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For Fausto Olivera Mendoza of Xaagá, Mitla.

He lived in the shadow of Guirún and taught us so much about Oaxaca and its people.

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Terrace Sites in the Valley of Oaxaca

When exploring Oaxaca in southern Mexico during the late 1800s, Field Museum curator William H. Holmes was awestruck by the archaeological ruins he observed in this mountain valley:

> About Oaxaca many of the important architectural remains are found on mountain tops, and one soon comes to recognize the notched profiles of the ridges and peaks that border the valley as being due to the strangely directed enterprise of the ancient inhabitants. The feeling of surprise induced by this discovery is followed by one of amazement as the real nature and extent of the work dawns upon the mind. As the explorer climbs the slopes and picks his way from summit to summit, he is fairly dazed by the vast array of pyramids and terraces, which not only crown the heights but overspread the steep slopes, destroying traces of natural contour and making the mountains actual works of art. From the massive ramparts of these mountain cities one gazes down into the blue and distant valleys, where the present cities and towns appear as mere patches of white and pink set in fringes of green. (Holmes 1897:211–212)

Holmes had traveled extensively throughout Mexico and the American Southwest, yet few sites impressed him as much as Monte Albán, the hilltop terrace site that was the prehispanic capital of the Valley of Oaxaca for over 1000 years (c. 500 B.C.–A.D. 700). He describes his trip to Monte Albán on horseback as "the most romantic feature of my trip to southern Mexico" (Holmes 1897: 216). After he made his ascent up the steep slope to the summit of the site, leading his horse with much difficulty, he described the view from the top as bewildering:

> In years of travel and mountain work I had met with many great surprises—such as that experienced on emerging suddenly from the forest-covered plateaus of Arizona into a full view of the Grand Cañon of the Colorado, or of obtaining unexpected glimpses of startling Alpine panoramas—but nothing had ever impressed me so deeply as this. The crest of Alban, one-fourth of a mile wide and extending nearly a mile to the north, lay spread out at my feet. The surface was not covered with scattered and obscure piles of ruins as I had expected, but the whole mountain had been remodeled by the hand of man until not a trace of natural contour remained. There was a vast system of level courts inclosed by successive terraces and bordered by pyramids upon pyramids. Even the sides of the mountain descended in a succession of terraces, and the whole crest, separated by the hazy atmosphere from the dimly seen valleys more than a thousand feet below, and isolated completely from the blue range beyond, seemed suspended in mid air. (Holmes 1897:218)

Hilltop terrace sites have long been recognized as a distinctive yet relatively common form of settlement in the prehispanic Valley of Oaxaca in southern Mexico (Figure 1.1). Beginning in the late 1970s, regional settlement pattern surveys have provided a systematic inventory of over 100 hilltop ruins in the Valley of Oaxaca, many, like Monte Albán, with hundreds of terraces (Blanton et al. 1982; Kowalewski 1976; Kowalewski et al. 1989). Subsequent surveys of adjoining smaller valleys and mountainous areas in Mexico's Southern Highlands, including Ejutla, Guirún, Sola de Vega, the Sierra Norte, Peñoles, and Nochixtlán, among other valleys in the Mixteca Alta, have more than doubled that number (Balkansky 1998, 2002; Balkansky et al. 2000; Drennan 1989; Fein-

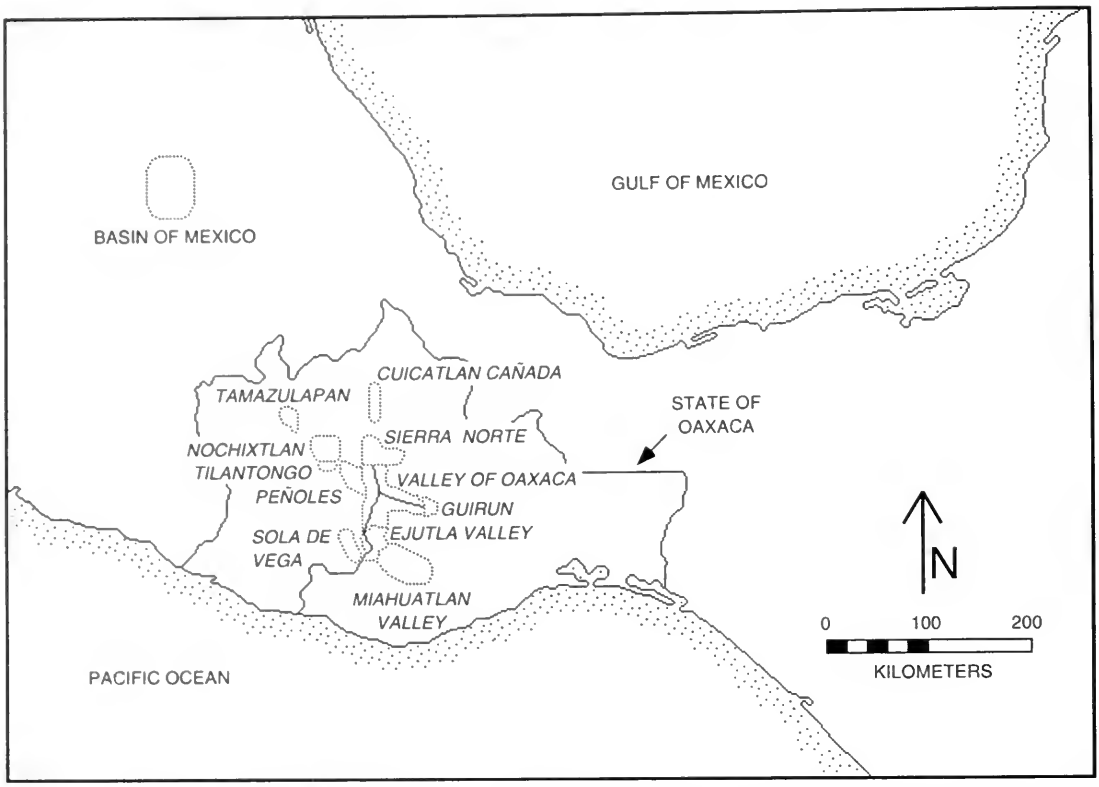


FIG. 1.1. Map of southern Mexico, showing the Valley of Oaxaca and other smaller valleys and mountainous areas in the state of Oaxaca that have been surveyed systematically.

man and Nicholas 1990, 1996; Finsten 1996; Kowalewski 1991; Spores 1972).

These artificially sculpted hilltop settlements have been reported and mapped in other regions of Mexico as well, including the Central Highlands and the north Mexican borderlands (Di Peso 1979; Hard et al. 1999; McGuire et al. 1999; Nelson 1995; O'Donovan 2002; Sauer and Brand 1931). The Valley of Oaxaca and its environs, however, has the largest reported number of hilltop terrace sites in all of Mesoamerica. This abundance relative to other regions is not due entirely to the absence of systematic regional survey elsewhere in Mexico. For example, extensive systematic regional surveys in highland central Mexico (Blanton 1972; Parsons 1971; Parsons et al. 1982; Sanders et al. 1979) have documented many fewer terrace sites in those areas than are known in Oaxaca.

Yet in spite of the significance of these hilltop communities as ancient landmarks and settlement centers in highland Oaxaca, few hilltop terrace sites in the Valley of Oaxaca have been studied in great detail. Intensive studies and excavations have been carried out at only the most visible and impressive terrace sites, such as Monte Albán, where major archaeological excavation projects have focused on the site's monumental public core. Massive archaeological efforts at Monte Albán during the first half of the 1900s were directed to excavations in the spectacular ruins at the summit of the ancient settlement (Acosta 1958, 1974, 1975, 1976, 1978; Caso 1932, 1935, 1938, 1942, 1969; Caso and Bernal 1952; Caso et al. 1967; Rubín de la Borbolla 1969). This focus continues today (Martínez López and Winter 1994; Winter 1994a, 1994b).

Centered on the massive architectural contexts that were built on the flattened top of the hill, early archaeological investigations at Monte Albán included only limited reconnaissance of the rest of the site. Fortunately, during the last several decades systematic efforts have been undertaken to study and map the entire site. In the 1970s Richard Blanton completed an intensive surface study of Monte Albán (Blanton 1978) and pro-

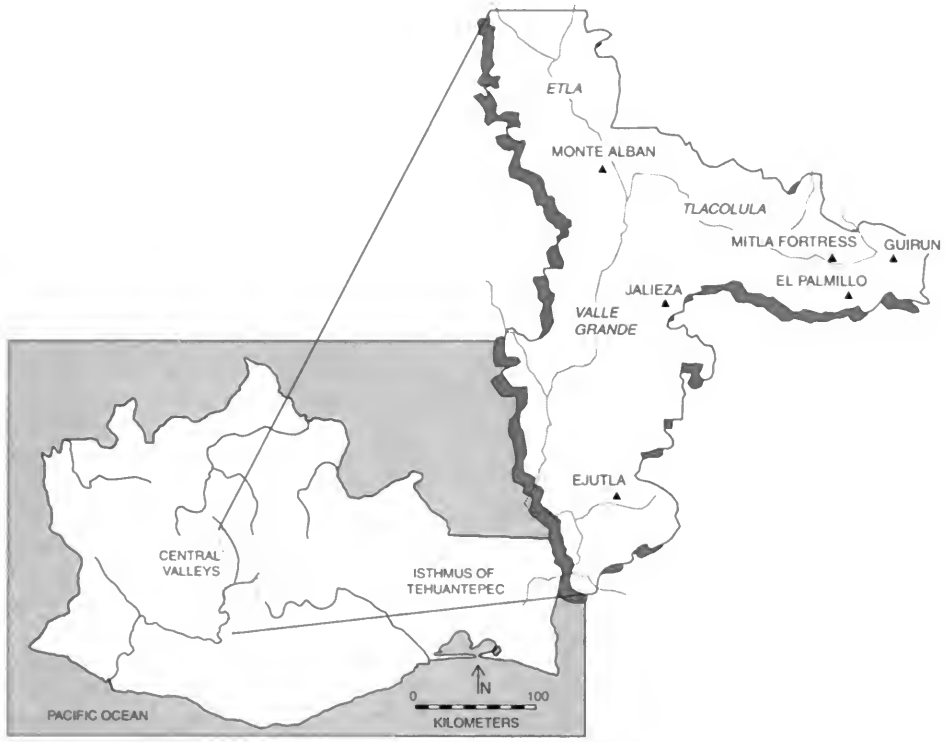


FIG. 1.2. Map of the Valley of Oaxaca and sites mentioned in text.

duced the first detailed map showing the full extent of the site, including the distribution of more than 2000 artificial terraces.

Until recently, there had been no comparable intensive investigations or excavations at other terrace sites in the Valley of Oaxaca or elsewhere in Mexico (Hard et al. 1999; McGuire and Villalpando 1998; O'Donovan 2002). Consequently, it has been difficult to know how broadly we can generalize from the patterns of settlement and occupation observed at Monte Albán. Many terrace sites in Oaxaca are situated in hilly locales at the edges of the valley, far from the core where Monte Albán is situated. At the same time, no known terrace site in Oaxaca has monumental construction nearly as grand or as massive as the nonresidential buildings at Monte Albán.

How similar to Monte Albán were other hilltop sites in Oaxaca that were found during the regional surveys? How did these settlements vary across time and space? What were their main functions, and what activities were enacted at them? How did the residents of terrace sites, often situated far from prime agricultural land, support themselves? Because terrace sites were such prominent features of the Valley of Oaxaca landscape, especially when Monte Albán was at its height of monumentality and size during the Classic period (A.D. 200–800), answers to these questions go beyond an interest in the terrace sites themselves. Investigation of these questions is necessary to gain an understanding of the economic and demographic underpinnings of the Monte Albán polity, one of the earliest and most enduring states in prehispanic Mexico (Palerm and Wolf 1957).

One hundred years after Holmes published his eloquent description of Monte Albán, we still know little about life on hilltop terrace sites, how these settlements were internally organized, and what role these communities played in the larger regions of which they were part. In this study we endeavor to address these questions about prehispanic terrace sites in the Valley of Oaxaca by presenting the results of intensive site surveys at three large hilltop terrace sites, the Mitla Fortress, Guirún, and El Palmillo, in the eastern or Tlacolula arm of the valley (Figure 1.2). The detailed maps that we now have for each site and the terrace-level data that we gathered are comparable to information previously collected at Monte Al-

bán (Blanton 1978) and provide a comparative vantage on terrace life from an edge of the valley.

Background to the Valley of Oaxaca

The Valley of Oaxaca has long been considered a core prehispanic region in Mesoamerica (Palerm and Wolf 1957). Situated within a large, rugged, mountainous zone in the state of Oaxaca, the valley comprises the largest expanse of arable land in the Southern Highlands. This agricultural advantage relative to other smaller valleys that are scattered throughout the Southern Highlands is a key aspect of its preeminence. At present, evidence for the earliest domesticated plant (squash) in all of the Americas was recovered (c. 8000 B.C.) from a dry cave in the Tlacolula arm of the valley (Smith 2000; Whitaker and Cutler 1986), not far from the geographic focus of our investigation. Several millennia after initial plant domestication, the region's early sedentary agriculturalists were among the first people in Mesoamerica to erect public buildings (Marcus and Flannery 1996). Later, carved glyphs on stones from Monte Albán and the earlier head town of San José Mogote represent some of the first writing identified in Mesoamerica (Marcus 1980, 1992).

Monte Albán was established as a regional center in the Valley of Oaxaca around 500 B.C. (Table 1.1) (Blanton 1978). It was one of Mesoamerica's earliest cities and long remained one of the area's larger settlements. Monte Albán also was one of the earliest terrace sites in the region, if not the earliest. Because the site was on a hilltop in the center of the valley, removed from the largest patches of prime farmland below, it is highly unlikely that all of the settlement's residents, even at the time of its initial founding, could have been engaged in farming (Blanton 1978, 1980; Blanton et al. 1999; Kowalewski 1980).

Monte Albán dominated the Valley of Oaxaca for the next thousand years, until the end of the Classic period (c. A.D. 700–800). The site does appear to have been unique in its central location, size, and monumentality, and hence in its role as the region's capital. Yet the findings from systematic archaeological surveys in the valley document that Monte Albán was not unique in its hilltop setting and terraced slopes (Blanton et al. 1982; Kowalewski et al. 1989).

Hilltop terrace sites were a key part of Classic (A.D. 200–800) and, to a lesser extent, Postclassic (A.D. 800–1500) period settlement in the Valley of Oaxaca. Although terrace sites constitute only a small percentage of the thousands of prehispanic sites recorded in the region, collectively they housed a majority of the prehispanic population (at least during the last 1000 years before the Spanish Conquest). During the Classic period, almost two-thirds of the valley's population resided in these generally compact, densely settled communities.

Yet, except for Monte Albán, we know relatively little about the hilltop terrace sites in the Valley of Oaxaca. Even Monte Albán is most recognized for its monumental architecture and the rich Tomb 7 (Caso 1969; Marcus 1983). Blanton's (1978) intensive survey of the site was the first effort to define the location of all visible architectural features and residential terraces that are spread across the top and slopes of the three high adjacent hills that form the site (see also Peeler

TABLE 1.1. Chronological Sequence for the Valley of Oaxaca

	Oaxaca	Mesoamerica
1500		
1300	Monte Albán V	Late Postclassic
1100		
900	Monte Albán IV	Early Postclassic
700	Monte Albán IIIB	Late Classic
500	Monte Albán IIIA	Early Classic
300		
A.D. 100	Monte Albán II	Terminal Preclassic
B.C. 100		
300	Monte Albán Late I	Late Preclassic
500	Monte Albán Early I	
700	Rosario	Middle Preclassic
900	Guadalupe	
1100	San José	Early Preclassic
1300	Tierras Largas	
1500	Espiridión	
1600		

and Winter 1993 for a detailed topographic map of Monte Albán).

Based on visible remains of structures and residential debris, especially pot sherds and stone tools, Blanton determined that the majority of terraces at Monte Albán were residential, and mapped and measured them. The 2073 terraces recorded at the site were the primary units of analysis. Surface collections of sherds were taken on most terraces to determine their date of occupation. Although less detailed and contextualized than information derived from excavation, these surface findings allowed Blanton to address a series of questions about the site that could not be answered from investigations focused exclusively on temples and tombs. He has argued that Monte Albán was primarily a political center, that its residents lived in barrio-like subdivisions, and that although some production took place at the site, it was not a predominant regional center for craft production or redistributive exchange (Blanton 1978:108–109; Feinman et al. 1984). Subsequent excavations on several residential terraces have provided key support for the largely residential use of the settlement's terraces (González Licón 2003; Kuttruff and Autry 1978; Winter 1974, 1995; Winter and Payne 1976).

Most other known terrace sites in the valley were found, recorded, and mapped during the systematic, full-coverage regional surveys (although a few were first located during Ignacio Bernal's [1965] earlier reconnaissance). Given the broad-brush approach that makes regional survey such a time-effective way to systematically gather basic information about the full corpus and distribution of sites over large areas, we know less about these sites than about Monte Albán. The first three seasons of this long-term, systematic investigation of the Valley of Oaxaca were spent at Monte Albán (Blanton 1978), with the rest of the 2100-km^2 area surveyed over four subsequent field seasons (Blanton et al. 1982; Kowalewski 1976; Kowalewski et al. 1989; Varner 1974). The regional survey has yielded very important information about the distribution of terrace sites across the region, the occupational histories of these settlements, and the relative abundance of certain classes of artifacts at them. At the same time, the data collected on individual terraces at these other hilltop sites as well as basic perspectives on these communities are generally less detailed than what we have for Monte Albán. Thus, questions concerning the general nature of Oaxaca's hilltop terrace settlements, as well as direct comparisons with outlying settlements and Monte Albán, are difficult to address systematically or in any detailed fashion.

As several scholars who recently completed a regional survey in the Mixteca Alta have noted (Balkansky et al. 2000:385), "One virtue of survey is its capacity to generate testable hypotheses. There is, however, a difference between testable hypotheses and conclusive results. Every regional model must ultimately be tested on a site-by-site basis."

Prior to our intensive surface surveys at three large terrace sites in the Tlacolula subvalley, only one other terrace site in the Valley of Oaxaca (outside of Monte Albán) had been mapped and surveyed intensively. Jalieza, in the Valle Grande or broad southern arm of the region, was first recorded in the 1960s during Ignacio Bernal's reconnaissance of prehispanic sites in the Valley of Oaxaca (see Figure 1.2). The site's full extent was not "discovered" until Jalieza was walked over and mapped in 1977 as part of the valley survey (Blanton et al. 1982). During six weeks of fieldwork in 1977, more than 2000 terraces were mapped, covering an area even larger than Monte Albán (c. 9 km^2). The spread of temporally diagnostic ceramics on the surface, however, indicated that the entire site area was not occupied all at one time. Different sectors of the site were most heavily inhabited during distinct eras. Based on this research, we found that Jalieza was slightly smaller than Monte Albán and was the valley's second-ranking center during the Classic period. Yet although both of these large centers were terrace sites, there are stark contrasts in their settings and architecture that likely reflect their different roles in the larger sociopolitical system. Monte Albán was situated on a series of freestanding high hills in the center of the valley where the three valley arms come together. Jalieza, on the other hand, was situated on high piedmont ridges along the eastern edge of the Valle Grande, near a mountain pass into the Tlacolula subvalley. The architectural differences are even more striking. In volume and elaboration, the monumental architecture on the Main Plaza at Monte Albán far surpasses the public architecture at all other valley sites, including Jalieza (Blanton et al. 1993:89). Although smaller mound groups are scattered across both sites, the civic-ceremonial architecture in Jalieza's central public core is miniscule compared to Monte Albán's.

In 1988, Laura Finsten returned to Jalieza and completed a more intensive surface study and

mapping project of a small sample (10%) of terraces at the site (Finsten 1995). Her more detailed findings of building rubble and other domestic debris on the surface strengthened the regional survey conclusions that most of the terraces at Jalieza were residential. Based on recovered surface artifacts, she argued for a diverse yet low-intensity craft industry at the site, including ceramic, obsidian, and local stone tool production (Finsten 1995:85), in line with Blanton's observations for Monte Albán. No subsequent large-scale horizontal excavations of domestic structures at the site have been completed and published to confirm the findings of the intensive surface study.

In the mid-1990s we began a program of intensive surface survey at the Mitla Fortress, Guirún, and El Palmillo. The results of these investigations, which form the core of this monograph, have confirmed the basic findings of the regional survey at the same time that they provide greater detail on terrace function, site layout and internal organization, and specialized activities. We have subsequently initiated excavation on several residential terraces at El Palmillo. Although we do not report on those ongoing investigations in this volume, we do draw on certain key excavation findings when they supplement or amplify our surface observations in significant ways. For those interested in the terrace excavations, we refer the reader to preliminary statements of our findings (Feinman et al. 2002; Nicholas and Feinman in press).

Principal Research Questions

Through systematic regional surveys in the Valley of Oaxaca, archaeologists have documented the prevalence of terrace sites as well as their apparent demographic importance. Yet many questions remain about the nature of these settlements and their role in the larger political and economic systems of which they were a part. Because terrace sites are especially abundant during the Classic period, learning more about them is necessary if we want to expand our understanding of the sociopolitical organization and economy of Classic period Oaxaca, namely, the nature of the Monte Albán polity and what came after.

We have detailed surface information from individual terraces at Monte Albán and a small sample of terraces at Jalieza, the two largest hilltop sites in the valley during the Classic period. But without comparable data from other terrace sites, including smaller sites in more outlying areas of the valley, it is difficult to know how representative the observations at Monte Albán and Jalieza are of terrace sites as a whole. Was the capital just a terrace site writ large, or was Monte Albán functionally and organizationally different from other, smaller terrace sites? Did the residents of the capital live in the same kind of units and carry out the same activities as the inhabitants of smaller, outlying terrace sites?

Many key questions eventually will require excavation of a sample of terraces at more than just a few sites in Oaxaca. Yet intensive site surveys provide an important intermediate perspective between excavations of a small sample of terraces at one or a few sites and settlement pattern surveys focused on whole regions. Here we present a series of issues and questions about terrace sites and residential terrace life that require investigation if we are to understand the significance of terrace sites and their role in the larger societies of which they were a part.

Are Prehispanic Terraces in Oaxaca Primarily Residential or Agricultural?

In highland Oaxaca, terrace sites are generally located on the tops of hills and mountains high above the valley floor. The terraces themselves are artificially flattened areas that were built up or sometimes carved into the descending slopes. Adjacent terraces, which often were linked into concentric rings, form what look like steps that run up the slopes of these natural inclines.

Perhaps the most basic question that we address concerns the principal function of these sites, or the uses of the terraces. Are most terraces at these prehispanic hilltop sites in Oaxaca residential or agricultural (Bernal 1965; Blanton 1978; Winter 1974; cf. Santley 1980:138)? This same question has been asked of the *trincheras* sites in northern Mexico and the southwestern United States (Downum et al. 1994; Fish et al. 1984; Fontana et al. 1959; Hard and Roney 1998; Hard et al. 1999).

Prehispanic agricultural terraces have been identified in Oaxaca (Flannery et al. 1967; Neely 1970; Neely et al. 1990), other highland areas of Mexico (Kirkby 1972; Sanders 1972:116; Smith and Price 1994; Spores 1969; Woodbury and Neely 1972), and elsewhere in the Americas (Donkin 1979; Downum et al. 1985; Fish et al. 1984;

Huntington 1912; Turner 1983; Wilken 1987). Some of the lower terraces at Monte Albán are thought to be agricultural (Blanton 1978:8). Larger terraces at many Oaxaca hilltop sites today are (or were recently) under cultivation, so it is not always a simple matter to determine the prehispanic use of terraces without excavation. During the regional surveys, however, we found strong surface evidence of prehispanic habitation on terraces at most (if not all) hilltop sites (Blanton et al. 1982; Feinman and Nicholas 1990, 1996; Kowalewski et al. 1989). Remnants of stone walls or house foundations, and occasionally small domestic tombs or fragments of plaster floors, were commonly observed. On more heavily plowed terraces we often found fragments of building stones scattered across the surface with other domestic debris.

In addition, we have recorded terraced slopes on mountaintops—for example Nueve Puntas (Feinman and Nicholas 1999), at the extreme eastern edge of the Tlacolula arm—that are too high in elevation for reliable farming. Because Nueve Puntas has never been plowed (at least not for centuries), the terraces are astonishingly well preserved, with house foundations still standing 0.5 m high above the modern ground surface. Stone fireboxes also were visible above the piles of leaves that covered the site. In several instances we could easily define entryways leading up to terrace walls still standing over a meter high. At Nueve Puntas and these other well-preserved mountaintop sites, the terraces were clearly residential, not agricultural.

Nevertheless, over the years, some archaeologists have questioned the residential nature of terrace sites in Oaxaca. Robert Santley, for example, has asserted that the several thousand terraces at Monte Albán are natural features that were used primarily for agriculture (Santley 1980:138). Yet stone retaining walls that define flattened areas on an otherwise steep slope would seem not to be natural. As Holmes recognized over 100 years ago, the terraced slopes were manmade creations (see also Bernal 1965:804–805).

Published investigations of selected terraces at Monte Albán (González Licón 2003; Winter 1974; Winter and Payne 1976) and El Palmillo (Feinman et al. 2002) document that these excavated terraces sustained domestic units. More thorough and systematic intensive surveys at other terrace sites are needed in order to determine whether or not domestic trash and architectural rubble occur only on some terraces or consistently on most terraces. Likewise, since we know that Monte Albán was distinctive in certain ways, it would be useful to examine and map terraces at sites of differing sizes, layouts, and locations, including at the region's edge. Even as we now strongly suspect that Monte Albán had a large residential population, we should not just assume that terrace sites far from the valley center were necessarily functionally similar.

Occupational History of Terrace Sites in Oaxaca

When did these settlements, elevated off the valley floor, become significant features of the prehispanic landscape, and can we discern why? If the terraces at these settlements were largely residential, how long were the communities inhabited? Were they occupied only for brief periods of time, or were they communities with long durations? What are their specific occupational histories, and how did the use of these modified hills and mountains change over time? Do all terrace sites have parallel occupational sequences, or is there marked variation from site to site?

The valley-wide regional surveys have given us a broad-brush picture, based on targeted and often dispersed collections of surface artifacts made from selected locations across the extent of often very large sites. These collections, in conjunction with more cursory observations on a much higher number of uncollected terraces, are best for identifying the major phases of occupation at a site as a whole. They are somewhat less effective at revealing the detailed patterning of terrace use within complex and large settlements, especially in regard to earlier occupations, which may be largely masked by subsequent habitation and construction. During intensive surveys, more time is spent on each terrace and more terraces are collected, resulting in more specific information for addressing questions about terrace site histories and how the occupation of a community shifted over time.

The Role of Terrace Sites

Given the terraces' elevated settings, often far from water and the most arable fields, one cannot help but wonder why the valley's prehispanic inhabitants expended so much energy constructing artificial terraces on steep hill slopes instead of locating large communities in more accessible valley floor locations. Certainly, valley floor set-

tings would have had certain advantages when it came to transportation and proximity to agricultural resources such as flat land and usable water. The hilltop setting of terrace settlements would seem to indicate a basic concern with defense.

Regional survey findings, however, indicate that terrace sites vary in size, location, layout, and the nature of surface artifacts. Classic period terrace sites in the Valley of Oaxaca have been proposed to have had one or more of three main functions: administration, production/exchange, and defense (Kowalewski et al. 1989:242–245). The largest terrace sites, usually with one or more groups of public architecture situated on the summit of ridges, are thought to have functioned as administrative centers, yet some of them, especially in the Tlacolula arm of the valley, also appear to have been loci for production/exchange. The overwhelming character of many smaller terrace sites was the artifactual evidence of craft production. Other small terrace sites, with little public architecture or craft debris, may have served primarily as military outposts. These sites generally are situated at high elevations and have the smallest terraces.

Such broad descriptions provide a general overview of terrace sites but are not always detailed enough to allow more specific comparisons to be drawn between terraces at individual sites, between neighboring sites, or with the regional capital. How did activities such as craft working compare at smaller, outlying terrace sites in relation to Monte Albán? Were these smaller settlements generally defensible, and in what ways? Some indicators of defensive use were observed at various hilltop terrace sites during the regional survey (Elam 1989), but such signs were not noted at others. A more fine-grained surface study, using intensive survey, could record and assess indicators of walls and other defensive features that might be missed during more rapid coverage of sites, especially at sites that are less well preserved.

Defense

Sixteenth-century Spanish accounts (*relaciones*) concerning Oaxaca mention four fortresses or fortified hilltops in the eastern part of the Valley of Oaxaca near Mitla (Canseco 1580; see also del Paso y Troncoso 1905; Flannery 1983a; Flannery and Marcus 1983). A handful of villages in this part of the valley today still have *albarradas* (walls) as part of their names. Thus, in looking at the Mitla Fortress, Guirún, and El Palmillo through intensive surveys, some of our principal questions concern the defensive features of these sites. Were these settlements first and foremost fortifications with small resident populations, or were they large fortified towns? Was defense of equal concern in each location?

In a 1951 article on ancient fortifications in Mesoamerica, Armillas (1951:83) included the Mitla Fortress in his discussion of fortified sites, referring to the standing walls at the site as remains of a fort. At least one early visitor to Monte Albán (Gadow 1908:258) thought the site's setting and ruins indicated it had been at one time a large fortified town. In the absence of any indication that Monte Albán was used as a fortress, Armillas (1951:78) argued that the site was only a religious and funerary center. Armillas's interpretations were based on excavations in the civic-ceremonial core of the site. Later, during the intensive survey of Monte Albán, field crews mapped a long defensive wall along the northwestern base of the main hill at the site. What does this feature reveal about the site, and how prevalent were similar walls at other hilltop terrace sites (Blanton 1978: 52; Elam 1989)?

Farther afield, in northern Mexico, hilltop terrace sites, or *cerros de trincheras,* have been interpreted as both defensive refuges (Johnson 1963; Sauer and Brand 1931) and residential communities (Hard and Roney 1998; Hard et al. 1999; McGuire and Villalpando 1997). Yet larger ones, such as Cerro de Trincheras (McGuire and Villalpando 1997, 1998; McGuire et al. 1999; O'Donovan 2002) are often discussed as political and religious centers, without any particular emphasis on their defensible setting. The hilltop location may have been important for visual impact (O'Donovan 2002), with most walls at the site used to block or control access (McGuire and Villalpando 1998; O'Donovan 2002), but these alternative interpretations require careful assessment.

The defensive nature of many hilltop terrace sites in the Valley of Oaxaca (Elam 1989; Feinman and Nicholas 1990, 1996; Kowalewski et al. 1989:240–245) and elsewhere in the Southern Highlands (Balkansky et al. 2000; Drennan 1989; Kowalewski 1991) seems apparent. The view from the hilltops may be great, but there probably were more compelling reasons why the valley's prehispanic residents went to so much effort to construct large settlements in often inhospitable locations, sometimes far from water and good

farmland. How did defensive concerns relate to other uses (populated towns, craft production localities, administrative centers) of these hilltop settlements that have been suggested for Monte Albán and Cerro de Trincheras? What was the nature of access and of intrasite movement? How did these vary from site to site, and what can we learn from such information, which is easier to collect when there is more time to walk over a site during a more intensive (as opposed to a regionally focused) survey?

During the Classic period a ring of terrace sites dotted the periphery of the southern and eastern arms of the Valley of Oaxaca, even extending south into the Ejutla Valley (Blanton et al. 1993: 88; Feinman and Nicholas 1990:234–235). Although hilltop terrace sites also are found in the northern or Etla arm of the valley, they are much less common there. This uneven distribution would be unusual if the major function of terrace sites was as civic-ceremonial centers. Rather, defensive concerns may have been an important factor affecting location, with some hilltop terrace sites playing a role in boundary maintenance. This function may have been especially important in outlying areas such as Guirún and Ejutla. In Ejutla, at the southern extension of the Valley of Oaxaca, the terrace sites generally are smaller, with fewer terraces. Many had a number of walls or were situated in very inaccessible locations. The Ejutla terrace sites in general appear more defensive and less residential and administrative than larger terrace sites to the north; possibly they served as lookouts or garrisons (Feinman and Nicholas 1990:235). Thus, all sites that we consider defensible might vary in the role they played in regional strategies of defense. Such military considerations also may shift over time.

Terrace Site Layout and Organization

The prehispanic residents of hilltop terrace sites sculpted the tops and sides of hills and mountain ridges by creating artificially flattened spaces on which they placed their houses. Often these residential terraces were buttressed with large stone retaining walls. But how similar are terrace sites beyond these very basic characterizations? From the Oaxaca regional surveys we know that such sites in Oaxaca are variable in terms of overall size, amount of public architecture, and accessibility (Kowalewski et al. 1989). How variable are they across time and space in terms of their layout, domestic architecture, and internal organization?

During the intensive survey of Monte Albán, Blanton noticed that large mound groups outside the Main Plaza were more or less evenly spaced one from another. Based on the distribution of these groups of civic and elite residential buildings and the associated terraces, he defined 15 site subdivisions that were compared to the barrios of present-day Oaxaca City (Blanton 1978:19–24). Given the topography of the site, some barrios were spatially discrete, while others shared borders or were contiguous. There was considerable variability among the site subdivisions in terrace size, craft activities, defensive features, and status.

Internal site divisions also have been recognized at Cerro de Trincheras, where precincts are thought to have had distinct functions, from civic-ceremonial or domestic use to specialized activities, including craft production and agriculture (McGuire and Villalpando 1998; O'Donovan 2002). Are such site subdivisions present at other, smaller terrace sites in Oaxaca? If so, how are these sites organized, and what are the activity differences and economic articulations between different sectors of each settlement?

Beyond the organization of individual sites, how were these nucleated settlements organized at the regional scale and integrated into the larger political and economic systems of which they were a part? Similarities in ceramic assemblages at most sites would suggest interaction and participation in regional economic exchange networks. Yet given the defensive nature of most terrace sites, is it possible that they were partly (or even largely) autonomous, engaging in exchange and other interactions only rarely?

Domestic Activities and the Economy

Prehispanic Mesoamerican households are known to have produced pottery, stone artifacts, textiles, and many other goods in high volumes or intensities (see Costin 1991) for exchange. For this geographic region, the most convincing contextual evidence has consistently placed craft production in residential settings (e.g., Evans 1988; Healan 1986; Hirth 1995; Roemer 1982; Shafer and Hester 1983:529; Smith 1994; Widmer 1991). This pattern basically has endured in much of rural Mesoamerica into the twenty-first century (e.g., Arnold 1991; Cook 1982; Hendry 1992; Papousek 1981; Stolmaker 1996; Thompson 1958).

Because the bulk of specialized economic manufacture in prehispanic Mesoamerica was centered in houses (and not in nucleated nondomestic workshops or factories) (e.g., Balkansky et al. 1997; Charlton et al. 1991, 1993; Feinman 1999; Feinman and Nicholas 1993, 1995a; Hirth 1993; Smith 1993), a focus on these domestic units is requisite to understanding the ancient economy.

In the Valley of Oaxaca, the household production of craft goods appears to extend back to the Formative period (Flannery and Winter 1976; Marcus 1989; Marcus and Flannery 1996:170; Winter and Pires-Ferreira 1976). Hilltop terrace sites, with a seeming concentration of households (largely situated on terraces), are key, then, for understanding the ancient economy of the Valley of Oaxaca and what changes took place between the Formative, Classic, and Postclassic periods.

Regardless of a terrace site's primary function—defense, administration, or craft production—it is important to discern how the residents of these sites made a living. Many terrace sites are not located in prime agricultural areas, and during the regional survey, more evidence of craft production was recorded on terrace sites than on valley floor sites. What economic activities did the residents of terrace sites pursue? Were households largely self-sufficient, producing most of what they needed, or did households and communities specialize in different activities? If households, site segments, communities, or even regions specialized in different ranges of specialized goods, how were these sites integrated into larger regions? Which goods were exchanged between communities, and by what means? Given the difficulty of transporting goods (without beasts of burden) from terrace site locations to a nodal person or location and back again to these hilltop communities, it seems unlikely that redistribution was a key exchange mechanism. Likewise, there is no evidence of large-scale storage facilities at Monte Albán. Was some kind of marketplace exchange important in Oaxaca by the Classic period? Although markets are known for later prehispanic Mesoamerica, especially for the Aztec (Berdan 1985; Blanton 1996; Díaz del Castillo 1956; López de Gómara 1966), but also in Oaxaca in the Postclassic period (Appel 1982; Pohl et al. 1997; Spores 1965), their presence in earlier time periods is less clear (but see Blanton et al. 1993; Feinman and Nicholas 2004; Feinman et al. 1984).

We still know little about the Classic or Postclassic period economies of Oaxaca. Although excavations ultimately will be needed to address many of the aforementioned questions more conclusively, the intensive surface investigation of a series of terrace sites yields a fuller picture of what was being produced on different terraces and in different parts of these ancient settlements. The investigation of domestic occupation at terrace sites, what was produced, and the nature of the interrelationships between terraces and communities will provide a new midlevel perspective on the late prehispanic economies of the Valley of Oaxaca.

In the remaining chapters of this monograph we address the questions we have raised through a comparative discussion of the major findings of intensive surface surveys at three hilltop terrace sites in the Valley of Oaxaca. In Chapter 2 we discuss our reasons for focusing on the eastern part of the Tlacolula subvalley and review the history of research at the Mitla Fortress, Guirún, and El Palmillo. This information elaborates what was known about each of these sites before we completed our intensive surveys. Because many of the questions we have posed about internal site organization and variation in specialized activities across households and communities require information at a finer scale than can be effectively gained through regional survey, we end this section with a discussion of the methodology for intensive surface survey that we employed at the three hilltop sites.

In Chapters 3 through 5, we present the basic descriptive information that was collected during the intensive survey at each site—the Mitla Fortress in Chapter 3, Guirún in Chapter 4, and El Palmillo in Chapter 5. Although the basic themes and questions outlined above are woven through each of these sections, we also report on other findings derived from the intensive site surveys. In Chapter 6 we focus on the key issues and more explicitly compare the three sites. Comparisons with Monte Albán, the regional capital, and Jalieza, the valley's second-largest terrace site, help us address the questions about diversity of terrace life and site function that we have posed. In the last chapter we review current thoughts and findings regarding hilltop terrace sites in Oaxaca in the context of what we have learned in this investigation.

2

Why Eastern Tlacolula? Background and Methods

Our investigation is focused on hilltop terrace sites in the dry, eastern Tlacolula arm of the Valley of Oaxaca, for several reasons. Dramatic demographic and economic changes occurred in Tlacolula during the Classic and Postclassic periods, when several of the valley's largest centers were situated there. Hilltop terrace sites, which became a much more common settlement form in the Valley of Oaxaca during the Classic and Postclassic periods, are especially prevalent in Tlacolula. This subvalley is ringed on all sides by these hilltop sites, which also account for the majority of the area's population (Figure 2.1), at least during the last 1300 years of the prehispanic era. In fact, the marked episode of population growth that occurred in the Tlacolula subvalley, particularly its eastern section, was largely a product of rapid demographic expansion at terrace settlements.

Many terrace sites in Tlacolula are well preserved. Because of their elevated location, they have not been as heavily farmed as sites on the valley floor. In addition, a significant number of these terrace sites are covered by dense spiny vegetation. While the xerophytic vegetation that grows abundantly in the driest part of the valley is one factor in the preservation of these sites, the stands of thorns present a real hazard to archaeologists trying to map them. A larger number of terrace sites in Tlacolula than in all other parts of the valley combined could not be mapped fully during the regional survey. Generally, these overgrown sites were located on the aerial photographs and their extent was determined to the best of the survey crew's ability, but it was not possible to measure the dimensions of or to collect most of the terraces without taking considerable time to clear the covering vegetation. We revisited several of these sites in the mid-1990s to evaluate their suitability for intensive site survey and selected three sites—the Mitla Fortress, Guirún, and El Palmillo—for additional study.

Given our interest in the prehispanic economy of the region, we suspected that terrace sites were fertile ground for probing issues concerning production, circulation, and consumption. Mean annual rainfall in Tlacolula, especially the eastern half, is lower than for the rest of the valley, and maize agriculture is precarious (Kirkby 1973:17, 20; Kowalewski 1982:156). According to land use studies (Nicholas 1989; see also Kirkby 1973), a portion of the Tlacolula populace, especially at terrace sites in eastern Tlacolula during the Classic and Postclassic periods, would have required imported food that seemingly would have been produced elsewhere in the valley. It is not clear how people living in these dense settlements in this driest section of the valley supported themselves. Can we find evidence for agricultural or other strategies beyond maize farming?

In the colonial period, community specialization and trading, as well as highly developed markets, were more typical of the Tlacolula subvalley than of other arms of the valley (Whitecotton 1977:199). During the regional surveys, more evidence of economic production and specialization was recovered in Tlacolula, especially at hilltop sites, than elsewhere in the Valley of Oaxaca (Kowalewski et al. 1989:242–245). How were these activities distributed across sites and between dif-

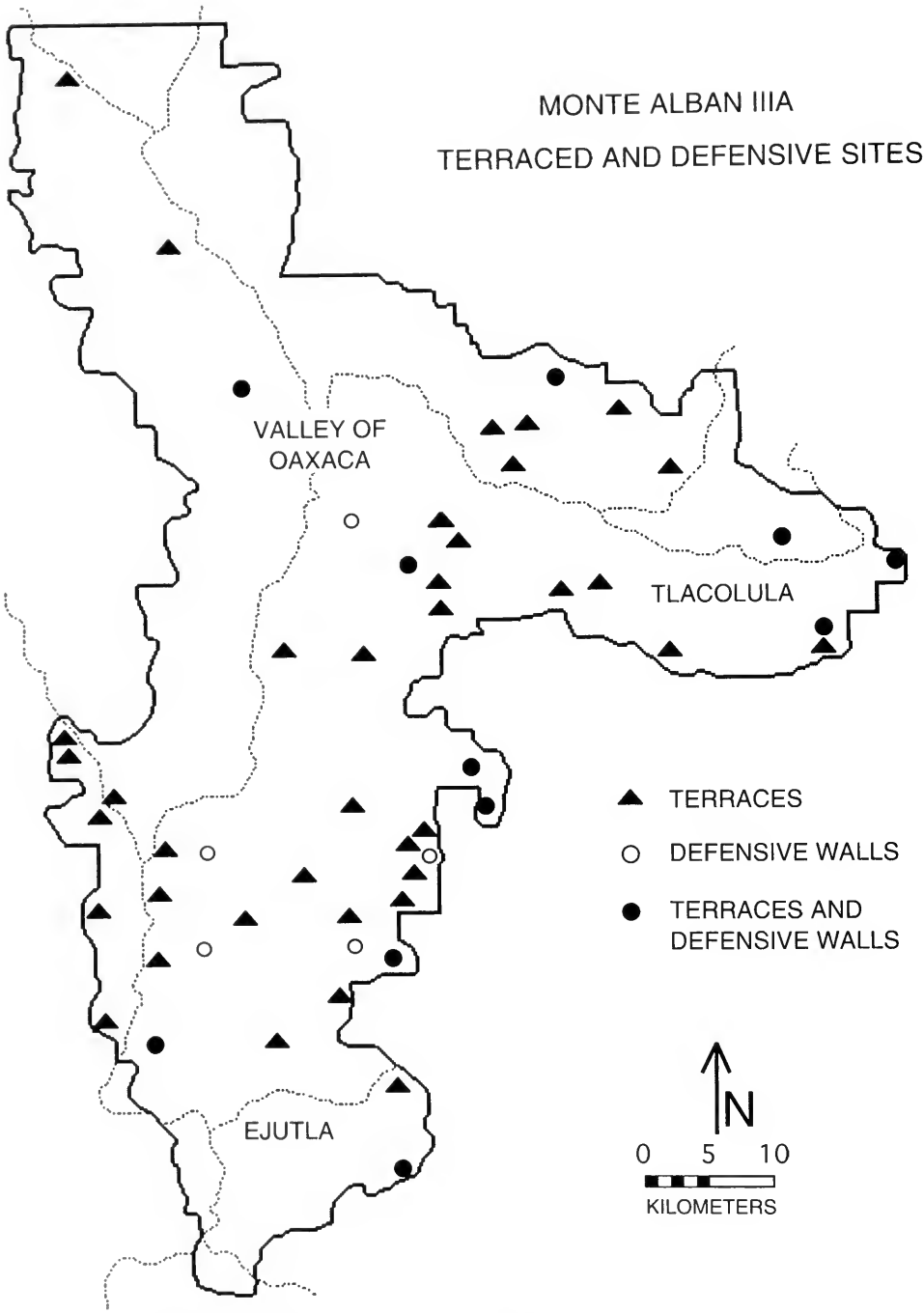


FIG. 2.1. Map of hilltop terrace sites in the Oaxaca and Ejutla Valleys in Monte Albán IIIA.

ferent sites? What was the nature of the economic articulations between and within these ancient communities?

Terrace sites are composed of artificially leveled spaces, often defined by stone retaining walls, on which the ancient inhabitants placed their houses (Winter 1974). The terrace walls, still visible on the surface, define domestic spaces. Thus, given the domestic setting of most prehispanic production and the indications of economic specialization at terrace sites, these locations provide a necessary vantage to explore domestic economies at the scale of the community. Comparison of artifact assemblages on individual terraces or groups of terraces on a site allows us to examine household economic activities and how they varied across sites.

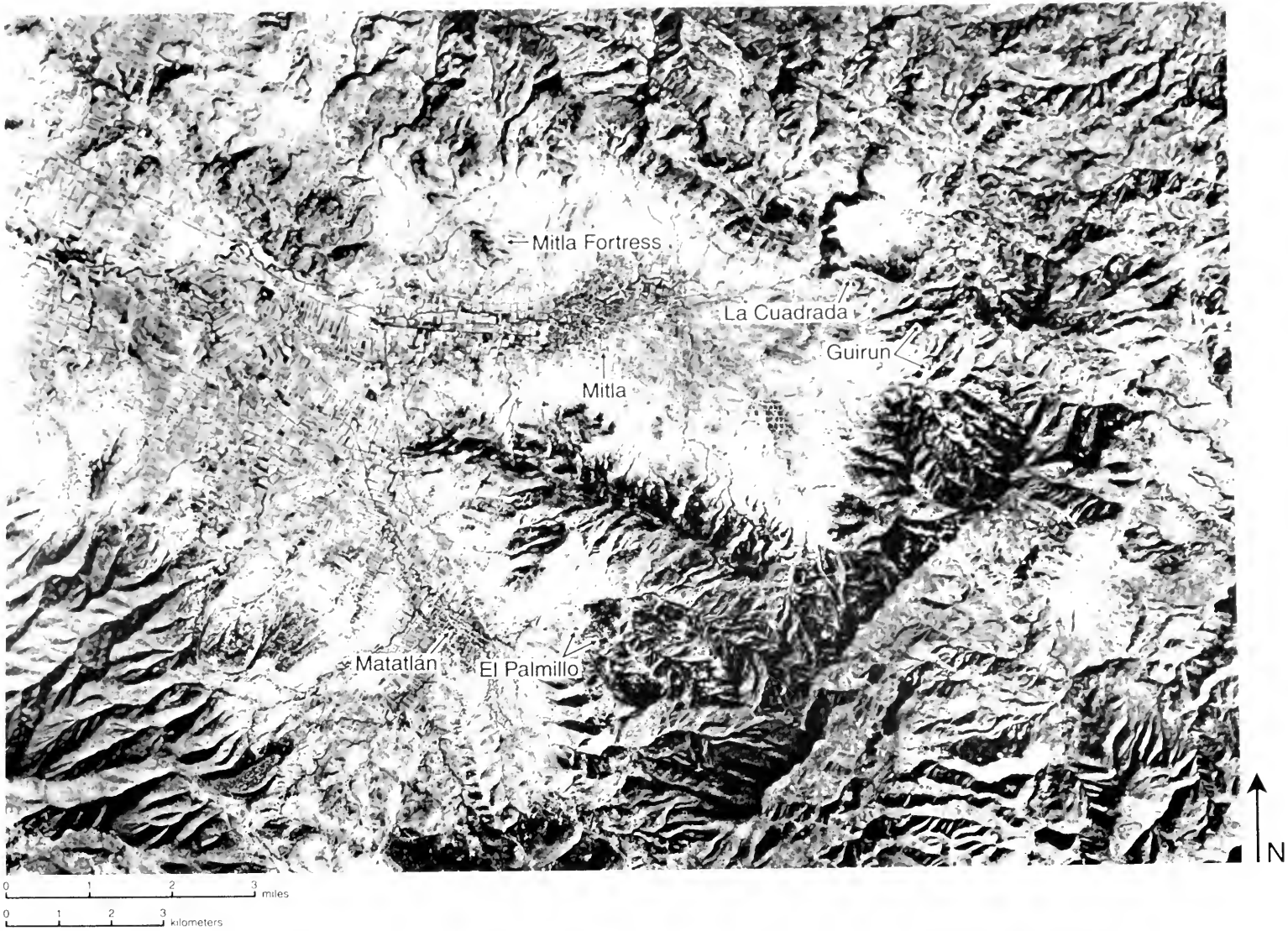
Stone working has long been recognized as an important economic activity in the eastern part of the Valley of Oaxaca (Hester and Heizer 1972; Holmes 1897; Lorenzo and Messmacher 1966; Robles 1992, 1994; Williams and Heizer 1965). During the regional survey of eastern Tlacolula, this finding was supported with much evidence for chipped stone production, especially chert. All three sites we selected are located on or near chert sources of varying size and quality. In contrast to the older sedimentary formations that outcrop in western parts of the Valley of Oaxaca, the eastern arm is composed largely of volcanic rock (INEGI 1989; Lorenzo 1960; Whalen 1986) that often is associated with a mountainous terrain marked by steep slopes and sharp peaks (Figure 2.2). Beds of ignimbrite, a layered volcanic tuff (Kirkby et al. 1986), and numerous veins of silicified tuff (such as chert) outcrop in many areas (Marcus and Flannery 1996:45). Chert can form in a wide range of geological contexts, which contributes to its great variability (Luedtke 1992) in terms of both quality and color, even within a single source, so it can be difficult to source with certainty. We cannot identify all the chert on the three sites to specific sources (no region-wide study of chert sources has been completed to date), yet because we noted chert outcrops on the sites during the intensive surveys, we can generally determine which cherts are local and which ones are not. Comparisons of these stone assemblages across the sites have the potential to elucidate the nature of the exchange linkages that tied households to the rest of their communities as well as to the region beyond.

The Selection of Three Key Sites

The Mitla Fortress, Guirún, and El Palmillo are three of the more significant sites in eastern Tlacolula, and each has its own distinctive record in the archaeological literature. All three sites were surveyed and mapped during the regional surveys (Kowalewski et al. 1989), but with varying degrees of completeness. We selected to intensively examine these three sites for a range of reasons. The Mitla Fortress and Guirún were already well known in the extant literature prior to the 1980 regional survey in Tlacolula (Bittler 1975; Holmes 1897; Saville 1900, 1909; Williams and Heizer 1965). In contrast, although known to local residents, El Palmillo was unknown to the archaeological community until that regional survey. El Palmillo was found to be one of the largest Classic period sites in the Valley of Oaxaca, although still considerably smaller than either Monte Albán or Jalieza (Kowalewski et al. 1989:226). Thus, while two of these sites had long been the focus of archaeological attention, the third, less-known site was one of the region's largest prehispanic centers.

In selecting these three settlements, we restricted our attention to one part of the valley in order to examine communities that likely were in contact were each other and faced broadly similar environmental and geographic constraints. The Mitla Fortress, Guirún, and El Palmillo are all located within 10 km of each other. All three communities had long and broadly similar occupational histories, first settled in the Middle/Terminal Formative (Monte Albán I and II) but inhabited most densely during the subsequent Classic and Postclassic periods.

The final set of reasons for choosing these sites was logistical. During the regional survey in 1980, each site presented us with challenges. In spite of well-preserved terraces and architecture in parts of all three sites, the site maps and terrace-to-terrace observations were not as detailed as we had for sites in other parts of the valley. The regional survey mapping efforts at all three sites were hampered by heavy vegetation, steep slopes, severe erosion in some places, and recent farming in others. Regional survey crews did not carry machetes for clearing vegetation because of the time involved, so some parts of all three sites remained impenetrable at times and could not be checked completely. El Palmillo, especially, was covered in dense spiny vegetation that was impassable in places. Although the vegetation at the


Mitla Fortress
La Cuadrada
Guirun
Mitla
Matatlán
El Palmillo
N
0 1 2 3 miles
0 1 2 3 kilometers

fortress is generally less thorny, dense scrubs on parts of the top plateau had prevented a complete check for structures within the high, cut-stone defensive walls that encircle the top. The vegetation was an impediment not just for our survey crew but for earlier visitors as well (Bandelier 1884: 311). While the ridgetops of Guirún are clearer of vegetation than those at El Palmillo, the heavily vegetated, steep ravines that cut across the site are all but impassable.

Furthermore, in 1980, topographic maps of sufficient detail for mapping (1:50,000) were not available for eastern Tlacolula, and aerial photographs were employed for the survey. Although aerial photographs are very effective for mapping valley floor and low piedmont sites, they are less ideal in steeper terrain, where considerable ground cover obscures visible features. Dense vegetation on high piedmont and mountain ridges hides most if not all the detail that makes aerial photographs such an efficient mapping aid in flatter, less densely covered areas. Steep slopes also can cause considerable distortion on aerial photos, which was a greater problem for El Palmillo and Guirún than for the Mitla Fortress.

In 1980 all three sites were mapped by three-person crews in just a few days of field investigation (Kowalewski et al. 1989). Over several days in 1995, as part of the Guirún Regional Survey Project, we preliminarily mapped an extension of the Guirún site that extends beyond the original Valley of Oaxaca survey boundary (Feinman and Nicholas 1996, 1999). The goals and time constraints of full valley coverage did not permit the allocation of long man-hours of intrasite study, and areas that were difficult to access, because of dense vegetation or steep slopes, were not checked as carefully as more open areas. Yet these regional surveys did result in the first recording and mapping of these three sites in their entireties.

To produce more detailed maps of the sites and record and collect all significant materials on each terrace or architectural feature, however, would have required considerably more time than was available during the regional survey or would have greatly reduced the size of the surveyed area. The method of regional survey does not allow the gathering of finer-grained data for intrasite studies without compromising the goal of gaining the widest possible intersite and interregional perspectives (Balkansky et al. 2000:369). We decided that a program of intensive surface survey could be a very productive intermediate avenue for gaining a more detailed perspective that would allow us to look at variation both across these upland communities and between them.

Previous Research at the Mitla Fortress

The Mitla Fortress is situated on a steep, rocky hill that rises dramatically from the valley floor just west of the modern village of Mitla in the eastern end of the Tlacolula Valley (Figure 2.3). Although part of well-known prehispanic Mitla, this spectacular part of the site is less frequently mentioned in the archaeological literature, overshadowed as it is by the impressive ruins and cruciform tombs that lie under the modern village (Caso and Rubín de la Borbolla 1936). The ruins beneath the contemporary village take their name, Mitla, from the Aztec (Nahuatl) *mictlan,* derived from *micca* (corpse or tomb) and *tlan* (place) (Parsons 1936:2; see also Ober 1887:536). The name of the site in the local Zapotec dialect, Lyobaa, translates as "entrance to the grave" (Bandelier 1884:277) or "place of tombs" (Ober 1887: 535–536; Parsons 1936:2). Most early visitors were drawn to the site to see the "palaces," tombs, and the unusual mosaic *grecas* that adorn many of the structures at Mitla; they make no mention of the fortress (Burgoa 1674; Charnay 1888; Gadow 1908).

The first explorer to publish accounts of the fortified hill west of Mitla was Guillermo Dupaix, who visited the fortress with an artist in 1806 (Dupaix 1831, 1834). Dupaix included two plans (Figures 2.4 and 2.5) of walls that encircle the top of the fortress (or Fuerte, as the walled hill was called back then). The traditional Zapotec name for the hilltop ruins was Jio, meaning "height" or "eminence" (Bandelier 1884:311).

Later in 1867, Doutrelaine included plans of the fortress in a publication on the ruins of Mitla. Bandelier (1884:plate XXVI) also mentions this settlement, noting small discrepancies between his map and Dupaix's (Bandelier's map is Figure 2.6). Although both maps are inaccurate, Bandelier's oversimplified map is a more accurate representation of the layout of the defensive walls and the structures they enclose. Dupaix's maps are more fanciful and include wonderful detail that is a bit overdone. For example, as Bandelier recognized in 1881, the defensive walls were not built up on all sides of the precipice. Rather, on the western side of the hill, where the steep topography of the

FIG. 2.3. The rocky slopes of the Mitla Fortress, viewed from the northwest.

cliff makes it almost impossible to reach the top from below, the wall was actually constructed down the steep slope so that the top of the wall was level with the plateau (Bandelier 1884:311). Another traveler-explorer, Ober (1887:542), briefly describes a visit to the fortress, but his short description, more similar to Dupaix's than Bandelier's, has inaccuracies that indicate he visited only the most accessible part of the hilltop ruins.

During the week in 1895 that William H. Holmes spent in Mitla, his greatest effort was placed on drawing and taking notes on the ruins in the village. He made only one visit to the fortress and briefly described the fortifications and structures at the top of the hill. Still, he considered the fortified hill west of the village to be "one of the most unique and striking features of Mitla" (Holmes 1897:275), and his discussion of the fortress and structures with standing adobe walls was the most complete available at that time. The defensive walls were so well preserved that Holmes (1897:279) suggested that they were a late, if not post-Spanish, feature.

Holmes's report includes dozens of drawings and several photographs of architectural details and individual structures in town, but only one drawing—a gateway through the lowest, outermost defensive wall (Figure 2.7)—and one photograph of the fortress (Figure 2.8). His panoramic view of the site, focused on the ruins in town, however, does include the fortress on the horizon, towering above the site (Holmes 1897, between pp. 278–279). Holmes viewed prior maps of the fortress as inadequate and contemplated a second visit to the hill to undertake a more careful survey of the hilltop ruins. Unfortunately, he was unable to return to the fortress, and never produced a plan of these stone constructions.

Holmes had studied prehistoric quarries and stone working in the United States and was the first visitor to Mitla to recognize the flint (chert) source and stone-working area at the base of the fortified hill (1897:287; see also Williams and Heizer 1965). Although Holmes noted that there were traces of occupation everywhere at the fortress (Holmes 1897:278–279), like all prior visi-

FIG. 2.4. Guillermo Dupaix's drawing of the Mitla Fortress. (From Kingsborough 1831, vol. 5, courtesy of the Field Museum Library.)

FIG. 2.5. Guillermo Dupaix's plan view of the Mitla Fortress. (From Kingsborough 1831, vol. 5, courtesy of the Field Museum Library.)

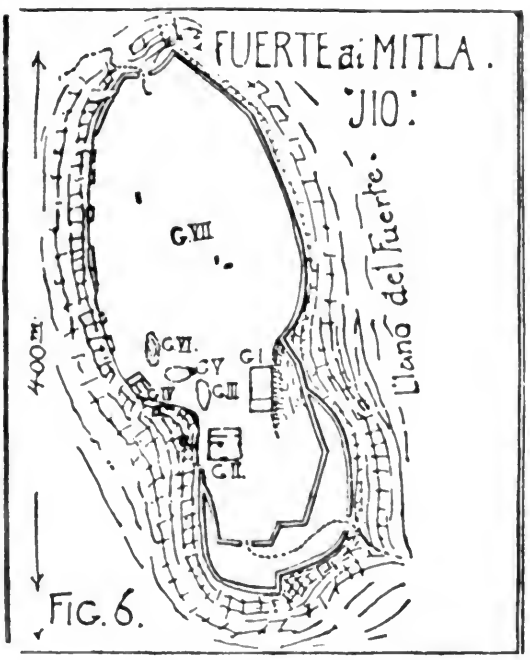


FIG. 2.6. Adolph Bandelier's drawing of the Mitla Fortress. (From Bandelier 1884, p. 308.)

tors to the fortified hill, he included no specific reference to the hundreds of residential terraces and additional walls that cover the lower slopes of the hill.

A more recent study of the Mitla Fortress by Bittler (1975) included a more accurate map of the huge defensive walls and several mounds and adobe structures at the top of the site. Bittler noted the similarity in architectural plan between several of these structures and the Mitla palaces, as well

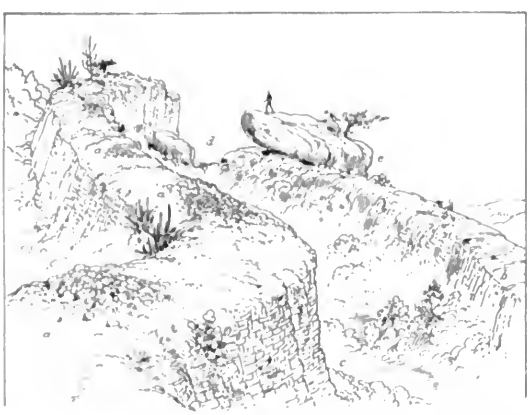


FIG. 2.7. Williams Holmes's sketch of the defensive walls at the Mitla Fortress. (From Holmes 1897, p. 277.)

FIG. 2.8. Photograph of the Mitla Fortress taken by Holmes's companion, E. H. Thompson (Holmes is on top of the wall for scale). (From Holmes 1897, p. 278.)

the presence of numerous offering boxes like those found at Yagul and in the Mitla palaces. Like Holmes, however, he made no mention of terraces or other features that lie outside (downslope from) the defensive walls at the top of the fortress.

Only with the regional survey of the Tlacolula arm of the valley in 1980 was the larger expanse of this fortified settlement finally documented (Elam 1989; Kowalewski et al. 1989). In addition to the defensive walls and structures at the top of the site, a regional survey team mapped 99 residential terraces on the lower, east-facing slopes (Kowalewski et al. 1989:fig. A.IX.37). The crew also noted the same chert quarry at the base of the hill that was first described by Holmes, and marshaled evidence for stone working, especially chert tool manufacture, that supported Holmes's earlier observation of blade making at the base of the hill (Holmes 1897:287).

In the summer of 1996 we paid a brief visit to the fortress with a copy of the site map produced during the 1980 study. This published map (Kowalewski et al. 1989:fig. A.IX.37) captures the overall structure and layout of the site, yet not unexpectedly, certain kinds of information were not included. We decided we could prepare a more complete map of the site and discover more about the site's defensive posture and the economic activities that took place there through a program of intensive surface survey that built in enough time and labor to remove obscuring vegetation in key areas. We completed the intensive mapping and surface collection of the Mitla Fortress during the summer of 1998 (Feinman and Nicholas 1998b).

Previous Research at Guirún

The Guirún site extends across a series of low mountain and high piedmont ridges at the extreme eastern end of the Tlacolula Valley, approximately 5 km southeast of San Pablo Mitla (Figure 2.9). The site takes its name from Cerro Guirone, the high mountain peak (at 2520 m) that towers over the site. This cone-shaped high peak, visible from the center of the Valley of Oaxaca to the west, and from parts of the Mixe area to the east, is one of the defining physical features of eastern Tlacolula. Originally the site's Zapotec name was recorded as Guiaroo, meaning "big stone mountain" or "high mountain" (Saville 1900:210). Local inhabitants also were said to refer to the ruins as Basul Lyobaa (Saville 1900:210).

As with the fortress, the first published report of Guirún was by Dupaix (1834), who, after visiting Mitla early in the nineteenth century, made

FIG. 2.9. Cerro Guirone and lower ridges (casting shadow) where Guirún is located, viewed from the west.

an excursion into the hills around that town searching for *paredones* (big walls), or Indian "walls." He discovered and described a subterranean cruciform tomb associated with a ruined adobe structure on a lower slope at what is now known as part of the Guirún site (lower Guiaroo), presenting a plan of it in his report (Figure 2.10).

A second, more impressive cruciform tomb at Guirún (upper Guiaroo), with walls covered in mosaic *grecas*, was first visited by Ober in 1881 (Ober 1887:542, see Saville 1909:179). Ober only briefly described the tomb and did not provide a plan, possibly because of the dense thicket of vegetation, which may have obscured his view. This second tomb is farther upslope from the one visited by Dupaix, and Ober did not mention that feature, perhaps because he was unaware of it. Other visitors to the region seem not to have been familiar with either of these ruins.

Archaeological work was first conducted at Guirún at the turn of the last century, when Marshall Saville (American Museum of Natural History) visited the site as part of his study of ancient Oaxacan cruciform tombs in Mitla and the vicinity (Saville 1900, 1909). Saville excavated the cruciform tomb associated with the ruined adobe structures (lower Guiaroo) visited by Dupaix (Figure 2.11). As with Dupaix's map of the Mitla Fortress, Saville noted that Dupaix's artist embellished or added nonexistent features to the drawing. At Guirún, these "artistic elaborations" included interior stairs that were drawn ascending to the main chamber of the tomb, and carved *grecas* on the interior walls (Saville 1900:210–211). Saville describes the tomb as not having stairs and with interior walls painted red and white.

Saville also excavated the second, more elaborate tomb further upslope that was visited by Ober (Figure 2.12). This tomb was constructed of immense stone blocks carved skillfully with intricate geometric *greca* designs (Figure 2.13) and does not appear to have been finished (Saville 1909:181). Much of Saville's effort at Guirún was spent in clearing vegetation from other structures as well, including a two-room temple fronting a large enclosed plaza (Figure 2.14). Saville also recovered evidence of stone working and briefly mentions ancient stone quarries near the site. Yet like all who had visited Guirún or the Mitla Fortress before him, Saville ignored or was unaware of the sizable number of residential terraces that covered parts of the site:

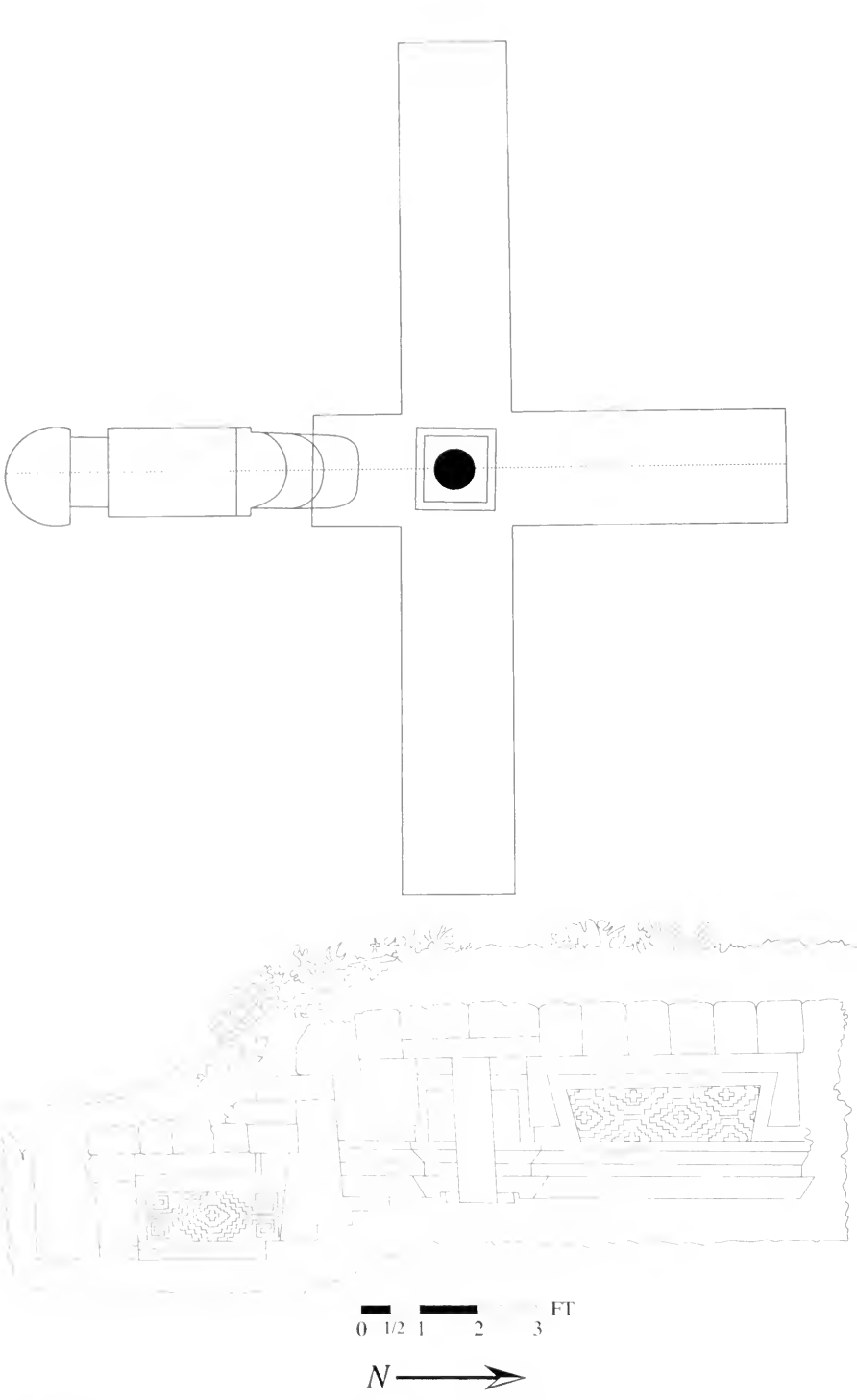


FIG. 2.10. Guillermo Dupaix's drawing of the lower tomb at Guirún. (From Kingsborough 1831, vol. 5, courtesy of the Field Museum Library.)

FIG. 2.11. Adobe structure above the lower cruciform tomb at Guirún. (Photograph taken by Marshall Saville in the late 1800s, AMNH M. Saville album, No. 58. Reproduced courtesy of Division of Anthropology, American Museum of Natural History.)

FIG. 2.12. Upper cruciform tomb at Guirún. (Photograph taken by Marshall Saville in the late 1800s, AMNH M. Saville album, No. 68. Reproduced courtesy of Division of Anthropology, American Museum of Natural History.)

FIG. 2.13. *Grecas* in the upper cruciform tomb at Guirún. (Photograph taken by Marshall Saville in the late 1800s, AMNH M. Saville album, No. 72. Reproduced courtesy of Division of Anthropology, American Museum of Natural History.)

> It is not a desirable location for a large settlement, for the reason that the entire available space on the summit is occupied by the temple and sepulchral ruins, and it would have been impossible for the steep sides of the hills to be used for habitation sites. (Saville 1900:210) (Figure 2.15)

Saville considered it more likely that the location was a natural stronghold for defending against enemy attacks (1900:210). At least one other early visitor to Guirún thought adobe ruins at the site served as a fortress (Tweedie 1911).

The quarries noted by Saville, known locally as La Cuadrada, because of the large blocks of cut ignimbrite lying on the surface (Figure 2.16), had drawn earlier attention. Visitors to Mitla sought the sources of the large stone blocks used in the construction of the site's elaborate tombs and buildings. Based on Mitla's location, much of the stone could not have come from the site and its immediate vicinity. Holmes (1897) was the first to report extensively on these stone quarries in the Mitla area, although it was Holmes's co-worker, E. H. Thompson, who actually visited La Cuadrada while Holmes investigated quarries on a lower bluff closer to Mitla. Holmes (1897:279–285) wrote on both quarries, and he includes discussions and drawings that outline how the large stone blocks were cut and the tools that were used.

Subsequent to Saville, Guirún was visited only briefly by a few scholar-travelers (Parsons 1936; Schmieder 1930; Tweedie 1911). It was not until 1980 during the Valley of Oaxaca settlement pattern project that the site was preliminarily mapped and the cruciform tombs were placed in a fuller spatial and temporal context (Kowalewski et al. 1989:fig. A.IX.53). The survey findings also led to a slight conundrum. The site had long been known for the unfinished cruciform tomb, which dates to the Late Postclassic period (Saville 1900). Yet although ceramic artifacts from both the Classic and Postclassic periods were recovered at the site during the survey, Classic period ceramics were more abundant. The curated pottery collections from Saville's study at the American Museum of Natural History also contain predominantly Classic period materials.

The regional survey also recovered ample indications for chert and possibly ignimbrite working at Guirún. La Cuadrada was beyond the 1980 survey boundary and was not studied in greater detail until Nelly Robles included it in her study of known quarries in the Mitla area (Robles 1994).

Because the site is located on the eastern edge

FIG. 2.14. Two-room temple at Guirún. (Photograph taken by Marshall Saville in the late 1800s, AMNH M. Saville album, No. 66. Reproduced courtesy of Division of Anthropology, American Museum of Natural History.)

FIG. 2.15. View of the ridge at Guirún with four-mound group and ball court. (Photograph taken by Marshall Saville in the late 1800s, AMNH M. Saville album, No. 63. Reproduced courtesy of Division of Anthropology, American Museum of Natural History.)

FIG. 2.16. Cut stone blocks at La Cuadrada. (Photograph taken by Marshall Saville in the late 1800s, Saville Mitla quarries no. 629. Reproduced courtesy of Division of Anthropology, American Museum of Natural History.)

of the 1980 survey boundary, we returned in the summer of 1995 to survey the area east of Guirún to provide a broader regional context for the site (Feinman and Nicholas 1995b, 1996). During this second, smaller regional survey, we discovered that the Guirún site was much larger and had more terraces (70) than was previously thought, extending well beyond the area surveyed in 1980. We also recorded a continuous sherd scatter that connected the more impressive ruins at Guirún with the quarry at La Cuadrada. The 1995 survey of the Guirún area, in conjunction with Nelly Robles García's (1994) investigation of ancient quarrying activity at La Cuadrada, revealed that the prehispanic inhabitants of Guirún exploited and processed a range of stone materials.

The placement of Guirún in rough terrain at the junction of the 1980 and 1995 survey regions provided an additional challenge: to link the two survey maps of the site. Over the intervening 15 years, modern agricultural activities had disturbed areas mapped in 1980, so that connecting the two maps was more difficult than might have been expected. To address this challenge, as well as a range of research issues, we began our program of intensive site survey at Guirún in 1996 (Feinman and Nicholas 1997).

Previous Research at El Palmillo

El Palmillo is situated on a high piedmont ridge at the southeastern edge of the Tlacolula Valley, just east of the modern village of Santiago Matatlán (Figure 2.17). The site is named for the large stands of *palmillo* (*Yucca periculosa*) that

FIG. 2.17. The northwestern slopes of El Palmillo.

grow in many areas of the site, including the apex of the ridge (Figure 2.18). The site also is known as Cerro de Sangre ("hill of blood"), or by its Zapotec name, Guielreni ("stone field of blood"). The underlying meaning of these names depends on the informant. Some inhabitants of Matatlán believe the name refers to ancient sacrificial rites that were carried out on the hill in the past; others say the name refers to the large patches of blood-red bedrock that are plainly visible on site, especially during the dry season, when the covering vegetation is sparse.

El Palmillo is situated on a ridge system that descends from Nueve Puntas, the high, distinctively shaped mountain (nine peaks) that marks the eastern limits of the Valley of Oaxaca. The ridge of El Palmillo is clearly visible from the International Highway that passes through Matatlán before exiting the Valley of Oaxaca on its way to Tehuantepec (Figure 2.19). Yet unlike Guirún and the Mitla Fortress, there is no mention of El Palmillo in any archaeological or early traveler literature prior to 1980.

During the 1960s Ignacio Bernal (1965) completed a reconnaissance of ancient sites in the Valley of Oaxaca, recording and visiting hundreds of archaeological ruins in the region. He noted ruins (with subsurface tombs) located near and perhaps within the bounds of contemporary Matatlán. Yet in spite of the proximity of El Palmillo to the modern village—one can sit on the steps of the town's municipal building and gaze up at El Palmillo—Bernal did not visit the hilltop site, and so has no mention of it in his records. A Classic/Early Postclassic period carved stone that was found associated with a modern domestic compound in Matatlán (Paddock 1966:220; Urcid 2003) likely was brought to town originally from El Palmillo.

El Palmillo was first reported in the monograph that followed the regional survey of the Tlacolula arm of the valley in 1980 (Kowalewski et al. 1989:226, 239). During that study, the survey crew mapped 606 residential terraces at the site, as well as several complexes of public architecture along the ridgetop (Kowalewski et al. 1989: fig. A.IX.35). In terms of the number of terraces, the settlement was found to be the third largest in

FIG. 2.18. *Palmillos* at the apex of El Palmillo.

the valley, ranking behind only Monte Albán and Jalieza, both of which have more than 2000 residential terraces (Blanton 1978:7; Blanton et al. 1982:411; Kowalewski et al. 1989:241). The 1980 survey crew stressed the defensible location of El Palmillo and recorded considerable evidence for economic specialization, especially pottery production and the manufacture of chipped stone tools (Kowalewski et al. 1989:217, 240, 242).

El Palmillo was especially difficult to map because of dense, spiny vegetation. During a brief visit to El Palmillo in the summer of 1996, we confirmed that a more intensive study of El Palmillo, in conjunction with targeted clearing activities, likely would reveal additional terraces in several parts of the site. We also recognized that given the dense, difficult vegetal cover, producing a detailed map of the site and recording/collecting all significant materials on each terrace or architectural feature would require considerably more time than had been available during the regional survey. We returned in the summer of 1997 to complete an intensive surface survey of El Palmillo (Feinman and Nicholas 1998a).

Research Strategy and Methods

The primary goal of a full-coverage, regional survey is to discover the distribution of sites across time and space, placing ancient settlements in their larger spatial and temporal contexts. Like a census, a regional survey provides basic information on as many settlements as possible in large regions, including when the sites were occupied, the overall spread of occupation and how the extent of habitation changed over time, the nature and amount of public architecture, and some characterization of the artifacts recovered on site. Using these kinds of data, we can address questions about regional site-size hierarchies and how they changed over time, regional variation in economic activities, and the role of terrace sites within the larger settlement and socioeconomic systems of which they are a part (Kowalewski 1990a). For example, as we noted earlier, we have identified three major functions for terrace sites in the Valley of Oaxaca: defense, administration, and craft production (Kowalewski et al. 1989:242). These roles are not mutually exclusive, and some terrace

FIG. 2.19. The western side of the El Palmillo ridge, viewed from the International Highway.

sites were important in more than one of these aspects.

The decision to work without machetes to clear obscuring vegetation during regional survey may be viewed critically by some, yet that decision was fully consistent with the goals of the survey, that is, the collection of broad-scale systematic settlement data over large areas. The detail sacrificed at one site allows a survey crew to spend more time elsewhere, expanding the survey coverage into other areas that are completely unknown. In many areas of highland Mexico, regional survey provides the only data we have, or are ever likely to have, on thousands of ancient settlements. Many of the sites recorded in the 1977 and 1980 regional surveys of the Valley of Oaxaca are now completely built over or destroyed.

Given the broad-brush nature of regional-scale research, however, the kinds of data collected are somewhat less directly suitable for answering questions that require detailed intersite comparisons or for understanding intrasite variation. Intensive site survey is one method that allows us to gather more detailed information from a much smaller set of sites, by spending weeks (or months) rather than just days mapping and collecting a single site. With the additional time to clear vegetation and scour the ground surface for walls, wall segments, accessways, and the connections between terraces, we are able to observe and learn more about internal site organization and the articulations between terraces. With discrete artifact collections taken on a much higher proportion of terraces and other features, we gain a more detailed view of the different artifact classes at a site and how they were differentially distributed in distinct sectors of a site. With a greater number of observations associated with more discrete architectural units (such as single terraces), it becomes more feasible to identify the residues of specific economic activities and how they varied within and between settlements.

The method of intensive surface survey we followed is broadly similar to Blanton's surface survey at Monte Albán (Blanton 1978), a mapping and surface collection project that took three summers to complete. Blanton used the terraces as the

basic descriptive unit for recording all classes of information and for making ceramic collections that provided chronological information. We also defined terraces as our basic analytical unit.

The intensive surface surveys of Guirún, El Palmillo, and the Mitla Fortress were designed to provide an intermediate level of information sufficient to address specific sets of research questions. More specifically, we had four principal methodological goals: (1) to prepare more complete and detailed maps of each site, including architectural features, than was possible during the regional surveys; (2) to make more surface collections across each site to define better the occupational history of each settlement; (3) to obtain more detailed information on the nature and distribution of specific classes of artifacts that could serve to indicate the distribution of productive activities across each community; and (4) to identify terraces or other areas on the sites that may be suitable for future household excavations.

We also recognize that other research issues, as well as questions generated by this study, are likely to require the more detailed information gained from excavations. The intensive surveys provide detailed site-level information that will be essential for placing our susequent excavation results in broader context (see Feinman et al. 2002; Nicholas and Feinman in press). Reporting on these excavation findings is beyond the scope of this monograph; however, in a few instances we draw on the excavation results where they are especially relevant for the interpretation of surface findings.

Field Methods and Analysis

During the intensive site surveys we systematically walked over and mapped each site, using the prior regional survey maps as starting points or guides, which greatly eased our research efforts. El Palmillo, Guirún, and the Mitla Fortress cover much less area than Monte Albán (2073 terraces over 6.5 km^2) or Jalieza (2149 terraces over 9 km^2), so we were able to map completely one site during each field season. It took us roughly 5½ weeks each to map Guirún and the Mitla Fortress and 7 weeks to map El Palmillo (where we also had a larger crew).

In several respects, Guirún was the most difficult to map. The site occupies several ridgetops and slopes that are separated by very steep ravines, some of which are heavily vegetated while others are highly eroded. Many of the flatter ridgetops have been heavily farmed, destroying architectural features and terraces. On the slopes of a northern sector of the site, a ridge referred to as El Zacatal, modern agricultural terraces have almost obscured prehispanic ones. We did not try to map ancient terraces in this area during the regional survey, although we were able to map at least 20 during the intensive survey. The best-preserved terraces and architecture are situated on steeper, more heavily vegetated ridgetops, some of which have never been farmed.

The greatest difficulty in mapping El Palmillo was the vegetation—spines, thorns, and stinging nettles (*mala mujer, Cnidoscolus* sp.) that in some areas were impenetrable without machetes (Figure 2.20). In these dense stands of xerophytic vegetation, we generally found well-preserved terraces that had never been farmed. Many of the larger terraces at El Palmillo have been farmed in the past, and some areas on less steep slopes are under cultivation today.

In some respects, the Mitla Fortress was the easiest to map. It is the smallest of the three sites, even though we mapped more terraces there than at Guirún. Fortunately, we began to map the fortress at the end of an eight-month drought. Other hills in our view had been blackened by wildfires. Because the fortress was so dry when we were there, we could move through the vegetation without constantly using a machete. As at Guirún, a few parts of the fortress were extremely rocky and steep, and at times that presented a problem, especially after the rains arrived.

In the field, terraces were our principal unit of analysis (Figure 2.21). Our original plan was to employ the same terrace (or other feature) numbers that were used on the regional survey maps, but we quickly found it more efficient to renumber each feature as we mapped it and to include the original terrace or structure number in our field notes. One exception was made for the Mitla Fortress. In 1980, the fortress was mapped as part of the larger Mitla site centered in the modern village, and all structures were numbered sequentially (beginning with Structure 65 at the fortress). To avoid future confusion, we used the original 1980 numbers for all previously mapped structures.

The rationale for renumbering the terraces at the three sites was both logistical and conceptual. We found terraces and structures at all three sites that had not been mapped during the regional study. Most of the previously unmapped features

Fig. 2.20. Mapping Terrace 78 at El Palmillo.

that we encountered were in heavily vegetated and steeply sloping areas. In these areas we could not always be entirely sure which terraces had been mapped previously and which ones had not. More important, just as on a regional survey, we had to grapple with the issue of what exactly defines a terrace. Terraces are artificially flattened spaces on hill slopes that are stabilized by stone retaining walls. Residential terraces often have entryways and visible remains of house foundations and other domestic debris.

More complicated were the sets or strings of terraces that share a long front retaining wall. In mapping such features, a consistent procedure was required to determine if there were a few long terraces or many shorter ones that abutted each other. As we walked over and mapped terraces, during both the regional surveys and the intensive site surveys, we became more adept at recognizing characteristics that indicate the edge of a terrace. Features such as side walls, changes in the orientation of front retaining walls, and slight differences in the elevation of adjacent terraces provide clues as to where one terrace ends and another begins. As we gained a better understanding of terrace construction, we often defined more terraces in a given area than had been mapped previously during the regional survey. As a consequence, for certain areas, we often defined smaller terraces. It should be noted that our definition of a terrace differs from that employed in the mapping of Xochicalco in Morelos, where a terrace is defined as "any earth platform built into the hillside that is at least 50 m long and at least three times longer than it is wide" (Hirth 2000:55). In the Valley of Oaxaca, terraces are generally associated with domestic units, and most are much smaller in size.

During subsequent excavations at El Palmillo we have found general support in the layout of specific patio groupings for the more tightly defined terrace limits that we identified and mapped during the intensive survey (Feinman et al. 2001, 2002). Yet, based on the small size of that flattened area on the smallest terraces, we suspect that a number of them do not represent discrete domestic units.

In addition to terraces, we identified a range of

FIG. 2.21. Mapping Terrace 79 at Guirún.

other archaeological features at each site, including platforms, structures, walls, plazas, stairways, and isolated house foundations. Platforms are flat-topped features, with bases only slightly larger than the tops, that are built up from the area around it, usually no more than 3 m. In some cases, but not always, a platform may serve as the base for a structure. Structures tend to be more vertical features whose tops are much smaller than their bases, and so they do not have large flat areas at their apex. Most platforms are at least 5 m by 5 m, although many are much larger. Structures also are variable in size but usually are not as large as platforms.

Walls are stone constructions that may or may not be associated with terraces. We make the judgment that walls have a function beyond retaining a single terrace, preventing erosion, or serving as check dams. Walls that just retain terraces are treated as part of the terrace. To be designated a wall, these stone features have to be longer than the retaining wall of a single terrace. At all three sites, many (but not necessarily all) walls seem to constrain access. Some of the longer walls extend across significant stretches of a site's circumference.

All of these other features were numbered separately by class. Surface artifacts found in association with them were recorded by specific context, in the same manner that was employed for each terrace.

Terraces were oriented for the overall site maps using a Brunton compass. In the rugged, steep, and heavily vegetated terrain where the sites are situated, in areas lacking good roads, we chose not to use a transit or alidade. Although the use of such equipment may have resulted ultimately in slightly more accurate maps, the extra time involved would have greatly surpassed the interpretive payoff of the increased accuracy. At Guirún, we had to walk more than two hours upslope to reach the highest parts of the site. Although the distances were not as great at El Palmillo and the fortress, we were hampered at those two sites by very steep rocky slopes that were difficult to maneuver even without heavy equipment. At all three sites we did use machetes to clear enough vegetation to see terrace walls and features, but clearing vegetation to provide clear lines of sight for reading the transit would have required another order of magnitude of time and energy. Instead,

we chose to spend our time making observations on terrace features and artifact assemblages.

A 100-m tape was carried in the field for measuring archaeological features, but frequently the dense, thorny vegetation made it more practical and more accurate to pace off the dimensions of terraces and other features. Triangulation was used to measure greater distances.

Using the Brunton compasses for bearings, all features were placed on a base site map prepared from 1:50,000 topographic maps, showing every 20-m contour. The maps for El Palmillo and Guirún were enlarged to a scale of 1:5000 (1 cm = 50 m, the same scale of the aerial photo enlargements that were used in the regional surveys). The map for the smaller Mitla Fortress, with tightly compact features in some areas, was enlarged to a scale of 1:2500 (1 cm = 25 m). At the same time, greater detail on individual terraces (such as entryways, house foundations, and tombs) was recorded on a second set of maps prepared for smaller sections of each site that were drawn at scales of either 1 cm = 5 m or 1 cm = 1 m, depending on the nature of the terrain and the associated archaeological remains that were visible.

We followed a very systematic approach to mapping the sites, with individual members of the crew responsible for specific duties. The main map work was handled in the field by Linda Nicholas, who maintained a concern with integrating newly observed features into the overall site plan (Figure 2.22). The rest of the crew cut vegetation, found terraces and other features, measured those features, and collected surface artifacts.

FIG. 2.22. Linda Nicholas mapping terraces at Guirún.

The first task always was to locate terraces and other features to be mapped (Figure 2.23). In some areas this required bushwhacking through heavy vegetation to clear otherwise invisible features. Once a terrace was located, enough vegetation was removed so that the nature and full dimensions of the features could be determined (often just clearing the overgrowth from the corners of a feature was sufficient). Especially at El Palmillo and the Mitla Fortress, we discovered long, high, well-made walls that formed the front retaining walls of strings of terraces. By carefully checking for changes in the nature and orientations of wall segments and differences in the elevations of the associated terraces, we were able to demarcate individual terraces sharing these walls.

The length and width of all intact terraces and other features were measured, as was the height of structures and terrace retaining walls. Whenever possible, we mapped house foundations and other features (including small tombs) that were visible on a small subset of terraces (Figure 2.24). Single house foundations were visible on many terraces (Figure 2.25), and a few terraces have two or more. In some cases, we could identify the presence of a feature but the feature was too disturbed to measure with accuracy. Those features were dotted in on the map without being given a number; their measurements are not included in summary data.

Using the Brunton compasses, orientations were taken of all terrace retaining walls (and side walls when present) and the long axis of all structures, platforms, plazas, and house foundations. Triangulation was used to locate features relative to each other.

We also observed the nature and condition of every feature. For terraces we noted whether they had ever been farmed, the nature of the extant vegetation, the condition of the retaining wall, whether a side wall was present, the presence (and

FIG. 2.23. Survey crew on Terrace 325 at El Palmillo.

number) of house foundations (and any other features) if discernible, and the nature of the surface artifact assemblages. We noted the condition of all walls and whether their primary function appeared to be for defense or to control or define access. Generally, longer walls and those that constrained movement from outside the settlement into its core were considered defensive. Access walls generally are shorter and serve to define pathways or acceptable routes within these settlements. Clearly, we do not know for sure how these walls were used, and they may have served multiple roles that also may have changed over time.

We recorded the nature of the ceramics that were present on each terrace or feature. These observations provide the empirical basis for dating the site and estimating the extent of occupation at different times in the past. When ceramic densities were sufficient or other important artifacts were present, a surface collection was taken. Most of these collections were general pickups on a specific terrace or other discrete feature. We did not employ random samples but rather focused on collecting artifacts that provided the greatest amount of information, such as chronologically diagnostic ceramic types or evidence of ceramic production such as kiln wasters and molds.

Different collection strategies were employed for other artifact classes. Stone materials were abundant on the surface of all three sites; in fact, on some terraces, chipped stone far outnumbered ceramics. We recorded the nature of the stone materials and then collected a sample, focusing on formal tools, production evidence, and the range of materials. Manos and metates always were noted and often were photographed in the field but not collected. We found little shell on the surface of any of the sites, but collected it whenever it was observed. Not surprisingly, bone was rarely observed on the surface or collected.

A preliminary analysis of all collected materials was completed prior to the end of each field season. In all, we made 172 artifact collections at the Mitla Fortress, 179 at Guirún, and 392 at El Palmillo. All artifacts were washed, analyzed, and

Fig. 2.24. Small domestic tomb on Terrace 199 at Guirún.

recorded in Mitla at the project laboratory; a photographic record was made of key artifacts. All artifacts that were collected in the field are stored at a secure location in Oaxaca.

Ceramics

Most of the ceramic collections made at each site are from terraces, picked up largely to place chronologically the occupation of the terrace and to recover indications of ceramic production and patterns of differential distribution. We also collected ceramics in unterraced areas and from structures and platforms when the density of material on the surface or the presence of unusual or significant diagnostic pieces warranted it. In all contexts, we took notes on the ceramics that were observed but not collected. Our interpretation of site occupations draws on both the collected and noncollected materials (Tables 2.1, 2.2, and 2.3).

The most common ceramics at all three sites are the ubiquitous G-35 bowls that are found at Classic (Monte Albán III) and Early Postclassic (Monte Albán IV) sites across the valley (Caso et al. 1967:385–395, fig. 317; T1126 in Kowalewski et al. 1978:178; see also Feinman 1980; Kowalewski et al. 1989; Martínez López 1994 for descriptions of Valley of Oaxaca ceramics). These nondescript conical gray bowl fragments are present across broad expanses of all three sites. Less abundant are large *gris* storage jars (Caso et al. 1967:figs. 358a,f, 360; T1508 in Kowalewski et al. 1989:832; T1120 in Kowalewski et al. 1978: 177–178) and *gris sahumadores* (Caso et al. 1967: 434–436, fig. 366; T1123 in Kowalewski et al. 1978:178). To distinguish the Early Classic from the Early Postclassic occupation at each site, we depended on rarer, less frequent diagnostic ceramics, as well as on the nature of the complete assemblage observed on each terrace.

The clearest Early Classic (Monte Albán IIIA) diagnostics are carved G-23 bowls (Caso et al. 1967:80, 213, 317, figs. 266–270, 271a,b; especially T1264 in Kowalewski et al. 1978:180–181) and Thin Orange pottery (Caso et al. 1967:83–84, 329, fig. 275; T3411 in Kowalewski et al. 1978: 192). Small quantities of this fine ceramic were found at all three sites. Another IIIA diagnostic, G-23-style vessels made of *amarillo* paste (A-8 in Caso et al. 1967:83, fig. 56; T3410 in Kowalewski et al. 1978:192), was recovered at El Palmillo and

FIG. 2.25. House foundation on Terrace 663 at El Palmillo.

the fortress, but not in surface collections at Guirún. Sherds from Dainzú *amarillo* paste bowls (T3500 in Kowalewski et al. 1989:837) are present in considerable quantities at the fortress, in lesser amounts at El Palmillo, and are very rare at Guirún. A local ceramic variety, Mitla Bichrome (Feinman et al. 2000), is most common at the fortress.

Ceramic diagnostics of period IIIB/IV are less frequent, especially at Guirún, but include *gris-cremosa comales* (T1125 in Kowalewski et al. 1978:178) and G-35 bowls with flat rims (T1137 in Kowalewski et al. 1978:178). Rare IIIB/IV ceramics include *café comales* with a raised shelf (T2418 in Kowalewski et al. 1978:191) and imitation Fine Orange (Caso et al. 1967:86, fig. 328a,b; T3030 in Kowalewski et al. 1978:191–192.

Even in the absence of definite Monte Albán IIIA or IIIB/IV ceramics other than G-35 bowls, the nature of the ceramic assemblage on a particular terrace often pointed to one or the other phase. For example, earlier G-35 rims tend to be more flaring than later ones. In a few areas, sparse surface ceramics made distinguishing IIIA from IIIB/IV difficult. We then based our assessments, in part, on what phases were present on immediately adjacent terraces. The greater frequency of clear IIIA diagnostic ceramic types at El Palmillo and the fortress indicates that those sites were more heavily occupied in the Early Classic than in the Late Classic/Early Postclassic.

Late Postclassic ceramics (Monte Albán V) are especially abundant at Guirún and the Mitla Fortress, and less so at El Palmillo. The most prevalent diagnostic V ceramics are thin, fine-paste G-3M bowls (T1400 in Blanton et al. 1982:376; Caso et al. 1967:448, 451, figs. 376–379, 384, 386, 387; T1102–T1107 in Kowalewski et al. 1978:177, T1108 in Kowalewski et al. 1989:831). Polychromes (Caso et al. 1967:465–475, láminas XIII–XXX; T5007 in Kowalewski et al. 1978: 193) are present but rare, especially at El Palmillo and Guirún. Given the frequency and distribution of Monte Albán V ceramics, the Late Postclassic occupation at all three sites, but especially El Palmillo, was less dense (if not always spatially more

TABLE 2.1. Selected Ceramics at the Mitla Fortress

Type	Quantity	% of Assemblage	Sherds per ha
Urns (including wasters)	66	2.34	1.25
Figurines (including wasters)	30	1.06	0.57
Spindle whorls	2	0.07	0.04
Crema pottery	17	0.60	0.32
G-12 (T1297, T1519)	3	0.11	0.06
G-12 (T1207, T1227, T1241)	13	0.46	0.25
A-9 bowl (T3408)	0	0.00	0.00
Black-and-White (T5100)	3	0.11	0.06
G-21 bowl (T1194)	0	0.00	0.00
White-rim Black-ware (T1419)	1	0.04	0.02
Dainzú (T3500)	85	3.01	1.60
Thin Orange (T3411)	16	0.57	0.30
A-8 bowl (T3410)	11	0.39	0.21
G-23 bowl (especially T1264)	19	0.67	0.36
Mitla Bichrome	20	0.71	0.38
Gris storage jar (T1508)	25	0.89	0.47
G-1 storage jar (T1120)	22	0.78	0.42
G-35 bowl	830	29.42	15.66
G-35 flat rim bowl (T1137)	8	0.28	0.15
Gris sahumador (T1123)	17	0.60	0.32
Gris-cremosa comal (T1125)	16	0.57	0.30
Café comal (T2418)	2	0.07	0.04
Imitation Fine Orange (T3030)	1	0.04	0.02
G-3M bowl	532	18.86	10.04
Polychrome (T5007)	11	0.39	0.21

TABLE 2.2. Selected Ceramics at Guirún.

Type	Quantity	% of Assemblage	Sherds per ha
Urns (including wasters)	73	3.41	0.74
Figurines (including wasters)	14	0.65	0.14
Spindle whorls	1	0.05	0.01
Crema pottery	1	0.05	0.01
G-12 (T1297, T1519)	0	0.00	0.00
G-12 (T1207, T1227, T1241)	4	0.19	0.04
A-9 bowl (T3408)	3	0.14	0.03
Black-and-White (T5100)	1	0.05	0.01
G-21 bowl (T1194)	0	0.00	0.00
White-rim Black-ware (T1419)	0	0.00	0.00
Dainzú bowl (T3500)	2	0.09	0.02
Thin Orange (T3411)	6	0.28	0.06
A-8 bowl (T3410)	0	0.00	0.00
G-23 bowl (especially T1264)	5	0.23	0.05
Mitla Bichrome	0	0.00	0.00
Gris storage jar (T1508)	3	0.14	0.03
G-1 storage jar (T1120)	41	1.92	0.42
G-35 bowl (T1126)	521	24.36	5.32
G-35 flat rim bowl (T1137)	4	0.19	0.04
Gris sahumador (T1123)	7	0.33	0.07
Gris-cremosa comal (T1125)	6	0.28	0.06
Café comal (T2418)	1	0.05	0.01
Imitation Fine Orange (T3030)	1	0.05	0.01
G-3M bowl	373	17.44	3.81
Polychrome (T5007)	4	0.19	0.04

TABLE 2.3. Selected Ceramics at El Palmillo

Type	Quantity	% of Assemblage	Sherds per ha.
Urns (including wasters)	120	2.48	1.33
Figurines (including wasters)	76	1.57	0.84
Spindle whorls	0	0.00	0.00
Crema pottery	32	0.66	0.36
G-12 (T1297, T1519)	3	0.06	0.03
G-12 (T1207, T1227, T1241)	8	0.17	0.09
A-9 bowl (T3408)	3	0.06	0.03
Black-and-White (T5100)	1	0.02	0.01
G-21 bowl (T1194)	3	0.06	0.03
White-rim Black-ware (T1419)	8	0.17	0.09
Dainzú bowl (T3500)	31	0.64	0.34
Thin Orange (T3411)	12	0.25	0.13
A-8 bowl (T3410)	3	0.06	0.03
G-23 bowl (especially T1264)	27	0.56	0.30
Mitla bichrome	1	0.02	0.01
Gris storage jar (T1508)	33	0.68	0.37
G-1 storage jar (T1120)	86	1.78	0.96
G-35 bowl (T1126)	1,036	21.44	11.51
G-35 flat rim bowl (T1137)	8	0.17	0.09
Gris sahumador (T1123)	17	0.35	0.19
Gris-cremosa comal (T1125)	48	0.99	0.53
Café comal (T2418)	1	0.02	0.01
Imitation Fine Orange (T3030)	0	0.00	0.00
G-3M bowl	234	4.84	2.60
Polychrome (T5007)	1	0.02	0.01

restricted) than the earlier Classic and Early Postclassic occupations.

Ceramics from two earlier Preclassic phases (Monte Albán Late I [300–150 B.C.] and II [150 B.C.–A.D. 200]) were noted on a few terraces at all three sites, but these early pottery markers were much rarer than later ceramics. Monte Albán Late I diagnostics include several G-12 combed bottom vessels found at El Palmillo and the fortress (Caso et al. 1967:25–26, 96, 176, 180, figs. 5, 130, 131; T1297 in Kowalewski et al. 1978:181) and a Late I G-12 bowl at the fortress (T1519 in Kowalewski et al. 1989:833). We observed sherds from other G-12 vessels at all three sites that may date to either Late I or II (Caso et al. 1967:25, 225, 347, fig. 4; T1207, T1227, T1241 in Kowalewski et al. 1978:179).

Crema pottery, a good indicator of Monte Albán I and II, was observed at the fortress and El Palmillo (only one piece was noted at Guirún). The most frequent were varieties that are most abundant in Monte Albán II, especially C-7 *comales* and bowls (Caso et al. 1967:47; T0057, T0404 in Kowalewski et al. 1978:172, 176). The clearest period II diagnostics are several Black-and-White sherds (T5100 in Kowalewski et al. 1989:837) found at all three sites, G-4 White-rim Black-ware sherds (Caso et al. 1967:78, 80, fig. 52; T1419 in Kowalewski et al. 1978:187–188) found especially at El Palmillo, A-9 bowls (Caso et al. 1967:70, lámina IXb,c, figs. 48, 49; T3408 in Kowalewski et al. 1978:192) at Guirún and El Palmillo, and G-21 bowls (Caso et al. 1967:67, 347, figs. 43, 223d; T1194 in Kowalewski et al. 1978:179) found only at El Palmillo.

Residential Terraces and Population Estimates

Domestic debris was noted on the majority of terraces at the Mitla Fortress, Guirún, and El Palmillo, including evidence of ceramic and stone tool production. Residential architecture, including house foundations, tombs, construction debris, and entryways, was recorded on almost one-third of the terraces at each site (27% at El Palmillo, 30% at the fortress, and 35% at Guirún) (Table 2.4). Through subsequent excavations at El Palmillo, we have uncovered substantial residential compounds on terraces where no stone foundations had been visible on the surface during the survey (Feinman et al. 2001, 2002, 2003).

Because the terraces appear to be houselots, they provide the best information we have to es-

TABLE 2.4. Summary of Terraces with Residential Architecture

Parameter	Mitla Fortress	Guirún	El Palmillo
Total number of terraces	463	330*	1,453
Terraces with house foundations, tombs, entryways, or large construction stones	138	114	391
Percent of all terraces with house foundations, tombs, entryways, or large construction stones	30%	35%	27%
Terraces with house foundations and/or tombs	76	54	254
Percent of terraces with house foundations and/or tombs	16%	16%	17%
Number of terraces smaller than 30 m^2 that have visible house foundations or tombs	8	0	63
Number of terraces smaller than 20 m^2 that have visible house foundations or tombs	3	0	27

* Does not include 30–40 unmapped terraces.

timate the prehispanic population of these ancient communities. Based on terraces with visible house foundations at Monte Albán, Blanton calculated an average of 312 m^2 of terrace area per nonelite house (Blanton 1978:30). This figure was consistent with Marcus Winter's calculation of a 10-m radius for household clusters (house and adjacent area used for household activities) that he excavated at Monte Albán (Winter 1974:982). Blanton employed these figures to estimate the number of nonelite houses present on the residential terraces at Monte Albán (space per elite household was larger) for each phase of occupation. At Monte Albán, each ordinary house was then assumed to have had 5–10 people (10–20 for large residences) (Blanton et al. 1982:10–11), a range based on ethnohistoric data from the Central Highlands (Carrasco 1964; Sanders 1970). These calculations produced a population range for Monte Albán at its peak that was very similar to values derived from using the density-based estimates (25–50 people per hectare for compact settlements) that William Sanders applied to archaeological settlements in the Valley of Mexico (Sanders 1965:50).

Similar figures were applied to estimate past population at terrace sites that were mapped during the regional surveys. When visible on the surface, the number of houses on terraces was counted; otherwise Blanton's figure of 312 m^2 per household cluster was used. Each terrace was considered to hold at least one house, even if the terrace was smaller than 312 m^2. The average terrace size at all Valley of Oaxaca terrace sites was only half as large as the average nonelite terrace at Monte Albán (200 m^2 vs. over 400 m^2), but survey crews often did observe house foundations on these smaller terraces.

During the intensive site surveys, we mapped additional terraces at all three sites. Many of these terraces are smaller than terraces mapped on the regional survey, so that the new average terrace size for the three sites is smaller than the valley average based on the regional survey (200 m^2). The new average at Guirún is 106 m^2, comparable to the average terrace (118 m^2) in the small Ejutla Valley at the southern end of the Valley of Oaxaca (Table 2.5). The averages for the Mitla Fortress (42 m^2) and El Palmillo (44 m^2) are even much smaller. The medians are smaller still, 34 m^2 at the fortress and 32 m^2 at El Palmillo.

Not only is average terrace size at all three sites considerably smaller than the average at Monte Albán, most of the terraces at these three sites also are much smaller than the average terrace area per house at Monte Albán (312 m^2). Given the small size of so many of the terraces at these sites, especially the fortress and El Palmillo, we cannot be sure that each terrace represents a separate household. One hypothesis to be tested through future excavations is whether some households at these sites occupied several small adjacent terraces, possibly carrying out different household functions on each terrace. Some of the terraced areas at the Mitla Fortress and El Palmillo are steep and rocky so that building one large terrace would have been much more difficult for a household than constructing several smaller adjacent ones.

With these issues in mind, we looked at the subset of terraces with clear house or room foundations. At all three sites, roughly 16% to 17% of

TABLE 2.5. Terrace Site Comparisons

Parameter	Mitla Fortress	Guirún	El Palmillo	Monte Albán	Jalieza
Number of terraces	463	365*	1,453	2,073	2,149
Size of site (km^2)	0.5	1	1	6.5	9
Terraces/km^2	874	365	1,453	319	239
Average terrace size (m^2)	42.0	106.6	44.5	530	699†
Total mound volume (m^3)	12,110	23,075	14,200	900,000‡	33,000

* Includes unmapped terraces.
† Average terrace size in Monte Albán IIIA.
‡ Mound volume on the Main Plaza alone is 750,000 m^3.

the terraces had such surface architectural remnants (see Table 2.4). Terrace area per house was greatest at Guirún, approximately 135 m^2, although the average per house on terraces with two houses was only 62 m^2. Terrace area per house was smaller at the other two sites, 61 m^2 at the fortress and 49 m^2 at El Palmillo. The average terrace area per house on the subset of terraces with multiple houses was as low as 36 m^2.

Throughout the history of settled life in the Valley of Oaxaca, people have tended to build houses of minimally 15–30 m^2; houses in this region tended to be small, perhaps because many activities could take place outdoors (Kowalewski et al. 1984; see also Flannery 1976; Winter 1976). Based on these three sets of figures (average terrace size, average terrace area per house, and minimum house size), we used 30 m^2 as a general cutoff value for considering a terrace to represent a separate household, especially in areas of closely packed terraces. Many of the smaller terraces probably did not house separate domestic units. That is, in these cases, one house lot often may have extended across more than one small terrace. Through our subsequent excavations on several terraces at El Palmillo (Feinman et al. 2001, 2002), we have documented the interconnected nature of several terraces and thus the likelihood that each terrace in densely packed clusters may not have belonged to a separate household.

We used several methods to approximate the population of each site for each phase of occupation. These methods provide ranges that we use as minimum and maximum populations for each site. For ease of discussion and comparison we often refer to the average of these high and low figures.

First, we calculated populations based on the number of terraces that appear to have been occupied at each site in each phase. For the more populous periods (Monte Albán IIIA and IIIB/IV) at the fortress and El Palmillo, when a majority of closely packed terraces appear to have been occupied, we assumed one household (5–10 people) for every terrace larger than 30 m^2. We treated this figure as a minimum area per house and not as an average figure. Thus, terraces of 200–300 m^2 also were considered to belong to just one household unless we had observed more house foundations on the surface. For the periods when many fewer terraces were occupied and were more dispersed across the surface, we attributed one household to each terrace belonging to that phase. At Guirún, however, many fewer terraces were smaller than 30 m^2 (only 12% compared to almost half at the fortress and El Palmillo), and most of the terraces, in all phases, were much more dispersed. Thus we assumed one household per terrace, except for the very largest terraces or for terraces where we had observed more than one house foundation.

For Monte Albán IIIA, IIIB/IV, and V, we also measured the area occupied at each site and multiplied the area by density figures used in the regional survey (we did not do this for Late I and II because of the low density of ceramics pertaining to those phases and the low number of dispersed terraces that were occupied then). We used the terrace density figure of 25–50 people per hectare where terraces are densely packed, especially at the Mitla Fortress and El Palmillo. In areas where terraces are much more dispersed, especially at Guirún, we used the lower density of 10–25 that was used for most sites in the Valley of Oaxaca during the regional survey.

Based on these calculations we present population ranges for each phase at the three sites in their respective chapters. These population ranges are only slightly higher than the demographic estimates derived from the 1980 regional survey, despite the fact that a larger number of terraces and other features were recorded during our stud-

ies at each location. Nevertheless, in each case, we have a firmer empirical grip on the layout of the sites and how occupation shifted over time.

Summary

Through intensive site survey, we have been able to document the residential nature of each of the sites. We have mapped house foundations, small domestic tombs, stairways, and entryways on many terraces. We have collected and noted dense quantities of domestic debris on many terraces, including large manos and metates not likely to be carted off to terraces used for agriculture.

This investigation provides the most intensive and holistic picture that we have for terrace settlements in the Valley of Oaxaca with the exception of Monte Albán. Through the presentation of these findings, we contribute to ongoing discussions regarding the general plans and defensible positions of hilltop terrace sites, the use of the residential terraces, the specific occupational histories of the communities, and the indications for stone working and other economic activities. These topics are addressed for each site in the following chapters.

3

The Mitla Fortress

The Mitla Fortress sits on a steep, rocky promontory 2 km west of Mitla, on terrain in the eastern end of the Tlacolula Valley that belongs to Loma Larga, an *agencia* (political dependency) of Mitla (Figure 3.1). Rising from a valley-floor elevation of just under 1700 m, the summit of the ridge reaches 1850 m. It is not so much the height of this landform that is so striking but the steepness and difficult access of its rocky slopes (Figure 3.2). The northern, highest part of the site consists of a flat mesa with steeply sloping sides composed of outcropping bedrock. In some places the slopes are nearly vertical and impassable, and access to the top of the mesa from the west, north, and east is difficult. As indicated by the site's name and the early accounts, at least part of the settlement was fortified.

Two huge stone walls, still standing 5 m high today, define and defend the top of this rocky plateau (Figure 3.3). Enclosed in this top precinct of the site is a series of public buildings, including several with standing adobe walls (Figure 3.4). Extending southeast from the summit, toward Mitla, is a long, gradually descending spur that provides the only "easy" access to the higher reaches of the site (Figure 3.5). One must, however, still pick one's way through exposed patches of bedrock and large boulders to ascend to the top. Although they are not as large or as well preserved as the features on the summit, architectural complexes, additional walls, and hundreds of terraces cover the top and slopes of this lower ridge.

From the top of the hill, the prehispanic residents of the fortress had a 360° view of the surrounding valley, including one of the major passes into the valley from the east. From the vantage of this fortified hill, the site's residents were positioned to defend themselves against potential threats, from within or beyond the valley, and also to monitor people or goods entering the valley from the east. The contemporary community of Mitla long has been known as an exchange entrepôt, especially for links to the Mixe region of Oaxaca and beyond (Beals 1979; Parsons 1936: 12–14; Schmieder 1930:34, 44–45).

The Mitla Fortress, like Guirún and El Palmillo, is located near several chert outcrops (Holmes 1897; Williams and Heizer 1965). The largest sources occur at the base of the fortress, both along the southern edge of the rocky hill (Figure 3.6) and to the east. The translucent brown chert that outcrops at the fortress is of noticeably higher quality than the local chert at either Guirún or El Palmillo.

The Mitla Fortress is located in one of the driest parts of the Valley of Oaxaca, where rainfall today is barely adequate for farming (Kowalewski 1982: 156). The major water sources are two large springs on the north and southeast sides of the fortress, and several arroyos run close to the foot of the site. Additional small springs are located on the eastern and southern slopes of the hill, as well in lower areas to the north and east. Although the smaller springs on the slopes dry up during the extended droughts that often occur in this part of the valley, the larger springs provide water year-round. Expanses of flat land near the base of the fortress have been cultivated in the past, even though in recent years these fields west of the fortress have not been farmed. High water-table well irrigation, however, can still

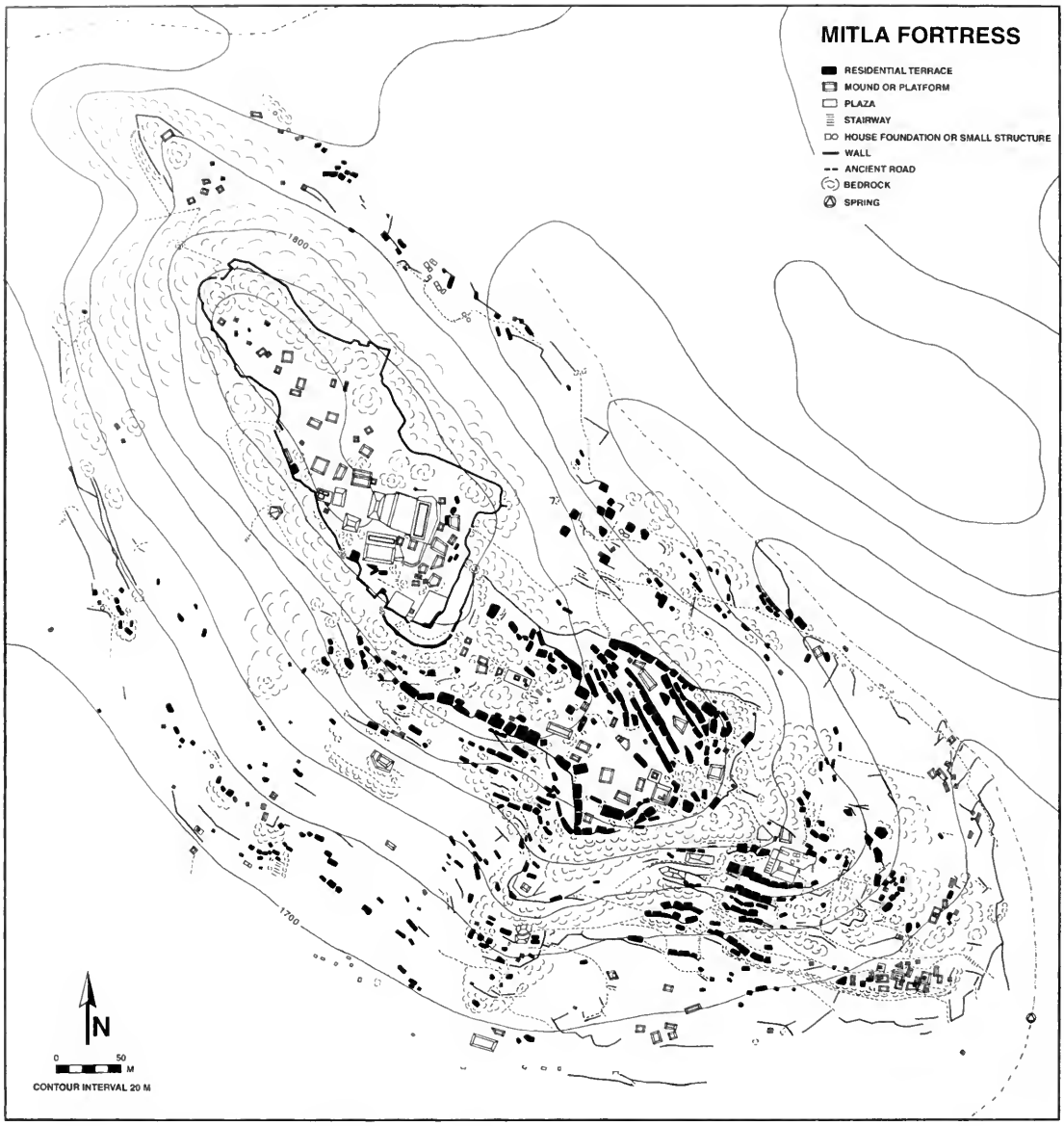


FIG. 3.1. Site map of the Mitla Fortress.

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FIG. 3.2. The rocky cliff on the western side of the Mitla Fortress.

FIG. 3.3. The huge stone defensive walls (Walls 1 and 2) on the summit of the Mitla Fortress.

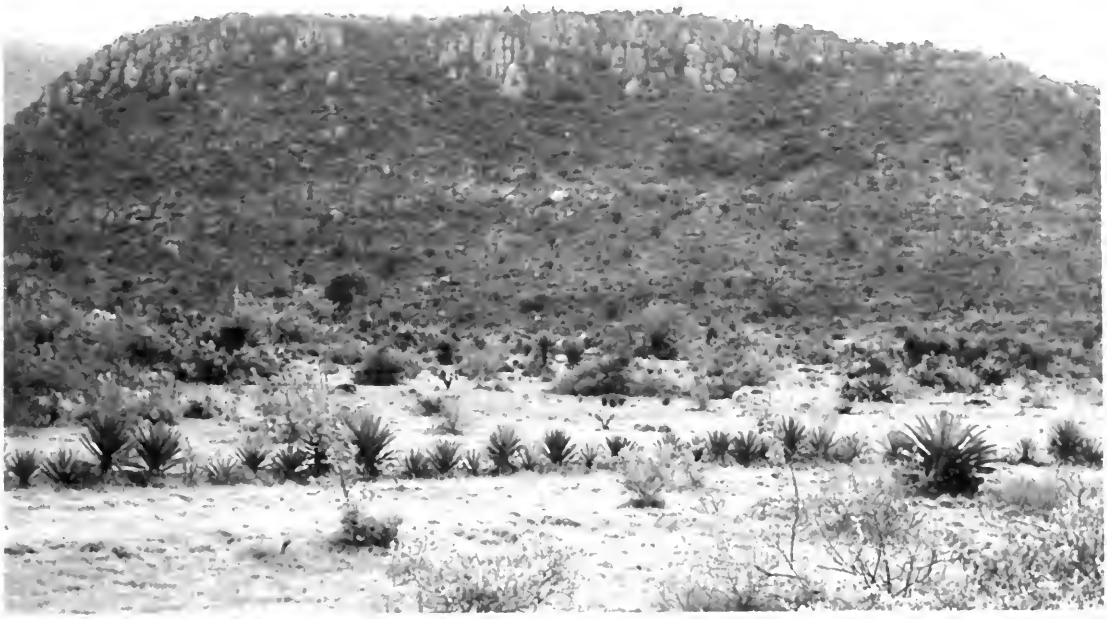


FIG. 3.4. Standing adobe wall (Structure 71) on the summit of the Mitla Fortress.

be employed today in a small patch of land (several fields) east of the site.

The stone plateau at the site's summit supports only sparse vegetation. Other parts of the hill, especially along steep slopes that have never been cleared for farming, are covered in dense vegetation, including *huizache* (*Acacia* sp.), *mala mujer* (*Cnidoscolus urens*), nopal (*Opuntia pilifera*), *garambullo* (*Myrtillocactus schenckii*), various varieties of maguey (*Agave* sp.), and several large stands of *Yucca periculosa.* Few terraces at the site are farmed today, although some of the larger ones were cleared and farmed in the past. Today the principal economic use of the site is for grazing, and a shrine built on the ridgetop just below the summit is an important pilgrimage and picnic spot for many people from local villages. Yet many local people, even from the village of Mitla itself, have never visited the fortress.

General Survey Findings

When we began mapping the Mitla Fortress in June 1998, the vegetation on the site was minimal due to an 8-month drought that affected the region in 1997–1998. During most dry seasons, the vegetation on the fortress still obscures archaeological features on the ground. But this particular drought was so severe that even if we could not easily walk into stands of spindly bushes without clearing a bit with machetes, we could see and define the architectural features on the surface that were hidden in the summer of 1980 (during the regional survey). The scarcity of covering vegetation in early June 1998 was especially beneficial for our intensive survey, allowing us to observe and map features on the top of the fortress and the southern slopes that rapidly became covered with dense low brush and heavy grass once the rains began. When we revisited the top of the fortress following seasonal rains in mid-July 1998, we could no longer easily find a number of the surface features that were evident six weeks earlier (and we even knew exactly where to look for them).

Given these advantageous circumstances, we located and mapped 463 terraces at the Mitla Fortress during the intensive survey (see Figure 3.1

FIG. 3.5. The gradual eastern ascent of the Mitla Fortress.

and Appendix 4.a), four times as many as were mapped during the regional survey. Most of the terraces at the fortress are not large; the majority are smaller than 50 m^2 (Figure 3.7). Less than 5% are 100 m^2 or larger, so these terraces are much smaller than those at Monte Albán. Only one terrace is larger than 200 m^2, close to the average for all terrace sites mapped in Oaxaca during the regional surveys. The largest terraces are on the ridgetop just below the summit and on the southeastern spur (see Figure 3.1). For the most part, these larger terraces are the ones that were mapped by the regional survey crew. We found many additional smaller terraces on steeper slopes below the ridgetops. Most terraces in these steeper areas are dispersed or occur in small clusters. Many do not have the high stone retaining walls that make the larger terraces easier to find and map.

Domestic trash, both pottery sherds and a range of stone materials, is present on most terraces. We observed visible house foundations on a small percentage of terraces and scattered building stones on many others. On some terraces we could still see entryways leading up to the terrace from below or from adjacent terraces.

In addition to the terraces, we mapped 138 mounds and smaller structures (Appendix 4.b), 110 platforms (Appendix 4.c), and seven plazas (Appendix 4.d). The largest structures, platforms, and plazas were part of the public core on the site's summit (Figure 3.8, Appendices 1.a, 1.b), including the two long narrow structures (nos. 70 and 71) with adobe walls that still stand several meters high (see Figure 3.4). These adobe structures are similar in plan to the nonresidential construction at Guirún, where a few adobe remnants also are still visible. These long, thin adobe structures (likely palaces) are similar to standing construction at a walled site we mapped at Llego Yiachi (east of San Lorenzo Albarradas), which, like the fortress, also is located on a natural rock cliff overlooking lower terrain (Feinman and Nicholas 1999).

Smaller architectural features are scattered throughout the residential sectors of the site. Most of the platforms at the fortress are low and were constructed of large, roughly cut stone blocks

FIG. 3.6. Translucent brown chert source at the base of the Mitla Fortress.

(Figure 3.9). Some of these large blocks are especially visible on eroded slopes near the base of the hill. Most of the house foundations that we observed at the site are located on residential terraces (Figure 3.10), although we did map 12 isolated house foundations near the southern edge of the site on relatively flat terrain with few terraces (Appendix 1.c).

The huge defensive walls (nos. 1 and 2) that encircle the site's summit were only two of 146 walls (Appendix 4.e) at the site. These two impressive stone walls were by far the tallest and longest at the site. Not all of the walls at the fortress are clearly defensive; many appear to have limited or controlled access into certain areas. We also mapped a series of accessways or roads and 11 stairways (Appendix 4.f).

Two caves with evidence of use were noted. One of these had paintings (in red) on the wall of a natural cavern on the eastern slope of the hill. The paintings depict animals (deer?) and are very similar to paintings reported in the Yagul area by Nelly Robles García and Jorge Bautista (personal communication 1998).

Occupational History

The Mitla Fortress was initially settled during Monte Albán Late I (300–200 B.C.). We recorded Late I ceramics on 15 terraces that were dispersed over an area of about 3.3 ha on the upper slopes and summit of the site (Tables 3.1 and 3.2; Figure 3.11). The regional survey crew (Kowalewski et al. 1989) also noted the presence of Monte Albán I sherds on the summit. We found Monte Albán II (150 B.C.–A.D. 200) ceramics on 28 terraces. There continued to be dispersed settlement on the summit at that time, while new habitation spread down the gently sloping ridgetop to the southeast (Figure 3.12), and the occupied area of the fortress doubled (6.6 ha). Based on the number of occupied terraces, the fortress was inhabited by 75–150 people in Late I and 140–280 people in period II. As one of the largest settlements in eastern Tlacolula at that time, the hill probably was a small center or regional head town. To the east, on flatter ground, settlement remained sparse in the vicinity of Mitla, where the ruins of Late Postclassic civic-ceremonial construction stand today.

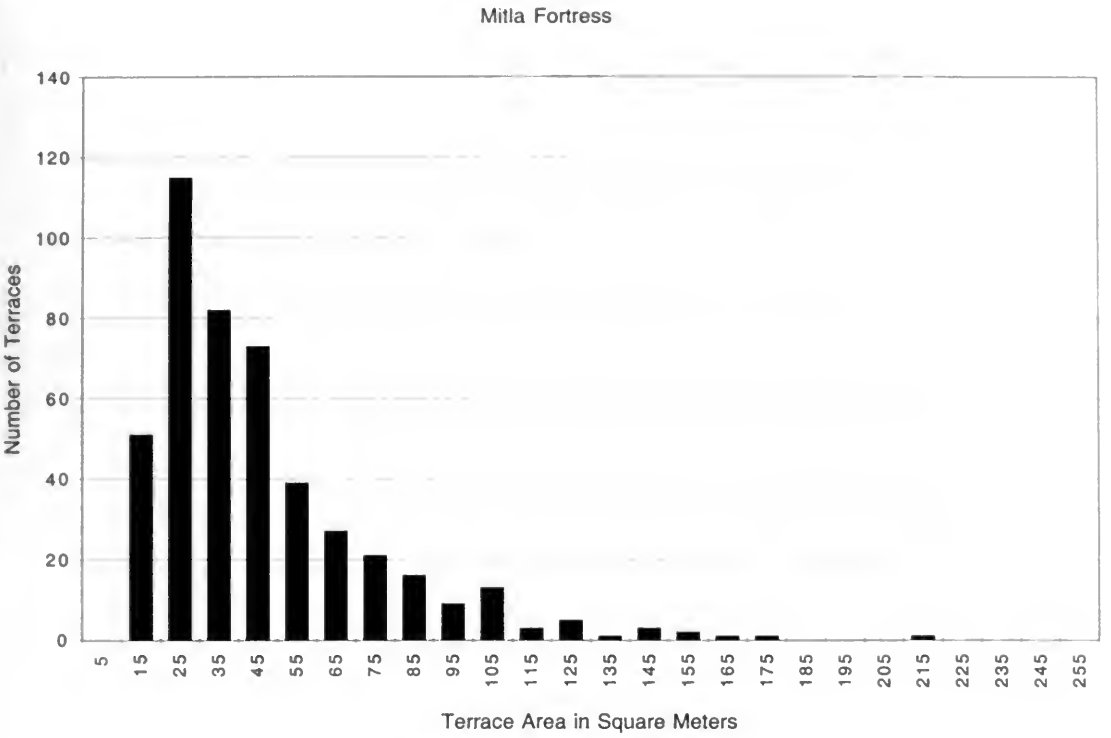


FIG. 3.7. Histogram of terrace size at the Mitla Fortress.

Population at the fortress expanded greatly during Monte Albán IIIA (A.D. 200–500) (Figure 3.13), a pattern already documented by the regional survey (Kowalewski et al. 1989) for many sites in the Tlacolula Valley. At this time, the settlement covered most of the summit and spread down all but the northern slopes of the hill, covering almost 40 ha. The majority of terraces (approximately 394), most of the public architecture, and many of the lower defensive walls appear to have been built during IIIA (the two large defensive walls on top are later), when the basic plan of the settlement was laid out. Growth at the fortress appears to have been relatively rapid, reaching an estimated population between 1200 and 2400 people. At this size, the fortress would have been one of the dominant centers in eastern Tlacolula during the Early Classic, while there continued to be only small dispersed settlement in the vicinity of modern Mitla.

The pattern of growth changed during the Late Classic/Early Postclassic. Whereas settlement increased in the Mitla area overall (Kowalewski et al. 1989:map 7), settlement and population declined on the rocky promontory of the fortress. The occupied area at the fortress was less than half of what it was in IIIA (see Table 3.2). Settlement in IIIB/IV (A.D. 500–900) was more defensively situated on the summit and upper ridge (Figure 3.14). Yet most of the terraces within that smaller area appear to have continued to be occupied (290 terraces), so that the population was still considerable (1000–2000 people). Although our 1998 field study did not include areas beyond the base of the fortress, the hill appears to have been part of a larger community that was growing near the base of the fortress. The relationship between the fortress and the growing center at Mitla at this time is less clear.

The Monte Albán V (A.D. 900–1520) occupation of the fortress expanded to include the entire rocky hill (Figure 3.15), an area of more than 50 ha (see Table 3.2). Yet, based on the distribution of terraces with period V ceramics, the settlement was more dispersed than during the earlier Classic period, and the population was not quite as large as it had been at its peak in IIIA. Based on the terraces (approximately 43% of mapped terraces) with period V ceramics, the hilltop community had between 985 and 1970 people. By this time, though, the fortress was clearly part of the larger

FIG. 3.8. Structure 65 on the summit of the Mitla Fortress.

Mitla site, the major Postclassic center in eastern Tlacolula, with more than 10,000 people.

Although defense appears always to have been a concern at the fortress, the huge defensive walls on the summit (Figure 3.16) were not constructed until period V. Ceramics from Monte Albán Late I through IV were found on the summit (see also Bittler 1975), yet much of the pottery that we collected within these huge walls was period V; outside these walls Classic period ceramics predominate. The adobe structures on the summit (see Figure 3.4) also were built in period V. A piece of a wooden beam sampled from the walls of these buildings was radiocarbon dated to A.D. 1385 ± 85) (Bittler 1975; Rabin 1970).

Site Layout and Defensive Nature

Like El Palmillo, the occupation of the fortress was situated on one freestanding hill (see Figure 3.2), with the site's monumental architecture constructed mostly on the summit, inside the two huge defensive walls (see Figure 3.1). The most elaborate architectural complex at the fortress includes an open four-mound group (Appendix 1.b) with two long adobe structures (nos. 70 and 71). A series of smaller structures and platforms is spread across the summit and positioned around the main complex.

Although the two large defensive walls and the two long adobe structures were built in period V, most of the other public buildings at the top of the fortress appear to have been constructed earlier, by IIIA. Other low platforms are spread out on the long ridgetop east of the summit. Another grouping of low stone platforms is found at the base of the southeastern spur.

Most of the terraces are situated on the top and the more gradual slopes of the long eastern ridge. Many of these terraces are grouped into long strings with other terraces that share a high stone retaining wall (Appendices 1.d, 1.e). These retaining walls form barriers at the edge of the ridgetop and enclose many low stone platforms and other, shorter strings of terraces. Such strings of terraces that share a front terrace wall are also common at

FIG. 3.9. Stones in wall of Platform 26 at the Mitla Fortress.

El Palmillo. Most terraces below these defensive walls are smaller and more dispersed, sometimes nestled in among areas of high bedrock (Appendix 1.c). In the direction and arrangement of terraces along the east and southeast slopes, the fortress resembles some of the small Monte Albán Late I/II terrace sites (such as Hierve el Agua and El Calvario) that are situated at the eastern edge of the entire valley system (Feinman and Nicholas 1995b).

In contrast to Guirún and El Palmillo, where no defensive walls had been recorded or mapped prior to the intensive surface surveys, the Mitla Fortress has long been known for its standing walls of large faced stones (see Figure 2.8) (Bittler 1975; Elam 1989; Holmes 1897). The walls, with cores of unfaced stone cobbles, are held together with mud mortar. The inner defensive wall (Wall 1) was approximately 1025–1050 m long and enclosed an area of approximately 3.75 ha (Appendices 1.a, 1.b). Wall 2, the outer defensive wall, situated immediately downslope from Wall 1, is much shorter, only 145 m long. Parts of these walls still stand 5 to 6 m high.

Both ends of Wall 2 join Wall 1 where massive bedrock boulders were placed (see Figure 3.16), and the junctions between these two walls are almost impassable (cf. Elam 1989; Holmes 1897). An entrance at the center of Wall 2 (facing southeast) provided limited access to the principal (south) entrance to the site's summit through Wall 1. This double entrance led people between two tall, thick walls and served as a clear defensible impediment for unwanted visitors.

A significant number of roads and accessways channeled people up the slopes to the summit (see Figure 3.1). Major paths of communication clearly were defined by the prehispanic inhabitants. Cut stone stairways, raised paths (almost like short *sacbes* in the Maya region), and even cleaved bedrock were regularly noted in conjunction with these paths. Some routes could be traced for more than 100 m. Although the means of access at the fortress perhaps were not as rigidly defined as discussed by García Cook for Cantona in Puebla (García Cook and Merino 1998), they bear a clear parallel to the pattern of defined access described for that site.

FIG. 3.10. Terrace 276 with house foundation at the Mitla Fortress.

Although most of these roads ascended the more gentle slopes of the hill, mostly leading up the southeastern spur, several other routes led up to three less accessible openings in Wall 1 that are located on the northern, western, and eastern sides of the site (see also Holmes 1897). Each of these entrances is largely hidden from view from below, and each is associated with cut stone steps or accessways that were difficult to ascend. Given the difficulty of reaching these three wall openings, they were probably little used compared to the southern/southeastern entrance and may have been more commonly used by people wanting to enter or leave the site unnoticed. Since the southeastern side of the site was most intensively settled, it is not unexpected that the southern/southeastern entrance through the walls was most prominent.

Although no other walls at the site are as long as Wall 1, some of the less visible ones on lower slopes run for several hundred meters (Appendices 1.b, 1.c). Literally the entire fortress is ringed by vestiges of stone walls, which undoubtedly were much more prominent in earlier times. We were not able to map the full extent of some of these walls due to the posthispanic borrowing of stones and serious erosion in some parts of the site. It is no surprise that elderly Spanish-speaking

TABLE 3.1. Architectural Features at the Mitla Fortress by Phase

Phase	Terraces	Structures	Platforms	Plazas	Stairs	Walls
Monte Albán Late I	15	5	10	0	0	0
Monte Albán II	28	14	18	1	0	0
Monte Albán IIIA	394	107	89	5	9	34
Monte Albán IIIB/IV	290	58	55	5	7	17
Monte Albán V	197	77	72	7	10	28

TABLE 3.2. Mitla Fortress Population Estimates and Site Size by Phase

Phase	Population Range*	Population Based on Site Area†	Size (ha)
Monte Albán Late I	75–150		3.3
Monte Albán II	140–280		6.6
Monte Albán IIIA	1205–2410	971–1941	38.8
Monte Albán IIIB/IV	1005–2010	470–939	18.8
Monte Albán V	985–1970	530–1323	52.9

* Based on number of occupied terraces.
† Based on site area using terrace density figures for IIIA and IIIB/IV, and nonterrace density for V.

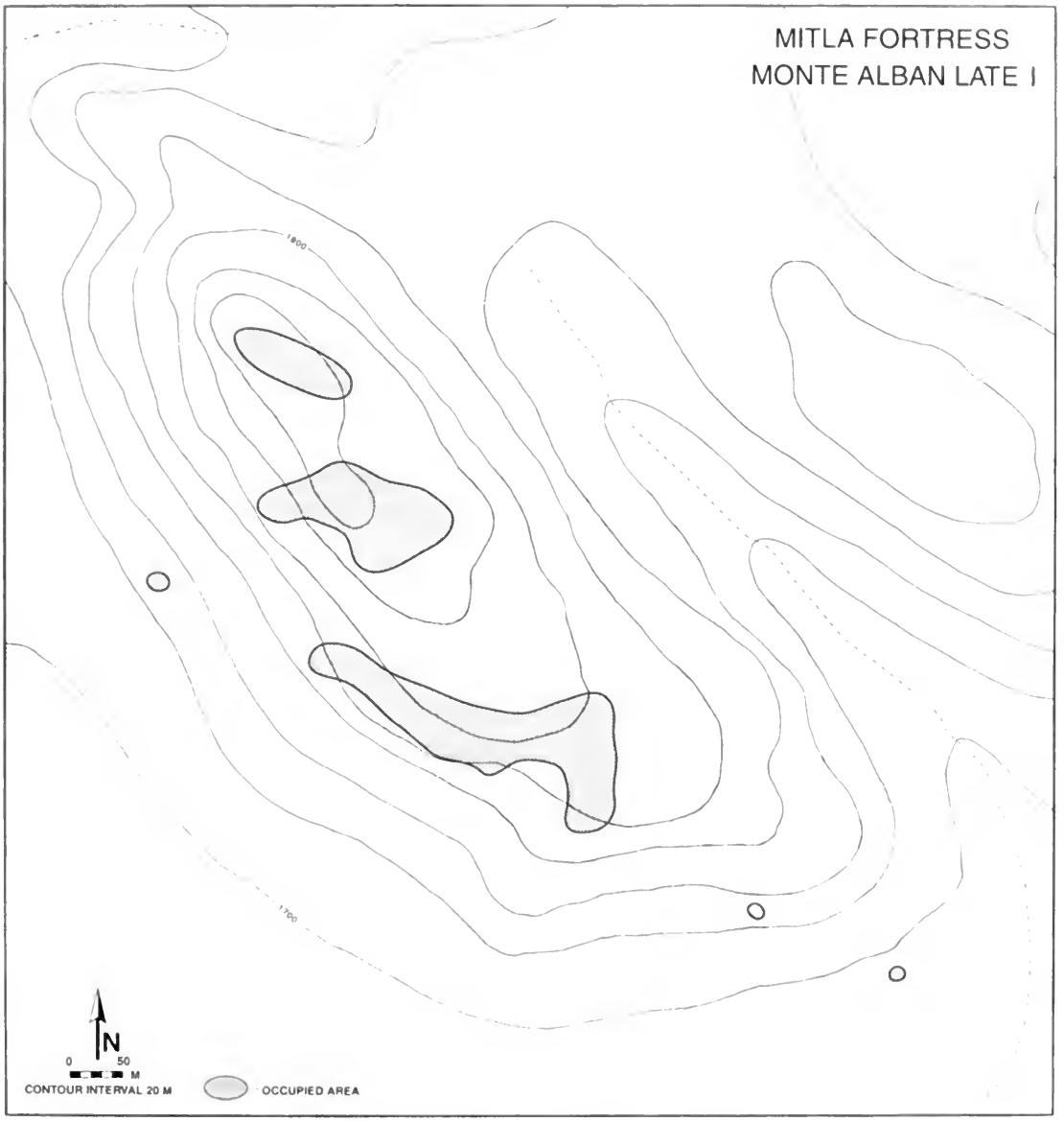


FIG. 3.11. Monte Albán Late I occupation at the Mitla Fortress.

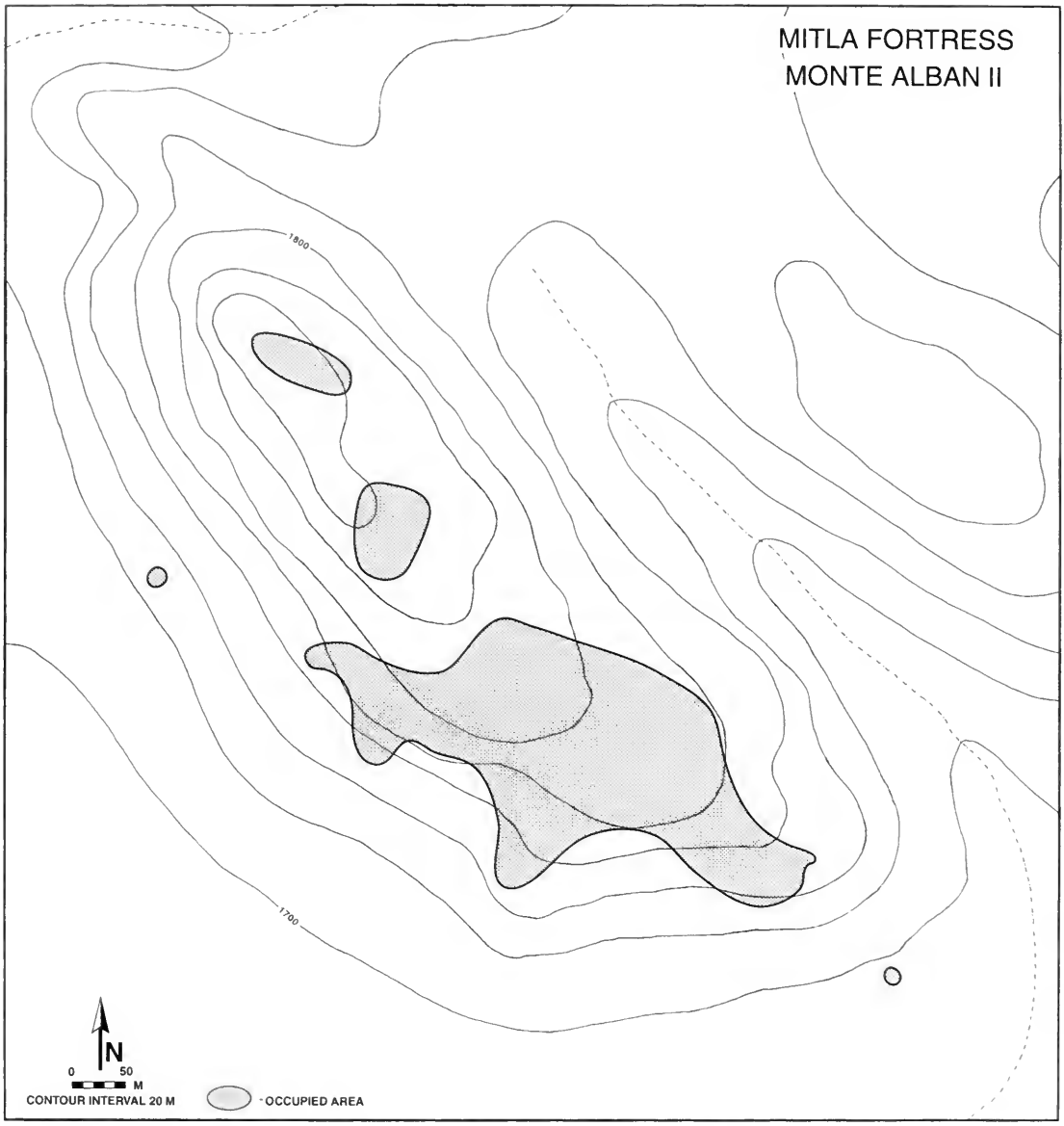


FIG. 3.12. Monte Albán II occupation at the Mitla Fortress.

inhabitants of Mitla still know the site as "La Muralla."

The western slope (facing the interior Valley of Oaxaca) appears to have been used intensively only in Monte Albán V, when the large walls at the top were constructed. Prior to the Late Postclassic period, the employment of inhabitants and features was almost entirely directed to the east, toward extravalley concerns. Major threats appear to have been perceived from the south and east, while the steep western slope facing the valley was given less attention. In Monte Albán V, defensive threats may have been anticipated (or possibly occurred) from all directions.

Economic Specialization at the Fortress

Through our intensive investigation of the Mitla Fortress, we have amplified the 1980 regional

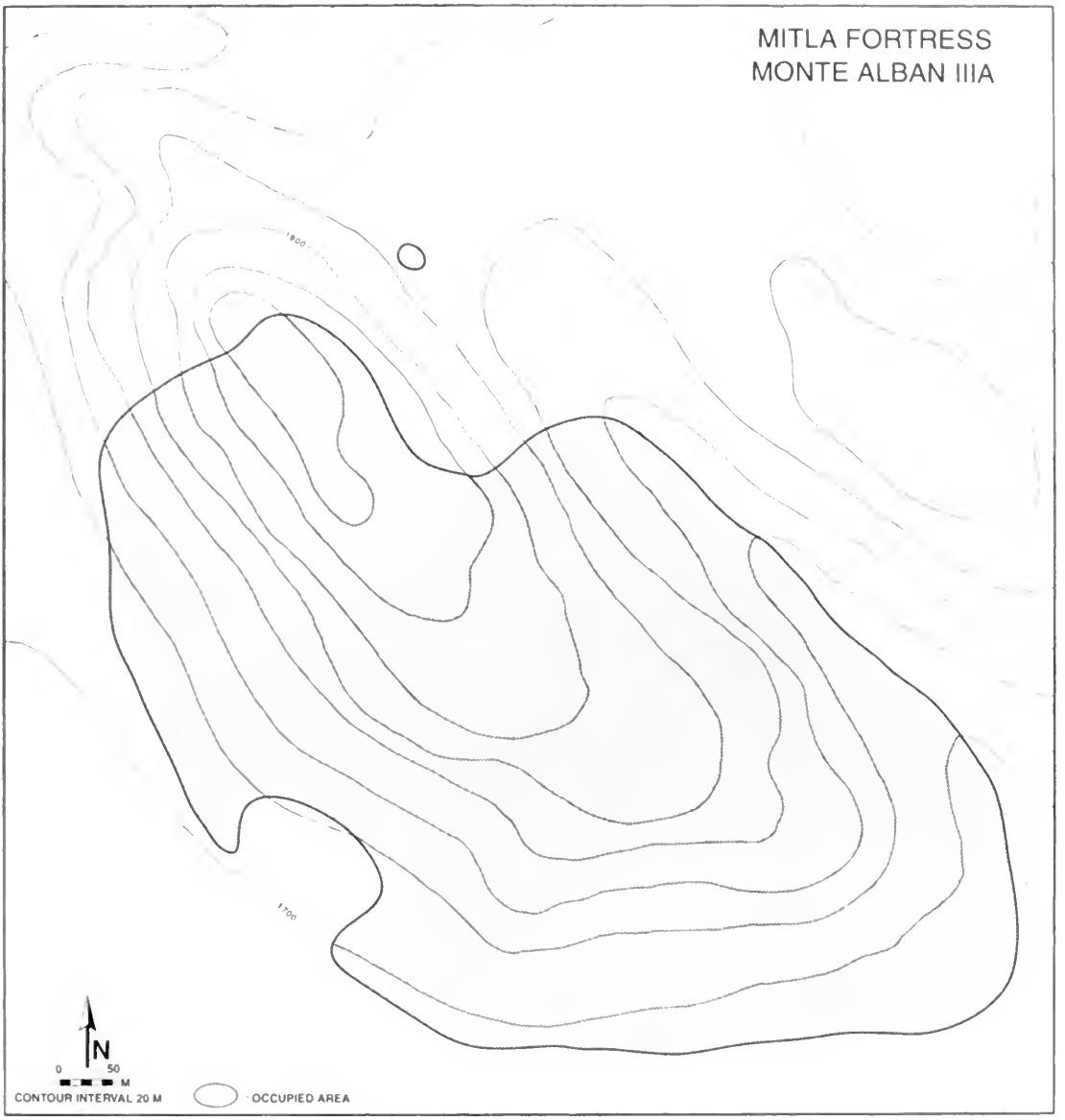


FIG. 3.13. Monte Albán IIIA occupation at the Mitla Fortress.

findings of stone working by the prehispanic inhabitants of the site. The most prevalent stone material at the fortress was chert, which constitutes more than half of the stone at the site. About a third of the stone artifacts are of obsidian; most of the rest are ground stone (Table 3.3).

Although we did record a wide variety of chert at the fortress, three local varieties constitute 75% of this stone assemblage (and two-thirds of the chipped stone cores) (Table 3.4). The settlement's prehispanic inhabitants made greatest use of the high-quality chert beds (translucent brown) that lie at the base of the hill; tools, cores, and debris from this source account for over half (51%) of the chert recorded at the fortress. Next most common are lower-quality yellow-white and white varieties (approximately 25% combined) that outcrop in rocky formations east of the fortress. The remaining varieties (over 30) were diverse and present only in very small quantities.

In our observed sample, what we loosely consider "tools" constitute 61% of the chert. Cores

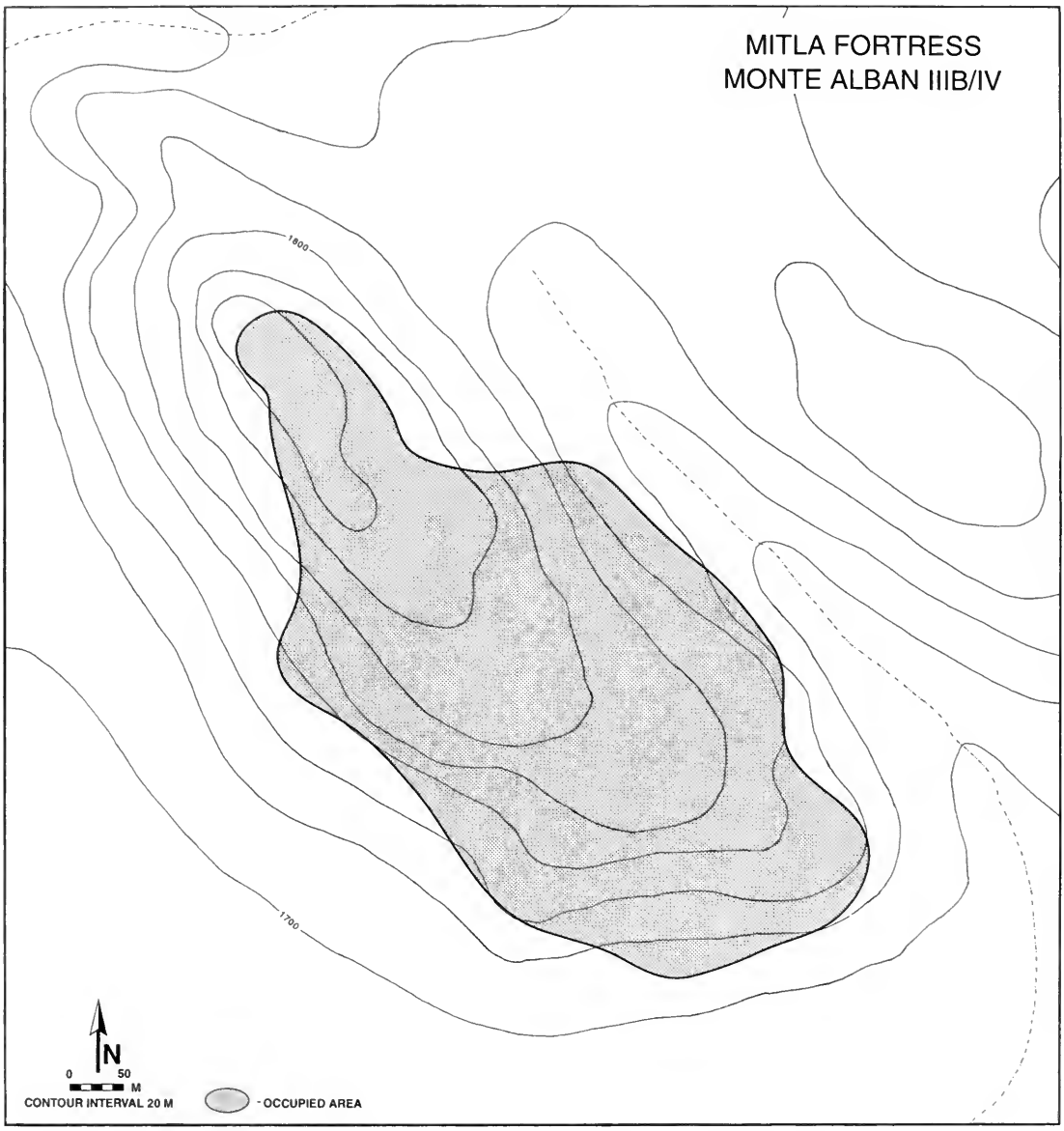


FIG. 3.14. Monte Albán IIIB/IV occupation at the Mitla Fortress.

are 17%, and unmodified flakes and other production debris make up the remaining 21% (see Table 3.4). Most of the chert tools were expedient, including utilized or retouched flakes and bifaces made largely from production debris (268 of 385 tools, 70%). Yet some chert tools were more formal, including a variety of scrapers, perforators, and projectile points. The most common scraping tools were *raspadores,* or scraper planes, that have long been noted in the dry eastern part of the valley (Hester and Heizer 1972; Robles 1994). Although most of the projectile points were finished, three were unfinished preforms, indicating that chert projectile points may have been made at the fortress. Based on the high percentage of tools to debris, it appears that initial reduction activity occurred off-site, right at the chert beds, while later stages of tool preparation or rejuvenation occurred on-site.

Distinct varieties of chert were selected as the raw material for different classes of artifacts. For example, most of the chert projectile points (20

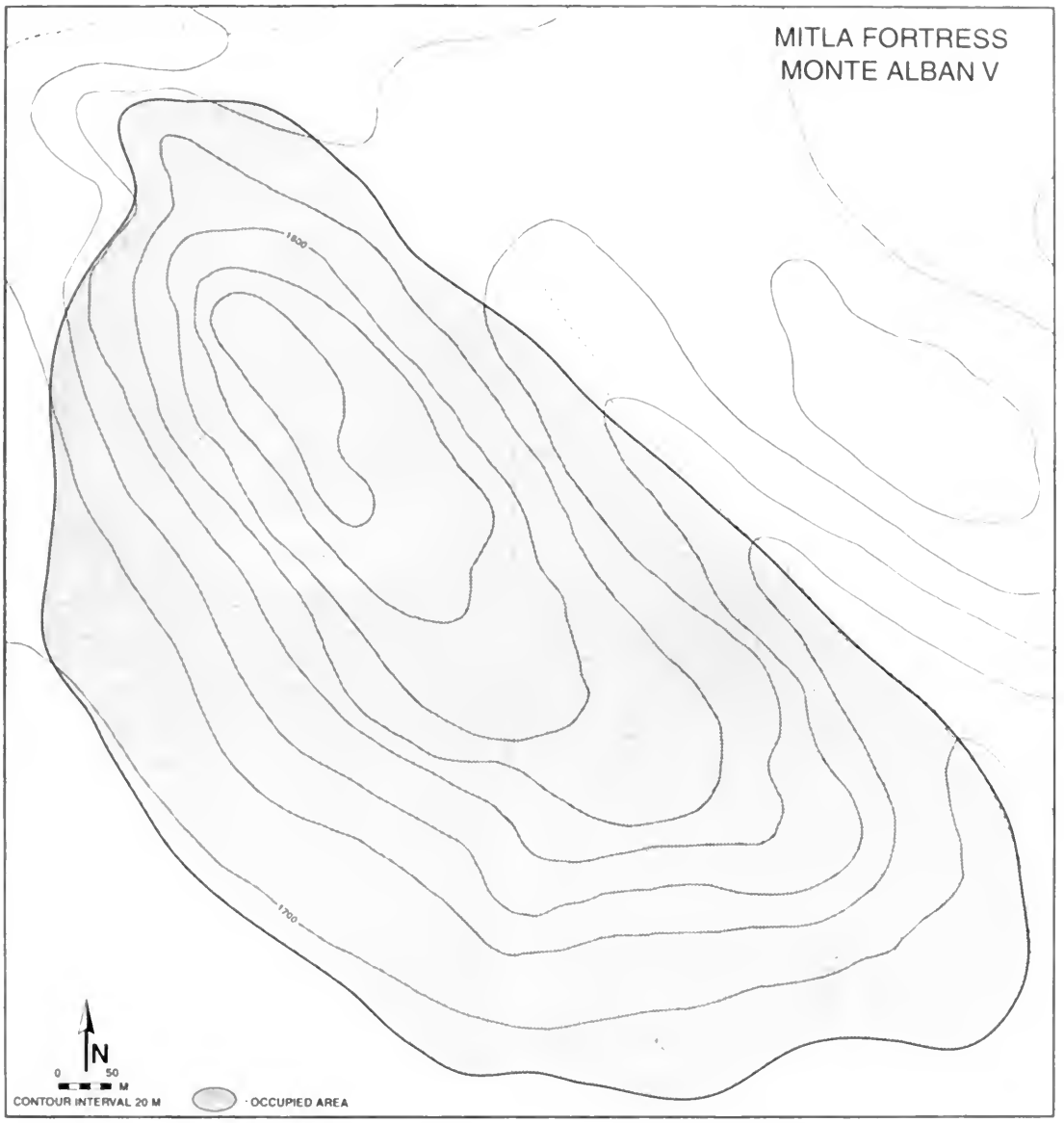


FIG. 3.15. Monte Albán V occupation at the Mitla Fortress.

out of 24), blades (8 of 10), bifaces (21 of 30), and perforators (13 of 17) were made out of material from the nearby high-quality translucent source. This high-quality chert produces tools with sharper edges (Crabtree 1967). In contrast, only one-third of the *raspadores* (11 of 31) and less than half of the scrapers (12 of 25) were made of this material. Most of these latter tools were made from the yellow-white, white, and other lower-quality stone materials. Tools made from these other cherts generally have less sharp edges, and so may have been chosen to make tools for certain tasks where sharp edges were not necessary or desired, such as for processing plant materials for fiber (Hester and Heizer 1972; Parsons and Parsons 1990). *Raspadores* have long been postulated to have been associated with maguey processing, most specifically the extraction of fiber from the plant's pulpy leaves (Hester and Heizer 1972; Robles 1994). Specialized maguey production has been documented elsewhere in prehispanic Mesoamerica (e.g., Evans 1990) and

FIG. 3.16. Closeup of huge stone defensive walls (Walls 1 and 2) on the summit of the Mitla Fortress.

has been long proposed for the eastern Valley of Oaxaca (Hester and Heizer 1972; Messer 1978: 77–80).

We also recovered ample evidence that the exotic stone, obsidian, was worked at the site. Many more "exhausted" obsidian cores (23) (Figure 3.17) and large obsidian flakes (Figure 3.18) were recovered (Table 3.5) at the fortress than at Guirún and El Palmillo combined (a total of only six cores). Although obsidian cores were found at almost 50 sites in the Valley of Oaxaca during the regional surveys, including Monte Albán, we rarely found more than one or two obsidian cores at any one site (Kowalewski et al. 1989:271–272,

TABLE 3.3. Summary of Stone Assemblages at the Mitla Fortress, Guirún, and El Palmillo

	Mitla Fortress		Guirún		El Palmillo	
Material	**Qty.**	**(%)**	**Qty.**	**(%)**	**Qty.**	**(%)**
Basalt	7	(0.6)	82	(2.7)	13	(0.6)
Bedrock	6	(0.5)	10	(0.3)	18	(0.8)
Chert	630	(54.5)	2,009	(67.0)	1,730	(74.0)
Granite	0	(0.0)	10	(0.3)	2	(0.1)
Greenstone (poor quality)	3	(0.3)	139	(4.6)	82	(3.5)
Ground stone (unidentified)	104	(9.0)	54	(1.8)	141	(6.0)
Ignimbrite	2	(0.2)	240	(8.0)	10	(0.4)
Obsidian	389	(33.6)	359	(12.0)	285	(12.2)
Quartz	1	(0.1)	3	(0.1)	4	(0.2)
Slate	2	(0.2)	0	(0.0)	7	(0.3)
Other and unidentified	13	(1.1)	93	(3.1)	47	(2.0)
Total	**1,157**		**2,999**		**2,339**	

TABLE 3.4. Chert Varieties and Functional Categories at the Mitla Fortress

Form	Translucent brown (local)	Yellow-white (local)	White (local)	Other varieties*	Total
Biface	21	3	1	5	30
Blade/knife	8	0	1	1	10
Chisel	0	0	0	1	1
Chunk	18	1	2	6	27
Cobble	4	2	0	6	12
Core	25	38	11	35	109
Hammerstone/*mazo*	2	2	0	3	7
Perforator	13	0	3	1	17
Polisher/abrader	2	0	0	0	2
Projectile point	20	0	1	3	24
Raspador	11	7	3	10	31
Scraper	12	3	2	8	25
Unmodified flake	48	18	10	21	97
Utilized/retouched flake	140	30	15	53	238
Total	**324**	**104**	**49**	**153**	**630**

* Includes all other varieties present only in low quantities.

355). During our regional survey of Ejutla we identified two sites with possible obsidian working based on the density of debris (Feinman and Nicholas 1992:90), yet at only one of these sites did we observe any cores (just three). Even during her intensive study of a sample of terraces at Jalieza, Finsten (1995:60–62) recorded only seven cores in one terrace group. Thus the number of obsidian cores recovered on the surface at the fortress is extremely unusual for the valley and would seem to indicate that exotic obsidian cores were snapped into blades on-site. The majority (19 of 23) of these cores are green (likely transported from the Pachuca source in central Mexico). Not surprisingly, the bulk of the obsidian at the fortress also was green, including nine of ten projectile points that were recovered (Figure 3.19). Based on the number of cores and the quantity of obsidian at the fortress, we suspect that some of this material was worked by selected domestic units for intrasite (and possibly intersite) exchange.

In addition to the indications for chert and obsidian working, other stone sources (*bancos de piedra*) that were readily available on the fortress itself may have been used to make the manos and metates that are prevalent at the site (Table 3.6).

FIG. 3.17. Exhausted obsidian core from Platform 100 at the Mitla Fortress.

FIG. 3.18. Large obsidian flakes from the Mitla Fortress. Left to right: Terrace 423, Terrace 420, Structure 101 (2), and Terrace 39.

TABLE 3.5. Obsidian Assemblage at the Mitla Fortress

Form	Green	Black	Gray	Clear	Total
Blade	176	50	45	1	272
Chunk	2	0	0	0	2
Core	19	3	1	0	23
Eccentric	1	0	0	0	1
Flake	39	9	30	1	79
Perforator	1	0	1	0	2
Projectile point	9	0	1	0	10
Total	**247**	**62**	**78**	**2**	**389**

Local materials likely were used for architectural construction. In contrast, there are relatively few indicators of ceramic production at the fortress. The presence of ten kiln wasters (mostly from bowls and jars), two molds, and four *moldes*—flat, roughly finished clay plates that have been traditionally used in Oaxaca to turn ceramic vessels by hand during fabrication (Foster 1959; Rice 1987:20)—would seem to indicate that at least some small-scale ceramic production was practiced on certain terraces.

Distribution of Economic Activities across the Site

Because of the multicomponent occupation on the majority of terraces at the site, detailed examination of change over time in most stone-working and other economic activities is difficult, if not impossible, in the absence of excavated contexts. We can, however, examine the distribution of productive activities across the site. Following significant physiographic features of the site, we di-

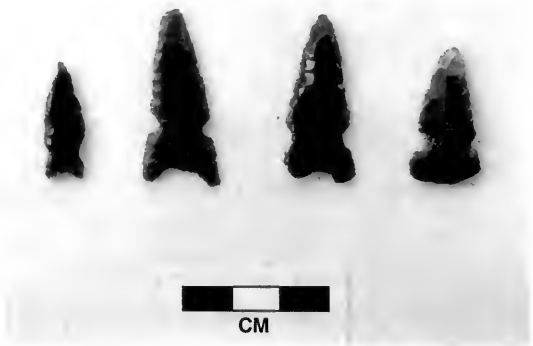


FIG. 3.19. Obsidian points from the Mitla Fortress. Left to right: Terrace 46, near Platform 28, Structure 90, and near Walls 2 and 8.

TABLE 3.6. Other Stone Materials at the Mitla Fortress

Form	Basalt	Bedrock	Greenstone	Ground Stone	Ignimbrite	Quartz	Slate	Other/ Unknown	Total
Adze	2	0	0	0	0	0	0	0	2
Cut/worked stone	0	1	3	1	1	0	0	1	7
Flake/chunk (unmodified)	3	1	0	0	0	1	0	2	7
Grinding stone/mortar	0	0	0	13	0	0	0	0	13
Hammerstone/*mazo*	1	1	0	1	0	0	1	1	5
Mano	1	2	0	39	1	0	0	0	43
Metate	0	0	0	50	0	0	0	0	50
Polisher/abrader	0	0	0	0	0	0	0	8	8
Projectile point	0	0	0	0	0	0	1	0	1
Miscellaneous object	0	1	0	0	0	0	0	1	2
Total	**7**	**6**	**3**	**104**	**2**	**1**	**2**	**13**	**138**

FIG. 3.20. Mitla Fortress site sections.

vided the fortress into seven sections: the summit (section 1); the flat ridgetop just below the summit (section 2); the front, moderately sloping southeastern face of the hill (section 3); the southern slope (section 4); the steep, rocky western slope (section 5); the northernmost slope, which includes a rocky projection just below the summit (section 6); and the eastern slope (section 7) (Figure 3.20).

Section 2 has the clearest indications of stone working, and the occupants of many terraces in this part of the site (the flat ridgetop just below the summit where 30% of the residential terraces are located) appear to have crafted stone tools from chert and obsidian. Almost half of the chert cores (52 of 109) (Figure 3.21), unmodified chert flakes (42 of 97), and chert chunks (10 of 27) that we noted were in this section (Table 3.7). This debris is widely distributed throughout the section; on only six terraces did we find more than one core. Obsidian also was worked in this section, where we observed 48% of the cores (11 of

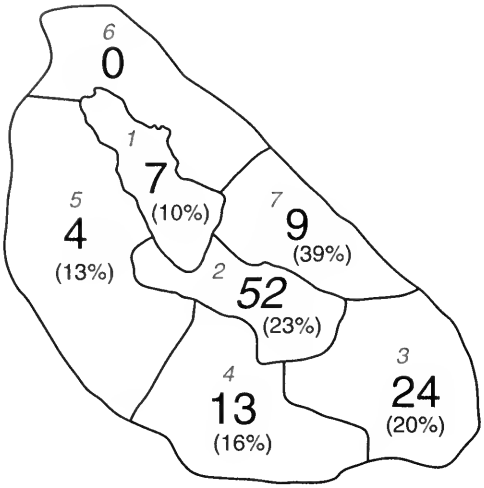


FIG. 3.21. Chert cores in each site section at the Mitla Fortress.

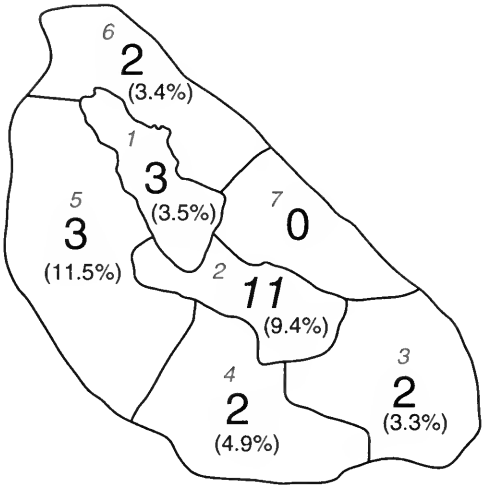


FIG. 3.22. Obsidian cores in each site section at the Mitla Fortress.

TABLE 3.7. Selected Stone Artifacts in Each Site Section at the Mitla Fortress

	1	2	3	4	5	6	7
Chert							
Biface	2	8	13	3	2	2	0
Blade/knife	1	3	3	1	1	1	0
Chunk	1	10	6	7	0	1	2
Core	7	52	24	13	4	0	9
Hammerstone/*mazo*	0	0	3	2	1	0	1
Perforator	4	5	3	1	4	0	0
Projectile point	2	7	7	4	4	0	0
Raspador	2	7	9	7	3	0	3
Scraper	4	9	3	6	2	1	0
Unmodified flake	11	42	25	10	2	5	2
Utilized/retouched flake	32	76	90	24	6	4	6
Obsidian							
Blade	61	73	46	34	13	44	1
Core	3	11	2	2	3	2	0
Flake	17	28	12	5	6	10	1
Perforator	2	0	0	0	0	0	0
Projectile point	2	5	0	0	2	1	0
Other stone							
Grinding stone/mortar	1	8	1	2	1	0	0
Hammerstone/*mazo*	0	2	0	0	1	0	2
Mano	4	16	8	8	4	2	1
Metate	27	18	1	2	2	0	0
Polisher/abrader	0	5	2	0	1	0	0
Projectile point	0	1	0	0	0	0	0

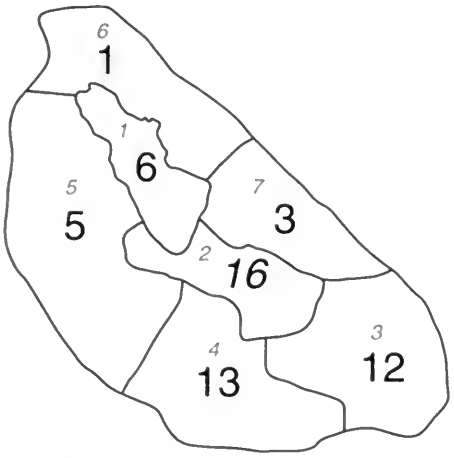


FIG. 3.23. Chert scrapers and *raspadores* in each site section at the Mitla Fortress.

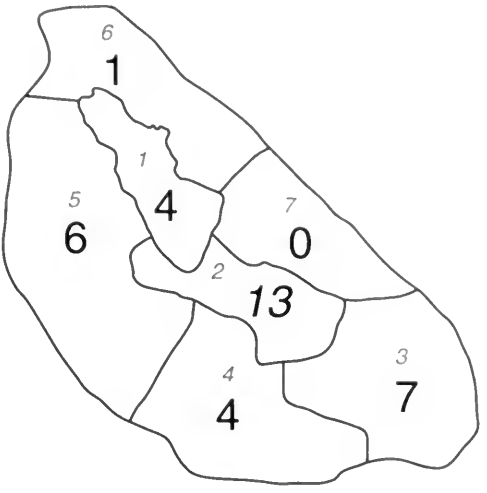


FIG. 3.24. Projectile points in each site section at the Mitla Fortress.

23) (Figure 3.22) and more than a third of the flakes (28 of 79). The obsidian may have been worked by the residents of neighboring terraces. Although no one terrace had more than one obsidian core, we did find a few cores on adjacent or nearby terraces or low platforms. In contrast, obsidian blades were much more evenly dispersed across the site (see Table 3.7).

The most common tools in section 2, as in the rest of the site, are utilized or retouched chert flakes and obsidian blades (see Table 3.7), both of which could have been used for a variety of cutting tasks. Tools with more specialized uses, especially scrapers and *raspadores*, were more abundant in this part of the site than elsewhere (Figure 3.23), as were projectile points made on a variety of stone materials (Figure 3.24). Obsidian was most abundant near the top of the ridge, in sections 1 and 2 (Table 3.8), and obsidian appears to also have been worked on the summit (section 1). Although there are only 12 residential terraces on the summit (less than 3% of all terraces), 13% of the obsidian cores and 22% of the flakes at the site were found here (see Table 3.7).

The most common tools in section 1 were utilized chert flakes, metates, and especially obsidian blades. The high number of obsidian blades (twice as many as utilized chert flakes) may partly reflect the practice of ritual activities at the ceremonial core of the site (see Table 3.7). We found low numbers of scrapers in this part of the site (see Figure 3.23) and only four projectile points (see Figure 3.24), many fewer than in section 2, just outside the huge defensive walls that guard the summit.

High-quality chert is locally available at the base of the hill (near sections 3 and 4), and it appears that residents of these sections worked a higher proportion of this chert (Table 3.9). Although we found artifacts made from the translucent brown chert in all sectors of the site, finished tools constituted a smaller proportion of this material in sections 3 and 4 than in other site sections. Over half of the translucent brown chert cores and all the point preforms were found in these two sections (Figure 3.25; see Table 3.9). The focus on the production of chert tools was especially great in section 3, where obsidian and other stone materials constituted a smaller proportion of the total stone assemblage than elsewhere on the site (see Table 3.8).

In addition to the almost ubiquitous utilized

TABLE 3.8. Stone Materials in Each Site Section at the Mitla Fortress

	1	2	3	4	5	6	7
Chert	68	225	188	80	31	15	23
Obsidian	85	117	60	41	26	58	2
Other stone	34	57	14	16	10	3	4

TABLE 3.9. Translucent Brown Chert in Each Site Section at the Mitla Fortress

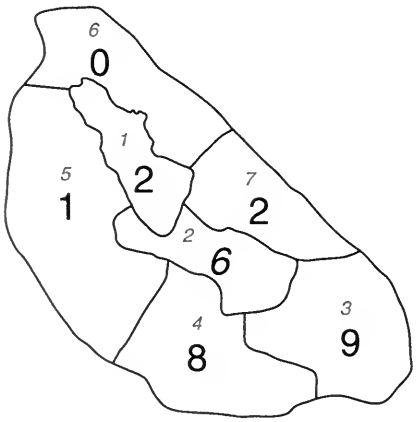
	1	2	3	4	5	6	7
Core	2	6	7	7	1	0	2
Preform	0	0	2	1	0	0	0
Formal tools	9	20	14	8	9	1	0
Total in section	**46**	**101**	**100**	**44**	**16**	**8**	**9**

chert flakes and obsidian blades, chert scrapers and *raspadores* were significant components of the stone tool assemblage in both sections 3 and 4 (see Figure 3.23). The manufacture of stone tools from the local chert sources and plant processing may have been important economic activities in these sections of the settlement.

Evidence of ceramic production was limited to four site sections, each with three to four indicators. Yet while kiln wasters, molds, and *moldes* were dispersed across sections 1 and 2, almost half of the indicators of ceramic production were concentrated in one small area on the southeastern slope that crosses the boundary between sections 3 and 4 (Figure 3.26). We found two kiln wasters and one *molde* on Terrace 343 in section 4 near the base of the hill and four kiln wasters on several nearby terraces just a bit upslope in section 3. Even in this area, though, ceramic production appears to have been enacted only occasionally and by few families, at low intensities or volumes of production.

Summary

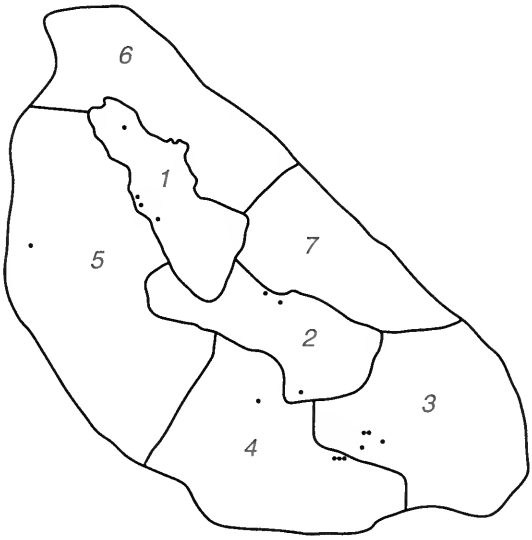
The Mitla Fortress was not just a defensive settlement or redoubt but a large settled community that was well defended. Most of the terraces were habitational, as we observed residential architecture or debris on most of them. The site had a significant occupation in Late I and was considerably larger in Monte Albán II than previously thought. Although the area over which period V ceramics were found is larger, the community was more densely settled in IIIA, when most of the terraces at the site appear to have been occupied. Period V ceramics were found around the entire circumference of the site, at a time when the encircling wall at the top also was constructed. We also recorded many walls on the site below the two very visible stone walls at the top. The discovery of these additional earlier walls, along



Site section

Number of translucent brown preforms and cores in section

FIG. 3.25. Translucent brown chert cores and preforms in each site section at the Mitla Fortress.



Site section

• Kiln waster, mold, or *molde*

FIG. 3.26. Indicators of ceramic production in each site section at the Mitla Fortress.

with many projectile points (some of which are earlier than Late Postclassic in date), indicate that the fortress had a defensive character before Monte Albán V.

The layout of most of the terraces and accessways across the fortress appear to have been planned and delineated. Many strings of terraces sharing high defensive retaining walls enclose some sectors of the site. Stairways, raised paths, and even cleaved bedrock were regularly noted in conjunction with many of the paths leading up to the summit.

The nature of the fortress changed somewhat over time. In the Early Classic, the site was a compact, seemingly densely settled town, situated in a defensible location. Later, during the Late Postclassic, the occupation was more dispersed, but massive defensive walls of stone were positioned at the hill's crest. At that time, defensive concerns shifted from a focus on the east to all directions, perhaps reflecting the "balkanization" of the valley following the fall of Monte Albán (Blanton et al. 1982:117; Kowalewski 1976:516; Kowalewski et al. 1989:317; Marcus and Flannery 1983:217).

The site also was a locus of artisanal production, with some but not all households working chert and obsidian. Given the weight of large ground stone metates, most of those tools likely also were made at the fortress. A small number of households appear to have engaged in ceramic production. Household residents and as well as the occupants of site segments (networks of adjacent houses) specialized in the production of a range of goods that were exchanged across the site and, at least for obsidian, to neighboring communities.

4

Guirún

At Guirún, remnants of prehispanic occupation are more dispersed, spread across a series of high piedmont ridges and mountain slopes at the eastern limits of the Tlacolula Valley (Figure 4.1). Most of the site is in the terrain of San Lorenzo Albarradas, located just outside the valley proper, on the eastern slope of the mountains. Small segments of the site are on land belonging to San Pablo Mitla and its *agencia*, Xaagá. The high piedmont ridges of the site descend from Cerro Guirone and range in elevation from 1900 to 2300 m. The site's location encompasses considerable topographic variety, from steep slopes that often are covered in dense vegetation to more level ridgetops that have been cleared for farming (Figure 4.2). The upper slopes are covered with pine and oak forest. Vegetation on lower slopes consists of xerophytic plants common to eastern Tlacolula that also are prevalent at the fortress and El Palmillo, although there are fewer magueys (*Agave* spp.) and no *palmillo* (*Yucca periculosa*) at Guirún.

The site is arranged with complexes of platforms and structures on virtually every natural ridgetop or flat saddle on the western slopes of Cerro Guirone (Figure 4.3). Associated with these architectural complexes are groups of terraces, often extending down the steep slopes. Bedrock outcrops are prevalent in some areas, where the natural stone was incorporated into structures and platforms; in other parts of the site, areas of high bedrock were incorporated into walls and/or used as lookouts.

The principal passes through the mountains at the eastern end of the Valley of Oaxaca are located on either side (north and south) of Cerro Guirone. Part of the site abuts the southern pass. Known as the Camino Real, this pass was a major route to the Mixe area to the east in the early 1900s. The pass is still used today by people traveling on foot or mule train between nearby areas in eastern Tlacolula and San Lorenzo Albarradas, on the eastern side of the mountains. The modern highway to the Mixe area, which bears motor vehicle traffic, follows the northern pass out of the Valley of Oaxaca and runs just below La Cuadrada, the large stone quarry at the northern end of the Guirún site.

In 1995, when we were surveying the Guirún region, we discovered that the La Cuadrada stone quarry (mentioned in some early reports; see also Robles 1992, 1994; Williams and Heizer 1965) was part of the Guirún site. This ignimbrite quarry is situated beyond the limits of the 1980 Tlacolula survey area (Figure 4.4; Feinman and Nicholas 1999), so the sherd scatter that connects this stone source to the rest of Guirún was previously undocumented. During the 1996 survey of Guirún, we also discovered additional chert sources on or near the site. Overall, at least a dozen quarries and stone sources are encompassed by the site or are situated nearby. These include the ignimbrite quarry (La Cuadrada) as well as several sources of low-quality greenstone, basalt, other construction stone, and several varieties of chert. The chert sources at Guirún, most of which are poor-quality white varieties, are lower in quality than the translucent brown chert at the Mitla Fortress.

Guirún, like El Palmillo and the fortress, is situated in the rain shadow created by the high mountains at the eastern edge of the valley. Rainstorms that move in from the east often drop

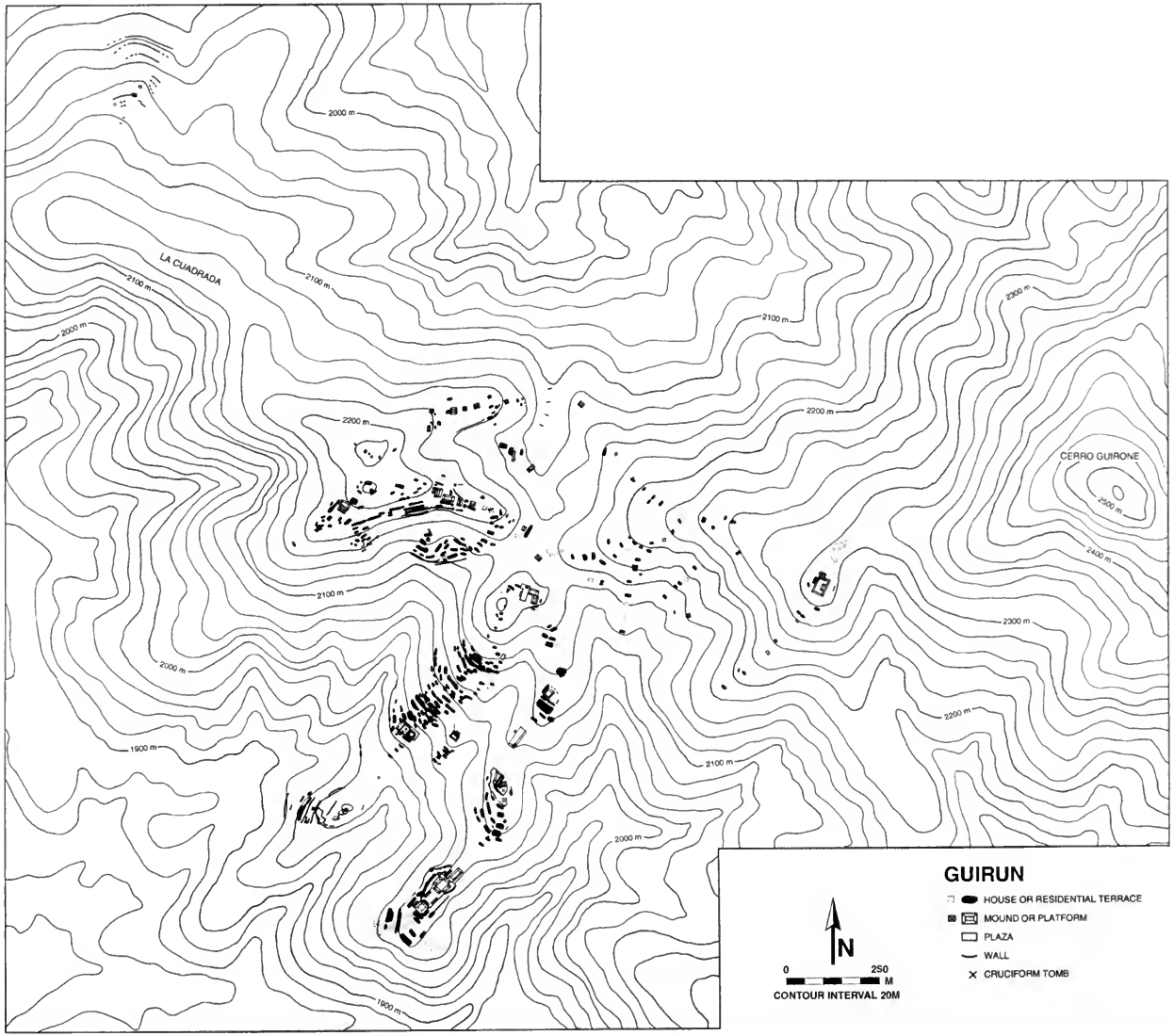


FIG. 4.1. Site map of Guirún.

FIG. 4.2. The northern terraced ridge at Guirún, viewed from the southwest.

much of their moisture on the eastern side of the mountains. Yet situated right below Cerro Guirone, which often is shrouded in clouds during the rainy season, Guirún receives slightly more rainfall than either El Palmillo or the fortress, as some of the rain precipitated by Cerro Guirone falls on the site and nearby slopes. Runoff from the mountains also flows down gullies and small streams that cross the site, and larger expanses of the site (compared to the others) are used agriculturally today. Some of the flatter slopes and ridgetops have been farmed continuously for decades; this is not the case at the other two sites. On some of the terraced slopes at Guirún, many ancient terraces have been rebuilt or modified for modern agricultural use, at least in part because there is little other flat farmland in the vicinity. Nevertheless, one sees more maize at Guirún than at the other two sites.

General Survey Findings

The best-preserved terraces at Guirún are on steeper slopes that today are covered in dense xerophytic vegetation. Although this setting made mapping difficult, the vegetation and steep slopes have protected and preserved the terraces. On some of the flatter ridgetops and shallower slopes, more extensive, recent farming activities have partially damaged terraces. Thus the 330 terraces that we mapped and recorded at Guirún during the intensive survey are a conservative or minimum estimate (see Figure 4.1; Appendix 5.a). Some terraces were too destroyed to obtain accurate measurements; we approximated the size of 35 partially destroyed terraces and placed them on the map without assigning them numbers. In a few areas it appeared that some terraces had been entirely plowed under for modern agriculture, although we still generally found scattered building stones and other domestic trash. The actual number of terraces at Guirún was probably somewhere between 365 and 400.

Although terraces at Guirún are larger than those at the Mitla Fortress and El Palmillo, most (61%) are still less than 100 m^2 (Figure 4.5). Fewer than 15% are 200 m^2 or larger, and only five are larger than 450 m^2, the average for terraces with "nonelaborate" residences at Monte Albán (Blanton 1978:68). The largest terraces at Guirún are located on lower ridgetops, surrounding the

FIG. 4.3. The four-mound group and ball court on a lower ridge at Guirún, viewed from the northwest.

site's most monumental architecture. The smallest terraces were positioned on the highest ridges of the site. These ridges are not necessarily the steepest, so while terrace size in part reflects topography, it also may be related to proximity of the features to the architectural core of the site.

At Guirún, 36 mounds and structures were mapped (Appendix 5.b), along with 51 platforms (Appendix 5.c), nine plazas or patios (Appendix 5.d), and numerous small house foundations. The site's public architecture includes a well-preserved ball court with an associated four-mound group and two-room temple in addition to the two tomb complexes noted by the early explorers (Figures 4.6 and 4.7; see Appendices 2.c and 2.d). Although many house foundations were situated on terraces, others were placed on natural flat spots along the ridgetops.

We mapped 64 walls and wall segments at Guirún, some over 80 m long (Appendix 5.e). None of these walls (most of which were only partially preserved or hidden by dense vegetation) were mapped during the regional survey. In general only the most obvious and visible ancient walls, such as those at the Mitla Fortress or at Corona Grande in the Etla arm of the valley (Elam 1989: 395), were mapped during the regional surveys (we also noted and mapped huge defensive walls at sites like Llego Yiachi and Nueve Puntas in the Guirún area survey region in 1995).

Although we mapped fewer walls at Guirún than at the other two sites, the residents of Guirún still were concerned with defense. The gullies and steep vegetated slopes that descend the ridgetops make access into the site's core difficult from certain directions. Walls were not really necessary to make the site defensible where the topography was forbidding. That is, many of the stone walls that we mapped at the site block or direct traffic at the routes of easiest access up to the site. The identification of the defensive features at Guirún in conjunction with the difficult access into the site reveals an even greater concern with defense at this site than we previously suspected based on the regional surveys.

FIG. 4.4. Cut stone blocks still visible at La Cuadrada 100 years after Saville's early photographs.

Occupational History

During the intensive surface study of Guirún we identified small occupations of Monte Albán Late I and II that had not been noted during the prior regional surveys. We found Late I ceramics on two terraces (Terraces 55 and 58) in a middle part of the site (Figure 4.8, Table 4.1). The total area of the site during this early occupation was less than 0.2 ha, with an estimated population of only 10–20 people (Table 4.2). The Monte Albán II occupation was more dispersed and only a bit larger. We found period II ceramics in six small, discrete areas of the site (on Terraces 41, 58, 115, 263, and 268, and Platform 21) (Figure 4.9) and estimate the population as roughly 35–70 people. The total occupied area was less than 0.4 ha.

During Monte Albán Late I and II, the largest sites in the Guirún region were situated on the eastern side of the mountains (outside the valley proper); most were positioned on defensible promontories above the Hormiga Colorada (Feinman and Nicholas 1996, 1999). Although the earliest occupations at Guirún, in Monte Albán Late I and II, clearly were situated in defensible or elevated locations, we suspect that most defensive walls at the site were not constructed until later as these features are not in close association with the earliest inhabited terraces.

In 1995, as part of the regional survey of the Guirún region, we located a larger Monte Albán Late I/II site at the base of Guirún near a natural spring (and the modern *ranchito* of El Zompantli). This settlement, along with many other Monte Albán I and II settlements just beyond the eastern end of Tlacolula, was abandoned during Monte Albán IIIA (Feinman and Nicholas 1996). At that time, the more defensible Guirún settlement (situated well above the valley floor) expanded greatly in size, spreading over the two longest, lowest (and most densely occupied) ridges of the site (Figure 4.10). In the Early Classic, the settlement covered almost 50 ha, many times larger than all the earlier Guirún occupation plus the El Zompantli site combined. In all, 280 residential terraces were inhabited during IIIA, and the estimated population of the site was between 1650 and 3300 people.

In Monte Albán IIIA, as many as 25 public buildings and platforms were constructed, includ-

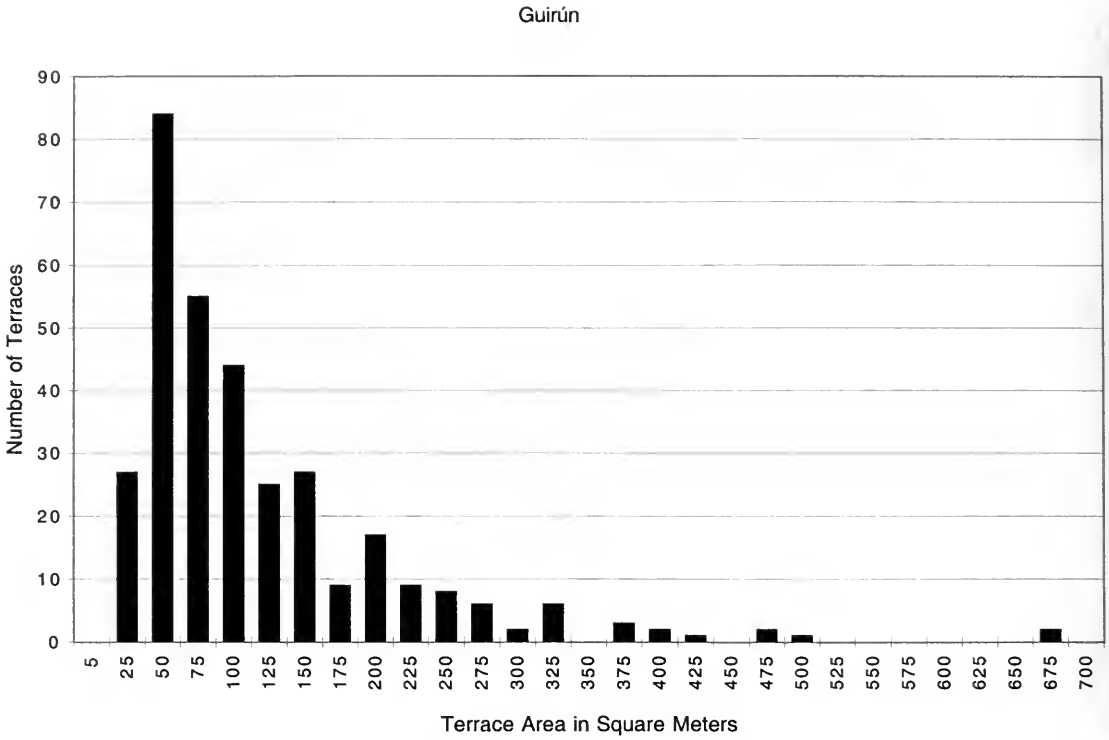


FIG. 4.5. Histogram of terrace size at Guirún.

ing the major architectural complex that includes the ball court (see Appendix 2.c). The only other site in eastern Tlacolula that rivaled Guirún in areal size (estimated population) or architecture in IIIA was El Palmillo.

Defensive features were first constructed at Guirún during Monte Albán IIIA, coincident with its rise as a major population center in eastern Tlacolula. Many of the slopes below the ridgetops where most of the terraces are located are very steep and almost impassable. Additional defensive features were not really necessary in these areas. Rather, many of the walls constructed during IIIA obstructed the paths of easier access to the ridgetops (Appendix 2.a). Other walls were incorporated into the major architectural complexes, such as the one that included the ball court (Appendix 2.c). These walls may have been positioned as much to limit or control access as for defensive considerations.

Guirún increased in size during Monte Albán IIIB/IV (Figure 4.11), expanding up the slope toward Cerro Guirone to cover almost 80 ha. The number of walls increased to more than 50, implying a growing concern with defense coincident with the imminent and eventual decline of Monte Albán and the buildup of population in the Tlacolula arm of the valley.

Most (325) of the residential terraces at Guirún were occupied in Monte Albán IIIB/IV. The estimated population for the site ranges between 1945 and 3890, and it became the dominant center in the southeastern part of Tlacolula. Most of the monumental public architecture constructed in IIIA appears to have remained in use, while many new low platforms were constructed at the higher reaches of the site, which were newly settled at this time. Based on surface studies alone, we cannot discern the different uses or functions of these low structures as compared to the more monumental structures that were built earlier.

The area of the site increased further in Monte Albán V, and the limits of the settlement expanded to include the La Cuadrada stone quarry at the north end of the ridge system (Figure 4.12). Based on earlier research (Robles 1994), we know that the quarry was exploited during this period. As in Monte Albán IIIB/IV, the Monte Albán V occupation was concentrated in the more defensible parts of the site, and new walls (increasing to over

FIG. 4.6. East structure (Structure 13) of the four-mound plaza group at Guirún.

60) were erected in areas only associated with Monte Albán V pottery (Appendix 2.i).

The lower portions of Guirún, the area around the ball court and the open cruciform tomb (excavated by Marshall Saville almost a century ago), appear to have been less densely settled in Monte Albán V (most of the surface pottery here is earlier in date). Based on the architectural alignments, the carved stone tomb and an associated curvilinear wall appear to have been added to an architectural complex that was principally constructed and more heavily used during a prior era (Appendix 2.d). These findings may help explain why the artifacts associated with Saville's Guirún collections (curated at the American Museum of Natural History in New York) are mostly Monte Albán IIIB/IV in date (rather than Monte Albán V). Somewhat at odds with the pottery, the carved cruciform stone tomb was constructed in a style much more typical of Monte Albán V, and perhaps it was never finished. Yet the apparent anomaly could be explained if the stone tomb was a late addition to an earlier architectural complex, much like the Postclassic reuse of Monte Albán's Tomb 7, which had been constructed in an earlier era (Caso 1969).

Although the spatial extent of Guirún was larger in Monte Albán V than in IIIB/IV, covering almost 120 ha (including La Cuadrada), fewer terraces were occupied (only 278), so that the estimated population decreased slightly to 1857–3800. Although Guirún was the dominant site in eastern Tlacolula in Monte Albán IIIB/IV, the settlement was eclipsed in size (population) and the monumentality of its architecture by Mitla in Monte Albán V. By the end of that period, the La Cuadrada quarry was supplying giant stone blocks for the construction of the civic-ceremonial buildings at Mitla.

Site Layout and Defensive Nature

The residents of Guirún placed complexes of platforms or structures on virtually every natural ridgetop or flat saddle on the steep ridge system de-

FIG. 4.7. Overgrown open cruciform tomb at Guirún.

scending the western face of Cerro Guirone (see Figure 4.1). Groups of terraces were associated with most of these complexes. Because of the nature of the site's topography, many of these terrace clusters form discrete, separate units, unlike the more compact settlement at the other two sites, which makes comparisons among site segments a bit more straightforward at Guirún (see Figure 4.13 for site sections).

The densest concentrations of terraces are in section IB (El Paderón, Appendix 2.b), on one of the lower slopes, and section III (El Zacatal, Appendix 2.f), on the ridgetop above the quarry, followed by sections IIA (Appendix 2.c) and IIB (Appendix 2.d). Three of these sections also have the largest and most complex architecture at the site, including the closed cruciform tomb and associated platform with adobe structures in section IB (Figure 4.14), a ball court and adjacent four-mound group with a two-room temple in section IIA, and the open cruciform tomb with carved stone *grecas* in section IIB (Figure 4.15). El Zacatal (section III) lacks the grand architecture of these other site sections; rather it is characterized by a series of low platforms situated along flat ridgetops.

Terraces were more dispersed in section IV (just below Cerro Guirone, Appendices 2.g, 2.h). Although this is the highest part of the site (up to 2320 m), many of the ridgetops are wider and flatter than in other sectors of the site. Terraces here have been more disturbed by modern agriculture and so are more difficult to measure accurately.

From the Early Classic period on, the ancient settlement of Guirún was defended. Yet the nature of defensive features varied in different sections of the site in accordance with topography and the nature of the occupation. The most distinctive characteristic of section IA is the presence of a series of low walls that protected one of the easiest routes into the site (Appendix 2.a). A section of wall between walls 12 and 13 was especially built up, possibly serving as a gate or sentry post guarding an entryway. There were few residential terraces in this section. We mapped a series of low walls on another relatively easy route to the site, a wide low ridge that descends to the north from La Cuadrada (Appendix 2.i). These walls were lower than those in section IA and were poorly preserved. The absence of terraces in this area (and the scarcity of ceramics on the surface) indicates less intensive occupation (and perhaps a

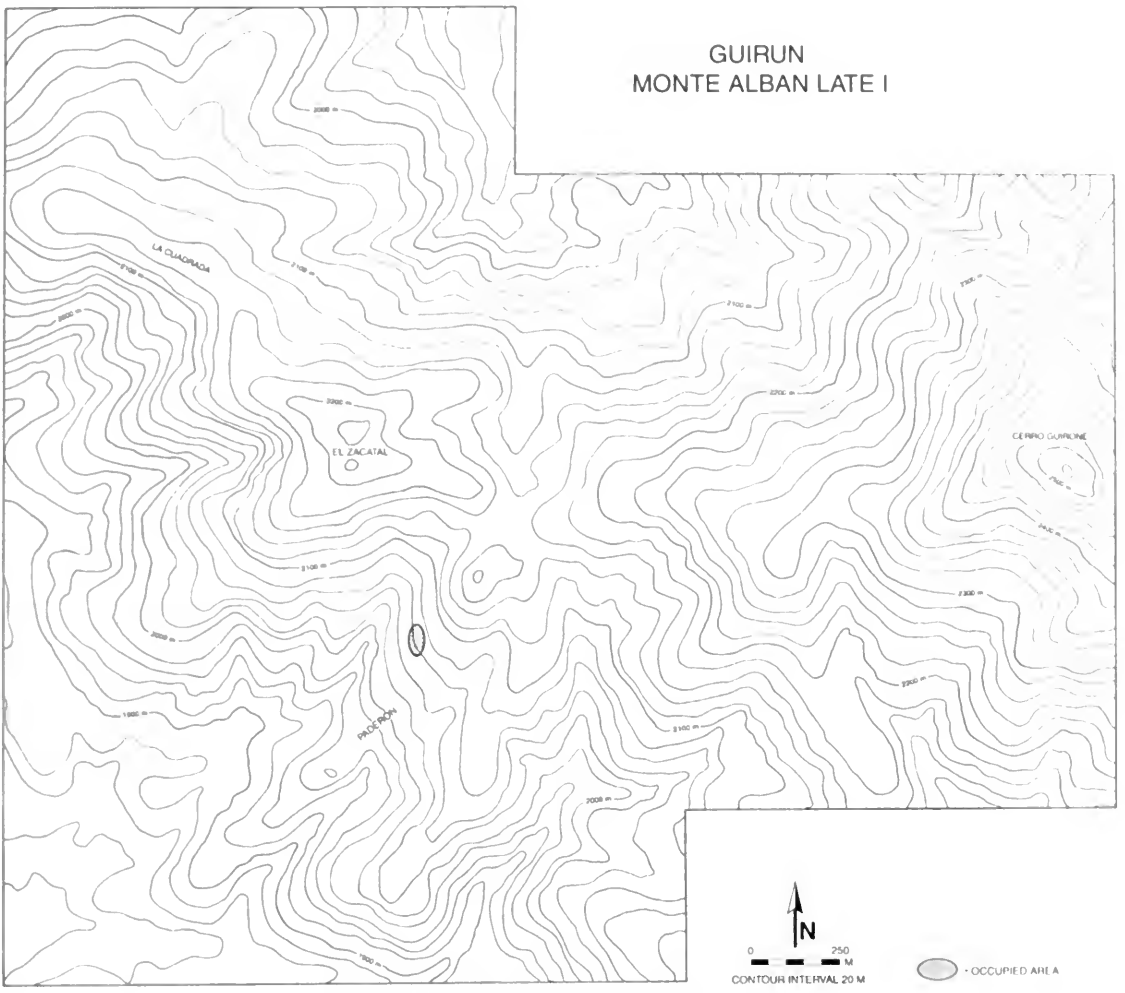


FIG. 4.8. Monte Albán Late I occupation at Guirún.

reduced concern with defense) than elsewhere in the settlement.

The most impressive walls are situated in sections IIA, associated with the architectural complex containing the ball court (Appendix 2.c), and IIB, encircling the platform on which the open cruciform tomb was placed (Appendix 2.d). Section III (El Zacatal) was especially well defended through a combination of steep, inaccessible cliffs and a series of defensive walls (Appendix 2.f). Several substantial and well-preserved walls in this section (especially Walls 42 and 43) guarded a complex of residential terraces and low platforms situated along the top of El Zacatal, while two long low walls (Walls 48 and 49) that are poorly preserved today protected a series of terraces on a lower slope.

Economic Specialization at Guirún

There is extensive evidence of stone working—of both chert and bedrock (ignimbrite)—at Guirún (see also Robles 1994). Stone debris, especially chert (see Table 3.3), was often more abundant on the surface than were ceramic artifacts. Chert also was the most prevalent stone material at the site, accounting for 67% of stone materials on the surface, followed by obsidian at 12%, ignimbrite at

TABLE 4.1. Architectural Features at Guirún by Phase

Phase	Terraces	Structures	Platforms	Plazas	Stairs	Walls
Monte Albán Late I	2	0	0	0	0	0
Monte Albán II	5	0	1	0	0	0
Monte Albán IIIA	280	29	39	9	8	38
Monte Albán IIIB/IV	325	33	48	9	8	54
Monte Albán V	278	36	51	9	8	64

8%, and a low-quality greenstone (used largely for construction) at 5%.

Chert materials at Guirún are very diverse. We categorized 45 different varieties; the most common nine varieties, however, constitute 90% of the chert (Table 4.3). Chert from local sources dominates the stone assemblage at Guirún to a greater degree than at the Mitla Fortress. Of the nine most common chert varieties, eight are from sources located on or within a kilometer of the site. Except for two speckled varieties of chert, which are of fair (but not the highest) quality, the others are of relatively poor quality. The last of the most common varieties is a translucent chert of very good quality that is not from the immediate vicinity. Some of the nonlocal chert (including the most common translucent variety) comes from several sources in the mountainous area east of Guirún; some also may have come from the Mitla Fortress (brown translucent chert) and El Palmillo (rose-red chert). These are visual identifications only, however, and so should not be considered definitive.

Only a small proportion of the chert artifacts at the site are tools, about 23% (Tables 4.3 and 4.4). These tools range from *raspadores* (scraper planes, see Hester and Heizer 1972) (Figure 4.16), scrapers (Figure 4.17), projectile points, blades, and perforators to informal, expedient tools including unifaces, bifaces, and retouched or utilized flakes. Much more common are unmodified flakes and chunks and production debris including rough cores and decortification flakes (77% of the chert assemblage). Local cherts also account for the greatest proportion of the production debris, including most of the cores (see Table 4.3).

Although the majority of tools (including expedient ones) and debris on the site are from local cherts, the predominance of local chert is much greater in debris and production categories (92% of all chert debris) than for tools (73% of all tools) (Table 4.4). Looked at another way, finished tools represent 49% of all nonlocal chert on site (or 66% of high-quality nonlocal chert), and only 19% of all local chert (or 11% of the poor-quality local chert). Chert debris displays just the opposite pattern, making up 75% of local chert assemblage (84% of poor-quality local varieties) and only 44% of all nonlocal chert (23% of the high-quality nonlocal cherts). Thus it appears that most high-quality nonlocal cherts were traded to Guirún as finished or nearly finished objects, while chert from local and other lower-quality nonlocal sources were reduced and worked, at least partially, on site at Guirún. Tools and other local chert materials may have been traded to other settlements.

The most common chert tools at Guirún are expedient (75% of all tools), usually flakes that were utilized or retouched. Of the more formal tools,

TABLE 4.2. Guirún Population Estimates and Site Size by Phase

Phase	Population Range*	Population Based on Site Area†	Size (ha)
Monte Albán Late I	10–20		0.2
Monte Albán II	35–70		0.4
Monte Albán IIIA	1650–3300	1181–2363	47.3
Monte Albán IIIB/IV	1945–3890	1988–3975	79.5
Monte Albán V	1857–3800	1708–3330	97.6‡

* Based on number of occupied terraces.

† Based on site area using terrace density figures for IIIA and IIIB/IV. Nonterrace density was used for parts of the site in V.

‡ Does not include La Cuadrada.

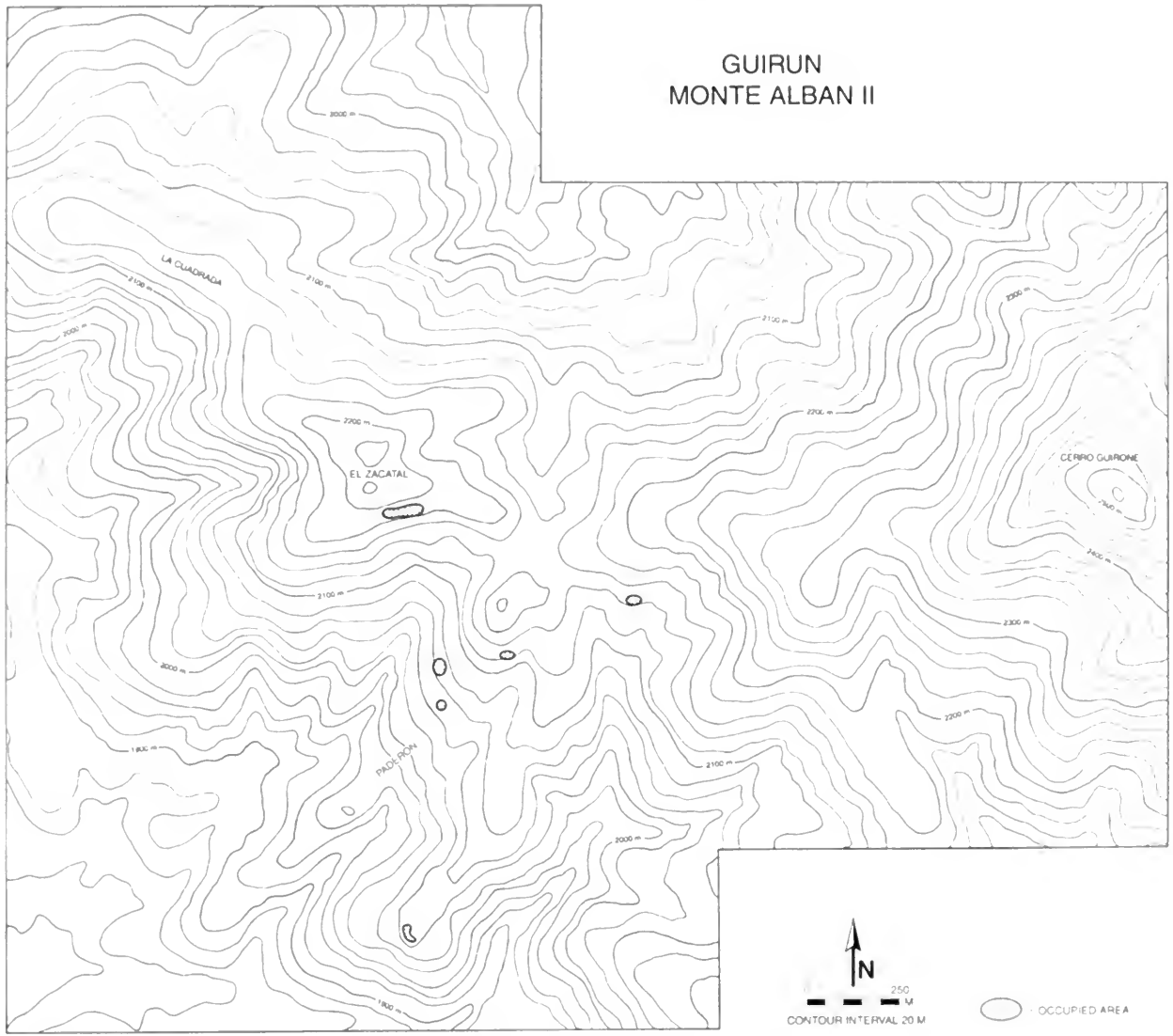


FIG. 4.9. Monte Albán II occupation at Guirún.

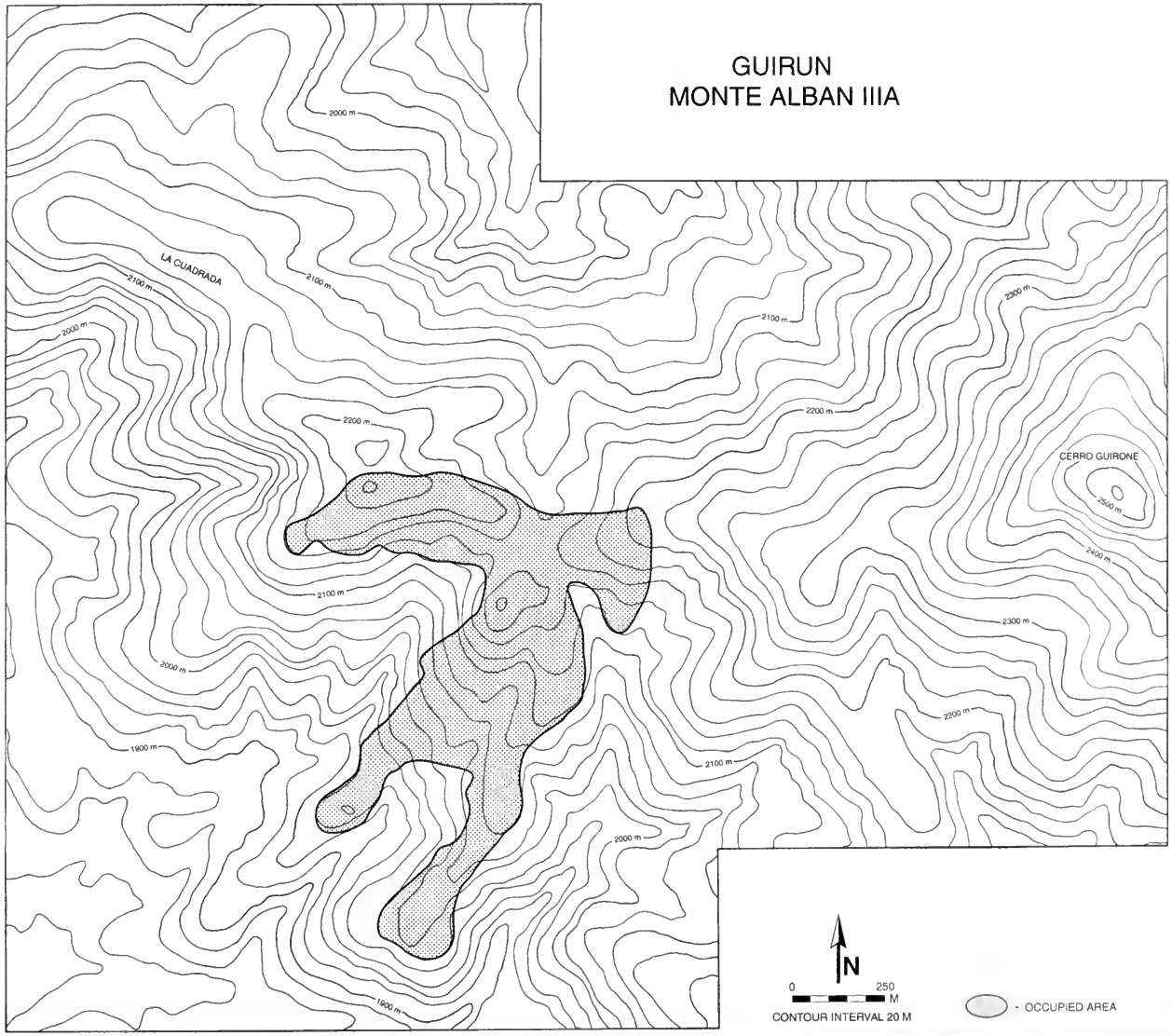


FIG. 4.10. Monte Albán IIIA occupation at Guirún.

FIG. 4.11. Monte Albán IIIB/IV occupation at Guirún.

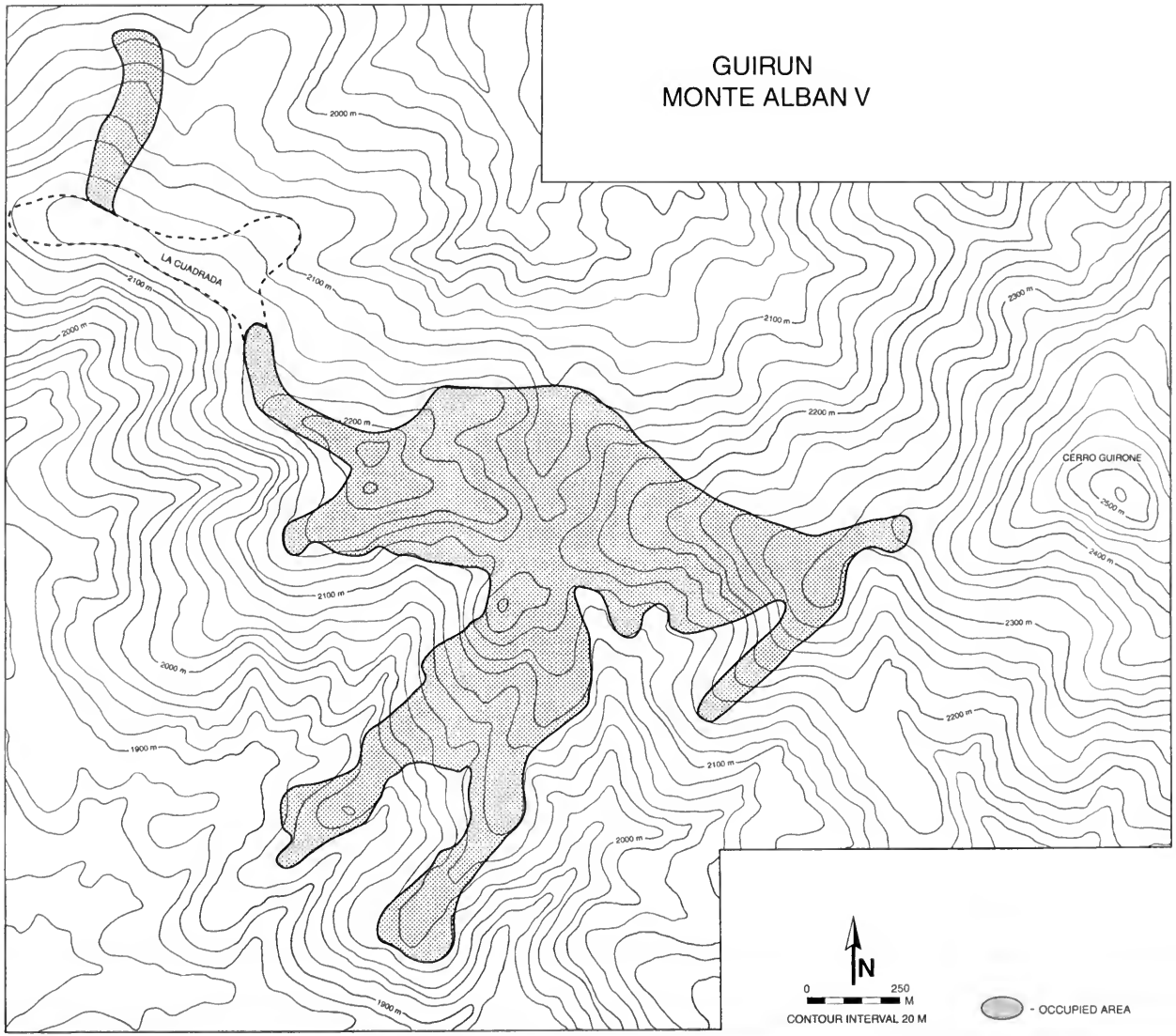


FIG. 4.12. Monte Albán V occupation at Guirún.

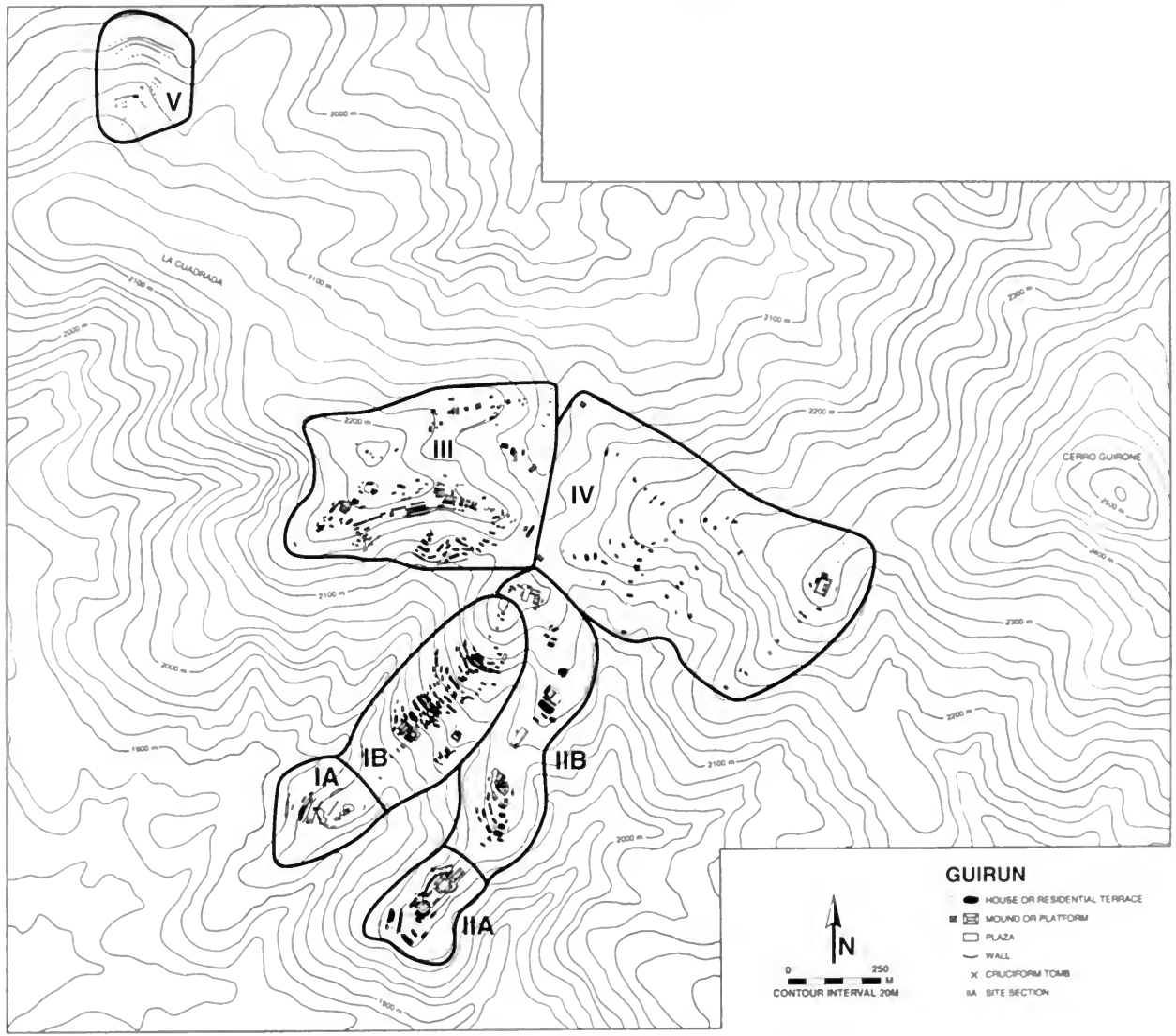


FIG. 4.13. Site sections at Guirún.

FIG. 4.14. Standing adobe walls above the enclosed cruciform tomb in the El Paderón section (IB) of Guirún.

raspadores and scrapers are most common (see Table 4.3). Because so little of the chert at Guirún comes from high-quality sources (only about 3.3%), most of the tools (90%) are made from lower-quality chert. Comparing those tools with the 10% made from high-quality cherts, we see apparent differences in which varieties were chosen to make which tools. For several tool categories, more than 10% of the implements on site were struck from higher-quality chert, especially bifaces, perforators, projectile points, and scrapers. Yet only one *raspador* (out of 40, 2.5%) was made from such sources. As we saw at the Mitla Fortress, lower-quality materials were selected for these coarser scraping tools, which may have been used for processing plant materials where a sharper edge was not required or preferred.

Although obsidian was abundant on the site, working this exotic material does not appear to have been a significant economic pursuit, especially compared to the fortress. Most of the obsidian pieces recovered at Guirún are blades (304 out of 359 pieces, or about 85%) (Table 4.5). Although we did find two cores (one black and one gray), indicating that some blades may have been made on site, most blades, even the gray and black ones that dominate the assemblage, appear to have arrived at the site in finished form. Only 10% of Guirún's obsidian was green, while 15% was clear obsidian (rare at the other two sites); these proportions by color are starkly different than at the fortress where green obsidian predominated. Thus it would appear that the inhabitants of each site had their own web of exchange connections.

Compared to chert, fewer pieces of ignimbrite and greenstone (Table 4.6) were observed on the surface at Guirún. Yet given the nature of these materials, we believe they also were worked at the site. Over 80% of the ignimbrite, and almost 90% of the greenstone, were in the form of chunks, flakes, or other rough pieces that were removed from outcrops; finished artifacts in these materials were rarely recovered. Most of the scatters of surface ignimbrite were recorded from the vicinity of the La Cuadrada quarry at the north edge of the site. At the same time, much of the stone used in residential and public constructions

FIG. 4.15. Carved *grecas* still visible in the open cruciform tomb at Guirún.

at the site was made from this same material. Several varieties of low-quality greenstone in the area also were used for construction stones, including cut stone blocks that we recognized on site. Much of the chert debris found on the site appears to be related to working the stone from the local quarries. Chert cobbles, hammerstones, and smaller debris have been found in high quantities near the cut stone blocks still in place at the quarry (Robles 1994). Working and cutting the natural stone would have produced large amounts of chert debris. At Guirún, more than 70% of the observed chert is composed of cobbles, chunks, and unmodified flakes, compared to only 21% at both the fortress and El Palmillo.

In contrast to ample surface indications for stone working, we recovered relatively few artifactual signs of ceramic production, only nine kiln wasters (including two urn wasters), three mold fragments, and one fired clay concretion. While some ceramics were made at the site, production was probably of low intensity, mostly for local use rather than for longer-distance exchanges. The only marine shells we observed at Guirún (one formed bead and one bracelet fragment) were obtained through exchange as already finished ornaments.

Distribution of Economic Activities across the Site

Similar to the other hilltop sites, many terraces were occupied for more than one phase, and we cannot make in-depth temporal comparisons of how economic activities shifted over time. There are, however, spatial patterns in stone materials and tool and debris categories that indicate that the residents of different site segments engaged in distinct sets of activities and possibly, at times, were part of somewhat different exchange spheres.

For example, chert from local sources dominated the chert assemblages of those terraces located near their respective sources; the abundance of most chert varieties dropped off with distance from the source. Much of the local chert at Guirún

TABLE 4.3. Chert Varieties and Functional Categories at Guirún

	Poor-Quality Local						Good-Quality Local		High-Quality Nonlocal			Nonlocal		
Form	**Black**	**White**	**Rose-White**	**Red**	**Wine**	**Gray**	**Speckled Gray-White**	**Speckled Yellow-White**	**Translucent**	**Translucent Brown (MF)**	**Other***	**(El P) Rose**	**Other Varieties†**	**Total‡**
Biface	3	0	6	0	0	4	11	9	5	1	0	1	6	46
Blade	3	0	0	0	0	0	1	2	0	0	0	0	0	6
Chisel	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Chunk	67	564	7	9	3	6	74	10	4	0	1	4	19	768
Cobble	0	9	3	2	0	0	0	0	2	0	0	0	1	17
Core	11	27	1	2	5	0	8	6	5	0	0	1	12	78
Decortification flake	3	7	1	0	3	0	8	6	0	1	0	0	7	36
Hammerstone/*mazo*	1	8	0	0	1	1	1	2	0	0	0	0	4	18
Hoe	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Perforator	0	1	2	0	0	0	1	2	2	0	0	0	0	8
Preform	0	0	0	0	0	0	1	1	0	0	0	1	1	4
Projectile point	0	2	0	0	0	1	2	0	0	0	1	0	1	7
Raspador	2	1	0	0	2	0	14	8	0	1	0	0	12	40
Scraper	3	3	0	0	0	1	7	5	5	0	0	0	8	32
Uniface	3	1	4	0	1	3	4	5	1	0	0	0	4	26
Unmodified flake	38	298	27	17	6	18	84	31	4	3	1	2	55	584
Utilized flake	18	21	30	0	6	10	64	43	19	1	6	3	36	257
Cut/worked stone	0	3	0	0	1	0	0	0	1	0	0	0	3	8
Total	**152**	**947**	**81**	**30**	**28**	**44**	**280**	**130**	**48**	**7**	**9**	**12**	**169**	**1937**

Abbreviations: MF, Mitla Fortress; El P, El Palmillo.
* Includes several other rare varieties.
† Includes all other varieties present in low quantities.
‡ Does not include stone with no description in notes.

TABLE 4.4. Local and Nonlocal Chert at Guirún

Type	All Tools	Cores and Decortification Flakes	Other Debris	Misc. Objects	Total
Poor-quality local	144	60	1074	4	1282
Good-quality local	183	28	199	0	410
High-quality nonlocal	42	6	15	1	64
Other nonlocal	77	20	81	3	181
Total	**446**	**114**	**1369**	**8**	**1937**

is not of high quality, and stone workers appear to have mostly exploited the nearest source.

Obsidian varieties also were distributed unevenly across the site. Because all obsidian found in the Valley of Oaxaca was imported, proximity to sources was not the key factor; the distributional patterns point more to the participation of different sectors of the site in distinct exchange networks. For example, although black and gray obsidian (which together account for 75% of the obsidian on site) were fairly evenly dispersed at Guirún, these color varieties more heavily dominate the obsidian assemblages in three site sections (IIA, IIB, and III; Figure 4.18). In contrast, the other color varieties (70% of the green obsidian and 75% of the clear) were heavily concentrated in one site section (IB, El Paderón; Table 4.7).

Several site sections have greater quantities of specific stone materials or a wider range of stone materials than would be expected based on the size of that site segment or the number of residential features in it. Section IB (El Paderón) had the highest amount and the greatest variety of chert and obsidian of any site section (Table 4.8), more than would be expected based on its size alone. Although there is little evidence that obsidian was worked to any significant degree at Guirún, this section had high densities of chert production debris. Over half of the chert cores (Figure 4.19) and two-thirds of the decortification flakes (see Table 4.8), as well as high quantities of unmodified flakes and chunks (Figure 4.20), were noted here. Expedient implements made from production debris dominate the chert tool assemblage (Figure 4.21); over half of the bifaces and unifaces at the site were found in this site sector (see Table 4.8). The expedient chert tools and the abundant obsidian blades (half of all blades at the site were found in this section, see Table 4.8) could have been used for a variety of cutting purposes. The obsidian blades were widely dispersed and were not concentrated around the monumental buildings as might have been expected if their primary use was ritual.

In addition to working local cherts, residents of El Paderón also shaped the poor-quality, soft greenstone that outcrops in the area. Over a third of the greenstone debris on site is found in this

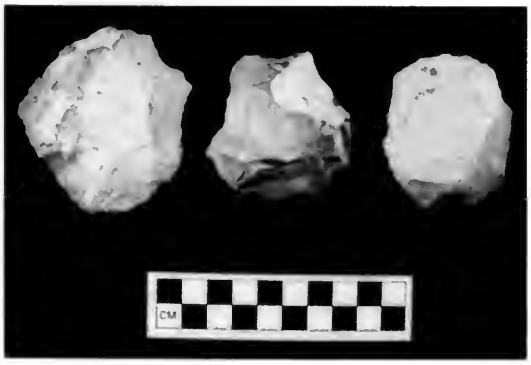


FIG. 4.16. Chert *raspadores* from Guirún. Left to right: Terrace 83, Terrace 8, and Terrace 123.

FIG. 4.17. Chert scrapers from Guirún. Top left to bottom right: Plaza E (2), Terrace 53, Terrace 18, Terrace 165, and Terrace 28.

TABLE 4.5. Obsidian Assemblage at Guirún

Form	Green	Black	Gray	Clear	Total
Blade	30	92	133	49	304
Core	0	1	1	0	2
Flake	4	13	30	2	49
Perforator	0	0	1	2	3
Projectile point	0	0	1	0	1
Total	**34**	**106**	**166**	**53**	**359**

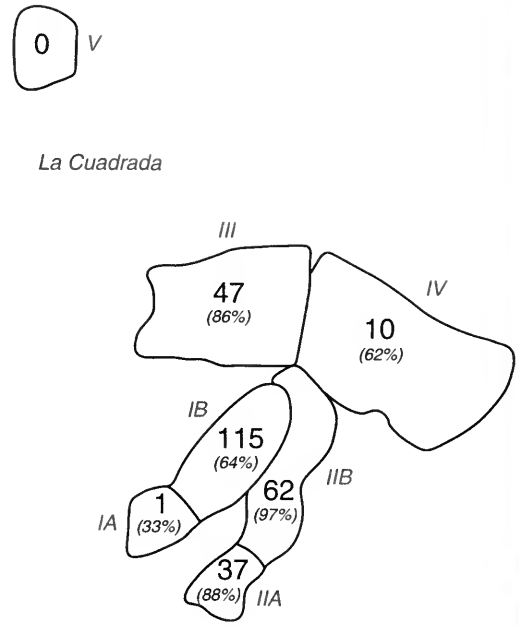


FIG. 4.18. Black and gray obsidian in each site section at Guirún.

section (see Table 4.7). At least some of the chert debris in the section likely resulted from using chert implements to fashion greenstone into rectangular blocks that were incorporated into structure foundations.

Section IB (El Paderón) includes one of the major complexes of public architecture at the site and also was the most densely occupied site sector in all phases. Thus without excavation it is hard to say whether the abundance of stone reflects a longer or denser history of occupation in this section of the site or a higher intensity of stone tool production than found elsewhere.

The quantity and variety of chert in the other site sections with monumental architecture, section IIA (ball court) and IIB (carved stone tomb), was more in line with what might be expected relative to size and the number of terraces. Production debris was abundant relative to the number of tools observed, so some stone working also may have been carried out in these sections. Yet there were proportionally fewer cores (see Figure 4.19), chunks, and unmodified flakes (see Figure 4.20) in section IIB and also more finished and nearly finished tools (scrapers, *raspadores,* perforators, blades, hammerstones) than in any other part of the settlement (Figure 4.22, see Table 4.8). Households in IIB may have been involved in such activities as the finer processing of stone materials for a variety of purposes and/or the use of chert scraping tools in plant processing or wood

TABLE 4.6. Other Stone Materials at Guirún

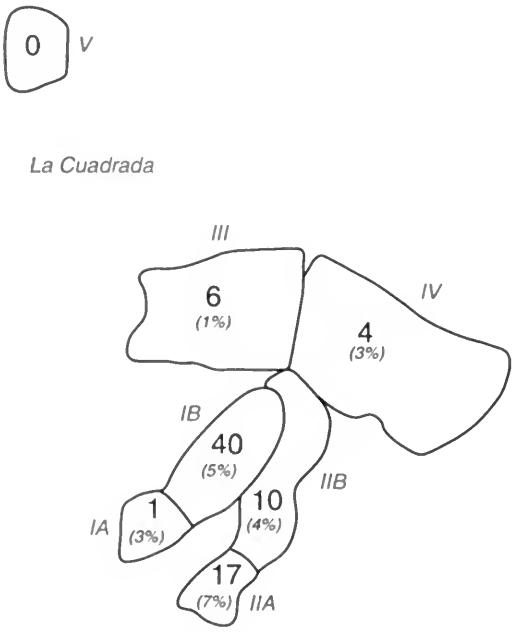
Form	Basalt	Bedrock	Granite	Green-tone	Ground Stone	Ignim-brite	Quartz	Other/ Unknown	Total
Adze	5	0	1	0	0	0	0	0	6
Axe	8	0	0	1	0	0	0	1	10
Core	3	0	0	0	0	0	0	0	3
Cut/worked stone	3	2	0	10	4	25	0	51	95
Flake/chunk (unmodified)	46	1	3	125	0	197	3	1	376
Grinding stone/mortar	0	0	0	0	0	1	0	0	1
Hammerstone/*mazo*	5	2	1	1	0	2	0	22	33
Mano	6	1	2	0	27	3	0	0	39
Metate	1	0	2	0	21	0	0	1	25
Polisher/abrader	1	2	0	0	0	0	0	7	10
Miscellaneous object	4	2	1	2	2	12	0	10	33
Total	**82**	**10**	**10**	**139**	**54**	**240**	**3**	**93**	**631**

TABLE 4.7. Stone Materials in Each Site Section at Guirún

Type	IA	IB	IIA	IIB	III	IV	V
Black obsidian	0	28	15	30	26	7	0
Clear obsidian	0	40	2	0	7	4	0
Gray obsidian	1	87	22	32	21	3	0
Green obsidian	2	24	3	2	1	2	0
Chert	32	782	230	261	566	134	4
Ignimbrite	1	30	151	36	10	10	0
Greenstone	0	51	0	5	4	80	0

working. Two-thirds of the *raspadores* in this section were concentrated on several terraces near the unfinished cruciform tomb, so processing xerophytic plants may have been an important economic activity for some but not all households. As in most site sections, obsidian blades also composed a significant proportion of the finished stone tools (see Table 4.8).

Given the higher proportion of expedient tools, especially utilized flakes and bifaces, in section IIA, around the ball court (see Figure 4.21), it is more difficult to ascertain how the tools were used. The quantity of ignimbrite in this section, however, was much higher than expected (151 of 238 pieces on site, not including La Cuadrada), and it appears that households in section IIA were more involved in working ignimbrite than inhabitants of other site sections. The major source of ignimbrite, including cut blocks of the material, is La Cuadrada, a long distance from section IIA. Thus the ignimbrite may have been shaped by some of the residents of section IIA who brought chunks of the material from its sources to their house lots for processing and

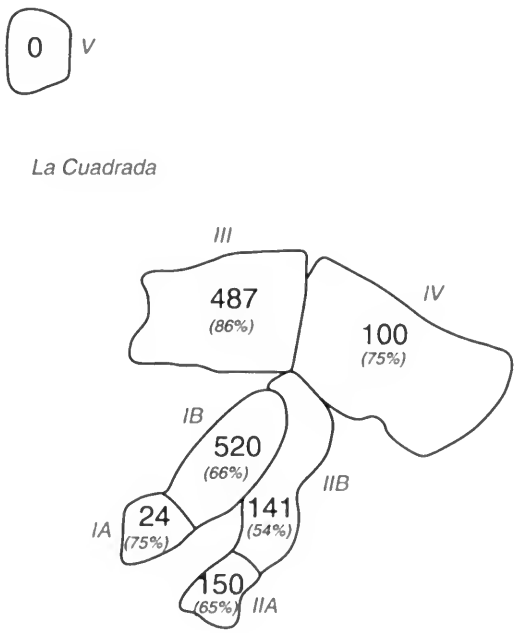


Site section

Number of chert cores in section

(%) Cores as % of all chert in section

FIG. 4.19. Chert cores in each site section at Guirún.



Site section

Number of chert chunks and flakes in section

(%) Chunks and flakes as % of all chert in section

FIG. 4.20. Chert production debris in each site section at Guirún.

TABLE 4.8. Selected Stone Artifacts in Each Site Section at Guirún

	IA	IB	IIA	IIB	III	IV	V
Chert							
Biface/uniface	0	38	15	8	8	3	0
Blade/knife	0	2	0	2	2	0	0
Chunk	6	277	65	80	326	73	0
Core	1	40	17	10	6	4	0
Decortification flake	4	24	1	7	0	0	0
Hammerstone/*mazo*	1	3	0	4	7	3	0
Hoe	0	0	0	0	0	1	0
Perforator	0	2	0	3	2	0	0
Projectile point	0	2	3	0	1	1	0
Raspador	0	13	3	12	6	5	1
Scraper	0	9	3	15	4	1	0
Unmodified flake	18	243	85	61	161	27	0
Utilized/retouched flake	2	121	38	45	36	13	2
Obsidian							
Blade	1	148	34	57	50	14	0
Core	0	0	0	1	1	0	0
Flake	2	28	9	5	4	1	0
Perforator	0	2	0	0	0	1	0
Projectile point	0	1	0	0	0	0	0
Other stone							
Hammerstone/*mazo*	1	8	6	6	2	10	0
Mano	0	25	4	4	3	3	0
Metate	1	5	4	4	7	4	0
Polisher/abrader	0	3	0	2	4	1	0

finishing. In contrast, almost 60% of the greenstone debris on site was noted in section IV (see Table 4.7), so this locally available material may have been worked there.

Overall, stone working activities were rather heterogeneously distributed across the site. Given the scarcity of flat farmland around the site and estimated populations that may have exceeded 2000 people during the Classic and Postclassic periods, we suspect that the occupants of Guirún partially supported themselves through the processing and exchange of a diversity of stone artifacts and construction materials. Certainly, in the Late Postclassic period, workers at La Cuadrada supplied quarried and shaped stone blocks to Mitla (Robles 1994).

In contrast, ceramic production was limited to just a few areas at the site, with most indicators of pottery manufacture concentrated in two adjacent sections on one of the lower ridges. Three kiln wasters (all from bowls) and one mold were found in section IB, indicating that a few households there may have engaged in the low-volume production of utilitarian ceramics in addition to working chert and greenstone. In section IA, we found a mold fragment, a clay concretion, and two wasters from urns in one small area. There are few indicators of any other economic activities in that sector.

Summary

Guirún was a larger late prehispanic population center than we thought prior to completing the intensive survey. Although we knew from the regional surveys that a major episode of demographic expansion occurred in IIIA, the settlement also was inhabited earlier than we had suspected. We also have found that defensive features, especially walls, were much more prevalent at Guirún than had been documented by regional survey crews. Curiously, the least guarded entry into the site was down the slopes of Cerro Guirone, which run east of the site and outside the valley system. On the valley side, potential access points were blocked or constrained. So the residents of Guirún at various times may have had defensive concerns that were directed both inward and outward from central Oaxaca.

Through the intensive survey we also have

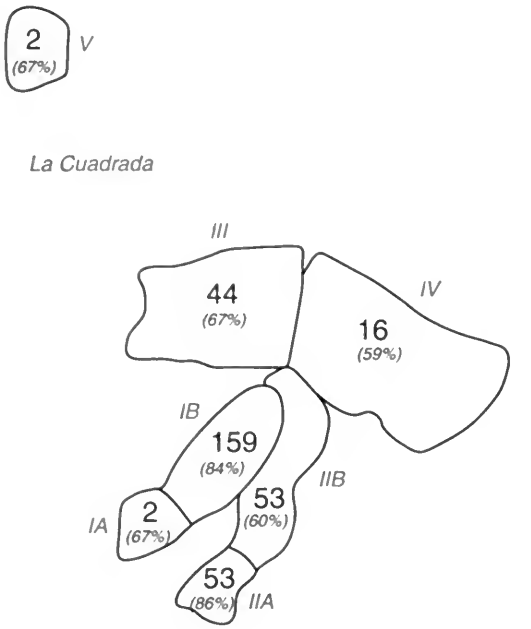


FIG. 4.21. Expedient chert tools in each site section at Guirún.

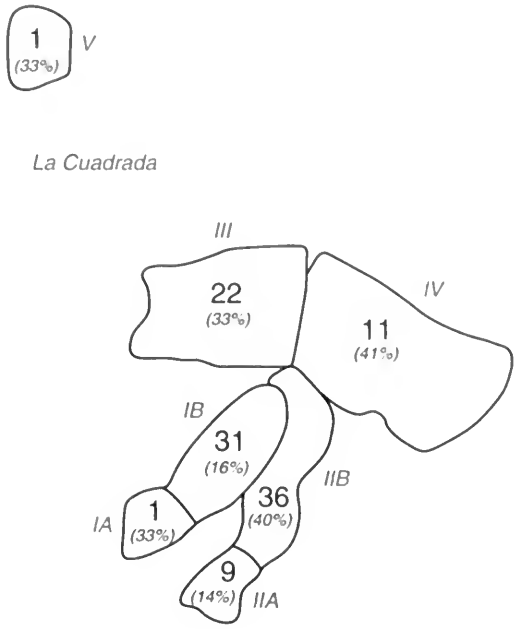


FIG. 4.22. Formal chert tools in each site section at Guirún.

learned that the site expanded to engulf the La Cuadrada stone quarry at the north edge of the interconnected ridge during Monte Albán V. This discovery bolsters the already clear association with various kinds of stone working that we see at Guirún. It also is in concert with the ridgetop presence of the magnificent carved stone tomb that was erected late in the site's occupational history and has long been a bit of an interpretive puzzle for archaeologists (Saville 1900, 1909).

The quarrying of the natural bedrock from the La Cuadrada source and the fashioning of tools from local chert sources were principal economic activities at Guirún. Stone from the quarry was cut into large blocks to be used for constructions not only at Guirún but probably for many of the public buildings in Mitla (see Robles 1994).

Chert from local sources dominated the stone assemblage. Yet a wide variety of chert from other, more distant sources also was recorded at Guirún. Some of these off-site sources are situated east of Guirún, while other cherts appear to have come from eastern Tlacolula, possibly from the Mitla Fortress and El Palmillo. Although stone tools from local cherts were made at the site, La Guirún's inhabitants appear to have obtained nonlocal chert, much of it as already finished tools (or prepared cores), through exchange, along with obsidian and marine shell.

5

El Palmillo

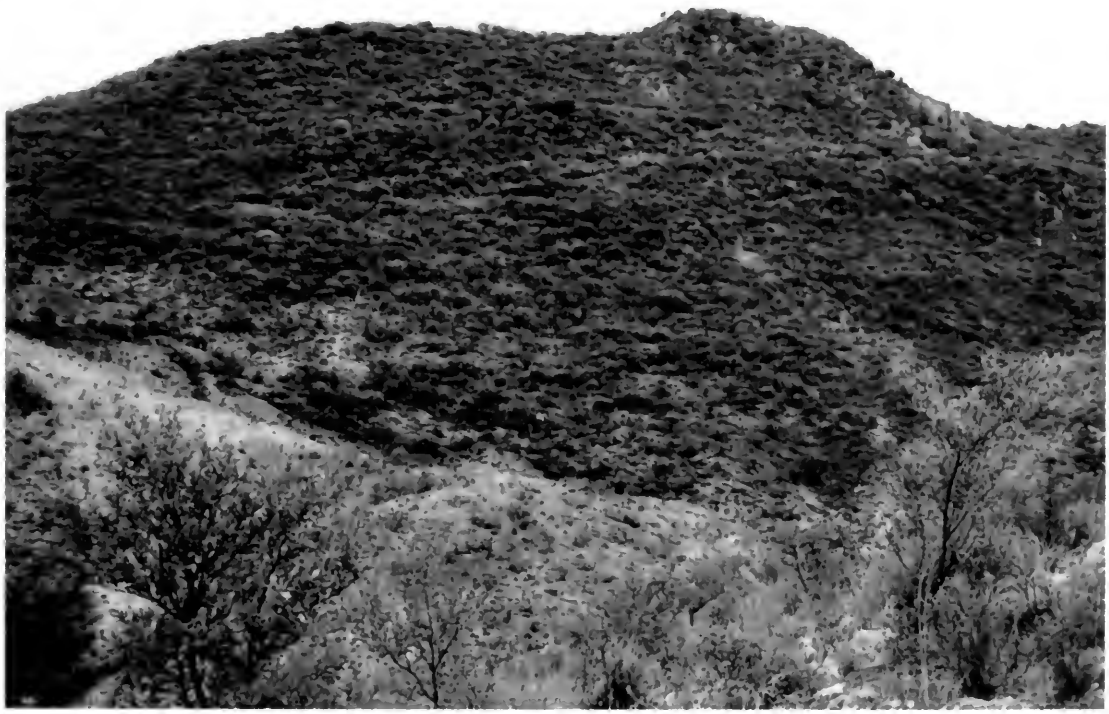


FIG. 5.1. The western slope of El Palmillo's northern ridge.

El Palmillo is situated between 1760 and 2010 m on the top and slopes of a steep, high piedmont ridge in the terrain of Santiago Matatlán at the southeastern edge of the Tlacolula Valley (Figure 5.1). Like the Mitla Fortress, the site is positioned mostly on one rocky ridge that is difficult to scale from most directions. This landform connects to one of the many ridges that descend from Nueve Puntas.

The top of the rocky ridge is separated into two parts by a low saddle (Figure 5.2). Bedrock outcrops over much of the larger, northern hill, which

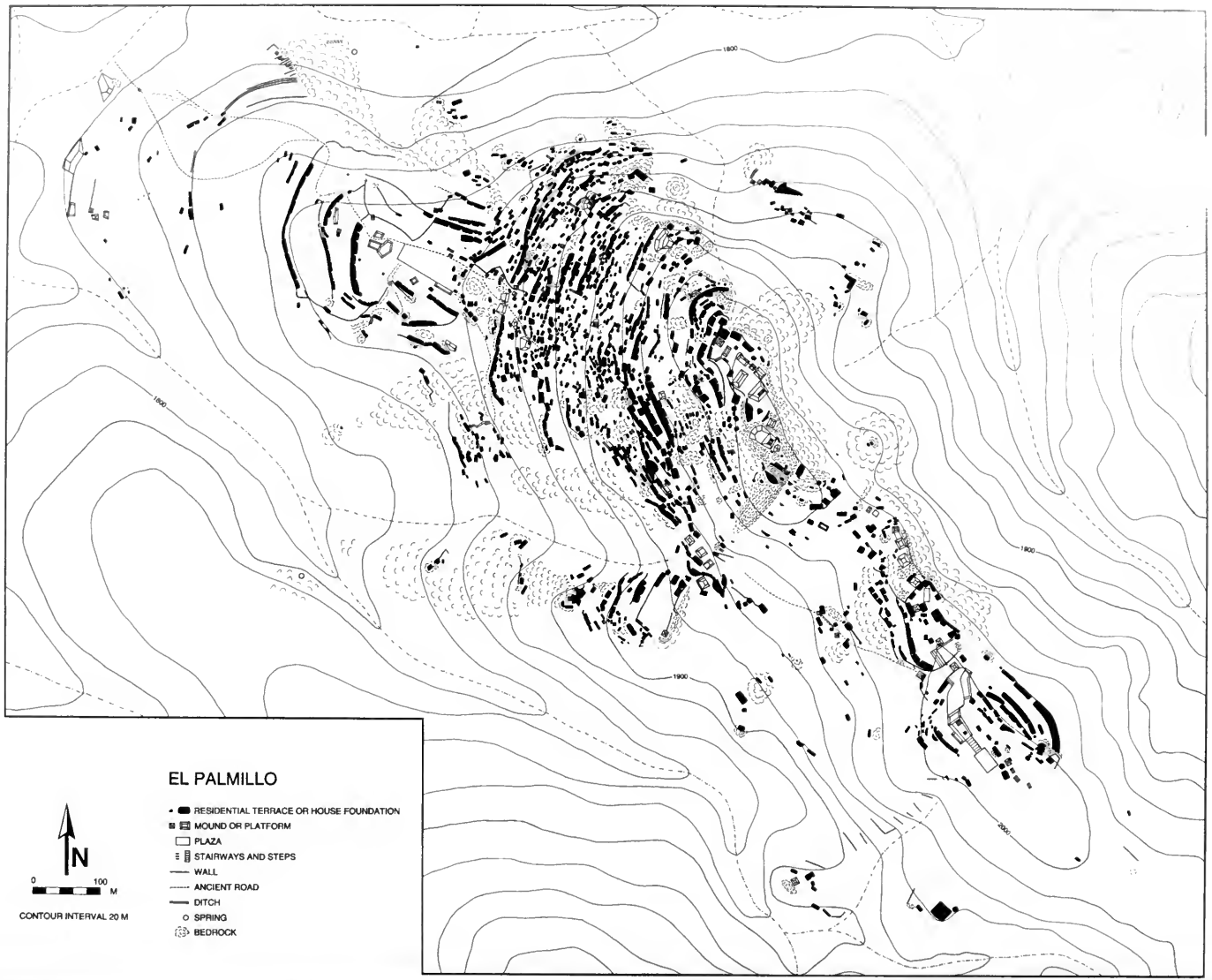


FIG. 5.2. Site map of El Palmillo.

FIG. 5.3. The steep, rocky cliff on the eastern side of El Palmillo, viewed from the northeast.

also is the highest part of the site. Most of the site's public architecture was built on this ridgetop, often incorporating the natural bedrock. On the north and east the bedrock forms steep, almost vertical cliffs that are extremely difficult to scale (Figure 5.3). In a few areas along this eastern face, the rock outcrops appear scarred or quarried. If such activities occurred, they not only provided a source of construction stone but also made ascent and descent along this face more rugged. The western slope of the hill is less steep and provides the easiest access. Most of the terraces at the site were constructed on this slope, many of which were carved out of and around exposed bedrock. At the bottom of this western slope is a low, rounded, flat-topped piedmont spur, with many fewer terraces, that descends to the west (Figure 5.4).

The smaller, southern ridgetop is flatter and has fewer bedrock outcrops (Figure 5.5). Access to this part of the site, which has fewer large public buildings and terraces than the northern ridge, is difficult because of deep gullies and very steep, vegetated slopes. This part of the site is reached by first passing through the saddle to the north or by coming down the ridge line from Nueve Puntas to the south.

There are a variety of chert sources dispersed across the site; many of these deposits are laced in small veins that crisscross the exposed bedrock. Other sources are found near the base of the hill. Most of the chert sources at El Palmillo are not of high quality. The most common variety found on site is a very low-quality yellow-white. Another is dull red chert, found in small veins on the main, western slope of the hill. The latter is of variable (but mostly low) quality (Figure 5.6).

Although there are several small streams at the foot of the hill, the most reliable water at El Palmillo comes from two natural year-round springs located at the base of the hill, one to the north, the other to the southeast. Several small springs in bedrock outcroppings on the hill dry up during the height of the dry season but provide small amounts of water during the rest of the year.

Most of the site is covered in dense xerophytic vegetation, including *huizache* and *uña de gato* (*Acacia* spp.), *mala mujer* (*Cnidoscolus urens*),

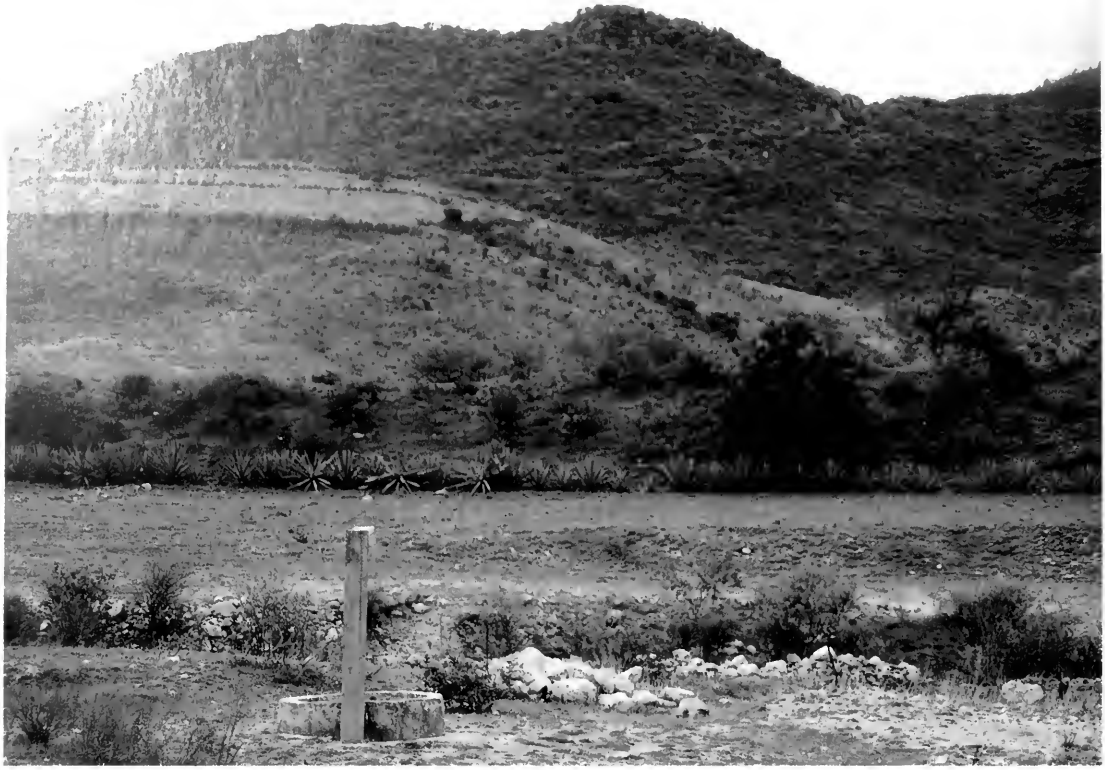


FIG. 5.4. The low piedmont spur at the western base of El Palmillo.

nopal (*Opuntia pilifera*), *garambullo* (*Myrtillocactus schenckii*), several varieties of maguey (*Agave* spp.), and many large stands of *palmillo* (*Yucca periculosa*). Although some of the larger terraces on the site were cleared and farmed more than 30 years ago, very few terraces are farmed today. The most recent farming activities at the site are on lower slopes of the hill, where one farmer has planted a cultivated variety of maguey (*Agave angustifolia*). Today the most common use of the site is for grazing small herds of goats and cattle, although people often visit the hill to collect firewood, flowers (especially *flor de mayo, Plumeria rubra*), and cactus fruits. Some hunting occurs on the hill and the nearby forested slopes of Nueve Puntas.

General Survey Findings

We mapped 1453 artificial terraces at the site during the intensive survey (see Figure 5.2 and Appendix 6.a), more than twice as many as were recorded as part of the regional survey. The regional survey crew mapped most of the larger, more visible terraces on the main western face of the slope. Where we added the most terraces to the map were in less accessible areas on other steep slopes, the backside of the hill, and the low spur at the base of the hill, where recent erosion has been more of a problem.

Domestic features and household trash (chipped stone, pottery sherds) are visible on most of the terraces, including stone foundations of rooms (Figure 5.7) and small domestic tombs, scattered building stones, pottery, and stone tools and production debris (Figures 5.8, 5.9). The majority of terraces at El Palmillo were well preserved, and we mapped many entryways and stairways that connect strings of terraces with features above and below them. Terraces on the low spur at the base of the main hill, however, where there is less covering vegetation, were more eroded and not in good condition. Yet domestic debris and fragments of stone foundations were still visible, running all the way down the slope to a modern reservoir at the base of the hill.

FIG. 5.5. The southern ridgetop of El Palmillo, viewed from highest point of the site to the north.

As at the Mitla Fortress, many of the terraces (average 44 m^2) were smaller than the more dispersed terraces at Guirún (average 106 m^2). Over 90% of the El Palmillo terraces are smaller than 100 m^2 (Figure 5.10). Only 13 were larger than 200 m^2, the average for terrace sites mapped in the valley during the regional surveys. Terraces on the flatter parts of the ridge and the descending western slopes typically are larger; the smallest terraces were constructed in areas of exposed bedrock, either by building up small pockets of flat land or by excavating a small flat surface directly on top of the bedrock.

Given the small size of so many terraces at El Palmillo, we have not assumed that one terrace always represents a single household. Some residential complexes at El Palmillo may have occupied several small adjacent terraces, possibly carrying out different household functions on each one. We have received preliminary support for this hypothesis through subsequent excavations on several terraces at El Palmillo (Feinman et al. 2001, 2002).

In addition to the terraces, we mapped 72 structures (Appendix 6.b), 43 platforms (Appendix 6.c), eight plazas (Appendix 6.d), and eight small isolated house or room foundations. The most monumental buildings were part of the site's public core on top of the northern ridge. Large, lower platforms were placed on the southern ridge, while small platforms and structures were scattered among terraces across the rest of the site. Although most of the plazas are associated with public architecture on the ridgetops, the largest plaza at the site (Plaza H) is situated on the low spur at the base of the hill (Appendix 3.b)..

There were no walls at El Palmillo as tall as the two large defensive walls at the top of the Mitla Fortress, yet El Palmillo was as defensible. We mapped 177 walls and wall segments at El Palmillo (Appendix 6.e), many of which are associated with (often extending) strings of terraces that share high stone retaining walls. A series of ancient roads, including 21 stairways (Appendix 6.f), passed into and through parts of the site, most ascending the more gradual western slope.

FIG. 5.6. Vein of rose-red chert at El Palmillo.

Occupational History

El Palmillo was initially settled during Monte Albán Late I, when there was a significant but dispersed settlement at the higher reaches of the site, especially on the saddle and the top of the southern ridge (Figure 5.11). We recorded Late I ceramics on 43 terraces and several structures and platforms, with a total occupation area of about 3.9 ha (Tables 5.1, 5.2). With an average size of 97.8 m^2, these terraces tend to be some of the larger ones at the site. Based on the number of occupied terraces, El Palmillo's population would have been between 225 and 450 people, greater than both the Mitla Fortress and Guirún.

The settlement grew to 8.4 ha in Monte Albán II. The period II occupation shifted, and the southern apex and saddle areas were largely abandoned as new settlement was established on the northern ridgetop and lower slopes (Figure 5.12). Terraces were still largely dispersed and larger (mean 60.9 m^2) than later ones. We found period II ceramics on 56 terraces and estimate the population at that time between 285 and 570 people. El Palmillo continued to be more populated than either the fortress or Guirún. The community apparently was a small center or regional head town in both Monte Albán Late I and II.

Based on five seasons of excavation conducted at El Palmillo subsequent to the intensive site survey (Feinman et al. 2002, 2003), we have found that the great majority of Monte Albán II diagnostic pottery recovered in situ pertain to the end of that phase (c. A.D. 200–250) or possibly even to early Monte Albán IIIA (c. A.D 250–300). Of course, our excavated sample was derived from only a handful of terraces, so at this point we do not see a clear rationale for modifying the above assessments. Yet it would appear that much of the Monte Albán II occupation at El Palmillo pertains to late Monte Albán II or early Monte Albán IIIA, a time that once was referred to as Transición II–IIIA (Caso et al. 1967).

Given the wide dispersal of IIIA ceramics across the site, El Palmillo grew rapidly after Monte Albán II. Most of the mapped terraces and habitable areas at the site were occupied, covering almost 1 km^2 (Figure 5.13). In our subsequent

FIG. 5.7. Stone retaining wall and small stone house foundation on Terrace 663 at El Palmillo.

fieldwork at the site, we have found that the longest occupations on the excavated terraces pertain to Monte Albán IIIA (Feinman et al. 2002).

Many of the newly constructed and inhabited terraces were small (average size of terraces with IIIA occupation was 44.1 m^2). They often were crowded in between terraces that had been constructed initially in Monte Albán Late I or II or were constructed as part of new strings of terraces sharing high retaining walls. Based on the number of terraces over 30 m^2 in size (825, or 56% of all terraces at the site), the population of El Palmillo could have been as large as 4130–8260 people. The population estimates based on terraces mapped during the regional survey were between 3010 and 6020. Both sets of estimates are higher than figures of 2253–4505 people that are obtained by using density figures of 25–50 people per hectare of occupied area.

That the latter figures yield lower estimates is not surprising, since El Palmillo clearly was a very compact and densely settled town. Based on our personal experiences in mapping terrace sites in Oaxaca, El Palmillo is without doubt one of the most compact large communities in the region. Even if a conservative demographic estimate of 5000 people is employed, El Palmillo would have been the largest center in eastern Tlacolula during the Early Classic. Given similar patterns of growth at the fortress and Guirún, IIIA was a time of intense settlement expansion and population growth in this sector of the Valley of Oaxaca. At El Palmillo it is conceivable that this growth began very late in Monte Albán II.

El Palmillo continued as a sizable community in Monte Albán IIIB/IV and V, although it was smaller than it had been earlier. The extent of the site decreased to around 33 ha (Figure 5.14). The IIIB/IV occupation at El Palmillo was largely focused on the highest parts of the site. This decrease in site area with a focus on the higher reaches of the site is similar to the demographic and spatial shifts observed at the Mitla Fortress, but not at Guirún, where both site area and population increased between Monte Albán IIIA and IIIB/IV.

The spatial extent of El Palmillo was considerably smaller in Monte IIIB/IV than in IIIA, yet

FIG. 5.8. Remnant of stone foundation on Terrace 950 at El Palmillo.

the community may have been even more densely settled then than it had been earlier. The IIIB/IV occupation was centered on the areas of the site with the densest concentrations of terraces. Although there are fewer clear ceramic diagnostics for IIIB/IV than for many other phases, as many as 85% of the terraces (over 1200) had Classic/Early Postclassic period pottery.

In subsequent excavations at El Palmillo, in several different areas on the hill, we have found early IIIB/IV pottery in the uppermost levels of all the terraces that we have excavated (Feinman et al. 2002, 2003). Based on the number of terraces (larger than 30 m^2) with possible IIIB/IV occupation, as many as 3485–6970 people may still have resided at El Palmillo, at least at the beginning of this era.

The Monte Albán V occupation was considerably smaller, around 16 ha, and more dispersed like the pre-Monte Albán occupations (Figure 5.15). While some settlement continued on the top of the hill, the V occupation focused on the lower slopes of the site, both on the main western face and the low spur at the base of the hill. We recorded period V ceramics on less than 15% of the terraces. These terraces tend to be larger (average 55.1 m^2) than the Classic period terraces. The site may have had as many as 975–1950 people at this time. During excavations (Feinman et al. 2002, 2003), we have found Monte Albán V pottery fragments in the uppermost disturbed fill, but no habitation remains.

Site Layout and Defensive Nature

El Palmillo, like the Mitla Fortress, was a compact settlement, with most of the site's public architecture constructed along the top of one long piedmont ridge. Yet the amount and character of monumental architecture varies considerably between the two sections of this ridge crest. The civic-ceremonial core of the site was placed on the higher, northern ridgetop. There the site's inhabitants took advantage of a high rock outcrop to construct a large platform and the tallest architectural feature at the site (Figure 5.16). Access

FIG. 5.9. Small firebox and domestic trash on Terrace 932 at El Palmillo.

into this complex, which towered over other public buildings on the ridge, was restricted. Just below it, to the north, is a series of smaller public constructions, including a large three-mound group around a partially enclosed plaza (Appendix 3.f).

The architectural groupings on the lower, southern rise consist of a series of large low platforms associated with several large plazas (Appendix 3.l). Access to this part of the site was much less restricted than to the higher precinct to the north. Many other small structures and platforms are dispersed across the residential areas of the site, much like what Blanton (1978) reported for Monte Albán. However, whether one compares the civic architecture just at the top of the hills or includes all the structures below, the scale of public architecture at El Palmillo was orders of magnitude less than at Monte Albán.

The most densely settled part of El Palmillo is the west face of the northern ridge, where row upon row of terraces are crammed on the slope (Appendix 3.e). Some of these rows or strings contain as many as ten or more contiguous terraces that share a high stone retaining wall, with such lines of contiguous terraces stacked one above the other. Smaller discrete groups of terraces are found on lower ridges that descend the main ridge to the northeast (Appendix 3.g) and southwest (Appendix 3.h). Several long strings of terraces sharing stone retaining walls also are situated on the low spur below the western face (Appendix 3.b), where they largely encircle the top of the spur and several low stone platforms and also a large open space (Plaza H) with several small structures at one end (Figure 5.17). Few terraces descend the slopes of the southern ridgetop, which was less heavily settled throughout the occupation of the site (Appendices 3.i, 3.k).

Because of its highly defensible location, the defensive character of El Palmillo was evident during the 1980 regional survey, even though no defensive walls were mapped. With the more intensive surface study we documented that the concern of the site's residents with defense went beyond the selection of a defensible location for their settlement. El Palmillo was extremely well defended; the most gradual routes into the site fre-

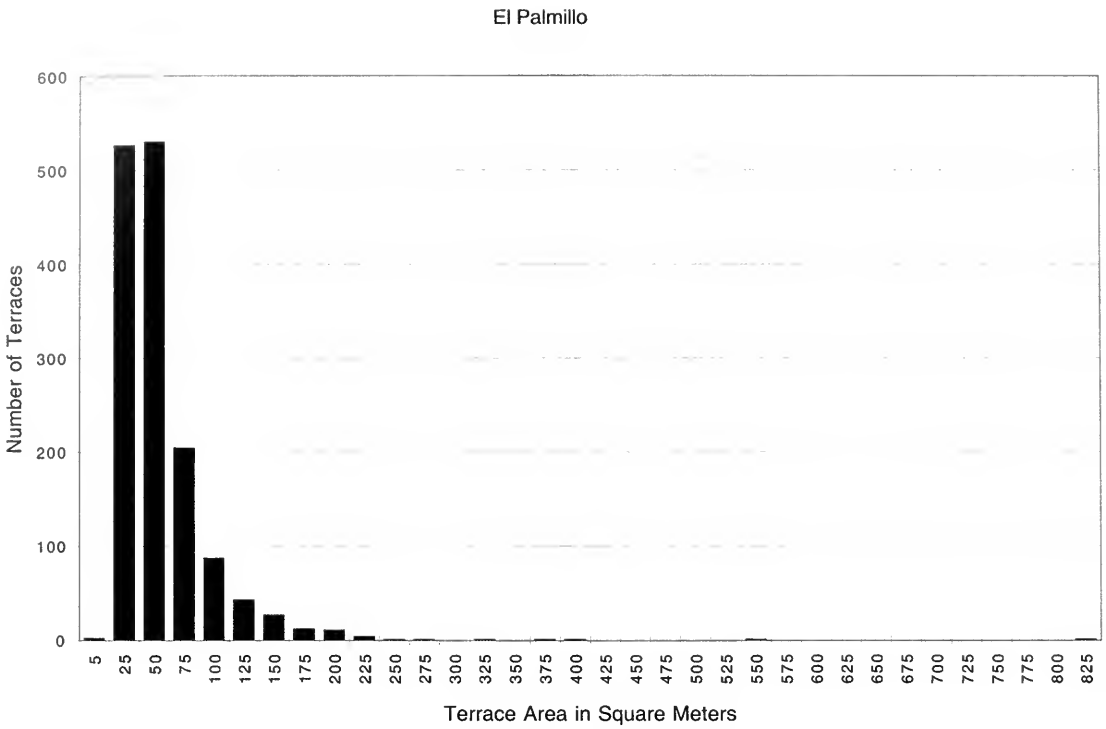


FIG. 5.10. Histogram of terrace size at El Palmillo.

quently were impeded by sequences of stone walls that restricted access (Appendix 3.d). Many of these walls still stand a meter high. Some long rows of terraces, especially near the bottom of El Palmillo, share a single long unbroken retaining wall built up as high as 2–4 m (Appendix 3.e). These long walls were constructed across the entire western face, with either end abutting areas of steep almost impassable bedrock slopes. These features likely served defensive functions in addition to defining residential areas. Other walls and strings of terraces delineated the top of the hill from the denser occupation below.

We also defined a series of narrow paths, roads, and access routes that cut across some walls and strings of terraces. Generally, these accessways were adjacent to small structures or platforms that probably controlled or checked the movement of people entering or leaving the site (e.g., Hirth 1982:323). In a few areas, bedrock formations were modified to facilitate or impede access. The main entrance to the site on the western face was defined by a small opening positioned between the two long strings of terraces. The opening was flanked by two large platforms that appear to have been used to control or check traffic in and out of the site (Appendix 3.e). Many of the roads included stairs or stairways that helped people navigate the steep slopes. Most of these roads leading up to the center of the site pass through the low, western spur, the easiest approach (Appendix 3.b). Several of these routes begin at the base of the hill and lead up to the open plaza on the top of the rounded spur, which, given its more accessible location near the lowermost edge of the site, may have served as an arena for marketplace exchange.

Economic Specialization at El Palmillo

The ancient inhabitants of El Palmillo engaged in several different economic specializations, including stone working, ceramic production, and plant processing. Although two year-round, natural springs lie at the base of the ancient settlement, the amount of flat land and deep soils available on (or even immediately adjacent to) the site is extremely limited. In addition, eastern Tlacolula receives less rainfall than almost all other parts of the Valley of Oaxaca, so that even today maize

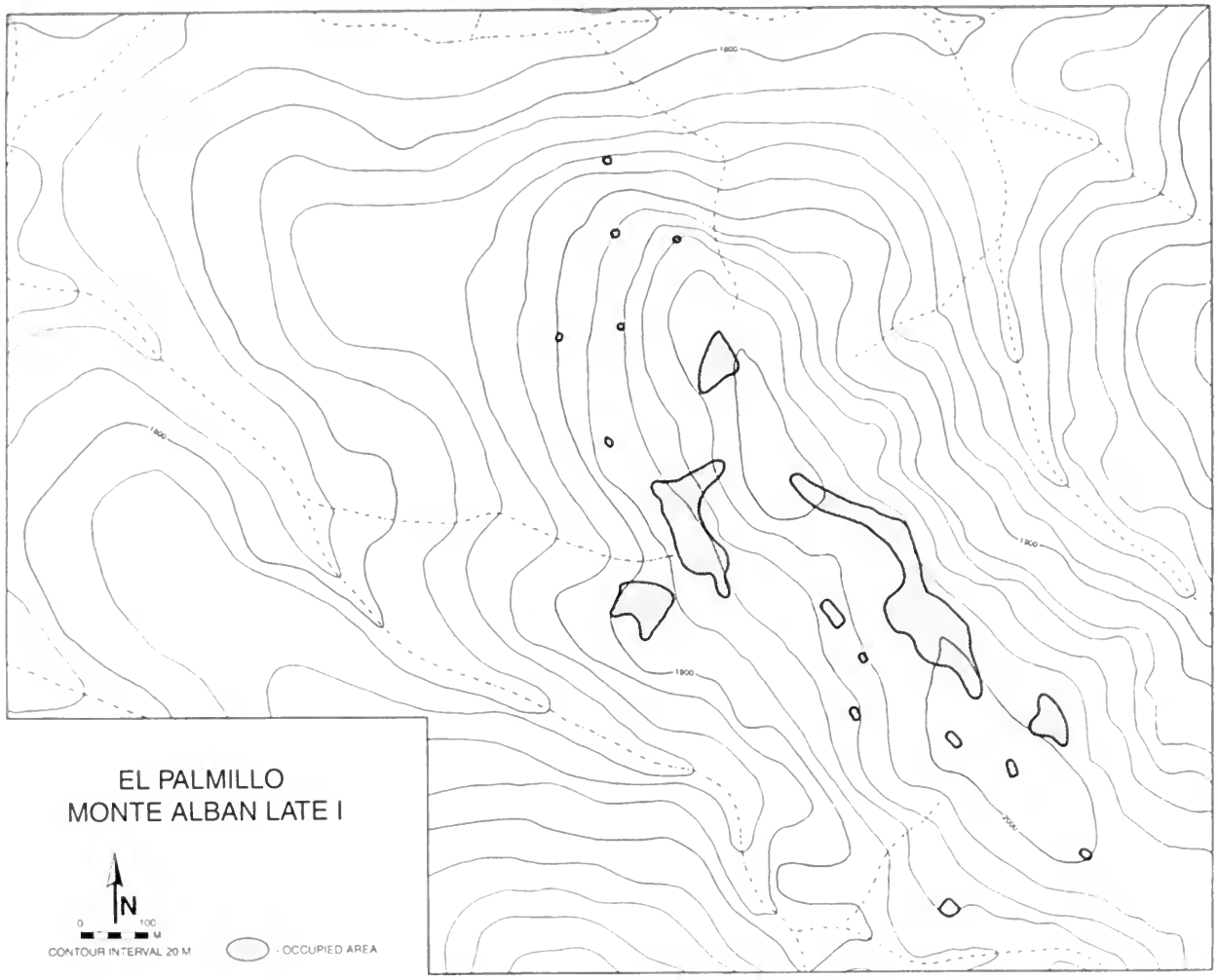


FIG. 5.11. Monte Albán Late I occupation at El Palmillo.

TABLE 5.1. Architectural Features at El Palmillo by Phase

Phase	Terraces	Structures	Platforms	Plazas	Stairs	Walls
Monte Albán Late I	43	3	2	1	2	2
Monte Albán II	56	8	3	2	2	4
Monte Albán IIIA	1452	70	43	8	22	176
Monte Albán IIIB/IV	1243	56	31	8	15	132
Monte Albán V	194	8	13	1	4	16

agriculture often fails (Kirkby 1973:20; Kowalewski 1982:156–157). Consequently, given the large population at the site, economic pursuits that could have supplemented maize farming likely were important.

In conjunction with subsequent excavations at the site, we have carried out a preliminary botanical survey of the site and identified a series of economically useful xerophytic plants that appear to be remnants or vestiges of the prehispanic occupation of the hill (Middleton et al. 2001). Many of these plants, such as various cacti (nopal, *garambullo*), yucca (*palmillo*), and succulents (maguey) would have provided food and economic raw materials (especially fiber). Today maguey forms the backbone of the local economy in Matatlán, which is based on the production of mezcal from this plant (Sánchez López 1989). Until recently, other varieties of maguey, which still grow on site, were exploited in Matatlán and neighboring towns for fiber (Palma Cruz 2000:96; Parsons 1936:57).

Findings from the intensive survey research lead us to support and amplify the hypothesis (derived from the 1980 regional survey) that nonfarming economic specializations were significant at El Palmillo, in particular the working of local cherts. The most prevalent stone materials at the site are chert (74% of all stone on site), followed by obsidian (12%) (see Table 3.3). Ground stone materials cut from the natural bedrock comprise only 6%.

The chert assemblage at El Palmillo is diverse, over 50 different varieties. Yet the nine most common make up more than 81% of the assemblage (Table 5.3). Most of the raw chert worked prehispanically at El Palmillo came from sources on the site, especially the poor-quality white-yellow chert and the rose-red variety, the two most common varieties in our collections. Higher-quality translucent brown chert can be found at the base of the site, mostly as cobbles and chunks in dry stream beds. Chert sources on the slopes of Nueve Puntas and in the ridges to the north of the site also appear to have been heavily utilized. We found only a small number of pieces that may be from the translucent brown source at the base of the fortress. The possible pieces of Mitla Fortress chert found at El Palmillo were formal tools and not manufacturing or other debris.

In terms of basic functional categories, the chert assemblage at El Palmillo is more similar to that of the fortress than Guirún. Two-thirds of the chert at El Palmillo was categorized as tools, most of which (63%) are expedient implements (especially utilized flakes, but also bifaces and unifaces) (see Table 5.3). The more formal tools recovered at the site include *raspadores,* scrapers, perforators, and projectile points (Figures 5.18, 5.19). A few of the smaller scrapers made from good-quality chert were highly formal tools, but these are rare (Figure 5.20).

Certain chert varieties were preferred for specific types of tools (see Table 5.3). Although high-

TABLE 5.2. El Palmillo Population Estimates and Site Size by Phase

Phase	Population Range*	Population Based on Site Area†	Size (ha)
Monte Albán Late I	225–450		3.9
Monte Albán II	285–570		8.4
Monte Albán IIIA	4130–8260	2253–4505	90.1
Monte Albán IIIB/IV	3485–6970	831–1663	33.3
Monte Albán V	975–1950	404–808	16.2

* Based on number of occupied terraces.
† Based on site area using terrace density figures.

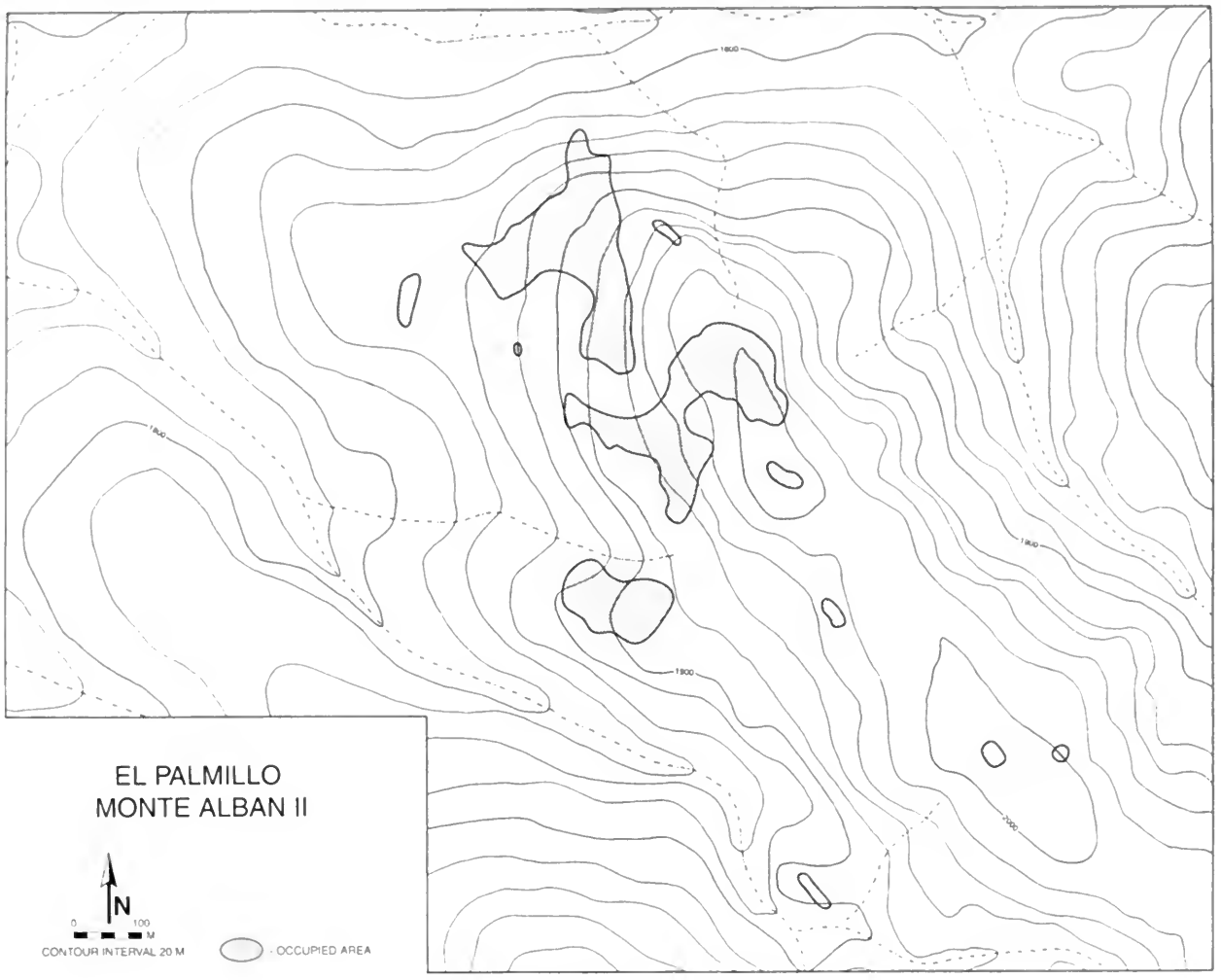


FIG. 5.12. Monte Albán II occupation at El Palmillo.

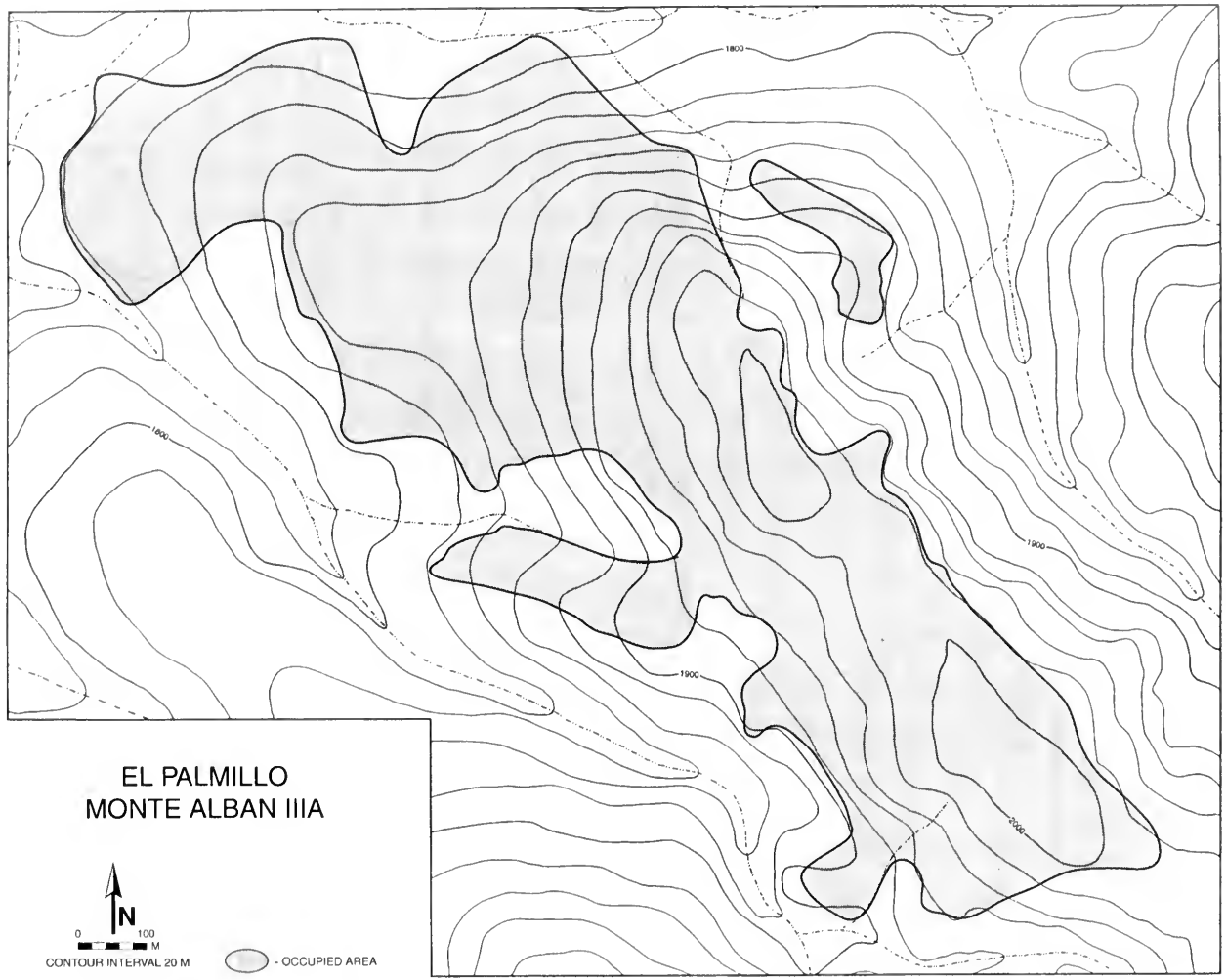


FIG. 5.13. Monte Albán IIIA occupation at El Palmillo.

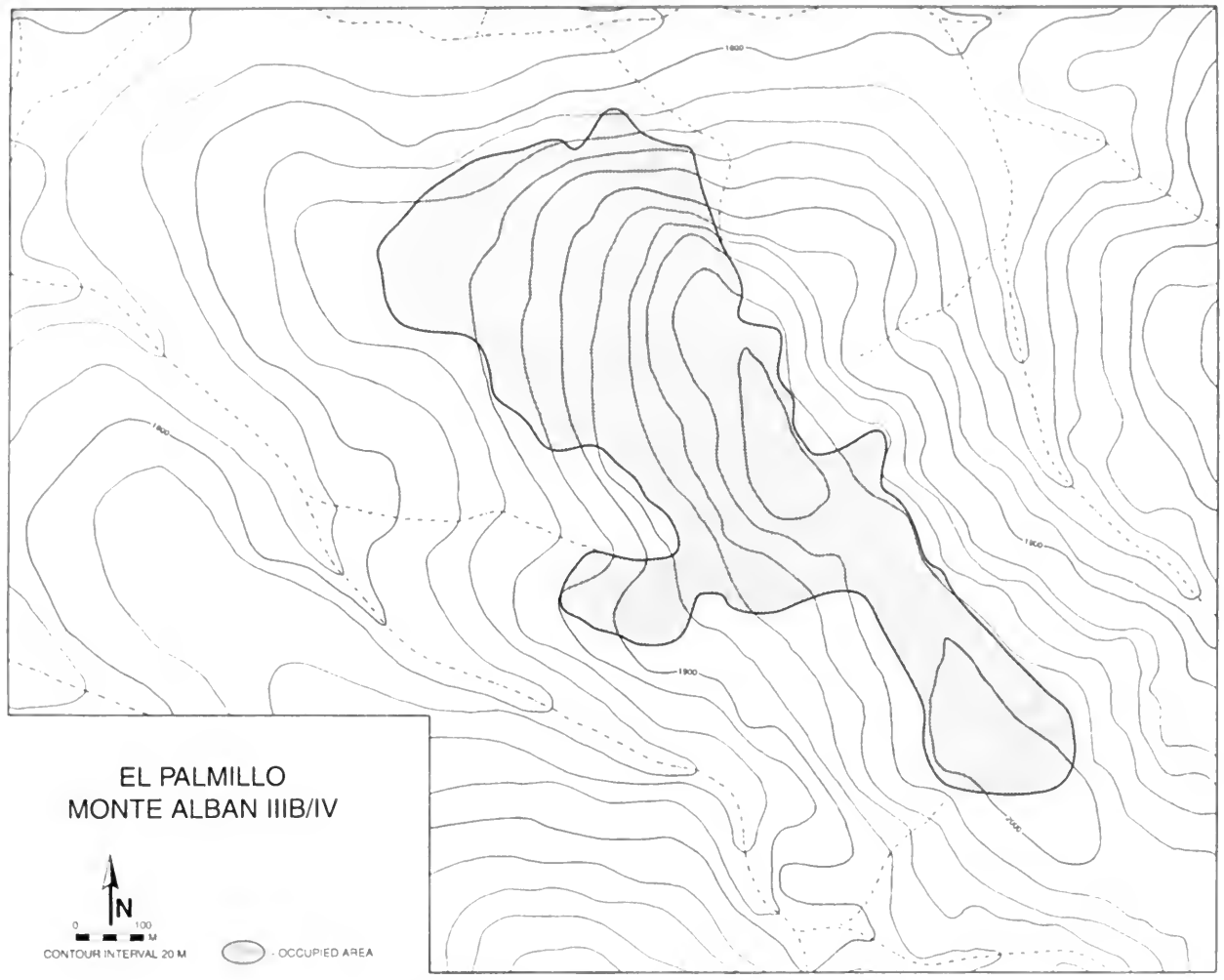


FIG. 5.14. Monte Albán IIIB/IV occupation at El Palmillo.

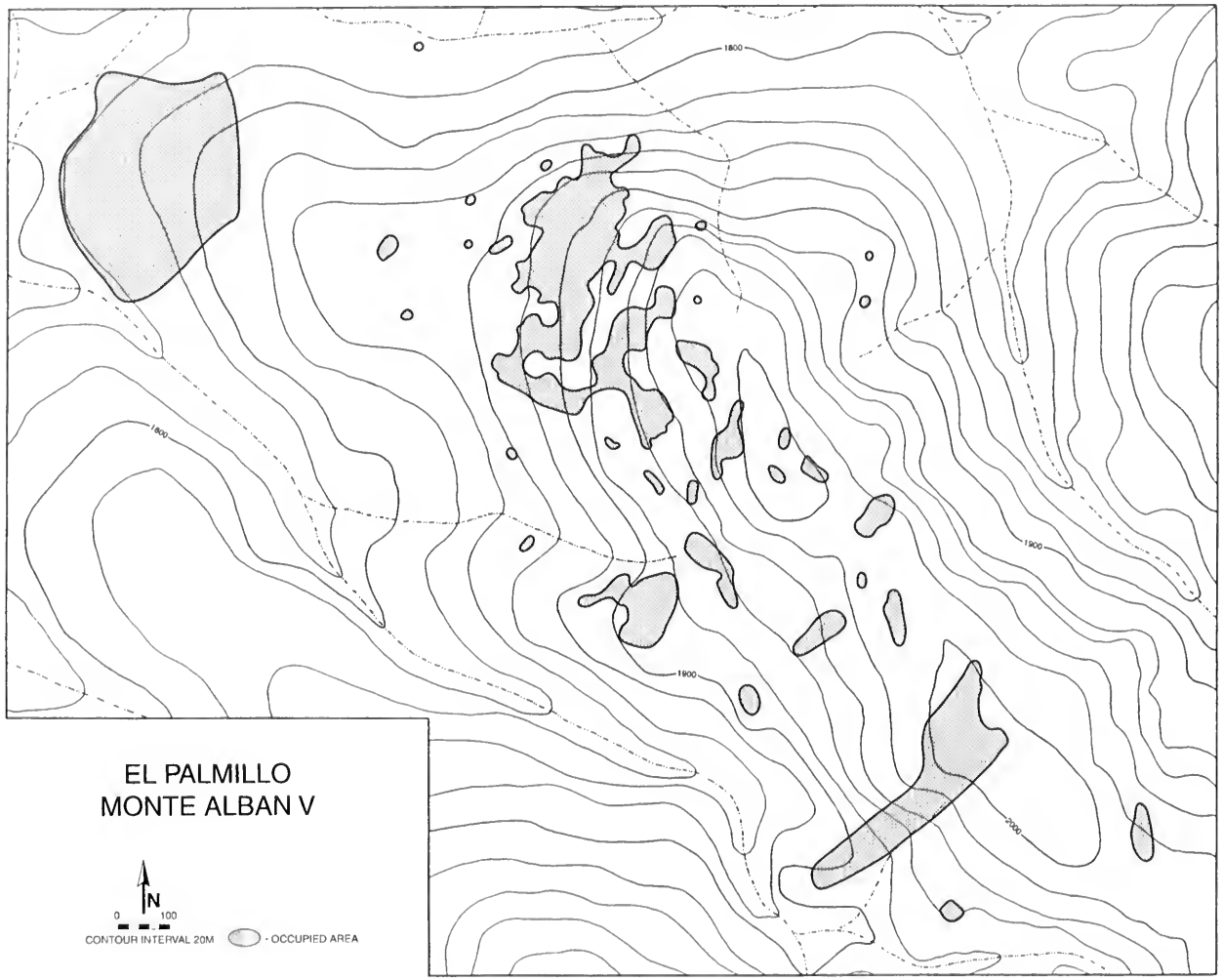


FIG. 5.15. Monte Albán V occupation at El Palmillo.

FIG. 5.16. Rocky outcrop at the top of El Palmillo, where the most monumental public buildings at the site were erected.

quality cherts (the local conglomerate and white varieties and both local and nonlocal translucent cherts) are a small proportion of all chert on the site (less than a third), these materials were more often selected for projectile points (72%, 26 out of 36) and perforators (56%, 18 out of 32). Scrapers tended to be made from a range of materials of variable quality. About a third (73 of 219) were made from the two most abundant cherts on site (both of low quality) while another third (77) was made from higher-quality materials. In contrast, a greater proportion of *raspadores* were fashioned from the same two poorer-quality cherts (37 of 67, 55% of all *raspadores*), and many fewer (5, only 7%) were made from the higher-quality varieties.

Many of the El Palmillo scrapers and *raspadores* are intensively worn or polished. The *raspadores*, with their duller edges, were most likely used in processing xerophytic plants on the site for fiber, especially maguey (Hester and Heizer 1972; Parsons and Parsons 1990). In subsequent excavations at the site, we have recovered a range of bone tools (including battens and needles) as well as spindle whorls that also were used in processing plant fiber into thread and cloth, as well as ovens for roasting maguey (Feinman et al. 2002).

Maguey also may have been processed for alcohol (pulque) using the scrapers that are too sharp for removing fibers from the plant's leaves (Álvarez Palma et al. 1998:25–26; see also Bruman 2000:68–69) and the many metates, manos, and other grinding implements we noted on site (Table 5.4, Figure 5.21). Some of the metates had rounded holes cut into their bases (possibly for processing or grinding liquid from cooked maguey for the preparation of a beverage [Parsons and Parsons 1990:283–284]) (Figure 5.22).

On some terraces we noted red and gray bedrock chipping debris that may reflect low-intensity ground stone tool production. Large outcrops of the natural reddish bedrock with cut rock faces (*bancos de piedra*) were noted in at least four different places on the site (Figure 5.23). Although much of this stone was quarried for terrace, platform, and defensive walls on the site, smaller

FIG. 5.17. Top of the low piedmont spur at the western edge of El Palmillo, viewed from terraces near the base of the main hill.

blocks and objects made from this distinctive blood-red stone also likely were traded elsewhere as raw material for construction blocks or ground stone tools.

Obsidian, especially blades, were frequently recorded on the terraces. With no known obsidian sources in Oaxaca, the obsidian had to have been obtained through exchange connections, along with the ten marine shell fragments that we noted. These exotic materials may have been received in exchange for other goods produced on site. Based on high numbers of obsidian flakes, mostly gray, that were found on several terraces at El Palmillo during the regional survey (no cores were noted), two Classic period obsidian work areas were proposed for the site (Kowalewski et al. 1989:225, 947–956). During the intensive survey we observed many fewer obsidian flakes than blades, and only four gray cores (Table 5.5). Although gray obsidian blades may have been produced at the site, the green (possibly from the Mitla Fortress) and black blades were obtained through exchange. It would appear that obsidian working was a much less important activity at El Palmillo than at the fortress.

In accord with the 1980 regional survey findings, ceramic production was clearly undertaken at El Palmillo during the Classic and Postclassic periods. We recorded 11 mold fragments for the fabrication of urns (at least five or six of which are for Classic period urns) and other ceramic pieces. We also found 64 kiln wasters (including three pieces from urns and 13 from figurines) and various overfired and unevenly fired sherds. These surface indicators for ceramic manufacturing are much greater than any of the surface clues that we encountered at the Ejutla site, where we later found subsurface confirmation of ceramic manufacturing for exchange (Balkansky et al. 1997; Feinman and Nicholas 1995a, 2000). Black clay suitable for pottery manufacture was available in several locations on site as well as less than a kilometer away under contemporary Matatlán. In surveying El Palmillo, we also came across several patches where the soil was evidently burnt a long time ago. Based on what we know about the

TABLE 5.3. Chert Varieties and Functional Categories at El Palmillo

	Local Cherts							Nonlocal Cherts					
Form	**Conglomerate**	**Rose/Red**	**White**	**White-Gray**	**White-Yellow**	**Yellow-Gray-White**	**Translucent Brown**	**Translucent White**	**Translucent White-Orange**	**Translucent (Other)**	**Translucent Brown (MF)**	**Other Varieties**	**Total**
Biface	10	7	5	5	8	1	7	2	4	0	2	6	57
Blade/knife	0	1	2	3	3	0	0	0	0	0	1	5	15
Chisel	2	1	0	1	1	0	0	0	0	0	0	1	6
Chunk	1	7	10	4	6	3	16	3	0	0	0	8	58
Cobble	0	3	0	1	0	0	0	0	0	0	0	5	9
Core	12	26	11	17	62	13	18	3	3	0	1	32	198
Hammerstone/*mazo*	1	4	3	1	3	2	2	0	0	0	0	5	21
Perforator	8	2	2	3	4	3	3	3	2	0	0	2	32
Polisher/abrader	2	2	1	0	3	0	2	0	2	0	0	4	16
Point preform	1	0	10	1	1	0	0	2	2	0	0	1	18
Projectile point	0	1	4	2	0	0	2	2	2	0	1	4	18
Raspador	3	14	1	2	23	2	1	0	0	0	0	21	67
Scraper	35	25	11	17	48	18	10	6	8	4	3	34	219
Uniface	1	2	2	2	2	1	0	0	0	0	0	3	13
Unmodified flake	20	47	25	37	63	19	14	4	2	1	1	56	289
Utilized/retouched flake	51	82	81	51	165	56	25	26	20	1	3	124	685
Other/unknown	0	0	1	0	3	1	1	0	0	0	0	3	9
Total	**147**	**224**	**169**	**147**	**395**	**119**	**101**	**51**	**45**	**6**	**12**	**314**	**1730**

FIG. 5.18. Chert *raspadores* from El Palmillo. Left to right: ridgetop between Terrace 2 and Structure 1, and Plaza B.

site, such burnt areas may have been associated either with the roasting of maguey or the firing of pottery.

Distribution of Economic Activities across the Site

Based on natural topographic divisions and the spatial arrangement of terraces and other features across the site, we divided the site into 12 sectors (Figure 5.24) that can be used to examine the distribution and variation in economic activities across the site. In spite of the compact nature of the site, many of these sections are discrete and separated by topographic features, such as gullies or rock outcrops. The El Palmillo sectors include civic-ceremonial areas on the ridgetops (sections 6, 10, and 12) and groupings of terraces on some of the smaller, lower ridges that could be considered small barrios (2, 3, 7, 8, and 9). The least clearly delineated site segments (sections 4 and 5) are on the main face of the hill, where terraces are densely packed.

In examining the distribution of stone materials across these site subdivisions, we have found that distinct sets of craft activities likely were carried out in different parts of the site. For example, we

FIG. 5.19. Chert scrapers from El Palmillo. Top left to bottom right: Plaza B, Terrace 226, Terrace 5, Terrace 86, Terrace 160, and Terrace 127.

FIG. 5.20. Scrapers of high-quality chert from El Palmillo. Top left to bottom right: Terrace 47, Terrace 1003, Terrace 37, Terrace 1209, Terrace 64, and Terrace 1373.

recovered more evidence of chert production (19% of all cores, flakes, and chunks at the site) in section 12 (the southern apex of the site) than would have been expected based on the number of collections taken in that sector (13% of all collections) (Figure 5.25, Table 5.6). This area likely was a place where the first stages of chert reduction and working were carried out. Although there is less evidence for the working of other stone materials at El Palmillo than at Guirún, almost half of the greenstone (nonornamental), including all of the greenstone chips we observed, are in section 12 (Figure 5.26). Ground stone fragments also are abundant here (Figure 5.27); thus, it seems likely that these local stone materials were worked into tools or other objects in that part of the site. In contrast, there is no evidence of obsidian working in section 12, insofar as only blades were noted in our collections there (see Table 5.6).

The tool assemblage in this upper section of El Palmillo consisted of more formal stone tools than any other part of the site, including the highest quantities of ground stone metates (over one-third of the metates at the site, see Table 5.6) and chert *raspadores*, scrapers, and perforators (Figure 5.28). Given the weight of metates and the abundance of ground stone fragments, they likely were made here.

Other site sectors with good evidence of chert tool reduction include section 2, the low spur at the base of the main hill (especially cores and point preforms) and section 4 (flakes, chunks, cores, and point preforms) and section 5 (flakes, chunks, and cores) on the main face of the hill (see Figure 5.25). Given the low proportion of finished formal tools in the chert assemblage in section 2, the low spur with the large open "plaza" that we think may have been a market area, and in section 4 (see Table 5.6), adjacent to the low spur, some households in these parts of the site may have produced chert tools for exchange.

The formal tool assemblages, however, vary between these three adjacent site sections (Table 5.7). Grinding implements are present in section 2, but are especially abundant in sections 4 and 5. Although scrapers are well represented in sections 4 and 5, hammerstones, *mazos* (small,

FIG. 5.21. Metate fragments on Platform 5 at El Palmillo.

rounded, hand-sized hammerstones), abraders, and especially *raspadores* are more prevalent in section 5. In fact, there are few large humpback scrapers (*raspadores*) in section 4, and these implements are noticeably lacking in section 2. Thus it appears that in addition to making chert tools, households in section 5 also processed maguey for fiber as well as sustenance, while residents of sections 2 and 4 (where *raspadores* were rarer) may have focused more on the food value of maguey.

Some households in section 4 also worked local

TABLE 5.4. Other Stone Materials at El Palmillo

Form	Basalt	Bedrock	Granite	Green-stone	Ground Stone	Ignim-brite	Quartz	Other/ Unknown	Total
Adze	2	0	0	0	1	0	0	0	3
Axe	1	0	1	2	1	0	0	0	5
Core	1	0	0	1	0	0	0	0	2
Cut/worked stone		3			1			2	6
Flake/chunk (unmodified)	6	2	0	74	4	9	4	8	107
Grinding stone	1	2	0	0	6	0	0	2	11
Hammerstone/*mazo*	0	6	0	0	4	0	0	18	28
Mano	1	0	0	1	57	0	0	0	59
Metate	0	0	0	1	65	0	0	0	66
Perforator	0	0	0	0	0	0	0	1	1
Polisher/abrader	0	3	0	2	1	0	0	19	25
Projectile point	0	0	0	0	0	0	0	1	1
Scraper	0	0	0	0	0	1	0	0	1
Miscellaneous object	1	2	1	1	1	0	0	3	9
Total	**13**	**18**	**2**	**82**	**141**	**10**	**4**	**54**	**324**

FIG. 5.22. Metates with holes in base on Platform 11 at El Palmillo.

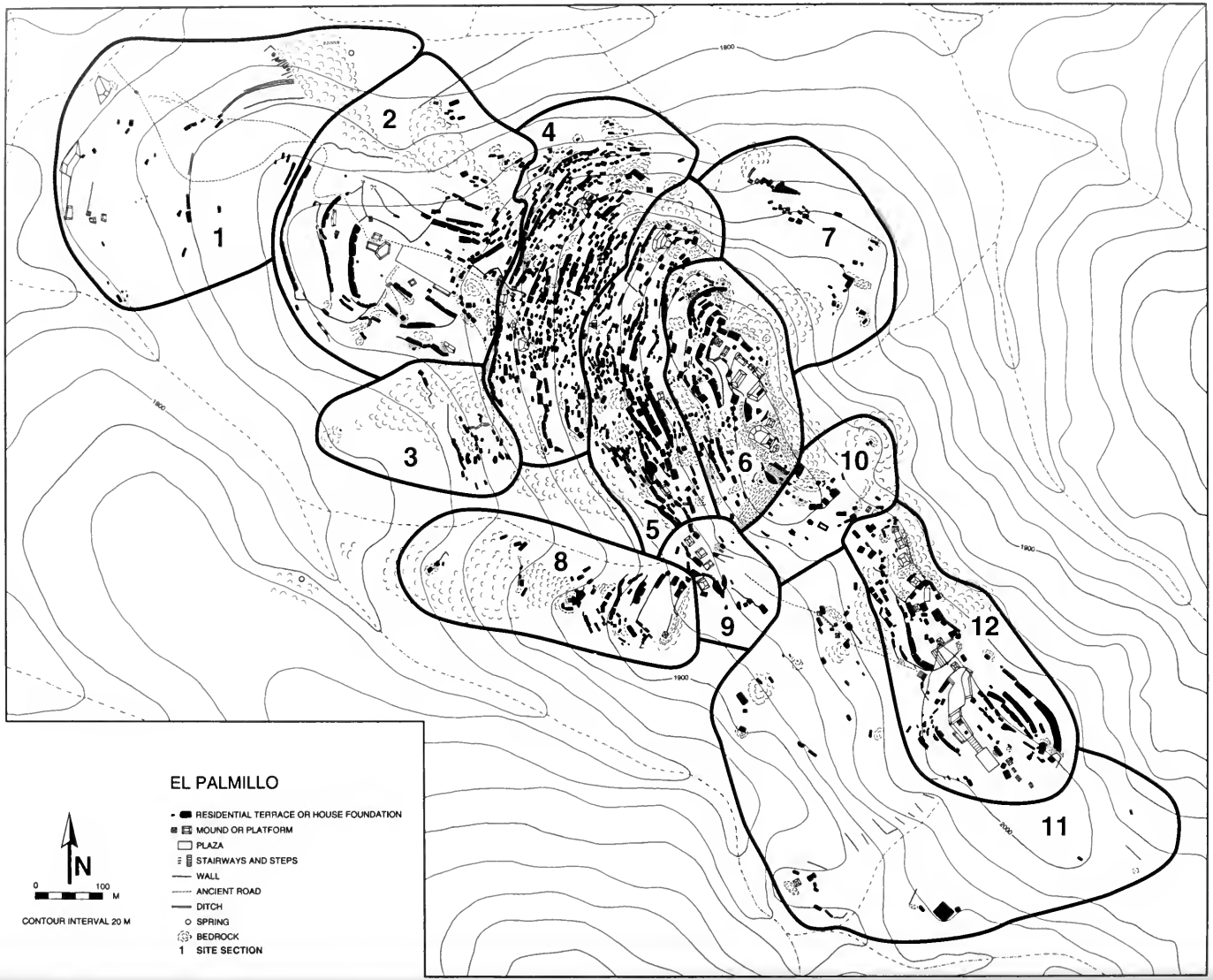
TABLE 5.5. Obsidian Assemblage at El Palmillo

Form	Green	Black	Gray	Clear	Total
Blade	39	123	86	3	251
Core	0	0	4	0	4
Eccentric	0	2	0	0	2
Flake	7	6	7	0	20
Perforator	0	1	0	0	1
Projectile point	0	0	3	0	3
Total	**46**	**132**	**100**	**3**	**281**

bedrock and especially greenstone, as flakes and debris from these materials are more abundant here than almost anywhere elsewhere on site (see Figure 5.26). Imported gray obsidian also may have been worked into blades in this section. Although far from the public core of the site at top of the hill, almost a third of all obsidian on site is in section 4 (93 of 285 pieces). Black obsidian is the most common variety at El Palmillo and dominates in most site sections. Only in section 4, where we found four gray cores, is gray obsidian the most abundant variety (Figure 5.29).

Indicators of ceramic production are dispersed across the site, and it appears that *gris* and *café* utilitarian bowls and jars, as well as some figurines and urns, were crafted in many different parts of the site (Table 5.8). In some areas, the low number of wasters would indicate low-intensity production for local consumption. In several areas, however, especially on the main western

FIG. 5.23. Cut bedrock at base of main hill at El Palmillo.


1
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1800
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EL PALMILLO
RESIDENTIAL TERRACE OR HOUSE FOUNDATION
MOUND OR PLATFORM
PLAZA
STAIRWAYS AND STEPS
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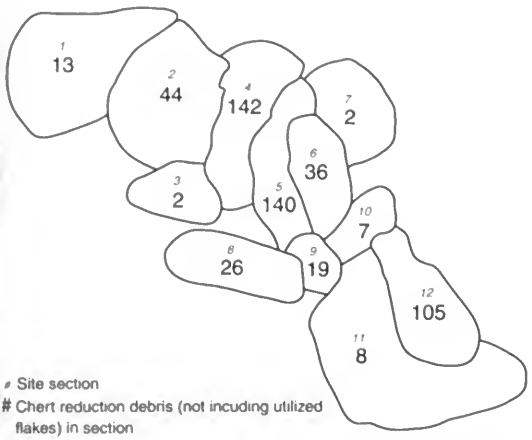

FIG. 5.25. Chert reduction debris in each site section at El Palmillo.

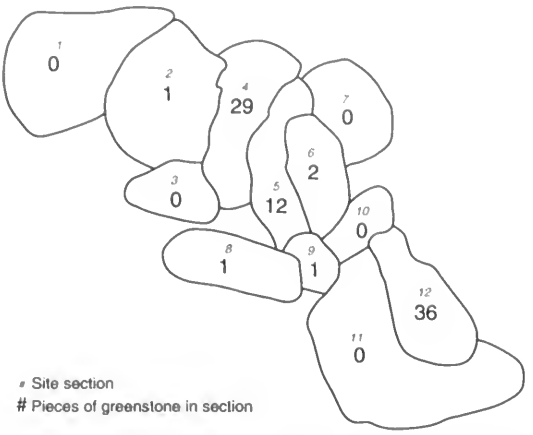

FIG. 5.26. Low-quality greenstone in each site section at El Palmillo.

face of the hill (sections 4 and 5) and the low spur at its base (section 2), ceramic manufacture may have been a more important economic specialization (Figure 5.30). Compared to the total number of ceramic artifacts in each section, production may have been a more significant activity for some households in sections 2, 4, and 5 than elsewhere on site. On one terrace in section 4, more than 50 Early Postclassic *sahumador* fragments were visible on the surface (some of which were burnt). This highly unusual concentration likely suggests a production context rather than use alone. Overall in section 4 we found 3 mold fragments, 2 clay coils, 3 figurine wasters, 1 urn wast-

TABLE 5.6. Selected Stone Artifacts in Each Site Section at El Palmillo

	1	2	3	4	5	6	7	8	9	10	11	12
Chert												
Biface/uniface	2	6	0	17	5	2	0	2	3	2	0	31
Blade/knife	0	0	0	7	1	4	0	0	1	0	0	2
Chunk	2	4	0	13	19	2	0	1	5	1	1	10
Core	9	26	1	43	48	14	1	8	5	2	2	39
Hammerstone/*mazo*	0	4	0	3	9	0	0	0	0	1	0	4
Perforator	1	3	0	5	6	2	0	3	0	0	3	9
Polisher	0	2	0	0	1	1	0	0	0	0	0	1
Point preform	0	5	0	7	3	1	0	0	0	0	1	1
Projectile point	2	4	0	4	2	0	0	2	0	1	1	2
Raspador	0	0	0	5	22	2	0	3	1	2	4	28
Scraper	1	11	0	45	52	22	2	9	7	7	6	57
Unmodified flake	2	14	1	86	73	20	1	17	9	4	5	56
Utilized/retouched flake	7	61	2	230	160	48	2	20	23	14	14	100
Obsidian												
Blade	8	18	2	81	46	20	0	22	9	2	2	45
Core	0	0	0	4	0	0	0	0	0	0	0	0
Flake	2	1	0	4	6	4	0	3	0	0	0	0
Perforator	0	0	0	1	0	0	0	0	0	0	0	0
Projectile point	0	0	0	2	1	0	0	0	0	0	0	0
Other stone												
Grinding stone	0	0	3	3	2	0	0	2	0	1	0	0
Hammerstone/*mazo*	0	0	0	4	7	2	1	5	4	1	1	3
Mano	2	6	0	8	17	4	0	2	6	4	2	8
Metate	0	0	0	11	16	1	0	2	5	4	3	24
Polisher/abrader	0	0	0	7	11	1	0	1	1	0	0	4

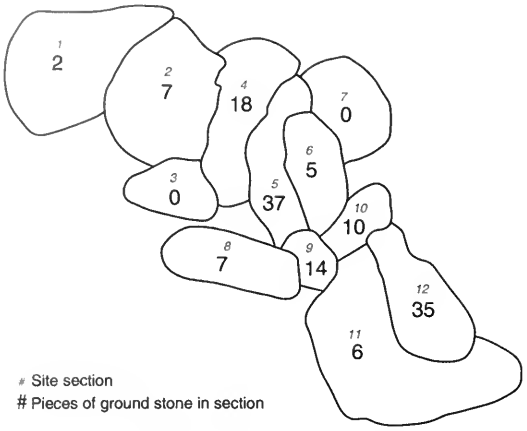

FIG. 5.27. Ground stone in each site section at El Palmillo.

er, and 11 utilitarian bowl and jar wasters, in addition to the *sahumador* fragments.

In sum, a variety of economic activities were carried out in many parts of El Palmillo, with households in different site sectors often focusing on a slightly different suite of activities or products than their neighbors. In some site sectors, these products may have been made only for local consumption. Yet in several areas, especially section 2 (the low spur with the possible marketplace) and section 4 (the dense residential area at the base of the main hill and adjacent to section 2), production appears to have been geared, at least in part, for exchange. Households in both areas worked chert and produced ceramics. They also more likely focused on maguey for its food value instead of for fiber. In section 2, an oval

TABLE 5.7. Selected Stone Tools and Production Debris in Sections 2, 4, and 5 at El Palmillo

Form	Section 2	Section 4	Section 5
Chert cores	26	43	48
Chert flakes	14	86	73
Chert chunks	4	13	19
Point preforms	5	7	3
Grinding implements	6	22	35
Scrapers	11	45	52
Raspadores	0	5	22
Hammerstones/*mazos*	4	7	16
Abraders	0	7	11

stone-lined feature with blackened sediment indicative of burning was noted on the surface. This feature closely resembles the earth ovens that are used to roast maguey hearts today (Serra Puche et al. 2000:154) as well as two ovens we excavated in section 4 (Feinman et al. 2002). Maguey fiber, a more lightweight item that would be easier to transport, appears to have been a more important product in other site sections. Households in section 4 also worked local, soft greenstone and snapped blades from imported gray obsidian cores. The concentration of so many economic activities in the site sections closest to the broad open plaza area supports our interpretation that this feature on the low spur could have served as an arena for exchange.

Summary

El Palmillo was a highly defended and densely occupied settlement. Remains of residential ar-

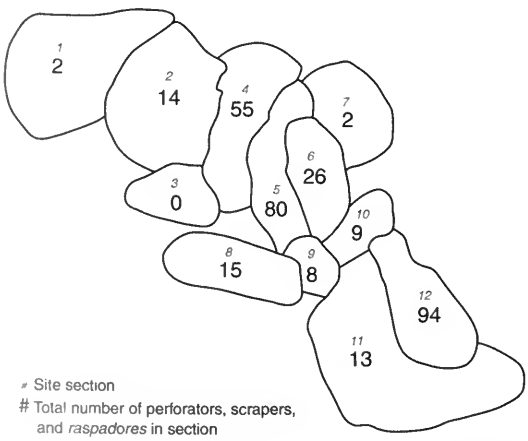

FIG. 5.28. Chert scrapers, *raspadores*, and perforators in each site section at El Palmillo.

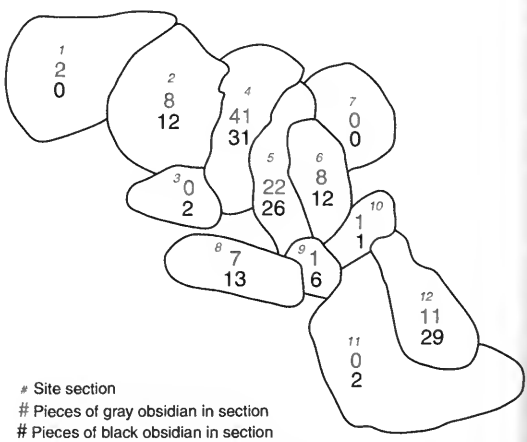

FIG. 5.29. Gray and black obsidian in each site section at El Palmillo.

TABLE 5.8. Indicators of Ceramic Production in Each Site Section at El Palmillo

	1	2	3	4	5	6	7	8	9	10	11	12
Kiln waster	0	7	0	11	12	7	0	3	1	2	0	4
Figurine/urn waster	0	2	0	4	4	1	0	3	1	0	0	2
Mold	0	1	0	3	2	3	0	1	1	0	0	0
Molde	0	0	0	0	0	1	0	0	0	0	0	0
Coil	1	1	0	2	1	2	0	0	0	1	1	1
Sahumador fragments on one terrace	0	0	0	50	0	0	0	0	0	0	0	0

chitecture and other domestic debris are visible on most terraces at the site. The site was not just a fortified redoubt but had a long occupation. Although El Palmillo was one of the larger settlements in eastern Tlacolula in Monte Late I and II, it experienced tremendous growth in IIIA, just as many other sites in this eastern part of the valley did. At El Palmillo, this rapid growth occurred in concert with the planned and interconnected nature of the site's residential areas, with strings of linked terraces and proscribed gates and accessways into and through the site. In spite of its remote location, it was not only the largest community in eastern Tlacolula but also one of the largest in the entire valley during the Classic period. Yet relative to its population size, the monumental architecture in the public core of the site was minisecule compared to Monte Albán and even other large sites closer to the center of the valley.

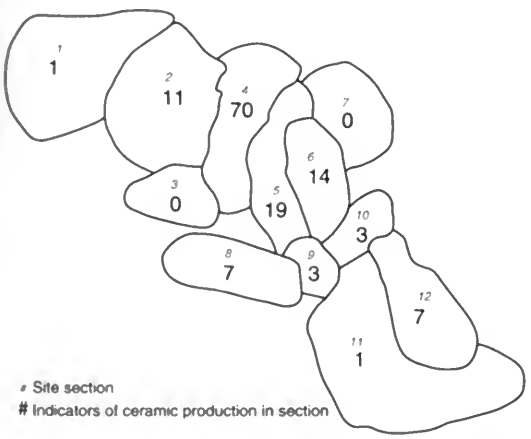

FIG. 5.30. Indicators of ceramic production in each site section at El Palmillo.

El Palmillo was an important craft production center in eastern Tlacolula, and El Palmillo's residents engaged in a range of economic activities. Households at the site made a range of tools from local cherts, blades from imported gray obsidian, worked the local bedrock and low-quality greenstone, produced utilitarian ceramic goods, and processed xerophytic plants, especially maguey, for both food and fiber. Yet the intensity of production and the range of goods produced varied widely across the site. Although many of the stone tools made at the site were used by the site's residents for processing plants for food and fiber, at least some finished tools and fiber products were exchanged for other goods produced elsewhere, such as green and black obsidian blades, shell ornaments, and, we suspect, maize. One of the largest arenas for this exchange at El Palmillo may have been the large open plaza on top of the low hill at the western edge of the site. This setting, outside the most heavily defended part of the site and with several roads leading up to the plaza from below, would have been accessible to people living in other nearby settlements.

6

Terrace Site Comparisons

The Mitla Fortress, Guirún, and El Palmillo are three of the largest hilltop terrace sites in the eastern Tlacolula arm of the Valley of Oaxaca. Based on our findings, in conjunction with what was known previously, we suspect that they were large, dense communities. Each site had some administrative functions; each occupies a key defensive location, often augmented with walls; and each has ample indicators of craft production of some kind.

Yet the three sites are different in many respects. The specific occupational histories of each site, their spatial layouts and nonresidential architectural features, the range of economic specializations, and their defensive character all vary in distinct ways. In this chapter we endeavor to understand terrace sites in the Valley of Oaxaca better by highlighting some of these similarities and differences. When appropriate we include comparisons with Monte Albán and Jalieza, the two other hilltop sites in the valley that have been investigated more intensively, at least in part, using similar intensive survey methods. Although observations on economic activities at Monte Albán and Jalieza are not directly comparable to what we present for the three Tlacolula sites, comparisons are still possible and potentially informative along many avenues. The two largest hilltop sites in the valley, Monte Albán and Jalieza, share broad characteristics with the three hilltop sites that were the focus of our study, while also varying from them in significant respects.

Terrace Site Occupation

With artificially flattened residential terraces covering their slopes and ridgetops, the three hilltop sites in Tlacolula were densely populated communities of long duration. In this regard they were functionally similar to Monte Albán and Jalieza. Yet none of these sites had the same occupational history. The three Tlacolula sites were initially settled during Monte Albán Late I (300–150 B.C.), when small settlements were situated on upper sectors of each site. The occupied area of all three sites more than doubled during Monte Albán II (150 B.C.–A.D. 200), when dispersed settlements spread down the slopes. The early communities at El Palmillo and the Mitla Fortress, with several hundred people each, were two of the largest settlements in eastern Tlacolula at that time, and both sites may have been regional head towns. The settlement at Guirún was considerably smaller.

This basic pattern of growth was shared with Jalieza, which had small occupations in Monte Albán Late I and II (Finsten 1995:9). Monte Albán, in contrast, was settled earlier, in Monte Albán Early I (500–300 B.C.). A few other, much smaller hilltop sites have been found to date to Early or Late I (Feinman and Nicholas 1996; Kowalewski et al. 1989:105, 124, 931–936, 942, 966–967, 982). Yet Monte Albán, founded as the regional capital, was unique in its size and monumentality for the valley at that time. By far the largest site in the valley during Early I, Monte Albán covered an area of over 300 ha and had a resident population of more than 5000 people

(Blanton 1978:35; Blanton et al. 1982:41). By Monte Albán Late I, it had grown to more than 17,000 people (Blanton 1978:44; Blanton et al. 1982:61).

Settlement at many hilltop sites in the valley expanded greatly during Monte Albán IIIA (A.D. 200–500). Population growth at the Mitla Fortress, El Palmillo, and Guirún was part of a large buildup of population in the Tlacolula arm of the valley, especially in hilltop terrace sites at the valley's physiographic edge (Feinman and Nicholas 1990; Kowalewski et al. 1989). Growth at these settlements appears to have occurred rapidly, in part due to in-migration from areas east of the valley, possibly as a result of attempts by the Monte Albán polity to consolidate its eastern limits or the polity's inability to control or pacify areas outside the physiographic region (Feinman and Nicholas 1996). In the Early Classic period, all three settlements became dominant centers in eastern Tlacolula. The largest was El Palmillo, with more than 5000 people. Although Guirún surpassed the Mitla Fortress both in areal extent and population, both were only about half as large as El Palmillo.

At this time, growth was even greater at Jalieza, which became the second-ranking center in the valley, with an estimated population of 13,000 (Finsten 1995:3; Kowalewski et al. 1989:227). In contrast, there was no comparable expansion at the regional capital. Monte Albán's population stabilized around 15,000, although it continued as the region's principal political center (Blanton 1978:58; Kowalewski et al. 1989:184).

This widespread pattern of growth changed during the Late Classic/Early Postclassic (A.D. 500–900). In eastern Tlacolula, settlement increased in the Mitla area (Kowalewski et al. 1989: map 7) and at Guirún, while settlement declined at both El Palmillo and on the rocky promontory of the Mitla Fortress. The settlements at the latter two sites were more concentrated (within smaller areas of each site) on upper slopes where there are dense clusters of terraces, so that the communities may have been more densely settled than earlier even though their total populations were smaller. In contrast, the larger settlement at Guirún continued to be more dispersed.

Although Monte Albán's population reached its peak in the Late Classic (approximately 24,000), it collapsed as the regional political center and declined to an estimated population of only about 4000 in the Early Postclassic (Blanton 1978:58; Blanton et al. 1982:126; Kowalewski et al. 1989: 260, 287). At that time Jalieza reached its peak (16,000 people) and surpassed Monte Albán as the largest center in the valley (Finsten 1995:3; Kowalewski et al. 1989:287).

Monte Albán itself remained a second-ranking center in Monte Albán V (the Late Postclassic, A.D. 900–1520), with only 2774–5549 people living primarily on lower slopes (Blanton 1978:101). Yet when combined with the large adjacent population at its base, Cuilapan, this community was one of the largest and most important in the region (Blanton et al. 1982:121; Flannery 1983b; Kowalewski 1983). Jalieza, with less than 7000 people in Monte Albán V, was no longer as large as it had been in the Early Postclassic (Blanton et al. 1982:126; Kowalewski et al. 1989:320). Many of the region's largest settlements at the end of the prehispanic era were in Tlacolula (Kowalewski et al. 1989:317–322). The settlement at Guirún continued to expand and by this time was considerably larger than El Palmillo, which continued to lose population. The settled area on the Mitla Fortress expanded to cover almost all of the landform. By this time the fortress was clearly part of the larger Mitla site, the major center in eastern Tlacolula and, with more than 10,000 people, the third largest in the valley.

These patterns of growth and decline are at least partly affected by larger regional and macroregional trends across Mesoamerica. Yet we may look to more local factors for possible explanations for why El Palmillo declined when so many other centers in eastern Tlacolula were expanding. For example, the residents of El Palmillo depended on xerophytic plants to a greater degree than the inhabitants of the other two sites. This reliance would have involved greater dependence on regional exchange to obtain maize, among other goods. The population at El Palmillo may have been more affected by changes, breakdowns, and realignments in regional exchange networks at the end of Classic period. Although there were marketplaces in the valley in Monte Albán V (Appel 1982), the nature of these exchange venues may have changed and put more stress on El Palmillo.

Layout and Organization

In spite of general similarities in the environmental settings of the Mitla Fortress, Guirún, and El Palmillo, the maps from the intensive surveys provide more detailed plans of these hilltop set-

tlements and illustrate how complicated and internally variable they are. Guirún, like Jalieza in the southern arm of the valley (Finsten 1983:45–46), is spread over a series of high piedmont ridges that descend from higher mountains. Public architecture at Guirún is situated on almost every flat ridgetop, with groups of terraces descending the slopes below. There is no one public area where all the monumental architecture is concentrated. These complexes of structures and terraces formed fairly discrete units that were widely distributed across the site, a pattern of barrio-like organization similar to what Blanton (1978) has described for Monte Albán.

Guirún also is most similar to Jalieza in terms of the density of terraces at the site. Most of the terraces at Guirún are dispersed or occur in small clusters; only on one slope are there several short strings of terraces that share a common retaining wall. Although smaller than the average size of terraces at most hilltop sites in Oaxaca, the dispersed terraces at Guirún tend to be larger than those at El Palmillo or the Mitla Fortress. Terraces at Guirún, however, still are much smaller than those at Jalieza or Monte Albán (see Table 2.5).

Like Monte Albán, the Mitla Fortress and El Palmillo are situated on more freestanding ridges or hills and have more compact arrangements of terraces, although terraces at Monte Albán are much larger. The occupation of the fortress was situated on one highly defended hill, with the most monumental architecture constructed on the summit. Most of the terraces, some of which are part of strings of terraces sharing high stone retaining walls, are situated on the top and slopes of a long, low ridge that descends from the apex. At the fortress, these strings of terraces cease half way down the east slope. Other terraces on steeper slopes are more widely dispersed.

El Palmillo was the most compact hilltop settlement of all five sites in this sample, with row upon row of small terraces crammed in on the main, western face of a high rocky piedmont ridge. Near the base of the hill, long strings of as many as 10 terraces shared high stone retaining walls. Smaller groups of terraces, also sharing retaining walls, were constructed on several smaller ridges that descend the main ridgetop. Similar to the Mitla Fortress, monumental architectural constructions were concentrated in the civic-ceremonial core of the site on the highest part of the ridge.

Although it is more difficult to define barrios in the compact residential arrangements on the Mitla Fortress and El Palmillo, topographic divisions and strings of terraces with high retaining walls set off groups of terraces at both sites. Spread out among the residential terraces at both sites are small structures and platforms. These low platforms and mounds may have served certain civic or ceremonial functions for the surrounding neighborhoods or barrios at the sites.

Thus, in site layout, the Mitla Fortress is more similar to El Palmillo than to Guirún. Monumental architecture at the former two communities is more concentrated in one civic-ceremonial core at the highest point of each site. At Guirún large public buildings are more dispersed across the settlement, likely associated with different residential segments. The far-flung neighborhoods at Guirún, some with their own core of monumental architecture, may have had more autonomy than the compact residential segments at the other two sites.

The more dispersed structure of Guirún, like Jalieza, also may reflect the establishment of separate parts of the site at different times in the past. This is a pattern that was noted at Jalieza where settlement shifted dramatically over time along one connected ridge system (Finsten 1995; Kowalewski et al. 1989). The more compact plans and integrated network of roads, walls, and terraces at the Mitla Fortress and El Palmillo likely developed during a rapid episode of growth and construction that occurred early in the Classic period.

In other respects, however, the Mitla Fortress is more similar to Guirún than to El Palmillo. At its height, El Palmillo had three to four times as many terraces as the other two sites. Yet the total volume of public architecture at El Palmillo is comparable to that at the other two sites, so that there are many more structures, platforms, and plazas relative to the total number of terraces at the Mitla Fortress and Guirún. At El Palmillo, there are more than 12 terraces for every structure or platform, while at Guirún and the fortress there are less than four. The same pattern occurs with plazas, with more than 200 terraces for every plaza at El Palmillo and less than 70 at Guirún and the Mitla Fortress. These differences likely reflect distinct organizational and administrative strategies. Integration at El Palmillo may have been more bottom up, with greater household to household integration, especially among residents of adjacent strings of neighboring terraces that shared retaining walls.

Still, the monumental architecture at all three

TABLE 6.1. Mound Volumes in Monte Albán's Barrios and Other Terrace Sites in Oaxaca

	Mound Volume
Mitla Fortress	12,110
Guirún	23,075
El Palmillo	14,200
Jalieza	33,000
Monte Albán barrio 1	16,148
Monte Albán barrio 2*	759,498
Monte Albán barrio 3	7,682
Monte Albán barrio 4	6,869
Monte Albán barrio 5	6,276
Monte Albán barrio 6	12,350
Monte Albán barrio 7	7,218
Monte Albán barrio 8	9,088
Monte Albán barrio 9	348
Monte Albán barrio 10	632
Monte Albán barrio 11	66,828
Monte Albán barrio 12	2,860
Monte Albán barrio 13	3,688
Monte Albán barrio 14	5,125
Monte Albán barrio 15	7,460

* Includes Main Plaza. Mound volumes for Monte Albán are from Table 4.1 in Blanton (1978).

sites (as well as at Jalieza) is miniscule in comparison to the regional capital, Monte Albán (see Table 2.5). In this sense, Monte Albán is unique, having panregional functions. In fact, the total volume of public architecture at Jalieza and each of the three hilltop sites in Tlacolula is more similar to that of individual barrios at Monte Albán than to the latter site as a whole (Table 6.1). There likely was a corresponding flatter administrative hierarchy in these smaller hilltop centers at the periphery. All of the terrace sites under consideration had civic-ceremonial or administrative functions, yet these roles varied greatly by time and location.

Economics and Exchange

Guirún, El Palmillo, and the Mitla Fortress were centers of craft production. All three sites also are located near major trade routes into the valley from the east and southeast. In a certain sense, the residents of all three sites engaged in many of the same activities, working a variety of stone materials, making ceramics, processing plant materials for fiber and food. Yet by examining the nature of the artifact assemblages, especially stone, and the differential distribution of tools and debris across the sites, it is possible to observe variation in the suite of activities at each site or even between different sectors at the same site.

Stone working was an important activity at all three sites (see also Kowalewski et al. 1989; Robles 1994). All are located on or near chert sources of varying quality (Whalen 1986; Williams and Heizer 1965), and chert was the most prevalent stone material at each site, but to different degrees (Table 6.2). The Mitla Fortress is situated above one of the highest-quality sources in the area, and stone from that locale dominates the chert assemblage at the site (over 50%), especially in site sections closest to the source. But overall, chert does not dominate the stone assemblage at the fortress

TABLE 6.2. Stone Assemblages at Terrace Sites in Eastern Tlacolula

	Mitla Fortress			Guirún			El Palmillo		
	Qty.	Percentage of Total	Per ha	Qty.	Percentage of Total	Per ha	Qty.	Percentage of Total	Per ha
Chert	630	54.45	11.91	2,009	66.99	20.58	1,730	73.96	19.22
Formal tools	147	23.34	2.78	190	9.46	1.95	485	28.04	4.90
Utilized flakes	239	37.93	4.52	256	12.74	2.62	685	39.59	6.92
Production debris	244	38.73	4.61	1,556	77.45	15.94	554	32.03	5.60
Obsidian	389	33.62	7.35	359	11.97	3.68	285	12.18	3.17
Cores	23	5.91	0.43	2	0.56	0.02	4	1.40	0.04
Flakes	81	20.82	1.53	49	13.64	0.50	20	7.02	0.22
Ignimbrite	2	0.17	0.04	240	8.00	2.46	10	0.43	0.11
Greenstone	3	0.26	0.06	139	4.63	1.42	82	3.51	0.91
Basalt	7	0.61	0.13	82	2.73	0.84	13	0.56	0.14
Groundstone	104	8.99	1.97	54	1.80	0.55	141	6.03	1.42
Other stone tools	122	88.41	2.31	125	19.81	1.28	201	62.04	2.03
Other stone debris	13	9.42	0.24	437	69.26	4.48	114	35.18	1.15

TABLE 6.3. Selected Stone Tools at Terrace Sites in Eastern Tlacolula

Tool	Mitla Fortress			Guirún			El Palmillo		
	Qty.	Percentage of Total Tools	Per ha	Qty.	Percentage of Total Tools	Per ha	Qty.	Percentage of Total Tools	Per ha
Scraper	25	3.16	0.47	32	3.64	0.33	220	13.53	2.22
Raspador	31	3.91	0.59	40	4.55	0.41	67	4.12	0.68
Mano	43	5.43	0.96	39	4.44	0.40	59	3.63	0.60
Metate	50	6.31	0.96	25	2.84	0.26	66	4.06	0.67
Blade	282	35.61	5.33	310	35.27	3.18	266	16.36	2.69
Hammerstone/*mazo*	12	1.52	0.23	52	5.92	0.53	49	3.01	0.49
Projectile point	35	4.42	0.66	8	0.91	0.08	40	2.46	0.40
Perforator	19	2.4	0.36	11	1.25	0.11	34	2.09	0.34

as much as it does at the other two sites, even though most of the chert sources on or near Guirún and El Palmillo are of poorer quality. At those two sites a wider range of local sources was used. Clearly, proximity to sources was not the only factor influencing stone working at the three sites.

Most of the chipped stone working at all of the sites was based on expedient technologies, with reduction flakes used as simple cutting tools dominating the tool assemblages. In many respects, stone working activities appear to have been most different at Guirún, as evidence for lithic reduction (both chert and ignimbrite) is more abundant there (see Table 6.2) (see McAnany 1989). At Guirún, formal tools constitute less than 10% of the chert assemblage (e.g., scrapers, *raspadores,* projectile points, perforators) and about 20% of other stone materials (e.g., manos, metates). In contrast, formal tools constitute around 25% of the chert assemblages at El Palmillo and the Mitla Fortress. The contrast between Guirún and the other two sites is even greater for ignimbrite and other ground stone categories.

Guirún's residents also appear to have used chert tools and cobbles in working the bedrock quarry at the north end of the site. There are much higher amounts of ignimbrite debris at Guirún, and chert cobbles, tools, and debitage have been found near cut stone blocks at the quarry (Robles 1994). Working and cutting the natural stone would have produced large amounts of chert debitage. At Guirún, over 70% of the observed chert is composed of cobbles, chunks, and unmodified flakes, compared to only 21% (not including cores) at both the Mitla Fortress and El Palmillo. In contrast, a much higher proportion of reduction debris at the fortress and El Palmillo, especially flakes, was used as expedient cutting tools that would not have been effective tools at the quarry.

There is more obsidian at the Mitla Fortress than at Guirún or El Palmillo, both numerically and as a percentage of the stone assemblage at each site (see Table 6.2). Obsidian cores and flakes constitute 27% of the obsidian assemblage at the fortress and less than 15% at Guirún and 10% at El Palmillo. Most of the cores and flakes at the fortress are green obsidian. Because many of the obsidian projectile points at the fortress are small Late Postclassic forms, obsidian working at the fortress may pertain to that time as well as the Classic period.

Obsidian working is less certain at the other two sites. Yet based on the nature and distribution of the obsidian assemblage at El Palmillo, it appears that households in one site section likely worked some imported gray obsidian.

The overall obsidian assemblage at each site comprises different proportions of green, gray, and black obsidian. At the Mitla Fortress, 63% is green, 46% at Guirún is gray, and 47% at El Palmillo is black. Assemblages also differ by sections within sites. Given these differences, there is no indication that all obsidian arrived at a central site like Monte Albán to be redistributed evenly. Each community may have developed its own exchange connections. At the same time, we cannot rule out a scenario in which at certain times green obsidian cores were traded to the Mitla Fortress (or gray cores to El Palmillo) from outside the valley to be snapped into blades that were exchanged within the site or exchanged to surrounding sites.

There also are differences in the overall tool assemblages at all three sites that point to a greater emphasis on processing plant materials at El Palmillo and to some degree, the Mitla Fortress (Table 6.3). For example, scraping tools account for 18% of all tools at El Palmillo, compared to

TABLE 6.4. Ceramic Production at Terrace Sites in Eastern Tlacolula

Form	Mitla Fortress			Guirún			El Palmillo		
	Qty.	Percentage of Ceramic Assemblage	Per ha	Qty.	Percentage of Ceramic Assemblage	Per ha	Qty.	Percentage of Ceramic Assemblage	Per ha
Kiln wasters	7	0.25%	0.13	7	0.33%	0.07	47	0.97%	0.52
Figurine/urn wasters	3	0.11%	0.06	2	0.09%	0.02	17	0.35%	0.19
Total kiln wasters	10	0.35%	0.19	9	0.42%	0.09	64	1.32%	0.71
Clay coils	2	0.07%	0.04	0	0.00%	0.00	12	0.25%	0.13
Molds	2	0.07%	0.04	3	0.14%	0.03	11	0.23%	0.12
Clay concretions	0	0.00%	0.00	1	0.05%	0.01	0	0.00%	0.00
Moldes	4	0.14%	0.08	0	0.00%	0.00	1	0.02%	0.01

8% at Guirún and 7% at the Mitla Fortress. Many of the El Palmillo and fortress scrapers and *raspadores* are very worn or polished, possibly from processing plants for fiber (Hester and Heizer 1972; Parsons and Parsons 1990). Manos and metates also were more prevalent at El Palmillo and at the fortress than at Guirún. At the fortress, however, we did not recover any of the unusual metates with holes cut in the bottom that are present at El Palmillo. Although spindle whorls are rarely found during surface surveys in Oaxaca, two were recorded at the fortress and one at Guirún. We did not observe any whorls on the surface at El Palmillo but have subsequently recovered dozens in excavations at the site (Feinman et al. 2002), especially large whorls that would have been used for spinning maguey fibers (see Parsons 1972). There also are many stands of *Yucca periculosa* (another fiber-bearing plant) at both El Palmillo and the fortress (and not at Guirún). Thus while xerophytic plants may have been processed for fiber (and food) to some degree at all three sites, the emphasis on this activity appears to have been strongest at El Palmillo and weakest at Guirún.

Although we recovered surface evidence for ceramic production at all three sites, it was less abundant at the Mitla Fortress and Guirún than at El Palmillo (Table 6.4). Per 1000 sherds, we found 13.2 kiln wasters and 2.3 molds in surface collections at El Palmillo compared to only 3.5 kiln wasters and .7 molds at the fortress, and 4.2 kiln wasters and 1.4 molds at Guirún. Based on our prior excavations in Ejutla (Feinman and Nicholas 1995b, 2000), these findings serve as indicators for ceramic manufacturing. Most ceramic production at all three sites appears to have been of low intensity, largely for local consumption. Only in one residential sector of El Palmillo did we find quantities of ceramic wasters and other debris that would indicate a greater volume of production for more widespread exchange.

Residents of many of Monte Albán's barrios also engaged in obsidian working, ground stone and chipped stone (chert/quartzite) tool production, and ceramic manufacture (Blanton 1978; Misner 1993). Shell working, which was practiced in some elite barrios at Monte Albán (Blanton 1978), was not found at any of the Tlacolula sites. Production of elite items (shell and obsidian) appear to have been more important at Monte Albán while stone working was of greater significance at the Tlacolula sites. Except for shell working, the residents of Jalieza engaged in the same suite of activities as we already have discussed (Finsten 1995).

In addition to site-to-site variation in economic activities, people living in different segments of the same sites also did not engage in the exact same set of activities. Residents of separate barrios or terrace clusters appear to have specialized in producing different goods or at least a slightly distinct suite of goods.

At the Mitla Fortress, the inhabitants of the site section just below the summit of the hill were engaged heavily in craft production. Half of the obsidian cores at the site were found here, as well as a high percentage of the ground stone tools, especially manos and metates, made from local bedrock. Based on the differential distribution of chert tools and debris at the site, the residents of this neighborhood also worked chert, as did households residing near the chert source at the base of the hill. Some of this chert was traded to other sites in the area; at El Palmillo we noted about a dozen pieces of chert from the Mitla source. Low-intensity ceramic production also was carried out in several site sections, especially closer to the base of the hill.

At Guirún, residents of several site sectors were heavily involved in working stone from the La Cuadrada quarry. We also found variation in the distributions of chert debris among site sections indicating that early-stage and late-stage chert reduction often took place in different parts of the site, in spite of the fact that chert outcrops are situated in most site segments.

At El Palmillo, the production of chert tools was most prominent in a few site sections, especially the southern ridgetop and two other site sections closer to the base of the hill. Stone tool assemblages varied across the site. Whereas scrapers were more evenly distributed, *raspadores* were especially common in two site sections; processing xerophytic plants for fiber may have been an important economic activity in those parts of the site. Loci of low-intensity ceramic production were dispersed across several areas of the site. Yet specialized ceramic production for exchange did occur in one site sector (section 4) on the lower part of the main western face of the hill, in the area of the site with the greatest concentration of economic activities. Households in this site section also worked chert and local greenstone and made blades from imported obsidian.

At Monte Albán, several elite materials—shell and obsidian—were found in at least low quantities across the site. Yet most of the production and consumption of these goods was carried out in or near the site subdivision that includes the Main Plaza, where Blanton (1978:79) identified 12 locations of obsidian working and six for shell. Residents of other barrios at Monte Albán specialized in quarrying the local bedrock for construction stone and ground stone tools, some specialized in making tools from chert/quartzite (Blanton 1978; Misner 1993), and at least one barrio (Atzompa) engaged in large-scale ceramic production (Feinman 1980).

On the basis of seven cores and one flake, Finsten (1995:61) identified specialized obsidian production for one terrace group at Jalieza. Possible evidence of obsidian working in other terrace groups at the site was less clear. Working of chert, mostly for expedient tools, occurred in most terrace groups. Only a few terrace groups specialized in ceramic production, mostly low intensity.

Although a range of basic goods and craft items was produced at all of these hilltop sites, in many respects, craft production appears to have been more important for the sites in eastern Tlacolula. Blanton (1978:96) estimates that about 10% of Monte Albán's residents were involved in craft production. Finsten (1996) argues for little specialized production at Jalieza. Based on the quantity and wide dispersal of craft debris at hilltop terrace sites in Tlacolula, we suspect that a much higher percentage of people at those sites engaged in at least part-time craft production. The limited agricultural potential (especially for corn) in this dry arm of the valley may have been one factor (Kowalewski et al. 1989:245).

Specialized household craft production was established in the Valley of Oaxaca prior to 1000 B.C. (Flannery and Winter 1976; Marcus 1989; Marcus and Flannery 1996:10; Winter and Pires-Ferreira 1976). It is difficult to evaluate the intensity of this production especially from surface remains. Yet based on the empirical record from both excavations (Feinman 1999; Feinman and Nicholas 2000) and survey (Feinman 1986; Kowalewski et al. 1989), we suspect that the magnitude or intensity of house-based manufacture was at least equal to or greater during the Classic period as compared to earlier times. That is, in the Classic period, the volume of goods produced for exchange per house would seem to have been equivalent or greater while more houses were involved in craft production. This latter observation (Blanton et al. 1982; Kowalewski et al. 1989) is not surprising given that the regional population of the Valley of Oaxaca was significantly larger during the Classic period than it was earlier. The sizes of the top-ranked communities in the region, such as Monte Albán, also were much greater than were the largest settlements during the Early and Middle Formative periods (Kowalewski 1990b). Thus although household economic specialization has a long history in the region, the implications for the intra- and interregional networks of exchange were far from constant. More specifically, if the Classic period residents of these large hilltop sites were producing a range of different goods, how were they exchanged?

At Monte Albán, Blanton (1978:86) identified a large open area with no structures or residential constructions in the middle of a densely populated area in a lower subdivision, far from the Main Plaza, that he proposed to have been a marketplace. The area is adjacent to a major road at Monte Albán, and ample evidence for craft production was noted on the surrounding terraces. We suspect that a similar large open plaza at El Palmillo also may have been a market area. This feature (Plaza H) is located on top of the low piedmont spur at the base of El Palmillo, with several small structures and platforms on its pe-

riphery. It is not associated with any monumental constructions. Several ancient roads, beginning at the base of the hill below, lead up to this plaza; one of these paths continues up into the main occupied area of the site above the plaza. We also have found the most indications for the specialized production of a range of goods in the site section just above this possible market area.

In an interesting analysis of possible marketplaces in the Mixteca Alta region of Oaxaca, Pluckhahn and Kowalewski (2003) synthesize available information on ethnographic marketplaces in Oaxaca. One variable they looked at was size. According to Beals (1973:123), the marketplace at Ayutla, the most important in the Western Mijería, measures about 2700 m^2. A secondary market in Nochixtlán, in the Mixteca Alta, covers 3440 m^2 (Warner 1976:121). Plaza H at El Palmillo has an area of approximately 2900 m^2 and so falls within the range of these marketplaces.

At the Mitla Fortress, a smaller plaza on the lower part of the southeastern spur of the site also may have been a market area. Plaza G is situated adjacent to a large platform and has several small stone foundations that do not look like room or house foundations. Four ancient roads, from all directions, lead to this open area. This possible marketplace measures 476 m^2, only slightly larger than a tertiary market (the lowest level in the Oaxaca peasant market system) at Mitla (395 m^2; Beals 1975:133).

Although the archaeological definition of these open areas as marketplaces is difficult to confirm, their presence in conjunction with surface indications of specialized production and systems of roads leading up to them provides support for marketplace exchange in Oaxaca by the Classic period. Significantly, in the Mixtec region of Oaxaca, sixteenth-century markets were often near the boundaries of communities and not at settlement centers (Pohl et al. 1997).

Defense

Guirún, El Palmillo, and the Mitla Fortress were situated on defensible hills or mountain ridges that were set off from the valley floor by steep slopes that constrained access into the heart of these sites. All three sites were guarded by sets of defensive stone walls, often situated across the areas of easiest movement onto the sites. Once inside the settlements, there are proscribed or defined routes and accessways that identify major paths of communication through the sites.

In spite of these parallels, defense appears to have been a somewhat greater concern at El Palmillo and the Mitla Fortress. These two freestanding landforms ultimately would have been easier to guard and defend against antagonistic visitors. In contrast, it would have been much more difficult to guard all possible entries into Guirún given the dispersed ridge system on which the site is located. Another indication of the greater concern with defense at El Palmillo and the fortress is the higher quantity of projectile points we found at those two locations (40 at El Palmillo and 35 at the fortress) compared to Guirún (8) (Figures 3.19, 6.1–6.4). Although the points were dispersed at El Palmillo, many were found in lower site sections. At the fortress most were found on the ridgetop just outside the huge stone walls that surround the summit. These distributions could point to areas of the respective sites where fighting may have taken place. Yet it is unclear just how frequently the residents of any of these sites may or may not have engaged in antagonistic activities or warfare. In point of fact, projectile points are not particularly abundant compared to other stone tools. The numbers collected during the site survey were not great, and they constitute a very small proportion (only 1.5%) of all of stone tools in our excavated collections (1999–2003) at El Palmillo (Feinman et al. 2003).

There also were more defensive walls at El Palmillo and the Mitla Fortress than at Guirún. In addition to the huge stone walls on the summit, other walls guarded the base of the fortress, especially the more accessible southeastern spur. Many of the wall remnants we mapped may have been more continuous when the site was occupied.

The walls at the Mitla Fortress and El Palmillo often are associated with strings of terraces. At the fortress, these high stone retaining walls guard and limit access to the long ridgetop and summit that form the core of the site. At El Palmillo the strings of terraces with the highest stone retaining walls are closer to the base of the hill. Two long strings of terraces circle the base of the more accessible western face. They are joined in the center by large platforms that guard the principal entry into the heart of the site and abut steep impassable bedrock on their far ends. The top of the low piedmont spur at the base of El Palmillo, which provides the easiest access into the site, is

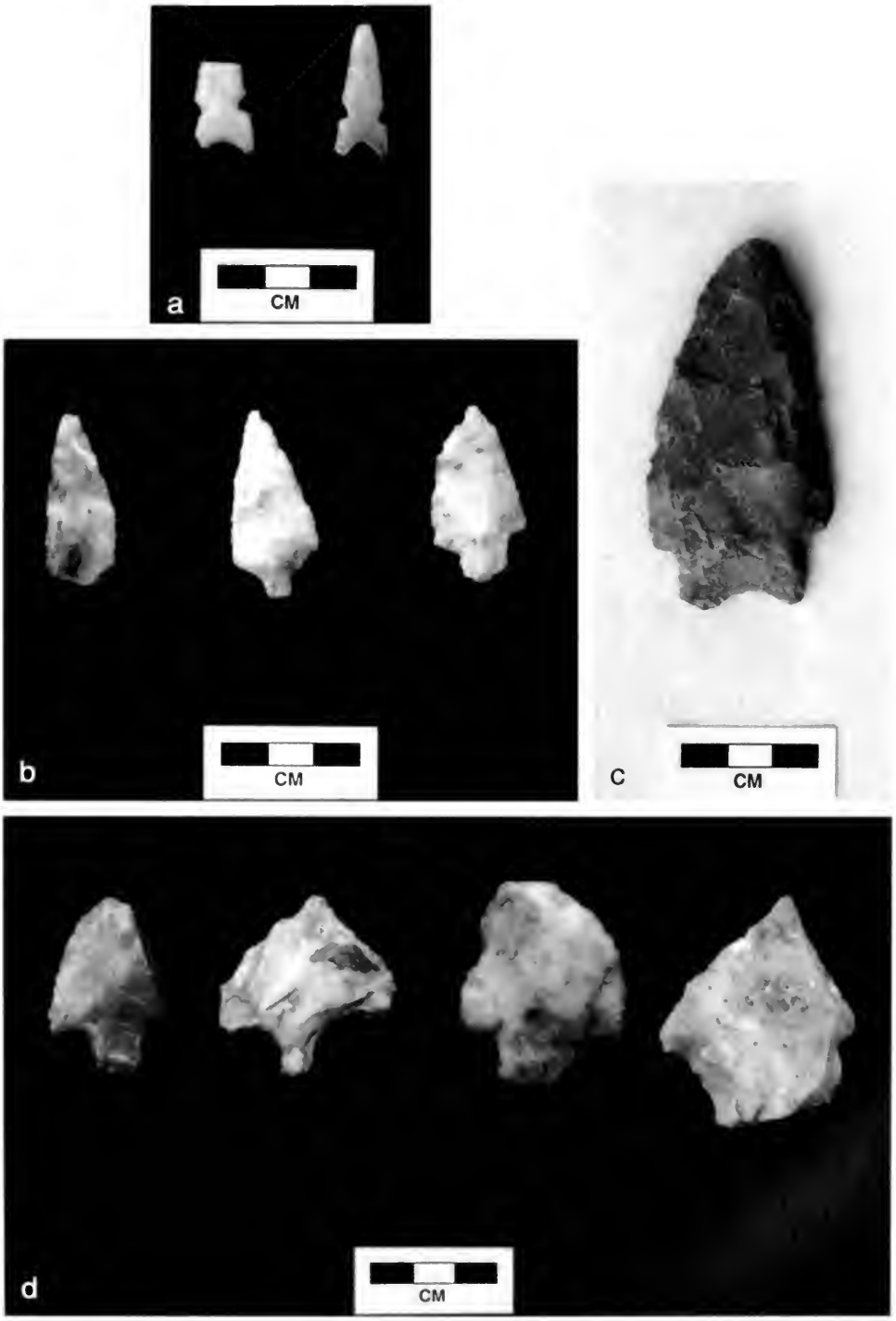

FIG. 6.1. The most complete nonobsidian projectile points from the Mitla Fortress. **a.** Left to right: Terrace 196, near Structure 96. **b.** Left to right: Terrace 196, Platform 5, Plaza F. **c.** Terrace 313. **d.** Left to right: Structure 71, Platform 100, Terrace 150, Terrace 82.

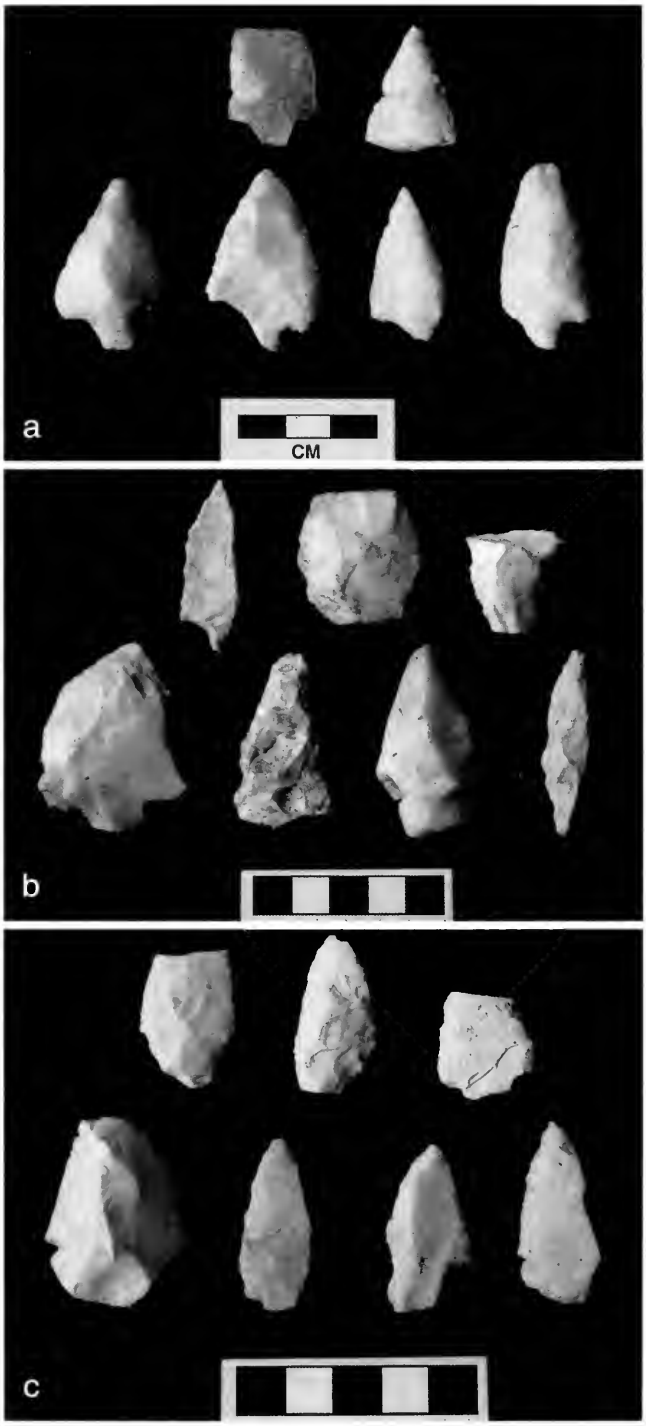

FIG. 6.2. Small chert projectile points and point preforms from El Palmillo. **a.** Top left to bottom right: from near Platform 41, on slope between Terrace 1440 and Platform 41, Terrace 1106, Terrace 1387, Terrace 413, Terrace 166. **b.** Top left to bottom right: Terrace 691, Platform 18, Terrace 1108, Terrace 1340, Structure 22, Terrace 1106, Terrace 941. **c.** Top left to bottom right: Terrace 1392, Terrace 827, Terrace 1392, Terrace 535, Terrace 1078, Terrace 1136.

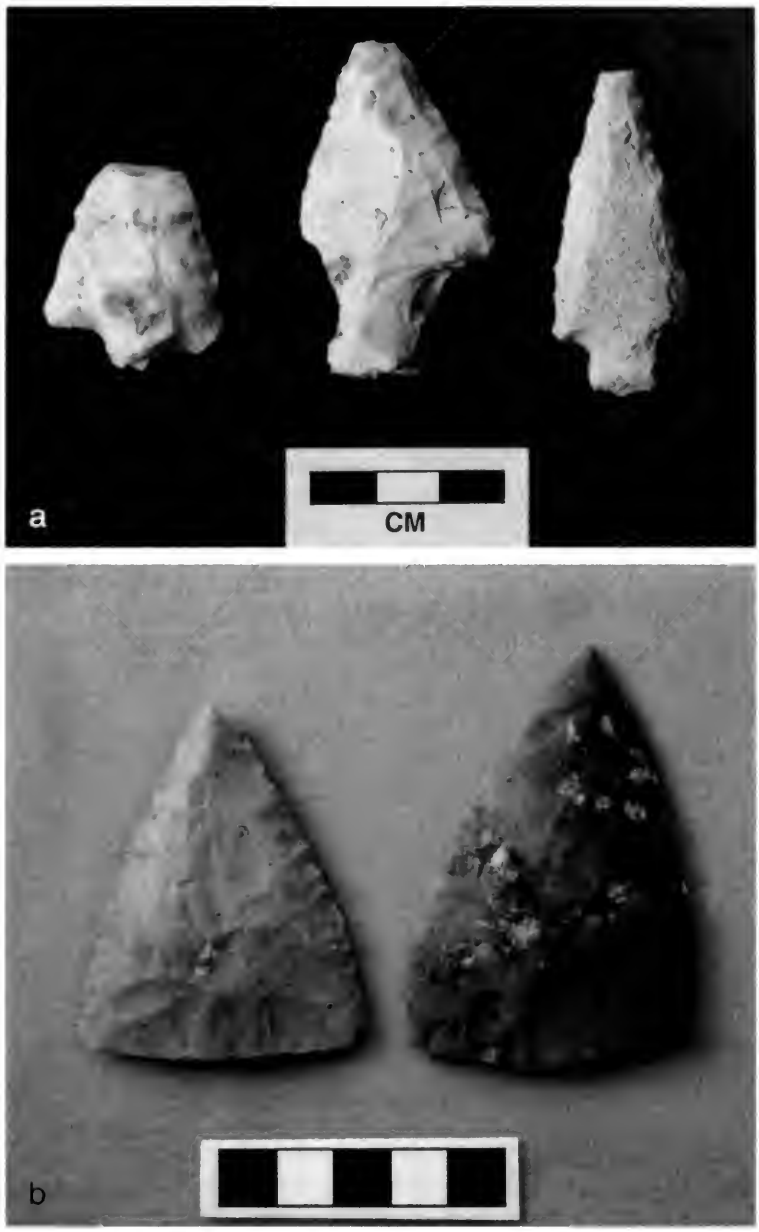

FIG. 6.3. Large projectile points from El Palmillo. **a.** Left to right: Terrace 275, Structure 20, Terrace 1095. **b.** Left to right:. Terrace 205, Terrace 83.

circled by three long concentric strings of terraces that share unbroken retaining walls.

Although there are fewer high stone walls at Guirún, the site was still defensible. The topography of the site includes several narrow ridgetops with steep slopes that are very difficult to ascend. Similar to Monte Albán, these slopes often were left unwalled, the steep slope itself being a deterrent. Only the easiest areas of approach at Guirún were well guarded by walls or wall segments.

At Monte Albán, a long wall at the base of the hill, with gatelike structures on a major route into the city that passes through this wall, clearly was constructed for defense (Blanton 1978:65). Similar to the Tlacolula hilltop sites, walls often were constructed across slopes of easiest access. Yet

FIG. 6.4. Small chert projectile points from Guirún. Left to right: below Terrace 629, from near the ball court (Structure 14).

not all walls were built to keep unwanted visitors from entering these sites; some walls may have been constructed to control access within sites. Especially near the Main Plaza, walls at Monte Albán were built to limit access into certain precincts of the city. Many of the interior walls at the three Tlacolula sites, especially at El Palmillo, also may have functioned more to limit access than for defense. At Guirún, the most substantial walls were constructed around major public buildings; there may have been less concern with controlling the movement of people in other parts of the site.

Thus although terrace sites were much more than just fortresses, a concern with defense clearly was an important factor influencing the setting and character of these hilltop settlements. Yet fortifications at these communities varied in quantity and kind, and access and the internal movement of people was not controlled to the same degree at all sites. Given this heterogeneity, it would appear that there was a range of defensive concerns that influenced settlement location and character, including proximity to major mountain passes or unfriendly neighbors both within and beyond the valley.

Summary

Based on these comparisons, Monte Albán shares many basic characteristics with other terrace sites in the Valley of Oaxaca. These hilltop settlements are situated in defensible hilltop locations, served as administrative centers, were population centers with barrio-like organizations, and were centers of craft production. Yet Monte Albán clearly was not just a terrace site writ large. The public architecture in its ceremonial core was much more monumental than at any other terrace site in the valley, reflecting its role as the regional capital. It had major temples, palaces, and special buildings not replicated in lower-order centers. Even at Jalieza, the second largest hilltop terrace site in the valley (and at times the largest settlement), the nature and amount of monumental architecture is much more similar to the sites in eastern Tlacolula than to Monte Albán.

As the regional capital, Monte Albán was primarily a political center, with many administrative functions concerning both internal and external affairs. Other terrace sites, more peripherally located, had fewer administrative functions, possibly focused more on defensive concerns as well as boundary issues.

With its distinctive and monumental civic-ceremonial core and greater disparity in terrace size, the regional capital had more of a top-down organization and greater vertical integration than any other hilltop settlement in the valley. The main public cores at these other sites were similar in terms of volume of public architecture to Monte Albán's barrios or site subdivisions. Not only were their terraces smaller, but there was less variation in terrace size. We suspect that the eastern Tlacolula centers had stronger horizontal links that interconnected domestic units from the bottom up.

The spatial plan of residences at Monte Albán share some characteristics with outlying terrace sites (see Feinman et al. 2002; Winter 1974). Yet the terraces at the capital are much larger than those at most other terrace sites, and elite terraces at Monte Albán are even larger (Blanton 1978: 68), at least in part because of bigger houses and patios. Many patios at Monte Albán (Blanton 1978:98) are larger than the average size of entire terraces at the three Tlacolula sites. Residents of the capital clearly had greater access to elite items, and people living in or near the Main Plaza had the greatest access (Blanton 1978:76–79). Differences in access to goods are much more subtle at other terrace sites. For example, at El Palmillo, where most terraces are smaller and there is less variation in terrace size, the few piec-

es of shell we found were not concentrated near the site's civic-ceremonial core.

El Palmillo, the Mitla Fortress, and Guirún also differ from each other in significant respects. Guirún is less defensible, with dispersed neighborhoods that may have enjoyed some autonomy. El Palmillo was the most defensible, at least until the late and massive stone walls were built at the Mitla Fortress. Access into and through the site may have been tightly controlled.

As large population centers and loci of craft production, terrace sites played a significant role in the economy of the Valley of Oaxaca, probably serving as major arenas of exchange through markets. Similarities in ceramic assemblages at most sites in the valley would seem to indicate interaction and participation in regional economic exchange networks. Yet given the defensive nature of the hilltop terrace sites, at least some degree of tension likely existed among them. The defensive features appear geared to protect the inhabitants from neighboring communities as well as intruders from outside the valley. The residents of these settlements did not always have a peaceful coexistence, even though they were interdependent on each other through exchange and seem to have been part of the same Zapotec polity, centered at Monte Albán, for much of their histories.

7

Implications and Conclusions

Hilltop terrace sites have long been recognized as an important, albeit somewhat sketchily understood, component of prehispanic settlement in the Valley of Oaxaca. The extensive settlement pattern surveys of the 1970s and 1980s provided basic characterizations of these distinctive communities as well as critical regional context. Yet the methods of regional survey that are so effective for gaining broad intersite and interregional perspectives often do not provide sufficient time or effort at any one site to gather the kinds of information necessary for more detailed intrasite studies. To do so would compromise the most important goals of regional survey. The examination of a series of more directed questions about everyday life at terrace sites and the nature of the site and regional economies require finer-grained data. Although the information acquired through intensive surface studies are not nearly as detailed as those derived from excavation, they do provide an intermediate level of information concerning variation between sites and within sites.

Through intensive surface studies at three hilltop terrace sites in the eastern Tlacolula arm of the valley, we have gathered new information on intersite and intrasite variation in site layouts, the articulation of construction features, economic activities, defense, and the multiplicity of roles of terrace sites in the prehispanic Valley of Oaxaca. Yet even so, our interpretations and discussions remain preliminary. A larger sample of intensively studied terrace sites is needed along with more detailed information from excavations in domestic contexts to answer with greater certainty many of the questions we have posed.

Are Terraces Residential or Agricultural?

Prior to our intensive site surveys, domestic debris and occasionally stone house foundations had been observed on terraces at hilltop sites during the regional surveys (Blanton et al. 1982; Kowalewski et al. 1989), and excavations on three terraces at Monte Albán had exposed domestic house structures (Winter 1974). Yet questions remained concerning other settlements and what percentage of terraces at Monte Albán were domestic. In other words, was the unearthing of domestic architecture on several terraces at that site typical of all terraces at Monte Albán? And were terraces at other hilltop sites functionally similar to those at the regional capital? Ancient agricultural terraces had been identified at prehispanic sites in Oaxaca (Flannery et al. 1967; Neely 1970; Neely et al. 1990) and elsewhere in highland Mexico (Donkin 1979; Sanders 1972; Woodbury and Neely 1972). Even at Monte Albán, the regional capital, Blanton (1978) identified some lower terraces as agricultural based on the absence of domestic debris.

The findings of the intensive site surveys at the Mitla Fortress, Guirún, and El Palmillo strongly support the hypothesis that the primary role of terraces at these hilltop sites was residential. Domestic trash is present on almost all terraces in every sector of these sites, on terraces from near the public cores at the summit to those at the lowermost edges of the settlements. Pottery and stone tools and production debris from a range of local and imported materials are abundant on many ter-

races. There are distinct patterns in the distribution of these materials across the sites that would be nearly impossible to account for solely by random dumping of domestic trash on agricultural fields. In addition, some of the stone artifacts, especially metates and other large pieces of cut stone, are too heavy to have been carried out to agricultural fields for fertilizer.

Stone foundations of houses and small domestic tombs are found on a small proportion of the mapped terraces at all three sites; fragments of building stone are found on many others. If our subsequent excavations at El Palmillo, where we have exposed a series of residential complexes on terraces, can serve as a guide (Feinman et al. 2002), the low proportion of terraces with visible houses on the surface is more the result of centuries of post-occupational colluvial deposition and not due to the lack of subsurface residential architecture on the terraces. Many terraces, especially at El Palmillo and the Mitla Fortress, also had stone-lined entryways leading up to them from below; such features are not typical of agricultural terraces.

Some of the smaller terraces at the Mitla Fortress and El Palmillo may not have held separate residences, yet they still were part of "house lots." Many of these smaller terraces were in steep areas of the sites with outcropping bedrock where it would have been difficult to construct large terraces. Households in these areas instead may have constructed and used several small adjacent terraces, possibly carrying out separate domestic tasks on different terraces. From our subsequent excavations at El Palmillo, we found one houselot that incorporated two small adjacent terraces (Feinman et al. 2001, 2002), yet excavations on a wider range of terraces will be necessary to ascertain whether this pattern is typical or rare.

Nevertheless, it seems clear that terrace sites in Oaxaca were residential and that, in this regard, Monte Albán was not unique or distinctive in the region. It remains possible that some small terrace sites in Oaxaca may have been short-term occupations or military redoubts, yet we suspect that most of these hilltop sites, with their large numbers of residential terraces, were large towns and population centers that were occupied for centuries. The population estimates and demographic reconstructions from the regional settlement surveys (Blanton et al. 1982; Kowalewski et al. 1989) are borne out by our more intensive studies. If anything, the regional survey estimates are apt to be a bit conservative, with more domestic units compactly packed on settlement slopes. Densely populated towns were key parts of the Valley of Oaxaca landscape, especially during the Classic and Postclassic periods.

Occupational History of Terrace Sites

Hilltop terrace sites in the Valley of Oaxaca were heavily populated settled communities that were occupied for hundreds of years. Yet the specific population histories vary from site to site. Many began as small settlements in Monte Albán Late I and II and then expanded greatly during IIIA, when hilltop sites became common features of the valley landscape, especially in the dry eastern Tlacolula arm. During the Classic period, as much as two-thirds of the valley's population resided in these hilltop centers.

After the Early Classic period, occupational histories of these hilltop centers diverged, and individual terrace sites followed different demographic trajectories. By the Late Postclassic, El Palmillo and Monte Albán were smaller than they had been during the Classic period, while Guirún, like other sites in eastern Tlacolula, reached its peak. How individual terraces sites were organized, where they were located, what economic activities were key, and the nature and extent of their exchange networks affected how they weathered local and regional-scale changes at the end of the Classic period. In other words, while hilltop terrace sites in the Valley of Oaxaca were most prevalent during the last 1500 years of the prehispanic era, each site seems to have its own distinct occupational record.

Terrace Site Function and Organization

As centers of dense populations, hilltop terrace sites had many roles in the regional system, serving as loci of civic-ceremonial activities, craft production, and defense. Most terrace sites are defensively situated, yet the three hilltop communities that are the focus of this study were not just fortresses, and considerable energy was invested in constructing and maintaining the residential terraces (Kowalewski et al. 2004).

Many large terrace sites, especially in eastern Tlacolula, were centers of craft production.

Households at these settlements produced a range of goods for their own local use as well as for exchange to neighbors, other sectors of the site, or to other sites. As some of the largest communities in the Tlacolula Valley, El Palmillo, Guirún, and the Mitla Fortress also were civic-ceremonial centers. Yet architecturally, each of these sites stands in stark contrast to Monte Albán in terms of the scale, monumentality, and diversity of public construction.

The layout and residential organization of hilltop settlements also varied between sites and over time. Some, like El Palmillo and the Mitla Fortress, were compact settlements located on one freestanding landform, with long rows of terraces sharing retaining walls. Others, like Guirún and Jalieza, were more dispersed, with terraces spread across a series of ridges, and with distinct barrios or neighborhoods. This barrio organization based on groups of terraces appears to have been part of life on all three investigated terrace sites. There is little monumental public architecture situated in lower barrios at most sites, and neighborhoods may have enjoyed a degree of autonomy. Domestic units may have been integrated at least partly through exchange, as households living in different sectors of the site specialized in a different range of goods.

The presence of short pathways and ramps linking terraces at each of the sites was a principal finding of the intensive surveys. At the same time, it appears that adjacent terraces often were tightly packed, sharing the same front retaining wall, with only a separating wall dividing the edges or sides of each residential unit. In addition, long paths were found leading up and through each of the sites, sometimes with gateway features. These paths or roads channeled access in these settlements, which clearly had high degrees of house-to-house and neighborhood-to-neighborhood interconnections.

In some ways, the eastern Tlacolula terrace sites that were investigated, particularly El Palmillo and the fortress, had certain structural (although not specific architectural) characteristics that resemble the pueblos of the American Southwest. They are composed of small modular domestic units that are tightly packed and that as a totality make up a larger architectural whole. Like pueblos, the proportional labor or energetic investment in domestic architecture is high relative to the labor invested in public space or civic-ceremonial features. As with the pueblos of the Southwest, we suspect that terrace site organization belies a strong emphasis on horizontal links between domestic units, although the internal organization of the hilltop terrace settlements in Oaxaca, with platform mounds generally concentrated at the tops of these sites, was more hierarchical than in the southwestern pueblos.

The Economy

Craft production was a significant activity at the three investigated hilltop sites. A range of craft goods was produced in household settings. Not only did communities specialize in different productive activities, but individual households or neighborhoods within communities also focused on making different goods. The recovery of surface debris on many terraces indicative of a range of productive activities adds support to the view that prehispanic Mesoamerican craft manufacture was enacted in domestic (as opposed to factory) contexts (see also Evans 1988; Feinman 1999; Healan 1986; Hirth 1995; Roemer 1982; Shafer and Hester 1983; Smith 1994; Widmer 1991).

Even though specialized household production for exchange was present in Valley of Oaxaca since the Early Formative period, a range of findings from surface and subsurface field research (Feinman 1986; Feinman et al. 1984; Feinman and Nicholas 2000; Kowalewski et al. 1989; Winter 1984) lead us to postulate that the intensity or volume of that production tended to be at least as great (and likely greater) in the Classic period as it was in the Early-Middle Formative. At the same time, the region's population, its degree of settlement nucleation, and the number of households engaged in at least part-time production activities was larger during the Classic period than it was earlier (Kowalewski et al. 1989). Therefore, the volume of goods that were being exchanged during the Classic period likely far exceeded earlier economic flows.

Given large populations and site locations far from prime agricultural land, the inhabitants of hilltop settlements in eastern Tlacolula likely sometimes needed to import food, especially maize, as this crop could not be grown reliably every year in this driest part of the valley (Kirkby 1973; Nicholas 1989). Today, crop failures are a common occurrence in eastern Tlacolula, and, based on early historic accounts, relatively little maize was grown in this sector of the valley (Canseco 1580). The residents of the hilltop sites prob-

ably were not entirely self-sufficient in maize, and these households likely produced goods to exchange for grain to supplement a diet based also on local xerophytic plants. Such plants (including maguey and yucca) even today often grow more abundantly on archaeological sites as compared to elsewhere in this region. The range of these economically valuable xerophytic plants may have been expanded by the prehispanic Oaxacans, who also likely fostered and tended these species close to their homes (e.g., Hodgson 2001). Maguey, yucca, nopal, and other plants so abundant at eastern Tlacolula terrace sites thrive on stone walls and in various locations that are too steep for maize and other seed crops. We also have recorded a suite of features, tools, and implements that seems to point to the past significance of these xerophytic plants in subsistence and craft activities. Perhaps the view that maize was uniformly important across the Valley of Oaxaca needs to be reconsidered.

But what was the mechanism of exchange? At the larger geographic scale of Mesoamerica, there is little question that more craft goods and resources were moving from one region to another in the Classic period in comparison to earlier times (Berdan et al. 2003; Drennan 1984a,b). Cloth has been argued to be an important commodity in this increasing Classic period flow of materials across the macroregion (Stark et al. 1998). In the Late Postclassic period, the role of cloth manufacture and its consequent exchange has been closely linked with market system expansion during Aztec times in central Mexico (Berdan 1987; Blanton 1999; Brumfiel 1980). Likewise, the cultivation of agave and other xerophytic plants in the northern part of the Basin of Mexico and their use in the fabrication of fabric (*ixtle*) as well as other products at that time also has been closely tied to the growing role of intraregional exchange, likely at least in part focused on the elaborate market system (Blanton 1996:49; Cook 1949).

The demographic growth in the eastern Tlacolula arm of the Valley of Oaxaca almost certainly was timed with the greater reliance on drought-resistant plants and likely the increasing production of *ixtle* (along with a range of other craft products) (Feinman et al. 2002). We have presented evidence that this specialized production likely entailed not only intrasite exchanges (at the three sites studied), but also intravalley exchanges. We suspect that face-to-face reciprocal exchanges could not have accommodated this volume of transaction, and massive storage facilities of the kind that would have been requisite for large-scale redistribution have not been recovered in prehispanic Oaxaca. Furthermore, the direct control or taxing of so many household producers would have been a difficult administrative task. And redistribution would have been a cumbersome and energetically inefficient strategy for the occupants of these hilltop towns, moving goods down the hill to some nodal point in the region, and then moving other goods back up to administrative precincts at the top of the hill. Marketplace exchanges seem a logical alternative, especially since comparative historical studies have found that across the world most archaic states are associated with marketplace exchange systems (Blanton 1983; Claessen and Skalník 1978). In regard to prehispanic Mesoamerica, the highly developed market systems of the Late Postclassic period (Blanton 1996; Smith and Berdan 2003) seem unlikely to have emerged de novo, and Classic period antecedents provide a logical foundation (e.g., Blanton and Feinman 1984; Hirth 1998; Winter 1998).

Defense

The inhabitants of hilltop terrace sites, from the small early terrace communities of Late I and II (Feinman and Nicholas 1996) to the large hilltop centers of the Classic and Postclassic periods, were certainly cognizant of defensive considerations. They built their settlements on defensible landforms and at times constructed high stone walls and other defensive features to limit access into their communities. Defense clearly has been important in Oaxaca for a long time (Canseco 1580) and appears to have been a significant factor in the founding and rise of Monte Albán (Blanton 1978).

Nevertheless, it is not clear that the only defensive concerns were external. The least defensible of the three sites we studied is situated on a series of ridges at the edge of the valley. At Guirún, more energy was expended in protecting the settlement from the valley side of the site than from the east (facing the ethnically different Mixe region) where people could have come over the mountains and into the site. Consequently, it seems that intraregional defensive considerations also may have been important in determining site location. Perhaps we must consider the possibility

that the Monte Albán polity was not always politically unified or devoid of internal squabbles and that at times there were internal factions and conflicts, with confrontations periodically occurring within the bounds of the Monte Albán state. The *relaciones* make continual references to military encounters between neighboring communities in the valley (Flannery 1983a; Whitecotton 1977:141), so we know that such stresses and strains were present during the Postclassic period following the fall of the Monte Albán polity and political balkanization. Yet from the *relaciones*, it is evident that these conflicts were at the scale of town versus town and not nation versus nation (Flannery 1983a), and so they occurred within the context of integrated polities. Even into the twentieth century there was much fighting and feuding between villages in the valley, with groups raiding each other (Dennis 1987). It would seem that peace and unity were not always practiced even during the era of Monte Albán's hegemony.

Final Conclusions

In sum, this investigation has helped us clarify the nature of Oaxaca's hilltop terrace settlements as well as some of their key differences. These sites were long occupied residential towns and communities in which production for exchange underpinned the economics of the people who lived there. Defense was an important concern as well, but each of the eastern Tlacolula settlements was first and foremost a center of population and not a fortress. Both house-to-house economic interdependency and strong horizontal links between neighboring residential units appear to have been important for intrasettlement integration, whereas monumental civic-ceremonial construction and top-down administrative control seem less significant. Additional intensive surveys and excavations at the large corpus of terraced communities in the Valley of Oaxaca should help refine and define the nature and diversity of these communities in the years to come.

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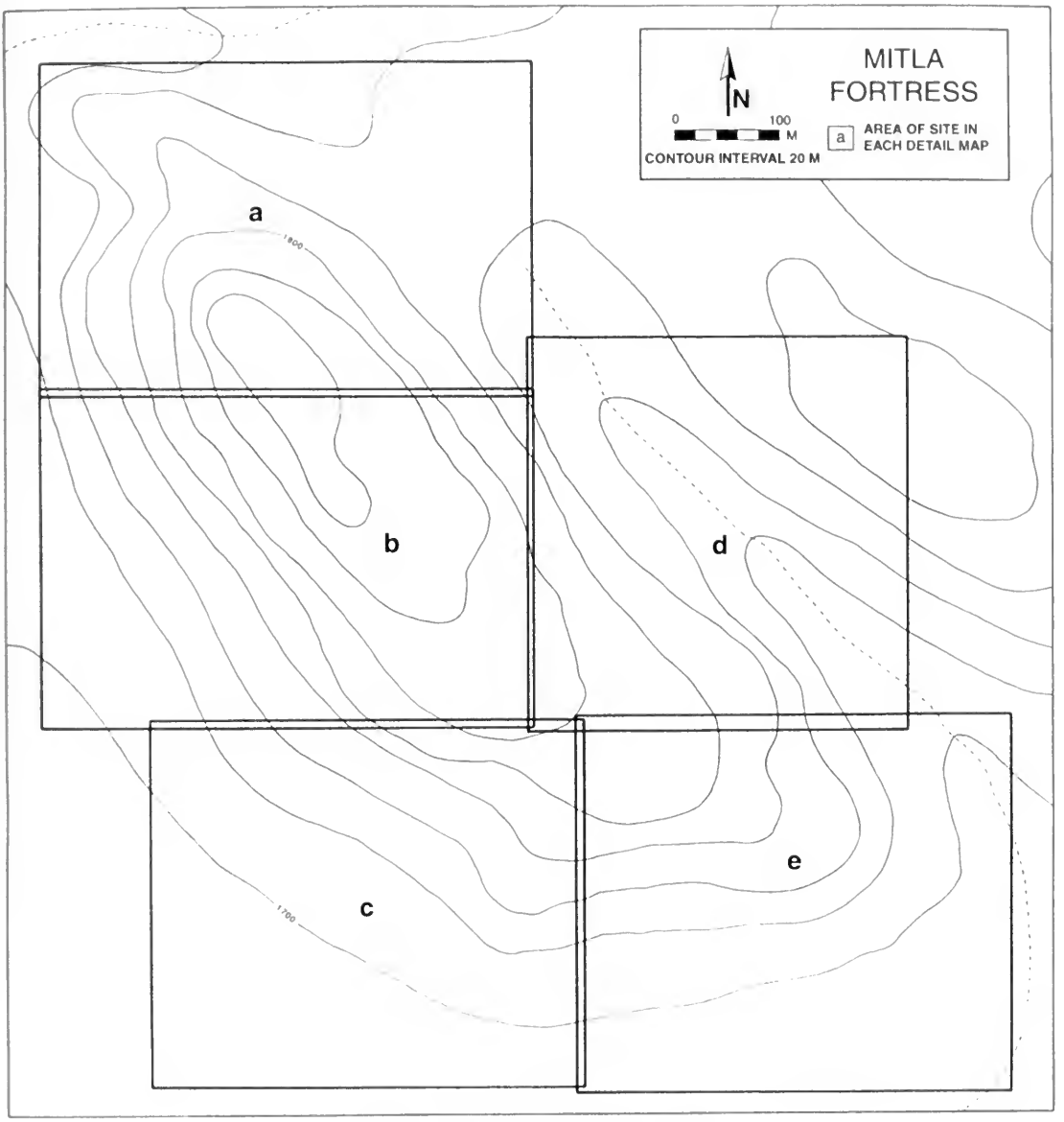
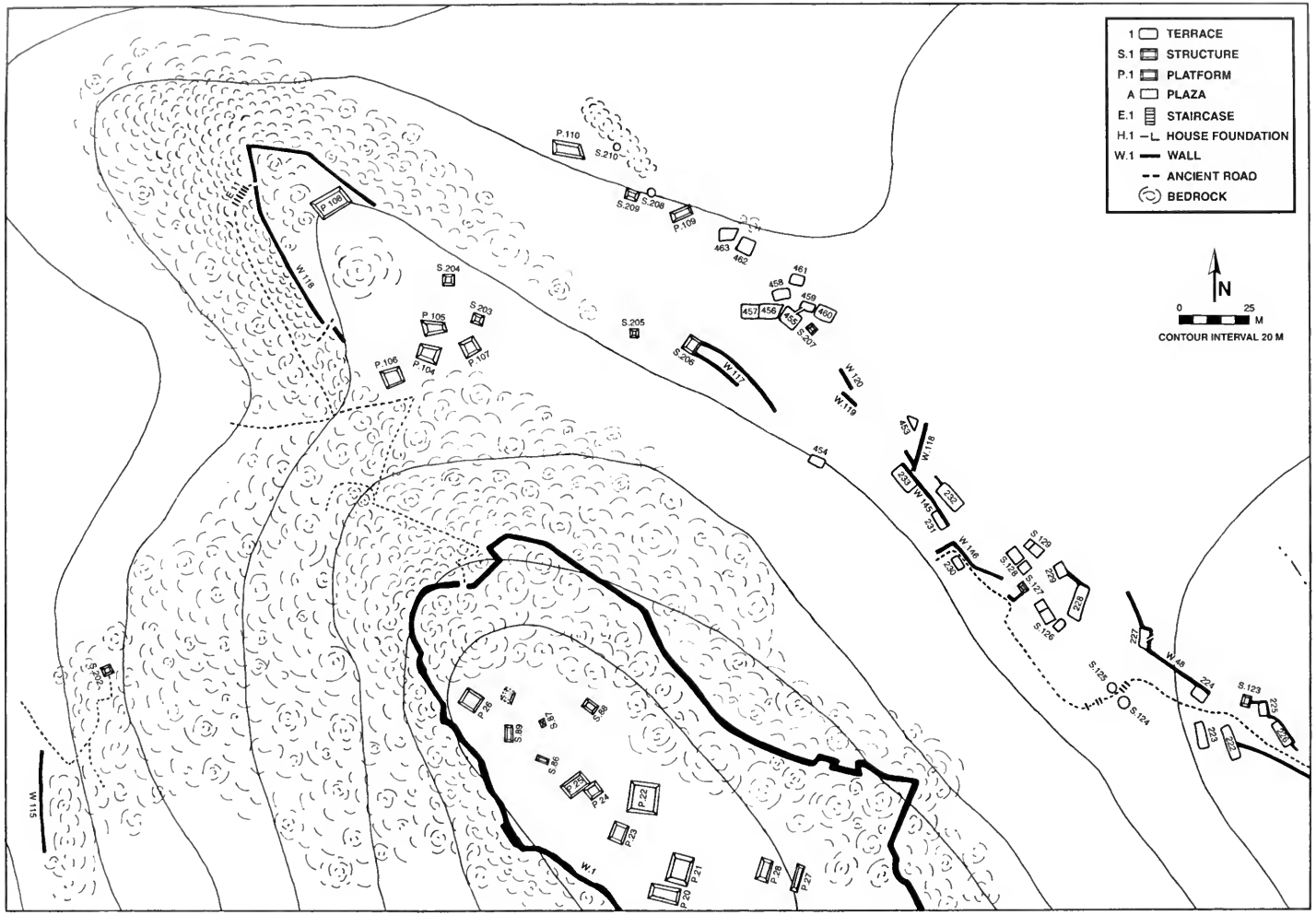
Appendices

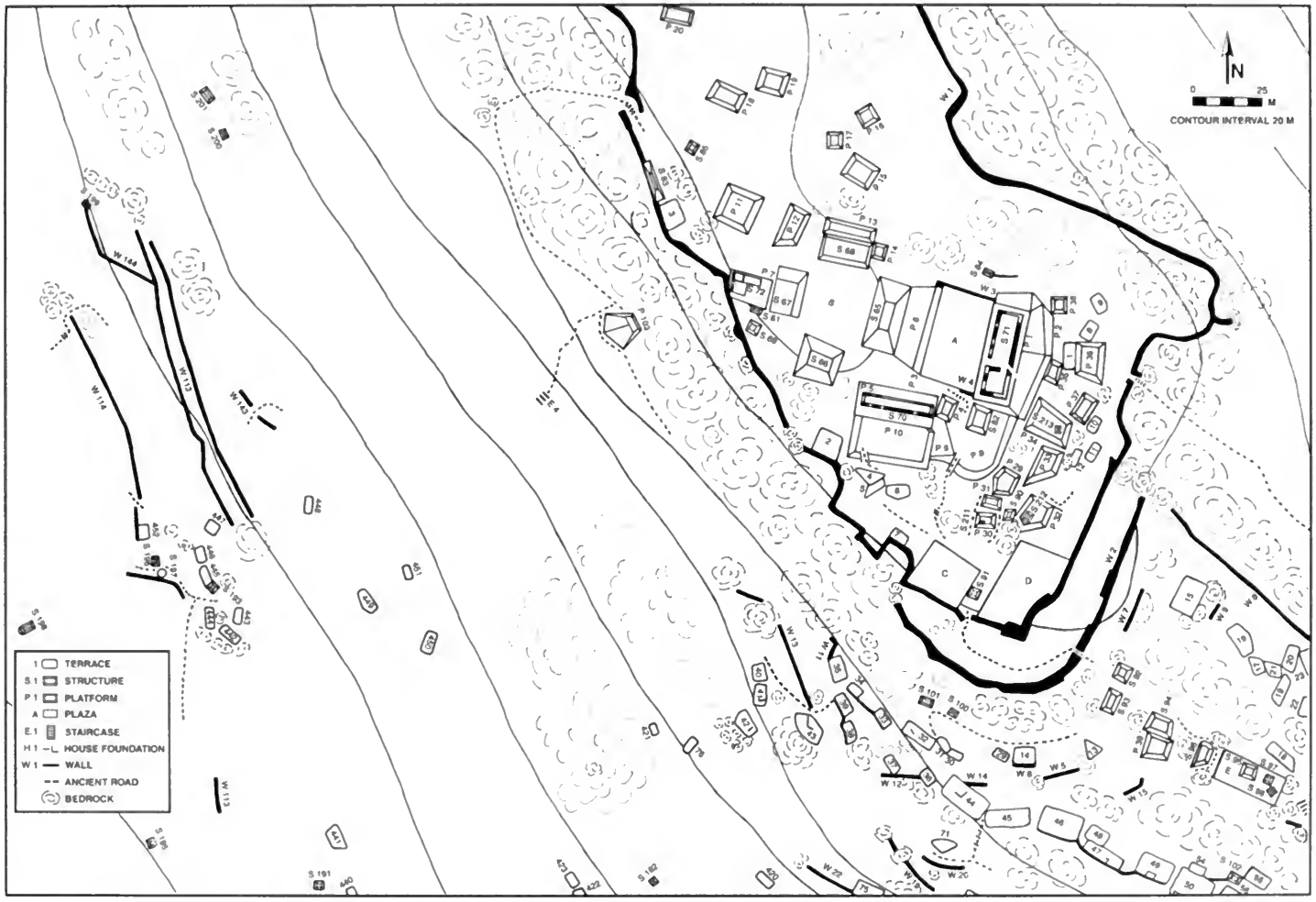
Site maps
Area maps
Detail maps
Data summaries



Appendix 1. Mitla Fortress detail maps.



Appendix 1.a. Mitla Fortress map area a.



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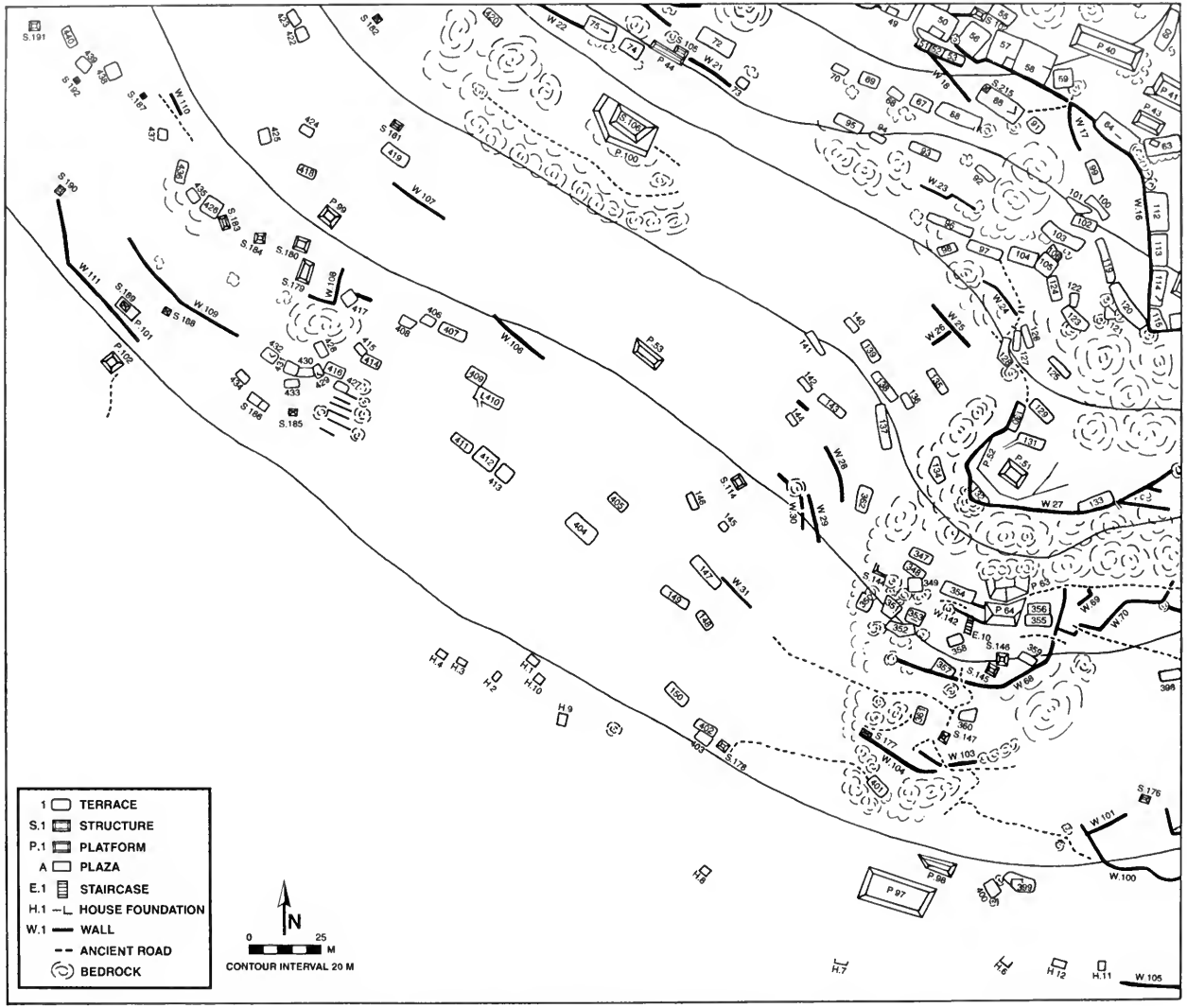

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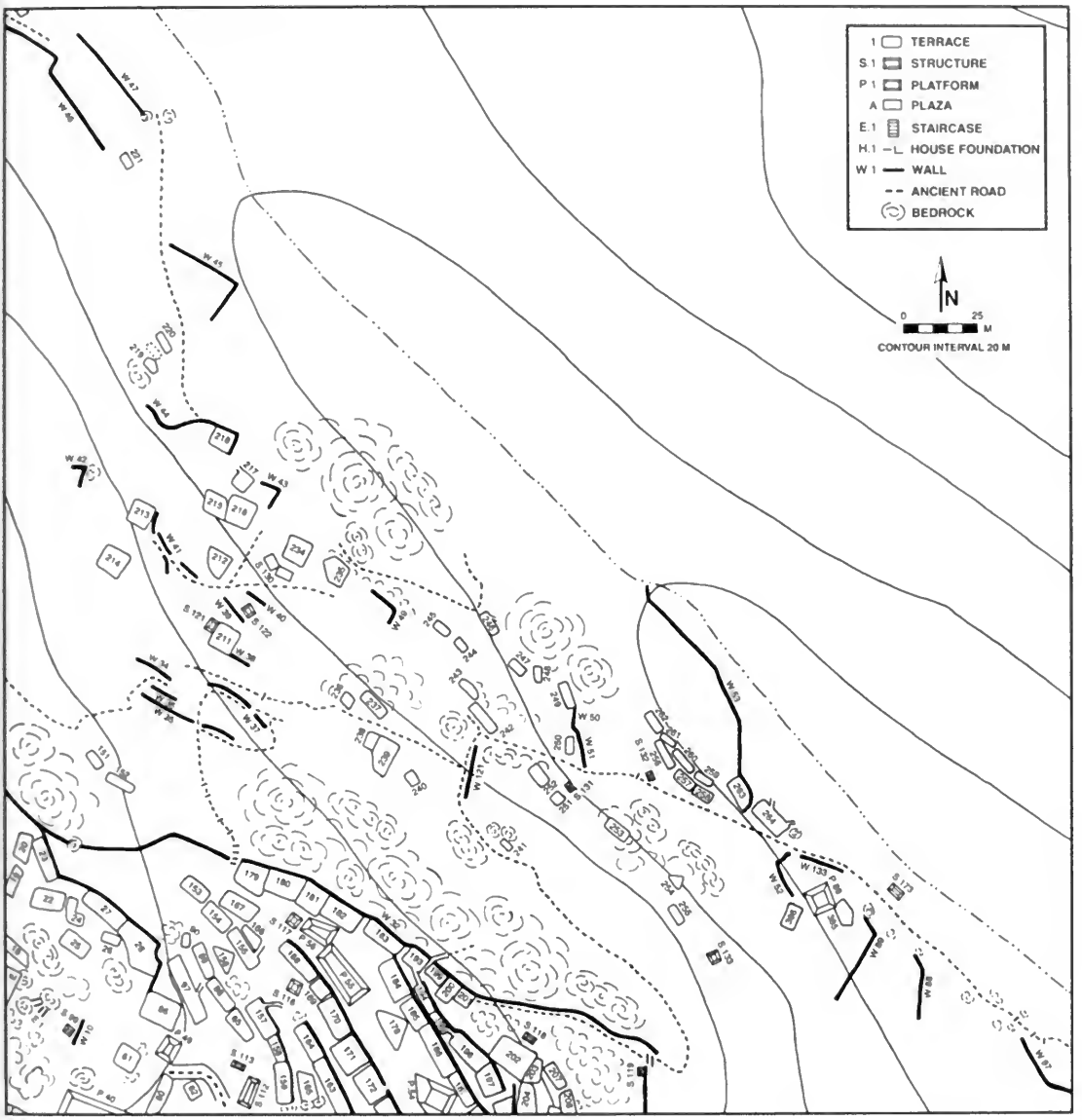

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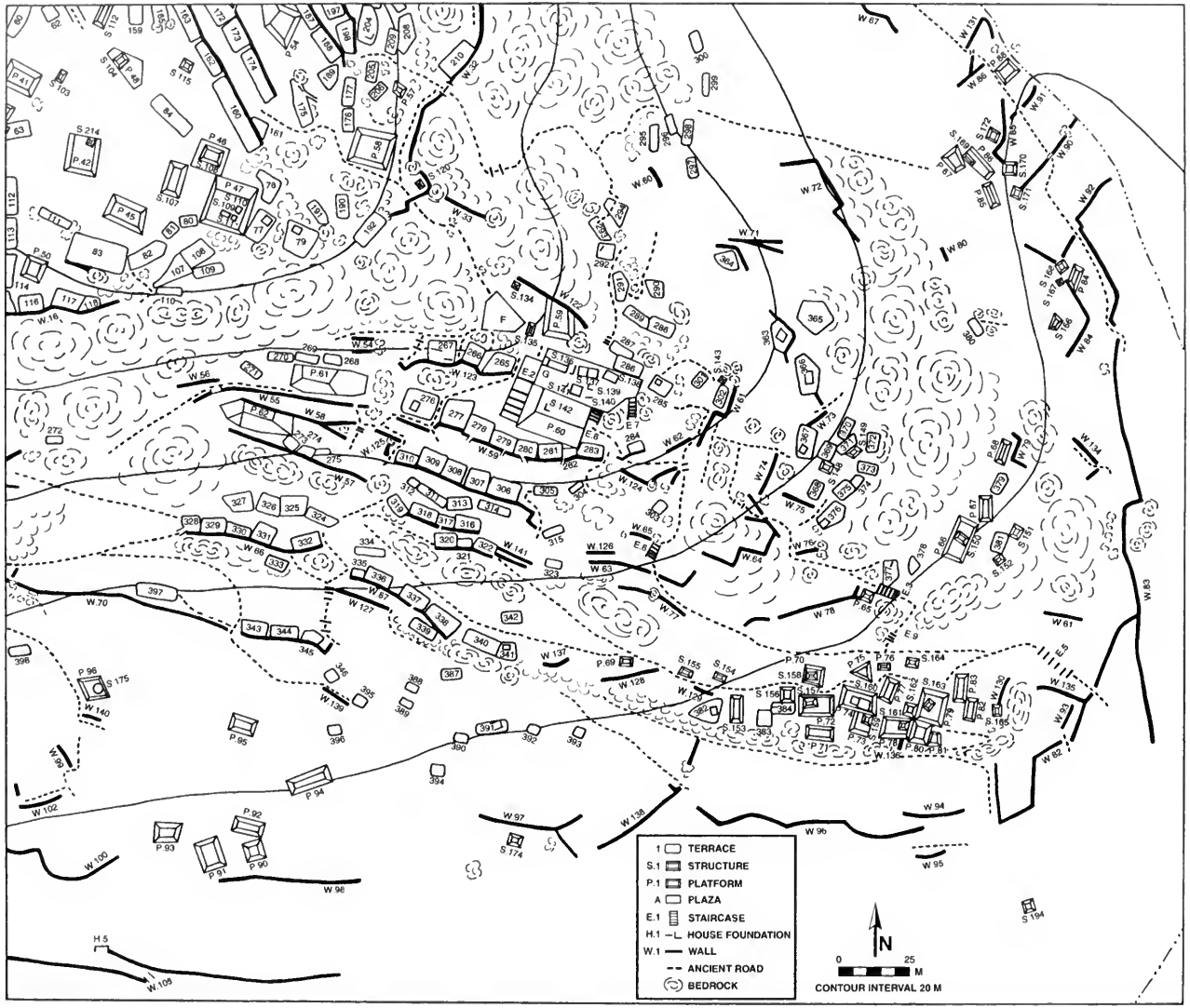

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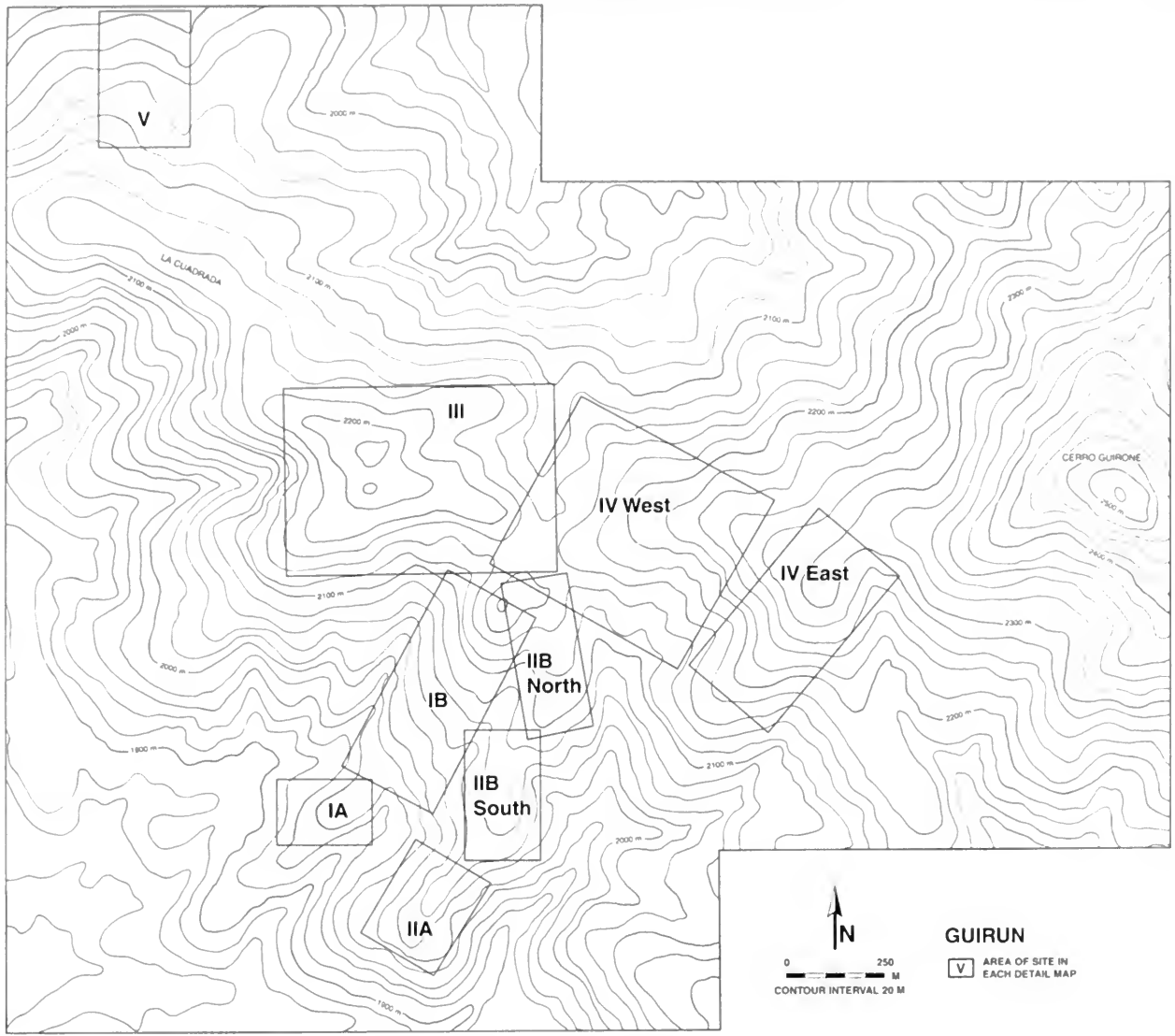
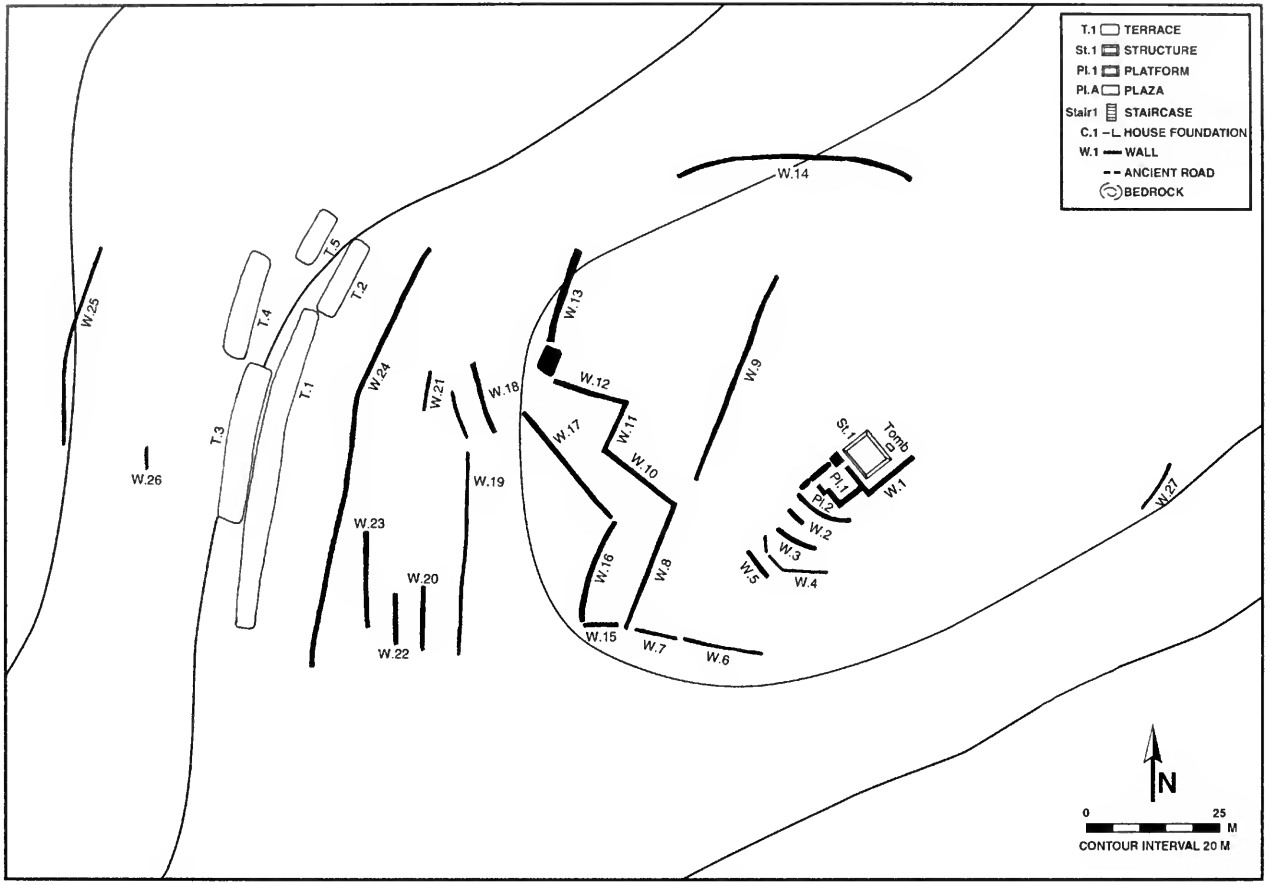


Appendix 2. Guirún detail maps.



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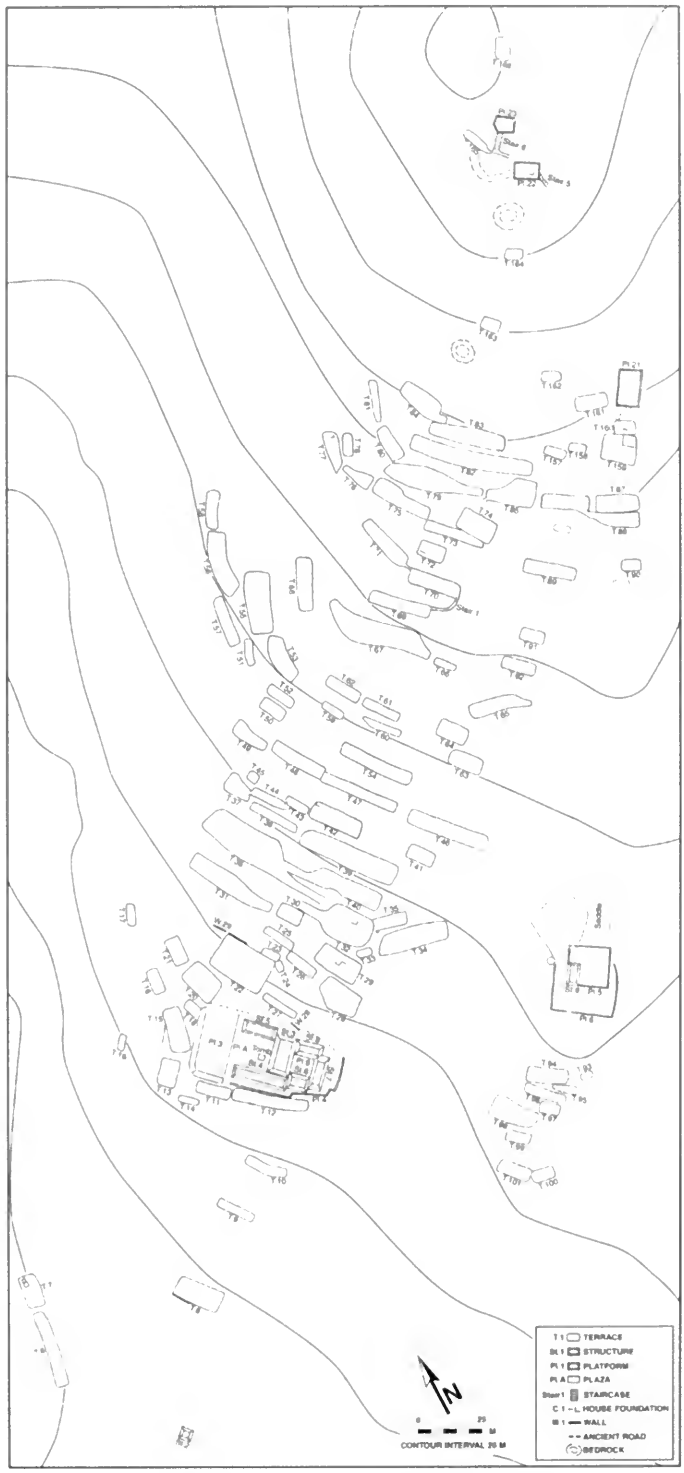

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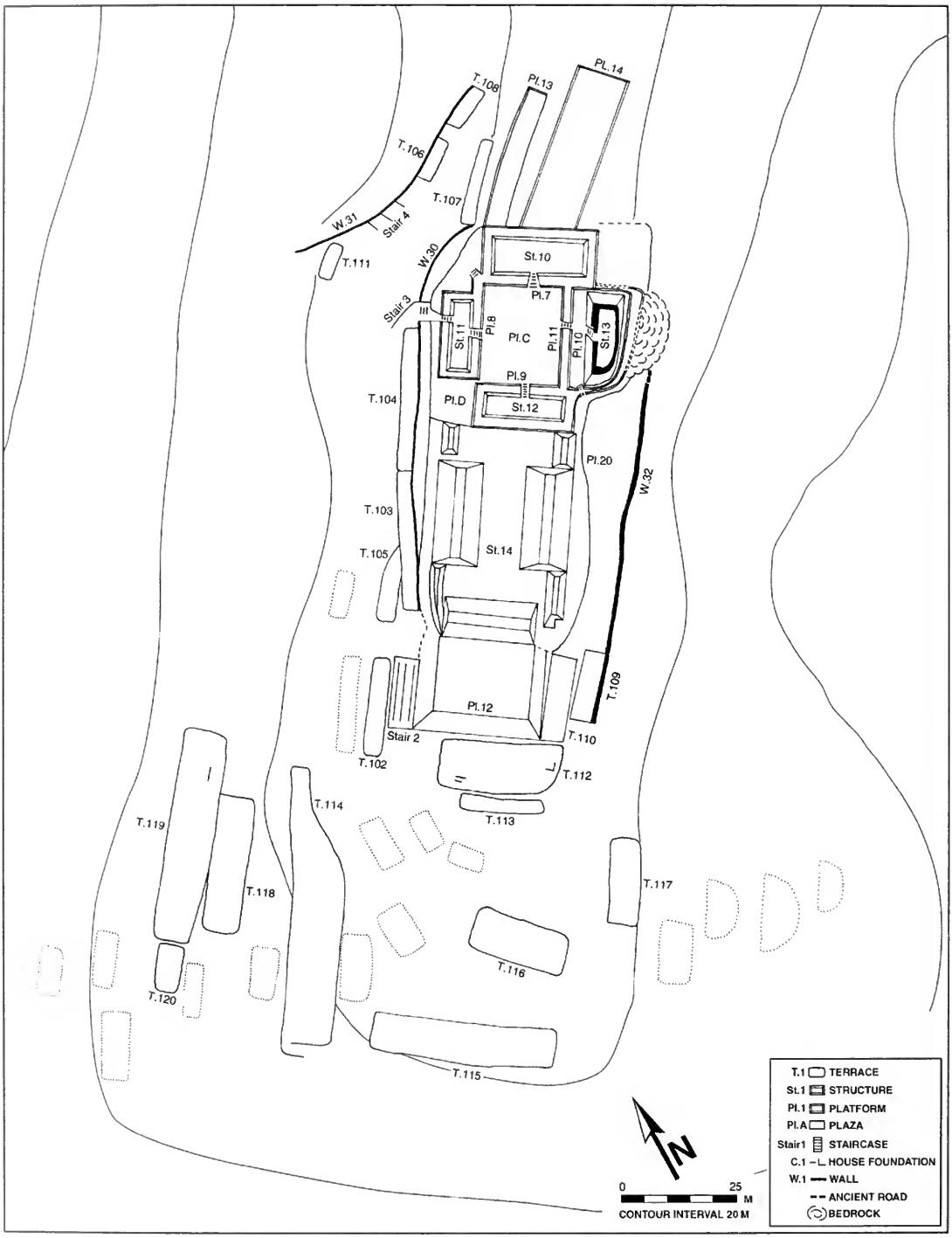

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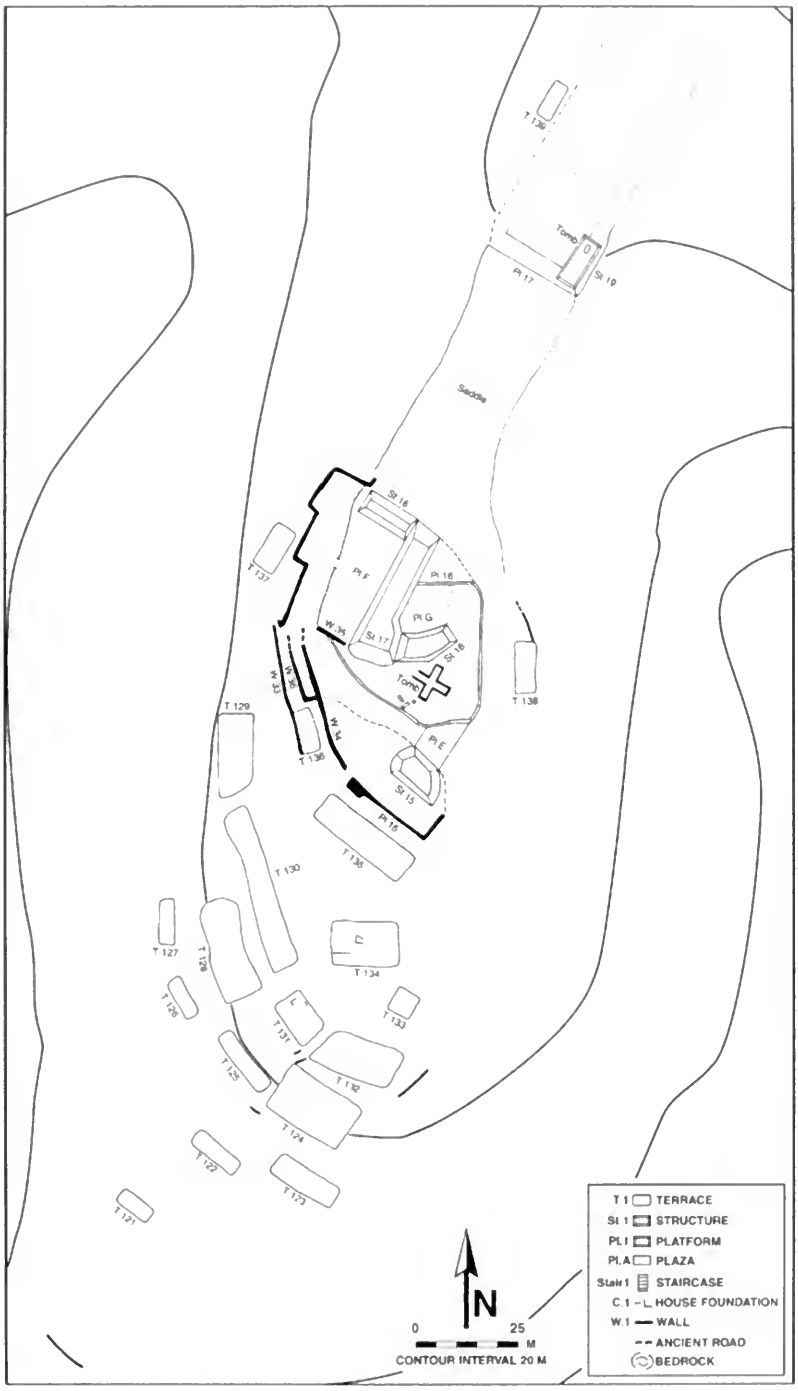

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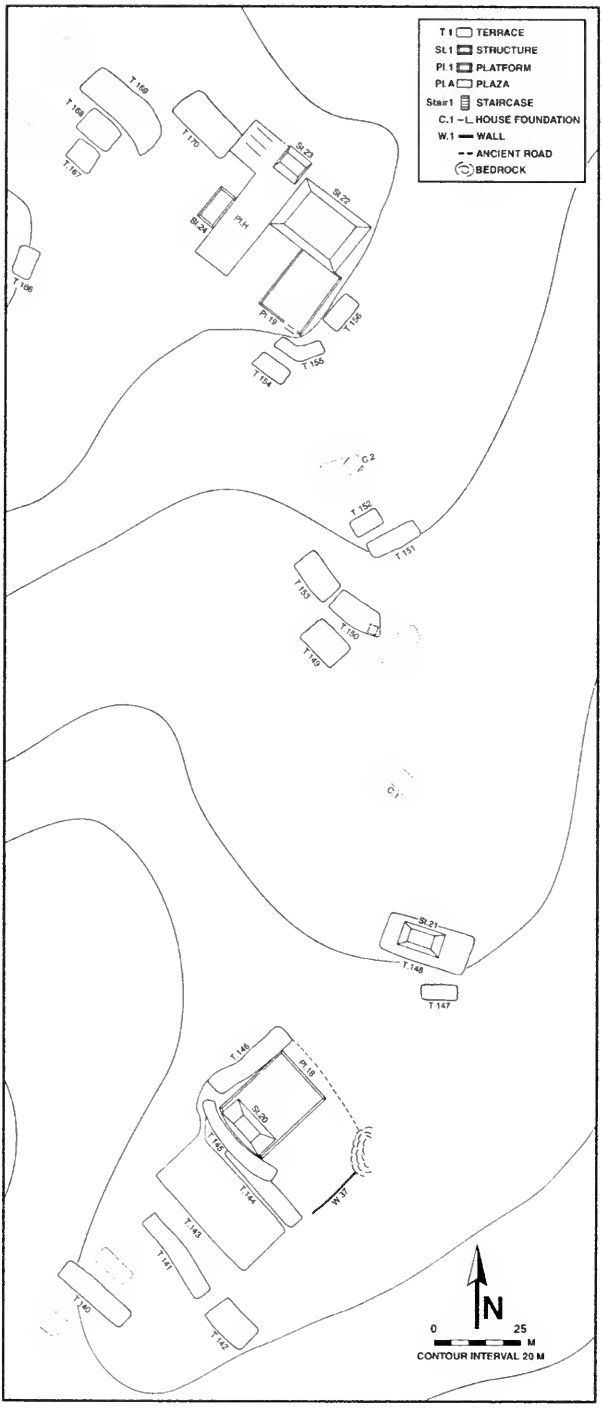

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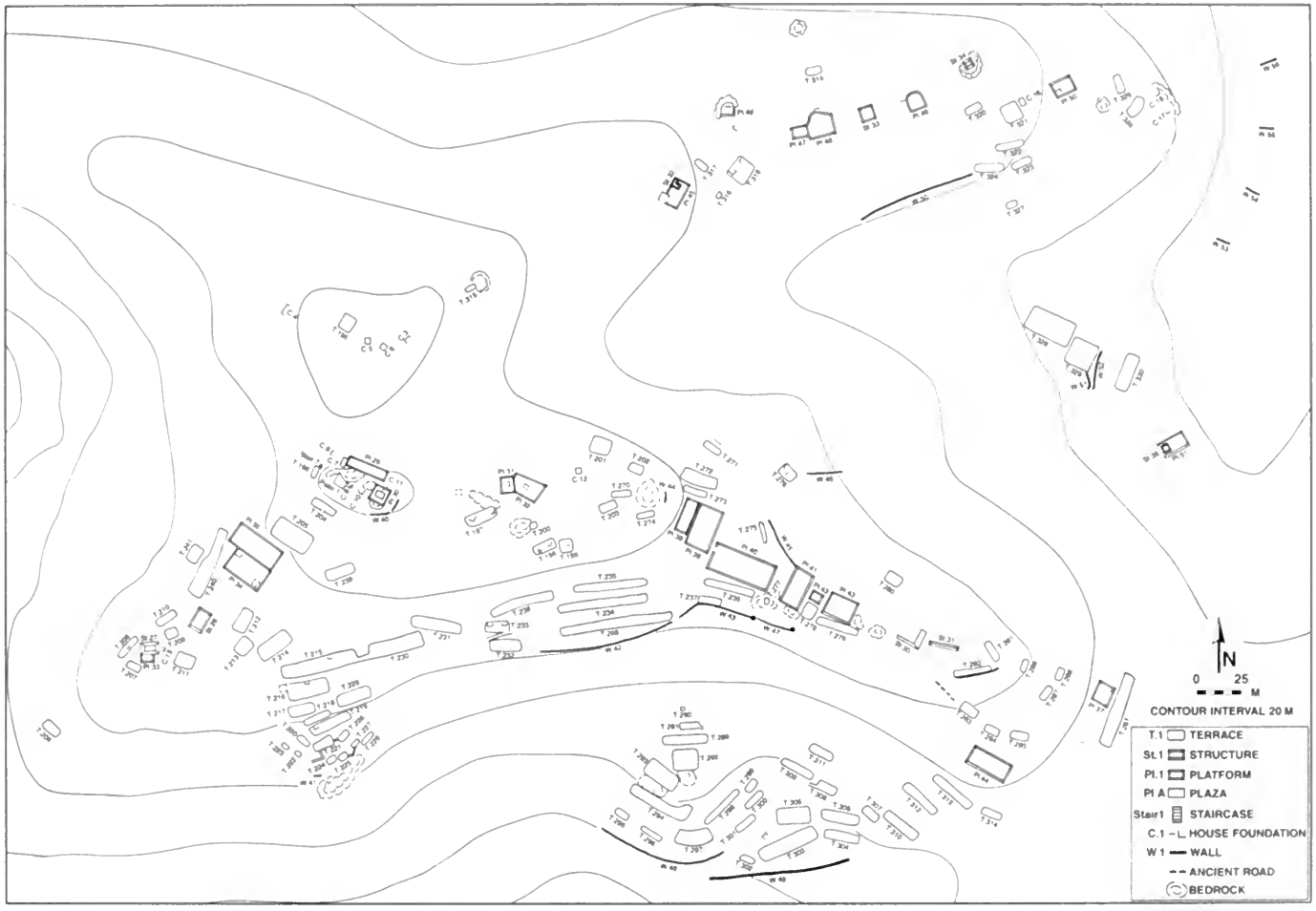
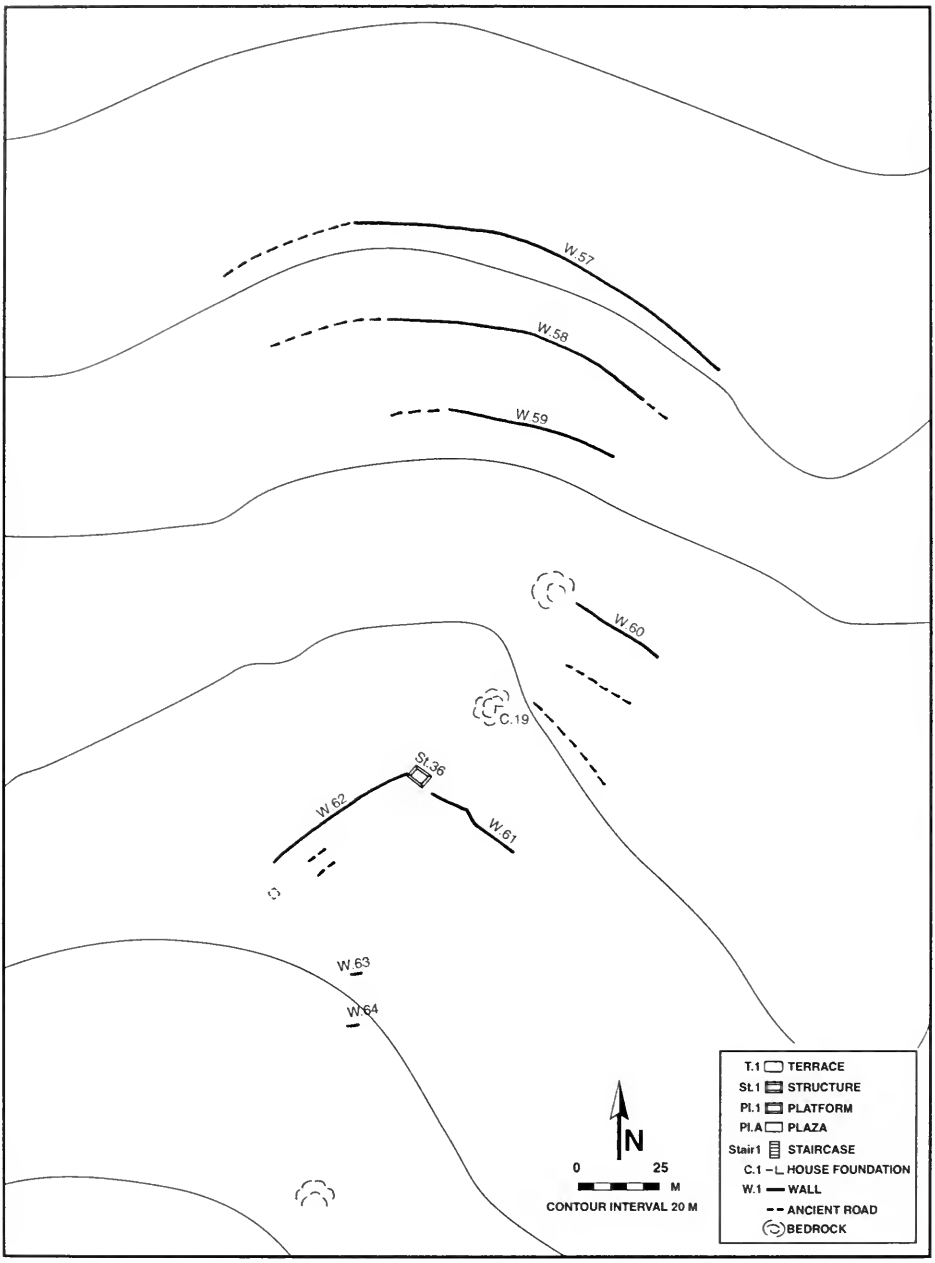
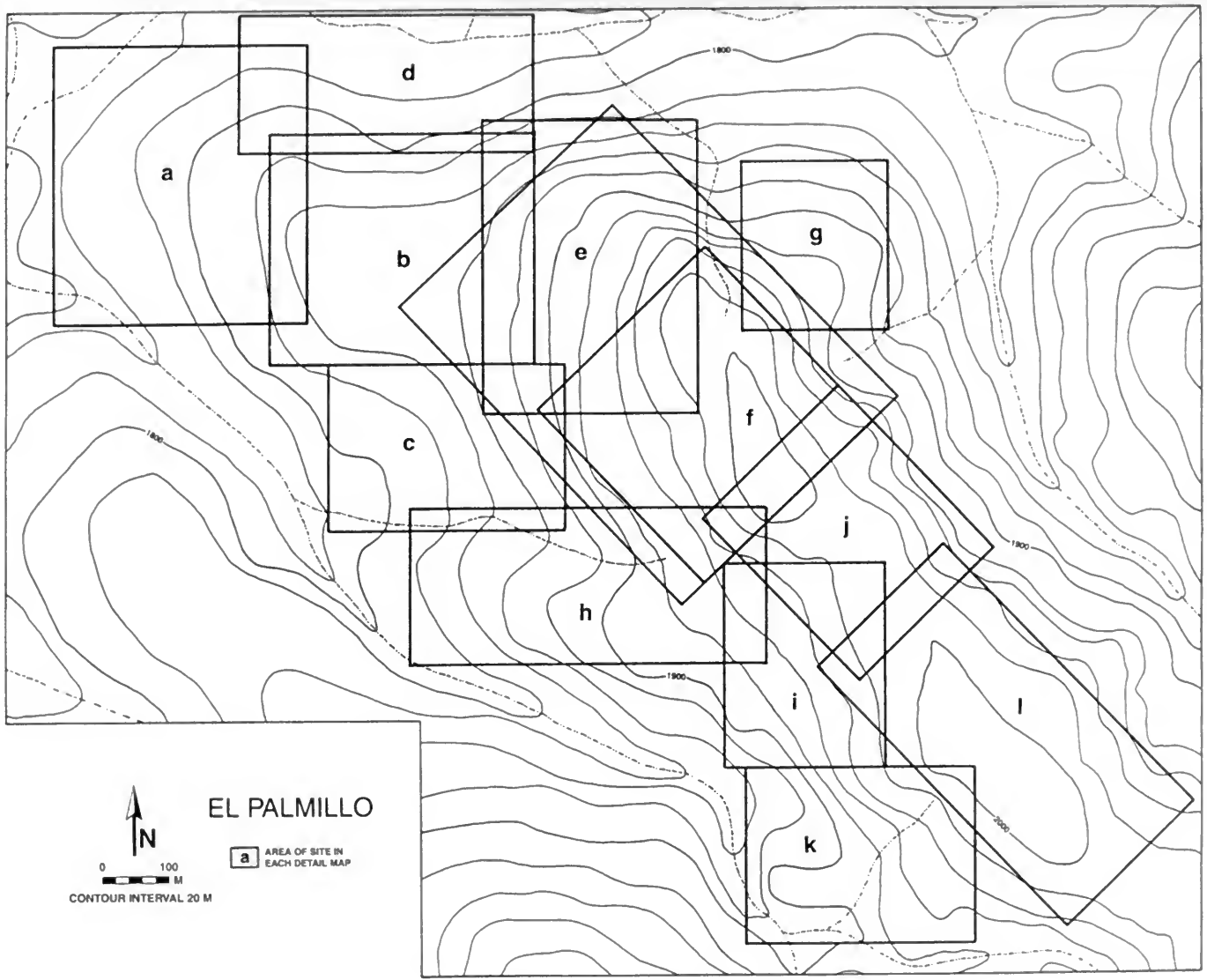


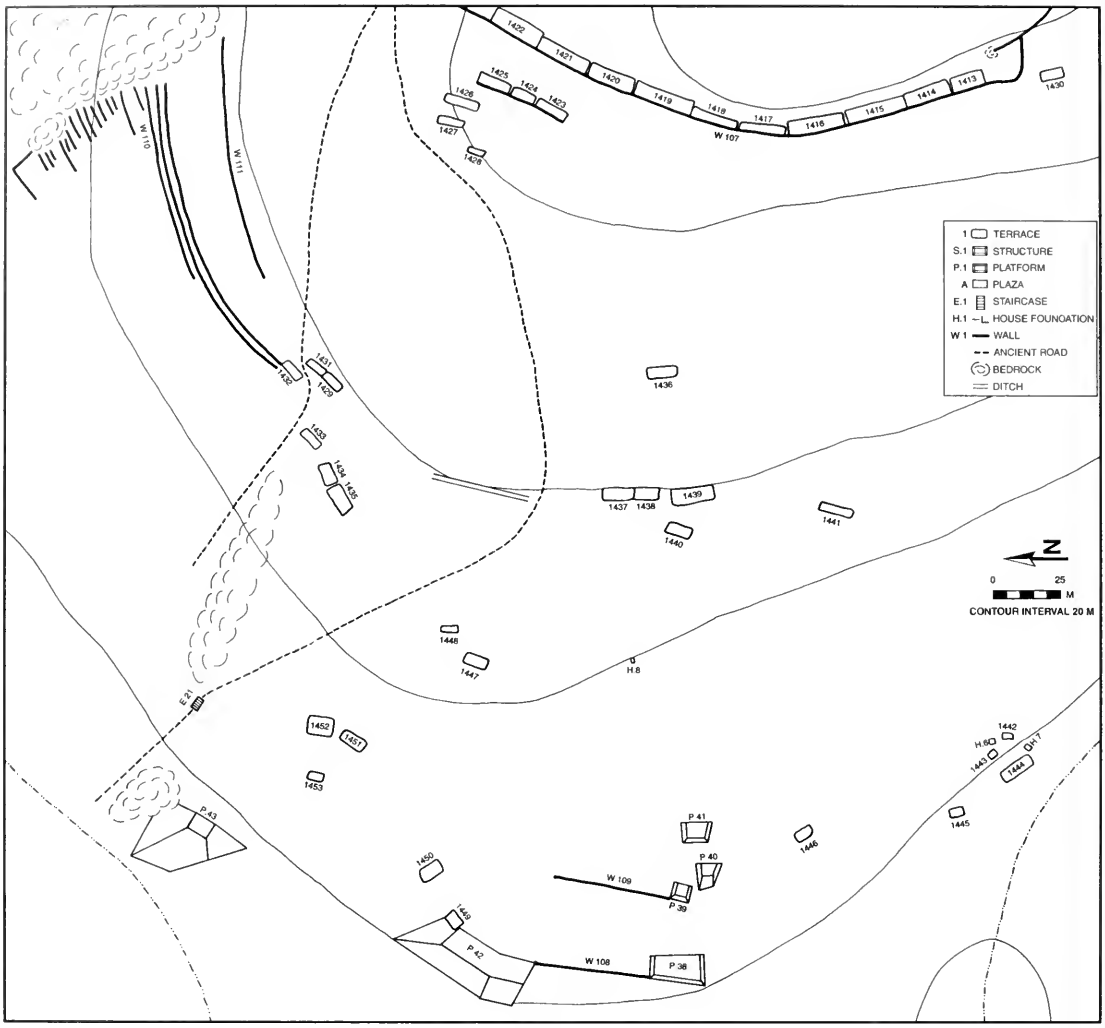
Appendix 2.f. Guirún map area III.



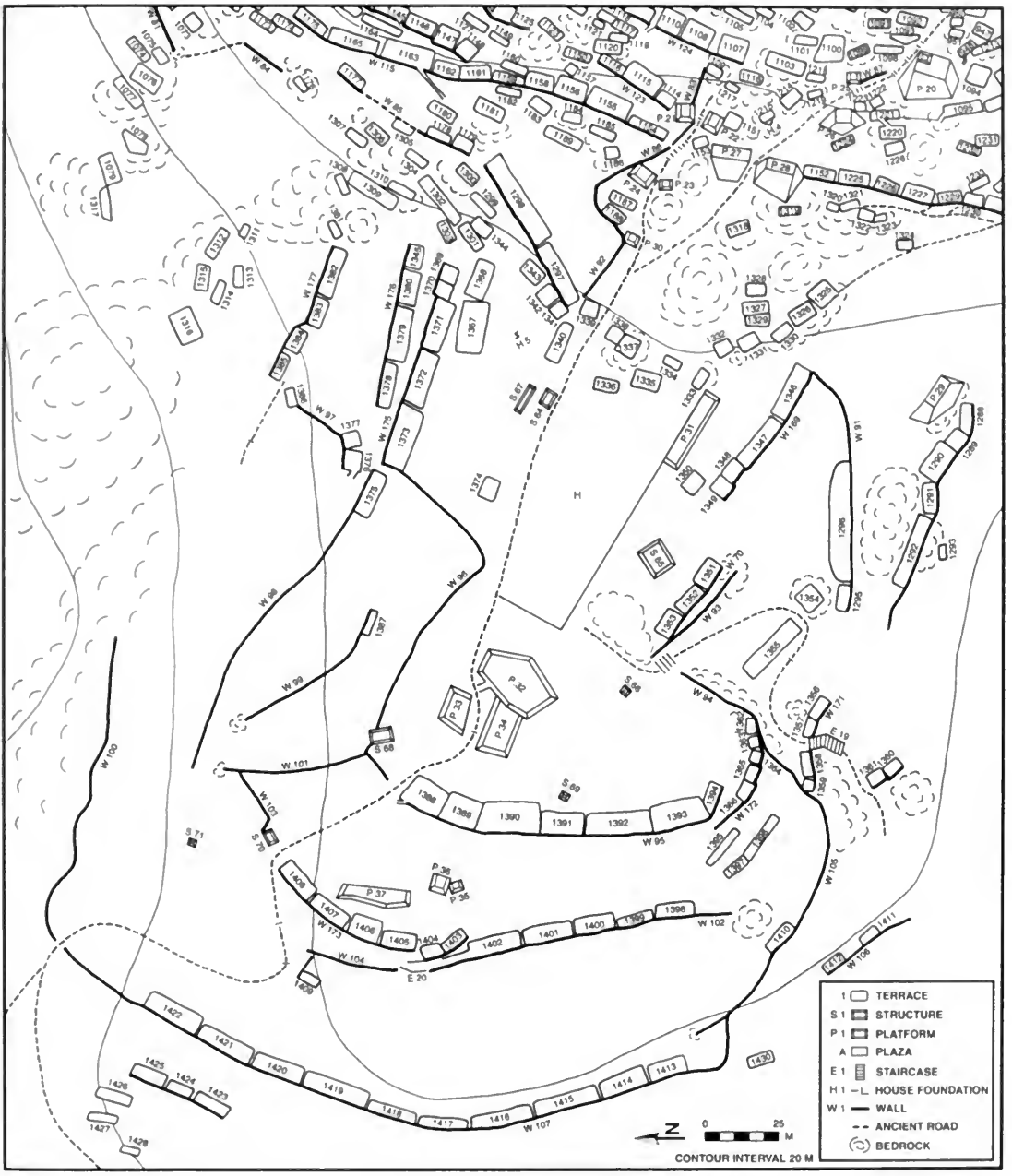
Appendix 2.i. Guirún map area V.



Appendix 3. El Palmillo detail maps.



Appendix 3.a. El Palmillo map area a.



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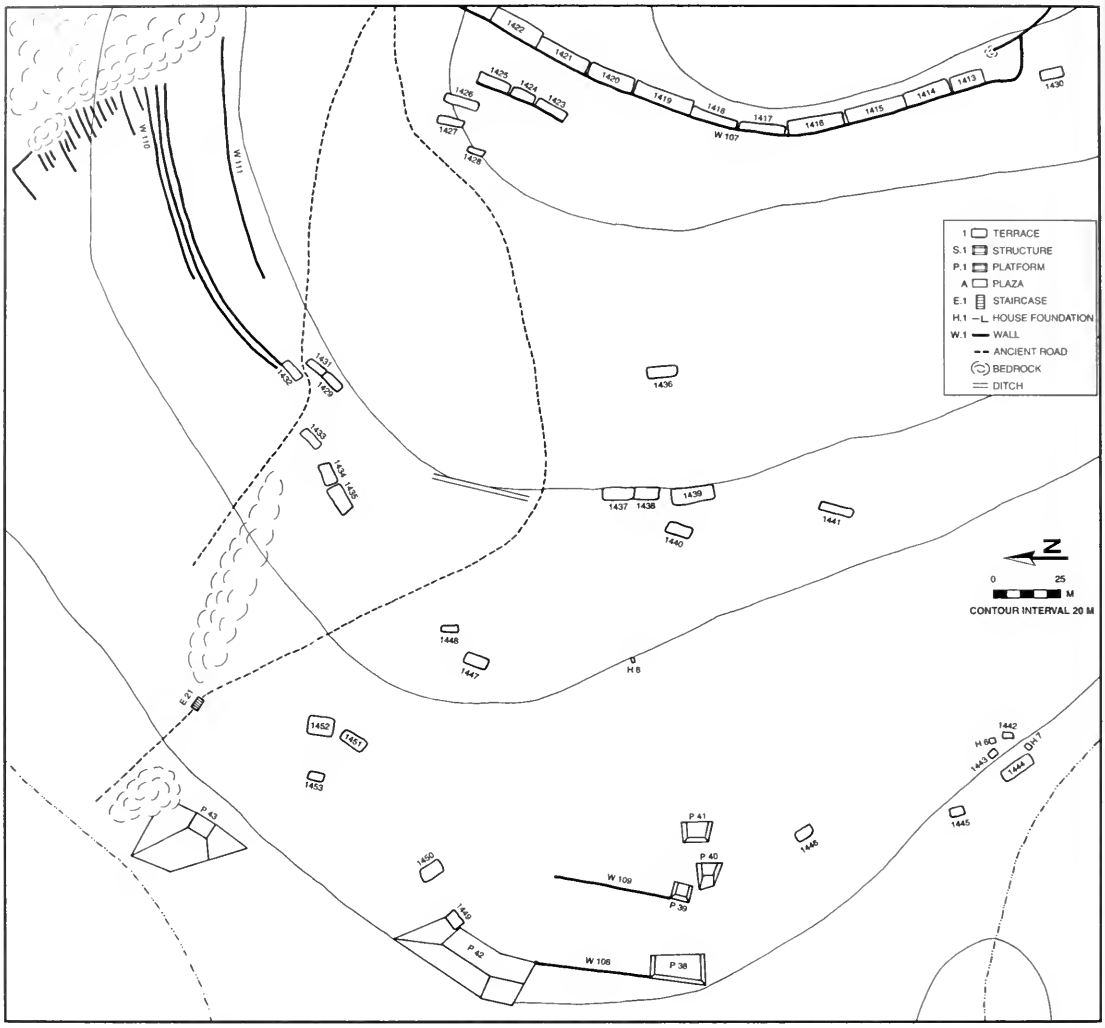

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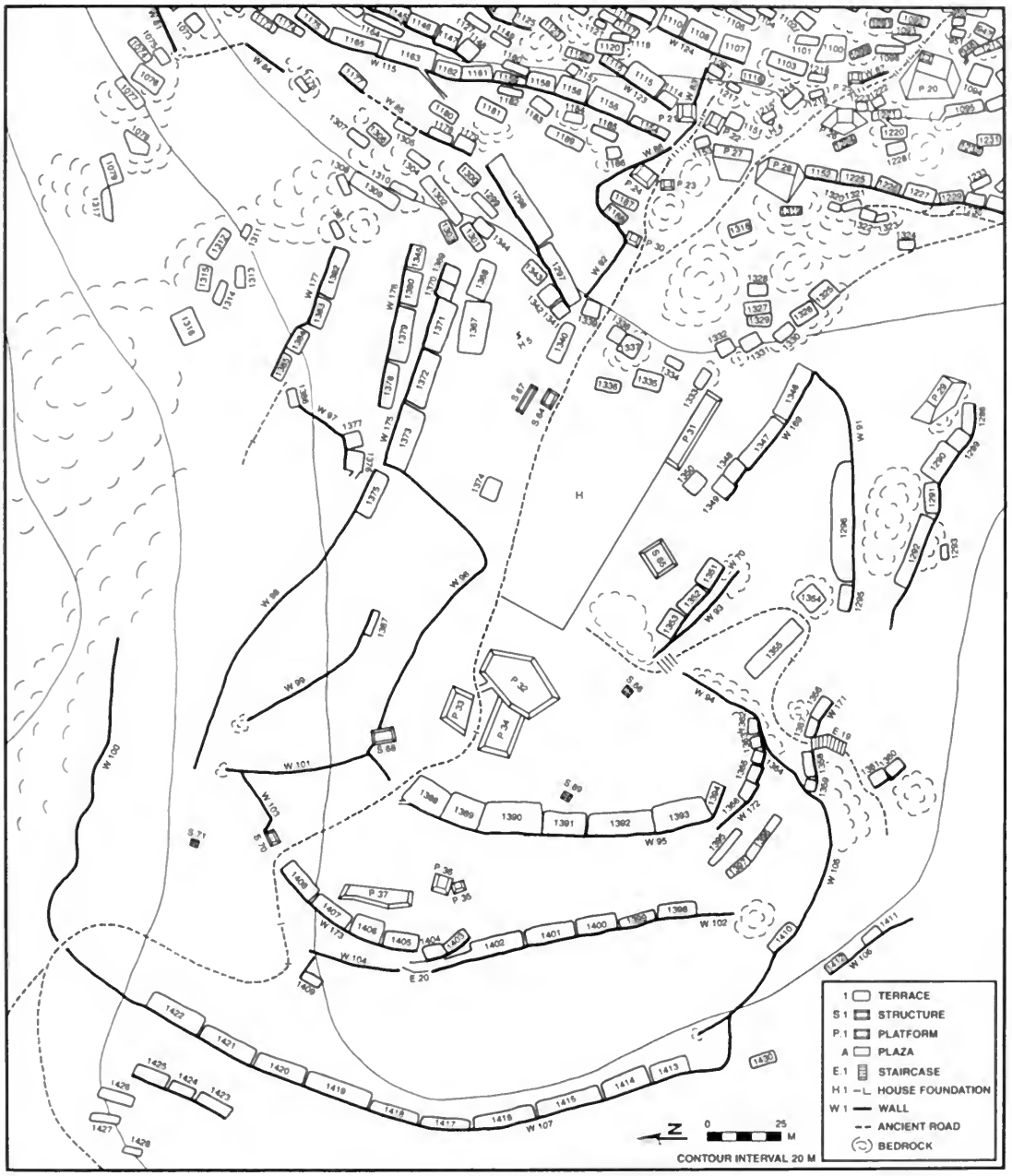

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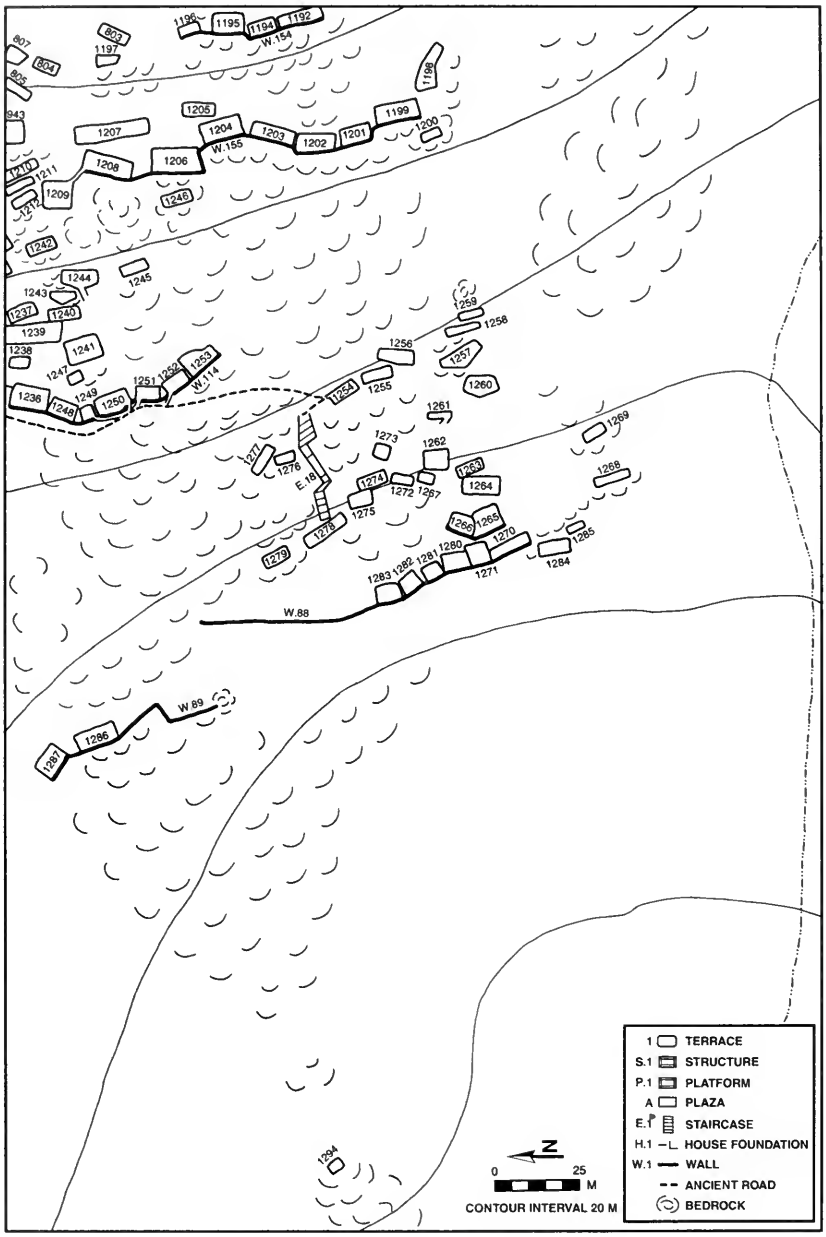

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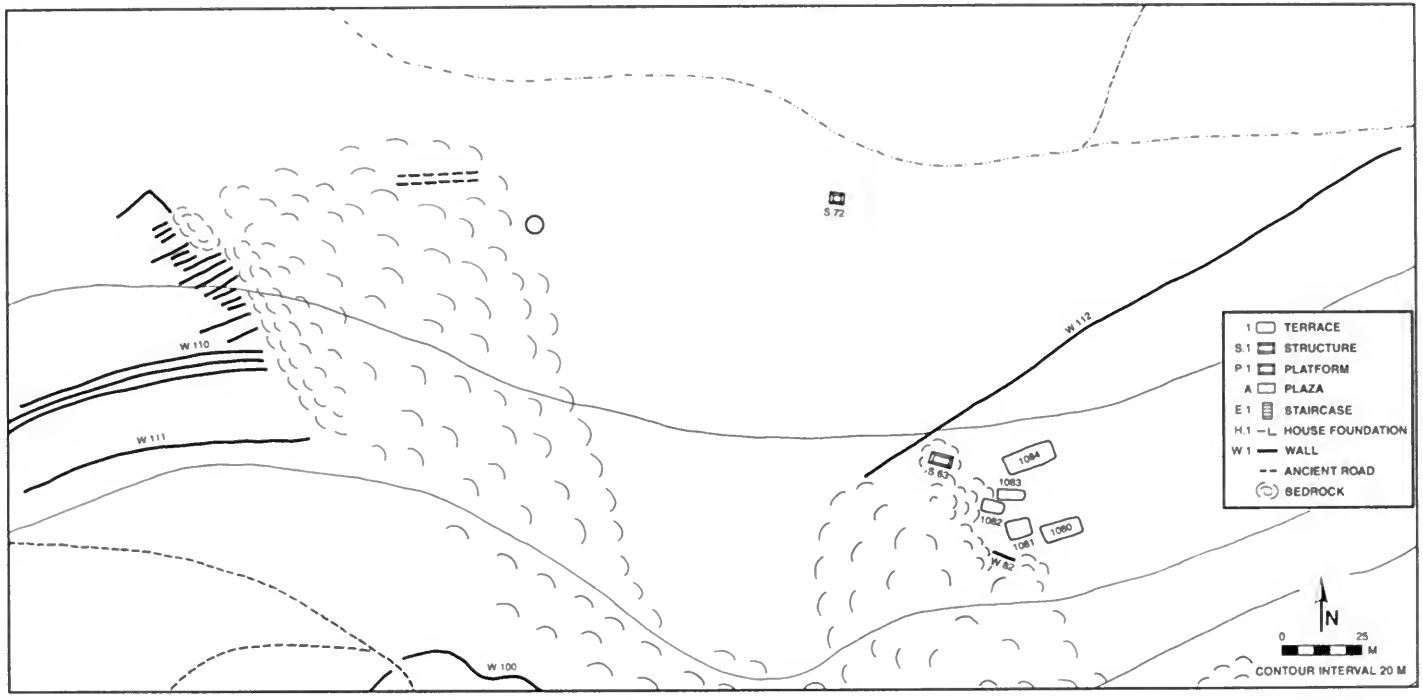

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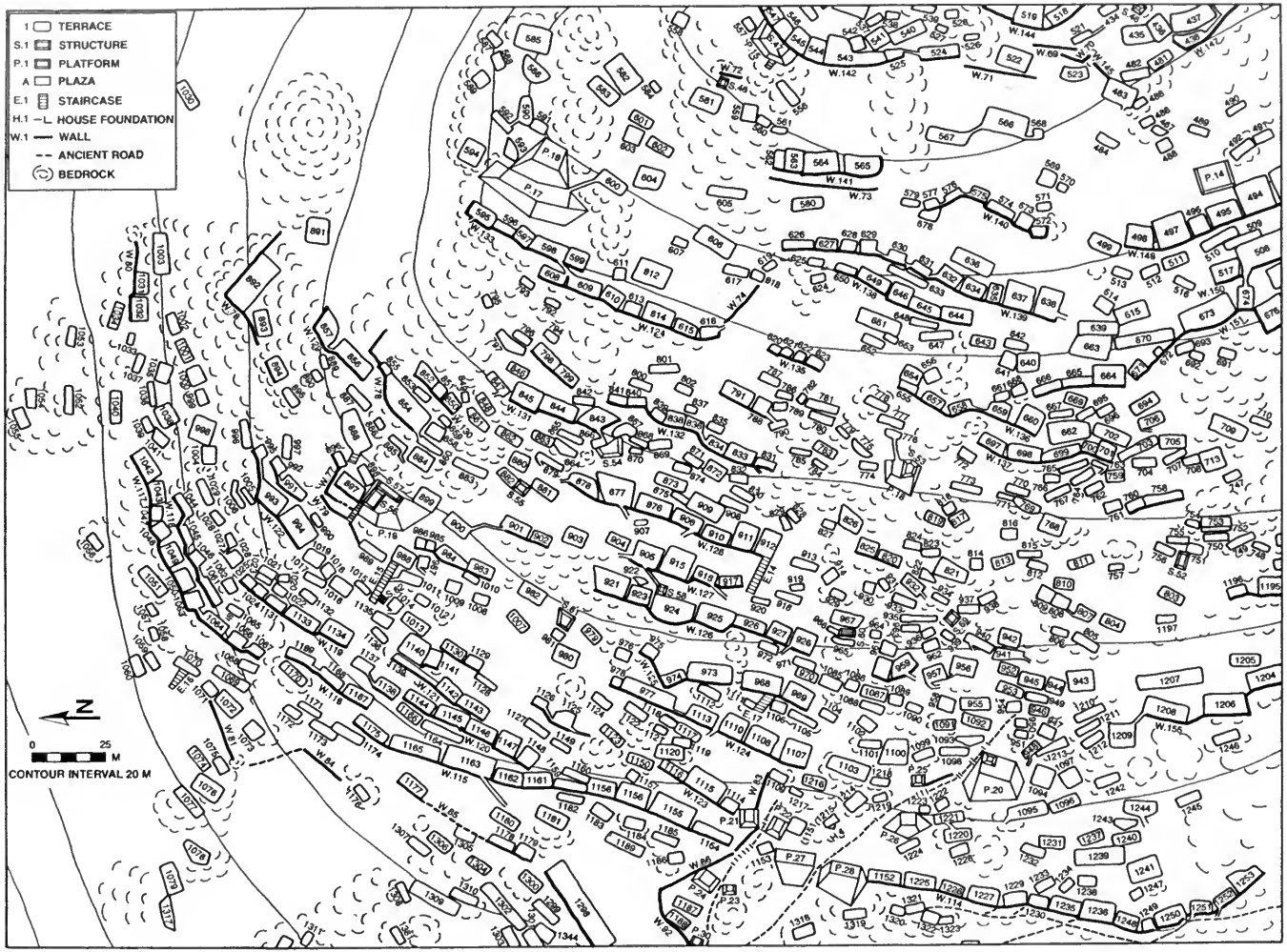

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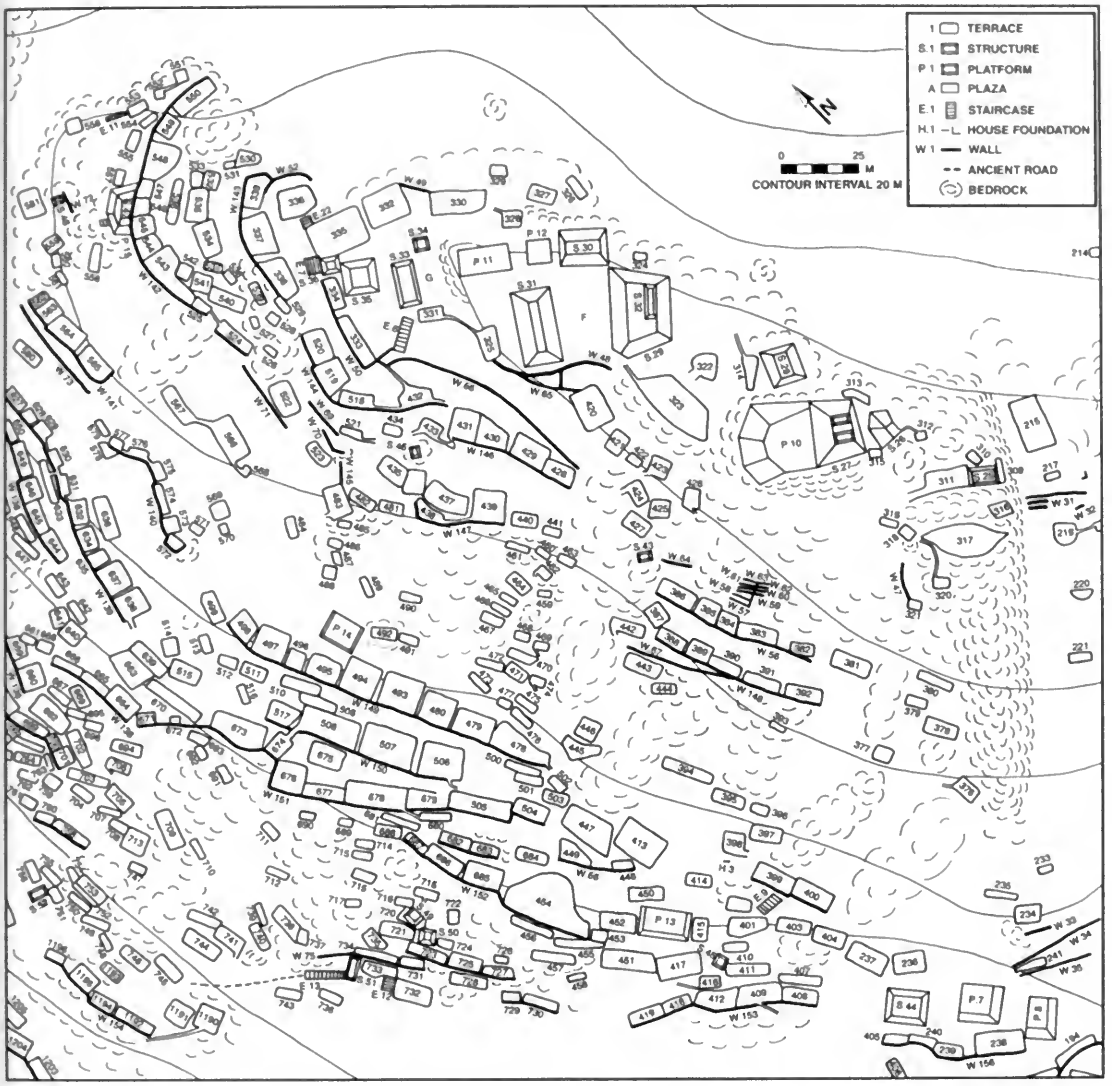

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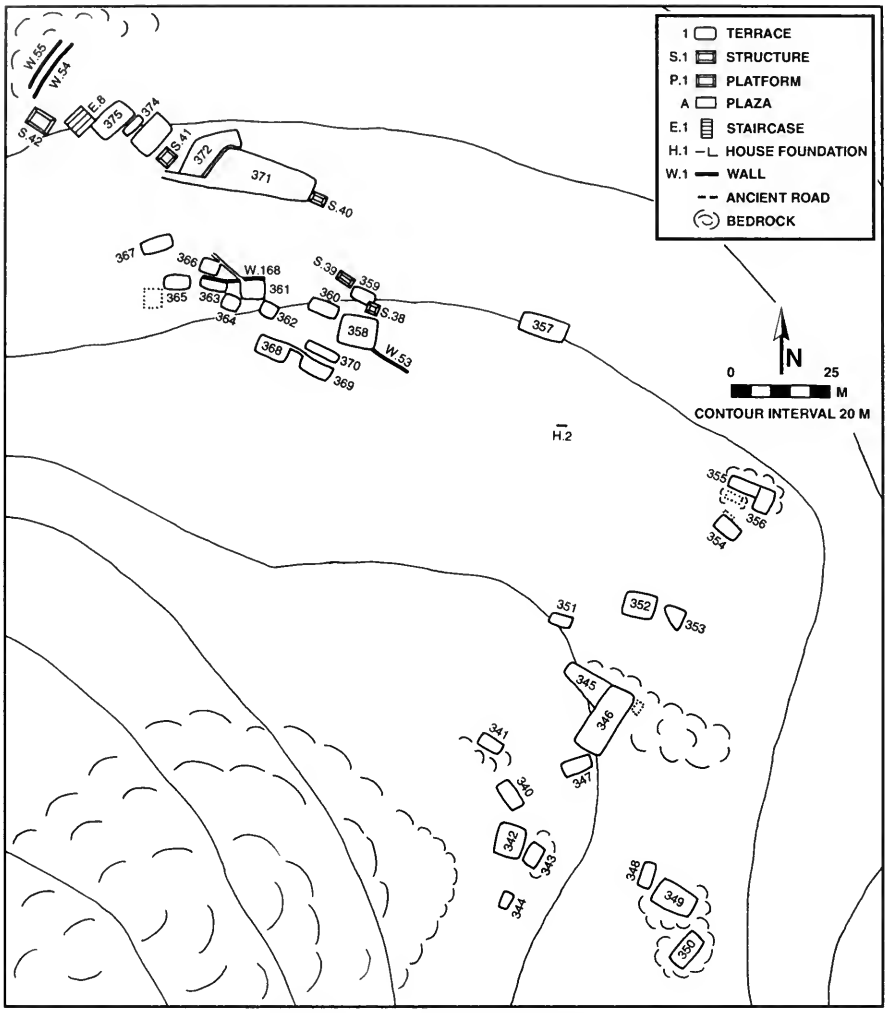

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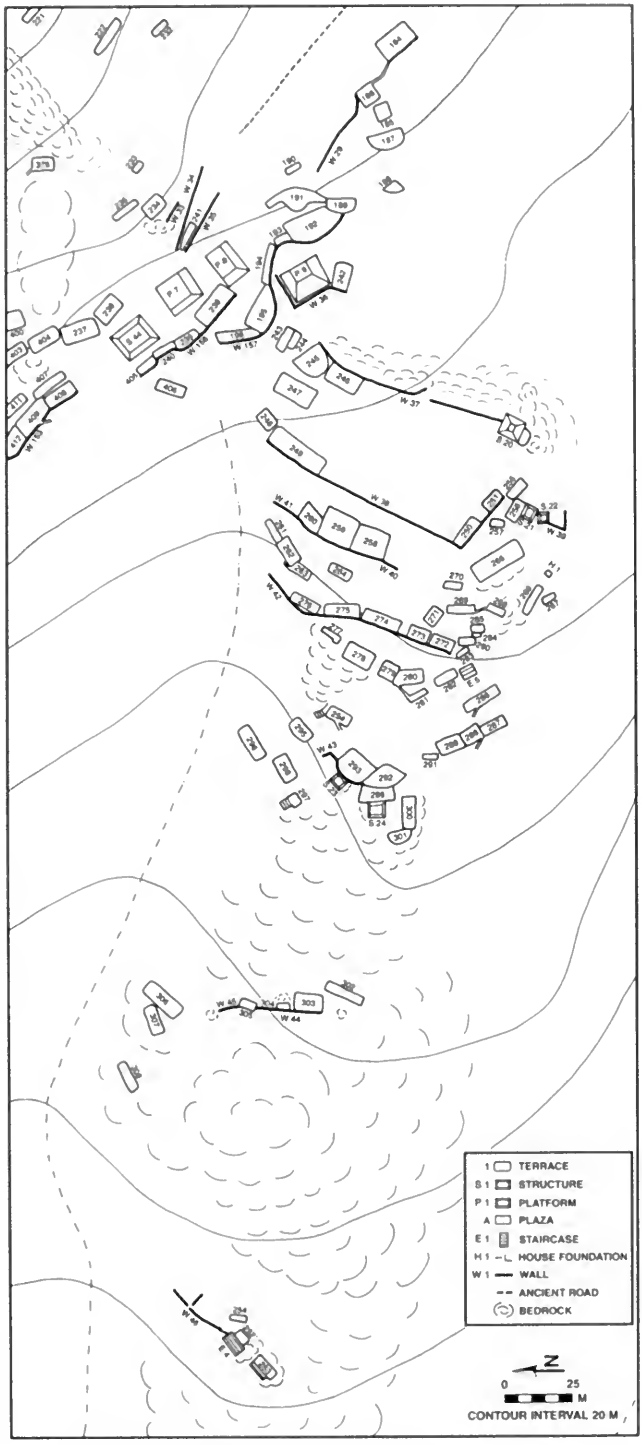
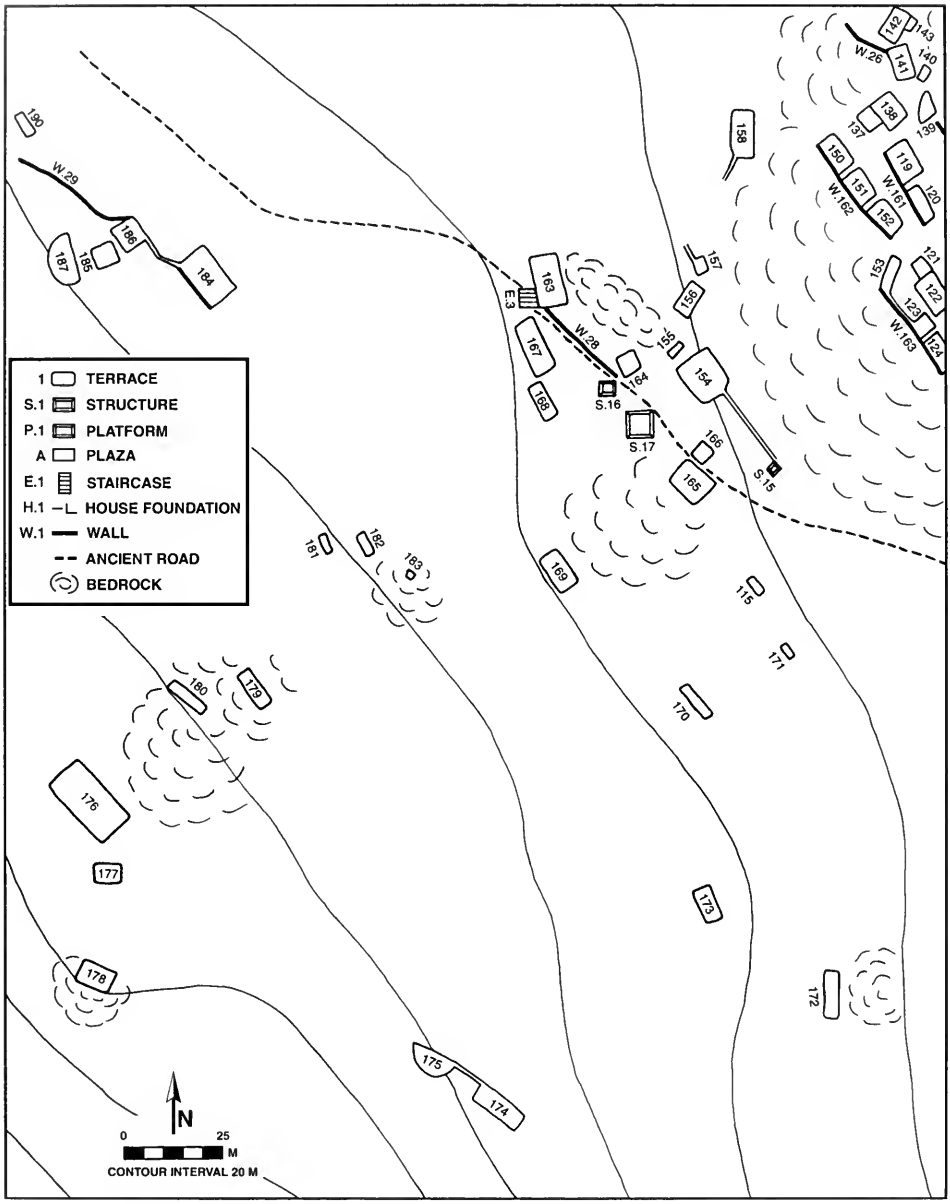
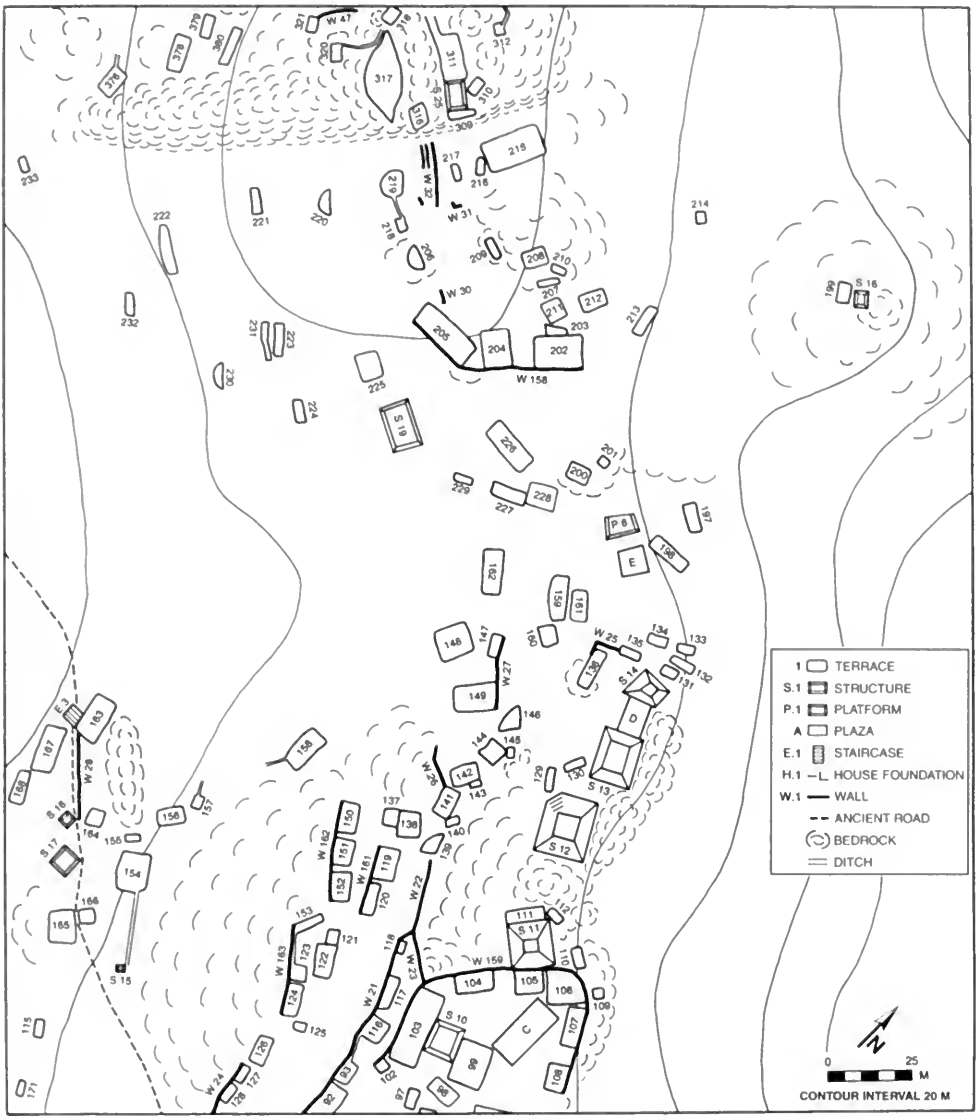


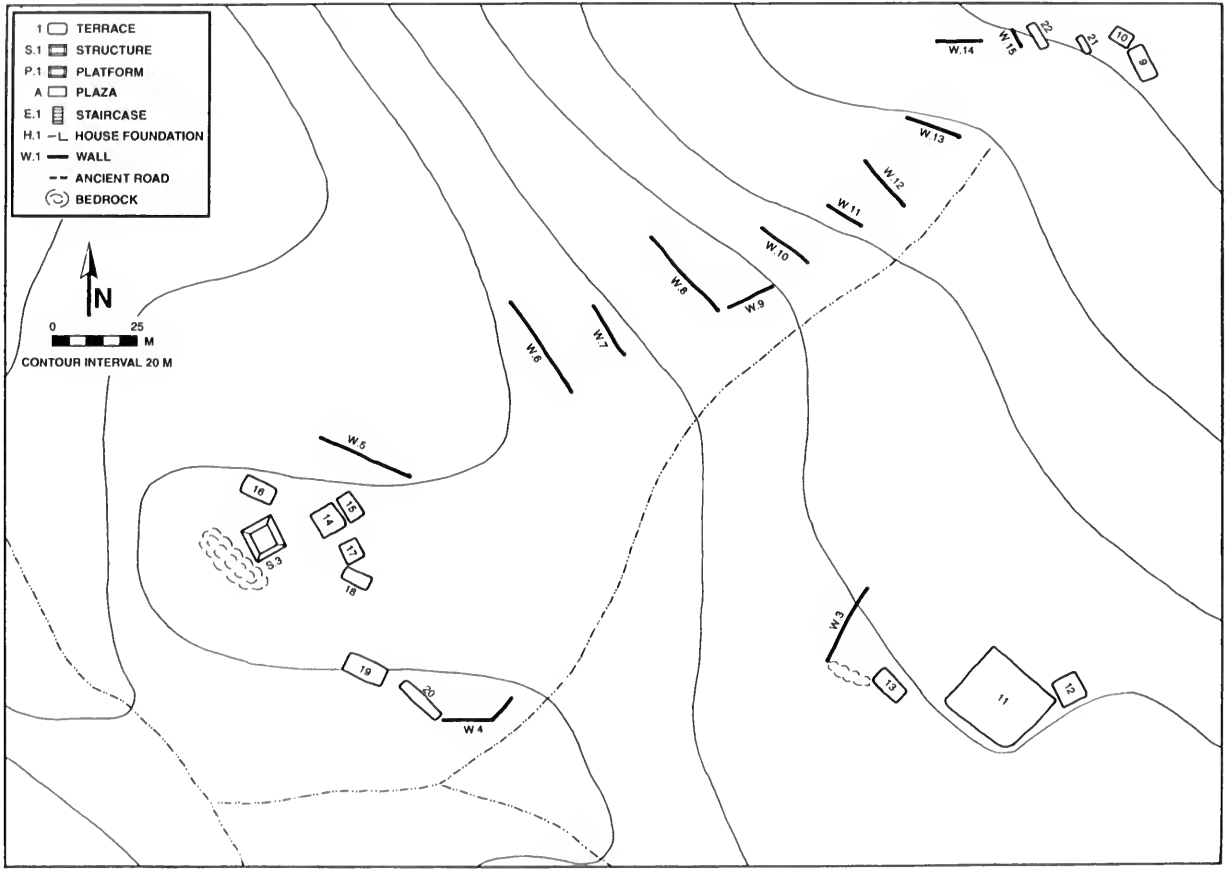
Appendix 3.h. El Palmillo map area h.



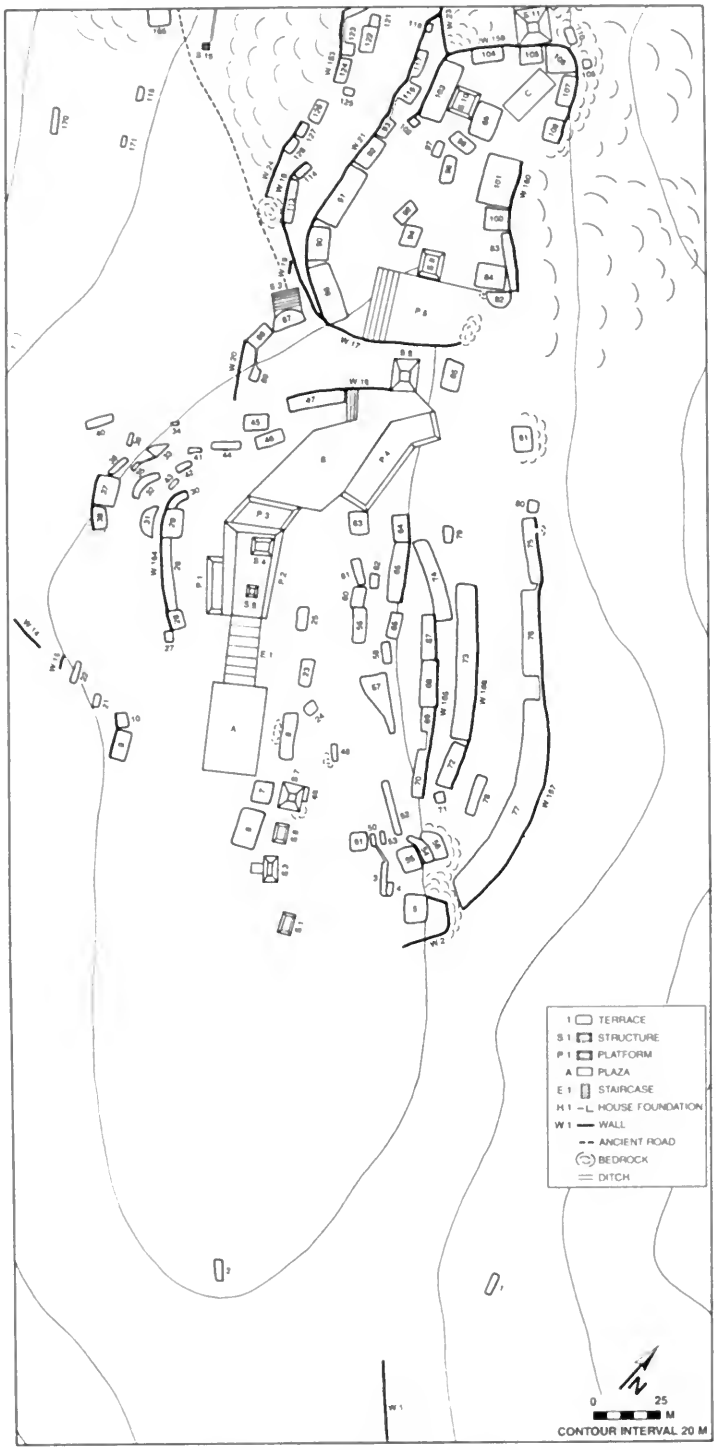
Appendix 3.i. El Palmillo map area i.



Appendix 3.j. El Palmillo map area j.



Appendix 3.k. El Palmillo map area k.



Appendix 3.1. El Palmillo map area 1.

Appendix 4.a. Mitla Fortress Terrace Summary

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1	1	10.0	4.0	40.0			x	x	x			
2	1	9.0	8.0	72.0					x			
3	1	9.0	7.0	63.0					x	1		
4	1	6.0	5.0	30.0	x	x	x	x	x			
5	1	8.5	5.0	42.5					x			
6	1	4.0	4.0	16.0					x			
7	1	6.5	3.5	22.8			x	x	x			
8	1	7.0	4.0	28.0			x	x	x			
9	1	6.0	5.0	30.0					x			
10	1	6.0	3.5	21.0			x	x	x			
11	1	6.5	3.0	19.5					x			
12	1	6.0	3.5	21.0			x	x	x			
13	2	10.0	7.0	70.0			x	x	x	1		
14	2	7.0	6.5	45.5			x	x	x	1		
15	2	12.0	8.5	102.0			x	x	x			
16	2	11.5	8.5	97.8		x	x	x	x			
17	2	5.0	5.0	25.0			x	x	x			
18	2	12.0	4.0	48.0			x	x	x			
19	2	11.0	3.5	38.5			x	x		1		
20	2	10.0	5.0	50.0		x	x	x	x			
21	2	7.0	6.0	42.0			x	x				
22	2	10.0	6.0	60.0			x	x				
23	2	14.0	6.0	84.0			x	x	x			x
24	2	7.0	4.0	28.0			x	x				
25	2	10.0	6.0	60.0			x	x	x			
26	2	5.0	3.0	15.0			x	x				
27	2	15.0	6.0	90.0			x	x	x			
28	2	20.0	8.0	160.0			x	x	x			
29	2	6.0	3.0	18.0			x	x	x			
30	2	5.0	3.0	15.0			x	x	x			
31	2	6.5	3.5	22.8			x	x	x			
32	2	13.0	5.0	65.0			x	x	x	1		
33	2	7.0	3.5	24.5			x	x	x			
34	2	5.5	3.0	16.5			x	x				
35	2	8.0	5.5	44.0			x	x				
36	2	5.0	4.5	22.5			x	x	x			
37	2	7.0	3.5	24.5			x	x	x			
38	2	7.5	4.5	33.8			x	x				
39	2	8.0	4.0	32.0			x	x				
40	2	6.0	4.0	24.0			x	x	x			
41	2	7.5	4.0	30.0			x	x	x	1		
42	2	10.0	5.0	50.0	x	x	x	x		1		
43	2	13.0	7.0	91.0	x	x	x	x	x	1		
44	2	18.0	8.0	144.0			x	x	x	1		
45	2	16.0	6.0	96.0			x	x	x			x
46	2	15.0	10.0	150.0	x	x	x	x	x	1		x
47	2	15.0	5.0	75.0			x	x		1		
48	2	7.5	5.0	37.5		x	x	x	x			
49	2	12.0	8.0	96.0			x	x		1	x	x
50	2	14.0	9.0	126.0			x	x		1		x
51	2	5.0	3.0	15.0			x	x				
52	2	5.0	3.0	15.0			x	x				
53	2	8.0	3.0	24.0			x	x				
54	2	6.0	3.0	18.0			x	x				
55	2	9.0	5.0	45.0			x	x				
56	2	11.0	8.0	88.0			x	x				
57	2	11.0	9.5	104.5			x	x	x	1		
58	2	13.0	11.0	143.0			x	x		1		
59	2	7.0	6.0	42.0		x	x	x				
60	2	15.0	5.0	75.0			x	x	x			x

Appendix 4.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
61	2	7.0	7.0	49.0			x	x		1		x
62	2	6.0	4.5	27.0			x	x				
63	2	12.0	6.5	78.0	x	x	x	x	x	1		
64	2	16.5	7.5	123.8			x	x				
65	4	15.0	6.5	97.5	x	x	x	x	x	1		
66	4	15.5	4.5	69.8	x	x	x	x	x			x
67	4	7.0	5.0	35.0			x	x				
68	4	5.0	3.0	15.0			x	x				
69	4	6.0	4.0	24.0			x	x				
70	4	5.0	2.5	12.5			x	x				
71	5	10.0	4.0	40.0	x		x	x	x			
72	5	13.0	4.0	52.0	x	x	x	x	x			
73	5	4.0	3.0	12.0			x	x				
74	5	7.0	6.0	42.0			x	x				
75	5	10.0	5.0	50.0			x	x		1		
76	5	7.0	3.0	21.0			x	x				
77	2	11.0	7.0	77.0		x	x	x		1		
78	2	10.0	9.0	90.0			x	x				
79	2	11.0	10.0	110.0			x	x		1		
80	2	7.0	4.0	28.0			x	x	x			
81	2	6.5	4.0	26.0			x	x	x			
82	2	13.0	6.0	78.0			x	x	x			x
83	2	21.0	10.0	210.0			x	x			x	
84	2	15.5	5.0	77.5			x	x	x			
85	2	11.0	4.0	44.0	x	x	x	x	x	1		
86	2	12.0	10.0	120.0			x	x	x			
87	2	25.0	5.5	137.5		x	x	x				x
88	2	12.0	4.0	48.0			x	x	x			
89	2	12.0	4.0	48.0			x	x	x			
90	2	5.0	3.0	15.0			x	x	x			
91	4	5.5	4.0	22.0			x	x	x			
92	4	7.5	2.0	15.0			x	x				
93	4	11.0	3.0	33.0	x	x	x	x				
94	4	4.5	4.0	18.0			x	x				
95	4	10.0	4.0	40.0			x	x				
96	4	16.5	2.5	41.3			x	x				
97	4	12.0	3.0	36.0			x	x				x
98	4	6.0	2.0	12.0			x	x				
99	4	8.0	4.0	32.0			x	x	x			
100	4	10.0	2.5	25.0			x	x				
101	4	5.5	4.0	22.0			x	x				
102	4	8.0	4.0	32.0			x	x				
103	4	13.0	4.0	52.0			x	x				
104	4	10.0	5.0	50.0			x	x				
105	4	6.5	6.0	39.0			x	x				
106	4	6.0	4.0	24.0			x	x				
107	2	15.0	8.0	120.0			x	x	x			
108	2	10.0	7.0	70.0			x	x	x			x
109	2	11.0	4.0	44.0					x			
110	2	9.0	3.0	27.0			x	x	x			
111	2	12.0	3.5	42.0			x	x	x			
112	2	13.0	7.0	91.0			x	x	x			
113	2	10.0	4.5	45.0			x	x	x			
114	2	12.0	4.5	54.0	x		x	x		1		
115	2	11.0	4.5	49.5			x	x	x	1		x
116	2	8.0	6.5	52.0			x	x	x			
117	2	11.0	7.0	77.0	x	x	x	x	x			
118	2	7.0	5.5	38.5			x	x	x			
119	4	16.0	3.0	48.0			x	x				
120	4	18.0	4.0	72.0			x	x	x			

Appendix 4.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
121	4	4.0	3.0	12.0			x	x				
122	4	4.5	3.5	15.8			x	x	x			
123	4	10.0	5.0	50.0			x	x	x			
124	4	8.5	3.0	25.5		x	x	x				
125	4	9.0	2.5	22.5			x	x				
126	4	8.0	3.0	24.0			x	x				
127	4	7.5	2.5	18.8			x	x				
128	4	10.0	3.0	30.0		x	x	x	x			x
129	4	9.5	3.0	28.5			x	x				
130	4	10.5	3.0	31.5			x	x				
131	4	9.0	4.0	36.0			x	x	x			x
132	4	9.0	4.0	36.0			x	x				
133	4	12.5	5.0	62.5			x	x	x			x
134	4	10.0	4.0	40.0			x	x	x			
135	4	9.0	2.0	18.0			x	x				
136	4	5.5	2.0	11.0			x	x				
137	4	15.0	3.0	45.0			x					
138	4	11.0	3.5	38.5			x	x				
139	4	8.0	3.0	24.0			x	x				
140	4	6.5	2.5	16.3			x	x				
141	4	9.0	2.5	22.5					x			
142	4	5.5	2.5	13.8			x					
143	4	11.0	3.0	33.0			x					
144	4	4.5	2.0	9.0			x					
145	4	3.0	3.0	9.0			x					
146	4	6.0	3.0	18.0			x					
147	4	13.0	3.5	45.5			x					
148	4	7.0	3.0	21.0			x					
149	4	10.5	3.0	31.5			x					
150	4	9.0	4.0	36.0			x		x			
151	7	6.5	4.0	26.0			x	x				
152	7	9.0	3.0	27.0			x	x				x
153	2	9.0	5.0	45.0			x	x				
154	2	11.0	5.5	60.5			x	x				
155	2	14.0	5.0	70.0			x	x	x			x
156	2	12.0	4.0	48.0			x	x	x			
157	2	13.0	6.0	78.0			x	x	x			x
158	2	10.0	3.0	30.0			x	x				
159	2	15.0	5.0	75.0			x	x	x			
160	2	28.0	6.0	168.0			x	x				
161	2	10.0	5.0	50.0			x	x				
162	2	12.0	4.0	48.0			x	x	x			
163	2	22.0	5.0	110.0			x	x	x			
164	2	13.5	5.0	67.5			x	x				
165	2	10.0	6.0	60.0			x	x	x			
166	2	8.0	5.0	40.0			x	x				
167	2	12.0	7.0	84.0		x	x	x	x			
168	2	15.5	5.0	77.5			x	x	x			
169	2	6.5	5.0	32.5			x	x				
170	2	14.0	6.5	91.0			x	x			x	
171	2	11.0	9.0	99.0			x	x				
172	2	12.0	8.0	96.0			x	x				x
173	2	11.0	6.0	66.0			x	x				
174	2	18.0	4.0	72.0			x	x				
175	2	17.0	4.0	68.0			x	x		1		x
176	2	8.0	4.0	32.0			x	x				
177	2	10.0	4.0	40.0			x	x				
178	2	15.0	8.0	120.0			x	x	x			
179	2	10.0	10.0	100.0			x	x	x			

Appendix 4.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
180	2	13.0	8.0	104.0			x	x				
181	2	10.5	9.0	94.5			x	x				
182	2	12.0	7.0	84.0			x	x				
183	2	13.0	4.5	58.5			x	x				
184	2	14.0	7.0	98.0			x	x				
185	2	10.0	7.0	70.0			x	x				
186	2	18.0	5.0	90.0			x	x				
187	2	12.0	3.0	36.0			x	x				
188	2	12.0	5.0	60.0			x	x				
189	2	8.0	5.0	40.0			x	x				
190	2	8.0	4.0	32.0			x	x				
191	2	10.0	4.5	45.0			x	x		1		
192	2	12.5	6.0	75.0			x	x	x	1		
193	2	8.0	6.0	48.0			x	x	x			x
194	2	11.0	3.5	38.5			x	x				x
195	2	8.5	3.5	29.8			x	x	x			x
196	2	14.5	6.0	87.0			x	x				x
197	2	11.0	7.0	77.0		x	x	x	x			x
198	2	14.0	7.0	98.0			x	x	x			x
199	2	7.5	4.5	33.8			x	x				
200	2	8.0	6.0	48.0			x	x				
201	2	7.0	5.0	35.0			x	x				
202	2	14.0	11.0	154.0		x	x	x				
203	2	8.0	6.0	48.0		x	x	x	x			
204	2	14.0	7.5	105.0		x	x	x	x	1		
205	2	7.0	4.0	28.0			x	x		1		
206	2	5.5	3.0	16.5			x	x	x			
207	2	9.5	4.0	38.0			x	x	x			
208	2	15.0	4.0	60.0			x	x	x	1		x
209	2	9.0	4.0	36.0			x	x	x			
210	2	12.0	7.0	84.0			x	x	x	1		
211	7	8.0	8.0	64.0			x	x		1		
212	7	12.0	5.0	60.0			x	x		1		
213	7	8.5	7.0	59.5			x	x		1		
214	7	9.0	9.0	81.0			x	x		1		
215	7	8.0	8.0	64.0			x	x		1		
216	7	8.0	9.0	72.0			x	x	x	1		
217	7	6.0	6.0	36.0			x	x		1		
218	7	7.0	7.5	52.5					x	1		
219	7	6.0	2.5	15.0			x	x		1		
220	7	7.0	2.0	14.0			x					
221	6	5.0	3.0	15.0					x			
222	6	12.0	3.5	42.0					x			
223	6	9.0	3.0	27.0					x			
224	6	6.0	5.0	30.0					x			
225	6	5.0	3.0	15.0					x			
226	6	9.0	4.0	36.0					x			
227	6	7.0	4.0	28.0					x			x
228	6	12.0	3.5	42.0					x			
229	6	5.0	4.0	20.0					x			
230	6	5.0	4.5	22.5					x			
231	6	7.0	4.0	28.0					x			
232	6	10.0	4.5	45.0			x		x			
233	6	9.0	5.0	45.0					x			
234	7	9.0	8.0	72.0			x	x				
235	7	10.0	5.0	50.0			x	x	x			
236	7	5.0	4.0	20.0			x	x				
237	7	10.0	4.0	40.0					x			
238	7	6.0	3.5	21.0								
239	7	12.0	5.0	60.0			x	x				

Appendix 4.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
240	7	5.0	4.0	20.0			x	x				
241	7	5.0	2.0	10.0			x	x	x			
242	7	12.0	3.0	36.0			x	x				
243	7	8.0	3.0	24.0			x	x				
244	7	5.0	3.0	15.0					x			
245	7	6.0	3.0	18.0					x			
246	7	8.0	3.0	24.0			x					x
247	7	6.0	3.0	18.0			x	x				
248	7	5.0	2.5	12.5			x	x				
249	7	9.0	3.0	27.0			x	x				
250	7	6.5	3.0	19.5			x	x				
251	7	4.0	4.0	16.0			x	x				
252	7	8.0	5.0	40.0			x	x	x			
253	7	8.5	4.0	34.0			x	x				
254	7	5.0	3.0	15.0			x	x				
255	7	6.0	2.5	15.0			x	x				
256	7	11.0	3.0	33.0					x			
257	7	8.0	3.0	24.0			x					
258	7	7.0	4.0	28.0			x					
259	7	6.0	2.5	15.0			x					
260	7	9.0	2.5	22.5			x					
261	7	6.0	2.0	12.0			x					
262	7	7.0	3.0	21.0			x					
263	7	10.0	6.0	60.0			x					
264	7	13.0	6.0	78.0			x					x
265	3	10.0	7.5	75.0			x	x	x			
266	3	7.0	6.0	42.0			x	x		1		
267	3	9.0	8.0	72.0			x	x	x	2		
268	3	6.0	3.0	18.0			x	x				
269	3	8.0	2.5	20.0			x	x	x			
270	3	9.0	2.5	22.5			x	x				
271	3	6.5	3.0	19.5			x	x				
272	4	6.0	2.0	12.0			x	x				
273	3	5.5	3.5	19.3			x	x				
274	3	6.0	4.0	24.0			x	x				
275	3	5.0	2.5	12.5			x	x				
276	3	12.0	9.5	114.0			x	x		1	x	x
277	3	10.0	8.0	80.0			x	x	x			
278	3	10.0	7.0	70.0			x	x	x			x
279	3	9.0	6.0	54.0			x	x	x			x
280	3	8.5	5.0	42.5			x	x	x			x
281	3	10.0	6.0	60.0			x	x	x			x
282	3	5.0	3.0	15.0			x	x				x
283	3	9.0	5.0	45.0		x	x	x	x		x	
284	3	7.0	4.0	28.0			x	x				
285	3	7.5	6.0	45.0			x	x	x	1		
286	3	9.0	5.0	45.0			x	x				
287	3	9.0	4.0	36.0			x	x				x
288	3	9.0	5.0	45.0			x	x				
289	3	9.0	4.0	36.0			x	x	x			
290	3	9.0	3.5	31.5			x	x	x	1		x
291	3	10.0	4.0	40.0			x	x				x
292	3	6.0	6.0	36.0			x	x		1	x	x
293	3	11.0	4.0	44.0			x	x				x
294	3	10.0	5.0	50.0			x	x		1		x
295	3	9.0	3.0	27.0			x					
296	3	7.0	3.0	21.0			x					
297	3	7.5	3.0	22.5			x		x			
298	3	11.0	3.0	33.0			x					
299	3	8.5	2.0	17.0			x					
300	3	7.0	3.5	24.5			x					

Appendix 4.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
301	3	4.0	3.0	12.0			x	x				
302	3	7.5	3.0	22.5			x	x				
303	3	5.0	4.0	20.0			x	x				
304	3	5.0	2.0	10.0			x	x				
305	3	8.0	3.5	28.0		x	x	x				
306	3	11.5	6.0	69.0			x	x	x			x
307	3	7.0	7.0	49.0			x	x				
308	3	8.5	7.0	59.5			x	x				
309	3	9.0	7.0	63.0			x	x	x			x
310	3	8.0	4.0	32.0			x	x	x			x
311	3	12.0	3.0	36.0			x	x	x			
312	3	4.0	3.0	12.0			x	x				
313	3	10.0	4.0	40.0		x	x	x				
314	3	11.5	3.0	34.5			x	x	x	1		
315	3	8.0	3.0	24.0			x	x				
316	3	9.0	5.0	45.0	x		x	x	x			
317	3	7.0	4.0	28.0			x	x				x
318	3	10.0	4.0	40.0			x	x				
319	3	8.5	4.0	34.0			x	x				x
320	3	8.0	5.0	40.0			x	x				
321	3	5.0	4.0	20.0			x	x	x			x
322	3	7.0	5.0	35.0			x	x				x
323	3	5.0	2.5	12.5			x	x				
324	3	9.0	4.0	36.0			x	x				x
325	3	9.0	7.0	63.0			x	x				x
326	3	8.5	7.0	59.5			x	x				
327	3	8.0	7.0	56.0			x	x				
328	3	5.0	3.5	17.5			x	x				x
329	3	8.0	5.0	40.0			x	x				
330	3	9.0	3.0	27.0			x	x				
331	3	7.0	6.0	42.0			x	x				
332	3	10.0	5.0	50.0			x	x				x
333	3	7.5	4.5	33.8			x	x	x			
334	3	11.0	2.5	27.5			x	x				
335	3	4.5	3.0	13.5			x	x				
336	3	9.5	5.0	47.5			x	x				x
337	3	10.0	5.0	50.0			x	x				x
338	3	13.0	5.0	65.0			x	x				
339	3	9.0	5.0	45.0			x	x		1		
340	3	13.0	5.0	65.0			x		x			
341	3	6.0	6.0	36.0			x		x	1		
342	3	6.5	4.0	26.0			x					
343	4	9.0	5.0	45.0			x	x				
344	4	12.0	5.0	60.0			x	x				x
345	4	4.0	4.0	16.0			x	x		1		x
346	4	5.0	4.0	20.0			x					
347	4	8.0	2.5	20.0			x					
348	4	8.0	3.0	24.0			x					
349	4	5.0	5.0	25.0			x					
350	4	6.0	5.0	30.0			x					
351	4	6.0	4.0	24.0			x			1		
352	4	5.5	5.0	27.5			x					
353	4	5.0	5.0	25.0			x		x	1		
354	4	7.0	5.0	35.0			x					
355	4	9.5	3.5	33.3			x					
356	4	7.5	4.5	33.8			x					
357	4	7.0	5.0	35.0			x					
358	4	5.0	3.5	17.5			x					
359	4	7.0	3.5	24.5			x					
360	4	6.0	4.0	24.0			x					

Appendix 4.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
361	4	6.0	4.0	24.0			x		x			x
362	4	9.0	5.0	45.0			x					
363	3	9.0	7.0	63.0			x			1		
364	3	7.0	7.0	49.0			x					
365	3	15.0	8.0	120.0			x			1		
366	3	13.0	6.0	78.0			x			1		
367	3	10.5	4.5	47.3			x			1		
368	3	7.0	4.5	31.5			x					x
369	3	7.0	5.0	35.0			x		x			
370	3	7.0	3.5	24.5					x			
371	3	9.0	2.5	22.5			x					
372	3	7.5	4.0	30.0			x					
373	3	7.0	4.5	31.5			x					x
374	3	4.0	3.5	14.0			x					
375	3	7.0	5.0	35.0			x					
376	3	12.0	5.0	60.0			x			1		
377	3	10.0	5.0	50.0			x			1		
378	3	4.5	4.0	18.0			x					
379	3	8.0	4.0	32.0			x					
380	3	6.0	3.0	18.0			x					
381	3	7.0	5.0	35.0			x					
382	3	13.0	4.0	52.0			x			1		
383	3	6.0	5.0	30.0			x			1		
384	3	7.5	4.0	30.0			x			1		
385	7	5.0	5.0	25.0			x					
386	7	8.0	5.0	40.0			x			1		
387	4	7.0	4.0	28.0			x					x
388	4	5.5	3.5	19.3			x		x			
389	4	5.0	2.5	12.5			x					
390	4	5.0	2.5	12.5			x		x			
391	4	10.5	3.5	36.8			x			1		
392	4	4.0	3.0	12.0			x					
393	4	4.0	4.0	16.0			x					
394	4	5.0	4.0	20.0					x			
395	4	5.0	4.0	20.0			x					
396	4	4.5	3.0	13.5			x					
397	4	14.0	3.5	49.0			x	x	x			
398	4	7.5	4.0	30.0			x					
399	4	11.0	5.0	55.0			x			1		
400	4	6.0	4.0	24.0			x			1		
401	4	8.0	3.0	24.0			x					
402	4	8.0	3.5	28.0					x			
403	4	6.5	4.0	26.0			x					x
404	4	11.0	5.0	55.0					x			
405	4	7.0	3.5	24.5					x			
406	5	5.0	4.0	20.0					x			x
407	5	10.0	4.0	40.0					x			x
408	5	4.5	3.5	15.8					x			
409	5	7.0	5.0	35.0					x	1		
410	5	10.0	4.5	45.0					x	1		x
411	5	7.5	3.0	22.5					x			
412	5	8.0	6.0	48.0					x			
413	5	5.0	5.0	25.0					x			
414	5	8.0	3.0	24.0					x			
415	5	3.5	2.0	7.0					x			
416	5	7.0	4.0	28.0					x			
417	5	5.0	4.5	22.5					x	1		
418	5	6.0	3.0	18.0			x					
419	5	10.0	3.0	30.0			x			1		
420	5	7.0	3.5	24.5			x		x			
421	5	4.0	3.0	12.0			x		x			

Appendix 4.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
422	5	4.5	4.0	18.0			x					
423	5	5.0	3.0	15.0					x			
424	5	4.0	3.5	14.0			x					
425	5	5.0	4.0	20.0			x					
426	5	6.0	6.0	36.0			x			1		
427	5	5.0	3.0	15.0					x			x
428	5	5.0	3.0	15.0					x			
429	5	4.5	2.5	11.3					x	1		
427	5	5.0	3.0	15.0					x			x
428	5	5.0	3.0	15.0					x			
429	5	4.5	2.5	11.3					x	1		
432	5	5.0	4.0	20.0					x	1		
433	5	3.5	2.5	8.8					x			
434	5	4.5	3.5	15.8			x		x			
435	5	5.0	3.0	15.0			x					
436	5	8.0	3.0	24.0			x					
437	5	3.5	3.0	10.5			x					
438	5	5.0	5.0	25.0			x					
439	5	4.5	4.0	18.0			x		x			
440	5	6.3	3.0	18.8					x			
441	5	6.0	4.5	27.0					x			
442	5	8.0	3.0	24.0					x			
443	5	5.5	2.5	13.8			x					
444	5	8.0	3.0	24.0			x			1		x
445	5	6.0	3.0	18.0			x					
446	5	6.0	3.0	18.0			x					
447	5	5.0	4.0	20.0			x					
448	5	6.5	3.0	19.5	x	x	x					
449	5	8.0	3.0	24.0					x			
450	5	8.0	3.5	28.0					x			
451	5	5.0	2.5	12.5					x			
452	5	5.0	4.0	20.0					x			
453	6	7.0	3.5	24.5					x			
454	6	5.5	3.0	16.5					x			
455	6	7.0	6.0	42.0					x			x
456	6	9.0	5.0	45.0					x			
457	6	5.5	5.0	27.5					x			
458	6	6.5	4.0	26.0					x			
459	6	5.0	3.5	17.5					x			
460	6	7.0	5.0	35.0					x			
461	6	5.0	3.5	17.5					x			
462	6	5.5	5.0	27.5					x			
463	6	7.0	4.5	31.5					x	1		

Appendix 4.B. Mitla Fortress Structure Summary

Structure	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
65	1	25.0	11.5	287.5	10.0	4.0	40.0	3.00	434.7	x	x	x	x	x	
66	1	16.0	12.0	192.0	8.5	5.5	46.8	2.12	235.7			x	x	x	Plaza B
67	1	16.0	11.0	176.0	10.0	8.0	80.0	1.50	187.3			x	x	x	Plaza B
68	1	18.5	9.5	175.8	17.5	8.5	148.8	1.50	243.1	x		x	x	x	
69	1	5.0	4.0	20.0	5.0	4.0	20.0	0.50	10.0					x	
70	1	26.0	4.0	104.0				0.00				x	x	x	Adobe walls, Pl. 5
71	1	31.0	18.0	558.0				0.00			x	x	x	x	Adobe walls, Pl. 1, 2
72	1	14.5	11.5	166.8				0.00				x	x	x	Pl. 7
81	1	3.5	3.0	10.5	3.5	3.0	10.5	0.10	1.1					x	Pl. 7, St. 66
82	1	10.0	7.0	70.0	10.0	7.0	70.0	0.10	7.0					x	
83	1	15.0	3.0	45.0	6.0	1.0	6.0	1.75	39.3			x	x	x	
84	1	4.0	2.0	8.0	4.0	2.0	8.0	0.10	0.8					x	
85	1	4.0	4.0	16.0				0.00				x	x	x	
86	1	5.0	2.0	10.0				0.00		x		x	x	x	
87	1	3.0	2.0	6.0				0.00						x	
88	1	5.0	4.0	20.0				0.00						x	
89	1	6.0	3.0	18.0				0.00						x	
90	1	4.0	4.0	16.0	4.0	4.0	16.0	0.50	8.0					x	
91	1	4.5	3.0	13.5				0.00				x	x	x	
92	2	5.5	5.5	30.3	5.5	5.5	30.3	0.50	15.1			x	x		
93	2	8.0	5.5	44.0	8.0	5.5	44.0	0.50	22.0			x	x		
94	2	9.0	9.0	81.0	9.0	9.0	81.0	0.50	40.5			x	x		
95	2	6.0	5.0	30.0				0.00				x	x	x	
96	2	6.0	5.0	30.0				0.00				x	x	x	
97	2	4.5	4.0	18.0				0.00				x	x	x	
98	2	3.0	3.0	9.0				0.00				x	x		
99	2	3.0	3.0	9.0				0.00				x	x	x	
100	2	3.5	2.5	8.8	3.5	2.5	8.8	0.10	0.9			x	x		
101	2	5.5	3.0	16.5	5.5	3.0	16.5	0.10	1.7			x	x	x	
102	2	5.0	3.0	15.0	5.0	3.0	15.0	0.75	11.3			x	x		
103	2	4.0	3.5	14.0				0.00				x	x	x	
104	2	5.0	4.0	20.0				0.00				x	x	x	
105	5	4.0	3.0	12.0	4.0	3.0	12.0	0.25	3.0			x	x		
106	5	13.0	8.0	104.0	13.0	8.0	104.0	1.00	104.0		x	x		x	Pl. 100
107	2	12.0	7.0	84.0	12.0	7.0	84.0	0.20	16.8			x	x	x	
108	2	7.0	6.0	42.0	7.0	6.0	42.0	0.50	21.0			x	x	x	
109	2	3.5	2.0	7.0				0.00			x	x	x	x	Pl. 47, St. 110, 111
110	2	2.5	2.0	5.0				0.00			x	x	x	x	Pl. 47, St. 109, 111
111	2	2.5	2.5	6.3				0.00			x	x	x	x	Pl. 47, St. 109, 110
112	2	9.5	4.0	38.0				0.00				x	x	x	
113	2	4.5	2.5	11.3				0.00		x	x	x	x	x	

Appendix 4.B. *Continued*

Structure	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
114	4	3.5	3.5	12.3				0.00				x			
115	2	4.5	4.0	18.0	4.5	4.0	18.0	0.00				x	x	x	
116	2	5.0	4.5	22.5	5.0	4.5	22.5	0.00				x	x		
117	2	4.0	4.0	16.0	4.0	4.0	16.0	0.00				x	x	x	
118	2	4	2.5	10.0	4	2.5	10.0	0.00				x	x		
119	2	2.0	2.0	4.0	2.0	2.0	4.0	0.00				x	x		
120	2	2.5	2.5	6.3	2.5	2.5	6.3	0.00				x	x		
121	7	4.0	3.5	14.0	4.0	3.5	14.0	0.00				x	x		
122	7	3.5	3.0	10.5	3.5	3.0	10.5	0.00				x	x		
123	6	3.5	3.0	10.5	3.5	3.0	10.5	0.00						x	T. 225
124	6	3.8	3.5	13.1	3.8	3.5	13.1	0.00						x	
125	6	3.0	3.0	9.0	3.0	3.0	9.0	0.00						x	
126	6	13.0	3.0	39.0	13.0	3.0	39.0	0.00						x	
127	6	4.0	3.0	12.0	4.0	3.0	12.0	0.00						x	
128	6	9.5	4.0	38.0	9.5	4.0	38.0	0.00						x	
129	6	6.0	4.0	24.0	6.0	4.0	24.0	0.00						x	
130	7	10.0	3.8	37.5	10.0	3.8	37.5	0.00				x	x		
131	7	3.5	2.5	8.8	3.5	2.5	8.8	0.00				x	x		T. 251
132	7	3.0	3.0	9.0	3.0	3.0	9.0	0.00				x			
133	7	5.0	4.0	20.0	5.0	4.0	20.0	0.00				x	x		
134	3	3.0	2.5	7.5	3.0	2.5	7.5	0.00				x	x		
135	3	5.0	2.0	10.0	5.0	2.0	10.0	0.00				x	x		Plaza F
136	3	9.5	2.8	26.1	9.5	2.8	26.1	0.00			x	x	x	x	Plaza G, St. 136–141
137	3	11.0	3.0	33.0	11.0	3.0	33.0	0.00			x	x	x	x	Plaza G, St. 136–141
138	3	5.0	3.0	15.0	5.0	3.0	15.0	0.00			x	x	x	x	Plaza G, St. 136–141
139	3	1.5	1.5	2.3	1.5	1.5	2.3	0.00			x	x	x	x	Plaza G, St. 136–141
140	3	2.0		0.0	2.0		0.0	0.00			x	x	x	x	Plaza G, St. 136–141
141	3	4.0	4.0	16.0	4.0	4.0	16.0	0.00			x	x	x	x	Plaza G, St. 136–141
142	3	2.0	1.5	3.0	2.0	1.5	3.0	0.00				x	x		Pl. 60
143	3	2.0	2.0	4.0	2.0	2.0	4.0	0.00				x	x		T. 302
144	4	3.5	3.5	12.3	3.5	3.5	12.3	0.00				x			
145	4	4.0	4.0	16.0	4.0	4.0	16.0	0.00				x			
146	4	4.0	4.0	16.0	4.0	4.0	16.0	0.00				x			
147	4	4.0	3.5	14.0	4.0	3.5	14.0	0.00				x			
148	3	4.5	4.0	18.0	4.5	4.0	18.0	0.50	9.0			x			
149	3	4.0	3.5	14.0	4.0	3.5	14.0	0.50	7.0			x			
150	3	6.0	3.5	21.0	6.0	3.5	21.0	0.00				x			Pl. 66
151	3	4.5	3.5	15.8	4.5	3.5	15.8	2.00	31.5			x			
152	3	3.0	3.0	9.0	3.0	3.0	9.0	0.25	2.3			x			
153	3	10.0	4.0	40.0	10.0	4.0	40.0	0.00				x			
154	3	4.0	2.5	10.0	4.0	2.5	10.0	0.00				x		x	

Appendix 4.b. *Continued*

Structure	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
155	3	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			
156	3	5.0	5.0	25.0	5.0	5.0	25.0	0.00				x			
157	3	5.0	4.0	20.0	5.0	4.0	20.0	0.00				x			Pl. 72
158	3	4.5	3.0	13.5	4.5	3.0	13.5	0.00				x			Pl. 70
159	3	3.5	3.0	10.5	3.5	3.0	10.5	0.00				x		x	
160	3	6.0	3.8	22.5	6.0	3.8	22.5	0.00				x			
161	3	3.5	2.0	7.0	3.5	2.0	7.0	0.00				x			
162	3	5.0	4.0	20.0	5.0	4.0	20.0	0.00				x			
163	3	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			Pl. 79
164	3	3.5	3.5	12.3	3.5	3.5	12.3	0.00				x			
165	3	4.0	3.5	14.0	4.0	3.5	14.0	0.00				x			
166	3	4.5	4.0	18.0	4.5	4.0	18.0	0.00				x			
167	3	2.0	3.0	6.0	2.0	3.0	6.0	0.00				x			
168	3	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			
169	3	5.0	2.0	10.0	5.0	2.0	10.0	0.00				x			
170	3	5.0	5.0	25.0	5.0	5.0	25.0	0.00				x			
171	3	3.5	3.5	12.3	3.5	3.5	12.3	0.00				x			
172	3	4.0	4.0	16.0	4.0	4.0	16.0	0.00				x			
173	7	4.8	3.0	14.3	4.8	3.0	14.3	0.00				x			
174	4	5.0	4.0	20.0	5.0	4.0	20.0	0.25	5.0			x			
175	4	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			Pl. 96
176	4	3.0	2.5	7.5	3.0	2.5	7.5	0.50	3.8			x			
177	4	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			
178	4	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			
179	5	7.5	4.5	33.8	7.5	4.5	33.8	0.00						x	
180	5	5.0	5.0	25.0	5.0	5.0	25.0	0.00						x	
181	5	3.0	2.0	6.0	3.0	2.0	6.0	0.00				x			
182	5	2.5		0.0	2.5		0.0	0.00				x			
183	5	5.0	3.0	15.0	5.0	3.0	15.0	0.00				x			
184	5	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			
185	5	3.0	2.5	7.5	3.0	2.5	7.5	0.00						x	
186	5	7.0	3.0	21.0	7.0	3.0	21.0	0.00						x	
187	5	2.0	2.0	4.0	2.0	2.0	4.0	1.00	4.0			x			
188	5	3.0	2.5	7.5	3.0	2.5	7.5	0.00				x			
189	5	4.0	3.0	12.0	4.0	3.0	12.0	0.25	3.0					x	Pl. 101

Appendix 4.B. *Continued*

Structure	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Reatures
190	5	3.0	3.0	9.0	3.0	3.0	9.0	0.00						x	
191	5	3.0	3.0	9.0	3.0	3.0	9.0	0.00				x			
192	5	2.5	2.0	5.0	2.5	2.0	5.0	0.00				x			
193	5	3.0	3.0	9.0	3.0	3.0	9.0	0.00				x			
194	3	4.3	4.0	17.0	4.3	4.0	17.0	0.00						x	
195	5	4.0		0.0	4.0		0.0	0.00						x	
196	5	3.5	2.0	7.0	3.5	2.0	7.0	0.00						x	
197	5	3.0	3.0	9.0	3.0	3.0	9.0	0.00						x	
198	5	4.0	3.0	12.0	4.0	3.0	12.0	0.00						x	
199	5	3.0	2.5	7.5	3.0	2.5	7.5	0.00						x	
200	5	4.0	3.0	12.0	4.0	3.0	12.0	0.00				x			
201	5	5.5	3.0	16.5	5.5	3.0	16.5	0.00				x			
202	5	5.0	4.0	20.0	5.0	4.0	20.0	0.00						x	
203	6	4.0	3.5	14.0	4.0	3.5	14.0	0.00						x	
204	6	3.5	3.5	12.3	3.5	3.5	12.3	0.00						x	
205	6	3.0	3.0	9.0	3.0	3.0	9.0	0.00						x	
206	6	5.0	4.5	22.5	5.0	4.5	22.5	0.00						x	
207	6	4.0	3.0	12.0	4.0	3.0	12.0	0.00						x	
209	6	3.0	3.0	9.0	3.0	3.0	9.0	0.00						x	
209	6	5.0	3.5	17.5	5.0	3.5	17.5	0.00						x	
210	6	3.0	3.0	9.0	3.0	3.0	9.0	0.00						x	
211	1	3.0	1.5	4.5	3.0	1.5	4.5	0.00				x	x	x	Pl. 30
212	1	4.0	3.5	14.0	4.0	3.5	14.0	0.00				x	x	x	Pl. 32
213	1	3.0	2.5	7.5	3.0	2.5	7.5	0.00				x	x	x	Pl. 34
214	2	3.0	2.5	7.5	3.0	2.5	7.5	0.00				x	x	x	Pl. 42
215	4	4.0	3.0	12.0	4.0	3.0	12.0	0.00		x	x	x	x	x	T. 65

Appendix 4.c. Mitla Fortress Platform Summary

Platform	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
1	1	35.5	13.0	461.5	32.0	10.0	320.0	3.00	1165.8		x	x	x	x	St. 71
2	1	42.0	20.0	840.0	38.0	15.0	570.0	2.00	1401.3		x	x	x	x	
3	1	35.0	22.0	770.0	34.0	20.0	680.0	1.50	1086.8			x	x	x	
4	1	7.5	6.0	45.0	7.5	6.0	45.0	0.75	33.8			x	x	x	
5	1	30.0	11.0	330.0	26.0	4.0	104.0	0.75	154.8			x	x	x	St. 70
6	1	27.0	9.0	243.0	26.0	8.0	208.0	0.25	56.3	x	x	x	x	x	St. 65
7	1	13.5	10.5	141.8	13.5	10.5	141.8	0.10	14.2			x	x	x	St. 72
8	1	22.0	18.0	396.0	20.0	17.0	340.0	1.50	551.5			x	x	x	St. 82
9	1	12.0	9.0	108.0	10.5	6.0	63.0	1.00	84.5		x	x	x	x	
10	1	28.0	15.5	434.0	23.5	13.0	305.5	1.38	505.8			x	x	x	
11	1	14.0	14.0	196.0	14.0	14.0	196.0	0.25	49.0			x	x	x	
12	1	13.0	8.5	110.5	13.0	8.0	104.0	0.50	53.6	x		x	x	x	
13	1	21.0	6.0	126.0	21.0	6.0	126.0	0.50	63.0			x	x	x	
14	1	6.0	5.5	33.0	6.0	5.5	33.0	0.10	3.3				x	x	
15	1	11.0	9.0	99.0	11.0	9.0	99.0	0.25	24.8			x	x	x	
16	1	7.0	7.0	49.0	7.0	7.0	49.0	0.10	4.9					x	
17	1	6.5	6.0	39.0	6.5	6.0	39.0	0.10	3.9					x	
18	1	12.0	8.0	96.0	12.0	8.0	96.0	0.10	9.6					x	
19	1	10.5	9.0	94.5	10.5	9.0	94.5	0.25	23.6					x	
20	1	11.0	5.5	60.5	11.0	5.5	60.5	0.10	6.1			x	x	x	
21	1	10.5	8.0	84.0	10.5	8.0	84.0	0.25	21.0			x	x	x	
22	1	10.0	10.0	100.0	10.0	10.0	100.0	0.10	10.0			x	x	x	
23	1	7.0	5.0	35.0	7.0	5.0	35.0	0.25	8.8	x	x	x	x	x	
24	1	4.5	4.5	20.3	4.5	4.5	20.3	0.25	5.1	x	x	x	x	x	
25	1	9.0	6.0	54.0	9.0	6.0	54.0	0.25	13.5	x	x	x	x	x	
26	1	6.5	5.5	35.8	6.5	5.5	35.8	0.25	8.9					x	
27	1	10.0	2.0	20.0	10.0	2.0	20.0	0.10	2.0	x	x	x	x	x	
28	1	8.0	6.0	48.0	8.0	6.0	48.0	0.25	12.0			x	x	x	
29	1	10.0	7.5	75.0	10.0	7.5	75.0	0.20	15.0			x	x	x	
30	1	7.5	4.5	33.8	7.5	4.5	33.8	0.25	8.4			x	x	x	St. 211
31	1	8.0	5.5	44.0	8.0	5.5	44.0	0.20	8.8					x	
32	1	12.0	10.0	120.0	10.0	8.0	80.0	1.00	99.3			x	x	x	St. 212
33	1	13.0	9.0	117.0	13.0	9.0	117.0	0.25	29.3			x	x	x	
34	1	16.0	11.0	176.0	16.0	11.0	176.0	0.20	35.2			x	x	x	St. 213
35	1	8.0	7.5	60.0	8.0	7.5	60.0	0.25	15.0			x	x	x	
36	1	13.5	11.0	148.5	13.5	11.0	148.5	0.30	44.6	x		x	x	x	
37	1	10.0	6.0	60.0	10.0	6.0	60.0	0.25	15.0			x	x	x	
38	1	6.0	6.0	36.0	6.0	6.0	36.0	0.20	7.2			x	x	x	
39	2	10.0	10.0	100.0	10.0	10.0	100.0	1.00	100.0			x	x	x	St. 94
40	2	23.0	8.0	184.0	23.0	8.0	184.0	0.50	92.0			x	x	x	
41	2	13.0	9.0	117.0	13.0	9.0	117.0	0.20	23.4	x	x	x	x	x	Possible structure
42	2	13.5	12.0	162.0	13.5	12.0	162.0	0.20	32.4			x	x	x	St. 214
43	2	10.0	5.0	50.0	9.0	4.0	36.0	1.00	42.8			x	x	x	

Appendix 4.c. *Continued*

Platform	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	I.I	II	IIIA	IIIB/IV	V	Associated Architectural Features
44	5	13.0	6.0	78.0	12.0	5.0	60.0	1.50	103.2			x	x		St. 105
45	2	16.0	9.5	152.0	16.0	9.5	152.0	0.25	38.0		x	x	x	x	
46	2	11.0	10.0	110.0	9.0	8.5	76.5	0.50	46.4			x	x	x	St. 108
47	2	18.5	16.0	296.0	12.0	12.0	144.0	1.50	323.2		x	x	x	x	St. 109, 110, 111
48	2	16.0	6.0	96.0	16.0	6.0	96.0	0.10	9.6			x	x	x	
49	2	7.5	7.0	52.5	7.5	7.0	52.5	0.25	13.1			x	x		
50	2	7.0	7.0	49.0	7.0	7.0	49.0	0.75	36.8			x	x	x	
51	4	8.0	7.0	56.0	8.0	7.0	56.0	0.50	28.0		x	x	x		
52	4	22.0	15.0	330.0	22.0	15.0	330.0	0.50	165.0			x	x		
53	4	9.0	4.5	40.5	9.0	4.5	40.5	0.75	30.4			x		x	
54	2	15.0	11.5	172.5	15.0	11.5	172.5	0.25	43.1		x	x	x	x	
55	2	20.5	8.5	174.3	19.5	7.5	146.3	1.00	160.0		x	x	x	x	
56	2	10.5	7.0	73.5	10.5	7.0	73.5	0.50	36.8			x	x	x	
57	2	5.0	4.0	20.0	5.0	4.0	20.0	0.25	5.0		x	x	x	x	
58	2	14.0	12.0	168.0	13.0	11.0	143.0	1.00	155.3			x	x		
59	3	12.5	10.5	131.3	12.5	10.5	131.3	0.75	98.4			x	x		
60	3	24.0	15.0	360.0	18.0	9.0	162.0	2.25	572.6			x	x		St. 142
61	3	26.5	9.0	238.5	11.0	5.0	55.0	3.00	408.0		x	x	x	x	
62	3	23.0	8.5	195.5	10.0	3.0	30.0	3.00	302.1			x	x	x	Possible structure
63	4	15.0	7.5	112.5	5.0	5.0	25.0	0.50	31.8					x	
64	4	13.0	7.0	91.0	11.5	4.0	46.0	0.50	33.6					x	
65	3	4.0	4.0	16.0	4.0	4.0	16.0	0.50	8.0					x	
66	3	15.0	7.0	105.0	14.0	6.0	84.0	1.25	117.9			x			St. 150
67	3	9.0	5.5	49.5	9.0	5.5	49.5	0.75	37.1			x			
68	3	9.0	3.5	31.5	9.0	3.5	31.5	0.75	23.6			x			
69	3	4.0	3.5	14.0	4.0	3.5	14.0	0.50	7.0			x			
70	3	7.0	7.0	49.0	7.0	7.0	49.0	0.50	24.5			x			St. 158
71	3	10.0	5.0	50.0	10.0	5.0	50.0	0.75	37.5			x			
72	3	12.0	7.0	84.0	12.0	7.0	84.0	0.50	42.0			x			St. 157
73	3	7.5	7.0	52.5	7.5	7.0	52.5	0.50	26.3			x		x	St. 159
74	3	13.0	8.5	110.5	13.0	8.5	110.5	0.50	55.3	x	x	x			St. 160
75	3	9.0	8.0	72.0	9.0	8.0	72.0	0.25	18.0			x			
76	3	5.0	3.0	15.0	5.0	3.0	15.0	0.50	7.5			x			
77	3	8.0	5.0	40.0	8.0	5.0	40.0	0.50	20.0			x			
78	3	10.5	7.0	73.5	10.5	7.0	73.5	0.50	36.8			x			St. 161
79	3	12.0	11.0	120.0	12.0	10.0	120.0	0.50	60.0			x			St. 163
80	3	8.0	7.0	56.0	8.0	7.0	56.0	0.25	14.0			x			
81	3	5.0	4.0	20.0	4.0	3.0	12.0	1.00	15.8			x			

APPENDIX 4.C. *Continued*

Platform	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
82	3	8.0	4.0	32.0	8.0	4.0	32.0	0.50	16.0			x			
83	3	10.0	4.0	40.0	10.0	4.0	40.0	0.50	20.0			x			
84	3	10.0	3.0	30.0	10.0	3.0	30.0	0.50	15.0			x			
85	3	9.0	4.0	36.0	9.0	4.0	36.0	0.50	18.0			x			
86	3	12.0	4.0	48.0	12.0	4.0	48.0	0.05	24.0			x			St. 169
87	3	8.0	7.0	56.0	8.0	7.0	56.0	0.50	28.0			x			
88	3	6.0	6.0	36.0	6.0	6.0	36.0	0.25	9.0					x	
89	7	8.0	8.0	64.0	8.0	8.0	64.0	0.50	32.0			x			
90	4	7.0	7.0	49.0	7.0	7.0	49.0	0.50	24.5			x			
91	4	11.0	9.0	99.0	11.0	9.0	99.0	0.50	49.5			x			
92	4	10.0	5.0	50.0	10.0	5.0	50.0	0.50	25.0			x			
93	4	9.0	5.5	49.5	9.0	5.5	49.5	0.50	24.8			x			
94	4	15.5	5.0	77.5	15.5	5.0	77.5	0.50	38.8					x	
95	4	9.0	6.0	54.0	9.0	6.0	54.0	0.50	27.0			x			
96	4	9.0	9.0	81.0	9.0	9.0	81.0	0.75	60.8			x			St. 175
97	4	23.0	11.0	253.0	23.0	11.0	253.0	0.50	126.5			x			
98	4	11.0	5.0	55.0	11.0	5.0	55.0	0.75	41.3			x			
99	5	6.0	6.0	36.0	6.0	6.0	36.0	0.50	18.0			x			
100	5	22.0	12.0	264.0	13.0	8.0	104.0	3.00	533.7		x	x		x	St. 106
101	5	8.0	4.0	32.0	8.0	4.0	32.0	0.50	16.0					x	St. 189
102	5	6.0	5.0	30.0	6.0	5.0	30.0	0.50	15.0					x	
103	5	11.0	13.0	143.0	4.5	2.0	9.0	3.00	187.9	x		x	x	x	
104	6	7.0	6.0	42.0	7.0	6.0	42.0	0.75	31.5					x	
105	6	7.0	5.0	35.0	7.0	5.0	35.0	0.75	26.3					x	
106	6	7.0	6.0	42.0	7.0	6.0	42.0	0.75	31.5					x	
107	6	5.5	5.0	27.5	5.5	5.0	27.5	0.75	20.6					x	
108	6	11.5	5.0	57.5	11.5	5.0	57.5	0.25	14.4					x	
109	6	7.5	3.0	22.5	7.5	3.0	22.5	0.25	5.6					x	
110	6	9.0	5.0	45.0	9.0	5.0	45.0	0.50	22.5					x	

Appendix 4.D. Mitla Fortress Plaza Summary

Plaza	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	Associated structures
A	1	34.0	20.0	680.0			x	x	x	Pl. 3, St. 71
B	1	27.0	23.5	634.5			x	x	x	St. 66, 67
C	1	20.0	18.0	360.0					x	
D	1	30.0	16.0	480.0					x	
E	2	25.0	11.0	275.0			x	x	x	St. 95, 97, 98
F	3	15.0	8.0	120.0			x	x	x	
G	3	34.0	14.0	476.0		x	x	x	x	St. 136–141

Appendix 4.e. Mitla Fortress Wall Summary

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
1	1	1050.0	5.8	Defensive		
2	1	145.0	5.8	Defensive		
3	1	21.0	1.0		Pl. 3	
4	1	5.0	1.0	Access	Plaza A, St. 71	
5	2	14.0	<0.5	Access		
6	2	10.0	1.0	Retention		T. 14
7	2	16.0	<0.5	Defensive		
8	2	136.5	1.0	Access		
9	2	6.5	<0.5	Retention		T. 15
10	2	9.0	<0.5	Access	St. 99	
11	2	9.0	1.0	Access/defense		T. 35
12	2	15.0	<0.5	Access		T. 35
13	2	49.0	<0.5	Defense		
14	2	7.0	<0.5			
15	2	9.0	<0.5			
16	2	170.0	1.3	Defense		T. 50–58, 112–118
17	4	15.0	1.0	Access		
18	4	23.0	1.0	Access	St. 214	
19	5	25.0	<0.5	Defense		
20	5	16.0	<0.5	Access		
21	5	17.5	<0.5	Defense		
22	5	20.0	<0.5	Defense		
23	4	20.0	<0.5			
24	4	17.0	<0.5			
25	4	19.0	<0.5			
26	4	7.5	<0.5			
27	4	116.0	1.0	Defense		
28	4	20.0	<0.5	Retention		T. 142, 143
29	4	17.0	<0.5			
30	4	11.0	<0.5	Access		
31	4	15.0	<0.5			
32	2	258.0	1.5	Defense		T. 179–183, 193, 199
33	3	17.0	<0.5	Defense		
34	7	15.0	<0.5	Access		
35	7	35.0	<0.5	Access		
36	7	10.0	<0.5	Access		
37	7	25.0	<0.5	Access		
38	7	8.0	<0.5	Access		
39	7	11.0	<0.5	Access		
40	7	7.5	<0.5	Access		
41	7	27.0	<0.5	Access		
42	7	12.0	0.5			
43	7	15.0	<0.5			
44	7	28.0	<0.5	Access		
45	7	42.0	<0.5	Access		
46	6	40.0	<0.5	Access		
47	6	72.0	<0.5	Access		
48	6	51.0	<0.5	Access		T. 224 and 227
49	7	17.0	<0.5	Defense		
50	7	10.0	<0.5	Access		
51	7	12.0	<0.5	Access		
52	7	35.0	<0.5	Access		
53	7	76.0	<0.5	Access		
54	3	8.0	1.0	Access		
55	3	62.0	1.8	Access/defense		
56	3	15.0	<0.5	Access		
57	3	45.0	2.0	Defense		

Appendix 4.E. *Continued*

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
58	3	43.0	0.5	Retention	Pl. 62	
59	3	91.0	1.0	Defense		T. 276–284
60	3	8.0	<0.5			
61	3	28.0	<0.5	Access		
62	3	9.0	<0.5	Access		
63	3	40.0	<0.5	Access		
64	3	55.0	0.5	Defense/access		
65	3	10.0	<0.5	Access		
66	3	50.0	1.5	Defense		T. 328–332
67	3	67.0	1.0	Defense		T. 335–341
68	4	81.0	0.8	Access/defense	Pl. 63, 64	
69	4	6.5	<0.5	Access		
70	4	129.0	0.5	Access		
71	3	20.0	<0.5	Defense		
72	3	47.0	<0.5	Defense		
73	3	15.0	0.5	Access		T. 366
74	3	15.0	<0.5	Access		
75	3	20.0	<0.5	Access		
76	3	9.0	<0.5	Access		
77	3	26.0	<0.5	Access		
78	3	57.0	<0.5	Defense	Pl. 65	
79	3	16.0	<0.5	Access		
80	3	5.5	<0.5			
81	3	14.0	0.5	Defense		
82	3	118.0	1.0	Defense		
83	3	190.0	<0.5	Defense		
84	3	50.0	<0.5	Defense/access		
85	3	26.0	<0.5	Defense		
86	3	13.0	<0.5			
87	3	32.0	<0.5	Access		
88	7	23.0	<0.5	Access		
89	7	33.0	<0.5	Defense		
90	3	31.0	<0.5	Access		
91	3	14.0	<0.5	Access		
92	3	37.0	<0.5	Access		
93	3	10.0	<0.5	Access		
94	3	22.0	<0.5			
95	3	10.0	<0.5			
96	3	87.0	<0.5			
97	4	39.0	<0.5			
98	4	50.0	<0.5			
99	4	12.0	<0.5	Access		
100	4	85.0	<0.5			
101	4	16.0	<0.5			
102	4	24.0	<0.5			
103	4	20.0	0.5	Access		
104	4	27.0	0.5	Defense		
105	4	160.0	<0.5			
106	5	23.0	<0.5	Defense		
107	5	22.0	<0.5	Defense		
108	5	21.0	<0.5	Defense		
109	5	52.0	0.5			
110	5	8.0	0.3			
111	5	56.0	1.5			
112	5	111.0	0.5	Defense		
113	5	13.0	<0.5			
114	5	83.0	0.5	Defense		

Appendix 4.e. *Continued*

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
115	5	37.0	1.0			
116	6	129.0	1.0	Defense		
117	6	40.0	0.8	Defense		
118	6	17.5	<0.5			
119	6	8.0	0.5			
120	6	8.0	<0.5			
121	7	20.0	<0.5	Access		
122	3	30.0	0.5	Access	Pl. 59	
123	3	43.0	0.8	Access		T. 265–267
124	3	29.0	0.8	Access		
125	3	79.0	1.0	Access/retention		T. 306–310
126	3	10.0	<0.5	Access		
127	3	20.0	<0.5	Access		
128	3	20.0	<0.5	Access		
129	3	7.0	<0.5	Access		
130	3	8.5	<0.5	Access		
131	3	22.0	<0.5	Access		
132	7	17.0	<0.5	Access		
133	7	14.0	<0.5	Access		
134	3	18.0	<0.5	Access		
135	3	17.0	<0.5	Access		
136	3	4.0	<0.5	Access	Pl. 78	
137	3	10.0	<0.5	Access		
138	3	52.0	<0.5	Access		
139	4	11.0	<0.5	Access		T. 346, 395
140	4	7.0	<0.5	Access		
141	3	57.0	0.8	Access/retention		T. 320–322
142	4	11.5	<0.5	Access	Pl. 64	
143	5	19.0	<0.5	Access		
144	5	38.0	<0.5	Access		
145	6	27.0	<0.5	Retention		T. 231–233
146	6	29.0	<0.5	Access		

Appendix 4.f. Mitla Fortress Stairway Summary

Stairs	Section	Length	Width	Area	Associated Structure	Comments
1	2	6.0	3.0	18.0	St. 99, Plaza E	Five steps visible
2	3	23.0	7.0	161.0	Pl. 60, Plaza G	At the base are two large stone blocks faced in front
3	3	8.0	3.0	24.0	Pl. 65	At least six steps, cut and faced stone used
4	5	4.0	4.0	16.0	Pl. 103	Three levels visible
5	3	13.0	4.0	52.0		Above "ritual gate," six levels of steps visible
6	3	5.0	3.5	17.5	Plaza G, Pl. 60	Several very good steps, possibly six levels
7	3	7.0	2.0	14.0	Plaza G	Ten steps, main entry onto Plaza G
8	3	4.5	4.0	18.0	Plaza G	Second entry onto Plaza G, five steps
9	3	2.0	0.5	1.0		Narrow step cut into bedrock, can see three steps clearly
10	4	6.0	3.0	18.0		Five possible levels
11	6	7.5	2.0	15.0		Six levels of steps of cut stone and cobbles

Appendix 5.a. Guirún Terrace Summary

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1	IA	59.0	4.0	236.0				x	x			
2	IA	16.0	4.0	64.0				x	x			
3	IA	29.0	5.0	145.0				x	x			
4	IA	19.0	4.0	76.0				x	x			
5	IA	10.0	4.0	40.0				x	x			
6	IB	35.0	6.0	210.0			x	x	x			
7	IB	17.0	8.0	136.0			x	x	x	3		
8	IB	22.0	10.0	220.0			x	x	x			
9	IB	17.0	4.0	68.0			x	x	x			
10	IB	20.0	4.0	80.0			x	x	x			
11	IB	14.0	5.0	70.0			x	x	x			
12	IB	30.0	5.0	150.0			x	x	x			
13	IB	10.0	8.0	80.0				x	x	1		
14	IB	8.0	2.0	16.0			x	x	x			
15	IB	18.0	8.0	144.0			x	x	x			
16	IB	10.0	5.0	50.0			x	x	x			
17	IB	7.0	3.0	21.0			x	x	x			
18	IB	9.0	5.0	45.0			x	x	x			
19	IB	7.0	4.0	28.0			x	x	x			
20	IB	15.0	10.0	150.0			x	x	x			
21	IB	11.0	6.0	66.0			x	x	x			
22	IB	23.0	16.0	368.0				x	x	1		
23	IB	7.0	3.0	21.0			x	x	x			
24	IB	4.0	3.0	12.0			x	x	x			
25	IB	13.0	3.5	45.5			x	x	x			
26	IB	12.0	4.0	48.0			x	x	x			
27	IB	15.0	3.0	45.0			x	x	x			
28	IB	21.0	12.0	252.0			x	x	x			
29	IB	18.0	9.0	162.0			x	x	x	1		
30	IB	10.0	6.0	60.0			x	x	x	1		
31	IB	36.0	7.0	252.0			x	x	x			
32	IB	19.0	13.0	247.0			x	x	x	1		x
33	IB	6.0	3.0	18.0			x	x	x			
34	IB	28.0	8.0	224.0			x	x	x			
35	IB	12.0	5.0	60.0			x	x	x			
36	IB	37.0	13.0	481.0			x	x	x			
37	IB	12.0	8.5	102.0			x	x	x	1		
38	IB	21.0	3.0	63.0			x	x	x			
39	IB	40.0	8.0	320.0			x	x	x			
40	IB	28.0	7.0	196.0			x	x	x	1		
41	IB	11.0	6.0	66.0		x	x	x	x			
42	IB	21.0	7.0	147.0			x	x	x	1		
43	IB	9.0	3.0	27.0			x	x	x			
44	IB	16.0	4.0	64.0			x	x	x			
45	IB	4.0	4.0	16.0			x	x	x			
46	IB	33.0	6.0	198.0			x	x	x			
47	IB	32.0	4.0	128.0			x	x	x			
48	IB	22.0	5.0	110.0			x	x	x			
49	IB	14.0	7.0	98.0			x	x	x			
50	IB	10.0	5.0	50.0			x	x	x			
51	IB	9.0	3.0	27.0			x	x	x			
52	IB	12.0	4.0	48.0			x	x	x			
53	IB	19.0	7.0	133.0			x	x	x	1		
54	IB	30.0	6.0	180.0			x	x	x			
55	IB	24.0	10.0	240.0	x		x	x	x			
56	IB	24.0	8.0	192.0			x	x	x			
57	IB	20.0	5.0	100.0			x	x	x			
58	IB	14.0	6.0	84.0	x	x	x	x	x			
59	IB	9.0	3.5	31.5			x	x	x			
60	IB	15.0	3.0	45.0			x	x	x			

Appendix 5.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
61	IB	15.0	4.0	60.0			x	x	x			
62	IB	14.0	5.5	77.0			x	x	x			
63	IB	13.0	6.0	78.0			x	x	x			
64	IB	12.0	7.0	84.0			x	x	x	2		
65	IB	24.0	6.0	144.0			x	x	x			
66	IB	9.0	3.0	27.0			x	x	x			
67	IB	46.0	10.0	460.0			x	x	x	1		
68	IB	21.0	6.0	126.0			x	x	x			
69	IB	28.0	5.0	140.0			x	x	x			
70	IB	20.0	6.0	120.0			x	x	x			
71	IB	24.0	5.0	120.0			x	x	x	1		x
72	IB	11.0	7.0	77.0			x	x	x			
73	IB	25.0	4.0	100.0			x	x	x			
74	IB	15.0	9.0	135.0			x	x	x			
75	IB	25.0	7.0	175.0			x	x	x	1		
76	IB	13.0	6.0	78.0			x	x	x			
77	IB	14.0	6.0	84.0			x	x	x		x	x
78	IB	9.0	5.0	45.0			x	x	x			
79	IB	43.0	7.0	301.0			x	x	x			
80	IB	14.0	7.0	98.0			x	x	x			
81	IB	16.0	3.0	48.0			x	x	x			
82	IB	49.0	8.0	392.0			x	x	x			
83	IB	30.0	7.0	210.0			x	x	x	1		
84	IB	22.0	7.0	154.0			x	x	x			
85	IB	19.0	11.0	209.0			x	x	x			
86	IB	18.0	6.0	108.0			x	x	x			
87	IB	17.0	6.0	102.0			x	x	x			
88	IB	15.0	7.0	105.0			x	x	x			
89	IB	21.0	5.0	105.0			x	x	x			
90	IB	8.0	5.0	40.0			x	x	x			
91	IB	10.0	6.0	60.0			x	x	x			
92	IB	13.0	5.5	71.5			x	x	x			
93	IB	5.0	3.0	15.0			x	x	x			
94	IB	17.0	7.0	119.0			x	x	x			
95	IB	10.0	4.0	40.0			x	x	x			
96	IB	17.0	4.0	68.0			x	x	x	1		
97	IB	8.5	5.0	42.5			x	x	x			
98	IB	20.0	10.0	200.0			x	x	x			
99	IB	10.0	5.0	50.0			x	x	x			
100	IB	10.0	5.0	50.0			x	x	x			
101	IB	14.0	6.0	84.0			x	x	x			
102	IIA	21.0	4.0	84.0			x	x				
103	IIA	30.0	3.5	105.0			x	x				
104	IIA	30.0	3.0	90.0			x	x				
105	IIA	17.0	3.0	51.0			x	x		1		
106	IIA	8.0	3.0	24.0			x	x				
107	IIA	18.0	3.0	54.0			x	x				
108	IIA	11.0	4.0	44.0			x	x				
109	IIA	16.0	5.0	80.0			x	x				
110	IIA	20.0	6.0	120.0			x	x				
111	IIA	7.0	4.0	28.0			x	x				
112	IIA	25.0	10.0	250.0			x	x		2		
113	IIA	18.0	3.0	54.0			x	x				
114	IIA	60.0	11.0	660.0			x	x		3		x
115	IIA	40.0	8.0	320.0		x	x	x				
116	IIA	20.0	10.0	200.0			x	x				
117	IIA	17.0	7.0	119.0			x	x				
118	IIA	29.0	7.0	203.0			x	x				
119	IIA	46.0	10.0	460.0			x	x		1		

Appendix 5.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
120	IIA	10.0	6.0	60.0			x	x				
121	IIB	9.0	3.5	31.5			x	x				
122	IIB	12.0	4.0	48.0			x	x				
123	IIB	18.0	6.0	108.0			x	x				
124	IIB	20.0	12.0	240.0			x	x		1		
125	IIB	16.0	4.0	64.0			x	x				
126	IIB	10.0	4.0	40.0			x	x				
127	IIB	11.0	3.0	33.0			x	x				
128	IIB	26.0	10.0	260.0			x	x				
129	IIB	20.0	9.0	180.0			x	x				
130	IIB	41.0	6.0	246.0			x	x				
131	IIB	12.0	8.0	96.0			x	x		1		x
132	IIB	21.0	10.0	210.0			x	x				
133	IIB	6.0	6.0	36.0			x	x				
134	IIB	16.0	11.0	176.0			x	x		2		
135	IIB	26.0	7.0	182.0			x	x			x	
136	IIB	10.0	4.0	40.0			x	x				
137	IIB	12.0	6.0	72.0			x	x				
138	IIB	12.0	5.0	60.0			x	x				
139	IIB	10.0	4.0	40.0			x	x				
140	IIB	24.0	6.0	144.0			x	x				
141	IIB	29.0	6.0	174.0			x	x				
142	IIB	13.0	8.0	104.0			x	x		1		
143	IIB	39.0	17.0	663.0			x	x				
144	IIB	20.0	5.0	100.0			x	x				
145	IIB	30.0	4.0	120.0			x	x				
146	IIB	26.0	6.0	156.0			x	x				
147	IIB	11.0	5.0	55.0			x	x		2		
148	IIB	26.0	12.0	312.0				x		1		
149	IIB	12.0	9.0	108.0			x	x				
150	IIB	15.0	8.0	120.0			x	x		1		
151	IIB	15.0	5.0	75.0			x	x				
152	IIB	9.0	5.0	45.0			x	x				
153	IIB	12.0	8.0	96.0			x	x				
154	IIB	10.0	5.0	50.0			x	x	x			
155	IIB	15.0	4.0	60.0			x	x	x			
156	IIB	11.0	6.0	66.0			x	x	x	1		
157	IB	8.0	4.0	32.0			x	x	x			
158	IB	7.0	4.0	28.0			x	x	x			
159	IB	13.0	11.0	143.0			x	x	x	1		
160	IB	8.0	5.0	40.0			x	x	x	1		
161	IB	13.0	5.0	65.0			x	x	x			
162	IB	7.0	4.0	28.0			x	x	x			
163	IB	7.0	5.0	35.0			x	x	x			
164	IB	7.0	4.0	28.0			x	x	x			
165	IB	12.0	3.0	36.0			x	x	x			
166	IB	9.0	6.0	54.0			x	x	x			
167	IIB	8.0	7.0	56.0			x	x	x			
168	IIB	11.0	8.0	88.0			x	x	x			
169	IIB	26.0	10.0	260.0			x	x	x			
170	IIB	18.0	9.0	162.0			x	x	x			
171	IV	14.0	11.0	154.0			x	x	x			
172	IV	26.0	16.0	416.0			x	x	x	1		
173	IV	23.0	12.0	276.0			x	x	x	1		
174	IV	14.0	10.0	140.0			x	x	x	1		
175	IV	13.0	7.0	91.0			x	x	x			
176	IV	12.0	7.0	84.0			x	x	x			
177	IV	12.0	5.5	66.0			x		x	x		
178	IV	10.0	10.0	100.0			x		x	x	1	

Appendix 5.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
179	IV	15.0	10.0	150.0			x	x	x			
180	IV	16.0	6.0	96.0			x	x	x			
181	IV	13.0	6.0	78.0			x	x	x			
182	IV	11.5	5.0	57.5			x	x	x			
183	IV	14.0	9.0	126.0			x	x	x			
184	IV	11.0	9.0	99.0			x	x	x			
185	IV	11.0	6.0	66.0				x	x			
186	IV	14.0	6.0	84.0					x			
187	IV	7.5	4.0	30.0					x			
188	IV	17.0	6.0	102.0					x			
189	IV	10.0	5.0	50.0					x			
190	IV	9.0	5.0	45.0					x			
191	IV	7.0	4.0	28.0				x	x			
192	IV	12.0	7.0	84.0			x	x	x	2		
193	IV	7.0	5.0	35.0				x	x			
194	IV	10.0	6.0	60.0				x	x			
195	III	9.0	9.0	81.0			x	x	x	1		
196	III	7.0	4.0	28.0			x	x	x			
197	III	17.0	7.0	119.0			x	x	x	2	x	
198	III	7.0	7.0	49.0			x	x	x			
199	III	13.0	5.0	65.0			x	x	x	1	x	
200	III	5.0	4.0	20.0			x	x	x			
201	III	12.0	9.0	108.0			x	x	x			
202	III	8.0	6.0	48.0			x	x	x			
203	III	10.0	4.0	40.0			x	x	x			
204	III	15.0	6.0	90.0			x	x	x			
205	III	22.0	12.0	264.0			x	x	x			
206	III	10.0	5.0	50.0			x	x	x			
207	III	8.0	4.0	32.0			x	x	x			
208	III	15.0	4.0	60.0			x	x	x	1		
209	III	7.0	6.0	42.0			x	x	x			
210	III	13.0	5.0	65.0			x	x	x			
211	III	11.0	8.0	88.0			x	x	x			
212	III	14.0	8.0	112.0			x	x	x			
213	III	9.0	7.0	63.0			x	x	x			
214	III	22.0	10.0	220.0			x	x	x			
215	III	44.0	8.0	352.0			x	x	x	1		
216	III	24.0	10.0	240.0			x	x	x	1		
217	III	16.0	8.0	128.0			x	x	x			
218	III	17.0	4.0	68.0			x	x	x			
219	III	25.0	6.0	150.0			x	x	x	1		
220	III	8.0	4.0	32.0			x	x	x			
221	III	12.0	6.0	72.0			x	x	x		x	x
222	III	6.0	3.0	18.0			x	x	x			
223	III	4.0	3.0	12.0			x	x	x			
224	III	6.0	4.0	24.0			x	x	x			
225	III	5.0	4.0	20.0			x	x	x			
226	III	7.0	5.0	35.0			x	x	x			
227	III	5.0	3.0	15.0			x	x	x			
228	III	9.0	2.5	22.5			x	x	x			
229	III	20.0	7.0	140.0			x	x	x			
230	III	30.0	8.0	240.0			x	x	x			
231	III	30.0	5.0	150.0			x	x	x			
322	III	18.0	7.0	126.0			x	x	x			
233	III	14.0	5.0	70.0			x	x	x	2		
234	III	50.0	4.0	200.0			x	x	x			
235	III	42.0	4.0	168.0			x	x	x			
236	III	28.0	4.0	112.0			x	x	x			
237	III	14.0	3.5	49.0			x	x	x			
238	III	37.0	5.0	185.0			x	x	x	1		

Appendix 5.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
239	III	17.0	5.0	85.0			x	x	x			
240	III	41.0	9.0	369.0			x	x	x			
241	III	10.0	8.0	80.0			x	x	x			
242	IV	4.0	3.0	12.0				x	x			
243	IV	4.0	3.5	14.0				x	x			
244	IV	11.5	6.5	74.8				x	x			
245	IV	15.0	4.0	60.0				x	x			
246	IV	19.0	10.0	190.0				x	x			
247	IV	7.0	6.0	42.0				x	x			
248	IV	7.0	7.0	49.0				x	x	I		
249	IV	8.0	4.0	32.0				x	x			
250	IV	12.0	3.5	42.0				x	x			
251	IV	4.0	3.0	12.0				x	x			
252	IV	8.0	5.0	40.0				x	x			
253	IV	6.0	3.0	18.0				x	x			
254	IV	8.0	3.0	24.0				x	x			
255	IV	4.0	2.0	8.0				x	x			
256	IV	12.0	7.0	84.0				x	x			
257	IV	11.0	4.5	49.5				x	x			
258	IV	10.0	4.5	45.0				x	x			
259	IV	22.0	9.0	198.0				x	x			
260	IV	10.0	3.0	30.0			x	x	x			
261	IV	5.0	3.0	15.0			x	x	x			
262	IV	10.0	3.5	35.0			x	x	x		x	x
263	IV	17.0	8.0	136.0		x	x	x	x			
264	IV	11.0	4.5	49.5			x	x	x		x	
265	IV	8.0	3.5	28.0			x	x	x			
266	IV	11.0	6.0	66.0			x	x	x			
267	III	43.0	7.0	301.0			x	x	x			
268	III	64.0	5.0	320.0		x	x	x	x			
269	IV	30.0	3.0	90.0			x	x	x			
270	III	12.0	3.0	36.0			x	x	x			
271	III	11.0	4.5	49.5			x	x	x			
272	III	22.0	8.0	176.0			x	x	x			
273	III	14.0	4.0	56.0			x	x	x			
274	III	10.0	4.0	40.0			x	x	x			
275	III	12.0	3.0	36.0			x	x	x			
276	III	10.0	8.0	80.0			x	x	x	I		
277	III	4.0	3.0	12.0			x	x	x			
278	III	10.0	7.0	70.0			x	x	x			
279	III	25.0	4.0	100.0			x	x	x			
280	III	9.0	7.0	63.0			x	x	x			
281	III	13.0	5.0	65.0			x	x	x			
282	III	21.0	4.0	84.0			x	x	x			
283	III	10.0	6.5	65.0			x	x	x			
284	III	8.0	4.0	32.0			x	x	x			
285	III	11.0	5.0	55.0			x	x	x			
286	III	7.0	3.0	21.0			x	x	x			
287	III	9.0	4.0	36.0			x	x	x			
288	III	8.0	4.0	32.0			x	x	x			
289	III	26.0	5.0	130.0			x	x	x			
290	III	3.0	2.0	6.0			x	x	x			
291	III	11.0	3.5	38.5			x	x	x			
292	III	15.0	12.0	180.0			x	x	x			
293	III	20.0	10.0	200.0			x	x	x			
294	III	35.0	8.0	280.0			x	x	x	I		
295	III	8.0	4.0	32.0			x	x	x			

Appendix 5.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
296	III	13.0	2.5	32.5			x	x	x			
297	III	21.0	8.0	168.0			x	x	x			
298	III	26.0	2.5	65.0			x	x	x			
299	III	8.0	4.0	32.0			x	x	x			
300	III	13.0	3.0	39.0			x	x	x			
301	III	13.0	4.0	52.0			x	x	x			
302	III	8.0	5.0	40.0			x	x	x			
303	III	33.0	8.0	264.0			x	x	x			
304	III	22.0	5.0	110.0			x	x	x			
305	III	21.0	9.0	189.0			x	x	x			
306	III	20.0	5.0	100.0			x	x	x			
307	III	10.0	5.0	50.0			x	x	x			
308	III	15.0	4.0	60.0			x	x	x			
309	III	20.0	4.0	80.0			x	x	x			
310	III	22.0	5.0	110.0			x	x	x			
311	III	14.0	5.0	70.0			x	x	x			
312	III	24.0	4.5	108.0			x	x	x			
313	III	27.0	5.0	135.0			x	x	x			
314	III	12.0	4.0	48.0			x	x	x			
315	III	7.5	3.5	26.3				x	x			
316	III	5.5	4.5	24.8				x	x			
317	III	9.0	13.0	27.0				x	x			
318	III	13.0	11.5	149.5			x	x	x	2		
319	III	10.5	5.0	52.5				x	x	1		
320	III	12.0	6.0	72.0				x	x			
321	III	10.0	10.0	100.0				x	x			
322	III	17.0	3.0	51.0				x	x			
323	III	12.0	3.5	42.0				x	x			
324	III	16.0	4.0	64.0				x	x			
325	III	10.0	5.0	50.0				x	x			
326	III	13.0	7.0	91.0				x	x			
327	III	6.0	3.0	18.0				x	x			
328	III	28.0	14.0	392.0				x	x			
329	III	15.0	15.0	225.0				x	x			
330	III	21.0	7.0	147.0				x	x			

Appendix 5.B. Guirún Structure Summary

Structure	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	IIIA	IIIB/IV	V	Associated Architectural Features
1	IA	7.0	6.0	42.0	7.0	6.0	42.0	0.5	21.0	x	x	x	Possible tomb
2	IB	6.0	6.0	36.0	3.0	3.0	9.0	0.5	10.5	x	x	x	
3	IB	15.0	8.0	120.0	12.0	5.0	60.0	1.8	158.9	x	x	x	Enclosed tomb below
4	IB	22.0	5.5	121.0	20.0	3.0	60.0	1.8	159.7	x	x	x	Adobe walls
5	IB	14.0	5.0	70.0	11.0	3.7	40.7	1.8	98.4	x	x	x	Adobe walls
6	IB	8.5	6.0	51.0	6.0	3.0	18.0	0.5	16.5	x	x	x	Faces Plaza B
7	IB	14.0	5.0	70.0	9.0	3.0	27.0	0.5	23.4	x	x	x	Adobe walls
8	IB	11.0	6.0	66.0	8.0	2.5	20.0	0.5	20.4	x	x	x	
9	IB	9.0	5.0	45.0	7.0	3.0	21.0	1.0	32.2	x	x	x	
10	IIA	20.0	7.3	146.0	20.0	7.3	146.0	0.7	102.2	x	x	x	
11	IIA	16.5	5.0	82.5	16.5	5.0	82.5	2.0	165.0	x	x	x	
12	IIA	17.0	5.0	85.0	17.0	5.0	85.0	0.6	51.0	x	x	x	
13	IIA	21.2	7.5	159.0	12.0	4.5	54.0	1.0	101.9	x	x	x	Room on top
14e	IIA	22.5	10.0	225.0	20.0	2.0	40.0	1.7	203.9	x	x	x	Ball court
14s	IIA	20.0	9.0	180.0	18.0	2.0	36.0	1.7	168.0	x	x	x	Ball court
14w	IIA	22.5	10.0	225.0	20.0	2.0	40.0	1.7	203.9	x	x	x	Ball court
15	IIB	15.0	9.0	135.0	9.0	5.0	45.0	0.5	43.0	x	x	x	
16	IIB	13.5	6.0	81.0	12.0	2.0	24.0	0.8	37.3	x	x	x	Defines Plaza F on N
17	IIB	36.0	9.5	342.0	28.0	5.0	140.0	0.5	116.8	x	x	x	
18	IIB	16.0	8.0	128.0	10.0	5.0	50.0	2.5	215.0	x	x	x	
19	IIB	12.0	5.0	60.0	12.0	5.0	60.0	0.5	30.0	x	x	x	Possible looted tomb
20	IIB	16.0	8.0	128.0	7.0	4.0	28.0	1.6	115.1	x	x	x	
21	IIB	12.0	7.0	84.0	7.0	4.0	28.0	0.5	26.7	x	x	x	On T. 148
22	IIB	24.0	17.0	408.0	14.0	13.0	182.0	3.5	1006.2	x	x	x	
23	IIB	8.0	8.0	64.0	7.0	3.0	21.0	1.0	40.6	x	x	x	
24	IIB	11.0	6.0	66.0	11.0	6.0	66.0	0.3	16.5	x	x	x	Next to Plaza H
25	IV	20.0	6.0	120.0	18.0	3.0	54.0	0.8	63.6			x	
26	IV	19.0	14.0	266.0	14.0	7.0	98.0	0.5	87.6			x	
27	III	11.0	6.5	71.5	7.0	2.0	14.0	0.3	9.8	x	x	x	
28	III	13.0	8.0	104.0	13.0	8.0	104.0	0.3	26.0	x	x	x	
29	IV	15.0	12.0	180.0	12.0	12.0	144.0	0.5	80.8	x	x	x	
30	III	16.0	11.0	176.0	10.0	9.0	90.0	0.3	32.7	x	x	x	
31	III	18.0	2.0	36.0	18.0	1.0	18.0	0.3	6.6	x	x	x	
32	III	6.0	4.0	24.0	6.0	4.0	24.0	0.3	7.2		x	x	Sits on Pl. 45
33	III	8.0	8.0	64.0	8.0	8.0	64.0	0.3	16.0		x	x	
34	III	6.0	5.0	30.0	3.0	2.0	6.0	0.8	12.4		x	x	
35	III	5.0	5.0	25.0	5.0	5.0	25.0	0.3	6.3		x	x	On Pl. 51
36	V	6.0	5.0	30.0	6.0	5.0	30.0	0.3	7.5			x	Connects to W. 62

Appendix 5.c. Guirún Platform Summary

Platform	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	II	IIIA	IIIB/IV	V	Associated Architectural Features
1	IA	8.0	6.0	48.0	6.0	5.0	30.0	0.3	9.7		x	x	x	St. 1
2	IA	13.0	3.0	39.0	13.0	3.0	39.0	0.3	9.8		x	x	x	
3	IB	30.0	16.0	480.0	25.7	13.0	334.1	1.0	404.9		x	x	x	
4	IB	45.0	27.0	1215.0	45.0	27.0	1215.0	1.0	1215.0		x	x	x	St. 3–8
5	IB	17.0	16.0	272.0	17.0	16.0	272.0	0.5	136.0		x	x	x	St. 9
6	IB	26.0	24.0	624.0	26.0	24.0	624.0	1.0	624.0		x	x	x	
7	IIA	25.0	11.0	275.0	24.8	11.0	272.8	1.4	369.8		x	x	x	St. 10
8	IIA	19.0	8.0	152.0	19.0	8.0	152.0	1.0	152.0		x	x	x	St. 11
9	IIA	18.5	8.0	148.0	18.5	8.0	148.0	1.2	177.6		x	x	x	St. 12
10	IIA	22.0	12.0	264.0	22.2	12.0	266.4	0.6	159.1		x	x	x	St. 13, P. 11
11	IIA	23.0	13.5	310.5	23.0	13.5	310.5	1.2	372.6		x	x	x	St. 14, P. 10
12	IIA	27.0	20.0	540.0	20.0	16.0	320.0	1.7	722.9		x	x	x	
13	IIA	29.0	4.0	116.0	29.0	4.0	116.0	1.0	116.0		x	x	x	
14	IIA	38.0	11.0	418.0	38.0	11.0	418.0	0.3	104.5		x	x	x	
15	IIB	40.0	15.0	600.0	40.0	15.0	600.0	0.3	150.0		x	x	x	
16	IIB	40.0	40.0	1600.0	40.0	40.0	1600.0	1.0	1600.0		x	x	x	St. 16–18
17	IIB	65.0	20.0	1300.0	60.0	17.0	1020.0	0.5	578.6		x	x	x	St. 19
18	IIB	25.0	18.0	450.0	25.0	18.0	450.0	1.0	450.0		x	x	x	St. 20
19	IIB	20.0	14.0	280.0	20.0	14.0	280.0	0.3	70.0		x	x	x	St. 22
20	IIA	90.0	40.0	3600.0	90.0	35.0	3150.0	2.5	8431.2		x	x	x	St. 10–14
21	IB	15.0	9.0	135.0	15.0	9.0	135.0	0.3	33.8	x	x	x	x	
22	IB	10.0	7.0	70.0	10.0	7.0	70.0	0.3	17.5		x	x	x	House on platform
23	IB	8.0	6.0	48.0	8.0	6.0	48.0	0.3	12.0		x	x	x	
24	IV	15.0	14.0	210.0	15.0	14.0	210.0	0.3	52.5		x	x	x	
25	IV	7.0	6.0	42.0	7.0	6.0	42.0	0.3	10.5				x	
26	IV	45.0	30.0	1350.0	43.0	28.0	1204.0	1.0	1276.3				x	
27	IV	9.0	6.0	54.0	9.0	6.0	54.0	0.3	13.5				x	
28	IV	7.0	6.0	42.0	7.0	6.0	42.0	0.3	10.5			x	x	Possible house
29	III	23.5	6.0	141.0	23.5	6.0	141.0	0.3	35.3		x	x	x	
30	III	11.0	9.0	99.0	11.0	9.0	99.0	0.3	24.8		x	x	x	H.F. 11
31	IIa	10.0	8.0	80.0	10.0	8.0	80.0	0.5	40.0		x	x	x	Possible house
32	III	18.0	12.0	216.0	18.0	12.0	216.0	0.3	54.0		x	x	x	House
33	III	8.0	4.0	32.0	8.0	4.0	32.0	0.3	8.0		x	x	x	
34	III	24.0	14.0	336.0	24.0	14.0	336.0	0.3	84.0		x	x	x	2 houses
35	III	30.0	13.0	390.0	30.0	13.0	390.0	1.0	390.0		x	x	x	

Appendix 5.c. *Continued*

Platform	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	II	IIIA	IIIB/IV	V	Associated Architectural Features
36	IV	13.0	10.0	130.0	13.0	10.0	130.0	0.3	32.5			x	x	
37	IIb	13.0	10.0	130.0	12.0	9.0	108.0	0.5	59.4		x	x	x	
38	IV	25.0	14.0	350.0	25.0	14.0	350.0	0.5	175.0		x	x	x	
39	III	18.0	6.0	108.0	18.0	6.0	108.0	0.3	27.0		x	x	x	
40	III	37.0	16.0	592.0	37.0	16.0	592.0	0.5	296.0		x	x	x	
41	III	22.0	12.0	264.0	22.0	12.0	264.0	0.3	66.0		x	x	x	
42	III	17.0	14.0	238.0	17.0	14.0	238.0	0.3	59.5		x	x	x	
43	III	7.0	6.0	42.0	7.0	6.0	42.0	0.3	10.5		x	x	x	
44	III	25.0	11.0	275.0	25.0	11.0	275.0	2.0	550.0		x	x	x	
45	III	16.0	9.0	144.0	16.0	9.0	144.0	0.3	36.0			x	x	
46	III	8.0	7.0	56.0	8.0	7.0	56.0	0.1	5.6			x	x	
47	III	9.0	7.0	63.0	9.0	7.0	63.0	0.3	15.8			x	x	
48	III	15.0	14.0	210.0	15.0	14.0	210.0	0.3	52.5			x	x	
49	III	10.0	9.0	90.0	10.0	9.0	90.0	0.3	22.5			x	x	
50	III	13.0	9.0	117.0	13.0	9.0	117.0	0.3	29.3			x	x	
51	III	15.0	8.0	120.0	15.0	9.0	120.0	1.5	180.0			x	x	St. 35

Appendix 5.D. Guirún Plaza Summary

Plaza	Section	Length	Width	Area	IIIA	IIIB/IV	V	Associated Structures
A	IA	13.0	13.0	169	x	x	x	St. 3, 4, 5
B	IA	6.0	6.0	36	x	x	x	St. 3, 6, 7, 8
C	IIA	22.0	17.5	385	x	x	x	St. 10, 11, 12, 13
D	IIA	9.5	9.0	85.5	x	x	x	St. 11, 12, Pl. 20
E	IIB	12.0	8.0	96	x	x	x	St. 15
F	IIB	31.0	13.5	418.5	x	x	x	St. 16, 17, on top of Pl. 16
G	IIB	10.0	5.0	50	x	x	x	St. 18, 19, on top of Pl. 16
H	IIB	33.0	12.0	396	x	x	x	St. 22, 23, 24
Patio 1	III	7.0	7.0	49	x	x	x	H.E. 9

Appendix 5.e. Guirún Wall Summary

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
1	IA	21.0	0.3	Retention	St. 1	
2	IA	3.0	0.5	Access		
3	IA	8.0	2.0	Access		
4	IA	17.0	1.0	Access		
5	IA	7.0	0.3	Access		
6	IA	15.0	0.3	Defense		
7	IA	8.0		Defense		
8	IA	26.0	0.3	Defense		
9	IA	41.0	1.0	Defense		
10	IA	16.0	1.0	Defense		
11	IA	9.0	0.8	Defense		
12	IA	13.0	1.0	Defense		
13	IA	24.0		Defense		
14	IA	42.0		Defense		
15	IA	7.0	0.5	Defense		
16	IA	20.0	1.0	Defense		
17	IA	27.0	0.8	Defense		
27	IB	10.0				
28	IB	4.5				
29	IB	8.0		Retention		T. 22
30	IIA	86.0	3.0		Stair 3	
31	IIA	50.0		Defense	Stair 4	
32	IIA	75.0		Defense		
33	IIB	89.0		Defense		T. 136
34	IIB	60.0		Defense	Pl. 15, P. 16	
35	IIB	8.0		Access	St. 17	
36	IIB	12.0		Access		
37	IIB	17.0	0.5	Access	St. 20, Pl. 18	
40	III	21.0		Defense		
41	III	4.0	0.5	Defense		
42	III	100.0		Defense		T. 268
43	III	34.0	3.0	Defense		
44	III	6.0				
45	III	46.0	0.5	Access		T. 275
46	III	22.0	0.3	Defense		
47	III	22.0		Defense		
48	III	80.0	1.0	Defense		
49	III	83.0	2.0	Defense		
18	IA	14.0	1.0	Defense		
19	IA	49.0	1.5	Defense		
20	IA	13.0		Access		
21	IA	7.0	1.5			
22	IA	10.0	1.0			
23	IA	20.0	0.5			
24	IA	86.0	1.5	Defense		
25	IA	38.0	0.1	Defense		
26	IA	5.0		Retention		
38	IV	68.0	1.0	Defense		T. 324
39	IV	12.0				
50	III	27.0				T. 329
51	III	7.0	1.0	Defense		
52	III	7.0	1.0	Defense		
53	III	7.0	1.0	Defense		
54	III	10.0	1.5	Defense		
55	III	13.0	0.3	Defense		
56	III	4.0	0.3	Access?		
57	V	125.0	0.5	Defense		
58	V	86.0	0.3	Defense		
59	V	55.0	0.3	Defense		
60	V	30.0	0.3	Defense		
61	V	30.0	0.3	Defense		
62	V	50.0	0.5	Defense	St. 36	
63	V	3.0	1.0			
64	V	4.0	0.5			

Appendix 5.F. Guirún Stairway Summary

Stair no.	Section	Length	Width	Area	Associated Structures	Other Comments
1	IB	13.0	1.0	13.0		Semicircular in form
2	IIA	16.0	5.0	80.0	Pl. 12	
3	IIA	4.0	7.0	28.0	Pl. 8, St. 11	
4	IIA	8.0	3.0	24.0	W. 31	Bedrock cut/flattened in spots
5	IB	7.0	1.0	7.0		Uses natural bedrock
6	IB	12.0	1.5	18.0	Pl. 22	Stair widens fr 1 m to 2 m upslope
7	III	3.0	2.0	6.0		Composed of four steps
Ent. H	III	12.0	11.0	132.0		Could be ramp or stairway

Appendix 6.a. El Palmillo Terrace Summary

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1	11	8.0	3.0	24.0					x			
2	11	10.0	3.0	30.0	x		x					
3	12	13.0	2.0	26.0			x	x				
4	12	5.0	2.0	10.0			x	x				
5	12	10.0	8.0	80.0			x	x				
6	12	15.0	9.0	135.0	x		x	x				
7	12	7.0	8.0	56.0	x		x	x				
8	12	17.0	6.0	102.0			x	x				
9	12	11.0	6.0	66.0			x	x				
10	12	6.0	4.0	24.0			x	x	x			
11	11	25.0	22.0	550.0	x		x		x			
12	11	8.0	8.0	64.0			x					
13	11	10.0	5.0	60.0			x					
14	11	8.0	8.0	64.0			x		x			
15	11	8.0	5.0	40.0			x		x			
16	11	10.0	5.0	50.0			x					
17	11	7.0	6.0	42.0			x					
18	11	8.0	4.0	32.0			x					
19	11	12.5	6.0	75.0		x	x					
20	11	15.0	3.0	45.0			x					
21	12	5.0	2.0	10.0			x	x				
22	12	8.0	2.0	16.0			x	x				
23	12	10.0	5.0	50.0			x	x	x			
24	12	5.0	4.0	20.0			x	x	x			
25	12	9.0	4.0	36.0			x	x				
26	12	27.0	4.0	108.0	x		x	x				
27	12	4.0	3.0	12.0			x	x				
28	12	7.0	5.0	35.0			x	x				
29	12	11.0	7.0	77.0			x	x				
30	12	8.0	3.0	24.0			x	x				
31	12	12.0	5.0	60.0			x	x				
32	12	13.0	3.0	39.0			x	x	x			
33	12	7.0	5.0	35.0			x	x	x			x
34	12	3.5	1.0	3.5			x	x		1		
35	12	3.5	2.0	7.0			x	x	x			x
36	12	9.0	1.5	13.5			x	x				
37	12	11.0	8.0	88.0			x	x	x			
38	12	9.0	5.0	45.0			x	x				
39	12	5.0	1.5	7.5			x	x				x
40	12	11.0	3.0	33.0			x			1		
41	12	5.0	1.5	7.5			x	x				x
42	12	6.0	2.0	12.0			x	x				
43	12	5.0	2.0	10.0			x	x				
44	12	11.0	3.0	33.0			x	x				
45	12	9.0	6.0	54.0			x	x		1		
46	12	11.0	5.0	55.0			x	x	x		x	
47	12	22.0	5.0	110.0			x	x				
48	12	6.0	2.0	12.0			x	x				
49	12	5.0	1.5	7.5			x	x				
50	12	5.0	2.0	10.0			x	x				x
51	12	7.0	6.0	42.0			x	x				x
52	12	21.0	2.5	52.5			x	x				
53	12	5.0	2.0	10.0			x	x				
54	12	13.0	4.0	52.0			x	x				
55	12	9.0	7.0	63.0			x	x				
56	12	13.0	6.5	84.5			x	x		1		
57	12	22.0	6.0	132.0			x	x				
58	12	8.0	3.0	24.0			x	x				
59	12	13.0	5.0	65.0			x	x		1		

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
60	12	8.0	5.0	40.0			x	x				
61	12	10.0	3.0	30.0			x	x				
62	12	5.0	3.5	17.5			x	x				
63	12	8.0	7.0	56.0	x		x	x				
64	12	11.0	6.0	66.0			x	x				
65	12	22.0	5.0	110.0			x	x				
66	12	10.0	5.0	50.0			x	x				
67	12	17.0	5.0	85.0			x	x				
68	12	17.0	6.0	102.0			x	x				
69	12	9.0	4.0	36.0			x	x				x
70	12	18.0	4.0	72.0	x		x	x				
71	12	4.0	4.0	16.0			x	x				
72	12	17.0	6.0	102.0			x	x				
73	12	57.0	7.0	399.0			x	x				
74	12	30.0	6.0	180.0			x	x				
75	12	24.0	4.0	96.0			x	x				
76	12	32.0	6.0	192.0			x	x				
77	12	81.0	10.0	810.0	x		x	x				x
78	12	15.0	4.0	60.0			x	x				
79	12	5.5	3.0	16.5			x	x				
80	12	4.0	4.0	16.0			x	x				
81	12	7.0	9.0	63.0			x	x				
82	12	6.0	8.0	48.0	x		x	x				
83	12	22.0	3.0	66.0			x	x				
84	12	11.5	9.0	103.5			x	x				
85	12	11.0	7.0	77.0			x	x				
86	12	22.0	8.0	176.0	x		x	x				
87	12	13.0	6.0	78.0			x	x				
88	12	9.0	6.0	54.0			x	x				
89	12	4.0	3.0	12.0			x	x				x
90	12	12.0	8.0	96.0			x	x				
91	12	23.0	8.0	184.0			x	x				
92	12	12.0	6.0	72.0	x		x	x				
93	12	7.0	4.0	28.0			x	x				
94	12	8.0	7.0	56.0			x	x				
95	12	8.0	5.0	40.0			x	x				
96	12	10.0	5.0	50.0			x	x				
97	12	6.0	3.0	18.0			x	x				
98	12	9.0	5.0	45.0			x	x		1		
99	12	13.0	10.0	130.0			x	x				
100	12	8.0	9.0	72.0			x	x		1		
101	12	18.0	12.0	216.0	x		x	x				
102	12	3.5	3.5	12.3	x		x	x				
103	12	23.0	8.0	184.0	x		x	x				
104	12	11.0	6.0	66.0	x		x	x				
105	12	8.0	7.0	56.0			x	x				
106	12	10.5	10.0	105.0			x	x		1		
107	12	12.0	5.0	60.0			x	x				
108	12	8.0	6.0	48.0			x	x				
109	12	3.0	3.0	9.0			x	x				
110	12	6.0	3.0	18.0			x	x		1		
111	12	12.0	4.0	48.0			x	x				
112	12	5.0	3.0	15.0			x	x				
113	12	16.0	3.5	56.0			x	x				
114	12	7.0	3.0	21.0			x	x	x			
115	12	5.0	3.0	15.0	x		x	x				
116	12	7.0	6.0	42.0	x		x	x		1		
117	12	10.0	4.0	40.0			x	x				
118	12	3.5	2.0	7.0			x	x				

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
119	12	9.0	6.5	58.5			x	x				
120	12	10.0	4.0	40.0			x	x				
121	12	4.5	3.5	15.8	x		x	x	x			
122	12	9.0	5.5	49.5			x	x				
123	12	5.0	5.0	25.0	x		x	x				x
124	12	9.0	4.0	36.0	x		x	x	x			
125	12	2.0	4.0	8.0			x	x		1		
126	12	9.0	5.0	45.0	x		x	x	x			
127	12	6.0	3.0	18.0			x	x				
128	12	6.0	3.0	18.0			x	x				
129	12	7.0	2.0	14.0			x	x				
130	12	6.0	3.0	18.0			x	x				
131	12	5.0	3.5	17.5			x	x				
132	12	7.0	3.5	24.5			x	x				
133	12	3.0	5.0	15.0			x	x				
134	12	6.0	4.0	24.0			x	x				
135	12	6.0	2.5	15.0			x	x				
136	12	12.0	4.0	48.0			x	x				
137	12	5.0	5.0	25.0			x	x		1		x
138	12	6.0	7.5	45.0			x	x		1		
139	12	7.0	4.0	28.0			x	x				
140	12	2.0	4.5	9.0			x	x				
141	12	9.0	5.5	49.5			x	x		1		
142	12	8.0	5.0	40.0			x	x		1		
143	12	3.5	2.0	7.0			x	x				
144	12	6.0	6.0	36.0			x	x				
145	12	3.0	2.0	6.0			x	x				
146	12	10.0	5.0	50.0			x	x		1		x
147	12	7.0	3.5	24.5			x	x				
148	12	9.0	10.0	90.0			x	x		1		
149	12	13.0	8.0	104.0			x	x		2		
150	12	9.0	6.0	54.0			x	x				
151	12	8.0	6.0	48.0			x	x				
152	12	9.0	6.0	54.0			x	x				
153	12	9.0	3.0	27.0			x	x				
154	11	11.0	9.0	99.0			x			1	x	
155	11	4.0	2.0	8.0			x					
156	11	8.0	5.0	40.0			x					
157	11	4.0	3.0	12.0			x					x
158	11	12.0	5.0	60.0			x	x	x	1		x
159	12	13.0	6.0	78.0			x	x	x			
160	12	6.0	5.0	30.0	x		x	x				
161	12	9.0	5.0	45.0			x	x				
162	12	13.0	6.0	78.0			x	x	x			
163	11	13.0	7.5	97.5			x			1		
164	11	5.0	5.0	25.0			x					
165	11	8.0	10.0	80.0			x			1		
166	11	4.0	4.0	16.0			x					
167	11	14.0	6.0	84.0			x		x			
168	11	9.0	4.0	36.0			x					
169	11	10.0	6.0	60.0			x					
170	11	10.0	2.0	20.0			x					
171	11	4.0	2.0	8.0			x					
172	11	12.0	4.0	48.0			x					
173	11	9.0	5.0	45.0	x		x					
174	11	15.0	5.0	75.0			x					
175	11	12.0	7.5	90.0			x			1		
176	11	20.0	10.0	200.0			x		x	2	x	
177	11	7.0	5.0	35.0			x		x			

Appendix 6.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
178	11	9.0	6.0	54.0			x					
179	11	10.0	4.0	40.0			x					
180	11	11.0	2.5	27.5			x					
181	11	5.0	2.0	10.0			x					
182	11	5.5	2.0	11.0			x		x			
183	11	2.0	2.0	4.0			x					
184	9	14.0	8.0	112.0			x	x				x
185	9	6.0	5.5	33.0			x	x		1		
186	9	7.0	7.0	49.0			x	x		1		
187	9	6.0	13.0	78.0			x	x	x			
188	9	7.0	4.0	28.0			x	x				
189	9	11.0	5.0	55.0	x		x	x		1		
190	9	6.0	2.5	15.0			x	x				
191	9	25.0	5.0	125.0			x	x	x			x
192	9	20.0	10.0	200.0	x		x	x	x			
193	9	6.0	3.0	18.0			x	x				
194	9	15.0	3.0	45.0			x	x				
195	9	15.0	9.0	135.0			x	x		1		
196	9	17.0	4.0	68.0			x	x				
197	10	9.0	4.0	36.0			x	x				x
198	10	13.0	4.0	52.0			x	x	x			
199	10	6.0	4.0	24.0			x	x				
200	10	7.0	5.0	35.0			x	x				
201	10	3.0	3.0	9.0			x	x				
202	10	10.0	14.0	140.0			x	x		1		
203	10	6.0	3.0	18.0			x	x				
204	10	8.0	11.0	88.0			x	x				
205	10	20.0	7.0	140.0	x		x	x		1		
206	10	7.0	4.0	28.0			x	x				
207	10	6.0	2.0	12.0			x	x				
208	10	7.0	5.0	35.0			x	x	x	1		
209	10	6.0	2.0	12.0			x	x				
210	10	4.5	2.0	9.0			x	x				
211	10	6.0	5.0	30.0			x	x				
212	10	8.0	5.0	40.0			x	x				
213	10	9.0	3.0	27.0			x	x				
214	10	3.0	3.0	9.0			x	x				
215	10	17.0	9.0	153.0			x	x				x
216	10	5.5	2.5	13.8			x	x				
217	10	5.0	3.0	15.0			x	x				
218	10	3.0	4.0	12.0			x	x		1		x
219	10	7.0	7.0	49.0			x	x		1		x
220	10	7.0	3.0	21.0			x	x				
221	10	8.0	3.0	24.0			x	x				
222	10	15.0	2.5	37.5			x	x				
223	10	10.0	3.0	30.0			x	x				
224	10	7.0	2.0	14.0			x	x				
225	10	9.0	6.5	58.5			x	x				
226	10	15.0	6.0	90.0	x		x	x			x	
227	10	10.0	3.0	30.0			x	x				
278	10	9.0	7.5	67.5			x	x				
229	10	6.0	2.0	12.0			x	x				
230	10	8.0	3.5	28.0			x	x		2		
231	10	12.0	2.0	24.0			x	x				
232	10	7.0	2.5	17.5			x	x				
233	9	5.0	2.5	12.5			x	x				
234	9	8.5	5.5	46.8			x	x				
235	8	11.0	2.5	27.5			x	x				
236	9	10.0	7.0	70.0			x	x				x

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
237	5	13.0	7.0	91.0			x	x				
238	9	16.0	7.0	112.0			x	x				
239	9	9.0	6.0	54.0			x	x	x			
240	9	9.0	3.5	31.5	x		x	x				
241	9	11.0	2.5	27.5	x		x	x				
242	9	10.0	6.0	60.0			x	x				x
243	8	9.0	3.0	27.0			x	x			x	
244	8	7.0	2.5	17.5			x	x		1		
245	8	11.5	11.0	126.5			x	x		1		
246	8	7.0	13.0	91.0			x	x				
247	8	14.5	8.0	116.0			x	x				
248	8	7.0	5.0	35.0			x	x				
249	8	23.0	7.0	161.0			x	x	x			
250	8	12.0	3.5	42.0			x	x				
251	8	8.0	4.0	32.0			x	x				
252	8	5.0	3.0	15.0			x	x				
253	8	10.0	4.0	40.0			x	x				x
254	8	6.0	3.0	18.0			x	x				
255	8	8.5	4.0	34.0			x	x	x			
256	8	8.0	4.0	32.0			x	x	x			
257	8	5.0	3.0	15.0			x	x				
258	8	13.0	10.0	130.0			x	x				
259	8	13.0	12.0	156.0			x	x				
260	8	9.5	7.0	66.5			x	x				
261	8	9.0	3.0	27.0			x	x		1		
262	8	10.0	5.0	50.0			x	x		1		
263	8	8.0	3.0	24.0			x	x				
264	8	8.0	3.0	24.0			x	x	x			
265	8	20.0	7.0	140.0		x	x	x	x	2		
266	8	12.0	2.5	30.0			x	x				
267	8	5.0	2.5	12.5			x	x				
268	8	7.0	3.0	21.0			x	x	x			
269	8	10.0	3.0	30.0			x	x				
270	8	6.0	3.0	18.0			x	x				
271	8	4.0	7.0	28.0			x	x		1		
272	8	9.0	5.0	45.0		x	x	x				
273	8	8.0	5.0	40.0			x	x				
274	8	14.0	5.0	70.0			x	x				
275	8	13.0	5.0	65.0	x		x	x		1		
276	8	11.0	4.0	44.0			x	x	x			x
277	8	7.0	2.0	14.0		x	x	x				
278	8	11.0	7.0	77.0			x	x	x	1		x
279	8	6.0	6.0	36.0			x	x				
280	8	11.0	5.0	55.0			x	x		1		
281	8	7.0	1.5	10.5			x	x				
282	8	9.0	3.0	27.0			x	x				
283	8	5.0	2.5	12.5			x	x				
284	8	3.5	2.0	7.0			x	x				
285	8	5.0	3.0	15.0			x	x				
286	8	15.0	4.0	60.0			x	x				x
287	8	10.0	4.0	40.0			x	x				
288	8	7.0	5.5	38.5			x	x				x
289	8	10.0	5.0	50.0		x	x	x				
290	8	6.0	3.0	18.0			x	x				
291	8	6.0	2.0	12.0			x	x				
292	8	17.0	5.0	85.0			x	x	x			
293	8	11.5	11.0	126.5			x	x				
294	8	9.0	4.0	36.0			x	x				x
295	8	9.0	5.0	45.0			x	x				

Appendix 6.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
296	8	13.0	5.0	65.0		x	x	x				
297	8	4.0	3.5	14.0			x	x				x
298	8	10.0	6.0	60.0			x	x				
299	8	13.0	6.0	78.0		x	x	x				
300	8	12.0	5.0	60.0		x	x	x		1		
301	8	9.0	5.0	45.0			x	x		1		
302	8	15.0	3.0	45.0			x					
303	8	10.0	6.0	60.0			x					x
304	8	5.0	2.0	10.0			x					
305	8	6.0	4.0	24.0			x					x
306	8	15.0	6.0	90.0			x		x			
307	8	12.0	5.0	60.0			x					
308	8	11.5	3.5	40.3			x			1		x
309	6	8.0	2.0	16.0			x	x				
310	6	5.0	3.0	15.0			x	x				
311	6	14.0	7.0	98.0			x	x				
312	6	4.0	2.5	10.0			x	x				x
313	6	10.0	2.5	25.0			x	x	x			
314	6	12.0	3.5	42.0			x	x				x
315	6	5.0	2.5	12.5			x	x				
316	6	6.5	5.0	32.5			x	x				
317	6	25.0	9.0	225.0		x	x	x	x			
318	6	5.0	4.0	20.0			x	x				x
319	6	6.0	2.0	12.0			x	x				
320	6	5.0	3.0	15.0			x	x				x
321	6	4.0	3.0	12.0			x	x				
322	6	8.5	8.0	68.0			x	x		1		
323	6	28.0	11.5	322.0		x	x	x		1		
324	6	4.0	3.0	12.0			x	x				
325	6	10.0	5.0	50.0	x	x	x	x				x
326	6	8.0	3.0	24.0		x	x	x				
327	6	9.0	5.0	45.0			x	x				
328	6	6.0	7.0	42.0			x	x				x
329	6	5.0	4.0	20.0			x	x		1		
330	6	18.0	8.0	144.0			x	x				
331	6	8.0	4.0	32.0			x	x				
332	6	14.0	11.0	154.0		x	x	x				
333	6	18.0	4.0	72.0			x	x				x
334	6	11.0	4.5	49.5	x	x	x	x				
335	6	20.0	10.0	200.0			x	x				
336	6	12.5	10.0	125.0			x	x				
337	6	13.5	10.0	135.0			x	x		1		
338	6	16.0	7.5	120.0			x	x				
339	6	12.0	6.5	78.0			x	x				
340	7	8.0	4.0	32.0			x					
341	7	6.0	3.0	18.0			x			1		
342	7	8.0	7.0	56.0			x			1		
343	7	6.0	4.0	24.0			x					
344	7	4.5	2.5	11.3			x					
345	7	12.0	5.0	60.0			x					
346	7	17.0	7.5	127.5			x			1		
347	7	8.0	3.5	28.0			x					
348	7	6.0	3.0	18.0			x		x	1		
349	7	6.0	10.0	60.0			x					
350	7	9.0	5.0	45.0			x					
351	7	5.0	3.0	15.0			x					
352	7	8.0	6.0	48.0			x					
353	7	7.0	5.0	35.0			x		x			
354	7	6.5	4.0	26.0			x					

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
355	7	8.0	2.5	20.0			x					
356	7	6.0	4.0	24.0			x					
357	7	12.0	5.0	60.0			x			2		
358	7	9.0	8.0	72.0			x					
359	7	6.0	3.0	18.0			x			1		
360	7	7.0	3.0	21.0			x					
361	7	6.0	5.0	30.0			x					
362	7	4.0	4.0	16.0			x					
363	7	7.0	2.0	14.0			x					
364	7	3.5	4.0	14.0			x					
365	7	7.0	3.0	21.0			x					
366	7	5.0	4.0	20.0			x					x
367	7	8.0	3.5	28.0			x					
368	7	8.0	5.0	40.0			x					x
369	7	8.0	3.0	24.0			x			1		
370	7	9.0	2.0	18.0			x					
371	7	25.0	9.0	225.0			x					
372	7	17.0	6.5	110.5			x					x
373	7	10.0	7.0	70.0			x					
374	7	6.0	2.0	12.0			x					
375	7	10.0	6.0	60.0			x					
376	6	8.0	5.0	40.0			x	x				x
377	6	6.0	5.0	30.0			x	x				
378	6	11.0	5.0	55.0			x	x				
379	6	7.0	3.0	21.0			x	x				
380	6	12.0	3.0	36.0			x	x				
381	6	13.0	5.0	65.0			x	x		1		
382	6	8.0	4.0	32.0			x	x		1		
383	6	13.0	5.0	65.0			x	x		1		
384	6	6.0	7.0	42.0			x	x		1		
385	6	9.0	7.0	63.0			x	x				
386	6	13.0	5.5	71.5			x	x				
387	6	7.0	6.0	42.0			x	x		1		x
388	6	10.0	4.0	40.0			x	x	x			
389	6	8.0	6.0	48.0			x	x				
390	6	11.0	4.0	44.0			x	x				
391	6	12.0	4.0	48.0	x		x	x				
392	6	12.0	5.0	60.0			x	x				
393	6	5.0	2.0	10.0			x	x	x			
394	5	17.0	3.5	59.5			x	x				
395	5	11.0	4.0	44.0			x	x				
396	5	6.0	3.0	18.0			x	x				
397	5	10.0	5.0	50.0			x	x				
398	5	7.0	7.0	49.0			x	x	x	1		x
399	5	13.0	7.0	91.0		x	x	x		1		
400	5	13.0	6.0	78.0			x	x				
401	5	12.5	5.5	68.8			x	x				x
402	5	7.5	4.0	30.0	x		x	x		1		
403	5	11.0	5.0	55.0			x	x		1		
404	5	11.0	5.0	55.0			x	x				
405	5	7.0	4.0	28.0			x	x				
406	5	11.0	4.0	44.0			x	x				
407	5	14.0	3.0	42.0			x	x				
408	5	11.0	5.0	55.0	x	x	x	x				
409	5	15.0	7.0	105.0			x	x		1		x
410	5	8.0	3.0	24.0		x	x	x				
411	5	14.0	4.0	56.0			x	x		1		
412	5	13.5	6.5	87.8	x		x	x		1		
413	5	15.0	11.0	165.0			x	x				

Appendix 6.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
414	5	8.0	4.0	32.0			x	x				
415	5	5.0	7.0	35.0			x	x				
416	5	7.0	5.0	35.0			x	x				
417	5	14.0	7.0	98.0			x	x				
418	5	10.0	3.0	30.0			x	x				
419	5	11.0	4.0	44.0			x	x				
420	6	13.0	10.0	130.0			x	x				x
421	6	6.0	7.0	42.0			x	x	x	1		
422	6	5.0	3.0	15.0			x	x				
423	6	7.0	6.5	45.5			x	x				x
424	6	8.0	5.0	40.0			x	x				x
425	6	7.0	5.0	35.0			x	x	x	1		
426	6	5.0	6.5	32.5			x	x		1		x
427	6	9.0	3.0	27.0			x	x				
428	6	11.0	6.0	66.0			x	x		1		x
429	6	12.0	8.0	96.0			x	x				
430	6	11.0	8.0	88.0			x	x		1		
431	6	9.0	10.0	90.0			x	x				x
432	6	11.0	5.0	55.0			x	x	x			
433	6	7.5	4.0	30.0			x	x	x			
434	6	6.5	3.5	22.8			x	x				
435	6	9.0	6.0	54.0			x	x			x	
436	6	7.0	8.0	56.0			x	x		1		
437	6	16.0	7.0	112.0	x	x	x	x		1		
438	6	11.0	3.0	33.0		x	x	x				
439	6	11.0	10.0	110.0			x	x	x	3		x
440	6	9.0	4.0	36.0			x	x				
441	6	6.0	2.5	15.0			x	x				
442	6	11.0	4.0	44.0			x	x				
443	6	12.0	5.0	60.0			x	x		1		
444	6	8.0	3.0	24.0		x	x	x		1		
445	5	13.0	4.5	58.5			x	x		1		
446	5	7.0	7.0	49.0		x	x	x		1		
447	5	16.0	9.0	144.0			x	x		1		
448	5	7.0	2.5	17.5			x	x				
449	5	10.0	5.0	50.0			x	x		1		
450	5	11.0	4.0	44.0			x	x				
451	5	18.0	6.0	108.0	x		x	x	x	1		
452	5	12.0	6.0	72.0			x	x		1		
453	5	5.0	4.0	20.0			x	x				
454	5	30.0	12.0	360.0			x	x				
455	5	17.0	3.0	51.0			x	x				
456	5	15.0	3.0	45.0			x	x				
457	5	14.0	3.0	42.0			x	x	x			
458	5	6.0	2.0	12.0			x	x				
459	6	5.0	2.0	10.0			x	x				
460	6	5.0	2.0	10.0			x	x				
461	6	8.0	2.0	16.0			x	x		1		
462	6	5.0	3.5	17.5			x	x		1		x
463	6	6.0	3.0	18.0			x	x				
464	6	8.0	4.5	36.0			x	x				
465	6	6.0	2.5	15.0			x	x				
466	6	7.0	2.0	14.0			x	x				
467	6	7.0	4.0	28.0			x	x		1		
468	6	5.0	3.0	15.0			x	x				
469	6	5.0	2.5	12.5			x	x				x
470	6	8.0	4.0	32.0			x	x				
471	5	7.5	4.0	30.0			x	x		1		
472	5	9.0	2.5	22.5			x	x		1		

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
473	5	8.0	2.5	20.0			x	x				
474	5	5.5	3.0	16.5			x	x				x
475	5	8.0	3.0	24.0			x	x				
476	5	8.0	3.0	24.0			x	x				
477	5	4.5	3.0	13.5			x	x				
478	5	21.0	7.0	147.0			x	x				x
479	5	13.5	8.0	108.0			x	x				
480	5	11.5	10.0	115.0			x	x	x			
481	6	8.5	4.0	34.0			x	x		1		
482	6	9.0	5.0	45.0			x	x				
483	6	10.0	7.5	75.0			x	x		1	x	x
484	6	7.0	3.0	21.0		x	x	x		1		
485	6	3.5	2.5	8.8			x	x				
486	6	5.0	3.0	15.0			x	x				
487	6	3.0	4.5	13.5			x	x				
488	6	4.0	4.0	16.0			x	x		1		
489	6	7.0	2.5	17.5			x	x				
490	6	7.0	2.5	17.5		x	x	x				
491	5	6.5	3.0	19.5			x	x				
492	5	9.0	3.5	31.5			x	x				
493	5	13.0	12.0	156.0			x	x	x			
494	5	12.0	11.0	132.0			x	x				
495	5	11.0	7.0	77.0			x	x	x			
496	5	6.5	6.0	39.0			x	x				
497	5	12.0	10.0	120.0			x	x				
498	5	10.0	7.0	70.0			x	x				
499	5	10.0	4.5	45.0			x	x				
500	5	11.5	3.0	34.5			x	x				
501	5	9.0	3.0	27.0		x	x	x				
502	5	7.0	3.5	24.5			x	x				
503	5	9.0	6.0	54.0			x	x		1		
504	5	11.0	6.0	66.0			x	x				
505	5	20.5	6.0	123.0			x	x				
506	5	14.0	11.0	154.0		x	x	x				x
507	5	18.0	11.0	198.0			x	x	x			
508	5	20.0	9.0	180.0			x	x	x			
509	5	13.0	3.0	39.0			x	x	x	1		
510	5	13.0	3.5	45.5			x	x		1		
511	5	8.5	4.0	34.0			x	x				
512	5	6.0	3.5	21.0			x	x				
513	5	6.0	3.0	18.0			x	x				
514	5	6.0	5.0	30.0			x	x		1		
515	5	11.0	6.0	66.0			x	x		2		
516	5	6.5	2.5	16.3			x	x				
517	5	10.0	6.0	60.0			x	x				
518	6	12.0	5.0	60.0			x	x				
519	6	11.0	9.0	99.0			x	x	x			
520	6	11.0	7.0	77.0			x	x				
521	6	8.0	2.0	16.0			x	x				x
522	6	11.0	7.0	77.0			x	x		1		
523	6	9.0	4.0	36.0			x	x	x			
524	6	13.0	4.0	52.0			x	x				
525	6	5.5	4.0	22.0			x	x				x
526	6	4.5	2.0	9.0			x	x				
527	6	4.0	2.0	8.0			x	x				
528	6	4.0	3.0	12.0		x	x	x				
529	6	6.0	2.5	15.0			x	x				
530	6	8.0	5.0	40.0			x	x				
531	6	4.5	2.0	9.0			x	x		1		

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
532	6	6.0	5.0	30.0			x	x		1		
533	6	5.5	4.0	22.0			x	x				
534	6	12.0	7.0	84.0			x	x				
535	6	11.0	6.0	66.0			x	x				x
536	6	15.0	3.0	45.0			x	x		1		
537	6	6.0	3.0	18.0			x	x		1		
538	6	4.0	3.0	12.0			x	x				
539	6	8.0	3.0	24.0			x	x				
540	6	12.0	5.0	60.0			x	x				
541	6	7.0	7.0	49.0			x	x				
542	6	5.0	5.0	25.0			x	x				
543	6	22.0	7.5	165.0			x	x				
544	6	7.5	7.0	52.5			x	x	x			
545	6	8.0	7.0	56.0			x	x				
546	6	6.0	5.0	30.0			x	x				
547	6	6.0	5.0	30.0			x	x				
548	6	13.0	10.0	130.0			x	x				
549	6	7.0	6.0	42.0			x	x				
550	6	16.0	5.0	80.0			x	x		2		
551	6	4.0	4.0	16.0			x	x				
552	6	3.0	3.0	9.0			x	x				x
553	6	7.0	3.5	24.5			x	x				
554	6	6.0	3.0	18.0			x	x				
555	6	7.0	3.0	21.0			x	x				
556	6	9.0	3.0	27.0			x	x				
557	6	5.0	3.0	15.0			x	x				
558	6	5.0	5.0	25.0			x	x				
559	6	6.0	5.0	30.0			x	x				
560	6	4.5	3.0	13.5			x	x				
561	6	5.0	2.0	10.0			x	x				
562	6	4.0	6.0	24.0			x	x				
563	6	7.0	7.0	49.0			x	x				
564	6	12.0	6.5	78.0			x	x		1		
565	6	12.0	7.0	84.0			x	x				
566	6	15.0	8.0	120.0			x	x	x			x
567	6	13.0	4.0	52.0			x	x				
568	6	3.0	3.0	9.0			x	x				x
569	5	5.0	5.5	27.5			x	x				
570	5	3.0	3.0	9.0			x	x				
571	5	4.5	3.0	13.5			x	x				
572	5	5.5	4.0	22.0			x	x				
573	5	5.0	5.0	25.0			x	x				
574	5	11.0	3.0	33.0			x	x				
575	5	7.0	4.0	28.0			x	x				x
576	5	6.0	2.5	15.0			x	x				x
577	5	4.0	3.5	14.0			x	x				
578	5	6.0	4.0	24.0			x	x				
579	5	6.0	2.0	12.0			x	x				
580	5	10.0	4.0	40.0			x	x				
581	6	9.0	7.5	67.5			x	x				
582	5	12.0	8.0	96.0			x	x		1		
583	5	11.0	5.5	60.5			x	x		1		
584	5	4.0	2.0	8.0			x	x				
585	5	8.0	11.0	88.0			x	x		1		
586	5	10.0	6.0	60.0			x	x				
587	5	6.0	4.0	24.0			x	x	x			
588	5	6.0	4.0	24.0			x	x				
589	5	5.0	5.0	25.0			x	x				
590	5	10.0	4.5	45.0			x	x				

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
591	5	6.0	4.0	24.0	x	x	x	x				
592	5	9.0	2.0	18.0			x	x				x
593	5	7.0	4.0	28.0			x	x				
594	5	8.0	7.0	56.0			x	x				
595	5	9.0	5.0	45.0		x	x	x	x			x
596	5	8.0	3.0	24.0			x	x				
597	5	6.0	5.0	30.0			x	x				
598	5	13.0	5.0	65.0			x	x				
599	5	7.0	6.0	42.0			x	x		1		x
600	5	10.0	5.0	50.0			x	x	x			x
601	5	8.0	4.0	32.0			x	x				
602	5	9.0	4.0	36.0			x	x				
603	5	6.0	6.0	36.0			x	x				
604	5	8.0	7.0	56.0			x	x		1		
605	5	12.0	3.0	36.0			x	x				
606	5	14.0	6.0	84.0			x	x		1		
607	5	5.0	3.5	17.5			x	x	x			
608	5	9.0	4.0	36.0			x	x	x			x
609	5	12.0	5.0	60.0			x	x	x			
610	5	7.0	5.5	38.5			x	x				
611	5	4.0	4.0	16.0			x	x				
612	5	11.0	8.0	88.0			x	x		1		
613	5	6.0	4.0	24.0			x	x				
614	5	11.0	6.0	66.0			x	x				
615	5	9.0	4.5	40.5			x	x				
616	5	7.0	4.0	28.0			x	x				x
617	5	9.0	4.0	36.0			x	x				
618	5	5.0	4.0	20.0			x	x				
619	5	5.0	3.0	15.0			x	x				
620	5	4.0	2.0	8.0			x	x				
621	5	4.0	3.0	12.0			x	x				
622	5	4.5	3.0	13.5			x	x				
623	5	6.0	4.0	24.0			x	x				
624	5	6.0	4.0	24.0			x	x				
625	5	5.0	2.5	12.5			x	x				
626	5	11.0	3.0	33.0			x	x				
627	5	8.0	4.0	32.0			x	x				
628	5	5.5	4.0	22.0			x	x				
629	5	6.0	5.0	30.0			x	x				
630	5	6.0	4.0	24.0			x	x	x			x
631	5	6.0	3.0	18.0			x	x				x
632	5	8.0	6.0	48.0			x	x	x			x
633	5	15.0	3.0	45.0			x	x				x
634	5	8.5	6.0	51.0			x	x		1		
635	5	5.0	6.5	32.5			x	x		1		
636	5	14.0	5.0	70.0			x	x				
637	5	10.5	9.0	94.5			x	x	x	1		
638	5	8.0	10.0	80.0			x	x		1		
639	5	14.0	5.0	70.0			x	x				
640	5	7.0	7.0	49.0			x	x				
641	5	5.5	6.0	33.0			x	x		1		
642	5	8.0	3.0	24.0		x	x	x				
643	5	8.5	2.5	21.3			x	x	x			
644	5	11.0	5.0	55.0			x	x	x	1		
645	5	11.5	4.5	51.8			x	x				
646	5	8.0	6.5	52.0			x	x		1	x	
647	5	11.0	3.0	33.0			x	x				
648	5	10.0	3.0	30.0			x	x				
649	5	12.0	4.5	54.0			x	x		1		

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
650	5	7.0	2.5	17.5			x	x				
651	5	15.0	5.0	75.0			x	x	x	1		
652	5	7.0	3.0	21.0		x	x	x				x
653	5	5.0	2.5	12.5			x	x	x			
654	5	7.0	5.0	35.0			x	x	x			
655	5	6.5	3.5	22.8			x	x				
656	5	5.5	4.0	22.0	x		x	x				
657	5	7.0	3.0	21.0			x	x				
658	5	8.0	3.0	24.0			x	x				
659	5	7.0	6.0	42.0			x	x				x
660	5	7.5	8.0	60.0			x	x		1		
661	5	5.0	3.0	15.0			x	x		1		
662	5	14.0	8.0	112.0			x	x				
663	5	13.0	9.0	117.0		x	x	x		1		
664	5	11.5	6.5	74.8			x	x	x	1	x	x
665	5	11.0	3.0	33.0			x	x	x			
666	5	10.0	3.5	35.0			x	x		1		
667	5	8.5	2.5	21.3			x	x	x			
668	5	5.0	4.0	20.0			x	x	x			
669	5	7.0	5.0	35.0			x	x				
670	5	21.0	4.0	84.0			x	x				
671	5	6.0	4.0	24.0			x	x				
672	5	3.0	3.0	9.0			x	x				
673	5	18.0	7.5	135.0			x	x	x			
674	5	5.5	7.0	38.5			x	x				
675	5	11.0	7.0	77.0			x	x	x	1		
676	5	11.5	11.0	126.5			x	x	x			
677	5	14.0	4.0	56.0			x	x				
678	5	19.5	7.5	146.3			x	x				
679	5	14.0	5.5	77.0			x	x	x			
680	5	10.0	3.0	30.0			x	x	x			x
681	5	13.0	2.5	32.5			x	x				
682	5	10.5	3.5	36.8			x	x				
683	5	9.0	3.5	31.5			x	x				
684	5	10.0	4.0	40.0			x	x				
685	5	12.0	7.0	84.0			x	x				
686	5	13.5	5.0	67.5			x	x	x			x
687	5	8.0	3.0	24.0			x	x		1		
688	5	8.5	4.0	34.0			x	x		1		
689	5	4.5	2.5	11.3		x	x	x				
690	5	4.5	3.0	13.5			x	x				
691	5	6.0	3.5	21.0			x	x				
692	5	5.0	2.5	12.5			x	x				
693	5	6.5	3.5	22.8			x	x	x			
694	5	10.0	4.0	40.0			x	x		1		
695	5	6.5	2.5	16.3			x	x				
696	5	6.0	3.0	18.0			x	x				
697	5	9.0	4.5	40.5			x	x				
698	5	12.0	5.0	60.0			x	x				
699	5	14.5	3.5	50.8			x	x				
700	5	6.0	4.0	24.0			x	x				
701	5	6.0	6.0	36.0			x	x				
702	5	13.0	4.0	52.0			x	x				
703	5	14.0	3.0	42.0			x	x		1		
704	5	8.0	3.0	24.0			x	x		1		
705	5	9.0	4.5	40.5			x	x				
706	5	8.0	4.0	32.0			x	x				x
707	5	8.5	2.0	17.0			x	x	x			
708	5	6.5	3.0	19.5			x	x	x	1		

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
709	5	13.0	6.0	78.0			x	x				
710	5	7.0	2.5	17.5			x	x				x
711	5	6.5	3.0	19.5			x	x		1		
712	5	7.5	2.5	18.8			x	x				
713	5	8.0	7.0	56.0			x	x		1		
714	5	5.5	2.0	11.0			x	x				
715	5	6.5	2.5	16.3			x	x				
716	5	7.5	3.5	26.3			x	x				
717	5	4.0	2.5	10.0			x	x				
718	5	8.0	3.0	24.0			x	x				x
719	5	6.0	3.0	18.0			x	x				
720	5	8.5	5.0	42.5			x	x				
721	5	12.0	5.0	60.0			x	x				
722	5	5.0	3.5	17.5			x	x				
723	5	14.0	4.0	56.0			x	x		1		
724	5	5.5	3.0	16.5			x	x				
725	5	11.0	6.0	66.0			x	x			x	
726	5	4.0	3.0	12.0			x	x				
727	5	11.0	4.0	44.0			x	x				
728	5	12.0	4.0	48.0			x	x		1		
729	5	6.0	3.0	18.0			x	x				
730	5	12.0	2.5	30.0			x	x				
731	5	8.5	4.0	34.0			x	x				
732	5	12.0	6.0	72.0			x	x				
733	5	11.5	4.0	46.0			x					
734	5	15.5	2.0	31.0			x	x				
735	4	8.5	4.5	38.3			x	x				
736	5	8.0	3.0	24.0			x	x				
737	5	4.0	5.0	20.0			x	x				
738	5	11.0	5.0	55.0			x	x		1		
739	5	7.0	2.5	17.5			x	x				
740	5	9.0	3.5	31.5			x	x				
741	5	10.5	5.0	52.5		x	x	x				x
742	5	11.0	3.0	33.0			x	x				
743	5	9.0	3.0	27.0			x	x				
744	5	13.0	5.0	65.0			x	x		1		
745	4	10.0	4.0	40.0			x	x				
746	4	10.0	4.0	40.0			x					
747	5	6.0	3.0	18.0			x	x				
748	4	6.0	2.0	12.0			x	x				
749	4	10.0	3.0	30.0			x	x	x	1		
750	4	8.5	2.5	21.3			x	x	x			
751	4	5.0	3.5	17.5			x	x				
752	4	10.0	1.5	15.0			x	x				
753	4	11.0	4.0	44.0			x	x				
754	4	5.0	2.5	12.5			x	x		1		
577	4	8.0	2.5	20.0			x	x				
756	4	7.0	3.0	21.0			x	x				
757	4	5.0	2.0	10.0			x	x				
758	5	13.0	3.0	39.0			x	x				
759	5	6.0	4.0	24.0			x	x				
760	5	6.0	3.0	18.0			x	x		1		
761	5	6.0	3.5	21.0			x	x				
762	5	7.0	3.0	21.0			x	x	x			
763	5	6.0	2.0	12.0			x	x				x
764	5	9.0	3.0	27.0			x	x				
765	5	11.5	2.0	23.0			x	x				
766	5	5.5	3.0	16.5			x	x				
767	5	10.0	3.0	30.0			x	x				x

Appendix 6.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
768	5	8.5	6.0	51.0		x	x	x		1		
769	5	10.0	3.0	30.0			x	x		1		
770	5	8.0	3.0	24.0			x	x				
771	5	5.5	2.0	11.0			x	x		1		
772	5	6.0	3.5	21.0			x	x				
773	5	10.0	2.0	20.0			x	x				
774	5	6.0	2.5	15.0			x	x		1		
775	5	8.5	3.0	25.5			x	x		1		
776	5	6.0	2.0	12.0			x	x				x
777	5	9.0	3.0	27.0			x	x		1		
778	5	8.0	3.0	24.0			x	x				
779	5	5.0	2.0	10.0			x	x				
780	5	9.0	2.5	22.5		x	x	x			x	
781	5	11.0	3.0	33.0			x	x				
782	5	3.0	4.0	12.0			x	x				
783	5	8.0	4.0	32.0			x	x				
784	5	5.0	2.0	10.0			x	x				
785	5	7.0	2.0	14.0			x	x				
786	5	5.5	3.0	16.5		x	x	x			x	
787	5	7.0	3.0	21.0			x	x				
788	5	5.0	5.0	25.0			x	x		1		x
789	5	3.5	5.0	17.5			x	x	x			
790	5	6.0	2.0	12.0			x	x				
791	5	11.0	5.0	55.0			x	x		1		
792	5	5.0	2.0	10.0			x	x				
793	5	4.5	2.5	11.3			x	x				
794	4	5.0	3.0	15.0			x	x		1		
795	4	4.0	2.5	10.0			x	x				
796	4	6.0	3.0	18.0			x	x				
797	4	11.0	4.0	44.0			x	x		1		
798	4	10.0	4.5	45.0			x	x				
799	4	8.0	3.5	28.0			x	x				
800	4	7.5	3.0	22.5			x	x				
801	4	10.0	3.0	30.0			x	x	x			
802	4	6.0	3.0	18.0			x	x	x			
803	4	9.0	3.0	27.0			x	x				
804	4	7.5	3.5	26.3			x	x		1		
805	4	9.0	3.0	27.0			x	x				
806	4	6.0	2.5	15.0			x	x				
807	4	6.0	6.0	36.0			x	x				x
808	4	5.5	4.0	22.0			x	x	x	1		
809	4	6.0	5.0	30.0			x	x				
810	4	7.0	4.0	28.0			x	x	x			
811	4	9.0	3.5	31.5			x	x				
812	4	7.0	2.5	17.5			x	x	x			
813	4	7.0	4.0	28.0			x	x				
814	4	4.0	5.0	20.0			x	x				
815	4	8.0	3.0	24.0			x	x	x			
816	5	6.0	4.0	24.0			x	x		1		
817	5	6.5	4.0	26.0			x	x				
818	5	4.0	4.0	16.0			x	x				
819	5	7.0	3.5	24.5		x	x	x				
820	4	8.5	3.0	25.5			x	x				
821	4	12.0	6.0	72.0			x	x		1		
822	4	6.0	4.0	24.0			x	x				
823	4	7.0	3.0	21.0			x	x				
824	4	6.0	3.0	18.0			x	x	x			
825	4	7.0	5.0	35.0			x	x		1		
826	4	7.5	7.0	52.5			x	x	x			

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
827	4	4.5	3.0	13.5			x	x				
828	4	5.0	3.0	15.0			x	x				
829	4	5.0	2.5	12.5			x	x		1		
830	4	9.0	3.0	27.0			x	x		1		
831	4	7.0	3.0	21.0			x	x				x
832	4	6.0	3.0	18.0			x	x				
833	4	10.5	5.0	52.5			x	x		1		
834	4	8.0	4.0	32.0			x	x				
835	4	5.5	3.0	16.5			x	x				
836	4	6.0	4.5	27.0			x	x		1		x
837	4	4.5	3.0	13.5			x	x				
838	4	6.0	5.0	30.0			x	x		1		
839	4	5.0	3.0	15.0			x	x				
840	4	6.0	3.0	18.0			x	x				
841	4	6.5	3.0	19.5			x	x	x			
842	4	7.0	4.0	28.0			x	x				
843	4	13.0	4.0	52.0			x	x	x	1		
844	4	13.0	6.0	78.0			x	x		2		
845	4	10.5	7.5	78.8	x	x	x	x	x	1		
846	4	7.5	4.0	30.0			x	x				
847	4	9.0	3.0	27.0			x	x				x
848	4	8.0	3.5	28.0			x	x		1		
849	4	4.0	2.0	8.0			x	x				
850	4	6.0	4.0	24.0			x	x				
851	4	4.0	4.0	16.0			x	x				
852	4	8.0	4.0	32.0			x	x				
853	4	6.0	3.0	18.0			x	x	x			
854	4	23.0	7.5	172.5			x	x	x	1		x
855	4	3.5	2.0	7.0			x	x				
856	4	14.5	5.0	72.5			x	x	x			x
857	4	5.0	10.0	50.0			x	x				
858	4	6.0	5.0	30.0			x	x				
859	4	5.0	3.0	15.0			x	x				
860	4	9.0	2.5	22.5			x	x	x			
861	4	9.5	3.0	28.5			x	x		1		
862	4	9.5	3.5	33.3			x	x				
863	4	8.0	3.0	24.0			x	x	x			
864	4	9.0	3.0	27.0			x	x	x			
865	4	9.0	2.0	18.0			x	x				
866	4	5.0	3.0	15.0			x	x				
867	4	7.5	4.0	30.0			x	x				
868	4	6.0	2.0	12.0			x	x				
869	4	8.0	3.0	24.0			x	x				
870	4	4.5	2.0	9.0			x	x				
871	4	6.0	3.0	18.0			x	x		1		
872	4	7.0	5.5	38.5			x	x		1		
873	4	10.5	4.5	47.3			x	x	x	1	x	
874	4	6.0	3.0	18.0			x	x				
875	4	6.0	2.0	12.0			x	x				
876	4	12.0	6.0	72.0			x	x	x			
877	4	12.0	10.0	120.0			x	x	x			x
878	4	11.0	6.0	66.0			x	x	x	1		x
879	4	10.0	2.0	20.0			x	x		1		x
880	4	6.5	6.0	39.0			x	x				
881	4	9.0	4.0	36.0			x	x	x	1	x	
882	4	7.0	3.5	24.5			x	x	x			
883	4	12.0	3.0	36.0			x	x	x			
884	4	7.5	6.0	45.0			x	x	x	1		
885	4	7.0	2.5	17.5			x	x				x

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
886	4	3.5	2.5	8.8		x	x	x	x			
887	4	10.0	3.0	30.0			x	x	x			
888	4	13.0	7.0	91.0			x	x	x			x
889	4	5.0	2.0	10.0			x	x				
890	4	4.0	3.0	12.0			x	x				
891	4	9.0	8.0	72.0			x	x				
892	4	19.0	8.0	152.0			x	x				
893	4	9.0	5.5	49.5			x	x				
894	4	8.0	5.0	40.0			x	x				
895	4	6.5	3.0	19.5			x	x				
896	4	5.0	3.0	15.0		x	x	x	x			
897	4	10.0	5.0	50.0			x	x	x	1		
898	4	8.0	4.0	32.0			x	x				
899	4	7.5	6.0	45.0			x	x				
900	4	9.0	4.5	40.5			x	x		1		x
901	4	10.5	4.5	47.3			x	x		1		x
902	4	7.0	4.0	28.0			x	x	x	1		
903	4	7.0	6.0	42.0			x	x		1		
904	4	7.5	4.0	30.0			x	x		1		x
905	4	9.0	7.5	67.5			x	x	x	1		x
906	4	11.0	5.0	55.0			x	x				x
907	4	4.0	2.0	8.0			x	x		1		
908	4	9.0	3.0	27.0			x	x		1		
909	4	12.0	7.0	84.0			x	x				
910	4	10.0	4.5	45.0		x	x	x				
911	4	9.0	7.0	63.0			x	x	x			
912	4	6.0	9.0	54.0			x	x				
913	4	9.0	3.0	27.0			x	x		1		
914	4	6.5	5.0	32.5			x	x				
915	4	9.0	9.0	81.0			x	x	x			
916	4	8.0	5.0	40.0			x	x				x
917	4	7.0	3.5	24.5			x	x				
918	4	9.0	3.0	27.0			x	x				
919	4	4.5	2.0	9.0			x	x	x			
920	4	6.0	2.0	12.0			x	x				
921	4	12.0	8.0	96.0			x	x	x			
922	4	3.5	3.0	10.5			x	x				
923	4	7.0	6.0	42.0			x	x				
924	4	14.0	7.5	105.0			x	x		1		x
925	4	12.0	7.0	84.0			x	x				
926	4	12.0	4.0	48.0			x	x				
927	4	8.0	6.0	48.0			x	x	x			
928	4	7.0	8.0	56.0			x	x				x
929	4	5.0	3.0	15.0			x	x				
930	4	4.0	4.0	16.0			x	x		1		
931	4	4.5	2.5	11.3			x	x				
932	4	8.0	4.5	36.0			x	x		1		x
933	4	8.0	3.5	28.0			x	x		1		
934	4	6.0	2.0	12.0			x	x				
935	4	12.0	2.0	24.0			x	x	x	1		
936	4	4.5	3.0	13.5			x	x				
937	4	7.5	3.5	26.3			x	x				
938	4	6.0	3.5	21.0			x	x	x			
939	4	4.5	2.5	11.3			x	x				
940	4	10.0	3.0	30.0	x		x	x	x			x
941	4	10.0	3.5	35.0			x	x		1		
942	4	7.0	5.5	38.5			x	x		2		
943	4	9.0	7.0	63.0			x	x				
944	4	6.0	5.0	30.0			x	x		1		

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
945	4	9.0	5.0	45.0			x	x				
946	4	7.0	3.5	24.5			x	x				
947	4	6.0	4.5	27.0			x	x				
948	4	7.0	3.0	21.0			x	x				x
949	4	8.0	3.0	24.0			x	x				
950	4	4.5	3.0	13.5			x	x	x	1		
951	4	5.0	3.0	15.0			x	x				
952	4	6.5	3.5	22.8			x	x	x			
953	4	9.0	4.0	36.0			x	x				
954	4	5.0	3.5	17.5			x	x				
955	4	10.5	4.5	47.3			x	x				
956	4	9.0	6.0	54.0			x	x		1	x	
957	4	7.0	5.0	35.0			x	x		1		x
958	4	6.0	5.0	30.0			x	x				
959	4	9.0	5.5	49.5			x	x				x
960	4	5.0	6.0	30.0			x	x				
961	4	6.0	5.0	30.0			x	x				
962	4	6.0	3.5	21.0			x	x				
963	4	6.0	2.5	15.0			x	x				
964	4	3.5	2.0	7.0			x	x				
965	4	7.0	2.0	14.0			x	x	x			
966	4	4.0	1.5	6.0			x	x				
967	4	10.0	5.0	50.0			x	x		1		
968	4	13.0	6.5	84.5			x	x				
969	4	9.0	6.0	54.0			x	x				
970	4	8.0	4.0	32.0			x	x				
971	4	7.5	2.5	18.8			x	x				
972	4	7.0	3.0	21.0			x	x				
973	4	14.0	6.0	84.0			x	x		1		
974	4	8.0	4.0	32.0			x	x				
975	4	5.0	4.0	20.0		x	x	x				
976	4	4.5	4.0	18.0			x	x				
977	4	18.0	5.0	90.0			x	x				
978	4	4.0	3.0	12.0			x	x				
979	4	7.0	4.0	28.0			x	x				
980	4	8.0	6.0	48.0			x	x				
981	4	4.0	3.0	12.0			x	x				
982	4	9.0	5.0	45.0			x	x				
983	4	9.5	4.0	38.0			x	x				
984	4	11.5	3.5	40.3			x	x		1		
985	4	3.0	4.0	12.0			x	x			x	
986	4	4.0	4.0	16.0			x	x				
987	4	3.5	4.0	14.0			x	x				x
988	4	8.0	5.5	44.0			x	x				
989	4	10.0	3.0	30.0			x	x	x			
990	4	4.5	3.0	13.5			x	x	x			
991	4	9.5	4.0	38.0			x	x	x	1		x
992	4	6.0	4.5	27.0			x	x				
993	4	10.0	7.0	70.0			x	x	x			
994	4	12.0	9.0	108.0			x	x	x		x	
995	4	4.0	4.5	18.0			x	x	x			x
996	4	10.0	3.0	30.0			x	x				
997	4	8.0	3.0	24.0			x	x				
998	4	8.0	7.0	56.0	x	x	x	x	x			
999	4	6.0	3.5	21.0			x	x				
1000	4	6.0	5.0	30.0			x	x				
1001	4	8.0	3.5	28.0			x	x	x			
1002	4	7.5	3.0	22.5			x	x				
1003	4	13.5	5.0	67.5			x	x				

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1004	4	6.0	5.0	30.0		x	x	x				
1005	4	7.0	2.0	14.0			x	x				
1006	4	10.0	2.0	20.0			x	x				
1007	4	8.0	4.0	32.0			x	x				
1008	4	5.0	3.0	15.0			x	x				
1009	4	5.0	4.0	20.0			x	x				
1010	4	6.0	2.5	15.0			x	x				
1011	4	8.0	4.0	32.0			x	x				x
1012	4	5.0	3.0	15.0			x	x	x			
1013	4	9.0	4.5	40.5			x	x				
1014	4	4.0	4.0	16.0			x	x				
1015	4	6.0	2.0	12.0			x	x	x			
1016	4	7.5	5.0	37.5			x	x	x	1		
1017	4	8.0	3.0	24.0			x	x				
1018	4	4.0	4.0	16.0			x	x				
1019	4	6.0	5.0	30.0			x	x		1		
1020	4	4.5	3.0	13.5			x	x				
1021	4	6.0	3.5	21.0			x	x				
1022	4	5.0	3.0	15.0			x	x				
1023	4	5.5	2.0	11.0			x	x				
1024	4	3.0	5.0	15.0			x	x		1		x
1025	4	5.0	4.0	20.0			x	x		1		
1026	4	5.0	5.0	25.0			x	x				x
1027	4	5.0	2.5	12.5			x	x	x			x
1028	4	5.5	3.0	16.5			x	x				
1029	4	9.0	2.5	22.5			x	x				
1030	4	10.0	4.0	40.0			x	x				
1031	4	7.0	4.5	31.5			x	x				
1032	4	8.0	6.0	48.0			x	x	x			
1033	4	4.5	2.0	9.0			x	x				
1034	4	8.5	3.5	29.8			x	x	x			
1035	4	6.5	5.0	32.5			x	x				
1036	4	9.5	2.0	19.0			x	x				
1037	4	7.0	3.0	21.0			x	x		1		
1038	4	7.0	6.0	42.0			x	x				
1039	4	5.5	3.0	16.5			x	x				
1040	4	11.0	4.0	44.0			x	x				
1041	4	6.5	4.0	26.0			x	x				
1042	4	11.5	5.0	57.5			x	x				
1043	4	7.5	5.0	37.5			x	x				
1044	4	8.5	2.5	21.3			x	x		1		x
1045	4	7.0	3.0	21.0			x	x				x
1046	4	5.0	4.0	20.0			x	x				x
1047	4	5.5	3.5	19.3			x	x	x			
1048	4	6.5	5.0	32.5			x	x				
1049	4	8.0	6.0	48.0			x	x				
1050	4	8.0	5.0	40.0		x	x	x				
1051	4	11.5	4.0	46.0			x					
1052	4	10.0	3.0	30.0			x	x				
1053	4	6.5	3.0	19.5			x	x				
1054	4	7.0	4.0	28.0			x	x				
1055	4	7.0	4.5	31.5			x	x				
1056	4	6.0	3.0	18.0		x	x					
1057	4	4.0	3.0	12.0			x	x				
1058	4	4.5	2.5	11.3			x	x				
1059	4	6.0	3.5	21.0			x	x				
1060	4	6.5	4.0	26.0			x	x				
1061	4	11.0	2.5	27.5			x	x				
1062	4	5.0	4.0	20.0			x	x		1		

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1063	4	5.5	5.5	30.3			x	x		1		
1064	4	9.0	4.0	36.0			x	x		1		x
1065	4	5.5	2.0	11.0			x	x				x
1066	4	6.0	4.0	24.0			x	x				
1067	4	5.0	3.0	15.0			x	x				x
1068	4	6.5	3.0	19.5			x	x				
1069	4	13.5	3.0	40.5			x	x				
1070	4	9.0	2.5	22.5			x	x				
1071	4	5.5	3.5	19.3			x	x				
1072	4	9.0	5.5	49.5			x	x	x			
1073	4	6.0	5.0	30.0			x	x				
1074	2	9.0	4.0	36.0			x	x				
1075	2	5.5	4.0	22.0			x	x				
1076	2	10.0	6.0	60.0			x	x				
1077	2	12.0	4.0	48.0			x	x				
1078	2	10.0	4.5	45.0			x	x				
1079	2	10.0	5.0	50.0			x					
1080	2	12.0	5.0	60.0			x					
1081	2	7.0	5.0	35.0			x					
1082	2	6.5	3.5	22.8			x					
1083	2	8.0	4.0	32.0			x					
1084	2	16.0	6.0	96.0			x					
1085	4	7.0	4.0	28.0			x	x		1		
1086	4	4.5	4.0	18.0			x	x				
1087	4	8.0	5.0	40.0			x	x				
1088	4	8.0	3.0	24.0			x	x				
1089	4	5.0	4.0	20.0			x	x				
1090	4	5.5	3.0	16.5			x	x				
1091	4	7.0	3.5	24.5			x	x				
1092	4	11.0	4.0	44.0			x	x				
1093	4	9.5	2.5	23.8			x	x				
1094	4	7.0	7.0	49.0			x	x				
1095	4	13.0	4.0	52.0		x	x	x				
1096	4	10.5	4.0	42.0			x	x				
1097	4	6.0	6.0	36.0			x	x				
1098	4	10.0	3.0	30.0			x	x				
1099	4	7.5	3.0	22.5			x	x	x			
1100	4	9.0	9.0	81.0			x	x	x	1		
1101	4	7.0	3.0	21.0			x	x				
1102	4	6.0	4.0	24.0			x	x				
1103	4	14.0	5.0	70.0			x	x		1		
1104	4	6.0	3.0	18.0			x	x				
1105	4	10.5	2.5	26.3			x	x	x			
1106	4	6.0	3.5	21.0			x	x	x			
1107	4	9.0	8.0	72.0			x	x				
1108	4	10.0	7.0	70.0			x	x	x			
1109	4	6.0	3.5	21.0			x	x				
1110	4	8.5	7.0	59.5			x	x				
1111	4	4.0	2.5	10.0			x	x				
1112	4	8.0	3.5	28.0			x	x				
1113	4	9.5	4.5	42.8			x	x	x			x
1114	4	6.0	4.0	24.0			x	x	x	1		
1115	4	13.0	7.0	91.0			x	x	x			
1116	4	10.0	3.0	30.0			x	x	x			
1117	4	9.0	3.0	27.0			x	x	x			
1118	4	6.0	3.0	18.0			x	x				
1119	4	7.0	2.5	17.5		x	x	x	x			
1120	4	9.0	5.0	45.0			x	x				
1121	4	4.0	2.5	10.0			x	x				

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1122	4	8.5	3.0	25.5			x	x	x			
1123	4	9.0	3.5	31.5			x	x	x			
1124	4	7.0	3.0	21.0			x	x	x			
1125	4	7.0	6.0	42.0			x	x	x			x
1126	4	5.0	3.0	15.0			x	x	x			x
1127	4	9.5	3.0	28.5			x	x				
1128	4	8.5	2.0	17.0			x	x				
1129	4	6.5	4.0	26.0			x	x				
1130	4	8.5	3.5	29.8			x	x	x			
1131	4	8.0	3.0	24.0			x	x				
1132	4	6.0	3.0	18.0			x	x				
1133	4	12.0	4.0	48.0			x	x	x	1		
1134	4	9.5	6.0	57.0			x	x	x	1		
1135	4	6.5	4.0	26.0			x	x				
1136	4	6.0	3.0	18.0		x	x	x				
1137	4	7.0	4.0	28.0			x	x				
1138	4	8.0	4.5	36.0			x	x		1		
1139	4	18.0	2.0	36.0			x	x				
1140	4	9.0	9.0	81.0			x	x				
1141	4	5.0	6.0	30.0			x	x				
1142	4	9.0	5.0	45.0			x	x				
1143	4	10.5	4.0	42.0			x	x		1		
1144	4	11.0	4.0	44.0		x	x	x	x			
1145	4	11.5	5.0	57.5			x	x				x
1146	4	11.0	5.0	55.0			x	x				
1147	4	8.0	7.0	56.0			x	x				
1148	4	5.5	5.5	30.3			x	x				
1149	4	8.0	2.0	16.0			x	x				
1150	4	9.0	3.5	31.5			x	x	x			
1151	4	5.5	5.0	27.5			x	x				
1152	4	11.0	4.0	44.0			x	x				
1153	4	5.0	4.5	22.5			x	x				
1154	4	14.0	3.0	42.0			x	x				
1155	4	16.0	7.0	112.0			x	x	x			
1156	4	10.0	7.0	70.0			x	x				
1157	4	4.0	4.0	16.0			x	x	x			
1158	4	9.0	5.0	45.0			x	x				
1159	4	11.5	3.0	34.5			x	x		1		x
1160	4	9.0	3.0	27.0			x	x				
1161	4	10.0	5.0	50.0			x	x		1		
1162	4	11.5	5.0	57.5			x	x				
1163	4	17.5	7.0	122.5		x	x	x	x			x
1164	4	15.5	3.0	46.5		x	x	x	x	2		
1165	4	17.0	5.0	85.0			x	x			x	
1166	4	9.0	4.0	36.0			x	x				
1167	4	10.0	4.0	40.0			x	x	x			
1168	4	9.0	3.0	27.0			x	x				
1169	4	9.5	3.0	28.5			x	x		1		x
1170	4	10.0	3.0	30.0			x	x		1		
1171	4	9.0	2.0	18.0			x	x				
1172	4	6.0	3.0	18.0			x	x				
1173	4	9.5	3.0	28.5			x	x				
1174	4	11.0	3.0	33.0			x	x			x	
1175	4	12.0	4.0	48.0			x	x				
1176	4	6.0	3.0	18.0			x	x				
1177	2	10.0	4.0	40.0			x	x	x	1		
1178	2	9.0	3.0	27.0			x	x				
1179	2	7.0	4.5	31.5			x	x				
1180	2	10.0	4.0	40.0			x	x				

Appendix 6.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1181	2	11.0	5.0	55.0			x	x				
1182	2	9.0	2.0	18.0			x	x				
1183	2	7.0	4.0	28.0			x	x				
1184	2	7.0	4.0	28.0			x	x				
1185	2	9.0	3.0	27.0			x	x				
1186	2	5.0	4.0	20.0			x	x				
1187	2	9.0	4.0	36.0			x	x				
1188	2	8.0	4.0	32.0			x	x				
1189	2	13.0	4.0	52.0			x	x				
1190	4	8.0	8.0	64.0			x	x				
1191	4	8.0	7.0	56.0			x	x				
1192	4	13.5	3.0	40.5			x	x				
1193	4	8.0	4.0	32.0			x	x	x			
1194	4	8.0	4.0	32.0		x	x	x	x			
1195	4	9.0	6.0	54.0			x	x				
1196	4	6.0	3.0	18.0		x	x	x				
1197	4	6.0	3.0	18.0			x	x				
1198	4	14.0	4.0	56.0			x	x				
1199	4	13.0	5.0	65.0			x	x				
1200	4	6.0	3.5	21.0			x	x				
1201	4	9.0	5.0	45.0			x	x		1		
1202	4	12.0	5.0	60.0			x	x				
1203	4	13.0	4.0	52.0			x	x		1		
1204	4	12.0	6.0	72.0			x	x				
1205	4	10.0	4.0	40.0			x	x	x			
1206	4	14.0	7.0	98.0			x	x				
1207	4	21.0	5.0	105.0			x	x	x			
1208	4	14.0	6.0	84.0			x	x				x
1209	4	9.0	8.0	72.0			x	x				
1210	4	11.0	2.5	27.5			x	x				
1211	4	9.0	3.0	27.0			x	x				
1212	4	8.0	3.0	24.0			x	x				
1213	4	11.5	3.0	34.5			x	x				
1214	4	7.0	5.0	35.0			x	x				
1215	4	5.0	3.0	15.0			x	x				
1216	4	8.0	4.0	32.0			x	x				
1217	4	5.0	2.5	12.5			x	x				
1218	4	6.0	3.0	18.0			x	x				
1219	4	5.0	3.0	15.0			x	x				
1220	4	9.0	4.0	36.0			x	x				
1221	4	10.0	3.5	35.0			x	x	x			x
1222	4	4.5	4.0	18.0			x	x				
1223	4	4.0	3.0	12.0			x	x				
1224	4	8.0	3.0	24.0			x	x				
1225	4	11.0	5.0	55.0			x	x				
1226	4	8.0	4.0	32.0			x	x				
1227	4	11.0	5.0	55.0			x	x				
1228	4	6.0	4.0	24.0			x	x				
1229	4	8.0	4.0	32.0			x	x				
1230	4	7.5	4.5	33.8			x	x		1		
1231	4	8.0	4.0	32.0			x	x				
1232	4	8.0	3.0	24.0			x	x				
1233	4	7.0	3.0	21.0			x	x				
1234	4	5.0	3.0	15.0			x	x				
1235	4	10.5	5.0	52.5			x	x		1		
1236	4	12.0	7.0	84.0			x	x	x			
1237	4	8.0	4.0	32.0			x	x				
1238	4	6.0	3.0	18.0			x	x				
1239	4	17.0	6.0	102.0			x	x				

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1240	4	9.0	4.0	36.0			x	x				
1241	4	10.5	7.0	73.5			x	x	x	1		
1242	4	8.0	3.5	28.0			x	x				
1243	4	7.5	3.0	22.5			x	x				
1244	4	11.0	4.5	49.5			x	x	x	1		x
1245	4	8.0	3.0	24.0			x	x	x			
1246	4	9.0	3.0	27.0			x	x	x			
1247	4	4.0	3.0	12.0			x	x				
1248	4	8.0	5.0	40.0			x	x				
1249	4	4.0	4.0	16.0			x	x				
1250	4	10.5	5.5	57.8			x	x				
1251	4	8.0	4.0	32.0			x	x				
1252	4	8.0	4.0	32.0			x	x				
1253	4	11.0	6.0	66.0			x	x				
1254	3	8.5	3.5	29.8			x					
1255	3	9.0	3.5	31.5			x					
1256	3	10.5	4.0	42.0			x					
1257	3	12.0	4.0	48.0			x					
1258	3	10.0	2.0	20.0			x					
1259	3	7.5	2.0	15.0			x		x			
1260	3	10.0	5.5	55.0			x			1		
1261	3	7.0	2.0	14.0			x					
1262	3	7.0	6.0	42.0			x			1		
1263	3	8.0	3.0	24.0			x					
1264	3	11.0	5.0	55.0			x					
1265	3	9.0	7.0	63.0			x			1		
1266	3	8.0	5.0	40.0			x			1		
1267	3	5.0	3.0	15.0			x					
1268	3	11.0	2.5	27.5			x					
1269	3	7.0	3.0	21.0			x					
1270	3	13.5	3.0	40.5			x					
1271	3	6.5	6.0	39.0			x			1		
1272	3	7.0	3.0	21.0			x					
1273	3	5.0	4.0	20.0			x					
1274	3	8.5	4.0	34.0			x					
1275	3	7.0	4.0	28.0			x					
1276	3	6.0	3.0	18.0			x					
1277	3	9.0	3.0	27.0			x					
1278	3	14.0	4.0	56.0			x					
1279	3	8.0	4.0	32.0			x					
1280	3	8.0	5.0	40.0			x					
1281	3	5.5	4.0	22.0			x					
1282	3	6.5	5.0	32.5			x					
1283	3	7.5	5.0	37.5			x					
1284	3	10.0	4.0	40.0			x			1		
1285	3	5.0	2.0	10.0			x					
1286	3	12.5	5.0	62.5			x					
1287	3	9.0	6.0	54.0			x					
1288	2	11.0	4.5	49.5			x					
1289	2	6.5	6.0	39.0			x					
1290	2	13.0	7.0	91.0			x					
1291	2	10.0	5.0	50.0			x					
1292	2	26.0	5.0	130.0			x					
1293	2	5.0	2.0	10.0			x					
1294	3	9.0	3.0	27.0			x					
1295	2	9.0	4.0	36.0		x	x	x				
1296	2	41.0	6.5	266.5			x	x				
1297	2	23.0	5.0	115.0			x	x				
1298	2	33.0	7.0	231.0		x	x	x	x			

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1299	2	10.5	3.0	31.5			x	x		1		
1300	2	8.0	4.0	32.0			x	x				
1301	2	10.0	4.0	40.0			x	x				
1302	2	19.0	4.0	76.0			x	x				
1303	2	8.0	3.5	28.0			x	x				
1304	2	8.0	3.0	24.0			x	x				
1305	2	8.5	4.0	34.0			x	x				
1306	2	8.0	4.0	32.0			x	x				
1307	2	8.0	3.0	24.0			x	x				
1308	2	7.0	3.0	21.0			x	x				
1309	2	18.0	5.0	90.0			x	x				
1310	2	10.0	3.0	30.0			x	x				
1311	2	4.5	2.5	11.3			x	x				
1312	2	10.0	4.0	40.0			x	x				
1313	2	7.0	3.0	21.0			x	x				
1314	2	8.0	3.0	24.0			x	x				
1315	2	9.0	5.0	45.0			x	x				
1316	2	11.0	8.0	88.0			x	x				
1317	2	11.0	3.0	33.0			x	x				
1318	2	7.5	4.0	30.0			x	x				
1319	2	7.0	3.0	21.0			x	x				
1320	2	4.0	3.0	12.0			x	x				
1321	2	7.0	3.0	21.0			x	x				
1322	2	5.5	4.0	22.0			x	x				
1323	2	4.5	2.5	11.3			x	x				
1324	2	6.0	3.5	21.0			x	x				
1325	2	8.0	7.0	56.0			x	x				
1326	2	8.0	6.0	48.0			x	x				
1327	2	9.0	5.0	45.0			x	x				
1328	2	7.0	4.0	28.0			x	x				
1329	2	8.0	3.5	28.0			x	x		1		
1330	2	7.0	4.0	28.0			x	x				
1331	2	7.0	5.0	35.0			x	x				
1332	2	5.5	5.0	27.5			x	x				
1333	2	6.0	4.0	24.0			x	x				
1334	2	6.0	3.0	18.0			x	x				
1335	2	9.0	6.0	54.0			x	x				
1336	2	8.0	4.0	32.0			x	x				
1337	2	6.0	7.0	42.0			x	x			x	
1338	2	5.0	5.0	25.0			x	x				
1339	2	6.0	5.0	30.0			x	x		1		
1340	2	13.5	5.0	67.5			x	x				
1341	2	5.0	5.0	25.0			x	x				
1342	2	6.0	6.0	36.0			x	x				
1343	2	8.0	5.0	40.0			x	x				
1344	2	7.5	5.0	37.5			x	x				
1345	2	8.0	5.0	40.0			x	x				
1346	2	19.0	6.0	114.0			x	x				
1347	2	19.0	5.0	95.0			x	x				
1348	2	7.0	5.0	35.0			x	x		1		
1349	2	6.0	6.0	36.0			x	x				
1350	2	7.0	6.0	42.0			x	x				
1351	2	10.0	6.0	60.0			x	x				
1352	2	11.0	5.0	55.0			x	x				
1353	2	9.0	6.0	54.0			x	x				
1354	2	8.0	7.0	56.0			x	x	x			
1355	2	24.0	6.0	144.0			x	x				
1356	2	8.0	3.5	28.0			x					
1357	2	6.5	3.0	19.5			x					

Appendix 6.a. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1358	2	10.0	4.0	40.0			x					
1359	2	4.0	4.0	16.0			x					
1360	2	6.0	4.0	24.0			x					
1361	2	6.0	4.0	24.0			x					
1362	2	5.0	4.0	20.0			x					
1363	2	4.0	4.0	16.0			x					
1364	2	4.5	4.0	18.0			x					
1365	2	6.0	4.0	24.0			x					
1366	2	7.0	4.5	31.5			x					
1367	2	18.0	9.0	162.0			x	x				
1368	2	13.0	7.0	91.0			x	x				
1369	2	6.0	6.0	36.0			x	x				
1370	2	5.0	6.0	30.0			x	x				
1371	2	18.0	7.0	126.0			x	x				
1372	2	19.0	7.0	133.0			x	x				
1373	2	22.0	8.0	176.0			x	x				
1374	2	7.5	5.0	37.5			x	x				
1375	2	16.0	5.0	80.0			x	x				
1376	2	6.5	6.0	39.0			x	x				x
1377	2	5.0	6.0	30.0			x	x				
1378	2	16.0	4.0	64.0			x	x				
1379	2	19.0	6.0	114.0			x	x				
1380	2	13.0	6.0	78.0			x	x				
1381	2	6.5	2.5	16.3			x	x				
1382	2	18.0	5.0	90.0			x	x				
1383	2	10.0	5.0	50.0			x	x	x			
1384	2	8.5	5.0	42.5			x	x				
1385	2	9.0	4.0	36.0			x	x				
1386	2	6.0	4.0	24.0			x	x				x
1387	2	8.5	2.5	21.3			x					
1388	2	14.0	10.0	140.0			x					x
1389	2	13.5	10.0	135.0			x					
1390	2	22.0	10.0	220.0			x					
1391	2	14.0	7.0	98.0			x					
1392	2	23.0	7.0	161.0			x					
1393	2	20.0	8.0	160.0			x					
1394	2	9.0	4.0	36.0			x					
1395	2	15.0	2.5	37.5			x					
1396	2	17.5	3.0	52.5			x					
1397	2	9.0	3.0	27.0			x					
1398	2	13.0	4.0	52.0			x					
1399	2	12.0	3.0	36.0			x					
1400	2	14.0	5.0	70.0			x					
1401	2	17.0	5.0	85.0			x					
1402	2	18.0	5.0	90.0			x					x
1403	2	10.0	3.0	30.0			x					
1404	2	6.0	4.5	27.0			x					
1405	2	12.0	5.0	60.0			x					
1406	2	11.0	7.0	77.0			x					
1407	2	14.0	5.0	70.0			x					
1408	2	15.0	5.0	75.0			x					
1409	2	7.0	3.0	21.0			x					
1410	2	12.0	4.0	48.0			x					
1411	2	7.0	3.0	21.0			x					
1412	2	7.0	3.0	21.0			x					
1413	2	13.0	5.0	65.0			x					
1414	2	17.0	6.0	102.0			x					
1415	2	22.0	5.0	110.0			x					
1416	2	22.0	4.0	88.0			x					

Appendix 6.A. *Continued*

Terrace	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	House	Tomb	Entry
1417	2	17.0	3.0	51.0			x					
1418	2	18.0	3.0	54.0			x					
1419	2	22.0	5.0	110.0			x					
1420	2	17.5	5.0	87.5			x					
1421	2	21.0	5.0	105.0			x					
1422	2	20.5	6.0	123.0			x					
1423	1	13.0	3.0	39.0			x					
1424	1	9.5	3.0	28.5			x					
1425	1	13.0	4.0	52.0			x					
1426	1	13.0	3.0	39.0			x					
1427	1	9.0	2.5	22.5			x					
1428	1	6.0	2.0	12.0			x					
1429	1	8.0	3.0	24.0			x					
1430	2	9.0	4.0	36.0			x					
1431	1	7.0	3.0	21.0			x					
1432	1	7.5	3.0	22.5			x					
1433	1	7.5	4.0	30.0			x					
1434	1	8.0	5.0	40.0			x					
1435	1	11.0	5.0	55.0			x					
1436	1	11.0	4.0	44.0			x				x	
1437	1	11.5	4.0	46.0			x					
1438	1	9.0	4.5	40.5			x					
1439	1	14.0	5.0	70.0			x					x
1440	1	9.0	5.0	45.0			x					
1441	1	14.0	3.0	42.0			x					
1442	1	4.0	2.5	10.0			x					
1443	1	3.0	3.0	9.0			x					
1444	1	13.5	4.0	54.0			x					
1445	1	5.0	3.0	15.0			x					
1446	1	6.5	4.0	26.0			x					
1447	1	8.0	3.0	24.0			x					
1448	1	6.0	3.0	18.0			x					
1449	1	6.0	4.0	24.0			x					
1450	1	5.0	8.0	40.0			x			1		
1451	1	9.5	4.0	38.0			x					
1452	1	10.0	6.0	60.0			x					
1453	1	6.0	3.0	18.0			x					

Appendix 6.B. El Palmillo Structure Summary

Structure	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
1	12	8.0	5.0	40.0	8.0	5.0	40.0	0.25	10.0			x	x		
2	12	10.0	5.5	55.0	5.0	2.0	10.0	0.25	7.4			x	x		
3	11	10.0	10.0	100.0	10.0	10.0	100.0	0.25	25.0		x	x			
4	8	7.0	6.0	42.0	7.0	6.0	42.0	0.75	31.5			x	x		Sits on Pl. 2
5	11	4.0	4.0	16.0	4.0	4.0	16.0	0.10	1.6			x	x		On Pl. 2
6	12	12.0	9.0	108.0	4.0	4.0	16.0	0.50	27.6	x		x	x		W. 16, Plaza B
7	12	10.0	8.0	80.0	3.0	3.0	9.0	1.00	38.6			x	x		
8	12	7.0	5.0	35.0	7.0	5.0	35.0	0.25	8.8			x	x		
9	12	10.5	7.5	78.8	10.5	7.5	78.8	0.25	19.7			x	x		
10	12	10.0	10.0	100.0	10.0	10.0	100.0	0.25	25.0			x	x		T. 103
11	12	14.0	13.0	182.0	4.0	4.0	16.0	2.25	189.0			x	x		
12	12	20.0	15.0	300.0	8.0	7.0	56.0	2.00	323.7			x	x		
13	12	18.0	12.0	216.0	10.0	7.0	70.0	1.00	136.3			x	x		
14	12	11.0	7.0	77.0	4.0	3.5	14.0	0.50	20.6			x	x		
15	11	3.0	3.0	9.0	3.0	3.0	9.0	0.25	2.3			x			Ditch 1
16	11	4.5	3.5	15.8	4.5	3.5	15.8	0.25	3.9			x			
17	11	7.0	7.0	49.0	7.0	7.0	49.0	0.25	12.3			x			
18	10	5.0	4.0	20.0	5.0	4.0	20.0	0.50	10.0			x	x		T. 199
19	10	14.5	9.0	130.5	14.5	9.0	130.5	0.25	32.6			x	x		T. 225
20	8	8.0	8.0	64.0	3.0	3.0	9.0	2.00	64.7			x	x		
21	8	5.0	5.0	25.0	2.0	2.0	4.0	1.50	19.5			x	x		
22	8	4.0	4.0	16.0	4.0	4.0	16.0	0.25	4.0	x	x	x	x		
23	8	5.5	4.5	24.8	5.5	4.5	24.8	0.25	6.2			x	x		T. 293
24	8	6.5	5.5	35.8	2.0	2.0	4.0	0.75	12.9			x	x		T. 299
25	6	10.0	6.0	60.0	9.0	5.0	45.0	0.50	26.2			x	x		T. 309–311
26	6	10.0	8.0	80.0	4.0	3.0	12.0	1.00	41.0			x	x	x	
27	6	20.0	15.0	300.0	9.0	6.5	58.5	6.50	1063.8			x	x		
28	6	12.5	11.5	143.8	9.0	4.0	36.0	1.00	83.9		x	x	x		
29	6	27.5	19.5	536.3	18.0	10.0	180.0	2.75	941.4		x	x	x		St. 30–31
30	6	16.0	12.0	192.0	12.0	3.5	42.0	2.50	269.8		x	x	x		St. 29, 31
31	6	25.0	12.5	312.5	17.0	3.0	51.0	3.50	571.4		x	x	x		St. 29–30
32	6	11.0	4.0	44.0	8.5	2.0	17.0	1.50	44.2			x	x		On St. 29
33	6	15.0	7.5	112.5	11.0	3.5	38.5	1.00	72.3			x	x		
34	6	5.0	5.0	25.0	5.0	5.0	25.0	0.25	6.3			x	x		
35	6	10.0	10.0	100.0	6.0	4.0	24.0	4.00	230.7			x	x		

Appendix 6.b. *Continued*

Structure	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
36	6	7.0	5.5	38.5	6.0	4.0	24.0	1.00	31.0			x	x		T. 335, Stair 7
37	Not used														
38	7	3.5	2.5	8.8	3.5	2.5	8.8	0.25	2.2			x			T. 358
39	7	5.0	2.5	12.5	5.0	2.5	12.5	0.25	3.1			x			
40	7	4.5	2.5	11.3	4.5	2.5	11.3	0.25	2.8			x			
41	7	4.0	3.0	12.0	4.0	3.0	12.0	0.25	3.0			x			T. 371–372
42	7	7.0	5.0	35.0	7.0	5.0	35.0	0.25	8.8			x			W. 54–55, Stair 8
43	6	5.0	3.0	15.0	5.0	3.0	15.0	0.25	3.8			x	x		W. 64
44	5	14.0	11.0	154.0	5.0	4.0	20.0	1.25	95.6	x		x	x	x	
45	5	4.0	3.4	13.6	4.0	3.5	14.0	0.25	3.4			x	x		
46	6	4.0	3.0	12.0	4.0	3.0	12.0	0.25	3.0			x	x		
47	6	6.0	4.0	24.0	6.0	4.0	24.0	4.00	96.0			x	x		P. 15
48	6	4.0	3.0	12.0	4.0	3.0	12.0	0.25	3.0			x	x		
49	5	4.5	4.0	18.0	3.5	3.0	10.5	2.00	28.2			x	x		T. 720
50	5	5.5	5.0	27.5	3.0	3.0	9.0	2.00	34.8			x	x		
51	5	8.0	4.0	32.0	8.0	4.0	32.0	0.50	16.0			x	x	x	
52	4	6.0	3.5	21.0	6.0	3.5	21.0	1.00	21.0			x	x		
53	5	5.0	4.5	22.5	5.0	3.5	17.5	0.25	5.0			x	x		Pl. 18
54	4	9.0	5.0	45.0	4.5	2.5	11.3	1.50	39.4			x	x	x	
55	4	4.0	4.0	16.0	3.0	2.0	6.0	1.75	18.5			x	x		
56	4	6.5	4.5	29.3	6.5	4.5	29.3	0.25	7.3			x	x	x	Pl. 19, St. 57
57	4	10.0	2.0	20.0	10.0	2.0	20.0	0.25	5.0			x	x	x	Pl. 19, St. 56
58	4	4.0	3.4	13.6	4.0	3.5	14.0	0.25	3.4			x	x		T. 924, 905
59	4	4.0	4.0	16.0	4.0	4.0	16.0	0.25	4.0			x	x		
60	4	6.0	2.5	15.0	6.0	2.5	15.0	1.50	22.5			x	x		
61	4	6.0	5.0	30.0	6.0	5.0	30.0	1.00	30.0			x	x		
62	4	1.5	1.5	2.3	1.5	1.5	2.3	0.25	0.6		x	x	x	x	Stair 15
63	2	7.0	3.5	24.5	7.0	3.5	24.5	0.25	6.1			x			
64	2	6.0	4.0	24.0	6.0	4.0	24.0	0.25	6.0			x	x		
65	2	11.0	9.0	99.0	11.0	9.0	99.0	0.50	49.5		x	x	x		
66	2	3.0	3.0	9.0	3.0	3.0	9.0	0.25	2.3			x	x		
67	2	10.5	2.5	26.3	10.5	2.5	26.3	0.10	2.6			x	x		
68	2	7.0	5.0	35.0	7.0	5.0	35.0	0.25	8.8			x			W. 96
69	2	3.0	2.5	7.5	3.0	2.5	7.5	0.10	0.8			x			
70	2	5.0	3.5	17.5	5.0	3.5	17.5	0.25	4.4			x			W. 103
71	2	2.5	2.0	5.0	2.5	2.0	5.0	0.25	1.3			x			
72	1	8.0	3.0	24.0	8.0	3.0	24.0	0.25	6.0					x	

Appendix 6.c. El Palmillo Platform Summary

Platform	Section	Base Length	Base Width	Base Area	Top Length	Top Width	Top Area	Height	Volume	LI	II	IIIA	IIIB/IV	V	Associated Architectural Features
1	12	21.0	6.0	126.0	21.0	6.0	126.0	0.75	94.5			x	x	x	Pl. 2
2	12	34.5	19.0	655.5	31.5	12.5	393.8	1.60	830.6			x	x	x	Pl. 1, St. 4, St. 5
3	12	21.0	11.0	231.0	21.0	11.0	231.0	0.25	57.8			x	x		Pl. 2
4	12	42.0	12.0	504.0	42.0	12.0	504.0	0.25	126.0			x	x	x	Plaza B
5	12	27.0	25.0	675.0	27.0	25.0	675.0	0.25	168.8			x	x		St. 9, W. 17
6	10	10.0	6.0	60.0	10.0	6.0	60.0	0.25	15.0			x	x	x	
7	9	13.0	12.0	156.0	9.0	7.0	63.0	1.50	159.1			x	x		
8	9	14.0	10.0	140.0	5.0	4.0	20.0	1.00	71.0	x		x	x	x	
9	9	15.0	12.0	180.0	6.0	5.0	30.0	1.50	141.7			x	x		W. 36
10	6	27.0	22.5	607.5	17.5	15.0	262.5	3.00	1269.3			x	x		St. 27
11	6	17.0	9.0	153.0	17.0	9.0	153.0	1.00	153.0			x	x		
12	6	8.0	8.0	64.0	8.0	8.0	64.0	0.25	16.0		x	x	x		
13	5	16.0	9.0	144.0	16.0	9.0	144.0	1.00	144.0	x	x	x	x		
14	5	12.0	9.0	108.0	12.0	9.0	108.0	0.50	54.0			x	x		
15	6	17.0	8.0	136.0	17.0	8.0	136.0	0.50	68.0			x	x		
16	5	15.0	15.0	225.0	10.0	8.0	80.0	2.00	292.8			x	x		
17	5	35.0	10.0	350.0	30.0	5.0	150.0	2.00	486.1			x	x	x	Pl. 16
18	5	12.0	10.0	120.0	8.5	5.5	46.8	2.00	161.1			x	x		St. 53
19	4	17.5	13.0	227.5	10.0	9.0	90.0	1.50	230.3			x	x	x	St. 56, 57, W. 77, 79
20	4	19.0	16.0	304.0	11.0	8.0	88.0	2.00	370.4			x	x	x	
21	4	6.0	6.0	36.0	4.0	4.0	16.0	1.00	25.3			x	x		
22	4	5.5	6.0	33.0	5.5	6.0	33.0	1.00	33.0			x	x	x	
23	2	4.0	3.5	14.0	4.0	3.5	14.0	0.50	7.0			x	x		
24	2	8.0	6.0	48.0	3.5	2.0	7.0	1.25	30.6			x	x		W. 86
25	4	4.5	4.0	18.0	4.5	4.0	18.0	0.75	13.5			x	x		W. 87
26	4	9.0	9.0	81.0	6.0	4.5	27.0	3.00	154.8			x	x		
27	4	13.0	11.5	149.5	13.0	4.0	52.0	2.00	193.1		x	x	x		Pl. 28
28	4	16.0	12.0	192.0	10.5	4.0	42.0	2.00	215.9			x	x		Pl. 27
29	2	18.0	9.0	162.0	10.0	4.0	40.0	2.00	188.3			x			
30	2	4.0	4.0	16.0	4.0	4.0	16.0	0.25	4.0			x	x		W. 92
31	2	28.0	6.5	182.0	28.0	6.5	182.0	1.00	182.0			x	x		
32	2	26.0	16.0	416.0	26.0	16.0	416.0	0.25	104.0			x	x	x	
33	2	18.0	8.0	144.0	5.5	3.0	16.5	1.50	104.6			x			
34	2	19.0	11.0	209.0	19.0	11.0	209.0	0.25	52.3			x			
35	2	4.5	3.5	15.8	4.5	3.5	15.8	0.25	3.9			x			
36	2	6.0	6.0	36.0	6.0	6.0	36.0	0.25	9.0			x			
37	2	25.0	7.0	175.0	25.0	7.0	175.0	0.25	43.8			x			
38	1	20.0	10.0	200.0	20.0	9.0	180.0	0.75	142.4			x		x	W. 108
39	1	6.0	6.0	36.0	6.0	6.0	36.0	1.00	36.0			x			W. 109
40	1	9.0	6.0	54.0	4.0	3.0	12.0	0.75	22.9			x		x	
41	1	9.0	8.0	72.0	5.0	5.0	25.0	0.50	23.2			x		x	
42	1	49.0	19.0	931.0	34.0	10.0	340.0	2.50	1528.0			x			
43	1	40.0	20.0	800.0	8.0	6.0	48.0	3.50	1218.0			x			

Appendix 6.D. El Palmillo Plaza Summary

Plaza	Section	Length	Width	Area	LI	II	IIIA	IIIB/IV	V	Associated Structures
A	12	33.0	20.0	660.0		x	x	x		
B	12	55.0	22.5	1237.5			x	x		Pl. 3, Pl. 4, St. 6
C	12	20.0	8.0	160.0			x	x		
D	12	11.0	7.0	77.0	x		x	x		St. 13, St. 14
E	10	7.0	7.0	49.0			x	x	x	Pl. 6
F	6	30.0	17.0	510.0		x	x	x		St. 29–31
G	6	18.5	8.5	157.3			x	x		St. 33–34, Pl. 11
H	2	81.0	36.0	2916.0			x	x		Pl. 31, St. 64, St. 67

Appendix 6.E. El Palmillo Wall Summary

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
1	11	33.0	2.0			
2	12	37.0	2.5	Defense		T. 5
3	11	25.0	0.5	Defense		T. 13
4	11	24.0	1.0	Defense		T. 20
5	11	30.0	0.5	Defense		
6	11	30.0		Defense		
7	11	19.0	2.0	Defense		
8	11	39.0	2.0	Defense		
9	11	25.0		Defense		
10	11	21.0	2.0	Defense		
11	11	10.0	0.5	Defense		
12	11	19.0	0.3	Defense		
13	11	19.0		Defense		
14	12	15.0		Defense		
15	12	5.0	0.8	Defense		
16	12	37.5	1.0	Access	St. 6	T. 47
17	12	52.0	1.0	Access	Pl. 5	
18	12	65.0	1.5	Access		T. 113–114
19	12	4.0		Access		
20	12	20.0		Access		
21	12	132.5	1.5	Retention		T. 86, 90–93, 116–118
22	12	25.0		Access		
23	12	16.0		Access		
24	12	32.0	2.0	Access		T. 127–128
25	12	12.0	0.5	Access		T. 135–6
26	12	15.0	1.0	Access		T. 141
27	12	22.0	0.5	Access		T. 147, 149
28	11	27.0	0.5	Access		T. 163–164
29	9	34.0	1.0	Defense		T. 186
30	10	5.0		Access		
31	10	15.5		Access		
32	10	3.0		Access		
33	9	8.0		Access		
34	9	34.0	1.0	Access	Pl. 8	T. 241
35	9	24.0	1.0	Access		T. 241
36	9	36.0	1.0	Access		T. 242
37	8	73.5	2.0	Defense		T. 245–246
38	8	107.0	0.5	Access		T. 249–251
39	8	14.0		Access	St. 22	
40	8	41.5	1.0	Defense		T. 258–260
41	8	11.0	1.0	Defense		T. 260
42	8	74.0	1.0	Defense		T. 272–276
43	8	19.0	0.5			T. 293
44	8	24.0	1.0	Defense		T. 303–304
45	8	13.0	1.0	Defense		T. 305
46a	8	33.0		Defense	Stair 4a	
46b	8	11.0		Defense		
47	6	22.0	0.5	Access		T. 321
48	4	38.0	1.5	Defense	Plaza F	
49	6	10.0	1.0	Defense		T. 330, 332
50	6	45.0	1.5	Access	Stair 6	T. 333–334
51	Not used					
52	6	23.0	2.0	Defense		T. 336
53	7	10.5	0.5	Retention		T. 358
54	7	17.0	1.0	Defense	W. 55	
55	7	14.0	1.0	Defense	W. 54	
56	6	54.5	2.0	Defense		T. 382–386
57	6	7.0	0.5	Defense	W. 57–63	
58	6	6.5	0.5	Defense	W. 57–63	
59	6	9.5	0.5	Defense	W. 57–63	

Appendix 6.e. *Continued*

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
60	6	10.0	0.5	Defense	W. 57–63	
61	6	10.5	0.5	Defense	W. 57–63	
62	6	9.5	0.5	Defense	W. 57–63	
63	6	9.0	0.5	Defense	W. 57–63	
64	6	10.0	0.5	Defense		
65	6	17.0	1.0	Defense	W. 48	T. 420
66	6	77.0	4.0	Defense		T. 420, 428
67	6	36.0	0.5			T. 390, 443
68	5	25.0	0.5	Defense		T. 448–449
69	6	15.0	0.5	Retention		
70	6	12.0	0.5		W. 69	
71	6	25.0	1.0			
72	6	7.0		Retention	St. 48	
73	6	37.5	1.0			
74	5	12.0	1.0	Access?		
75	5	12.0		Access	St. 51	
76	4	42.5	2.0	Defense		T. 854–855
77	4	20.0	1.0	Defensive	Pl. 19	
78	4	50.0	1.5	Defensive		T. 892–893
79	4	20.5	1.0	Access	Pl. 19	
80	4	27.5	1.5	Defense		T. 1031–1032
81	4	21.5	1.0	Defense	W. 84?	T. 1071
82	2	7.0		Defense		
83	4	13.0	1.3	Access	Pl. 21	T. 1109
84	4	17.0		Defense	W. 81?	
85	2	52.0	0.5	Defense		T. 1177–1179
86	2	40.0		Access	Pl. 21, 24	
87	4	10.0	1.0	Access	Pl. 25	
88	3	104.5	1.0	Defense		T. 1270–1271, 1280–1283
89	3	61.0	0.5	Defense		T. 1286–1287
90	2	82.5	1.0	Defense		T. 1288–1292
91	2	85.0	1.5	Defense		T. 1295–1296
92	2	45.0	1.0	Access	Pl. 30, W. 86	T. 1297
93	2	42.0	0.5	Access	W. 94	T. 1351, 1353
94	2	30.0		Access	W. 93	
95	2	118.5	1.0	Defense		T. 1388–1394
96	2	125.0	1.0	Defense	W. 101, St. 68	T. 1373
97	2	17.0	1.0	Access		T. 1377, 1386
98	2	120.0	2.0	Defense		T. 1375
99	2	58.5	1.0	Defense		T. 1387
100	2	113.5		Defense	W. 107	
101	2	62.0		Access	W. 96, 103	
102	2	101.5	1.0	Defense	W. 104	T. 1398–1402
103	2	24.0	1.0	Defense	St. 70, W. 101	
104	2	31.0	0.8	Access	W. 102	
105	2	134.0	1.0	Defense	W. 94, 107	T. 1410
106	2	34.0	0.5	Defense		T. 1411–1412
107	2	251.0	1.5	Defense	W. 100	T. 1413–1422
108	1	43.0	0.3	Defense	Pl. 38, 42	
109	1	44.0	0.3	Defense	Pl. 39	
110a	1	125.0	0.3	Defense		
110b	1	77.0	0.3	Defense		
110c	1	77.0	0.3	Defense		
110d	1	9.0	0.3	Defense?		
110e	1	18.0	0.3	Defense?		
110f	1	6.0	0.3	Defense?		
110g	1	5.0	0.3	Defense?		
110h	1	8.0	0.3	Defense?		
110i	1	10.0	0.3	Defense?		
110j	1	14.0	0.3	Defense?		

Appendix 6.e. *Continued*

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
110k	1	14.0	0.3	Defense?		
110l	1	9.0	0.3	Defense?		
110m	1	7.0	0.3	Defense?		
110n	1	5.0	0.3	Defense?		
110o	1	13.0	0.3	Defense?		
110p	1	5.0	0.3	Defense?		
110q	1	6.0	0.3	Defense?		
110r	1	7.0	0.3	Defense?		
110s	1	9.0	0.3	Defense?		
110t	1	15.0	0.3	Defense?		
111	1	100.0	0.3	Defense		
112	2	200.0	1.0	Defense		
113	1	?		Defense		
114	4	145.0	2.0	Def/ret		T. 1152, 1225–7, 1229–30, 1235–6, 1248–53
115	4	135.0	2.0	Def/ret		T. 1154–6, 1158–9, 1161–3, 1165, 1175
116	4	33.5	3.0	Retention		T. 1167–1169
117	4	85.0	1.5	Def/ret		T. 1042–3, 1047–50, 1063–4, 1066–7
118	4	40.0	0.5	Retention		T. 1044–1046, 1061
119	4	45.0	1.0	Retention		T. 1024–1025, 1131, 1133–1134
120	4	50.0	0.5	Retention		T. 1144–1148
121	4	37.5	0.5	Retention		T. 1139, 1142–1143
122	4	40.0	1.0	Retention		T. 993–995
123	4	30.0	1.0	Retention		T. 1114–1116
124	4	70.0	1.5	Def/ret		T. 977–978, 1107–1108, 1110, 1113
125	4	60.0	1.3	Retention		T. 968–969, 973–975
126	4	77.5	1.5	Def/ret		T. 921, 923–928
127	4	40.0	1.5	Retention		T. 905, 915–917
128	4	72.5	2.0	Retention		T. 876–878, 906, 910–912
129	4	35.0	2.0	Retention		T. 856–857
130	4	20.0	1.0	Retention		T. 850–852
131	4	40.0	1.5	Retention		T. 843–845
132	4	60.0	2.0	Retention		T. 831, 833–834, 836, 838–841
133	5	50.0	2.0	Def/ret		T. 595–599
134	5	65.0	2.0	Def/ret		T. 608–610, 613–616
135	5	20.0	1.0	Retention		T. 620–623
136	5	50.0	1.0	Retention		T. 655, 657–660
137	5	47.5	0.5	Retention		T. 697–701
138	5	50.0	0.5	Retention		T. 644–646, 649–650
139	5	100.0	1.0	Def/ret		T. 626–632, 634–635, 637–638
140	5	50.0	1.0	Retention		T. 572–577
141	6	42.5	0.5	Retention		T. 562–565
142	6	97.5	2.0	Def/ret		T. 525, 543–550
143	6	55.0	1.0	Def/ret		T. 337–339
144	6	60.0	1.5	Def/ret		T. 432, 518–520
145	6	7.0	0.5	Access		T. 483
146	6	43.0	1.0	Acc/ret		T. 428–431
147	6	33.0	2.0	Retention		T. 438–439
148	6	55.0	1.0	Retention		T. 388–392
149	5	115.0	1.5	Retention		T. 478–480, 493–498
150	5	65.0	1.0	Retention		T. 506–508, 517
151	5	152.5	2.0	Def/Ret		T. 504–505, 671–674, 676–679
152	5	70.0	1.0	Retention		T. 454, 685–687
153	5	60.5	1.0	Def/ret		T. 408–409, 412, 418–419
154	4	45.0	1.0	Def/ret		T. 1192, 1194–1196
155	4	115.0	1.5	Def/ret		T. 1199, 1201–1204, 1206, 1208
156	9	50.0	4.0	Def/ret		T. 238–240, 405
157	9	80.5	1.5	Def/ret		T. 192–196
158	10	55.0	1.0	Def/ret		T. 202, 204–205
159	12	110.0	2.5	Def/ret		T. 102–108
160	12	50.0	1.0	Def/ret		T. 83, 100–101

Appendix 6.E. *Continued*

Wall	Section	Length	Height	Function	Associated Structures	Associated Terraces
161	12	20.0	1.0	Retention		T. 119–120
162	12	30.0	1.0	Def/ret		T. 150–152
163	12	36.0	2.0	Def/ret		T. 123–124, 153
164	12	55.0	1.5	Def/ret		T. 26, 28–30
165	12	67.5	0.5	Retention		T. 67–70
166	12	75.0	1.0	Retention		T. 72–73
167	12	152.0	2.0	Def/ret		T. 75–77
168	7	15.0	1.0	Retention		T. 361, 363
169	2	55.0	1.0	Retention		T. 1346–1349
170	2	30.0	0.5	Retention		T. 1351–1353
171	2	34.0	1.0	Acc/ret	St. 19	T. 1356–1359
172	2	40.5	0.5	Def/ret		T. 1362–1366
173	2	55.0		Def/ret		T. 1405–1408
174	2	56.0	1.5	Retention		T. 1297–1298
175	2	70.0	0.5	Retention		T. 1369–1373
176	2	56.0	0.5	Retention		T. 1345, 1378–1380
177	2	49.0	0.5	Acc/ret		T. 1382–1385

Appendix 6.F. El Palmillo Stairway Summary

Stairs	Section	Length	Width	Area	Associated Structures	Comments
1	12	25.5	10.5	267.8		Could have been a ramp
2	12	10.0	7.0	70.0		Seven steps visible
3	11	5.0	4.0	20.0		Six total steps
4a	8	8.0	5.0	40.0		Five levels
4b	8	8.0	2.0	16.0		Two levels
5	8	5.5	4.0	22.0		Four steps
6	6	10.0	4.0	40.0		13 steps visible
7	6	5.0	5.0	25.0		Four steps
8	7	6.0	4.0	24.0		Four levels visible
9	5	7.0	3.5	24.5		10 steps
10	6	3.0	1.5	4.5		Very eroded, wider at top
11	6	7.0	1.0	7.0		Six levels visible
12	5	5.0	4.0	20.0		Nine levels, top three are most visible
13	5	12.5	2.5	31.3	W. 73, St. 51	Two or three steps visible, probably ramp
14	4	13.0	2.0	26.0	T. 912	
15	4	16.0	2.5	40.0		Seven levels visible
16	4	8.0	2.3	18.0		Six or seven levels
17	4	8.0	3.0	24.0		Seven levels
18	3	32.0	2.5	80.0		Composed of three sections, each about 8–10 m
19	2	13.0	5.0	65.0		14 steps, part of ancient road
20	2	6.0	1.0	6.0		One well-preserved step
21	1	5.0	3.0	15.0		Three steps
22	6	3.0	3.0	9.0	T. 335	Two well-preserved levels

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