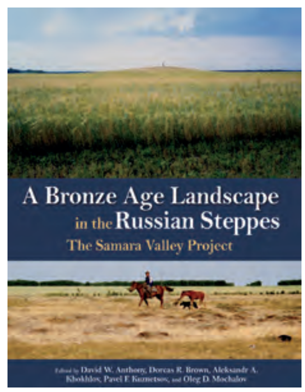

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MARILYN BEAUDRY-CORBETT

MARCH 17, 1932 – JULY 14, 2020

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Acknowledgments

IT IS SOBERING to realize that I have been studying Paso de la Amada for more than half of my life. The debts acquired along the way are considerable. I would first like to thank the people of the municipality of Mazatán, Chiapas, Mexico, for welcoming us so warmly during the course of the fieldwork. Along with my colleagues John Clark and Michael Blake, I am also deeply appreciative of official authorization for the project from the Mexican Instituto Nacional de Antropología e Historia, including the advice and support of Joaquín García Bárcena, Emiliano Gallaga, Alejandro Martínez, Lorena Mirambell, and Carlos Silva Rhodes, among others.

The research described in this volume has relied crucially on four streams or pillars of support. First, I can't imagine how this could have been achieved without the benevolent patronage of the New World Archaeological Foundation (NWAF) of Brigham Young University. During every field season, we relied on the NWAF for most of our field equipment, including vehicles. Those wonderful old tents may have leaked a bit, but that hardly mattered during the dry season. During the two decades since the end of the excavations, the entire collection of artifacts has been curated at the NWAF laboratory in San Cristóbal de Las Casas, Chiapas, allowing plenty of time for thorough study in a wonderfully quirky facility.

Second, John Clark and Michael Blake, codirectors of the Mazatán Early Formative Project—of which the investigations reported here formed part—have contributed in numerous, indispensable ways to all my research efforts in Chiapas. When I was a graduate student, their inspired mentoring contributed greatly to my education as an archaeologist and anthropologist. They also offered an opportunity to work at one of the most fascinating Formative-era sites in Mesoamerica. I am deeply indebted to them for their encouragement, advice, skepticism, and support over more than a quarter of a century.

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Funds for the research described here have come from numerous sources. My dissertation fieldwork in 1992, including excavations at Mound 1 and Pit 32, part of the Mound 12 work, and soundings in several locations, was funded by a Fulbright (IIE) Grant, a grant from the Wenner-Gren Foundation for Anthropological Research, a Social Science Research Council Doctoral Dissertation Grant, the NWAF, and the University of Michigan. In 1993 Michael Blake generously brought me back to continue work at Mound 12 as part of his project funded by the Social Sciences and Humanities Research Council of Canada. My post-dissertation work at Mounds 15 and 32 (1997) was supported by another grant from the Wenner-Gren Foundation as well as the University of California Institute for Mexico and the United States (UC Mexus), the H. John Heinz III Fund Grant Program for Latin American Archaeology, and the NWAF. Part of the laboratory work at that time was supported by Arthur and Fran Sherwood, the UCLA Academic Senate, and the UCLA Division of Social Sciences.

Renewed laboratory work began in 2010, with support from a third Wenner-Gren grant, another grant from UC Mexus, and UCLA sources, including the Academic Senate, the Ahmanson Field Research Fund at the Cotsen Institute of Archaeology, and the Division of Social Sciences. A Collaborative Research Grant from the National Endowment for the Humanities supported important aspects of data analysis and writing, including the initial stages of the production of figures. Research funds provided by the Marilyn Beaudry-Corbett Endowed Chair in Mesoamerican Archaeology were crucial in allowing continuation of those efforts, including what turned out to be very labor-intensive and time-consuming work on the figures and three final seasons of laboratory work in San Cristóbal de Las Casas.

Of course, any views, findings, conclusions, or recommendations expressed in this book do not necessarily represent those of the National Endowment for the Humanities (or, for that matter, any of the other funding agencies just listed).

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Richard G. Lesure

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Richard G. Lesure is professor of anthropology and holds the Marilyn Beaudry-Corbett Endowed Chair in Mesoamerican Archaeology at the University of California, Los Angeles. A specialist in the Formative era of ancient Mesoamerican civilizations, he has previously published two monographs with the Cotsen Institute of Archaeology Press, including *Formative Lifeways in Central Tlaxcala*, *Volume 1: Excavations*, *Ceramics*, *and Chronology* (2015). His publications on ancient art include *Interpreting Ancient Figurines: Context*, *Comparison*, *and Prehistoric Art*, a comparative analysis of how archaeologists working in different world regions have interpreted prehistoric human imagery (Cambridge University Press, 2011).

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PART I

RESEARCH PROBLEMS AND METHODS

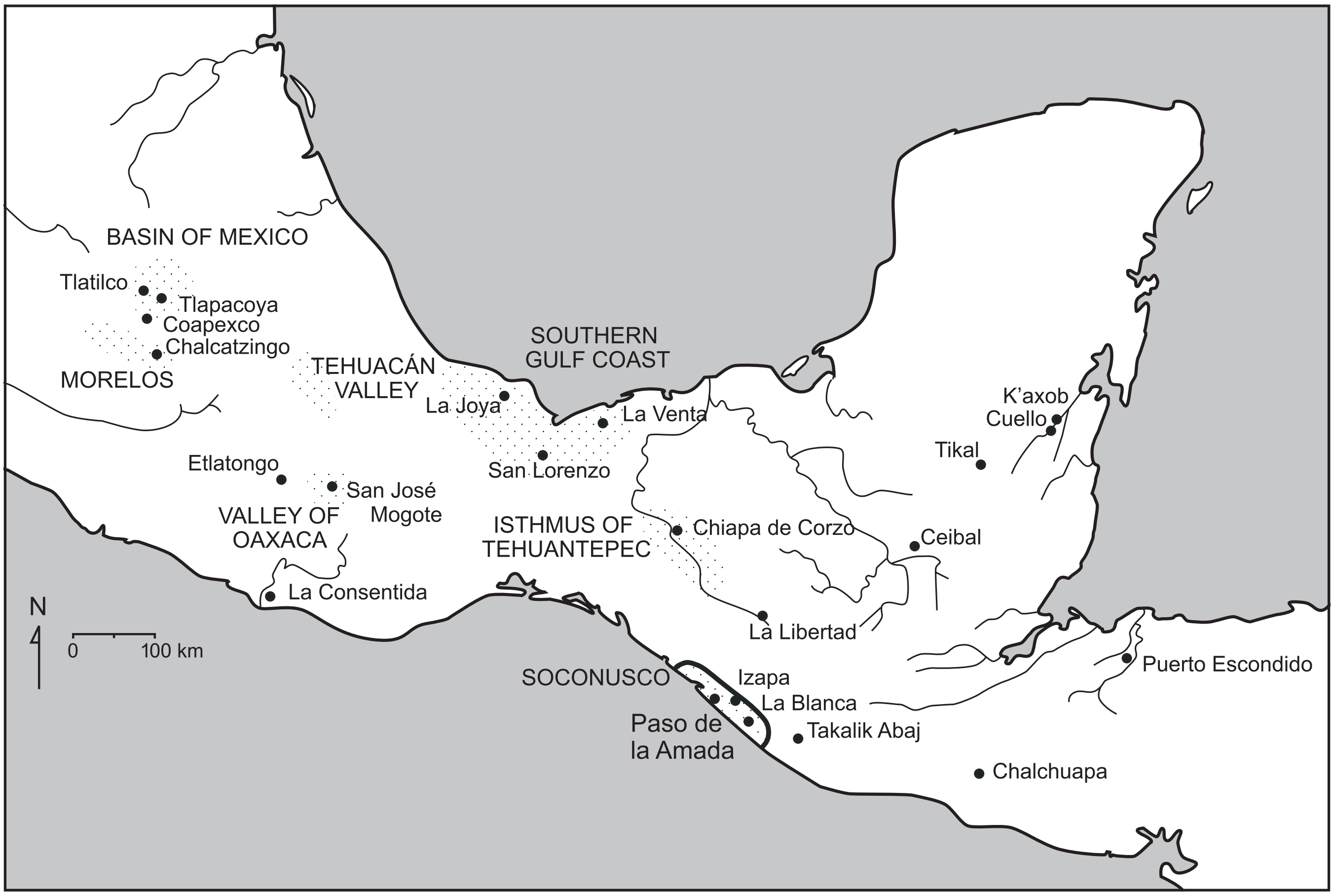

Figure 1.1. Map of Mesoamerica, showing selected sites, regions, and geographical features. *Illustration by R. Lesure.*

CHAPTER 1

Research at Paso de la Amada

Richard G. Lesure, John E. Clark,
and Michael Blake

PASO DE LA AMADA, an archaeological site in the Soconusco region of the Pacific Coast of Mexico, was among the earliest sedentary, ceramic-using villages of Mesoamerica. With an occupation that extended across 140 ha in 1600 BC,[1] it was also one of the largest communities of its era (Figure 1.1). First settled around 1900 BC, the site was abandoned 600 years later during what appears to have been a period of local political turmoil. A new large center, Cantón Corralito, emerged, contesting Paso de la Amada's prominence. The decline of Paso de la Amada corresponded with a rupture in local traditions of material culture, intensified contacts with peoples of the southern Gulf Coast, and adoption, in the Soconusco, of a range of elements of Early Olmec style. Stylistically, the material culture of Paso de la Amada corresponds predominantly to the pre-Olmec "Mokaya" tradition (Clark and Blake 1994:22).

Except for what seem to have been a few isolated homesteads between 1200 and 1000 BC and again during the twentieth century AD, the site has not been occupied since 1300 BC. Today it is farmland. Although plow damage to the archaeological deposits is significant, the lack of any overburden from later occupation means that remains of the occupation from 1900 through 1300 BC are readily accessible to investigation. Excavations have revealed significant earthen constructions from as early as 1700 BC. Those include the earliest known Mesoamerican ballcourt and traces of a series of high-status residences. Although the houses themselves were of perishable materials, the remains of one residence in the series include a spectacularly preserved earthen platform, 22 m long, with low earthen walls defining the interior space.

Under the aegis of the Mazatán Early Formative Project, directed by John Clark and Michael Blake, Paso de la Amada was excavated by various investigators from 1985 through 1997. This volume is one of what we anticipate will be several final reports on the project. Here we describe various mound and off-mound excavations *other* than those at the elite residence (Mound 6) and the ballcourt (Mound 7). Most of the investigations and associated materials reported here derive from Lesure's dissertation and post-dissertation excavations. We also include several other test excavations and a study of human remains excavated from 1992 through 1997.

The present chapter provides an overview of the region, the site, and the three general research topics. Initially, the primary topic of research was the origin of social inequality. The goal was to study residential differentiation and social inequality at a large Initial Formative chiefdom. Although the resulting body of evidence is uneven, the artifact assemblage represents one of the largest currently available for consideration of residential differences at a large village of that era (1900–1400 BC). A second topic has been the nature of subsistence in the Soconusco during the second millennium BC and what that might tell us about development of the agricultural system of later Mesoamerican civilizations. The third research topic is the social archaeology of Paso de la Amada, an effort to understand the specific history an early sedentary community.

1. All dates in this volume are in calendar years unless otherwise specified.

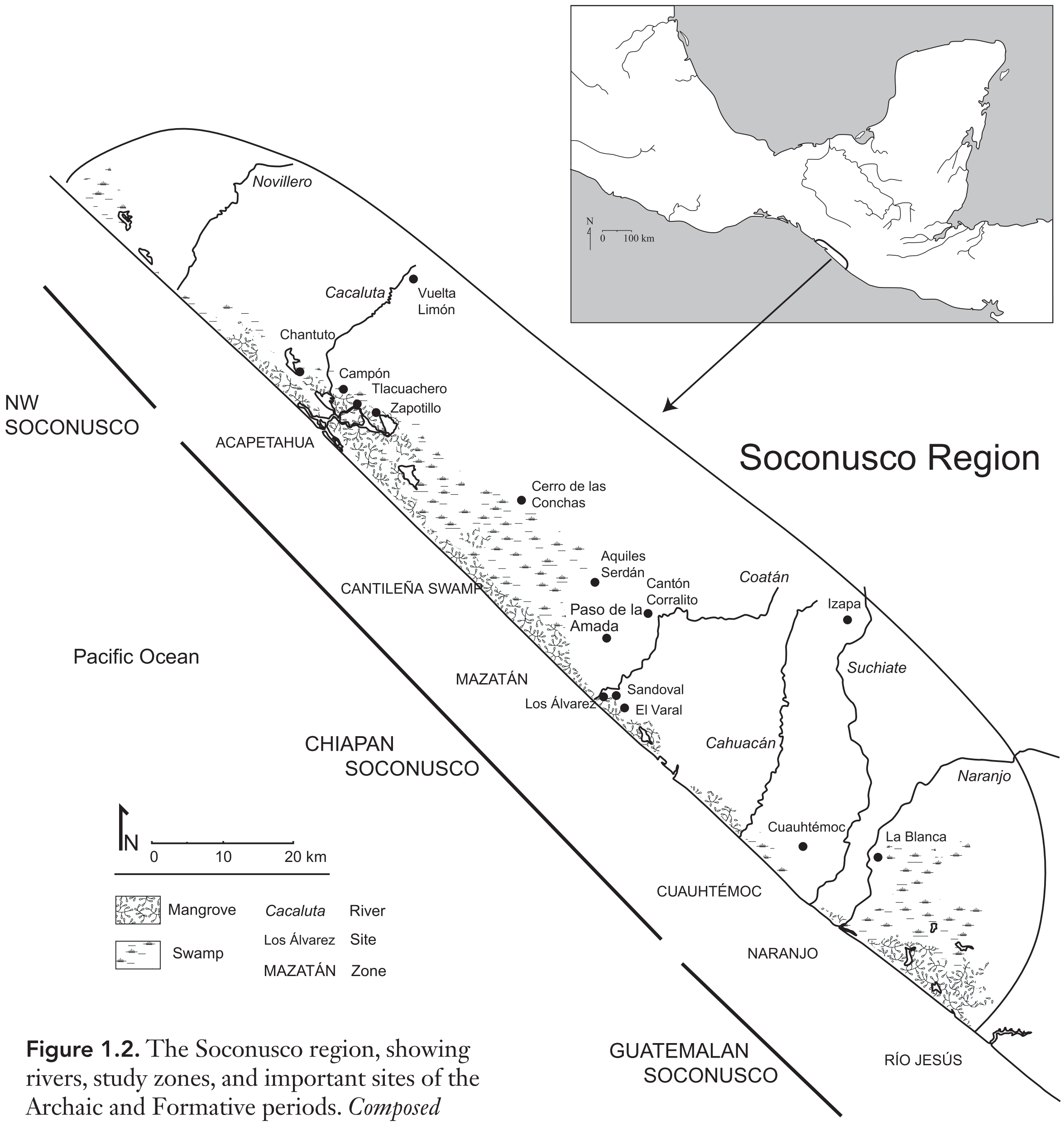

Figure 1.2. The Soconusco region, showing rivers, study zones, and important sites of the Archaic and Formative periods. *Composed by R. Lesure and project staff.*

THE SOCONUSCO REGION

The Soconusco, shown in Figure 1.2, is a narrow strip of the Pacific Coast of Chiapas, Mexico, and neighboring Guatemala (Clark 1994a:58–80; Coe and Flannery 1967:11–15; Lowe et al. 1982:55–62; Voorhies 1976:18–23). It is sharply delimited inland by the rise of the Sierra Madre. High rainfall feeds numerous rivers that descend from the mountains to feed an estuary system protected from the ocean by a sandy barrier beach. The tidal influx of saltwater to the estuary system is offset by the continual input of river-borne freshwater, creating gradients of salinity from points of tidal inflow (the lower estuary) to lagoons and freshwater swamps of the upper estuary, closest to the sources of freshwater (Michaels and Voorhies 1999:42; Voorhies 1976:22–23).

Virtually all the rain falls between mid-May and mid-October, leading to sharply defined wet and dry seasons. The input of water has dramatic effects on the estuary system. Salinity decreases in lagoons (Voorhies 2004:12). Water levels also increase. One result is seasonal flooding in savanna zones dominated by grasses and low trees along the margins of the estuary as well as in old river channels farther inland, including those within the vicinity of Paso de la Amada (Figure 1.3). Seasonally flooded lands would have provided a succession of subsistence opportunities during the dry season, first as a source of aquatic foods, then as choice locations for an extra agricultural crop when

Figure 1.3. Flooded oxbow south of Paso de la Amada in May 1992, looking north across the oxbow toward Mound 6. Mound 6 is the light-colored strip in the center of the photograph, behind the flock of birds. *Photo by R. Lesure.*

surrounding lands were completely dry (Clark 1994a:76; Clark et al. 2007:37).

The wild resources of the Soconusco were diverse and abundant (Alvarez del Toro 1990:Chapter 6). Important potential foods for inhabitants included fish, mollusks, shrimp, crabs, reptiles, and mammals, as well as a plethora of fruits and other less well-documented plant products (Blake and Neff 2011; Clark 1994a:Table 2; Kennett et al. 2006:Table 6.1; Lowe et al. 1982:62–71). The inhabitants of Paso de la Amada ate a diverse array of animals from most of the various habitats within several kilometers of the site.

The agricultural potential of the Soconusco coastal plain is also considerable. Still, one pattern that affects agriculture in the region is a drop-off in rainfall from the slopes of the Sierra Madre to the coastline. The rainfall differential between foothill and seashore locations less than 40 km apart can reach 200 cm per year (see Lowe et al. 1982:55–62). The rainy season is also longer in the foothills than on the coast. One result is that lands 20 km or more inland can provide two or even three crops a year without irrigation, an opportunity unavailable closer to the estuary except through use of seasonally flooded areas (Clark 1994a:72–82). For people dwelling immediately beside or in the estuary, a general scarcity of salt-free soils capable of supporting crops is compounded by a lack of water during the dry season, both for drinking and for crops.

As a result of these patterns, optimal settlement locations for agriculture and exploitation of wild aquatic resources are different: inland on the coastal plain for agriculture, near the estuary for wild resources. A change in settlement focus is apparent over the course of the Formative. Between the second millennium BC (Initial and Early Formative) and the first millennium BC (Middle and Late Formative), the locations of the largest centers shifted from near the estuary (Paso de la Amada, Aquiles Serdán, Chilo) to inland on the coastal plain (Izapa, Takalik Abaj). The shift appears to be the result of the gradual reformulation of subsistence strategies toward an emphasis on agricultural production over wild aquatic foods (Kennett et al. 2006:132–33).

Consideration of the settlement system of the Late Archaic complicates the picture, since it undermines the impression of unidirectional shift. Most known Archaic sites are shell mounds in the estuary, but these appear to have been special-purpose sites for the harvesting of shellfish and other resources. In Barbara Voorhies's (2004) model of Archaic settlement patterns in the region, base camps for the mobile hunter-gather-fisher-farmers of the era were located inland, on the coastal plain. Following that argument, the establishment of sedentary villages in the Initial Formative involved a shift in the focus of settlement toward the estuary (with its abundant wild aquatic resources) and therefore away from the optimal location for agriculture. Yet, by the later Formative, the focus of settlement had returned to the coastal plain. The Initial Formative pattern thus may have been part of a long-term oscillation in which the focus of settlement shifted from the interior coastal plain (Archaic) to near-estuary areas like the Coatán delta (Initial and Early Formative) and back to the

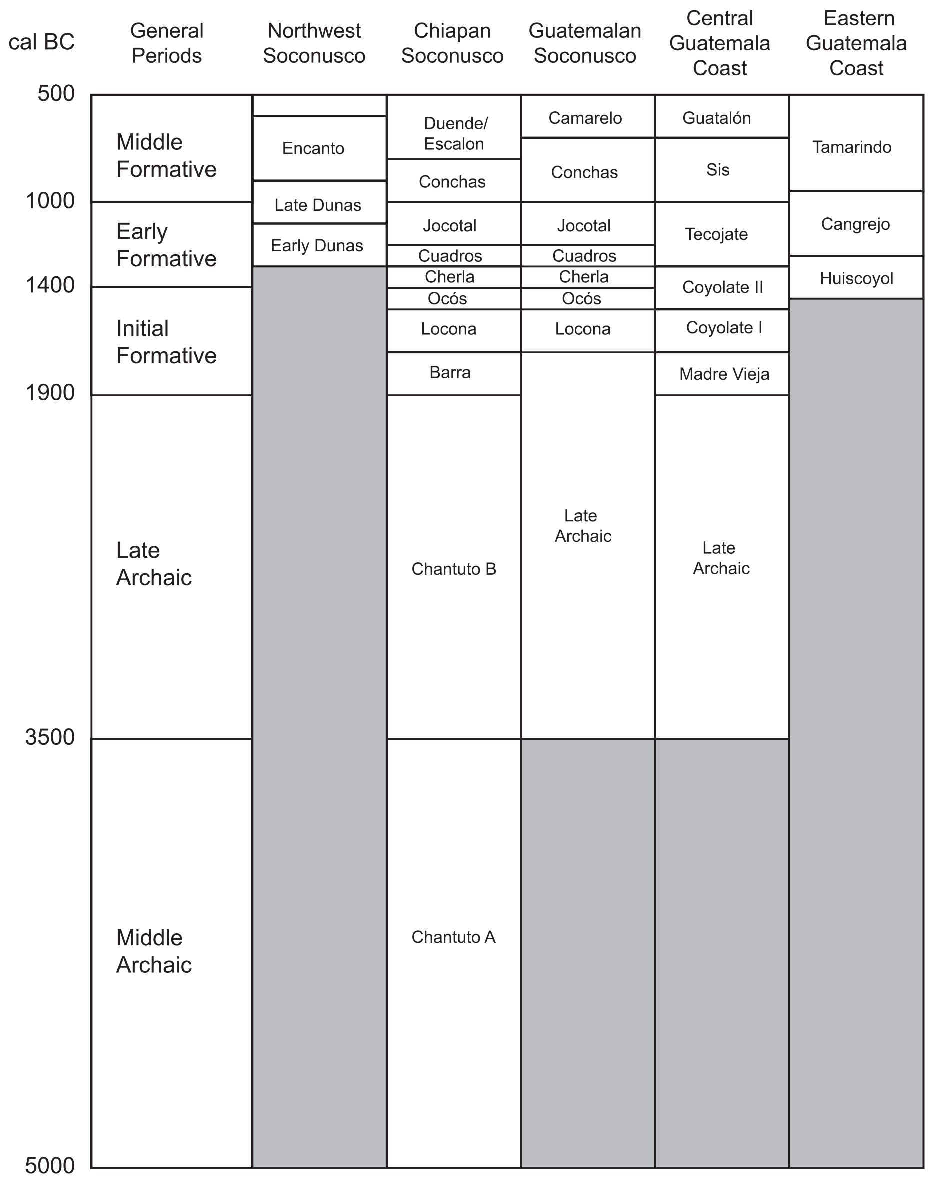

Figure 1.4. Archaic and Formative chronologies along the Pacific Coast of Mesoamerica. Sources: Arroyo 1994; Arroyo et al. 2002; Blake et al. 1995; Clark and Cheetham 2005; Love 2007; Lowe 2007:66; Morgan 2011; Rosenswig 2011; Voorhies 2004. *Composed by R. Lesure.*

coastal plain (Middle–Late Formative). The authors of this chapter disagree on the status of Voorhies's model. Lesure finds it convincing, while Clark does not. The authors of Chapter 26 of this book accept the model for their consideration of diet in Initial Formative Paso de la Amada in the context of long-term trajectories of changing subsistence practices.

THE MAZATÁN ZONE OF THE SOCONUSCO

Paso de la Amada is one of a dense cluster of sites in the Mazatán zone of the Soconusco, a subregion that essentially corresponds to the delta of the Coatán River. During much of the second millennium BC, the Mazatán zone appears to have been at least *among* the most densely populated areas of the entire Soconusco—and likely *the* most densely settled area. One reason may have been that the Coatán delta provided a particularly effective location for a broad subsistence system reliant on both agriculture and the harvesting of wild resources in the estuaries. As is argued in Chapter 26, it represented an optimal location appropriate for the broad-based subsistence system of the Initial Formative.

Immediately to the northwest of the Mazatán zone is the freshwater Cantileña Swamp (also referred to as the

Hueyate Swamp) and beyond that the Acapetahua zone. In the Acapetahua area, the estuary extends farther inland than in Mazatán (9 km as opposed to 1 to 3 km). Initial and Early Formative settlement in Acapetahua is significantly less dense than in Mazatán, but use of the estuary during the Late Archaic is well documented at half a dozen shell mounds (Voorhies 2004, 2015). Clark and Hodgson (2009) report significant Archaic occupation also in the Cantileña Swamp. To the southeast of Mazatán there is a continued extension of Initial–Early Formative settlement of gradually diminishing density. The large village of Cuauhtémoc was of similar size to those of Mazatán, but it does not appear to have been part of such a dense settlement cluster.

In the Mazatán zone, by the Locona phase (Figure 1.4), there were seven sites of more than 10 ha, including Paso de la Amada, Chilo, and San Carlos (Clark 1994a: 196–203, 2004a:54–55). Paso de la Amada, at approximately 140 ha, appears to have been a "first among equals." It was not a paramount center for the region but rather the seat of a small chiefdom among a cluster of such polities (Clark and Blake 1994). That basic political system persisted through the abandonment of the site. It would be the newly prominent center of Cantón Corralito that would, for the first time, integrate much of the Mazatán zone into a regional polity (Cheetham 2010a, 2010b; Clark 1997), during the Cuadros phase of 1300–1200 BC and thus after the abandonment of Paso de la Amada.

PASO DE LA AMADA: AN INITIAL FORMATIVE CEREMONIAL CENTER

Paso de la Amada is located in farmlands of the *ejido* (collective farm) of Buenos Aires (Figure 1.5). Today the terrain is gently undulating. Old oxbows of the Coatán are identifiable within and around the site (Figure 1.6). Excavations reported here indicate that surface relief at the time of initial settlement was more pronounced than it is today (see Chapter 7). The Coatán may have shifted to its current course (and thus away from the vicinity of Paso de la Amada) not long before the Initial Formative occupation of the site (Gutiérrez 2011). The first inhabitants built houses preferentially on the elevated terrain of old overbank deposits. Yet excavations reveal that part of the relief visible on the surface today is the result of artificial earthen constructions dating to the Initial and Early Formative periods.

Fifty low mounds were mapped by Jorge Fausto Ceja Tenorio (1985) in the 1970s and/or more recently by Clark and colleagues (Clark 2004a:57). By the 1990s, some of those were identifiable only as light-colored patches of soil with high artifact densities; the surface relief originally observed by Ceja had been plowed away.

In most of the mounds tested, excavations revealed artificial earthen construction. (Mound 15 is a possible exception.) There was also settlement in off-mound, naturally elevated areas. Examples reported here include Mz-250

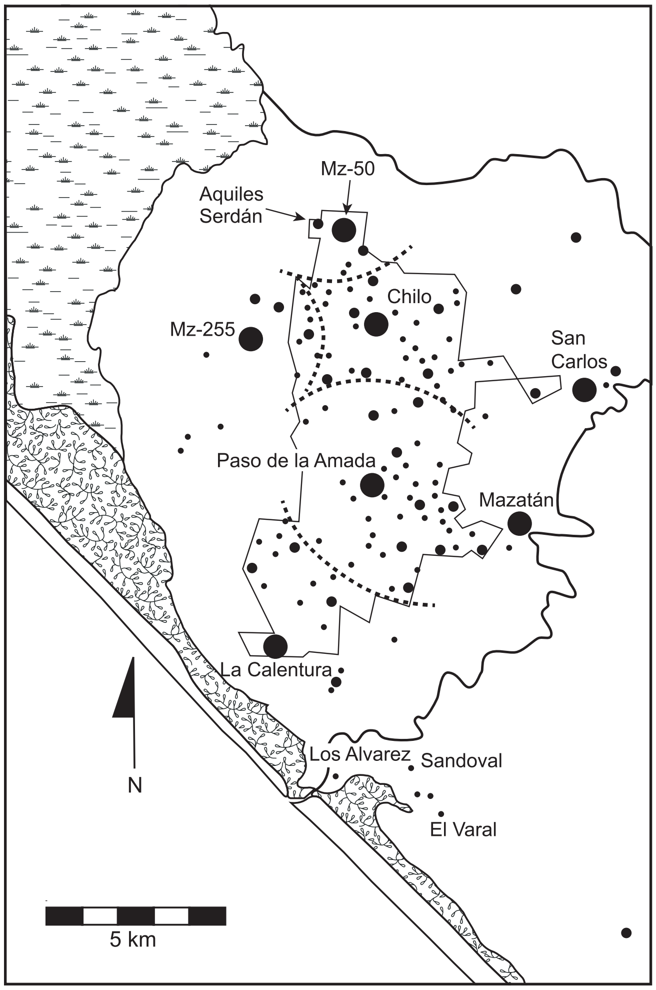

Figure 1.5. Interpretation of Locona settlement patterns in the Mazatán zone of the Soconusco. Large villages were spaced at approximately 5 km intervals and surrounded by clusters of hamlets and homesteads. Large sites and a few others mentioned in chapters to follow are labeled. *Composed by R. Lesure based on Clark 1994a:Figure 62 and Clark 2004a:Figure 2.3.*

and the Pit 32 excavations. The latter area today appears to be a random point on the gentle slope that descends from Mound 1 into the old oxbow that forms the southern margin of the site. Yet excavation shows that this was a locally elevated area in the Locona phase; the original undulating relief has been evened out by erosion and plowing.

In initial excavations at the site, Ceja Tenorio (1985) clearly established its surprising size and early date. Three important discoveries in work conducted since 1985 help lay the basis for current understandings of the site.

First is the sequence of high-status residences in Mound 6. Excavated traces of perishable structures from the Initial and even the Early Formative are rare, and they are known mainly from highland regions, where the buildings were typically 6 to 8 m in length (Flannery and Marcus 2005; Tolstoy 1989a). Mound 6 of Paso de la Amada, excavated

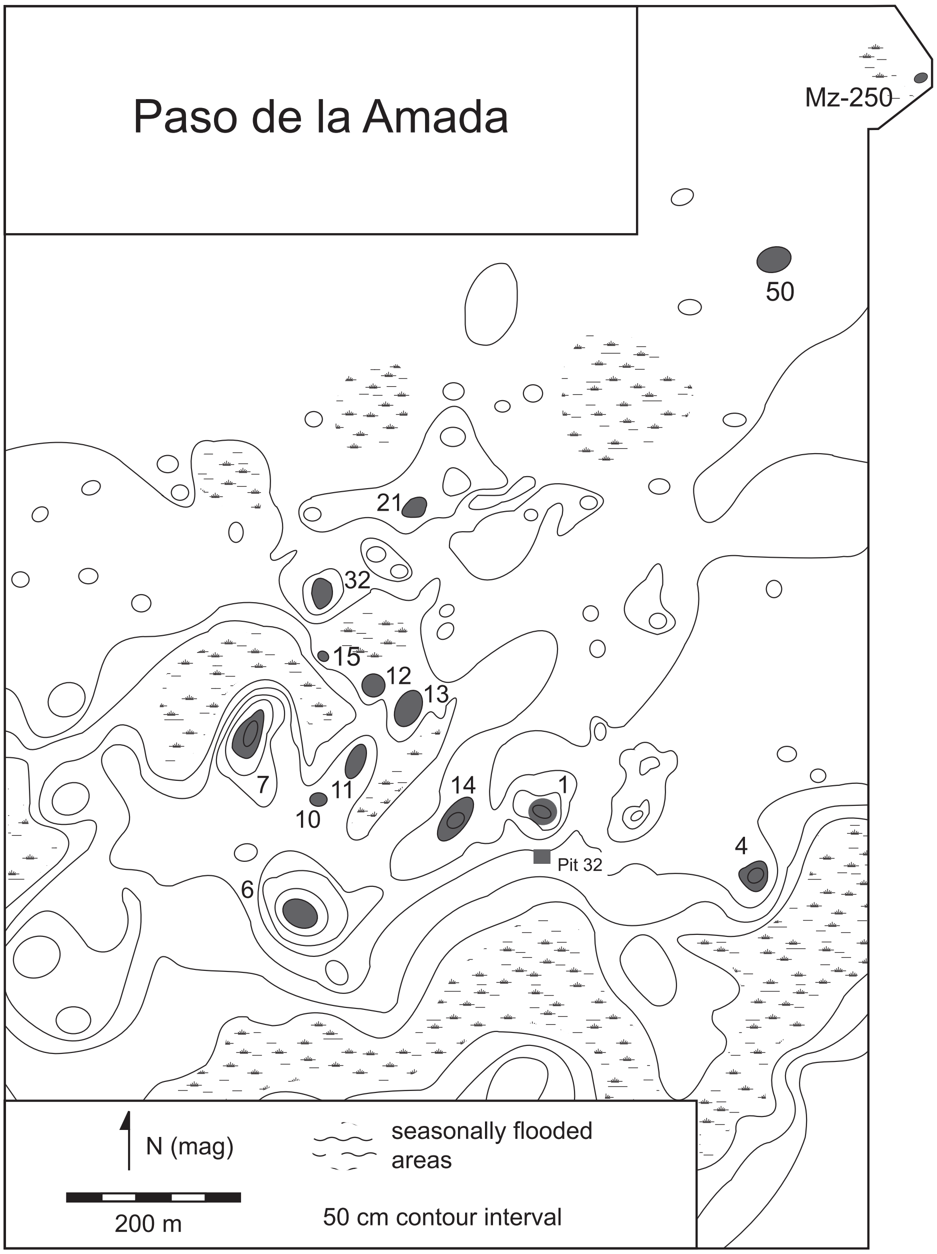

Figure 1.6. Map of Paso de la Amada showing excavated mounds (identified by number) and the locations of two significant off-mound excavations, Pit 32 and Mz-250. Contour interval is 50 cm. *Topographic base map by Ronald Lowe. Figure composed by R. Lesure.*

by Michael Blake between 1985 and 1995, proved to contain traces of a sequence of large pole-and-thatch buildings constructed one after another on a steadily expanding earthen platform (Figure 1.7a). The most startling was a building early in the sequence (Figure 1.7b). It was 22 m long, with low clay walls or benches, well preserved in this case beneath the fill of later structures.

The artifacts and features associated with the Mound 6 structures indicate that people lived in them, engaging in the full range of domestic activities evidenced elsewhere at the site. We identify the sequence of buildings at Mound 6 as comprising high-status residences, probably successive residences of a series of village chiefs (Blake 1991, 2011; Blake and Clark 1999; Blake et al. 2006; Clark 1994a, 2004a). For debate over interpretation of the structures, see Clark (2004a), Lesure and Blake (2002), and Marcus and Flannery (1996:90–91).

The second important discovery is the ballcourt (Figure 1.7c). Blake initially expected to find another large building in Mound 7, the biggest mound at the site. Intensive exca-

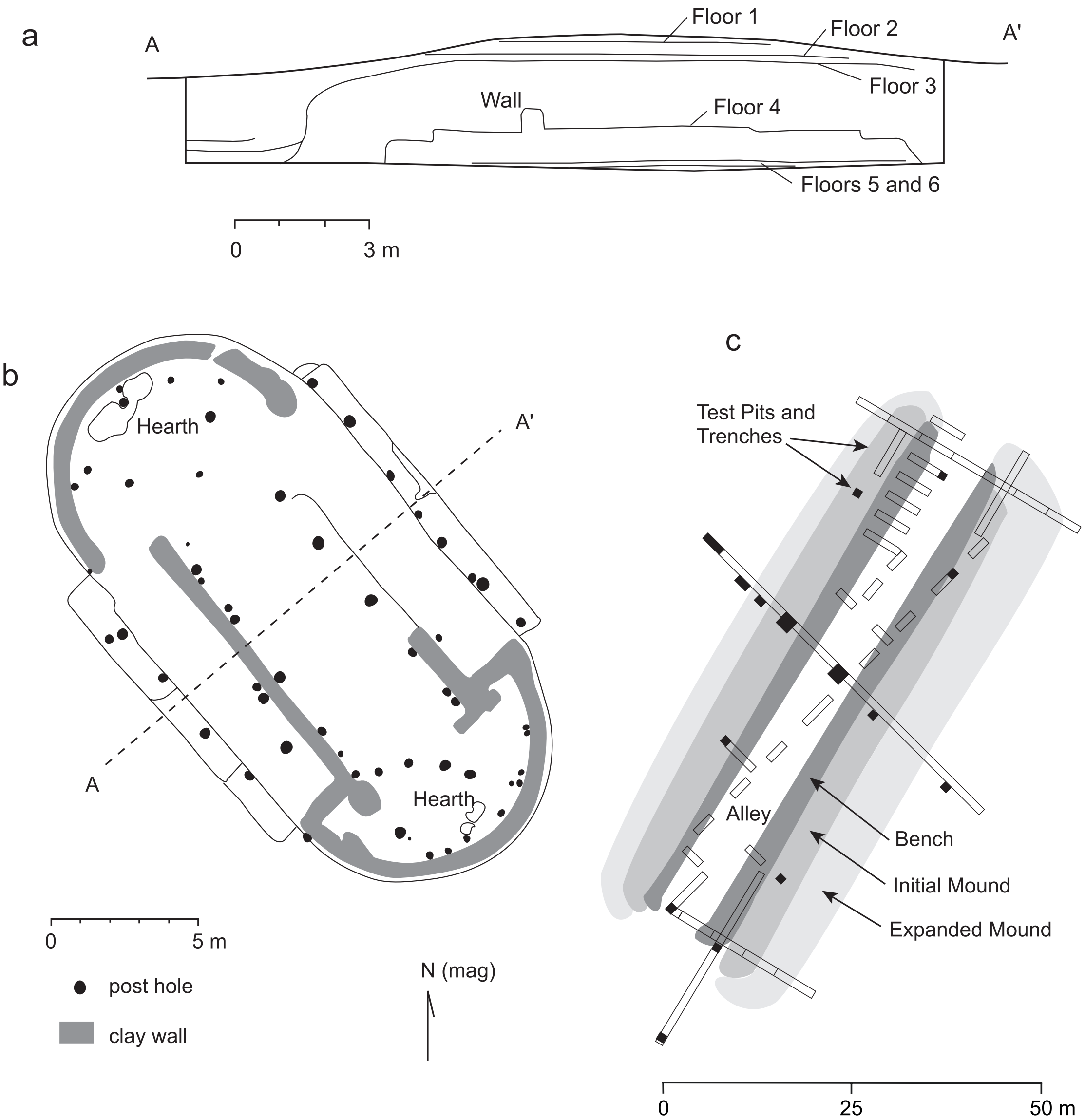

Figure 1.7. The chief's residence and ballcourt at Paso de la Amada: (a) simplified profile showing floors of successive structures at Mound 6; (b) plan of Structure 4 at Mound 6; (c) plan of ballcourt showing locations of excavations. *Redrawn by R. Lesure from Clark 1994a:Figure 79 and Blake 2011:Figures 5.2, 5.5, and 5.7.*

vations by Blake and Warren Hill in 1995 instead revealed that what today appears to be a single mound originated as two parallel, earthen platforms in the classic form of a Mesoamerican ballcourt. Erosion and plowing have erased surface traces of the two platforms. The Paso de la Amada ballcourt is the earliest currently known. Its prominence in the site and the massive labor investment it represents suggest that the ball game likely already had important religious and/or political implications at this time (Blake 2011; Hill 1999; Hill and Clark 2001; Hill et al. 1998).

The third discovery is identification of the site as a ceremonial center. This is actually a synthesis of a series of individual findings, beginning with the recognition that the scale of earthen construction at the site went considerably beyond platforms for individual residences. As we worked through implications of discovery of the ballcourt, we realized that the large Locona buildings were systematically aligned in relation to that facility. Clark (2004a) suggested that the Locona-era site was the result of an ambitious collective labor project with evidence of planning at a massive scale. He identified a large plaza in the southwestern sector of the site, associated with the ballcourt and the chief's residence, and suggested that some bajos (low-lying, seasonally inundated areas) were human constructions. In several works, he considers the possibility of a systematic unit of measure, the encoding of Mesoamerican sacred numbers, and the nature of large-scale planning (Clark 2004a, 2004b; Clark et al. 2010). Lesure (2011a) has explored the character of routinized activities in different settings and proposes that large, platform-top residences of the Locona phase were not simply places for occasional rituals. The daily life of the inhabitants of these buildings was ritualized in ways not evident at smaller residences.

Clark (2004a:65) envisions the ceremonial organization of Paso de la Amada as involving a plaza without a temple. Lesure (2011a) suggests, further, that a distinction between "public" and "private" buildings was absent in the Locona phase but developed over the course of the occupation, leading to construction of the site's first public buildings/temples in the Cherla phase (at Mounds 1 and 12). There is plenty of scope for discussion and debate on the ceremonial character of Paso de la Amada. The authors of this chapter do not agree on all particulars, but we all enthusiastically endorse the identification of the site as one of Mesoamerica's earliest known ceremonial centers.

INVESTIGATIONS REPORTED IN THIS VOLUME

Excavations reported here include trenches and extensive exposures in Mounds 1 and 12; trenches with small expansions in Mound 32, Mz-250, and Pit 32; multiple test pits in Mounds 13 and 21; single test pits in Mounds 10, 11, 13, and 14 and in four off-mound locations (Pits 29, 30, 31, and 33).

The original goal was to excavate several houses with associated midden deposits. Those would provide a basis for the study of residential differentiation and social inequality in an Initial Formative chiefdom. For a variety of reasons, we were less successful than we had hoped in recovering traces of actual structures. First, structural remains were preserved only where they had been covered with significant subsequent platform fill. Second, even when remains of structures (of perishable materials) were protected by platform fill, the direct superposition of a platform on a preexisting structure—spectacularly present at Mound 6—was not observed in either of the mounds subjected to significant extensive excavations. Third, we had not anticipated the frequency of significant earthen constructions and the large size of the platforms. Finally, in the absence of any stone for construction, platforms were built entirely of earth. In addition to the challenges posed by their large sizes, the recognition of platform deposits and their boundaries was by no means a trivial task.

Traces of several pole-and-thatch buildings are described in Chapters 3 and 4, but in terms of architecture, the main achievement of the excavations was documentation of the nature and extent of platform constructions. We also recovered midden deposits and other features associated with platform-top and ground-level residences. Contextual analysis of those features leads to a proposal on multi-dwelling residential groups discussed in Chapter 7.

Nearly 1.1 million artifacts from screened units were recovered in the excavations, mostly potsherds and obsidian flakes. This assemblage constitutes one of the largest extant collections of Initial Formative (pre-Olmec) material culture from any site in Mesoamerica. Although the dispersion of samples across the site is uneven in a variety of ways, the assemblage provides the basis for consideration of residential differentiation in household artifacts as a component of social inequality.

Highlights among the artifacts include an extraordinary ceramic statuette from Mound 32, including what might be the earliest case of eyes inlaid with obsidian mirrors. There is an important collection of personal ornaments in jadeite and other materials, including thousands of clay ear ornaments, mostly from a single mound. Subsistence evidence includes a large and diverse collection of identified faunal remains, with 148 genera in 95 families of crustaceans, fish, birds, amphibians, reptiles, and mammals.

Excavations at Mounds 6 and 7 have been discussed in numerous articles; final results will be reported in a future monograph. Other investigations at Paso de la Amada not described in this volume include tests and trenches in Mound 50 and smaller test excavations in Mounds 2 and 4. There are also the two long trenches from Mound 6 excavated by Clark in 1995. Trench 1 was particularly important, providing crucial evidence for Clark's interpretation of the site as a ceremonial center.

RESEARCH FOCI

The excavations and/or subsequent analyses have been organized around three broad research topics: the origins of social inequality, subsistence changes from Archaic to Formative times, and an effort to understand the specificity of social practices and the history of the site. The initial excavations were rather narrowly focused on the first of those topics; the other two became more salient during assessment of the results and analysis of the materials.

Residential Differentiation and the Origins of Social Inequality

Toward the end of the 1990 season, on a late afternoon visit to the site, Blake and Clark invited Lesure to consider dissertation research at Paso de la Amada. Specifically, they suggested a program of excavations in multiple mounds with the goal of recovering traces of non-elite houses (and associated middens) for comparison with the sequence of elite residences revealed in Mound 6 and the ones Blake at that point still anticipated finding in Mound 7.

The research presented in this volume was therefore originally formulated with reference to the sequence of structures revealed in Mound 6 and particularly to the major discovery of the 1990 season, Structure 6-4, with its well-preserved platform, porches, and walls or benches in clay (Figure 1.7b). Compared to similarly impressive constructions at other Mesoamerican sites, that building was notably early. Dating to approximately 1650 BC, it was definitively pre-Olmec. Yet if it was a residence, as Blake (1991) was already interpreting the series of structures immediately above it, then it suggested a rapid ("precocious") emergence of social inequality in the Soconusco region, within a couple hundred years of the local transition to the Formative. The general research topic for Lesure's excavations was therefore the emergence of social inequality.

Clark and Blake (1994) contributed to theoretical debates about the emergence of inequality in a paper that was influential enough to be reproduced in two edited collections designed for classroom use (Preucel and Hodder 1996; Smith and Masson 2000). As an empirical case, that paper drew on finds from the 1985–1986 seasons in Mazatán. Blake and Clark (1999) and Clark (1994a, 2004a) further developed the model in later publications. The model, termed *morphogenetic* by Clark (1994a), sees the emergence of institutionalized and eventually hereditary inequality as an unanticipated outcome of political actors competing for prestige. Active prestige-seekers are assumed to exist in every society, and they are termed *aggrandizers*. These self-interested actors are simultaneously rational and culture-bound. Aggrandizers seek followers in order to outcompete other aggrandizers. The relationship between aggrandizer and follower is based on reciprocal benefits. Aggrandizers offer concrete benefits of various kinds to their followers. The latter have the power to switch allegiances, thereby generating pressure on aggrandizers to increase rewards—pressure that, in turn, generates a rising demand for deployable surpluses. Successful aggrandizers manage to give more than they receive and thus keep followers morally indebted to them. In rich environments capable of sustained pressure on resources, aggrandizers may be able to stack the deck in favor of their offspring such that the latter also become successful aggrandizers, thereby creating conditions for the institutionalization of inequality and the perception of rank as hereditary.

Aggrandizers seek power and influence; they are not typically trying to amass possessions for themselves. Further, it is clear that power and prestige can be constituted in a variety of ways (Blanton et al. 1996; Hayden 1995), with quite likely different outcomes in terms of differentiation in household artifact inventories.

Still, there is a basis for expecting that the degree of differentiation in residential architecture observed at Paso de la Amada by the Locona phase should be associated with differences in artifact assemblages. It is, after all, the Barra phase to which the aggrandizer model particularly applies, since the steadily expanding platform and continuity in placement of structures at Mound 6 during the Locona phase is interpreted as evidence of the emergence of hereditary inequality (Clark and Blake 1994:22). Other things being equal, one would expect the hereditary transmission of power and prestige to bring a relaxation of the pressure on aggrandizers to give things away.

Further, one would expect the spectrum of activities at residences of aggrandizers or chiefs to differ from those of typical houses, either quantitatively (the same activities but in different frequencies) or qualitatively (certain activities appearing exclusively in houses of leaders). Specifically, we would expect different levels of engagement in the activities that aggrandizers-cum-chiefs pursue to build and perpetuate their positions of authority and prestige (Clark and Blake 1994:21; Hayden 1995:51–60). Since leaders sponsor public activities, including feasts, one would expect higher frequencies of serving ware, decorated serving ware, and large preparation/service vessels at high-status residences (Clark 1991:17–22; Clark and Blake 1994:22; Hayden 1995:60–63). Leaders are also engaged in the acquisition, production, and circulation of valuables, which may include either exotic imported goods or locally made crafts requiring time and skill. They sponsor production of the latter and their involvement in long-distance contacts and exchanges gives them preferential access to the former (Friedman and Rowlands 1978). One can therefore look for differential distribution of imported goods and labor-intensive craft products—in our case, obsidian, greenstone ornaments, iron ore mirrors, stone bowls, hollow figurines, and sculpted effigy pots. Yet leaders may have given prestige goods to followers, evening out the distribution of those items. It is therefore also important to look for evidence of production of potential prestige objects. Finally, aggrandizers and chiefs may have had differential access to sacred knowledge, and they were likely officiants at communal rituals (Davis-Salazar 2007). We might therefore expect certain ritual objects to be present at leaders' houses and absent elsewhere.

Initial studies of the materials presented here (Lesure 1995, 2011a; Lesure and Blake 2002) found that, during the Locona and Ocós phases and thus during the steady expansion of the platform for the chief's residence at Mound 6, there was evidence of differences in household inventories only in the case of several rare ritual objects. It was in the Cherla phase—after the abandonment of Mound 6—that hints of economic differentiation appeared, specifically in access to imported goods.

In appropriate descriptive chapters, we note evidence relevant to the study of residential differentiation in household artifact inventories, as well as certain challenges posed by unevenness in the sample as a whole. Chapter 25 presents our conclusions on this topic.

Formative Subsistence and the Development of Agrarian Societies in Soconusco

The nature of the subsistence system in the Soconusco during the Initial and Early Formative periods has been a topic of interest for some time (Blake et al. 1992a, 1992b;

Clark 1981, 1994a:217–47; Davis 1975; Lowe 1967, 1975). It became a second important research focus for the Paso de la Amada work primarily because of the large sample of faunal remains recovered. Those have been under analysis at UCLA since 1996 (Lesure et al. 2009a; Steadman et al. 2003; Wake 2004a, 2004b).

In traditional understandings of ancient Mesoamerican culture-history, the Archaic (9000–1900 BC) is envisioned as an era of sparse occupation by nomadic hunter-gatherers and low-level food producers, while the subsequent Formative (1900 BC–AD 200) is understood as a period of rapid sociopolitical developments in sedentary villages. In this formulation, the transition from Archaic to Formative was a moment of far-reaching behavioral transformation involving the establishment of true sedentism, the adoption of pottery, a reorientation of subsistence toward maize agriculture, and the initiation of a "Neolithic" trajectory of demographic expansion. The strength of this as a general formulation for Mesoamerica has eroded significantly in recent years, with the quadruplet of sedentism–pottery–agriculture–population growth now often seen as associated more with the Middle Formative, from 1000 BC. In contrast, the Initial and Early Formative periods (1900–1000 BC) look transitional in the emergence of sedentism and agriculture (Arnold 1999; Blake et al. 1992a, 1992b; Clark et al. 2007; Killion 2013; Lesure and Wake 2011; Lesure et al. 2014a; Rosenswig 2006; Rosenswig et al. 2015; Smalley and Blake 2003; VanDerwarker 2006; Webster 2011).

Evidence from the Soconusco region has played an important role in recent claims that systems of subsistence and settlement during the second millennium BC were fundamentally different from patterns characteristic of later Mesoamerican civilizations. The transition from Archaic to Formative was marked by the appearance of pottery and the establishment of permanent villages in the Barra phase of 1900–1700 BC, making this area the location for some of the earliest sedentary, pottery-using villages in Mesoamerica (Clark and Blake 1994; Lowe 1977). Yet, the existing evidence on Initial Formative subsistence in the Soconusco does not add up in any simple way. Formative-era macrobotanical remains are dominated by maize from 1900 BC (Blake and Neff 2011; Feddema 1993). From 1700 BC the region witnessed a Neolithic-style demographic expansion (Pye et al. 2011:Table 10.1; see also, more generally Lesure et al. 2014a). Yet despite rapid Locona-phase population growth, pre-Formative (Archaic) practices of food preparation were abandoned only gradually over the course of the second millennium BC (Clark et al. 2007), and a pattern of seasonal mobility between permanent villages and estuary encampments persisted (Lesure 2009c:260–63; Lesure and Wake 2011). Finally, isotopic studies of human bone have been understood to show that maize was *not* a dietary staple until after 1000 BC (Blake et al. 1992a, 1992b; see also Ambrose and Norr 1992; Chisholm et al. 1993; Chisholm and Blake 2006; Clark et al. 2007; Rosenswig 2006; Rosenswig et al. 2015; Smalley and Blake 2003). A recent review of the isotopic evidence leaves the picture at the very least more complicated than previously understood (Blake 2015:145–48; Moreiras 2013).

Faunal resources of the estuary have been identified as an intensifiable natural resource that could have supported sedentism and social inequality without a crop staple (Blake et al. 1992a, 1992b; see also Clark 1994a:217–47; Clark and Blake 1994; Clark and Gosser 1995). However, we still know very little about the details of subsistence practices during the second millennium BC. Was the subsistence system essentially stable, or changing? If it was changing, what was the nature of the change? Was maize, even if not yet a staple, nevertheless becoming more important? Were there changes in the exploitation of wild resources?

The full era of interest for tracing the development of sedentary, agrarian societies in the Soconusco is the Late Archaic through Late Formative (Kennett et al. 2006). The occupation of Paso de la Amada constitutes a comparatively short segment of that span (1900–1300 BC), and the samples of domestic refuse reported here date primarily to the period 1700–1300 BC, just 400 years. Yet this is an important era—the first several hundred years of settled, pottery-using villages—for which large samples of subsistence-related evidence are persistently scarce.

Relevant evidence reported in this volume and synthesized in Chapter 26 includes the pottery (Chapter 8), the grinding stones (Chapter 9), the faunal assemblage (Chapter 14), and the human bones (Chapter 24). We tried to recover botanical remains but were largely unsuccessful because of preservation conditions at the site (Chapter 13).

The Social Archaeology of Initial and Early Formative Soconusco

Our initial efforts to synthesize data from Mazatán at length—the dissertations of Clark (1994a) and Lesure (1995)—took the morphogenetic or other general models of the emergence of social inequality as points of departure and the Soconusco as a test case. In the last 20 years, our interests have expanded. It no longer appears that presentation of the excavations at Paso de la Amada should be organized as the testing of a general model (or even multiple models). At the very least, what sort of model we should test is less clear, because that choice now seems to depend a great deal on the specific nature of institutional arrangements at the site and their history over the course of occupation. It is these last topics that now appear to require the most urgent attention. What is needed is a rich social archaeology of Paso de la Amada (and early Soconusco), with attention to the specificity of beliefs, practices, and institutional arrangements and their transformations over time. Yet, because this is merely the first of multiple monographs in preparation concerning work of the project, it is hardly the place for any general synthesis on these topics. Presented in Chapter 27 is, instead, Lesure's attempt to explore the implications of research described in this volume for understanding the specificity of social practices and the history of the site. Topics considered include the basic unit of production and reproduction, the nature and social use of valuables, the differential ritualization of ordinary activities, and the relation between the Initial Olmec style and the decline of Paso de la Amada.

Organization of the Volume

This book is organized into six parts. Completing Part I is Chapter 2, an overview of methods with an emphasis on the samples of domestic refuse studied in subsequent chapters. Part II includes descriptions of the excavations (Chapters 3 through 6) and a lengthy synthesis (Chapter 7) that addresses aspects of site organization, including the possibility of multi-dwelling residential groups, interpreted as multifamily households. Part III provides basic artifact descriptions and analyses (Chapters 8 through 18), including a synthesis of selected topics in Chapter 19.

Part IV includes three specialized analyses of pottery: a seriation of refuse deposits, an analysis of food residues identified in the matrix of potsherds, and a search for evidence that high-status individuals were innovators based on a micro-stylistic analysis of beveled-rim bowls (Chapters 20 to 22). Part V includes a catalog of burials (Chapter 23) and a physical-anthropological study of the human skeletons (Chapter 24). Part VI consists of three synthetic essays, one on each of the general research topics: the emergence of inequality, changes in subsistence, and the history of social practices at the site.

Table 2.1. Overview of investigations at Paso de la Amada, 1985–1997

Mound Number or Off-Mound Locale	Significant Areal Exposure	Significant Trenching	Small Soundings	Publication Plans
Largest Mounds				
6	1985–86, 1990, 1993	1995	1985	future volume
7		1995	1990	future volume
Other Mounds				
1	1992			Chapter 3
2			1995	future volume
4			1993	future volume
5		1993		future volume
10			1990	Chapter 6
11			1990	Chapter 6
12	1992, 1993	1992	1990	Chapter 4
13			1990, 1993	Chapter 6
14			1993	Chapter 6
15			1997	Chapter 6
21			1992	Chapter 6
32		1997	1992	Chapter 5
50		1995		future volume
Off-Mound Areas				
Vicinity of Mounds 6–7		1995	1985, 1990	future volume
Vicinity of Mound 14			1990	Chapter 6[a]
Vicinity of Mound 1	1992	1992	1992	Chapters 3 and 6[b]
Mz-250		1997	1991	Chapter 6[c]

[a] Pit 29.
[b] Pits 31, 32, and 33. The Pit 32 excavation was considerably expanded.
[c] The 1997 work is described here.

CHAPTER 2

Overview of Excavations, Formation Processes, and Refuse Samples

Richard G. Lesure and Michael Blake

THIS CHAPTER PROVIDES background information on nomenclature and methods. We begin with an overview of the excavations and a general account of field procedures and provenience nomenclature. Discussion then turns to the samples of domestic refuse selected for social analysis. The refuse samples are grouped into alternative sets ("study samples") designed to meet the requirements of different sorts of analyses. Discussion of individual contexts is left to the description of the excavations in Chapters 3 through 6. Here, we consider certain general themes, the outcomes of which undergird the social analyses of subsequent chapters. Topics addressed are unevenness in temporal and spatial coverage, the types of deposits that yielded samples, and the degree to which the refuse therefrom conforms to the expected characteristics of "secondary refuse." We discuss how artifact density and degree of trampling could affect social analysis and compare two approaches to the standardization of artifact frequencies (by volume excavated and weight of associated sherds). Standardization of artifact frequencies by weight of associated sherds is the primary method relied on in this book.

OVERVIEW OF EXCAVATIONS AT PASO DE LA AMADA

In the Soconusco region, Paso de la Amada is the most extensively excavated site of the second millennium BC. Jorge Fausto Ceja Tenorio conducted the first excavations in 1974 (Ceja Tenorio 1985). His 23 test pits, mostly soundings of 1.5 x 1.5 m or 2 x 2 m, focused on Mounds 1 through 5 and several off-mound locations. Work under the aegis of the Mazatán Early Formative Project, directed by John Clark and Michael Blake, began in 1985 and continued through 1997.

Table 2.1 summarizes investigations by season and by the extent of excavation. Three mounds have been the subject of work involving significant areal exposure (excavation blocks of at least 25 m²). Of those, Mounds 1 and 12 are reported in this volume (Chapters 3 and 4, respectively), while Mound 6 will be reported in a future monograph. (In the meantime, see Blake 1991, 2011; Blake and Clark 1999; Blake et al. 2006; Clark 1994a, 2004a.) The off-mound excavation associated with Pit 32 included a block exposure of 25 m² (Chapter 6). Significant trenching (involving continuous exposures of at least 10 m) has been undertaken in nine locations. In addition to the Mound 12 and the Pit 32 excavations (mentioned already for their significant areal exposures), trenching at Mound 32 and at the off-mound location Mz-250 is reported here (Chapters 5 and 6, respectively). Trenches not reported in this volume include those at Mounds 6 and 7 as well as between those mounds (Blake 2011; Blake et al. 2006; Clark 2004a; Hill 1999; Hill et al. 1998). Clark's investigations at Mounds 5 and 50 (Clark 1994a:138–40; Gosser 1994) will likewise be reported in a future monograph. Mounds 10, 11, 13, 14, 15, and 21 were all explored with limited soundings, reported here in Chapter 6; tests in Mounds 2 and 4 will be reported elsewhere. Off-mound soundings in the vicinity of Mounds 6 and 14 (Pits 29 and 30) and to the south of Mound 1 (Pits 31, 32, and 33, with Pit 32 considerably extended by trenching and areal exposure) are described in Chapters 3 and 6.

EXCAVATION NOMENCLATURE

Several systems for designating excavation units have been employed. Ceja Tenorio (1985) excavated test pits, which he numbered sequentially irrespective of where they were located. Test Pits 1 through 3 were in Mound 1, while Test Pits 15 through 19 were in Mound 5, and so on. In 1990 a second system was initiated. In this system, test units were numbered sequentially, starting from 1, in each new mound investigated. Thus Michael Ryan excavated Mound 7 Test Pits 1, 2, and 3, while Lesure excavated Mound 12 Test Pit 1. At the same time, we retained Ceja's sequential numeration for isolated off-mound tests, excavating Test Pits 27, 28, 29, and 30. In this volume, test pits are referred to simply as pits, sometimes abbreviated as P. Thus P29 is Test Pit 29 and Md. 12 P5 is Test Pit 5 at Mound 12. Trenches at Mounds 12 and 32 were numbered and divided into lettered sections. Md. 12 T1E is Section E of Trench 1 at Mound 12, while Md. 32 T4F is Section F of Trench 4 at Mound 32. For the large, horizontal exposures at Mounds 1, 6, and 12, a grid of 2 x 2 m units was established on each mound. Rows along one axis were designated by letters, rows along the other axis by numbers. Each grid unit can thus be uniquely described by a letter and number combination, such as Unit E4, G7, and so forth. (See Figures 3.3 and 4.2.)

Discovery of midden deposits in the off-mound Test Pit 32 prompted a gradual expansion of this test to 12 adjacent units covering 36.5 m^2. The adjacent units were labeled with letters and sometimes numbers: Unit 32A, Unit 32B2, etc. (See Figure 6.10.) That excavation as a whole will be referred to as the Pit 32 excavation. The other off-mound location that saw significant excavation will be referred to as Mz-250. It was originally identified as a small site adjacent to Paso de la Amada, with the site code Mz-250 (Clark 1994a:163). Clark (2004a:Figure 2.5a) now includes this area as part of "greater Paso de la Amada." The 11 units excavated in 1997 were numbered 1 through 11 in the order in which they were opened (Figure 6.16). The excavation as a whole is referred to with the original site designation, Mz-250, though we treat it as part of Paso de la Amada.

EXCAVATION PROCEDURES

Excavations followed one of two basic methods, one for stratigraphic investigations, the other for extensive exposures. *Stratigraphic investigations* were small test pits (generally 1 x 2 m) or trenches (generally in sections of 1 x 2 or 1 x 3 m) excavated in arbitrary 20 cm *levels* and usually screened top to bottom through a 5 mm mesh. Levels were sometimes excavated to conform to natural stratigraphy if stratigraphic changes were identified during excavation. For the *extensive excavations*, a grid of 2 x 2 m units was laid out over the surface of the mound. Excavation proceeded by natural stratigraphic units. Excessively deep natural units were sometimes subdivided arbitrarily for more refined stratigraphic control. Units thus defined stratigraphically and/or arbitrarily were referred to as *lots*, and each was given a unique number. Lots had no preassigned size or shape but rather were defined by the excavator in accordance with each new stratigraphic situation encountered. In abbreviated provenience designations, lots or levels are preceded by a slash. Thus Md. 12 P5/13 refers to Level 13 of Test Pit 5, Mound 12, while Md. 12 E4/15 refers to Lot 15 in Grid Unit E4 at Mound 12

Since both arbitrary and natural criteria were used in defining levels (in the stratigraphic investigations) and lots (in the extensive exposures), these two forms of provenience designations sometimes resembled each other. Levels, however, were always defined solely within individual test pits or trenches. As a result, levels with the same number in different test units are not necessarily correlated. Lots, in the 1992–1993 excavations at Mounds 1 and 12, were not confined to the boundaries of individual excavation units but were defined within each excavation locale as a whole. Samples from the same lot number but different grid units are therefore from the same stratigraphic deposit. In 1997, during excavations of Mound 32 and Mz-250, a new system was introduced: lots were uniquely designated proveniences. See Chapter 5 for further discussion of that system and how it differs from that used in 1992–1993.

A single, arbitrary, primary datum was established for each mound or off-mound excavation locale. The datum was generally 10 to 20 cm above the highest ground in each locale so that all depths could be expressed in centimeters below datum (cm bd). We used line levels and string to set up datum stakes near each excavation unit based on this primary datum. Beginning and ending depths for each lot or level, as well as depths of features or significant artifacts, were measured by line levels from these datum stakes.

Stratigraphic excavations were generally screened top to bottom through a 5 mm mesh. Selected units of the extensive excavations (and some of the trench sections at Mound 32) were not screened. Unscreened lots included deposits of slope wash or platform construction. All culturally significant lots, including occupation surfaces, floors, post holes, features, and midden deposits, were screened. All materials remaining in the screen, including ceramics, obsidian, jade, magnetite, bone, ground stone, fire-cracked rock, pumice fragments, burnt daub, and even pebbles, were retained for analysis in the laboratory.

Burials, floors, structures, and post holes were numbered separately. Units that did not fall into one of those categories but that appeared to have cultural significance were labeled *feature*. The term *floor* was used to designate all living surfaces identified in the excavations, regardless of whether those were structure floors or simply patio or activity areas. We numbered cultural units of each class sequentially either within the site as a whole (burials) or within each mound or off-mound excavation locale (floors,

Table 2.2. Levels of ceramic analysis of materials

Level of Ceramic Analysis	Criteria That Define Level	Total Rims	Total Sherds	Total Weight of Sherds	Percentage of Full Set of Samples Chosen for Study in This Book (by weight)
A	Rim sherds individually analyzed; notes on body sherds	8962	120,860	1031.6	28%
B	Counts of rim sherds by type and detailed form classification; abbreviated notes on body sherds	9980	158,007	1060.5	15%
C	Counts of rim sherds by type and simplified form classification	23,198	352,111	2487.5	46%
D	Overall count and weight of sherds	–	87,908	655.5	11%
E	Weight of sherds only	–	98,995 (estimated)	594.0	1%

post holes, and features). The remains of perishable buildings were numbered in reverse chronological order in each excavation locale (for example, Structure 1 is later than Structure 2). In this volume, we refer to structures either by their full formal designation (for example, Mound 6 Structure 4) or in abbreviated form, with the mound number, a hyphen, and the structure number (Mound 6 Structure 4 becomes Structure 6-4, and Mound 1 Structure 2 becomes Structure 1-2).

From 1990 through 1993, when we assigned numbers to features in the field, we usually did not also assign them lot or level numbers if they were removed as single units. Large or complicated features, however, were divided into multiple lots or levels. Thus Mound 12 Feature 19, a trash pit, was removed as a single unit and therefore does not also have any associated lot number, whereas Mound 12 Feature 2, a complex trash- and sediment-filled ditch, is divided into Lots 12, 13, 15, 19, and 22 where it appears in Units E3 and E4. The lack of a lot or level number associated with some features proved annoying as we worked with the data, and in the 1997 excavations all features were assigned at least one lot number (see Chapter 5).

One of the original goals of the small-mound excavations was to expose and excavate Early Formative house floors. We were not as successful at finding appropriate deposits as we had originally hoped. See Chapter 3 for discussion of a deposit designated Floor 1A/1B at Mound 1, now thought to be a wall remnant and exterior occupation surface associated with Structure 1-2. See Chapter 4 for discussion of a series of hardened surfaces at Mound 12, including Floor 2, compared to the floor of Structure 6-4 in Blake et al. (2006).

Post holes were identified in multiple surfaces at Mounds 1 and 12. Each was completely excavated and screened before excavations proceeded. Post holes were easy to identify and excavate when they contained fill that was radically different in color or texture from the stratum they penetrated. Post holes in Mound 1 tended to fall into this category. Other post holes, especially those in Mound 12, were more difficult to follow: the fill was only subtly different in color or texture from the surrounding matrix.

Most features were completely excavated upon identification. We took 2- to 4-liter sediment samples from trash-filled pits and midden deposits for flotation. Human burials were exposed using ice picks and paintbrushes. Bone preservation was fair to very poor. In several instances we applied a solution of Duco cement and acetone to the bones before removal in an attempt to keep them intact.

Basic processing of the cultural materials was carried out concurrent with the excavations in a field laboratory. Artemio Villatoro of the New World Archaeological Foundation (NWAF) supervised the washing, sorting by material type, counting, and weighing of all materials. After the ceramics from each lot had been counted and weighed, they were sorted again to identify all rims, diagnostic body sherds, and slipped body sherds. Unslipped, non-diagnostic body sherds were then typically discarded. As of 2019, materials are still curated at the NWAF laboratory in San Cristóbal de Las Casas, Chiapas.

ARTIFACT ANALYSES

Analysis of the materials took place between 1990 and 2017. Study of pottery was advanced to different levels for different proveniences. The levels are identified in Table 2.2. Level A involved the most detailed analyses of pottery. Rim sherds were individually recorded, including variables such as rim diameter and wall thickness. In addition, notes were recorded on significant body sherds (bases, decoration, vessel supports, etc.). Level B involved classification of rim sherds to type and form, the latter using the detailed set of codes presented in Chapter 8 (see Figure 8.1). Level C involved classification of rim sherds to type and an abbreviated set of form codes. Level D involved simply counting and weighing the sherds. The intent was for all units to be analyzed at least to Level D. However, the sherds from some units of the platform fill at Mound 1 were weighed but not counted. Level E is used to designate analysis that was restricted to weighing of sherds.

In Table 2.2 the total sample of sherds recovered is broken down according to level of analysis. At levels below A, the full dataset is larger than the value listed because it includes also the levels above. For example, the full Level C dataset includes 42,140 rims (= 8,962 + 9,980 + 23,198). The last column in the table is the percentage corresponding to a given level of analysis of the total weight of sherds chosen for analysis as refuse. (Those percentages pertain to the Expanded Study Sample, defined below.) At every level, more sherds were analyzed than are included among the refuse samples.

Missing data affect the analysis of some proveniences. Errors in the initial processing of artifacts from Mound 1 in the field laboratory led to loss of provenience information for 15 proveniences, mostly from the platform fill. Lab procedures were subsequently improved, and we did not encounter this problem again. None of the affected proveniences is included among the refuse samples used for analysis. Other instances of missing data involve specific classes of information from particular units. From several of the test pit excavations in 1990, we are missing some information, most distressingly the counts and weights of sherds from Test Pit 29, which yielded one of our Cherla refuse samples. (An estimate of the original weight of sherds from Level 6 and Feature 1 of Pit 29 has been used in analyses for this volume; see the discussion of that excavation in Chapter 6.) We appear to be missing a page from the record of fire-cracked rock and daub from Mound 1. Lots 9 and 10 from various grid units are affected. Stone tool data of various kinds are likewise missing from a few provenience units. Information on animal bone is uneven because of differential preservation and incomplete study of the collection. In the analyses in this volume, these instances of missing data are taken into consideration where possible and relevant, on a case-by-case basis.

CHRONOLOGICAL CLASSIFICATION

Refuse units considered here were classified according to the existing Initial and Early Formative chronology for the Mazatán zone (Blake et al. 1995; Clark and Cheetham 2005; Clark personal communication). The phases are identified in Figure 1.4 and a seriation of refuse samples is discussed in Chapter 20. There are four principal phases involved: Barra (1900–1700 BC), Locona (1700–1500 BC), Ocós (1500–1400 BC), and Cherla (1400–1300 BC). Paso de la Amada appears to have been abandoned by the Cuadros phase (1300–1200 BC). There was ephemeral occupation in the Jocotal phase (1200–1000 BC), but none of the refuse samples considered in this volume dates later than the Cherla phase.

No Barra-phase refuse deposits were discovered in the excavations reported in this volume. In addition to refuse samples identified as Locona, Ocós, and Cherla, certain units were identified as Early Locona (perhaps 1700 to 1650 BC) and others as Late Locona (perhaps 1500 or 1450 to 1400 BC).

ACCURACY IN THE EXCAVATION OF DEPOSITS

A constant concern during the excavations was the effort to trace boundaries of deposits accurately in order to retrieve clean samples of the cultural materials they contained. Our success varied according to characteristics of the deposit, and it was sometimes difficult to trace strata as we came down on them in extensive excavations, even when we had the profiles of tests pits or trenches as guides. The surfaces underlying the platforms in Mounds 1, 12, and 32 were identifiable in profile and generally traceable as we came down on them in the extensive excavations, though we did have some problems in a few units of Mounds 1 and 12. Pits penetrating into sterile substrata were generally identifiable from above based on color and/or texture of the matrix and the high density of artifacts. Their lower boundaries were also clear. Examples include Features 8 and 15 at Mound 1 and Features 2, 10, and 19 at Mound 12. Cherla-phase pits that penetrated into Locona/Ocós deposits were more of a challenge. Color and texture distinctions were difficult to follow or nonexistent, and we traced the boundaries of the pits mainly by noting changes in the density of artifacts. Examples include Feature 2 in Mound 11, Feature 1 in Test 29, and Feature 8 at Mound 32. Despite these challenges encountered during excavation, a more significant factor in the identification of appropriate samples for chronological and social analysis is mixing of materials in the original deposits. A background admixture of earlier and sometimes later materials was common in most deposits. The relatively unconsolidated nature of the sediments at the site and substantial earthen movement by the inhabitants yielded admixtures of earlier materials. Root action and the burrowing activities of rodents yielded admixture of both earlier and later materials.

THE REFUSE SAMPLES AND THE STUDY SAMPLES

From 1,066 individual screened proveniences, 531 were identified as yielding samples of domestic refuse that was (relatively) unmixed chronologically or otherwise of interest for analyses. Based on stratigraphic criteria, the 531 original proveniences were consolidated into the 225 Initial Refuse Samples. For the analysis of rare materials, those were further consolidated into 55 Lumped Refuse Samples. Appendix A lists original minimal proveniences with refuse sample designations and other basic information. Data Record 2.1 (available online) is an analyzable spreadsheet with the slightly pruned set of Initial Refuse

Samples used in analyses, particularly for Chapters 19 and 25. Data Record 2.2 is a table listing Lumped Refuse Samples by phase.

The criterion of most interest in selection of proveniences for inclusion among the refuse samples was the degree to which the artifacts they yielded constituted *secondary refuse* (items collected from their primary contexts of use, dumped in another location, and not subsequently disturbed) as opposed to *tertiary refuse* (items dumped in one location and subsequently reworked in various ways, potentially including removal to a new location). (See Rosenswig 2009:16; Schiffer 1972). The distinction between tertiary and secondary refuse is a fuzzy one, best envisioned as a continuum in which the question is the degree to which a set of artifacts approximates the ideal of secondary refuse or instead strays toward the mixed, worked-over character of tertiary refuse (Lesure 2014:11).

Refuse samples deemed to be reasonable approximations of secondary refuse and therefore classified to phase totaled 165. An additional 60 samples from more mixed but nevertheless interesting contexts are included in some analyses of this volume. Those include materials from the Locona platform and the underlying ground surface in Mound 32 (Locona mixed with Barra), the ground surface underlying the platform at Mound 12 (Ocós and some Cherla, referred to as Md12-IV), and the ground surface under the platform at Mound 1 (Ocós and Cherla with some Locona, referred to as Md1-V).

The Initial Refuse Samples are labeled with a four-digit number followed by a letter (see Data Record 2.1). The first two digits correspond to the mound in which the sample is located—01 for Mound 1, 32 for Mound 32, and so forth. The first two digits for off-mound deposits are simply 00. The second two digits are identification numbers for each sample. Within each mound excavation, each sample was assigned a unique identification number. Thus Sample 0103 is the third sample from Mound 1, 1203 is the third sample from Mound 12, and so forth. In some instances, effort was made to assign sample codes in accordance with stratigraphy. In other cases, however, that was not feasible or practical, and in general the two-digit sample code should be treated as an arbitrary cataloging device. Thus the fact that Sample 1267 comes after 1251 and before 1272 has no spatial, stratigraphic, or chronological significance for understanding Sample 1267 other than that all three derive from Mound 12. Each sample label ends with a letter (A through E) that identifies the level of analysis of pottery from that unit (see Table 2.2).

The Lumped Refuse Samples are abbreviated mnemonics that note mound and other distinguishing information, such as phase (L = Locona, LL = Late Locona, O = Ocós, C = Cherla), unit number, or feature number (see Data Record 2.2).

The primary focus of artifact analyses in this volume is on materials recovered in the excavations described in Chapters 3 through 6. However, addressing some of the research questions posed in Chapter 1 necessitates consideration also of refuse from Mound 6, the long-lasting, high-status residence of the Locona and Ocós phases. For comparative purposes, we consider 13 refuse samples from Mound 6 in several of the chapters in this volume. The samples include materials from Locona and Ocós trash-filled pits excavated in 1993 and 1995 as well as a set of Locona samples analyzed by Clark and reported in his dissertation (Clark 1994a:Appendix 1). Clark's Samples AU040, AU044, AU087, AU088, AU094, AU095, AU096, AU097 have been relabeled according to the scheme used here as 0640C, 0644C, 0687C, 0688C, 0694C, 0695C, 0696C, 0697C, respectively.

The full set of refuse samples is diverse and in several ways uneven; the following sections will explore some of that unevenness. One important point is that, depending on the purpose of a given analysis, it may be desirable to select a narrower or wider range of samples. To facilitate that, several standard "study samples" that each include some portion of the full set of refuse samples are identified. Table 2.3 provides examples, broken down by phase, with details of the number of Initial Refuse Samples, the corresponding volume excavated, and the total weight of sherds recovered. The study samples are given names so that they can be easily referred to in subsequent chapters.

The Restricted Study Sample consists of those refuse samples that are assigned to a specific phase and for which pottery analysis reached Level A. This sample is used whenever characteristics of pots beyond type and form (particularly rim diameter) are of interest.

The Basic Study Sample consists of all refuse samples assigned to a specific phase, meaning they are relatively good approximations of secondary refuse. The difference from the Restricted Sample is that all levels of ceramic analysis (A–E) are included.

The Expanded Study Sample adds the interesting but chronologically mixed contexts mentioned above to the Basic Study Sample. In Table 2.3, those are placed in approximate stratigraphic position relative to the sets of samples with clear phase designations. However, it needs to be borne in mind that these placements are approximate, because the units in question are chronologically mixed. For that reason, they will not be lumped with samples with phase designations but always presented as separate rows or columns in analyses for which they are deemed appropriate. The Expanded Study Sample is used particularly in the study of rare items or in other instances when inclusion of as much data as possible is desirable. In Table 2.3, the Basic and Expanded Study Samples (with A–E pottery analysis) are identical in the rows classified to phase (Early Locona, Locona, etc.); the difference is that the Expanded Sample includes additional rows.

Finally in Table 2.3, the appropriate statistics for the samples from Mound 6 are included. Those can be added either to the Basic or the Expanded Study Sample as appropriate in a given analysis.

Table 2.3. Comparison of the restricted, basic, and extended study samples, distributed over time[a]

	Restricted Study Sample (A)			Basic Study Sample (A–E)			Expanded Study Sample (A–E)			Mound 6		
	#	Volume (m^3)	Weight of Sherds (kg)	#	Volume (m^3)	Weight of Sherds (kg)	#	Volume (m^3)	Weight of Sherds (kg)	#	Volume (m^3)	Weight of Sherds (kg)
Early Locona	1	1.3	11.1	2	2.2	12.7	2	2.2	12.7	3	4.2	24.8
Locona	11	23.1	163.0	20	28.7	178.8	20	28.7	178.8	13	67.5	121.7
Md32-surf							1	7.7	3.5			
Md32-plat							1	8.8	16.0			
Late Locona	13	12.6	254.3	26	17.6	342.8	26	17.6	342.8			
Ocós	13	11.6	281.2	47	30.3	654.5	47	30.3	654.5	3	0.9	78.4
Md12-IV							28	15.6	236.0			
Md1-V							27	17.2	111.3			
Md1(Str1-2)							1	3.2	47.4			
Cherla	12	7.7	257.9	74	51.7	2224.7	74	51.7	2224.7			
Totals	50	56.4	967.4	169	130.5	3413.4	227	183.0	3827.6	16	72.8	224.9

[a] Data provided are the number of individual samples (#), the total volume excavated, and the total weight of sherds. Corresponding statistics for samples from Mound 6, not reported in detail in this volume but used for comparative purposes in several of the later chapters, are also provided.

DISTRIBUTION OF REFUSE SAMPLES IN TIME AND SPACE

Table 2.3 shows the overall distribution of the study samples by phase. The sample of Early Locona refuse is quite small. It will often be considered together with Locona. Otherwise, there are reasonably large assemblages for each phase.

Unevenness emerges when the samples are split, in Table 2.4, by location (see particularly the "Area Exposed" and the "Total Number Samples" columns) and by both location and phase (in the central part of the table). As is evident from variation in area exposed, there were radical differences in the effort expended in different locations. The reason is that an important initial goal of the research was to recover architecture. The overall sample of refuse derives from significant investigations in four mounds (Mounds 1, 6, 12, and 32) and more limited excavations in other locations.

Another source of unevenness is that excavation yielded radically different finds from one mound to another. Extensive excavations in Mound 12 revealed sizable late Locona to Ocós middens. In Mound 1, the lower layers of the platform had been quarried from an elite midden of the Cherla phase, yielding a sample much larger than anything else available for that phase. The Mound 32 excavations were focused on documenting a Locona-phase platform. However, the Ocós-phase deposits at the mound yielded more extensive middens.

In terms of the distribution of samples across the site through time, it is useful to consider for a moment just the Locona, Ocós, and Cherla columns in Table 2.4. Although the overall sample of refuse is smallest for the Locona phase, the Locona assemblage is actually more evenly distributed, in more diverse locations, than the assemblages of subsequent phases. In terms of distribution, the Ocós assemblage is the most restricted, though we have sizable samples from three locations (Mounds 6, 12, and 32; note that the Mound 6 sample for the Ocós phase, though significantly smaller than that from Mound 12, is larger than any of the individual Locona-phase samples other than that from Mound 6 itself). For the Cherla phase, we again have additional locations represented (seven, compared to three for Ocós and nine for Locona). However, the distribution of the assemblages among locations is starkly unequal. In terms of sherd weight, 92 percent of the Cherla assemblage is from Mound 1.

The samples listed in other columns can be used to ameliorate some of the unevenness in the primary assemblages of Locona-Ocós-Cherla. Late Locona is often considered together with Locona in the analyses reported here. The Ocós-Cherla ground surface under the platform in Mound 1 may also be considered to address spatial unevenness for Ocós, while that from Mound 12 is of interest for consideration of Cherla.

PRESERVATION OF ORGANIC REMAINS

Organic remains recovered in the excavations include animal bone, shell, and carbonized seeds and plant parts—the

Table 2.4. Extended study sample, split by phase and excavation locale

Location	Area Exposed in m^2	Total Number Samples (total original proveniences)	Breakdown by Phase: Total Weight of Sherds (corresponding number of samples)							Animal Bone: Total NISP (samples) [density]
			Early Locona	Locona Platform and Surface	Locona	Late Locona	Ocós	Ocós-Cherla	Cherla	
Md. 1	182	100 (151)	11.1 (1)		8.5 (3)	26.7 (1)		158.7 (28)	2053.8 (67)	13138 (39) [534.7/m^3]
Md. 6		19	24.8 (3)		121.7 (13)		78.4 (3)			
Md. 11	2	1 (2)							29.1 (1)	
Md. 12	132	99 (203)	1.6 (1)		26.1 (7)	240.0 (20)	516.9 (41)	236.0 (30)		5918 (46) [141.9/m^3]
Md. 13	6	5 (12)			7.0 (2)	6.5 (1)			43.2 (2)	
Md. 14	4	1 (2)			35.1 (1)					82 (1) [64.1/m^3]
Md. 21	10	2 (13)			11.7 (2)					33 (1) [10.5/m^3]
Md. 32	89	8 (90)		19.5 (2)	24.6 (1)		137.6 (4)		11.0 (1)	398 (6) [23.6/m^3]
Mz-250	23.5	2 (39)			43.2 (2)					89 (2) [8.6/m^3]
P29	2	1 (2)							8.8 (1)	
P32	36.5	4 (18)			22.5 (1)	69.6 (3)				
Trench 1-B	-	1 (1)							41.3 (1)	356 (1) [1318.5/m^3]
Trench 1-T	-	1 (2)							37.6 (1)	
Totals	> 487.0	244 (535)[a]	37.5 (5)	19.5 (2)	300.5 (32)	342.8 (25)	732.9 (48)	394.7 (58)	2224.7 (74)	

[a] Mound 6 not included.

last extremely scarce (Chapter 13). Shell was badly deteriorated in all deposits. Animal bones were relatively common, but preservation varied considerably between deposits. The final column of Table 2.4 reports the total NISP of animal bone, with the number of analyzed samples in parentheses and the overall volumetric density of bone (NISP per cubic meter) in brackets.

DEPOSIT TYPES

Deposits of domestic refuse at Paso de la Amada derive from a variety of formation processes. Human activities included the construction of floors and platforms and the digging of pits and ditches of different sizes and shapes. Living surfaces and dwellings were swept clean, leaving behind little primary refuse. People did various things with sweepings from dwellings and patio areas. Trash was dumped in pits close to dwellings or scattered on the ground a few meters away. Often, refuse was taken farther to be deposited in extensive surface middens or dumped into seasonally flooded bajos. Large fragments of broken vessels were occasionally saved for possible reuse. Beside a deep pit under Mound 12 were several concentrations of large vessel fragments, apparently left in provisional discard.

Even the most undisturbed trash deposits—signaled by the presence of several partially or even completely reconstructable vessels—contained many tiny sherds, including some admixture from previous ceramic phases. The sandy, unconsolidated sediments of the site and earthmoving activities of the inhabitants made sweeping debris a heterogeneous mixture of recently discarded materials, materials that had been discarded and trampled for some time, and a few items that had been buried and dislocated by subsequent activities.

This section presents a classification of the different kinds of deposits selected for analysis of domestic refuse. We then look for variation among the samples that might be systematically related to the processes of formation of those deposit types.

Selection of Refuse Samples

Identification of appropriate deposits (those approaching the ideal of secondary refuse) involved an assessment of formation processes based on stratigraphy, the density and size of artifacts, and phase assignments of the ceramics. Stratigraphic observations allowed the identification of occupation surfaces, platforms, pits, erosional features, slope wash, and silted channels. Consideration of the density and size of artifacts allowed occupation surfaces to be distinguished from sheet middens. The contents of pits varied, indicating different depositional processes.

Artifact densities were compared based on the *volumetric density of sherds* (kilograms of sherds per m^3). A proxy for sherd size was obtained for each deposit by dividing the weight of sherds by the number of sherds, yielding *average sherd weight* (g/sherd). Where ceramic analysis reached Level A (Table 2.2), another assessment of sherd size was derived from the rim analysis. The *rim sherd completeness index* is the proportion of rim sherds that constitute 15 percent or more of the original mouth of the vessel, among rim sherds constituting 5 percent or more of the original (after Lesure et al. 2014b:176).

Classification of Deposits

Deposit types included occupation surfaces, trash pits, ditches, deep pits or wells, other trash concentrations, unbounded middens, redeposited middens, and ancient ground surfaces. Some samples from platform fill and other miscellaneous deposits are also considered.

Occupation Surfaces. Occupation surfaces were thin, well-defined lenses that were either structure floors or exterior activity areas. In contrast to the thicker, more mixed deposits classified as ancient ground surfaces (see below), occupation surfaces contained cultural materials of a single phase. Artifacts from occupation surfaces may include primary refuse. Densities of sherds are generally low, and average sherd weight is lower than for most other deposit types. Trampling has reduced sherd size so that there are few rims representing more than 15 percent of a vessel.

Trash-Filled Pits. Trash-filled pits (also called trash pits) were intrusive pits filled with varying concentrations of refuse and including in some cases the most undisturbed secondary refuse encountered in the excavations. Pit volumes ranged from 0.12 m^3 to more than 3.0 m^3 in cases in which much of the pit was excavated. Density of sherds was also variable, ranging from 8.3 to 153.0 kg/m^3, but was generally high in relation to other deposits, with a mean of 38.6 and a median of 25.2 kg/m^3. Average weight was 9.8 g/sherd, also relatively high. Smaller pits tended to yield assemblages with smaller average sherd sizes and few reconstructable sherds (0102A, 3201A). They were apparently filled with a finer fraction of sweeping debris than were larger pits.

In every pit, most rim sherds were small. Attempts to find conjoining sherds indicated that a large number of different vessels were represented. Trash pits, however, often contained a few large fragments of vessels broken not long before the pit was filled. Missing pieces may have been saved for reuse. Sometimes pits contained a single whole or very nearly whole vessel. Occasionally other bits of serendipitous evidence confirmed the undisturbed nature of the trash in these pits. In Sample 1215A dozens of gar scales were recovered, including several patches recovered in articulated position, as if fragments of skin had been tossed directly into the pit. In Sample 0604A there was a stack of unfired clay net weights.

It seems likely that deposition of trash in pits constituted a secondary use of these features, but the original purpose of pits is unknown. Storage is a possibility. Some may have been borrow pits. Most were fairly shallow and basin shaped. No real bell-shaped pits—so common in contemporary sites in highland Mesoamerica—were identified at Paso de la Amada, though Feature 2 at Mz-250 (Chapter 6) comes close. Given the poorly consolidated sediments at the site, bell-shaped pits would probably have collapsed. The small Feature 2 at Mz-250 must have been refilled soon after it was dug.

Ditches. Several ditch-like features were identified in the Locona and Ocós occupations at Mound 12. One (Feature 28) was a drainage ditch that led past Locona occupation surfaces toward a deep pit or nearby bajo. The other two ditch-like features, dated to late in the Locona phase, were larger and more irregular in shape. They may have been borrow pits instead of drainage ditches. Ditches filled with cultural materials and sediments more slowly than trash pits, as indicated by interdigitated layers of sand, silt, and dense pockets of refuse (see Figures 4.5 and 4.18). Sherd density and size are variable, as would be expected from such a depositional situation. While no complete vessels were identified in the ditches, large vessel fragments were relatively common.

Very Deep Pits or Wells. Two deep pits, likely dry season wells, were excavated—one at Mound 12 (Feature 11) and the other at Mz-250 (Feature 1). The former was larger and contained denser concentrations of cultural materials. The fill of both deep pits was variable, consisting of layers of nearly sterile sandy sediment and lenses of domestic refuse. Feature 11 at Mound 12 stood open for many years. Based on the stratigraphy of the refuse it contained, the pit filled up gradually between late Locona and the beginning of the Cherla phase. Feature 1 at Mz-250 was entirely Locona in date and, unlike the trash pit intrusive into it (Feature 2), contained relatively little cultural debris. The materials from Feature 1 are pooled in a single sample (0009A), whereas those of Mound 12 Feature 11 are considered in 14 refuse samples.

Toss Middens. Pits, ditches, and wells were all bounded middens dug into occupation surfaces. In other cases, refuse was deposited directly on occupation surfaces, where it built up gradually through time. Such deposits are termed *toss middens*. A particularly extensive toss midden of the Ocós phase was identified in Mound 12. It overlay two of the ditches discussed above. Most of the toss midden samples are drawn from this feature. There are also single samples from Mound 1 and Mound 32. Sherd density is variable but fairly high, with a mean of 27.6 kg/m^3, while sherd weight is low, with a mean of 8.4 g/sherd. The lower sherd weight in comparison to pit features makes sense given the greater likelihood of trampling in toss middens.

Trash Concentrations. Relatively common on occupation surfaces and ancient ground surfaces were small concentrations of domestic refuse, generally less than 1 m across and only a few centimeters thick. Some could be regarded as miniature toss middens. Others, particularly those around the edges of the deep pit (Feature 11) at Mound 12, appear to have been stacks of large vessel fragments in preliminary discard. The volumetric densities and average sherd sizes of trash concentrations are often very high compared to other deposits because several of these consisted of unusually large sherds packed into an unmeasurably small volume of deposit.

Uncertain Middens. In small test excavations, it was sometimes unclear whether concentrations of refuse were from pits or toss middens; those are labeled "uncertain middens."

Ancient Ground Surface. Platforms in Mounds 1 and 12 preserved Early Formative ground surfaces that had been relatively stable for some time, with sediments accreting gradually. The deposits in question contained a mixture of materials—Ocós with some Cherla in Mound 12 Zone IV and Ocós and Cherla with Locona in Mound 1 Zone V. Although these are interesting samples, the refuse they yielded was more tertiary than secondary.

Platform Fill: The Redeposited Midden of Zone IV at Mound 1. Sixty-six samples are drawn from a remarkable deposit in Mound 1 that appears to have been a dense Cherla midden scraped up and redeposited to form the lower part of the platform for Mound 1 Structure 1. Although normally platform fill was deemed unacceptable for analysis because of its mixed (tertiary) character, the particular characteristics of Zone IV at Mound 1 suggested that the sediment had been quarried from a midden in the vicinity of the mound. First, the density of material was phenomenal. Both the mean and median sherd densities (43.8 and 40.9 kg/m^3, respectively) for the 66 samples from this deposit are higher than those for every other kind of deposit except trash concentrations. The parent deposit was clearly a remarkably dense midden. Average sherd sizes were higher than those of toss middens, but the completeness index (available only for five samples) is quite low. The fact that few rims represented 15 percent or more of a vessel is consistent with the tertiary character of the deposit. There is also Locona and Ocós admixture in the deposit; see Table 3.1 and associated discussion.

Other Cases of Platform Fill. Two other samples of probable platform fill, 1303B and 3202B, were also incorporated in the analysis. They date to the Locona phase. Sherds were scarce compared to Mound 1 Zone IV.

VARIATION BY DEPOSIT TYPE

When sherd statistics from the different types of deposits are compared, the results generally conform to expectations concerning the degree to which materials from different deposit types will constitute secondary refuse. Table 2.5 assembles relevant data, including volumetric density of sherds and the two proxies for sherd size introduced above: average sherd weight and rim sherd completeness index. Expectations for secondary refuse are high densities of sherds and large sherd sizes. Tertiary deposits should generally have smaller sherd sizes; there are no particular expectations for sherd density in such deposits. Our only possible primary deposits are occupation surfaces, for which we expect low densities and small sherds due to sweeping and trampling.

In the three parts of Table 2.5, the deposit types are organized according to initial expectations for primary to secondary to tertiary refuse. The occupation surfaces are the only deposits in which we expect possible primary refuse. Trash-filled pits seem most likely to contain relatively unmixed secondary refuse, while ever greater mixture and reworking is to be expected as one moves from ditches to deep pits to toss middens and so forth. The sample size (N) is the number of refuse samples (Expanded Study Sample in Parts A and B; Restricted Study Sample in Part C) corresponding to each deposit type. COV stands for coefficient of variation, calculated as the standard deviation divided by the mean. It provides a simple measure of the dispersion of values for each deposit type; it seems useful for comparing different deposit types and for comparing dispersion in individual deposit types to dispersion in the refuse samples as a set. (See row in italics toward the bottom of each table.) In addition to the line in which all refuse samples are considered, Tables 2.5A and 2.5B provide statistics for the original proveniences out of which the refuse samples were composed and for (screened) proveniences not chosen for the refuse study samples.

Data on density of sherds are presented in Table 2.5A, average sherd weight in Table 2.5B, and rim sherd completeness index in Table 2.5C. Note that the statistics presented in 2.5B are the medians and means of average sherd weight. In other words, an average sherd weight was calculated for each refuse sample (total weight of sherds, in grams, divided by total number of sherds), and then medians and means were calculated on those statistics, yielding the median average sherd weight. The N's are not necessarily the same in corresponding rows of the tables because of missing data.

The expectation in Table 2.5A is that the trash-filled pits and other midden deposits should have particularly high densities of sherds. This basic expectation is met. Note in the last two lines of the table that deposits select-

Table 2.5. Sherd statistics by deposit type

A. Volumetric Density of Sherds

Type of Deposit	N	Median Density (kg/m^3)	Mean Density (kg/m^3)	Standard Deviation	COV[a]	Range
occupation surface	9	5.7	12.0	12.8	1.01	2.7–41.0
trash-filled pit	15	25.2	38.6	37.3	0.97	8.3–153.0
ditch	14	15.9	17.3	8.5	0.49	3.3–31.2
very deep pit or well	14	16.0	19.7	15.8	0.80	2.1–71.0
toss midden	14	24.4	27.6	12.9	0.47	6.5–52.5
trash concentration	4	43.3	43.4	16.2	0.37	23.9–62.9
uncertain midden	10	22.3	23.8	27.5	1.12	1.9–95.5
ancient ground surface	59	9.5	11.2	7.7	0.69	0.4–36.4
platform fill (Md. 1 Zone IV)	66	40.9	43.8	13.3	0.30	18.1–84.7
platform fill (Md. 13 and 32)	2	1.8	1.8	0		1.8–1.8
All refuse samples	*232*	*19.4*	*25.1*	*22.0*	*0.88*	*0.0–153.0*
Proveniences chosen as samples	*475*	*14.8*	*22.7*	*36.7*	*1.62*	*0.0–652.5*
Proveniences not chosen	*498*	*5.6*	*9.0*	*11.6*	*1.29*	*0.0–138.0*

B. Average Sherd Weight

Type of Deposit	N	Median Sherd Weight (g)	Mean Sherd Weight (g)	Standard Deviation	COV[a]	Range
occupation surface	9	6.9	7.0	0.8	0.11	6.0–8.2
trash-filled pit	15	8.6	9.6	3.3	0.34	5.8–18.6
ditch	14	8.2	8.5	1.3	0.15	6.6–11.7
very deep pit or well	15	9.4	9.8	2.4	0.24	6.5–15.5
toss midden	14	7.6	7.6	1.0	0.13	5.7–9.3
trash concentration	11	13.0	23.7	20.9	0.88	8.5–73.3
uncertain midden	10	7.7	8.5	2.7	0.32	6.1–15.1
ancient ground surface	21	8.2	8.5	2.3	0.27	5.6–13.7
platform fill (Md. 1 Zone IV)	44	8.4	8.4	1.0	0.12	6.7–10.4
platform fill (Md. 13 and 32)	2	7.3	7.3	0.6	0.08	6.9–7.7
All refuse samples	*219*	*7.8*	*8.7*	*5.9*	*0.67*	*4.0–73.3*
Proveniences chosen as samples	*464*	*7.6*	*8.9*	*5.6*	*0.63*	*2.4–73.3*
Proveniences not chosen	*419*	*6.8*	*8.1*	*6.4*	*0.79*	*0.6–82.0*

[a] COV = coefficient of variation (SD/mean).

ed as refuse samples were, overall, more densely packed with sherds than those not chosen. Of the different deposit types, occupation surfaces had particularly low densities and all the different types of middens (trash-filled pits through uncertain middens in the table) had high densities. The somewhat lower values for the ditches and very deep pits also make sense given the significant amounts of in-washed sediments in those units. Many of the COVs for individual deposits are lower than that for the entire set of samples, suggesting that the classification of deposit types does introduce order into variation in sherd density. However, there are exceptions. Sherd densities in occupation surfaces, trash-filled pits, and uncertain middens are more dispersed than for the collection as a whole, suggesting variation in the details of formation processes. Finally, it is worth noting that our lack of any particular expectation for the sherd density of platform fill is borne out even among the limited proportion of excavated platform pro-

C. Rim Sherd Completeness Index

Type of Deposit	N	Median Completeness Index	Mean Completeness Index	Standard Deviation	COV[a]	Range
occupation surface	4	0.04	0.04	0.052	1.04	0.0–0.12
trash-filled pit	14	0.08	0.09	0.055	0.61	0.03–0.21
ditch	5	0.10	0.10	0.026	0.26	0.60–0.13
very deep pit or well	8	0.06	0.05	0.032	0.67	0.00–0.10
toss midden	5	0.05	0.04	0.018	0.41	0.02–0.06
trash concentration	1	0.38	0.38			
uncertain midden	6	0.04	0.05	0.052	1.04	0.0–0.12
ancient ground surface	4	0.01	0.02	0.019		0.0–0.04
platform fill (Md. 1 Zone IV)	5	0.02	0.03	0.027	1.04	0.0–0.07
All refuse samples	*57*	*0.06*	*0.064*	*0.064*	*1.00*	*0.0–0.38*

[a] COV = coefficient of variation (SD/mean).

veniences selected for inclusion among the refuse study samples: the Mound 1 platform had extraordinarily high sherd densities, while those of the Mounds 13 and 32 platforms were extraordinarily low. The latter may be related to the phase of deposition; see Chapter 5 for discussion.

Tables 2.5B and 2.5C provide different ways of assessing sherd size and therefore give an indication of trampling or reworking of deposits. The expectation here is that sherd size in occupation surfaces will be low and that it will be high in middens that involve deposition in pits (trash-filled pits, ditches, and very deep pits), somewhat less in toss middens, and even lower in trampled and reworked deposits such as ancient ground surfaces and platform fills. Those expectations are met in full in Table 2.5C, where sherd size is assessed using the rim sherd completeness index. The only possible quibble there is that the occupation surfaces perhaps have slightly larger values than one might expect relative to ancient ground surfaces and the Mound 1 platform.

The average sherd weights, presented in Table 2.5B, also conform to expectations, though less definitively. The problem is that variation is subtle, even when, in the last two lines of the table, refuse sample proveniences are compared to those not chosen. The relatively high values in ancient ground surfaces and in the Mound 1 platform seem somewhat above expected. The high average sherd weight in the latter case likely signals the relatively direct derivation of this fill from a large deposit of secondary refuse. The tertiary character of the deposit is evidenced less by the average sherd weight than by the low values for rim sherd completeness (Table 2.5C) and, more generally, the complete lack of the occasional large, reconstructable fragments of vessels found in many middens. The low values of the coefficient of variation for individual deposits in comparison to all samples considered together in Table 2.5B suggest that grouping by deposit type does make some sense of variation in average sherd weight. (See descriptions of deposit types for discussion of the case of trash concentrations.)

The overall pattern revealed in Tables 2.5A–2.5C is that there is systematic variation between deposit types in the degree to which they match the character of secondary refuse. That variation broadly accords with expectations for the different types of deposits. The question is: To what extent will that variation affect the analysis of social differentiation at Paso de la Amada? The next section begins to answer that question.

VARIATION BY PHASE AND DEPOSIT TYPE

Table 2.6 provides an overview of how two of the statistics considered in the previous section (density of sherds and average sherd weight) vary across deposit type and phase (in the Expanded Study Sample). Tables 2.6A and 2.6B match the corresponding parts of Table 2.5. The values are the means (of density or average sherd weight) for the samples that fall in each specific cell of deposit type and phase. The two bottom rows provide the overall mean for each phase across all deposit types and, for comparison, the overall median.

Because the basic pattern for rim sherd completeness index matches so closely that revealed in consideration of average sherd weight, the third table here is something different. Table 2.6C provides the percentage distribution of the total weight of sherds for a given phase across deposit types; the entries in each column therefore add to 100 percent. The bottom row in the table is the percentage of total sherd weight from each phase that derives from "middens" (in the table, the rows from "trash-filled pit" through

Table 2.6. Sherd statistics by phase across deposit types (A and B) and percentage distribution of sample for each phase across deposit types (C)

A. Mean Volumetric Density of Sherds (kg sherds/m^3)

Type of Deposit	Early Locona	Locona Platform/Surface	Locona	Late Locona	Ocós	Ocós-Cherla	Cherla
occupation surface			5.3	17.4			
trash-filled pit	8.3		31.2	28.5	48.8		52.2
ditch			6.0	17.3	21.1		
very deep pit or well			2.1	27.2	15.8	15.4	
toss midden					26.3		44.5
trash concentration					43.4		
uncertain midden	1.9		16.1	29.1	95.5		27.6
ancient ground surface		0.4	2.1		16.0	11.5	
platform fill (Md. 1 Zone IV)							43.9
platform fill (Md. 13 and 32)		1.8	1.8				
misc.			2.6			4.5	
All deposits, mean	*5.7*	*1.1*	*6.8*	*23.1*	*31.4*	*11.4*	*43.9*
All deposits, median	*5.1*	*1.2*	*4.8*	*19.9*	*23.2*	*8.7*	*40.4*

B. Mean Average Sherd Weight (g/sherd)

Type of Deposit	Early Locona	Locona Platform/Surface	Locona	Late Locona	Ocós	Ocós-Cherla	Cherla
occupation surface			6.6	7.4			
trash-filled pit	6.6		12.3	10.6	8.4		8.5
ditch			10.2	8.4	8.0		
very deep pit or well			12.8	10.7	9.1	6.5	
toss midden					7.7		6.7
trash concentration				25.8	23.5		
uncertain midden	7.0		10.1	8.2	8.4		7.4
ancient ground surface		6.1	8.3		8.2	7.2	
platform fill (Md. 1 Zone IV)							8.4
platform fill (Md. 13 and 32)		6.9	7.7				
misc.					4.0	6.6	
All deposits, mean	*6.8*	*6.5*	*9.1*	*9.8*	*11.6*	*7.1*	*8.3*
All deposits, median	*6.8*	*6.5*	*7.8*	*8.3*	*8.5*	*6.9*	*8.5*

"uncertain midden") and thus from deposits that are generally most consistent with the characteristics of secondary refuse.

Let us first consider some aspects of Table 2.6C and then return to 2.6A and 2.6B. What Table 2.6C most clearly reveals is the strong effects of our selection for inclusion in the Basic Study Sample (see the columns classified to phase) of deposits that closely approximate secondary refuse and our inclusion in the Expanded Study Sample (the columns labeled "Locona Platform/Surface" and "Ocós-Cherla") of additional samples from more mixed deposits. The Early Locona, Locona, Late Locona, and Ocós study samples derive overwhelmingly from middens and therefore from deposits most likely to approach the ideal of secondary refuse. Of the Basic Study Sample, only the Cherla assemblage has a low percentage of midden deposits. Still, most of that sample is from a deposit of platform fill in Mound 1 that, despite Locona and Ocós admixture, never-

C. Percentage Distribution of Total Sherd Weight for Each Phase, Split by Deposit Type

Type of Deposit	Early Locona	Locona Platform/Surface	Locona	Late Locona	Ocós	Ocós-Cherla	Cherla
occupation surface			10.2	7.1			
trash-filled pit	87.6		29.5	28.0	15.5		4.7
ditch			4.9	32.2	16.2		
very deep pit or well			10.3	27.0	11.7	1.8	
toss midden					46.5		0.3
trash concentration				< 0.1	6.5		
uncertain midden	12.4		35.9	5.6	0.4		3.0
ancient ground surface		17.8	4.8		3.2	85.5	
platform fill (Md. 1 Zone IV)							91.9
platform fill (Md. 13 and 32)		82.2	3.8				
misc.			2.2		< 0.1	12.7	
Percentage in "middens"	*100*	*0*	*81*	*93*	*97*	*2*	*8*

theless has characteristics that compare favorably with the ideal of secondary refuse (see "platform fill (Mound 1 Zone V)" in Table 2.5A and 2.5B). The other two columns are mainly from tertiary deposits, quite mixed in the case of the "Ocós-Cherla" column and with very low artifact densities in the case of the "Locona Platform/Surface" column.

Let us consider next Table 2.6B, which examines average sherd weight. Mean average sherd weight for all deposits rises from a low in Early Locona to a high in Ocós and descends again in the Cherla phase. The large sherds in trash concentrations, which make up 6.5 percent of the total Ocós sample by weight (see Table 2.6C), clearly affect the Ocós mean. Median average sherd weight is more stable from Locona to Cherla. It is only the two earliest samples, Early Locona and the Locona platform/surface (at Mound 32), that yielded particularly small sherds. Both of those are also small assemblages. Overall, differential trampling of deposits does not appear to present an insurmountable challenge for the project of comparing refuse deposits from different phases. In an effort to offset effects from differential trampling, standardization by sherd weight rather than number of sherds will be used in this volume.

Finally, consider Table 2.6A, which examines density of sherds. The data here raise more complex challenges. Again, the earliest two columns are somewhat distinct from those that follow, with low sherd densities. The extremely low sherd density in the Locona platform and underlying surface at Mound 32 was one of the reasons those materials were not included in the Basic Study Sample. Another observation is that the Locona sample, which is diverse in terms of deposit type, is also diverse in volumetric density of sherds. Trash-filled pits are close in density to pits from later eras, but for other deposit types our Locona features were less dense.

The most important observation to be made in Table 2.6A is that, when all deposits are examined together, volumetric density rises steadily from Early Locona to Locona to Late Locona to Ocós to Cherla. The same pattern holds whether we examine mean or median densities. Sherds were, on average, more than six times more densely packed in our Cherla deposits than in our Locona deposits. If sherd density can be taken as an indication of overall artifact density, then this pattern poses challenges to comparisons standardized by volume. Let us suppose, for example, that we found 12 widgets in our Locona deposits and 24 in our Cherla deposits. Standardizing by volume, we would find stability (the volume of Cherla deposits excavated being approximately twice that of Locona). But if we consider that sherds in general were six times as dense in Cherla as in Locona, then there would be reason to expect Cherla finds to have been not two but 12 times those of Locona. In other words, if we were to standardize comparisons by volumetric density, we would in this case find *stability*, whereas if we were to take into consideration the overall density of sherds, we would have reason to argue for a *decline* in the use of widgets between Locona and Cherla.

Although exploratory analyses have generally considered standardization by *both* volume excavated and associated weight of sherds, most of the reported results use the latter method of standardization. However, that is not a foolproof solution to the problems encountered with standardization by volume. Two issues need consideration. The basic argument behind standardization by weight of sherds is that this value should provide a rough proxy for the number of original pots that controls for differential

Table 2.7. Average vessel weight in each phase based on summed rim portions and total weight of sherds recovered

	Mean of Average Pot Weight (kg)	Standard Deviation	N	Minimum (kg)	Maximum (kg)	Median (kg)
Early Locona	3.78		1			3.78
Locona	2.41	0.86	11	0.72	3.76	2.36
Late Locona	2.44	0.85	13	0.24	3.90	2.38
Ocós	2.53	0.49	13	1.48	3.65	2.53
Cherla	2.44	0.30	12	1.91	3.00	2.46
All phases	2.48	0.65	52	0.24	3.90	2.45

degrees of fragmentation. However, there were formal changes in pottery over the course of the occupation. (See Chapter 8.) It needs to be emphasized that changes in vessel form between the three phases of central concern in this volume (Locona, Ocós, and Cherla) were less than between Barra and Locona on the one hand or Cherla and Cuadros on the other. Indeed, the three are close enough in the formal sense that Ceja Tenorio (1985), following Coe (1961), identified them as a single phase (Ocós); much of what Coe referred to as Ocós is now, in our usage, Locona (Blake et al. 1995). Still, the first potential problem with standardization by weight of sherds is that formal changes in pots might have resulted in changes in the average weight of pots, thus introducing a confounding factor into the analysis.

That possibility is examined in Table 2.7. Rim sherd analysis at Level A included an estimate of the proportion of a complete vessel mouth represented by each sherd. An estimate of the total equivalent number of vessels represented by all rims in the deposit was obtained by summing the proportions for all rim sherds. We then estimated the average vessel weight for each sample by dividing the total weight of sherds by the estimate of the total equivalent number of vessels represented by the rims. In Table 2.7, the samples are split by phase, and the median, mean, and standard deviation of the average vessel weight are provided. The results suggest that there was no change in average vessel weight through time. (The single Early Locona sample is aberrant, but within the range of variation of later samples.) Thus, when frequencies of ornaments, figurines, and so forth from different phases are standardized by weight of sherds, it is reasonable to treat those values as a comparison of the rate of discard of such items relative to the rate of discard of pots.

A second potential problem with standardization by sherd weight is the possibility that there were changes in the numbers and kinds of pottery vessels in use, leading to variability in the rate of discard of pots. Standardization by weight of sherds, in other words, assumes that the production of sherds was stable across the phases. However, there is reason to think that this was not the case. Clark and Gosser (1995) draw attention to the changing relative proportions of vessel forms in Early Formative Mazatán, in particular the steady increase in the ratio of plain tecomates to bowls. Their inference is that when pottery was first introduced in the Barra phase, it replaced only a narrow range of the existing spectrum of container technology (thought to have included baskets and gourds). Pottery was first used for serving rather than cooking and storage. It was only beginning in the Locona phase that ceramic vessels began to be used for a wider range of functions. The issue here is a methodological one. If people began to apply ceramic technology to a greater variety of activities involving containers, then we would expect them to have generated more broken pottery. Thus the pattern of increasing density of sherds registered in the bottom two rows of Table 2.6A might arguably have social causes rather than being essentially coincidental in the sense that the Cherla deposits we excavated *happened* to be more densely packed with artifacts than the Locona deposits we discovered.

The issue of whether increasing sherd density was in origin social (later households discarded pots at a higher rate) or coincidental (the later deposits we excavated just happened to be more densely packed with artifacts than the earlier deposits) proves a difficult nut to crack. Table 2.8 assembles relevant data. To anticipate our conclusions, it appears most likely that *both* of the postulated factors are involved.

To address the problem, Table 2.8A draws on the detailed ceramic analysis of the Restricted Study Sample, particularly the measures of rim proportion (estimated for every rim sherd analyzed). What we have done in Table 2.8A is added up these proportions for three basic vessel forms (unslipped tecomates, open bowls, and slipped tecomates) and divided by the corresponding volume of deposit. The result is the equivalent number of complete vessel mouths (represented by rim sherds from many different pots) per cubic meter. In each case, after those values, we provide the proportional change for each phase if the Early Locona value is treated as 1.0. Since the Early Locona sample is small, we provide a similar statistic treating the Locona value as 1.0. The latter seems more reliable given the larger

Table 2.8. Changing volumetric densities of unslipped tecomates, open bowls, and slipped tecomates based on summed rim proportion: (A) entire Restricted Study Sample; (B) trash-filled pits only. (See text for discussion.)

A. Entire Restricted Study Sample

Phase	Volume (m^3)	Unslipped Tecomates			Open Bowls			Slipped Tecomates		
		Complete Vessel Mouths per m^3	Proportion of Early Locona Value	Proportion of Locona Value	Complete Vessel Mouths per m^3	Proportion of Early Locona Value	Proportion of Locona Value	Complete Vessel Mouths per m^3	Proportion of Early Locona Value	Proportion of Locona Value
Early Locona	1.3	0.10	1.0		0.51	1.0		1.06	1.0	
Locona	23.1	0.61	5.9	1.0	1.55	3.1	1.0	0.87	0.8	1.0
Late Locona	12.7	1.83	17.6	3.0	2.86	5.6	1.8	1.26	1.2	1.4
Ocós	11.6	3.81	36.5	6.2	4.83	9.5	3.1	1.45	1.4	1.7
Cherla	7.7	3.75	36.0	6.1	5.88	11.6	3.8	1.14	1.1	1.3

B. Trash-Filled Pits Only

Phase	Volume (m^3)	Unslipped Tecomates		Open Bowls		Slipped Tecomates	
		Complete Vessel Mouths per m^3	Proportion of Locona Value	Complete Vessel Mouths per m^3	Proportion of Locona Value	Complete Vessel Mouths per m^3	Proportion of Locona Value
Early Locona	1.3	0.10		0.51		1.06	
Locona	2.2	1.64	1.0	4.16	1.0	1.99	1.0
Late Locona	2.5	4.22	2.6	6.38	1.5	1.82	0.9
Ocós[a]	4.4	2.64	1.6	2.71	0.7	0.96	0.5
Cherla	2.4	3.68	2.2	5.22	1.3	1.12	0.6

[a] Includes Basureros 1 and 4 from Mound 6, the two Ocós pits from that mound for which volume excavated is available.

Locona sample size, but in Table 2.8A both actually reveal the same pattern.

The first thing to note is the sharp increase in both unslipped tecomates and open bowls from Locona (or Early Locona) to Ocós and/or Cherla. The measures of proportional change are helpful because they reveal that the proportional increase in volumetric density of unslipped tecomates is with every step *higher* than that of open bowls. Thus greater numbers of unslipped tecomates relative to open bowls were entering the deposits with each successive phase, consistent with the social process postulated by Clark and Gosser (1995)—namely, a gradually expanding usage for this vessel form. A similar expansion in usage of open bowls is certainly a possibility, but it seems less likely. Thus maybe the proportional change in open bowls tracks the *circumstantial* differences between deposits being compared while the differential between that and the proportional change in unslipped tecomates tracks social changes in the use of tecomates.

In other words, maybe both of the postulated processes have affected the data. That seems likely when we turn to slipped tecomates, at the far right in the table. As a percentage of the vessel assemblage, slipped tecomates decline over time, and our general impression from the ceramic sorting table is that this vessel form became steadily less important during the occupation of Paso de la Amada. Nevertheless, slipped tecomates register an overall *increase* in density from Locona to Cherla, albeit a decidedly less dramatic increase than for the two other vessel forms. Our suspicion is that use of slipped tecomates was declining, but because of the circumstantial process postulated here (denser packing in our later deposits), slipped tecomates register higher densities in Ocós and Cherla deposits than in Locona.

If there were two processes operating, it would be helpful to hold one constant in order to examine the other. That can at least be approximated by considering a single deposit type, trash-filled pits. It will be noticed in Table 2.6A that while the Locona samples are low in sherd density compared to later phases for most deposit types, the density of sherds in Locona trash-filled pits is at least in the ballpark of those from subsequent phases. Thus in Table 2.8B we present the same analysis as in 2.8A, but now only trash-filled pits are considered. The idea is that we have to a significant degree factored out coincidental variation in order to look for evidence of our postulated social process. The downside of is that sample size becomes small and we seem to encounter an increased level of noise (evidenced by uninterpretable fluctuations between phases).

There are three points to be made about the analyses in Table 2.8B compared to those of 2.8A. First, it is gratifying to see a decrease in the density of slipped tecomates between Locona-Late Locona and Ocós-Cherla; that certainly corresponds to our overall sense of the collection. Second, it is noteworthy that the Cherla-phase value for open bowls is practically unchanged in relation to Locona, and the Ocós value is actually lower. Certainly, the level of noise is now high, but it does appear that we have largely factored out the coincidental process of greater packing of artifacts in the later deposits to reveal stability in the discard of open bowls. The third issue is the unslipped tecomates. Noise is again a factor, but there is a distinct upward trend. Unlike for open bowls, it does not seem reasonable to argue for stability here when we consider the proportional change from Locona through Cherla. (Early Locona is not considered because the relative stability of density that holds from Locona through Cherla does not apply to the Early Locona sample, as will be noted in Table 2.6A.) Having factored out the coincidental process of differential artifact packing, we do indeed glimpse the postulated social process of a rising rate of discard of unslipped utilitarian tecomates.

The methodological upshot of the discussion in this section is that neither standardization by deposit density nor standardization by weight of associated sherds is, by itself, a solution to the challenges of comparison posed by the refuse samples from Paso de la Amada. For that reason, both methods of standardization have been used in the preparatory analyses for this volume and sometimes also in the final presentation. It is helpful to keep in mind the biases introduced by each method. Standardization by volume will tend to produce upward trends, since it is not accounting for the coincidental process of more densely packed artifacts. Standardization by weight of sherds will tend to produce downward trends, since it overcorrects for the coincidental process by failing to factor out the increased rate of deposition of unslipped tecomates over time. An alternative would be standardization against the summed rim proportion of open bowls. That may more or less factor out the coincidental process of differential packing of artifacts. That is used only rarely, however, because in general it seems preferable to standardize using less heavily manipulated data.

CONCLUSIONS

The overall message of this chapter is that we have, first, a robust set of samples of domestic refuse for tracing *general diachronic patterns*. Our coverage is best from Locona to Cherla, a period of approximately 400 years. The Early Locona sample is quite small, and it is often preferable to include it with Locona. Second, for studies of *synchronic social differentiation*, the unevenness of the samples becomes more of a problem. The Locona sample is attractive because of the numerous locations sampled, though the size of the samples is an issue. In the Ocós phase, we have large samples from a few areas. For Cherla, we again have a greater diversity of locations represented, but the grossly unequal distribution of samples among those poses problems.

PART II
THE EXCAVATIONS

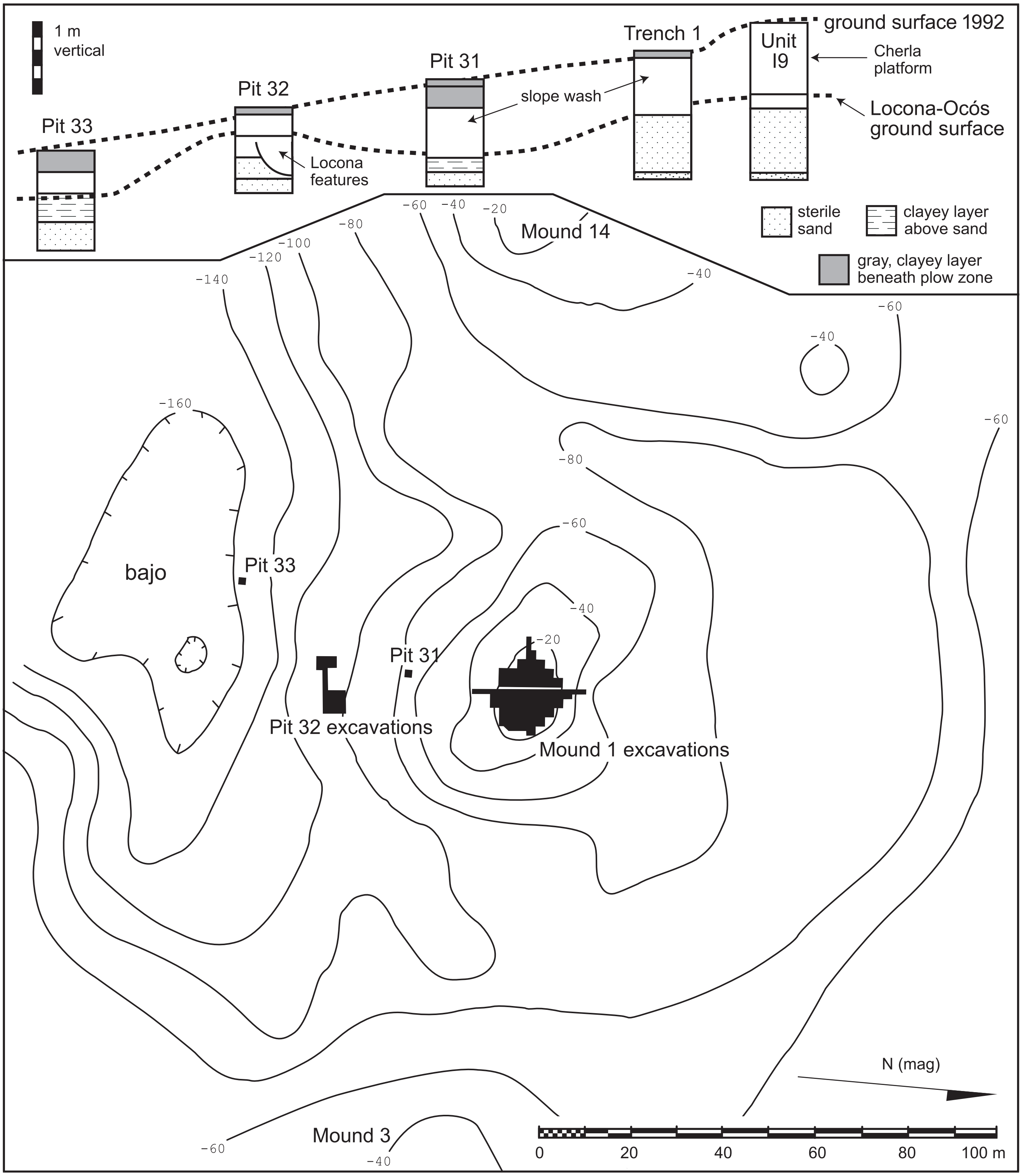

Figure 3.1. Contour map of the vicinity of Mound 1, showing location of excavations there and in test pits to the south of the mound. Contour interval 20 cm. At top is a simplified rendering of the stratigraphy observed at Mound 1 and in the three test pits. Horizontally, they are not scale; the vertical scale is shown at upper left. *Topographic base map by Ronald Lowe. Figure constructed by R. Lesure and project staff. Other illustrations in this chapter by R. Lesure, Katelyn Jo Bishop, and project staff unless otherwise indicated.*

CHAPTER 3

Mound 1

Richard G. Lesure

MOUND 1 IS A low elevation about 20 m in diameter in the south-central zone of Paso de la Amada. In 1992 it rose about 0.5 m above the surrounding, gently undulating ground. Ceja Tenorio (1985:22) thought it might be part of a group of Ocós mounds surrounding a plaza and put his first three tests here, looking for evidence of either habitation or ceremonial functions. No plaza was apparent in 1992. Artifact densities in Ceja's three soundings (Test Pits 1, 2, and 3) were phenomenal compared to those in his other tests. Materials recovered appeared domestic and included polished iron ore mirrors and numerous figurines and ceramic ear ornaments. The spectacular nature of the Mound 1 assemblage provided the basis for Clark and Lee's (1984) argument concerning Ocós-phase status differences at the site. With the subsequent division of Ocós into three phases (Locona, Ocós, and Cherla), Clark reexamined Ceja's Mound 1 materials and assigned much of them to the Cherla phase. He drew my attention to the mound as a possible Cherla-phase counterpart to the large Locona-Ocós "chief's house" in Mound 6.

The original goals of the 1992 excavations were to define the architectural history of the mound, to identify remains of what we hoped would be one or more high-status residences, and to recover samples of associated domestic debris. A strategy of extensive excavation involved opening up essentially the entire mound at once. Seven weeks of excavations established the basic depositional history of the mound, but the architectural remains recovered were fragmentary. The mound itself proved to be the result of a single Cherla-phase construction, of which only the basal platform remained. This earthen platform was of impressive dimensions: more than 1 m high and either square or round, with a horizontal dimension of roughly 20 m. Remains of the structure or structures that stood atop the platform have been plowed away. Beneath the platform were at least three partially preserved structures and associated features. Areal exposure of the sub-platform Cherla occupation was 182 m^2, while exposure of the Locona-Ocós occupation beneath was 75 m^2. In comparison to the effort expended in the excavations, the recovery of architectural remains and associated deposits of secondary refuse was modest. However, the fill of the platform appears to have been quarried from a Cherla-phase elite midden. Despite an admixture of earlier material in this tertiary deposit, the screened sample from this redeposited Cherla midden has proven rich in information.

THE SETTING OF THE MOUND

The mound is located on a low ridge in the southern portion of the site (Figure 3.1; see also Figure 1.6). To the south, the ground slopes gently down into a seasonally flooded oxbow that forms the boundary of the site. We explored this southern slope with three test units: Pits 31, 32, and 33. Of those, Pit 32, located 40 m south from the summit of Mound 1, cut into a late Locona midden; the amplification of those excavations is described in Chapter 6.

At the top of Figure 3.1 are schematic renderings of the stratigraphy of the three test units and of Mound 1 itself. The shading of the strata is simplified to emphasize: (1) the presence or absence of an organic-rich clayey layer at the top of the profile, (2) the level at which sterile sand ap-

Figure 3.2. Excavations in progress in the platform fill at Mound 1. Looking south, with Unit H7 in the center left foreground and Unit I6 in the center right foreground. In the middle of the photo, excavation of Lots 9 and 10 is in progress in Unit I9. The three deeply excavated pits in a row beyond are Ceja's original test units. To the right, excavations are in progress in Unit L11. The locations of the soundings to the south of the mound can be made out from the three corresponding heaps of backdirt. Moving south from Mound 1, there is first the light-colored backdirt from Test Pit 31, then the extensive piles of dirt generated by the Pit 32 excavations (with Tomás Pérez at work drawing profiles). Finally, farther to the south and to the right in the photo, is the backdirt from Test Pit 33.

peared, and (3) the presence or absence of a clayey deposit toward the bottom of the profile.

The organic-rich layers at the tops of the profiles indicate recent ground surface stability and advanced soil formation. Such a layer was absent on Mound 1 itself because of damage caused by plowing, which has gradually lowered the height of the mound. Surficial gray, clayey layers are thickest in lower-lying areas (such as seasonally flooded bajos) that have undergone long-term accumulation of sediment in a low-energy depositional environment. The thick surface layer in Pit 33 is thus not a surprise, but it is interesting that a similar layer is thicker in Pit 31 than in Pit 32 even though the former is farther upslope.

The cultural strata throughout this area are underlain by a river deposit of fine yellow-brown sand. At least at Mound 1, that deposit is in turn underlain by a deposit of coarser gray sand. The sterile sand appeared at a higher elevation at Mound 1 than in the test pits, indicating that the low rise on which the Cherla platform was constructed is a natural feature, probably a remnant levee of the Coatán River. The similarities between Pits 31 and 33 at the top of the profile were mirrored lower down as well. In both cases, there was a clayey layer above sterile sand. Initial Formative artifact deposition started just above the clayey layer in Pit 31 and within the clayey deposit in Pit 33. (Note that designation of a deposit as "sterile" and its deposition as "pre-occupation" is always a judgment call at the site, since, due to considerable rodent activity and the loose, unconsolidated character of the sandy substrata, some sherds have worked their way into pre-occupation deposits.) In Test Pit 32, trash-filled Locona pit features appeared 25–40 cm below the modern ground surface.

The stratigraphic evidence at the top of Figure 3.1 indicates that the contours of the ground surface in the vicinity of Mound 1 were more complex at the time of initial Formative settlement than they are today—and, in terms of elevation differences, more dramatic. The proposed Locona-phase ground surface is shown. Locona settlement at both Mound 1 and Pit 32 was located on naturally elevated ground. The surface at the location of Pit 31, in contrast, was low enough in elevation to remain muddy in the rainy season. Both there and at Pit 33, a gradual accumulation of clay was already under way by the era of earliest human settlement at the site. During the second millennium BC, sediments at least 50 cm thick accumulated in the area of Pit 31, with a modest density of Locona-Ocós artifacts. The most likely cause was slope wash from the adjacent inhabited areas rather than purposeful filling.

Just before platform construction at Mound 1 during the Cherla phase, the surface contours in this part of the site had been somewhat evened out in the course of several centuries of occupation. That process has continued to the present day, with the result that the original undulating natural topography is now an unbroken gentle slope from Mound 1 down into the bajo that forms the southern margin of the site.

EXCAVATION PROCEDURES

I directed the excavations at Mound 1 with a crew of between 12 and 20 workmen from the *ejido* of Buenos Aires from late April to early June 1992. Artemio Villatoro assisted in the excavations, and Tomás Pérez excavated Trenches 2 and 3 at the mound and Test Pits 31, 32, and 33 to the south. John Clark occasionally dropped by to question our assumptions and dig out post holes.

We first located Ceja's three test pits, emptied his backfill, and redrew the stratigraphy of each test. Subtle traces of what appeared to be an Early Formative floor (now understood as a likely wall remnant of Structure 1-2 and a patchy exterior occupation surface) appeared in the profiles of Tests Pits 2 and 3. The surface on which the "floor" rested appeared also in Test Pit 1. A large area was opened (Figure 3.2) to expose this surface but also to investigate the possibility of other surfaces in the upper meter of deposit. Only by shaving carefully down over a large area, I reasoned, could we establish with confidence whether this deposit resulted from a gradual accumulation of living surfaces, a single episode of fill, or some combination of these. Digging in such a large area maximized the chances of finding fragmentary patches of burnt floor, trash pits, burials, or other features that would indicate the presence of any otherwise poorly preserved occupation surfaces. However, the excavation was also expensive and time-consuming; in retrospect, I put too much faith in the assumption that the depositional history of Mound 1 would be similar to that of Mound 6, with a series of neatly superimposed buildings.

The grid of 2 x 2 m units followed the orientation of Ceja's units (Figure 3.3). Rows on the north-to-south axis were numbered, while rows on the east-to-west axis were lettered. Unit A1, the northeastern corner of the grid, was located well off the mound. Ceja's Test Pits 1, 2, and 3 corresponded to Units I14, I12, and I10, respectively. Between Rows I and J, we left a balk of 50 cm. This strip was left completely out of the grid system, which thus breaks at the western edge of Row I and begins again 50 cm to the west with Row J. We initially opened 38 units beyond Ceja's three, oriented symmetrically around Unit I10 (Ceja's Test Pit 3), the summit of the mound. This total of 41 units covered almost the entire mound as identifiable from the surface. Over the course of the excavations, part or all of 13 additional units were excavated, though work in several of these consisted merely of the removal of the plow zone in an initial search for any remnant architectural features atop the platform.

The excavation procedure in the platform fill consisted of shaving down the deposit in arbitrary lots, usually 10 cm deep after Lots 1 and 2. In general, each lot was removed in all units and the entire expanse was inspected for evidence of features or floors before the next lot was opened. Because no evidence of such floors or features appeared in profile in the upper meter of Ceja's three tests, suggesting that all this zone likely consisted of platform fill, I decided to screen a random 50 percent sample of the 38 original units. A small child determined which units would be screened by drawing 19 unit numbers from a hat without replacement. The following units were selected to be screened top to bottom: F9, F11, G10, H8, H10, H12, I6, I7, I8, I11, I13, J7, J9, J12, K8, K10, L9, L10, and L11. Though it does not form part of the random sample, Unit I9 was also screened.

This basic sampling scheme was maintained until excavations reached the first identifiable structural remains (Structure 1-2) and the associated occupation surface, whereupon we began screening in all units. Excavation was by lots, which were allowed to cross between excavation units. Lots 1 through 12 correspond to the upper portion of the deposits, screened in 50 percent of the units through a 5 mm mesh. Lot 13 was assigned but never excavated. Lots 14 through 16 were unscreened lots toward the edges of the Structure 1-1 platform. Lots 17 through 27 represent deposits associated with and below Structure 1-2, screened in all units. The exterior occupation surface and wall remnants of Structure 1-2 were excavated as a separate "floor" deposit outside the lot system, as were Features 1 through 15, Burial 8, and numerous post holes. Floors, features, and post holes were always screened.

Three trenches were excavated at the edges of the mound to further investigate the stratigraphy and to search for the edges of the Structure 1-1 platform. Excavation in the trenches was by arbitrary levels rather than lots; see Chapter 2 for discussion. Trench 1 was 1 m wide and extended 4 m south from the southern edge of Unit I14. Five levels were excavated, the first two unscreened. Trenches 2 and 3 extended to the north from Unit I6 and to the west from Unit M10, respectively. Each was 1 m wide and 3 m long, screened top to bottom.

STRATIGRAPHY

A detailed inspection of the walls of Ceja's Test Pits 1 through 3 revealed somewhat more complex stratigraphy

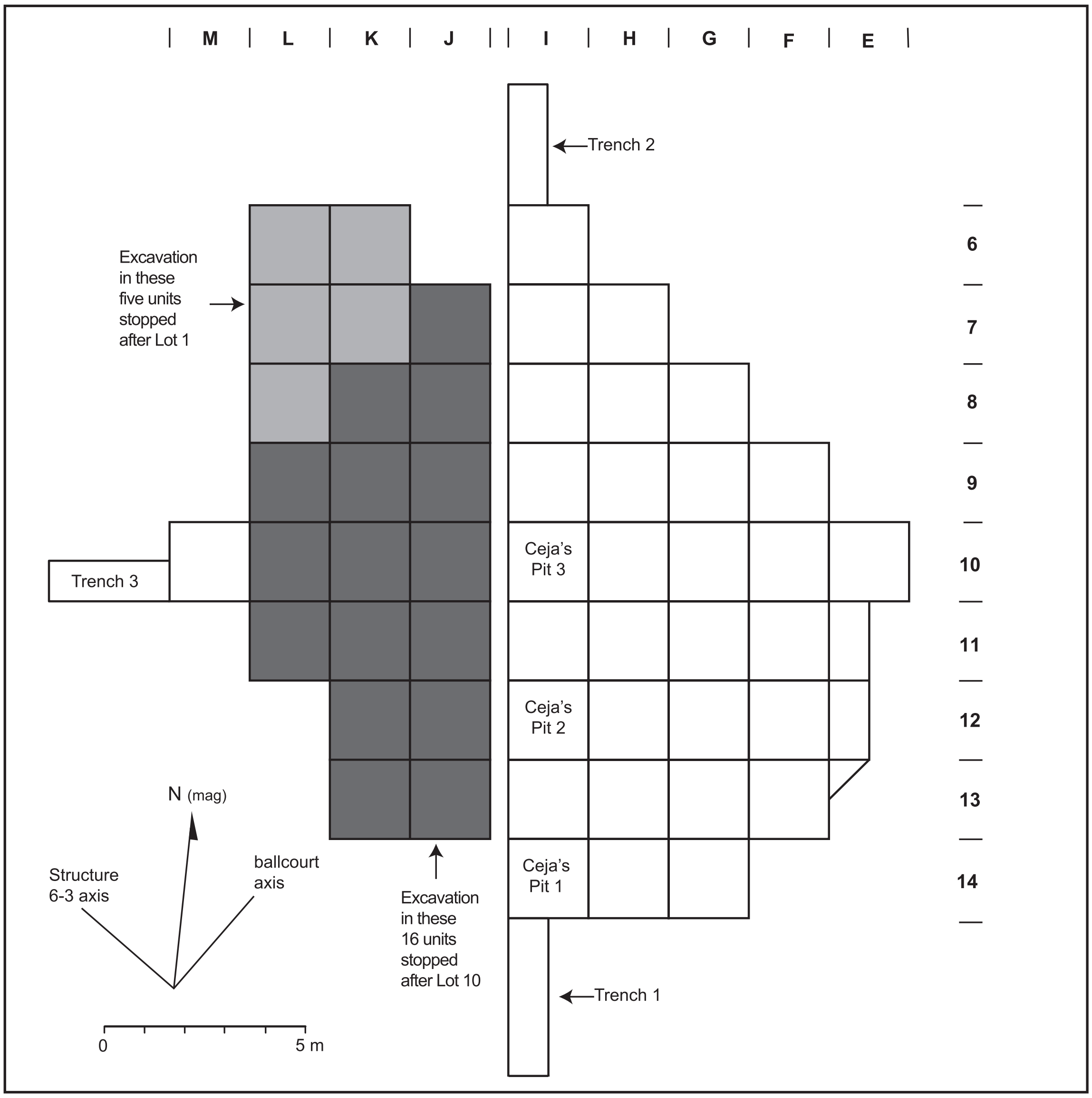

Figure 3.3. The grid system and units excavated at Mound 1.

than that pictured in his report (Ceja Tenorio 1985:25). My Zone IV seems to correspond to Ceja's third layer. My Zones V, VI, and VII are all part of Ceja's fourth layer. The most important observation to be made in comparing the 1992 profiles to those of Ceja is that the mound had lost significant height to plowing in the 20 years since Ceja's excavations—as much as 40 cm.

The basic stratigraphy of the mound is best described with reference to the 25 m long north–south profile through the center (Figure 3.4) and to a series of units illustrated in Figures 3.5, 3.9, and 3.10. In all, seven "zones" were distinguished and labeled with Roman numerals, terminology for stratigraphic synthesis that I learned as an undergraduate from Scotty MacNeish and use here in tribute. There are in addition several subdivisions of Zones I and III that appeared in the stratigraphic trenches. The zones can be grouped into four sets. First, there was Zone I, the plow zone, which extended across the entire excavation. A second set, consisting of Zones II, III, and IV, was the fill of the Structure 1-1 platform. Third was the occupation layer underlying the platform (Zone V). Finally, there were pre-occupation deposits of river-lain sand, Zones VI and VII.

The Center of the Mound: Units I10 and I11

Ceja placed Test Pit 3 precisely at the center of the mound. The stratigraphy of the western wall of that and adjacent units is shown in Figures 3.5 and 3.6. Immediately beneath the plow zone, Zone I (Lot 1), was a homogeneous, yellowish-brown layer of fine sandy silt, Zone III (10YR5/3,

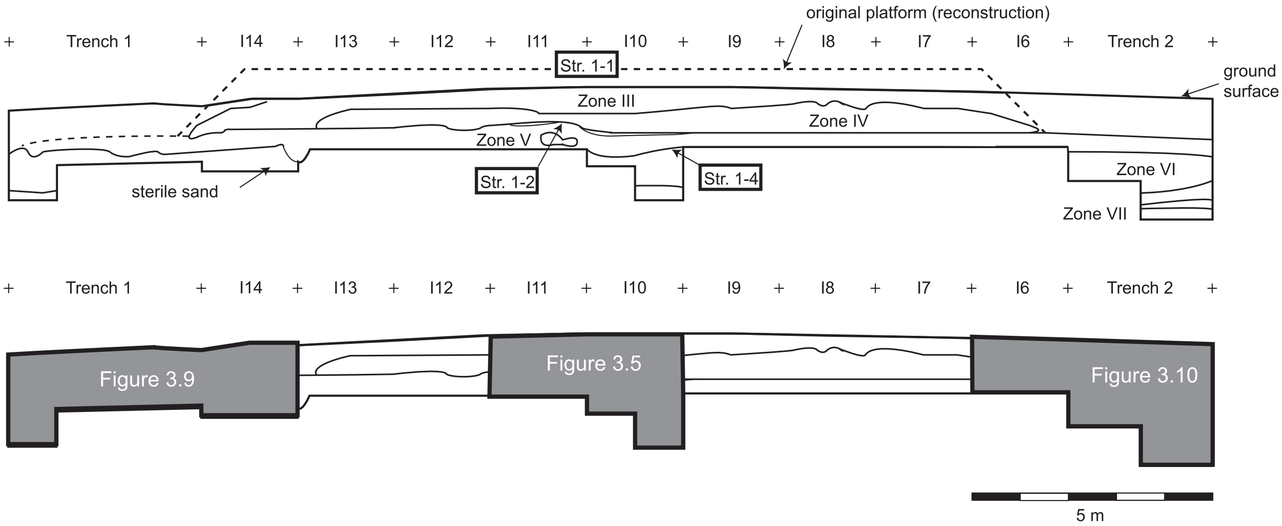

Figure 3.4. Profile through the Mound 1 excavations. Top: generalized profile from Trench 1 through Trench 2, looking west. Bottom: locations of detailed versions shown in subsequent figures in this chapter.

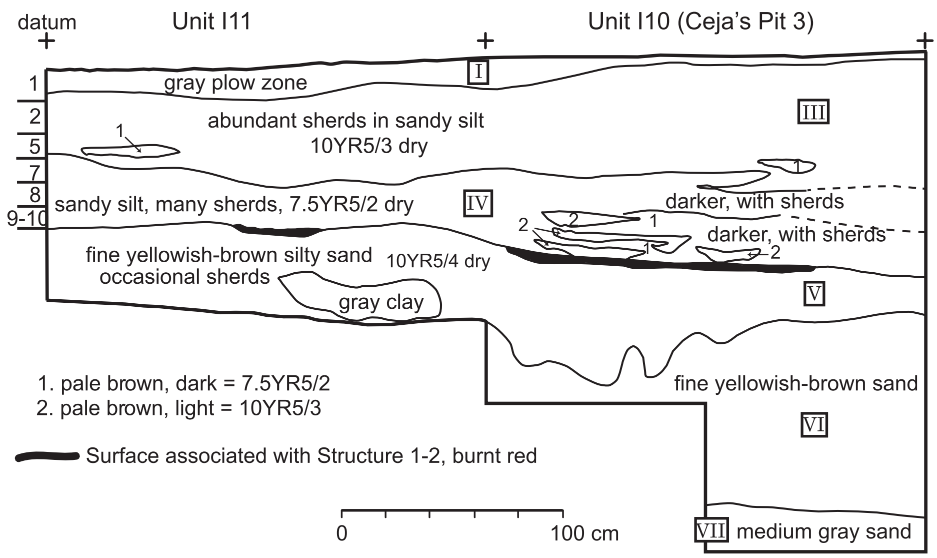

Figure 3.5. Western profile of Unit I11 and Ceja's Pit 3, Mound 1. Roman numerals identify zones discussed in the text.

dry). This layer was consistently present across much of the excavation. Similarly homogeneous layers with similar color and texture occur in other excavations at the site. Some derive from slope wash, whereas others represent artificial fill in platforms of the Ocós or Cherla phases. During those phases, platforms seem to have been constructed with earth quarried from layers of accumulated slope wash.

In the case of Mound 1, the homogeneous yellow-brown layer, 40–60 cm thick, was platform fill, laid down in a single depositional event. Cultural material in Zone III (Lots 2, 3, 5, and 6 and, in a few units, part of Lot 7) consisted of mixed domestic artifacts of the Locona, Ocós, and Cherla phases. Densities of artifacts were high, with abundant animal bone. Sherds were relatively small, with few conjoining pieces in any given level. Other finds included fragments of ceramic ear ornaments, polished iron ore mirrors, and small jade beads and pendants. There were some fragments of human bone in the deposit, including a vague concentration of bones scattered across 16 m^2 in Lot 5 (Feature 1), apparently bone from a single burial transported with the fill.

Figure 3.6. Western profile of Ceja's Pit 3 (to the left) and Unit I9 (to the right), Mound 1.

Underlying Zone III in the units pictured in Figure 3.5 (and in much of the rest of the mound as well) was Zone IV. Lots 8 through 12 were all part of Zone IV. Lot 7 was usually completely within this zone, but toward the edges of the mound it was transitional between Zones III and IV. This layer was on the whole somewhat darker in color than Zone III (7.5YR5/2, dry), with a similar texture. It varied between 40 and 60 cm thick. Unlike Zone III, Zone IV was internally stratified, consisting of lenses of slightly varying sandy sediments ranging from pale brown (7.5YR5/2) to moderate yellowish brown (10YR5/3). These lenses were not floors or occupation surfaces; they were far too patchy, with no one lens extending far in any direction, and there were no post holes or other cultural features associated with the lenses either at the top of this zone or within it.

Cultural material was even more abundant in Zone IV than in Zone III—sherd densities topped 60 kg/m^3 in some units—but was otherwise similar. Sherds were generally small, with few refits possible in any given unit. Finds included abundant animal bone, obsidian chips, fragments of grinding stones, and fire-cracked rock. There were greenstone and iron ore ornaments and hundreds of fragments of ceramic ear ornaments. Although there is admixture of Locona and Ocós material, the ceramics indicate that the primary origin of this material was a Cherla-phase refuse deposit.

Table 3.1 provides identification to type of analyzed rim sherds in zones of fill in the platform. Lot 11, the lowermost layer of fill, is also provided separately. (Not all units of Zone III were analyzed). Types are grouped according to their most likely phase assignments. However, it should be noted that the use of some types crossed phase boundaries. The table provides two estimates of the percentage of Cherla sherds by zone. I treat Zone III as approximately 60 percent Cherla and Zone IV as about 75 percent Cherla.

Zone IV represents a Cherla midden quarried and redeposited as fill. The lighter-colored lenses within the zone appeared similar in color and texture to Zone V, the underlying, pre-platform occupation surface under the mound. A plausible scenario would thus be that Zone IV was composed of sediments quarried from the vicinity of the mound itself.

Zone V was the pre-platform occupation surface. It consisted of fine yellowish-brown silty sand and was 20 to 40 cm thick. Architectural and other features appeared on the surface of, within, and just below this zone. Traces of Structures 1-2 and 1-4 are indicated in profile in Figure 3.4. Underlying V was Zone VI, a pre-occupation deposit of fine yellowish-brown sand. Zone VI, up to 100 cm thick, overlay a coarser gray sand, Zone VII. The first few levels of Zone VI had been disturbed by rodent activity and contained some Formative cultural material; VI and VII, however, represent pre-occupation river deposits.

Zone II

Zone II was a yellowish deposit identified only along the southeastern edge of the excavation. It appeared immedi-

Table 3.1. Rim sherds in analyzed units of zones of fill in the Mound 1 platform, grouped by most likely phase

Phase	Type	Zone II	Zone III	Zone IV	Lot 11
Probably Cherla					
Cherla	Aquiles Orange		20	176	31
	Bala Brown		1	67	67
	Bala White	6	141	1079	195
	Extranjero Black and White	4	4	96	12
	Kaolin			0	
	Mavi, unspecified	3	6	73	15
	Mavi Buff	11	79	644	89
	Mavi Red Rim	2	18	177	11
	Michis Buff	31	302	1910	287
	Paso Brown			1	
	Pino Black and White	29	321	2612	430
likely Cherla	White, Black-White		1	30	2
	Black-Gray-Brown	10	315	2015	321
Totals for Probably Cherla		*29%*	*51%*	*65%*	*66%*
Possibly Cherla					
Ocós or Cherla	Alba Gray			2	1
	Alba Red on White		1	10	1
	Paso Red	35	216	1068	192
Combined totals for Probably Cherla and Possibly Cherla		*39%*	*61%*	*73%*	*75%*
Ocós	Amada Brown-Black	1		17	5
	Mijo Black and White	1	3	23	
Locona or Ocós	Guijarra	1	2	23	4
	Michis Red Rim	89	310	1276	242
	Orange-Pink			1	1
	Papaya Orange	5	20	102	10
	Red	71	410	1323	124
Locona	Chilo Red	28	170	801	147
	Colona Brown	3	9	49	10
	Gallo Pink on Red			3	1
	Michis Specular Red Rim		1	9	
Barra	Cotan Red	2	2	7	3
	Monte Red on Buff			3	2
	Tusta Red			2	
non-diagnostic	Brown	5	72	308	45
	Coarse	21	64	506	110
	Michis, eroded	19	95	99	21
	Orange	2	34	205	35
	Miscellaneous unid. bichromes			2	1
	post–Early Formative		1		
	Red and Buff	0	2	4	
	Red or Red Rim tecomates	42	164	576	101
Totals, including non-diagnostics		421	2784	15,299	2514
Totals for calculation of percentages		332	2352	13,599	2201
unidentified rims		58	332	1392	
Grand totals		479	3116	16,691	

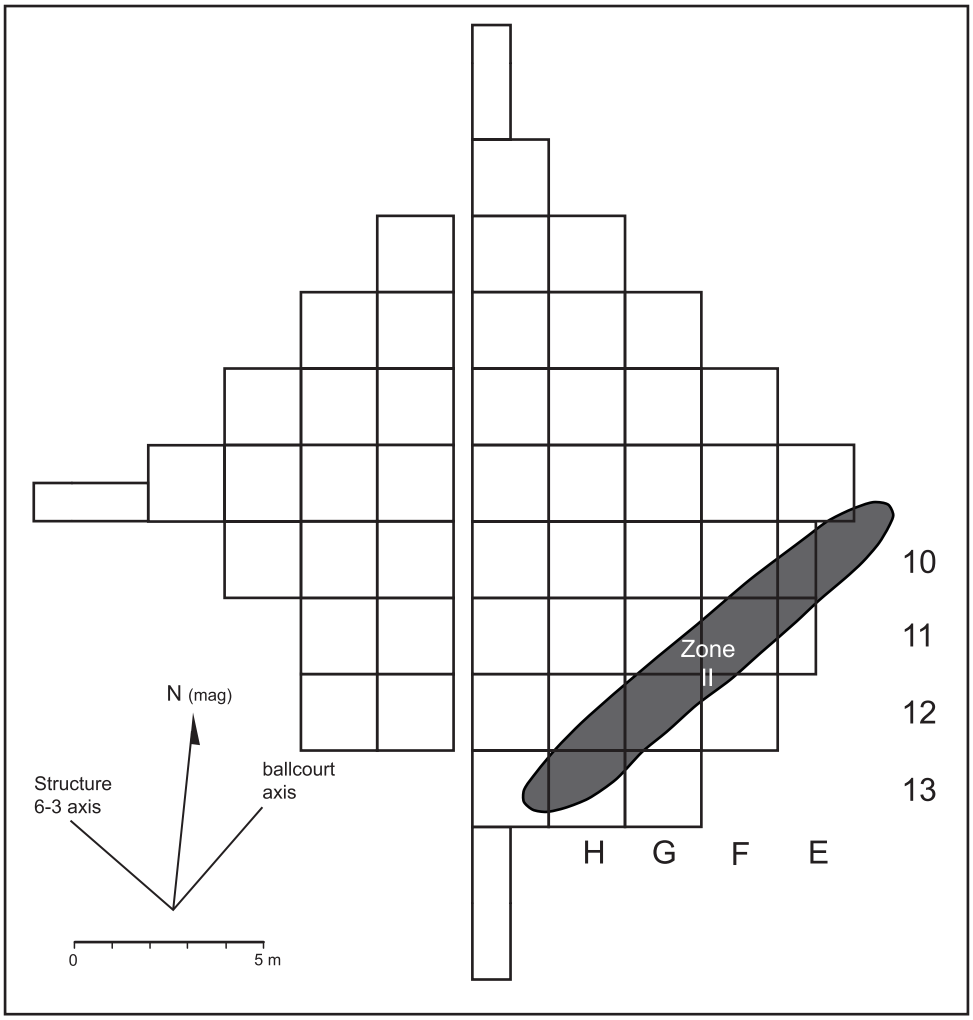

Figure 3.7. Plan of Zone II, Mound 1. Note approximate alignment with ballcourt axis.

ately beneath the plow zone in parts of Units E11, E12, F12, F13, G12, G13, G14, H13, and H14. Exposures in plan (Figure 3.7) and profile (Figure 3.8) indicate that this was a zone of fill containing numerous masses of yellow clay. More than the other fill deposits at Mound 1 (Zones III and IV), the structure of Zone II had the appearance of having formed from basket-loads of different sediments.

Zone II appeared at the edge of the excavations, and during our work it always seemed peripheral to the concerns of the moment. At first, it occurred only in Units H13 and G12 and in the eastern profile of I14 (Ceja's Pit 1). When additional units were opened up to the southeast of these, the pressing goal was exposure of Structure 1-2. Zone II was screened (as Lot 4) only in Unit H13. Sherds recovered are Locona-Ocós with some Cherla; there were no earspools. It thus appears that the source sediments for this deposit, as suggested already by the color and texture differences, were different from the Cherla midden that was the source for the bulk of the platform fill. In my field notes, I recorded ongoing uncertainty about whether Zone II was a layer atop Zones III and IV or an entire outer face of the platform. It appears actually to have been both. A lens of the yellow clay of Zone II was recorded immediately atop Zone V, the pre-platform ground surface, in unit G13. The eastern profile of Units E11 and E12 (Figure 3.8) crossed entirely through Zone II. To the upper left in the figure, the masses of yellow clay appear as a final cap to the platform, beside but also angled up over Zones III and IV.

Zone II is more intriguing in retrospect than it appeared during excavation. Its orientation matched that of the underlying Structure 1-2, an issue discussed further below.

Trench 1 and Unit I14

Trench 1, extending 4 m to the south of Unit I14 (Ceja's Test Pit 1), was excavated in five levels, some of them defined arbitrarily and some using natural distinctions. Ex-

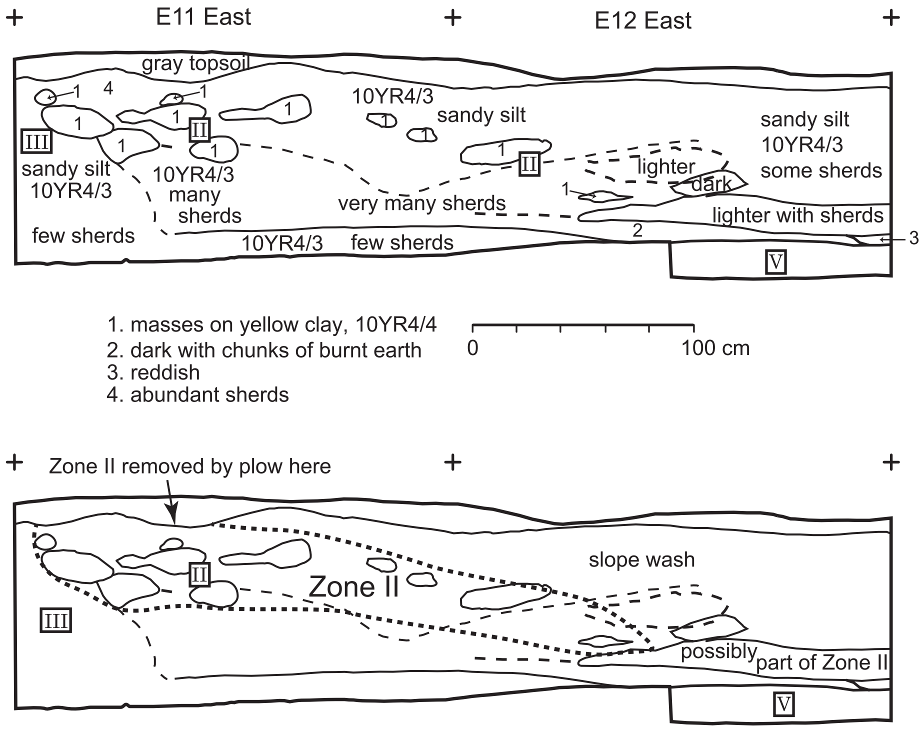

Figure 3.8. Eastern profile of Units E11 and E12, Mound 1, showing Zone II extending up across Zone III. The bottom drawing is the same as that above, with interpretations of the strata. The masses of yellow clay (labeled 1 in the top drawing) suggest basket-loads of fill and are characteristic of Zone II.

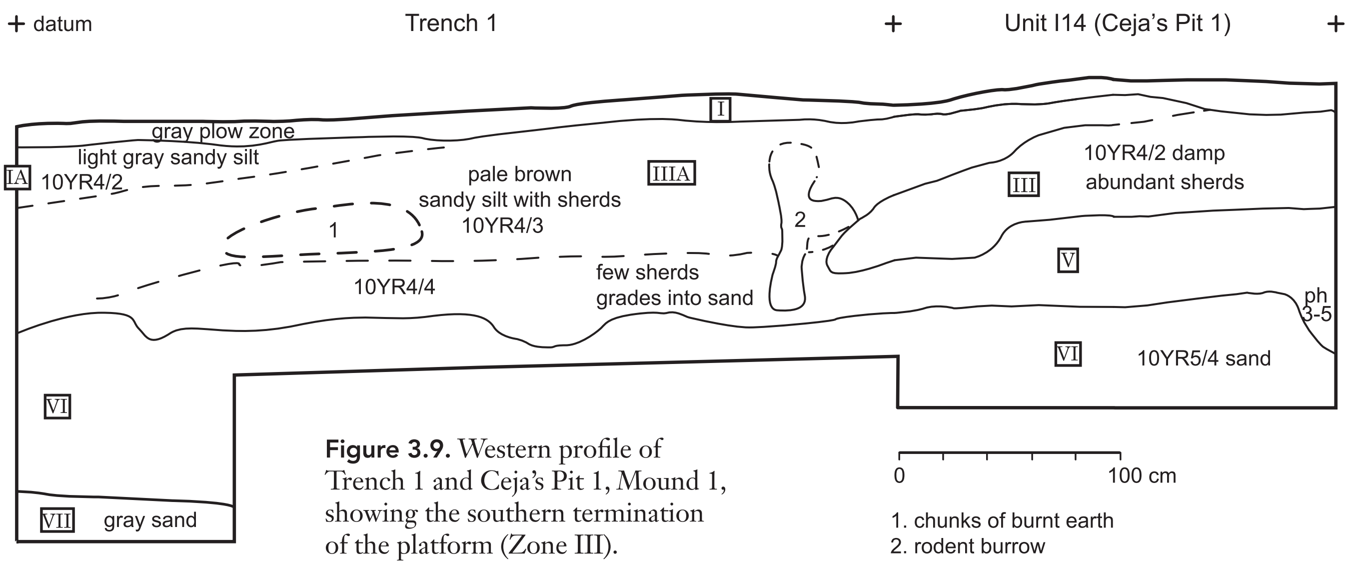

Figure 3.9. Western profile of Trench 1 and Ceja's Pit 1, Mound 1, showing the southern termination of the platform (Zone III).

cavations initially followed the slope of the ground surface, with Level 1 corresponding to 0 to 40 cm below surface, and Level 2 corresponding to 40 to 75 cm below surface. Both these first two levels were unscreened but contained mixed materials dating to the Locona, Ocós, and Cherla phases.

Level 1 cut through Zone I, the plow zone, and entered, in the southern part of the trench, Zone IA, a light gray silt (Figure 3.9, far left). Zone IA was a humic layer indicating a stable ground surface not subject to plow damage. It is equivalent to the surficial gray clayey layers identified in Test Pits 31, 32, and 33; such a layer was missing from the mound itself, as discussed above and indicated in Figure 3.1. Beneath Zone IA was Zone IIIA, a homogeneous, pale brown, fine sandy silt, similar to Zone III in color and texture and probably derived from a gradual accumulation of slope wash from the platform. In this trench, the southern termination of Zone III at the boundary between I14 and Trench 1 clearly marked the edge of the Structure 1-1 platform. To the south of that, the upper surface of Zone V was diffuse and difficult to define either during excavation or subsequently in profile; at the southernmost end of the unit, the distinction between Zones IIIA and V disappeared altogether. Instead of the clear transition to the Locona-Cherla occupation surface that we found under the platform, there was a gradation from the browner, siltier matrix of Zone IIIA to the yellower, sandier matrix of Zone V. The diffuse transition in Trench 1 is likely due to lack of the protective overburden here to one side of the platform. Zone IIIA accumulated gradually above Zone V as sediment washed off the platform. Root action blurred the distinction between these layers.

At 75 cm below surface in Trench 1, we began screening as we descended in Level 3 looking for the surface of Zone V. Unable to identify the surface precisely, we ended the level after entering well enough into Zone V that the change to a yellower, sandier matrix was clearly visible. We then removed what remained of Zone V as Level 4 and descended to the surface of Zone VI, the pure yellow sand. At the bottom of Level 4 we identified a small Locona trash pit, Feature 8, intrusive into the underlying sterile substratum. After removal of the feature we screened one more level (5), which contained little cultural material. An unscreened, meter-wide test at the extreme southern end of the trench verified that Zone VI was culturally sterile and identified the surface of the gray sand, Zone VII, at a depth of 220 to 225 cm bd.

Trench 2 and Unit I6

Trench 2 extended 3 m north of Unit I6 and was excavated in arbitrary 20 cm, screened levels (Figure 3.10). Level 1 removed the plow zone and, in the northern portion of the trench, a gray layer similar to Zone IA of Trench 1 (not registered in the profile). As argued for Trench 1, this gray lens indicates recent stability in the ground surface here just to the north of the mound. Beneath Zones I and IA was a homogeneous, brown, fine, silty sand that varied between 70 and 80 cm thick and contained abundant cultural material (Levels 2, 3, and 4). Sherd densities of 34 to 43 kg/m^2 are similar to those we found within Platform 3 itself and distinguish this deposit from Zone IIIA, the slope wash to the south of the mound, in which the density of cultural material was less.

This off-mound deposit to the north, Zone IIIB, is not a midden associated with the occupation of the Structure 1-1 platform. Average sherd weights of 7.1 to 7.8 g are similar to what we find in fill or slope wash deposits, and chronological mixing is greater than in the platform proper. Level 2 was mixed Locona and Ocós, and Level 3 was mainly Locona-Ocós with some Cherla. It is only with Level 4 that the Cherla presence rose to a level similar to what we observed within the platform.

Zone IIIB is undoubtedly a tertiary deposit, but it is not clear if it represents slope wash from the surface of the platform or an initial layer of slope wash (Level 4) followed by a subsequent addition to the platform (Levels 2 and 3). In retrospect, we did not extend the trench far enough from the mound to develop a fully convincing case one way or the other. However, I am confident that the northern edge of the platform as initially constructed was somewhere in Unit I6, either at the clear termination of Zone IV or somewhat farther north along the line that marks a sloping deposit of dense sherds, marked in Figure 3.10.

In Level 5 we entered Zone V, a yellowish-brown, fine, silty sand with well-preserved cultural material dating to the Cherla and Ocós phases. This was the Locona-Cherla occupation surface. The abundance of cultural materials fell off sharply in Levels 6 and 7, predominantly Ocós and Locona, respectively. In Level 7 we entered the sand that underlies the cultural deposits, Zone VI. This zone had been heavily disturbed by rodents, and we continued to find a few sherds in Levels 8, 9, and 10. We hit a medium gray sand at 200 to 220 cm bd in a test in the northern portion of the unit, but this layer proved to be only 20 to 30 cm thick, giving over to a yellowish-brown sandy silt and then to gray sand once again at a depth of 260 cm bd, indicating that the alluvial substratum composing the low ridge on which Mound 1 was constructed is itself stratigraphically complex.

Trench 3 and Unit M10

Trench 3 extended 3 m to the west of Unit M10 and was excavated in arbitrary, screened levels of 20 cm (Figure 3.11). Level 1 cut through the plow zone, Zone I, into the by-now-familiar homogeneous brown, fine, sandy silt beneath. We identified no gray layer (Zone IA) beneath the plow zone in this trench. Levels 2, 3, and 4 descended through the homogeneous sandy layer, Zone IIIC. Toward the bottom of Level 4 was the beginning of a transition to the sandier, yellower occupation surface, Zone V. In Level 5 we entered the substratum of fine yellow sand (Zone VI) in the southern part of the trench. As in Trench 1, the surface of Zone V could not be readily distinguished here, which would suggest gradual slope wash as the cause of deposition. However, as in Trench 2, the cultural contents of Levels 2 through 4 were mainly Locona-Ocós. It is again not clear whether this zone accumulated through slope wash (which I consider most likely) or included a subsequent extension to the original platform. Note in Figure 3.11 (top) how the westward termination of Zone IV appeared in profile in Unit M10, marking the edge of the original platform for Structure 1-1.

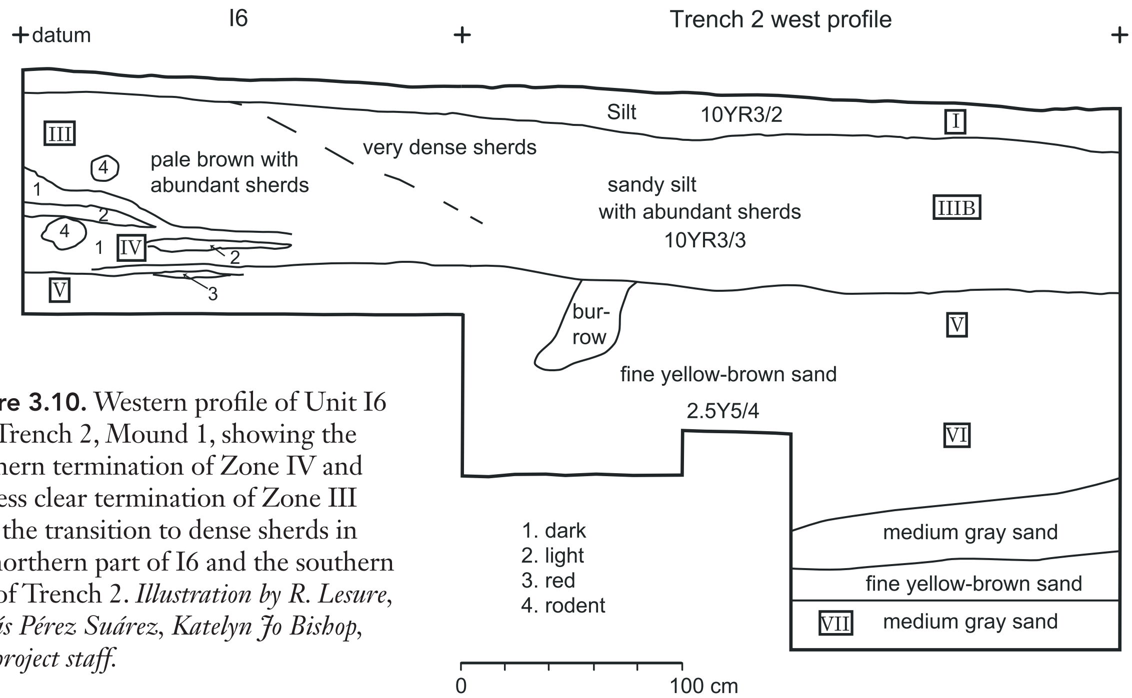

Figure 3.10. Western profile of Unit I6 and Trench 2, Mound 1, showing the northern termination of Zone IV and the less clear termination of Zone III with the transition to dense sherds in the northern part of I6 and the southern end of Trench 2. *Illustration by R. Lesure, Tomás Pérez Suárez, Katelyn Jo Bishop, and project staff.*

Intruding into Zone VI from Zone V was a large pit, Feature 10 (Level 7 and part of Level 6). The pit contained Barra and Locona sherds and represents an early Locona deposit. Level 8, outside of and beneath this feature, was practically devoid of cultural material. Interestingly, we found in this level (around 170 to 180 cm bd) the transition to the medium gray sand of Zone VII, somewhat higher than the level at which we identified this zone toward the east in Unit I11 and Trenches 1 and 3, again emphasizing the complexity of the natural, river-lain deposits beneath the Formative occupation layers.

Although I never got around to placing a fourth trench to the east of the mound, there is evidence that the platform terminated at the eastern edge of the mound as it did to the south, west, and probably north. First, there is the yellow fill of Zone II (Lot 4), which seems to have formed a southeastern boundary to the platform. Second, the profile of Unit E10 shows the same sort of termination to Zone IV that appeared in Units I14, I6, and M10 as confirmed by Trenches 1, 2, and 3, respectively.

OVERVIEW OF THE FEATURES

Zone V contained most of the features identified at Mound 1. It seems to have accumulated gradually over a span of approximately 300 years, from early Locona to Cherla times. Cultural materials within this layer of 20–40 cm were mixed. In some of the units in which the layer was removed in multiple lots, there was a hint of cultural stratigraphy, with more Cherla above and more Locona below, but in other units, that was not the case. Traces of several structures appeared within or on the upper surface of Zone V. Structures were numbered in the order of discovery, from the ground surface down, following the practice introduced for Mound 6 by Blake (1991). Undiscovered features may lie in Zone V on the western side of the excavations; time and money constraints forced me to close the excavations with only the eastern half taken down to the sterile substratum, except for Trench 3 and Unit M10 in the extreme western edge of the exposure.

Features not in Zone V included the Structure 1-1 platform and a few possible post hole remnants on the summit of the mound. Additionally, the whole of Zone IV was a dense concentration of redeposited refuse that merits separate attention. In the following sections, structures and associated features are presented in chronological order.

THE LOCONA OCCUPATION

The earliest features in Mound 1 appeared toward the bottom of Zone V and were most clearly identified where they cut down into Zone VI, the sterile substratum. Features that appeared at the surface of Zone VI are shown in Figure 3.12. In the center of the excavation were fragmentary remains of two structures (1-4 and 1-5), evidenced by several poorly preserved patches of floor and a number of post holes (Figure 3.13). Near the structures were three pits, Features 8, 10, and 15, all of which contained Locona-phase domestic refuse. Generally, this suite of features suggests a series of small, non-platform Locona residences with associated refuse-filled storage pits. However, the pits date to different eras within the Locona phase. Feature 10 was Early Locona; Feature 15 Late Locona.