PREHISPANIC SETTLEMENT DYNAMICS IN CENTRAL OAXACA, MEXICO

A View from the Miahuatlan Valley

By
Charles W. Markman

Vanderbilt University
Publications in Anthropology
NO. 26
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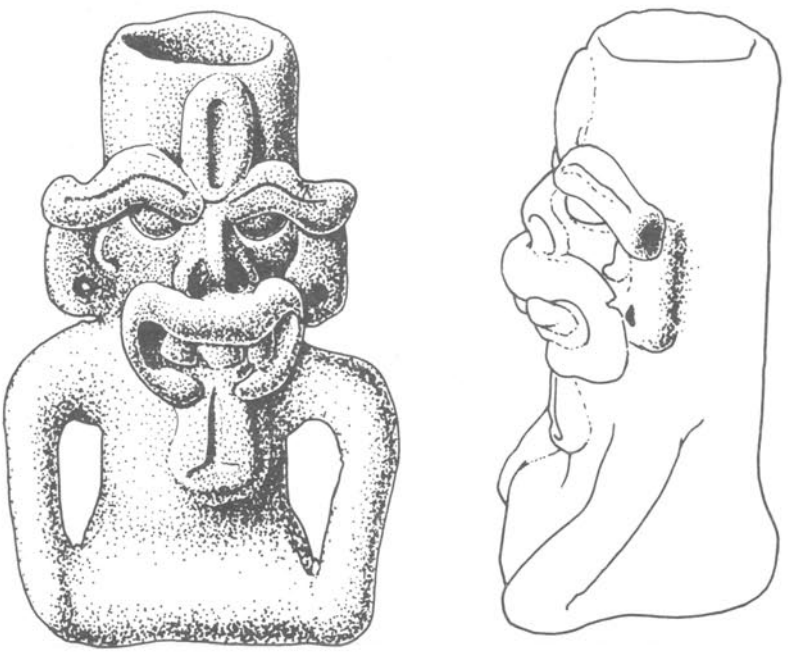

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To my parents.

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Frontispiece. Transect 3, looking southeast. The limestone plateau at Almolongas is seen across the Miahuatlan River.

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PREFACE

During 1975-1976 an archaeological settlement patterns survey of the Miahuatlan River drainage was conducted; 300 square kilometers were investigated, and 49 new sites were discovered, adding to the 16 sites reported earlier by Donald Brockington (1973) and complementing surveys conducted in the adjacent Valley of Oaxaca. The investigations which form the basis of this monograph were made possible through the support of the Centro Regional de Oaxaca, Instituto Nacional de Antropología é Historia. I am particularly indebted to Manuel Esparza, director of the Centro Regional, who acted in response to the threat of further damage to archaeological resources in Miahuatlan, granted permission for the field study, cleared the way with officials of the local municipalities, and provided access to various facilities of the Centro when they were needed, thus fostering the success of the research program.

I am most grateful to Marcus Winter, director of the archaeological section of the Centro Regional de Oaxaca, for generously offering his time, help, and advice.

I thank Álvaro Arturo Ramírez Vásquez, caretaker of antiquities of the Centro, who often accompanied me during the reconnaissance and shared his knowledge of the Miahuatlan area. I offer my appreciation to all others associated with the Centro Regional de Oaxaca for their cooperation and helpfulness.

John Rees and his students, Rosemary Pepito and Tibor Szalay, were most helpful in conducting a study of local physiography and contemporary land classification.

The hospitality of town officials of Miahuatlan and the surrounding villages and the residents of the area greatly facilitated the completion of work. For their assistance and companionship during the survey I thank Argeo Alcántara and Vicente Olivera and the numerous laborers of the Secretária de Recursos Hidráulicos who patiently conducted their excavations according to archaeological specifications.

I acknowledge with gratitude William Autry, Joffre Coe, Carole Crumley, Richard Diehl, Lawrence Feldman, John Gulick, Joseph Mountjoy, John Paddock, William Payne, and Richard Yarnell, for the help they have provided in so many ways.

I am most grateful to a number of people who have assisted in the tedious tasks of preparing the manuscript and graphics: to Álvaro Galán for drawing Plates 1-5, 8-21, 22 c, and 23 c; Sr. Cerantes, Plates 6 and 7; Chris Stilson for preparing the cover figure and Plates 15 b, 22 a, 23 a; Sarah Markman, for providing technical suggestions for preparing graphics and for donating long hours of her time to drafting and lettering maps; to Lewis Bateman for voluntarily undertaking the arduous task of proofreading the manuscript at several stages of preparation; to Laura Oaks, Louisa Markman, Malvina Markman, and Anita Bosau for typing various drafts.

Charles William Markman
August 1980

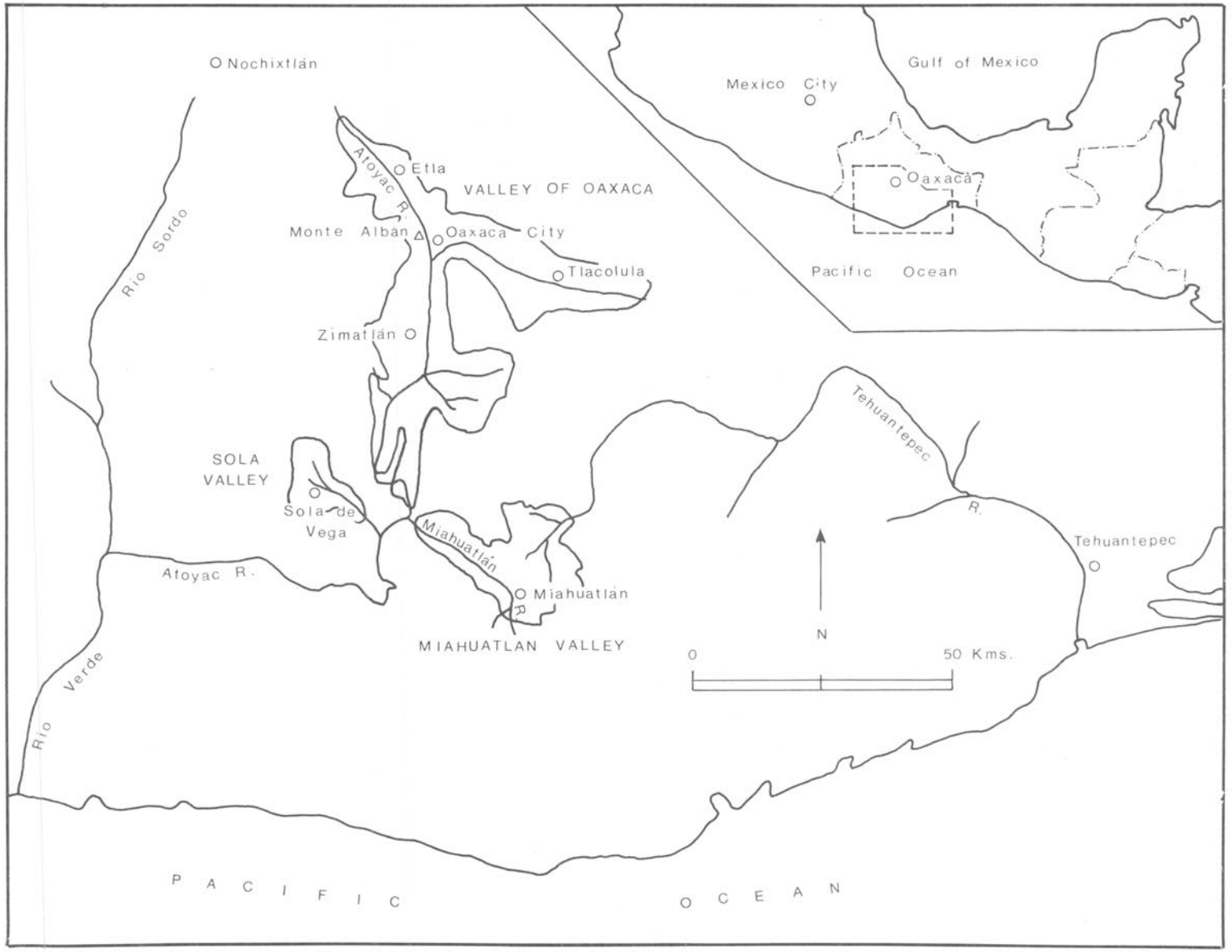

Figure 1-1. Central and Southern Oaxaca with the Central Valleys.

CHAPTER I

INTRODUCTION

General Background

The Classic Period in Mesoamerica is chiefly characterized by urban centers with large concentrations of population (Table 1-1). Yet even before the Classic, by the end of the Formative Period, one of the earliest of these centers, Monte Alban, was founded atop a mountain at the hub of the three branches of the Valley of Oaxaca (Fig. 1-1). At the end of Monte Alban Period I, this site already may have been inhabited by more than 10,000 people (Blanton 1978:44). By this time, important artistic, intellectual, and technical attainments are manifest in the archaeological record of the highlands of Oaxaca suggesting that the social differentiation and specialization defining an urban society had been achieved: "calendrics, hieroglphyic writing, a distinctive regional style, a bas-relief stone carving, and massive stone masonry architecture" (Flannery1968:98).

The present study primarily examines the spatial aspects of urbanization by exploring the system of settlement patterns in which the developments at Monte Alban took place; it begins to construct a dynamic model of urbanization and to delineate the circumstances under which regional aggregation and dispersal are likely to occur in human societies. The Miahuatlan Valley was selected because, though distant from Monte Alban, it is a part of the larger region involved in the developments there and provides a perspective upon the events there. Geographical and historical reasons exist for including the Miahuatlan Valley in the same interaction sphere with the Valley of Oaxaca. First, these valleys are part of a connecting series of highland valleys in the center of the state of Oaxaca; the Miahuatlan Valley is essentially a continuation of the southern branch of the Y-shaped Oaxaca Valley (Fig. 1-1). Second, the indigenous population of the Miahuatlan and Oaxaca valleys today, as in the Colonial Period, are Zapotec speakers. Though the Southern Zapotec dialect of Miahuatlan and the Valley Zapotec dialect of the Oaxaca Valley are distinct, they are derived from a common linguistic source, suggesting that the two valleys were probably part of a single Highland Zapotec culture area in the prehispanic past. Linguistic divergence is estimated to have occurred some seven centuries ago (Rendón 1967). Continuity in the archaeological record of Oaxaca suggests that the present Zapotec tradition can be traced to cultural manifestations from at least 200 A.D. and probably from 1400 B.C. Finally, the cultural affinity of the two valleys is further substantiated by the numerous stylistic connections between the ceramics of the Miahuatlan Valley and those of Monte Alban and sites in its immediate surroundings (Brockington 1973).

Geography and Natural Environment

The Miahuatlan Valley lies directly south of the Valley of Oaxaca. The entrance to the valley is some 80 km from Oaxaca City and Monte Alban (Figs. 1-1 and 1-2).

The Miahuatlan Valley is drained by two systems of streams. The first is the drainage system of the Miahuatlan River, originating in the hills a short distance above the town of Miahuatlan and fed by various permanent streams along its course. The main river can be forded easily on foot in many places except during brief periods of torrential downpour at the height of the rainy season. Flowing westward the Miahuatlan River joins the Atoyac River that eventually empties into the Rio Verde. A second stream system is separated from the Miahuatlan River by a very low divide. In the eastern area of the valley, sometimes referred to as the Valle de Totolapan (Welte 1973), streams eventually feed into the Tehuantepec River (Fig. 1-1).

The area under investigation is restricted to the drainage of the Miahuatlan River, the western portion of the valley, an area made up of three physiographic zones: a mountain, a piedmont, and a riverine zone. Within each, several specific environmental site settings are distinguished that are described in Chapter II under the subheading Environmental Setting. The Miahuatlan River cuts a sinuous channel down the middle of the valley and has produced a narrow floodplain 100 m to 300 m

Table 1-1. Miahuatlan and Oaxaca Valley Chronology.

	Miahuatlan Valley Sequence	Oaxaca Valley Sequence	Major Mesoamerican Developmental Phases
1521			
	Period V	Monte Alban V	Postclassic
1000	Period IIIb-IV	Monte Alban IV	
		Monte Alban IIIb	Classic
700	Transición-IIIa	Monte Alban IIIa	
200		Transición II-IIIa	
A.D. / B.C.	Period II	Monte Alban II	Late
150	Period I	Monte Alban I	
600		Rosario	Middle Formative
700		Guadalupe	
800		San José	
1150		Tierras Largas	Early
1400		Espiridion	
1600			

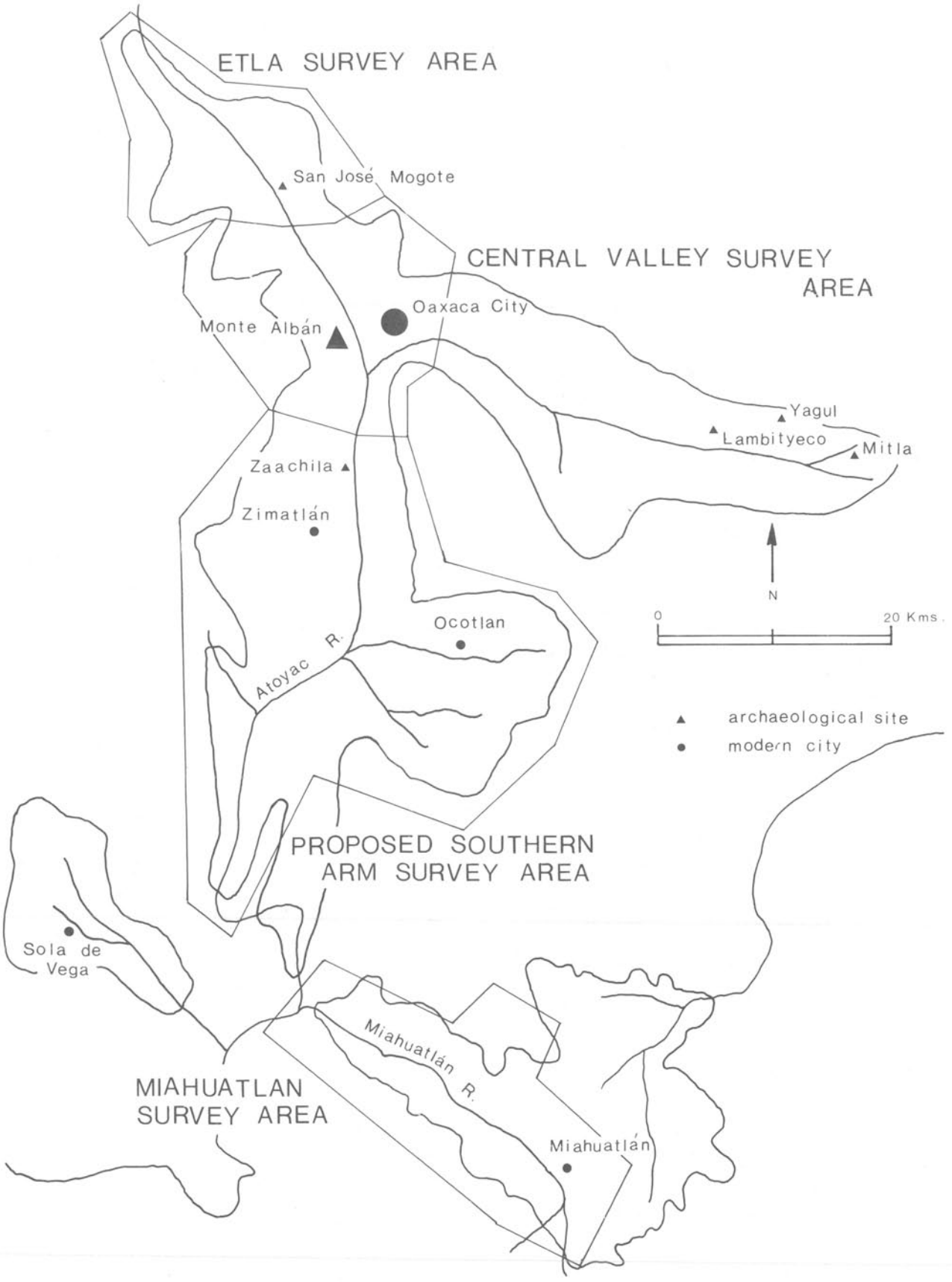

Figure 1-2. Surveyed Areas of the Oaxaca and Miahuatlan Valleys.

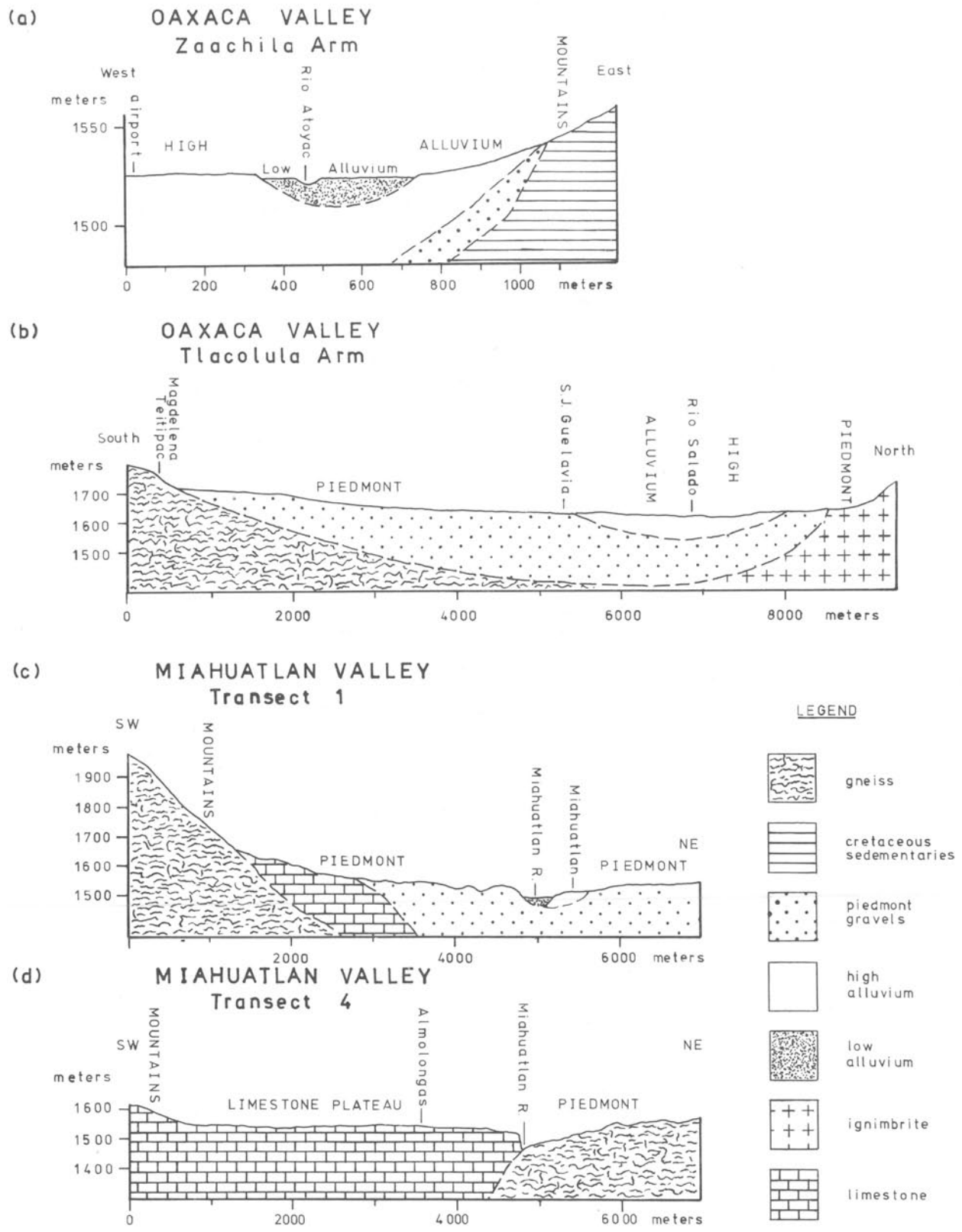

Figure 1-3. Physiographic Profiles of the Oaxaca and Miahuatlan Valleys. All profiles have a vertical exaggeration of four times the horizontal scale. Profile (a) is drawn at a larger scale than (b), (c), and (d).

wide along much of its course (Fig. 1-3 c). This floodplain is highly unstable and the extent of land plots in the zone can vary from one year to the next. There were areas of floodplain near Yogana that appeared on an eight-year-old aerial photograph but had been completely washed away. Local informants said that the loss of these riverside farming plots had occurred with the rains and flooding of only the previous year.

This area of low alluvium was agriculturally important during the entire archaeological sequence though the active downcutting and deposition of the river make it difficult to project the extent of this area into the past. Furthermore, the location of the river and its floodplain has not changed through the sequence, and Period I sites presently located on river banks most likely were river bank sites when they were originally occupied. Because the valley has a steep gradient on both sides of the river, its meandering has been largely limited to the narrow zone of the present-day floodplain (Fig. 1-3).

Extensive segments of the river pass through canyons where even this narrow floodplain is missing (Fig. 1-3 d). The broad alluvial plain of prime agricultural land that characterizes the neighboring Valley of Oaxaca is absent (Fig. 1-3). There are limited areas of upper alluvium that tend to have a high water table, from 1.5 m to 6 m. During more pluvial epochs of the past, there might have been fairly extensive areas conducive to pot irrigation (drawing water with a pot from shallow wells). According to one local informant pot irrigation was practiced within his memory in these areas of upper alluvium, but with the advent of gasoline pumps the practice has ceased.

Increased use of gasoline pumps for irrigation in the past ten years, along with other factors, may have lowered the water table. Recent population growth and the use of wells for obtaining water for household use and watering garden plots quite likely have affected the level of ground water, especially within the town of Miahuatlan. At the time this survey was conducted water pipes were being installed in many sections of town for the first time. Previously, each house had its own backyard well. Though the water table in town is 6 m to 8 m below ground surface, a short distance outside the town water can be reached by digging no more than 1.5 m into the soil of the same upper alluvium.

Most of the area between the river and the base of the mountains on either side is part of a dissected piedmont with hilly terrain and rocky surfaces. Presumably the physiography of the Miahuatlan Valley has significantly limited population growth and urban development in the area in contrast to the urbanization of the Oaxaca Valley

Like the floor of the Valley of Oaxaca the low lying areas of the Miahuatlan Valley remain frost free throughout the year. Climate and vegetation do not significantly differ in the two valleys, though the Miahuatlan Valley is probably more similar to the drier portions of the Valley of Oaxaca. Miahuatlan is located in a rain shadow and receives less than 700 mm annual rainfall.

The vegetation corresponds to comparable zones of the Valley of Oaxaca because the bordering valleys are at the same elevation. Presumably, aboriginal vegetation would be similar. The low alluvium of the Miahuatlan River and its permanent tributaries would have had a mesophytic forest of willow (Salix), alder (Alnus), and bald cypress or ahuehuete, locally referred to as sabino (Taxodium mucronatum). Remnants of this vegetation can be seen along the headwater tributaries though the river floodplains are almost constantly under cultivation. The carrizo or cane (Arundo donax), which today lines the river edges and dry stream beds, would not have been present as it is of Old World origin.

The zone of upper alluvium, a setting including only the town of Miahuatlan and its immediate surroundings, would have consisted of a forest of deciduous species dominated by mesquite (Prosopis juliflora). The piedmont would have been covered with a thorn-scrub cactus deciduous forest including mesquite and other legume trees such as guaje (Leucaena), tepeguaje (Cassia), and acacia (Acacia) as well as prickly pear or nopal cactus (Opuntia spp.), maguey (Agave), yucca cactus (Yucca), and organ cacti (Lemaireocereus, Myrtillocactus, and Cephalocereus). The mountains, recently cleared by the inhabitants for firewood, would have had a cover of mainly oak (Quercus spp.) and pine (Pinus spp.) but also manzanita (Arctostaphylos), mesquite (Cassia), and palm (Brahea dulcis), used today for thatching (Smith 1978).

Field Methods

In order to reconstruct the prehispanic history of the Miahuatlan Valley and to identify a system of human settlement, land use, and the factors, both natural and cultural, involved in the system's transformations, it was necessary (1) to locate and date archaeological surface remains in the drainage area of the Miahuatlan River and thereby produce a series of maps, each showing the settlement pattern of a period of prehistory; (2) to discern shifts in the size and distribution of population in the Miahuatlan area; (3) to examine the relationship between settlement patterns of the Miahuatlan Valley with those of the Valley of Oaxaca. The present study is complementary to the Valley of Oaxaca Settlement Pattern Project that was begun in 1971. So far, detailed settlement information is available from surveys conducted at Monte Alban by Richard Blanton (1978), by Dudley Varner (1974) in the Etla branch of the valley, and by Steven Kowalewski (1976) in the central portion of the valley, the area immediately surrounding Monte Alban (Fig. 1-2).

Surface Survey

The field survey of the Miahuatlan River drainage was conducted from May 1975 through May 1976. Some 300 square kilometers were investigated, and 49 new sites were discovered in addition to those reported earlier by Donald Brockington (1973).

One hundred percent of the ground surface was surveyed on foot within a 50 square kilometer pilot area surrounding the town of Miahuatlan (Fig. 1-4). However, due to the constraints of time and budget it was not possible to continue this type of ground coverage over the remaining 250 square kilometers. Thus, sites were located mainly by using conventional methods of reconnaissance, by questioning local people and by using air photographs to locate more prominent remains. Also Sr. Alvaro Arturo Ramírez Vásquez, inspector of archaeological sites for the Oaxaca center of the Instituto Nacional de Antropología é Historia (INAH), was most helpful as he had walked much of the valley in the course of his work and was able to share his knowledge of site locations.

A transect sampling survey was implemented to complement the conventional reconnaissance so that a comparison of the results might indicate survey biases. The results of the sampling survey present convincing evidence of the thoroughness of the initial conventional survey, as not a single site of any type was discovered within the intensively sampled transects which had not been previously noted during the conventional survey.

The sampling design was modeled after the systematic or interval transect design described by Judge, Ebert, and Hitchcock (1975:98-103) and was selected because it was somewhat better than other designs as an indicator of site frequency and of the environmental distribution of archaeological remains (ibid.:107). The first step in implementing the design was to map and define a 30 km x 7 km sampling universe running southeast to northwest with the course of the Miahuatlan River (Fig. 1-4). This block was divided into a total of 60 transects, each 0.5 km wide and 7 km long. The transects ran perpendicular to the river and, with some exception, perpendicular to the environmental strata of the valley as well. The initial transect was selected at random and the remaining five were spaced systematically at 5 km intervals. Thus, 10 percent of the sampling universe was intensively tested (Fig. 1-4). The results of the transect survey are reported in Table 1-2 and can be compared with Table 1-3 that represents data obtained by conventional means from the entire 30 km x 7 km sampling universe.

On a very general level the two sets of data parallel each other. Low percentage values in Table 1-3, for the most part, do not appear on Table 1-2 as would be expected in a small sample. Likewise large values from the general survey tend to appear as large values in the transect sample data. However, the discrepancies between the tables are significant, especially the exaggeration in Table 1-2 of the proportion of sites found in areas of limestone plateau. This aspect of the transect sampling data is most easily understood in terms of the chance location of Transect 4 that follows a permanent tributary stream across a broad area of limestone plateau (Fig. 1-4 and Fig. 1-3 d). The zone surrounding the course of this stream represents one of the few good agricultural zones besides the bottomlands of the Miahuatlan River. This transect is also an area of archaeological site concentration. Because few sites are represented in the transect sampling data, this site distributional feature is exaggerated.

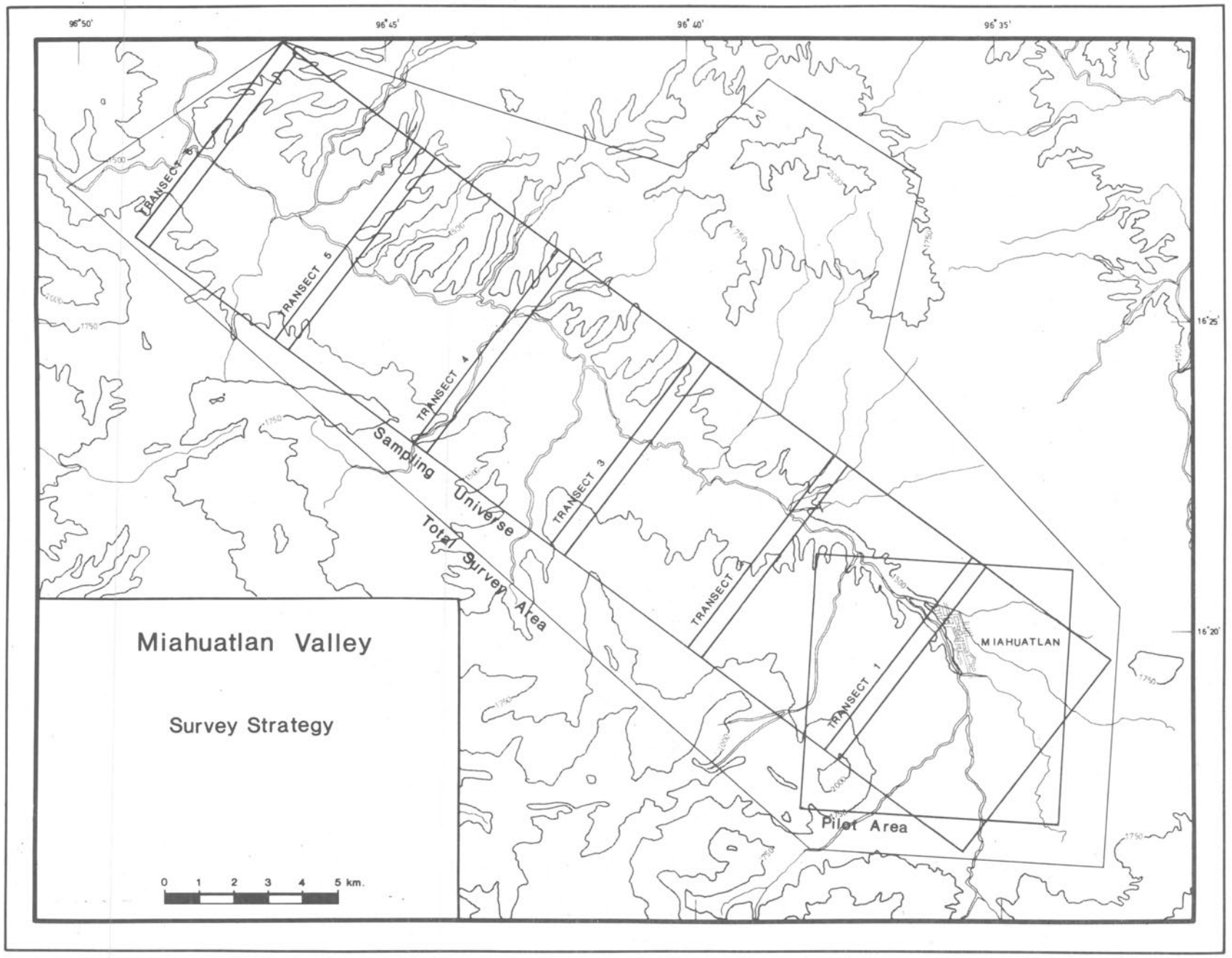
96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
TRANSECT 6
TRANSECT 5
TRANSECT 4
TRANSECT 3
TRANSECT 2
TRANSECT 1
Sampling Universe
Total Survey Area
Pilot Area
MIAHUATLAN
Miahuatlan Valley
Survey Strategy
0 1 2 3 4 5 km.

Figure 1-4.

Table 1-2. Interval Transect Design Sample Frequencies.[a]

Variables	Riverine Zone			Piedmont		Mountain	
	River Banks	Upper Alluvium	Piedmont Spur	Limestone Plateau	Rolling Piedmont	Hill Flanks	Hill Top
			Frequency Per Site Class				
Town							
Village	14.3			42.9			
Hamlet	21.4	7.1		14.3			
Isolated Residence							
Isolated Ceremonial Place							
			Frequency Per Cultural Period				
Period I				14.3			
Period II	7.1			14.3			
Trans-IIIa Period							
IIIb-IV	14.3			7.1			
Period V	14.3	7.1		21.4			

[a]This table is based on a total sample of 14 occupational units from 7 archaeological sites found in the 6 transect strips. Three of the sites have multiple temporal components. Frequencies are calculated as a percentage of the total number of temporal components. In other words, each occupation of a multicomponent site is treated as a separate unit.

Table 1-3. Frequencies of the Total Sites Recovered within the Selected Sampling Universe.[a]

	Riverine Zone			Piedmont		Mountain	
	River Banks	Upper Alluvium	Piedmont Spur	Limestone Plateau	Rolling Piedmont	Hill Flanks	Hill Top
			Frequency Per Site Class				
Town	4.4						1.8
Village	5.3			7.0	6.1		
Hamlet	34.2	7.0	5.3	8.8	2.6		1.0
Isolated Residence	11.4		1.0		1.0		1.0
Isolated Ceremonial Place				1.0			
			Frequency Per Cultural Period				
Period I	6.1	1.0		3.5	1.0		
Period II	8.8	1.0	1.0	5.3			
Trans-IIIa Period	8.8		1.0	1.0	1.8	1.0	
IIIb-IV	12.3	1.8		2.6	1.8		1.8
Period V	19.3	3.5	4.4	4.4	5.3	1.0	1.8

[a]This table is based on a total sample of 114 occupational units from 52 archaeological sites within the 7 x 30 km sampling universe. Twenty-seven sites have multiple temporal components. Frequencies are calculated as a percentage of the total number of temporal components. In other words, each occupation of a multicomponent site is treated as a separate unit.

The thoroughness of the conventional survey is confirmed both directly and indirectly; for no sites were located in the intensively surveyed transect strips that had not been discovered by conventional means, and the results of the transect sampling survey are more easily explained in terms of the data obtained in the conventional survey than vice versa.

Excavations

Stratigraphic testing was conducted at four sites as part of a salvage operation conducted in conjunction with the installation of a system of running water by the Secretaría de Recursos Hidráulicos (SRH) in the town of Miahuatlan. These excavations, especially those at Site 1A, complement the surface survey by providing ceramics from a stratified context to help in the dating of surface materials. Excavations at Site 1A are reported in Chapter II as part of the site description, and the ceramics are tabulated in the Appendix.

Levels of Analysis

This study constructs a model to explain the development and decline of Monte Alban, the capital of the Classic Period Zapotec state, as well as other regional developments in Prehispanic Central Oaxaca, and proceeds through four levels of analysis: (1) descriptive, (2) historic synchronic, (3) historic diachronic, and (4) explanatory. The descriptive level delineates the distribution of archaeological remains over the landscape. Archaeological remains are organized into a series of analytical units which increase in scale. The units are each defined in terms of elements of a preceding smaller scale, i.e., sites are described as configurations of architectural and artifactual elements, settlement patterns as configurations of sites. The summary analysis attempts to piece together the settlement patterns of the Miahuatlan Valley with surveyed areas of the Oaxaca Valley and to examine urbanization in the combined areas. To achieve these ends, methods were selected that led to the comparison of the areas on the basis of archaeological criteria alone and that avoided the use of interpretive settlement classification schemes implying a tiered hierarchy of settlement as suggested by Central Place Theory (Christaller 1966) but now doubted as an appropriate description and explanation for human settlement systems (Berry 1971; Crumley 1979).

The historic synchronic level demonstrates the distribution of settlements over the landscape through a series of maps with one map for each ceramic phase and thereby reconstructs the distribution of communities and of human population at each point in time.

The historic diachronic level delineates societal and cultural trends from the series of synchronic settlement configurations and the factors involved in transforming the one settlement configuration to the next. Such factors can be indirectly derived from the settlement data and include: population history, economic developments, and sociopolitical or organizational developments. At this level, causal relationships between these various factors are sought. Presently, causal sequences are difficult to identify because of the very long duration of the ceramic periods and because of the inadequate understanding of the relationship between archaeological sites and the original communities. The causal connections between seemingly concurrent events are the subject of speculation and are presented as hypotheses.

The explanatory level attempts to design a predictive model of settlement and the concluding discussion outlines the necessary features and components of such a model.

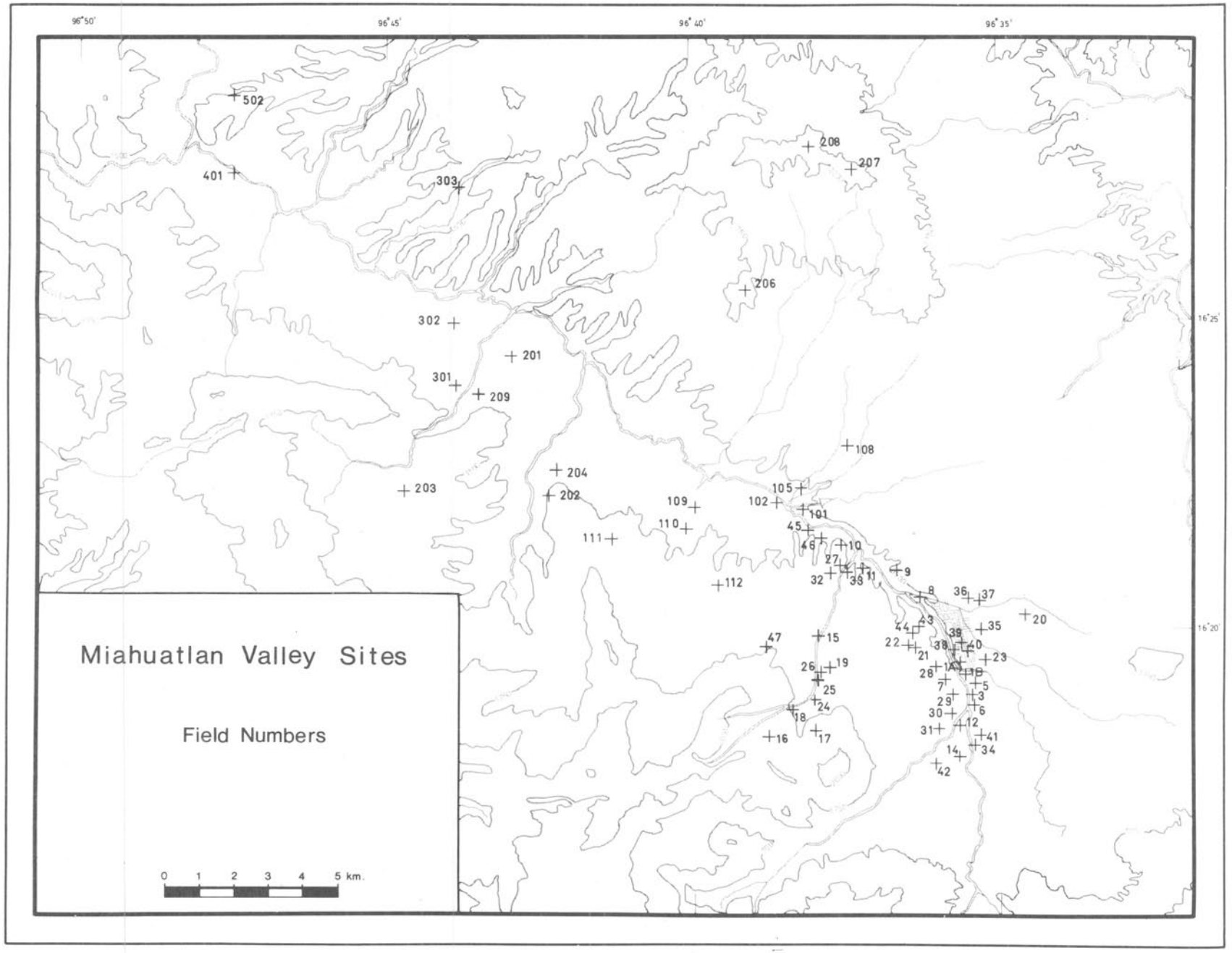
96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
Miahuatlan Valley Sites
Field Numbers
0 1 2 3 4 5 km.

Figure 2-1.

CHAPTER II

SITE DESCRIPTIONS

Sites and Settlements: Interpretation and Classification

The "site," used as a basic unit of analysis in this study, is operationally defined as an isolated agglomeration of archaeological remains that identify a locus of past human activity. A site ideally should constitute a meaningful unit within the culture in which it was produced. However, there are significant problems in reconstructing abstract societal or community structures from archaeological remains. At this stage in the study of the Miahuatlan Valley, site functions and intersite relationships are poorly understood. Thus, in order to distinguish functional settlement types, the following assumptions are made. First, all sites and site areas are assumed to have been habitational zones, except for areas occupied by civic-ceremonial or public structures or localities containing remains that can be identified as the result of limited activities. Second, mounds higher than 2 m are assumed to be civic-ceremonial structures. Third, groupings of low mounds oriented together to form architectural complexes are assumed to be civic-ceremonial structures. Though such groupings might represent high status houses (Winter 1976a), presumably such houses would be loci of public decision making functions related to government and ritual activity.

Where less than 100 m separate areas of archaeological refuse, these areas are described as components of a single site, though in some cases each area is assigned a distinct site number. Two separate sites are noted if a break of more than 100 m separates two areas of archaeological refuse, a procedure consistent with reporting in the Tehuacan Valley (MacNeish et al. 1972:355), in the central portion of the Valley of Oaxaca (Kowalewski 1976), and in various other Mesoamerican settlement pattern studies. The 100 m rule is justified on the basis of its practicality as a cataloguing device though it may bear little relationship to the spatial patterning of the pre-existing community. In many modern communities, residential groupings separated by far more than 100 m represent components of a single settlement or community. The dispersed community may offer a model for prehispanic settlement. Almolongas and Yogana, for example, are each made up of several barrios separated by as much as 1 km. Each of the barrios consists of from two to a dozen houses. Church and town hall are located in a central barrio that has very few permanent inhabitants. In Almolongas, town officials live outside the central barrio and make only infrequent visits to the town hall. Despite the unity of such communities, archaeological data would indicate that these subdivisions of a larger community are separate and distinct settlements.

The contemporaneity of sites must be demonstrated before the archaeologist can proceed to reconstruct functional linkages which existed between the physical units of the settlement system, but because most sites in the Miahuatlan Valley were occupied during more than one ceramic period it is difficult to establish the contemporaneity of sites. It is also difficult to define the physical dimensions of any one site for a particular period. When possible, the dates of architectural features are noted in the site description as well as changes in the extent of the site through time.

Table 2-1 presents a summary of the information found in the site descriptions. In this tabular presentation, sites are grouped together period by period with multicomponent sites listed again in each phase of occupation.

Site Numeration

The heading of each site description consists of a designation assigned on the basis of the site's location. Numbers 1 through 99 were used for sites within the area surrounding the town of Miahuatlan. Sites 101 and above are beyond the second sampling transect, 201 and above beyond the third, 301 and above beyond the fourth, 401 and above beyond the fifth, 501 and above beyond the sixth transect (Figs. 1-4 and 2-1).

The following discussion deals with the type of information included within each subsection of the site descriptions.

Previous Designation

Usually the larger more impressive sites have been named by local people. These names are listed under the heading Previous designation.

Environmental Setting

Within each of the three major physiographic zones, the riverine zone, the piedmont, and the mountains (see Chapter I), several site settings are distinguished. The riverine zone settings include: (1) river banks, (2) upper alluvium, and (3) piedmont spur; the piedmont settings, (1) rolling piedmont and (2) limestone plateau; the mountain zone settings, (1) hilltop and (2) hill flanks. All these settings can be considered subdivisions of the corresponding major zone except for the river banks and piedmont spur. These settings are at the border of the piedmont and the alluvial areas.

The Riverine Zone. Site settings that are categorized as riverine include the areas of high ground immediately adjacent to the flood-prone alluvial areas, settings that are located for easy access to the desirable alluvial soils. Neither modern communities nor archaeological sites are to be found in the lower alluvium itself.

The "river banks" category of setting applies to sites located along the Miahuatlan River on the hills immediately above the narrow expanses of silty floodplains. In some cases, these hills are alluvial terraces deposited previous to the downcutting of the river. In others, the river banks are rocky piedmont spurs jutting into the lower alluvium.

Settings classified as "upper alluvium" are relatively rare in this region, most being located on a broad flat area of alluvial soil deposited by the Miahuatlan River previous to downcutting to its present level. At present there is further deposition from small meandering tributary streams that are dry except during the height of the rainy season.

A third type of ecological geographic setting within the riverine zone is the "piedmont spur." Sites falling within this category are located on piedmont spurs that jut into areas of upper alluvium. Sites that are located on spurs jutting into areas of lower alluvium are not designated "piedmont spur" sites but "river bank" sites. The difference between these two site settings is significant. Piedmont spur locations are adjacent to zones of upper alluvium conducive to pot irrigation, and river bank locations are in areas suitable for canal irrigation.

The Piedmont Zone. There are two subdivisions of the piedmont zone and two corresponding environmental settings, the rolling piedmont and limestone plateau. They are distinguished according to geological derivation, topographic characteristics, and drainage patterns. In the rolling piedmont, soils are derived from decomposed metamorphic rock, mainly gneiss, and have a high clay content; the terrain is variegated, a rolling countryside made up of alternating ridges and gullies. In the limestone plateau, thin soils are derived from underlying limestone; the terrain slopes more gently or is nearly flat; little surface water is found except in locations where subterranean streams emerge as springs; where streams run above ground they tend to cut canyons with precipitous walls.

The Mountain Zone. The mountains begin abruptly at the edge of the piedmont, rising 200 m to 500 m above the surrounding countryside. Scarce water, thin soils, and steep terrain make this upland region poor for agriculture. However, the natural vegetation of the mountains includes many useful resources not available in the piedmont and riverine zones. Today, the upland region is a source of firewood, palm thatch, many herbs, and medicinal plants. In the archaeological past this area was also an important source of game. The depletion of game seems to be quite a recent phenomenon. Elderly residents of the region recall that even within their lifetimes deer, coyotes, and other wildlife abounded.

Two environmental settings are found within the mountain zone and are distinguished on the bases of topographical situation. They are "hilltop" and "hill flanks" settings.

Modern Utilization

Present-day land use within the site area is noted. In some cases, site areas are completely abandoned. More often archaeological zones are farming plots or residential areas.

Chronological Site Number(s)

Many sites in the Miahuatlan Valley seem to have had long-term occupation spanning several chronological periods. Each period of occupation of a site is assigned a chronological site number which is a three part designation. For example, in the designation MIA-V-6 the prefix "MIA" indicates the Miahuatlan drainage area, "V" indicates Period V, the period of occupation. Local chronology is based mainly on ceramic connections with the Valley of Oaxaca and five periods are distinguished (Table 1-1). The period of transition between Period II and IIIa is combined with Period IIIa; together they are designated "Trans-IIIa"; Period IIIb and IV are also combined and designated IIIb-IV. In both cases, periods are combined either because distinctions are not clearly understood or because known distinguishing attributes are not apparent in the weathered fragmentary surface ceramics. The distinction between IIIb and IV ceramics in some cases reflects spatial rather than temporal differences. Period IV was originally defined at Monte Alban not on the basis of changes in ceramic style but by the cessation of architectural construction (Caso, Bernal, and Acosta 1973:381, hereafter cited as CBA). Period IV ceramic diagnostics have since been identified in the Valley of Oaxaca at Lambityeco (Paddock, Mogor, and Lind 1968). However, these stylistic diagnostics first appeared at Lambityeco at a time at least partly contemporary with Period IIIb at Monte Alban (Paddock 1977:8).

In the dating of some sites, the results of investigations by Brockington (1973) could not be substantiated when revisited. The failure to confirm his dates can be attributed to small surface samples. For the sites where this was a problem, Brockington's dates were used for the present survey and these special cases are noted in the site descriptions.

The third item in the three part chronological site number is a number that distinguishes the contemporary components of the regional settlement configuration. For example, MIA-V-6 is the sixth Period V site listed in the Miahuatlan River valley. This final number is used to identify the site on the regional settlement pattern maps, Figures 3-2 through 3-6.

Archaeological Remains

Ceramic and non-ceramic refuse as well as architectural ruins are discussed under the heading Archaeological remains.

Architectural features described in this section include mound groupings, ball courts, house foundations, terrace structures, stucco floor fragments, and tombs. Simple burials are also noted as well as non-ceramic artifacts, mainly, metates and projectile points.

The site extent is indicated in the discussion of archaeological remains. Site dimensions were obtained in the field by pacing off the extent of archaeological refuse. In larger sites the dimensions of subareas of the site are reported and the discussion indicates which subareas were occupied in each period.

Dates are based on ceramic samples collected from the surface debris of each site. In the larger sites, samples were taken from each subarea. It was anticipated that this would provide information regarding site growth and decline.

A problem exists at multicomponent sites where it was most difficult to determine the extent of different temporal components as the bulk of ceramic debris consisted of non-diagnostic sherds. Thus, a procedure is followed whereby the entire site or site area under consideration is assumed to have been occupied during the period or periods indicated by the diagnostic sherds found there (for a discussion of the problems of dating ceramics see Appendix I).

Settlement Classification

The settlement classification designated in the final subsection of each site description is assigned on the basis of two criteria: (1) the extent of archaeological refuse and (2) the presence, absence, or elaborateness of architectural remains.

This settlement classification scheme is derived largely from settlement types used in the analysis of the Tehuacan Valley (MacNeish et al. 1972:355-357). Settlement types are defined as follows:

Town. There are no sites in the Miahuatlan Valley large enough or elaborate enough to meet the criteria of a city as defined in the Tehuacan report (MacNeish

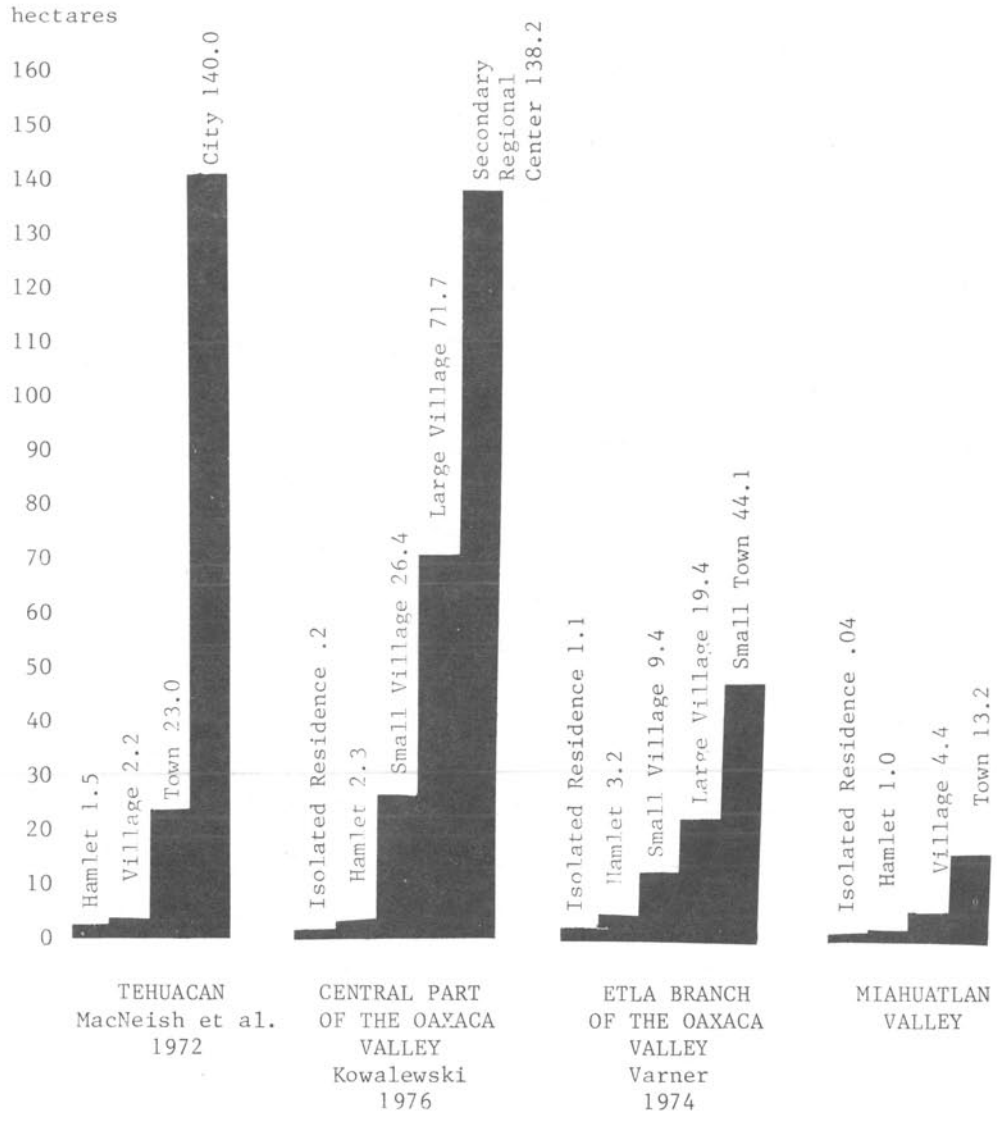

Figure 2-2. A Comparison of the Mean Extent of Settlement Types from Various Settlement Patterns Studies.

et al. 1972:356-357). The largest settlement type is the town that is defined as an archaeological configuration consisting of a refuse area of 0.75 h to 150 h and having two to four plazas or mound groupings. A gradation of structures exists ranging from large mounds to simple house platforms. The definition is adopted without alteration from that used in the Tehuacan report (MacNeish et al. 1972:356-357). However, the settlements that meet these criteria in the Miahuatlan Valley are much smaller than those of Tehuacan (Fig. 2-2). The average size of an archaeological town in the Tehuacan Valley is 23 h compared to 13.2 h in Miahuatlan. The largest Miahuatlan town measures 15 h.

Village. The village has a size range of 0.09 h to 20 h and contains civic-ceremonial architecture. Civic-ceremonial structures are defined above as mounds higher than 2 m or mounds oriented together to form architectural complexes.

Hamlet. The extent of the hamlet falls roughly within the same range as the village, 0.05 h to 20 h. This differs slightly from the Tehuacan criteria where hamlets are measured between 0.03 h and 20 h (MacNeish et al. 1972:355-356). The key distinction between the two settlement types is that the hamlet lacks public structures. Only at a few sites labeled as hamlets in the Miahuatlan Valley was there evidence of any kind of structures amidst the surface debris found. Perhaps further excavation and ethnobotanical analysis will demonstrate that some of the smaller sites were seasonal encampments. However, small sites almost always are located near prime agricultural lands suggesting that they are year-round farming settlements.

Isolated residence. The Tehuacan report does not use the category "isolated residence" though some of the smaller sites would be comparable to Miahuatlan isolated residences. At Miahuatlan, sites less than 0.05 h within the size range of household clusters at Monte Alban (Winter 1976b) and without any definite structures, are interpreted as the remains of isolated residences.

Isolated ceremonial place. Sites are interpreted to be isolated ceremonial places where civic-ceremonial structures are present, but additional areas of refuse possibly indicating habitational zones are absent.

This site classification scheme is used for mapping regional settlement patterns (Figs. 3-2 through 3-6). However, in the concluding analysis these taxa are not used for comparing urbanization and settlement patterns with other surveyed areas in the Valley of Oaxaca.[1]

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[1]The comparison of sets of data derived from different analytical procedures present problems as a comparison of settlement classification schemes of the Miahuatlan Valley, the Tehuacan Valley (MacNeish et al. 1972), the Etla branch of the Oaxaca Valley (Varner 1974), and the central portion of the Oaxaca Valley (Kowalewski 1976) shows.

Whereas the Tehuacan classification used in the Miahuatlan survey relies largely on architectural criteria for distinguishing settlement types, the system used by Varner (1974) and Kowalewski (1976) relies heavily on absolute size distinctions measured in population figures. Population, in turn, is derived from a combination of site extent and sherd density on the surface of a site. For the purpose of comparing terminology, Kowalewski's and Varner's data are presented here using only site extent. Figure 2-2 compares the mean site extent for each classification as used in each study. The chart attempts to show how each author uses interpretive terms such as "isolated residence," "hamlet," "village," and "town." For example, what Varner calls a "small town" lies somewhere between Kowalewski's "small village" and "large village." Furthermore, in the Miahuatlan Valley there is no equivalent to Varner's "small town." At one end of the continuum the distinction between "hamlets" and "isolated residences" is derived differently in each study and is a distinction that is not made at all at Tehuacan.

The differences in terminologies are not only the product of different classification systems but also a result of the nature of urbanization in each area of study. For example, in the Valley of Oaxaca the presence of civic-ceremonial architecture is not a criterion for distinguishing site types. Yet in examining the reports of Kowalewski (1976) and Varner (1974), most settlements designated villages do not have public architecture even though they may be as large or larger than "towns" as defined at Tehuacan (MacNeish et al. 1972). The absence of civic-ceremonial architecture at such large sites, especially during the Classic Period, probably results from the high degree functional centralization in the Valley of Oaxaca where administrative and ceremonial functions were taking place only at a very large center. Thus, the term "village" as used by Varner and Kowalewski refers to a physically larger and probably a functionally different phenomenon from what MacNeish, Peterson, and Neely mean by the term.

Table 2-1. Tabular Presentation of Survey Data.

Chronological Site No.	Site No.	Hectares	Class*	Setting†	Other Occupations
		Period I			
(MIA-I-)					
1	1A,1B,5	14.25	T	R	II,IIIa,IIIb-IV,V
2	8	.10	H	R	II,IIIa,IIIb-IV,V
3	10	.30	H	R	II,IIIa,IIIb-IV,V
4	22	.05	H	R	IIIb-IV,V
5	24	.25	H	LP	...
6	25,26	1.55	H	LP	II,IIIb-IV
7	28	l.t. .05	IR	R	V
8	40	.50	H	UA	II,IIIb-IV,V
9	42	.90	H	R	II,IIIb-IV,V
10	109	4.00	V	RP	IIIa,IIIb-IV,V
11	201	2.25	H	LP	II,IIIb-IV,V
12	203	3.75	V	HT	II,IIIa,V
13	301	6.00	V	LP	II,V
14	401	4.00	H	R	II,IIIa,IIIb-IV,V
		Total 37.95			
		Period II			
(MIA-II-)					
1	1A,1B,5,5A	15.00	T	R	I,IIIa,IIIb-IV,V
2	3	l.t. .05	IR	R	IIIa,IIIb-IV,V
3	8	.10	H	R	I,IIIa,IIIb-IV,V
4	10	.65	V	R	I,IIIa,IIIb-IV,V
5	12	.20	H	R	IIIa,IIIb-IV,V
6	19	.10	ICP	LP	...
7	26	.10	H	LP	I,IIIb-IV
8	33	.25	H	R	V
9	36	.10	H	PS	V
10	40	.50	H	UA	I,IIIb-IV,V
11	42	.90	H	R	I,IIIb-IV,V
12	46	l.t. .05	IR	R	IIIb-IV,V
13	101	.15	H	R	IIIb-IV,V
14	201	4.50	V	LP	I,IIIb-IV,V
15	202	6.00	V	LP	V
16	203	3.75	V	HT	I,IIIa,V
17	204	1.00	H	LP	IIIa,IIIb-IV,V
18	301	6.00	V	LP	I,V
19	401	4.00	H	R	I,IIIa,IIIb-IV,V
		Total 43.40			
		Period Transición-IIIa			
(MIA-Trans-IIIa-)					
1	1A,1B,5,5A	10.25	T	R	I,II,IIIb-IV,V
2	3	l.t. .05	IR	R	II,IIIb-IV,V
3	7	.65	H	R	V
4	8	.10	H	R	I,II,IIIb-IV,V
5	10	4.00	V	R	I,II,IIIb-IV,V
6	12	.20	H	R	II,IIIb-IV,V
7	23	2.80	H	PS	V
8	30	.50	H	R	IIIb-IV,V
9	31	l.t. .05	IR	R	...
10	41	.10	H	R	...

Table 2-1. (Continued)

Chronological Site No.	Site No.	Hectares	Class*	Setting†	Other Occupations
11	47	1.00	H	HF	V
12	109	4.00	V	RP	I,IIIb-IV,V
13	110	3.75	V	RP	IIIb-IV,V
14	203	3.75	V	HT	I,II,V
15	204	1.00	H	LP	II,IIIb-IV,V
16	206	3.00	V	HT	IIIb-IV,V
17	401	4.00	H	R	I,II,IIIb-IV,V
		Total 39.20			
		Period IIIb-IV			
(MIA-IIIb-IV-)					
1	1A,1B,5	13.50	T	R	I,II,IIIa,V
2	3	l.t. .05	IR	R	II,IIIa,V
3	8	.10	H	R	I,II,IIIa,V
4	10	4.50	V	R	I,II,IIIa,V
5	12	.20	H	R	II,IIIa,V
6	16	.25	H	HF	V
7	17	6.00	T	HT	V
8	21,22	.80	H	R	I,V
9	25,26	1.00	H	LP	I,II
10	30	.05	H	R	IIIa,V
11	34	l.t. .05	IR	R	...
12	38	.50	H	R	V
13	39	.70	H	UA	V
14	40	.50	H	UA	I,II,V
15	42	.90	H	R	I,II,V
16	44	.30	H	R	...
17	46	l.t. .05	IR	R	II,V
18	101	4.65	V	R	II,V
19	109	4.00	V	RP	I,IIIa,V
20	110	3.75	V	RP	IIIa,V
		Period IIIb-IV			
(MIA-IIIb-IV-)					
21	201	4.25	V	LP	I,II,V
22	204	1.00	H	LP	II,IIIa,V
23	206	3.00	V	HT	IIIa,V
24	401	4.00	H	R	I,II,IIIa,V
		Total 54.10			
		Period V			
(MIA-V-)					
1	1A,1B,5,5A	15.00	T	R	I,II,IIIa,IIIb-IV
2	3,6	.25	H	R	II,IIIa,IIIb-IV
3	7	.65	H	R	IIIa
4	8A	.10	H	R	I,II,IIIa,IIIb-IV
5	9	l.t. .05	IR	R	...
6	10	9.00	V	R	I,II,IIIa,IIIb-IV
7	12	.20	H	R	II,IIIa,IIIb-IV
8	14	l.t. .05	IR	R	...
9	15	l.t. .05	IR	RP	...

Table 2-1. (Continued)

Chronological Site No.	Site No.	Hectares	Class*	Setting†	Other Occupations
10	16	.25	H	HF	IIIb-IV
11	17	6.00	T	HT	IIIb-IV
12	18	.10	H	RP	...
13	20	l.t. .05	IR	PS	...
14	21,22	.80	H	R	I,IIIb-IV
15	23	2.80	H	PS	IIIa
16	27,33	.50	H	R	II
17	28	l.t. .05	IR	R	I
18	29	.50	H	R	...
19	30	.05	H	R	IIIa,IIIb-IV
20	32	.10	H	R	...
21	35	.30	H	PS	...
22	36	.10	H	PS	II
23	37	.10	H	PS	...
24	38	.50	H	R	IIIb-IV
25	39	.70	H	UA	IIIb-IV
26	40	.50	H	UA	I,II,IIIb-IV
27	42	.90	H	R	I,II,IIIb-IV
28	43	.80	H	R	...
29	45	l.t. .05	IR	R	...
30	46	l.t. .05	IR	R	II,IIIb-IV
31	47	1.00	H	HF	IIIa
32	101	4.25	V	R	II,IIIb-IV
33	102	.15	H	R	...
34	105	1.50	H	UA	...
35	108	.10	H	PS	...
36	109	4.00	V	RP	I,IIIa,IIIb-IV
37	110	3.75	V	RP	IIIa,IIIb-IV
38	111	l.t. .05	IR	HT	...
39	112	.25	H	RP	...
40	201	4.50	V	LP	I,II,IIIb-IV
41	202	6.00	V	LP	II
42	203	3.75	V	HT	I,II,IIIa
43	204	1.00	H	LP	II,IIIa,IIIb-IV
44	206	3.00	V	HT	IIIa,IIIb-IV
45	207	3.00	V	HT	...
46	208	2.00	V	HT	...
47	209	.50	H	LP	...
48	301	6.00	V	LP	I,II
49	302	.50	H	RP	...
50	303	2.50	H	UA	...
51	401	4.00	H	R	I,II,IIIa,IIIb-IV
52	502	l.t. .50	IR	RP	...
		Total 92.40			

*Class (Site Classification): T = town; V = village; H = hamlet; IR = isolated residence; ICR = isolated ceremonial place.

†Setting (Environmental Setting): R = river banks; UA = upper alluvium; PS = piedmont spur; RP = rolling piedmont; LP = limestone plateau; HT = hilltop; HF = hill flanks.

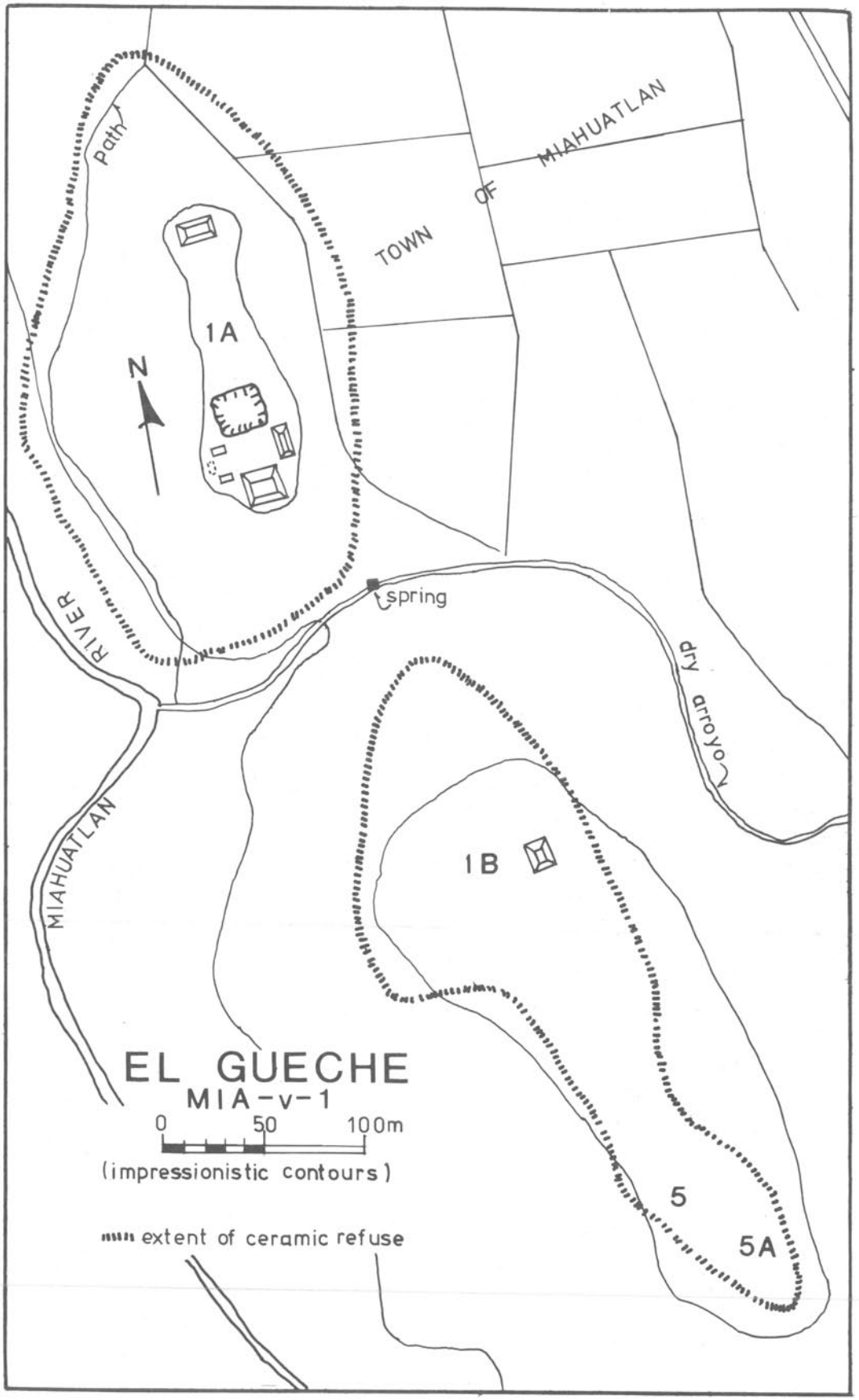


Figure 2-3. The Site 1A Complex.

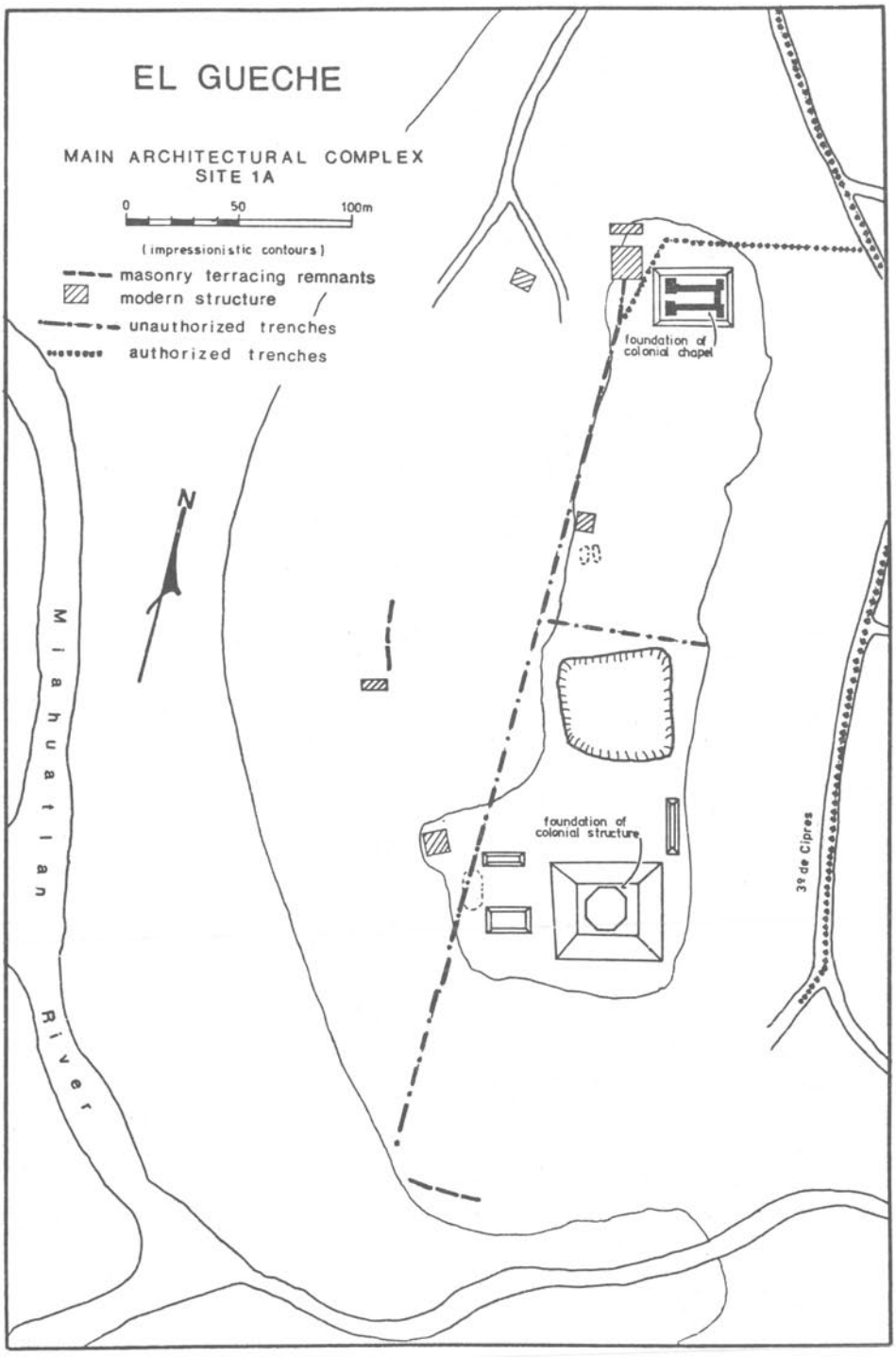


Figure 2-4. Site 1A: Subdivisions and Excavations.

Site Descriptions

Sites 1A, 1B, 5, 5A (Site 1A Complex)

Previous designations. Sites 1A, 1B, 5, and 5A are a cluster of sites (Fig. 2-3) reported by Brockington (1973:10-15). They are treated in this report as components of a single site.

Locally the ruins are called El Gueche, a term also used to refer to other sites, mainly Site 19 and Site 112, where there are mound groupings. The word gueche is occasionally used generically in the Miahuatlan area to refer to any archaeological mound, just as mogote is used in the Valley of Oaxaca. Brockington (1973:7) suggests that the term may be derived from the Zapotec guichitoo, meaning "big town."

Location. The Site 1A Complex is located at the southern edge of the town of Miahuatlan. The barrio at this end of town encroaches on the site.

Environmental setting. River banks. Archaeological remains extend along two wide natural ridges running parallel to the Miahuatlan River. Expanses of flat lower alluvium separate these hills from the edge of the river. Irrigation canals have been dug along the base of the hills. Until recently the hillside canals would have been filled with water diverted from the river by an upstream weir and released into the fields below. With the proliferation of gasoline pumps water is now pumped into the old canal system, or more often, directly from the river to the fields. Farther downstream one traditional dam and canal system is still in operation.

The combination of alluvial soil and available water makes this section of the river the most desirable location for agriculture in the valley.

The two ridges on which the site is situated are separated by a gorge cut by a springfed tributary stream. The spring itself is only a short distance from the site (Fig. 2-3).

To the east of the site ridges are flat areas of upper alluvium which eventually grade into rolling piedmont as one moves east, away from the archaeological zone.

Modern utilization. Irrigation agriculture is practiced in the areas of lower alluvium bordering the site. Two or three crops a year are produced. Corn, alfalfa, and occasionally a winter crop of beans are grown. The ridge crests, the main site areas, are used for growing corn during the rainy season.

The north and east borders of the site area underlie a residential section of modern Miahuatlan. During the water pipe excavations discussed below, large quantities of ceramic debris were unearthed in the streets skirting the eastern edge. Also over the past few years, several houses have been built in the midst of the principal archaeological architectural complex. The main site area has been further damaged by adobe manufacturing and by the water pipe excavations.

Chronological site numbers. MIA-I-1, MIA-II-1, MIA-Trans-IIIa-1, MIA-IIIb-IV-1, MIA-V-1.

Archaeological remains. This site was occupied continuously from Period I through V. Furthermore, there are remains of colonial architecture on the site and, as mentioned above, portions of the site are presently inhabited.

The Site 1A Complex is divided into four distinct areas. The first, Site 1A, includes the entire area north of the arroyo separating the two ridges and contains the major architectural complex (Figs. 2-3, 2-4, 2-5). The second, Site 1B, includes the area immediately south of this arroyo and is somewhat arbitrarily distinguished from the third area, Site 5, at the south end of this same ridge. Finally, Site 5A lies adjacent to Site 5 to the east. The scattering of ceramic refuse is uninterrupted between Sites 1B, 5, and 5A though concentrations of debris are notably higher at the center of each of these areas.

Site 1A. The central complex of this site extends 400 m along a modified ridge (Fig. 2-4). Two major mounds remain, one 6.5 m high at the south end of the ridge and the other, a 3 m high mound at the north end. The complex is made up of an additional five or six remnant mounds, some of which appear as no more than eroded hillocks. The mounds define three or perhaps four patios. In the center of the site is a sunken area of approximately 50 m x 50 m that seems to have been a sunken patio, Patio 2 (Fig. 2-4).

Site 1B. The most prominent feature of Site 1B is a 3.5 m mound in the northeastern section (Fig. 2-3). This mound was not test excavated so its dating is uncertain. Ceramic debris covers the entire broad hilltop with diagnostics spanning the entire chronological range from Period I through Period V.

Site 5. Site 5 is an area at the southern end of the same ridge where Site 1B is situated.

Two small plowed and eroded mounds are found at Site 5. The ceramic sample seems to indicate that the principal occupation of this area was during Period V though there is suggestion that the settlement extended into the area during Periods I and II.

Site 5A. Site 5A consists of a scatter of ceramic debris just east of Site 5.

The subdivisions of the Site 1A complex are measured: Site 1A--400 m x 200 m; Site 1B, Area 1--100 m x 100 m; Site 1B, Area 2--100 m x 50 m; Site 1B, Area 3--200 m x 200 m; Site 5--75 m x 100 m; Site 5A--75 m x 100 m. The site extent for each period of occupation is calculated by adding the extent of each of the subdivisions where period diagnostics are noted. Thus, in Period I the total area of occupation includes all subdivisions except Site 5A or 14.25 h. The Period II site extent is calculated as 15.00 h as the occupation includes all site areas. In this survey Period II ceramics were not found in the Site 5A area though they were reported by Brockington (1973:13). The Period Transición-IIIa extent, 10.25 h, includes Site 1A, Site 1B (Areas 1 and 2), and Site 5. The area of the Period IIIb-IV occupations includes Site 1A, 1B (Area 3), Site 5, and Site 5A totalling 13.5 h. Period V ceramics are found over the entire 15.00 h area of the site complex.

Settlement classification. The site is classified as a town in all periods. Throughout the sequence, Periods I through V, the Site 1A complex was the most extensive and architecturally elaborate settlement in the region.

Site 1A Surface Collections and Excavations

The discussion below describes salvage operations, excavations, and surface collections at the site. It was necessary that Site 1A receive far more attention than any other site as it was threatened by the installation of a running water system for the town of Miahuatlan. In view of this threat, the regional center of the INAH urgently requested that salvage operations be conducted.

The ceramic chronology discussed in the Appendix is in part based on stratigraphic investigations conducted at Site 1A.

Preliminary salvage and surface collections. Site 1A is situated on a ridge at the southern edge of the town of Miahuatlan. Its elevated location made it especially attractive to the engineers of the SRH seeking a location for a water tower to serve the town. Several hundred meters of water pipe trenches had been cut through the main mound complex (Fig. 2-5) as part of this water works project without authorization from the Oaxaca INAH center. Reports of this action prompted a preliminary investigation of damage to the archaeological zone, which was conducted by Marcus Winter, director of the archaeological section of the Oaxaca regional office of the INAH, and William Autry. Their investigation included an extensive surface survey, and the materials collected in that INAH survey include not only the surface samples, but also many ceramics which were discarded in the back dirt. From observation of the trench walls the pipe trenching had cut through and damaged many architectural features. Two tombs were noted in the cuts, their contents removed. Furthermore, in comparing Figure 4 of Brockington's earlier report (1973) with Figure 2-4 of this report it was noted that an entire mound had been removed from the southwest patio complex by the SRH crew.

Tombs and burials. The two tombs investigated by Winter and Autry are possibly dated to Period IV, Tomb 1975/1 and Tomb 1975/2:

> Tomb 1975/1 was located at the extreme eastern end of the trench that crossed the ridge through Patio 3. This tomb had an intact roof of the slanted stone type and appeared to be of the two-chambered variety. The tomb contained bone fragments, mixed sherds from the fill, and one fine, green obsidian earspool. Finders of the tomb were reported to have removed one ídolo and one olla from the tomb before we arrived. The tomb was entered from the north end, opposite the antechamber and entrance; and the water works trench revealed that the tomb had been sealed under one, if not two, stucco floors. Both sections of red and white plaster were encountered within the tomb. . . . The tomb probably dates to Period IV, or the Early Postclassic.

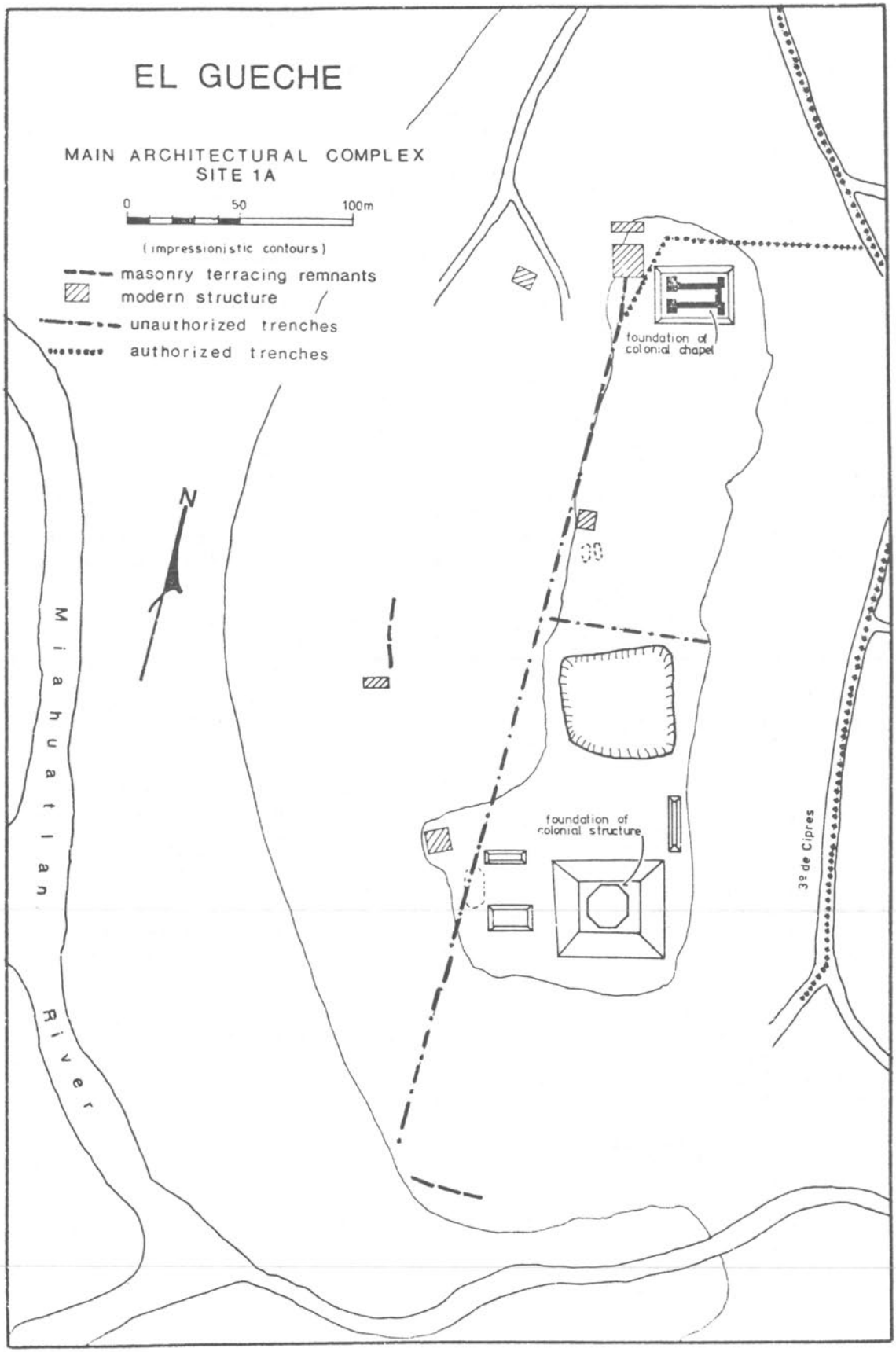


Figure 2-5. Site 1A: Water Pipe Trenching.

> During the excavation of Tomb 1975/1 a great many people from the surrounding areas came to watch the work, and several of the boys located a small tomb on the south slope of the site within the N-S trench. One-half of this tomb, Tomb 1975/2, in the trench itself had been removed by the workmen when the trench was dug. Only a small portion of the tomb remained in the east wall of the trench. The contents of this section were quickly removed. Sherds from the fill were mixed and part of the tomb section remaining had been disturbed. Bone fragments consisting primarily of cranial fragments and metatarsals were recovered. No goods were recovered. The tomb appeared to have a prepared adobe floor and was of the cajón, or box, type. No roof was present. . . From my measurements and the holes in the west profile of the trench where the rocks were removed when the trench was excavated I projected the dimensions of the tomb as follows:
>
> Depth (from top course of stones to floor) 24 centimeters
> Width = 48 to 55 centimeters
> Length = 180 to 185 centimeters.
>
> It was not possible to date this tomb with any degree of certainty, but the sherds from the fill appeared to be from periods IIIb and IV and possibly V. (Autry and Winter 1975)

Burial 1975/1. Burial 1975/1, a Period V burial, was discovered in water pipe excavations on Calle Cipres, the city street running parallel to Site 1A on its east side (Figs. 2-4 and 2-5). The pipe trench was dug 60 cm wide, and at intervals, 1 meter wide balks were left unexcavated; 5 m north of the point where Cipres intersects Calle Nogal a balk was left and bones were exposed in the soil profile. After cleaning the burial, it was apparent that the leg bones and half the pelvis had been severed. They were subsequently found tossed on the backdirt. The cranium was deformed, flattened in back.

The burial included several offerings: a shallow round bowl (Category 029) covering the face, a cylindrical ceramic bead at the wrist, and a ceramic figurine (Category 018, Plate 13 h). Also, the SRH workmen handed over a complete olla (Category 002, Plate 7 b) which had been excavated with the leg bones.

Burial 1975/2 and Burial 1975/3. Two burials with offerings were encountered as a result of SRH trenching at the northern end of the site (Fig. 2-4). Burial 1975/2, a simple extended burial (feet point 60° NW), was encountered 50 cm below ground surface (Fig. 2-7). Underlying Burial 1975/2 was Burial 1975/3, a Period I burial described in detail below. An array of associated grave goods was found with Burial 1975/2. A shallow bowl covered the face (Category 063, Plate 22 d). Other goods included a unique vessel modeled in the shape of a skull (Category 059, Plate 15 b), a Zoomorphic Vase (Category 061, Plate 22 a), a gourd shaped vessel (Category 105, Plate 22 b), and a Plain Tall Cylindrical Vase (Category 064, Plate 22 c). Also included were various non-ceramic artifacts. The individual was wearing a green stone necklace composed of five tubular beads, each about 6 cm long and 1.5 cm in diameter. A flat mother-of-pearl disc was found inside the ceramic skull. A perforated spherical bead of light blue stone was also included with the burial.

Burial 1975/3 (Fig. 2-8), a Period I burial, was encountered immediately below Burial 1975/2, 70 cm below ground surface and was also extended north-south. The bones of both burials were in a very poor state of preservation. It was difficult to remove the skeletal remains as the earth was very compact and the bone was decayed and friable.

Ceramic vessels accompanying Burial 1975/3, include: Object 1, a large conical bowl (Category 084, Plate 6 a), placed over the face of the burial, Object 2, a small vase with a pattern burnished design on the exterior (Category 076, Plate 23 b), Objects 3 and 4, two miniature bowls nestled one inside the other (Category 051, Plate 14 o and p), and finally, Object 5, a miniature cocijo urn placed beneath the right side of the cranium (Category 076, Plate 23 a).

Water pipe trenches, Calle 3° de Cipres. Excavations resumed on the city street running along the east side of the site, Calle 3° de Cipres (Fig. 2-5), with a standard 60 cm wide pipe trench cut down the middle of the dirt street of the residential area. Work proceeded in 10 m long sections or tramos and 0.5 m balks were left at regular intervals. Burial 1975/1 described above was situated in one of these balks.

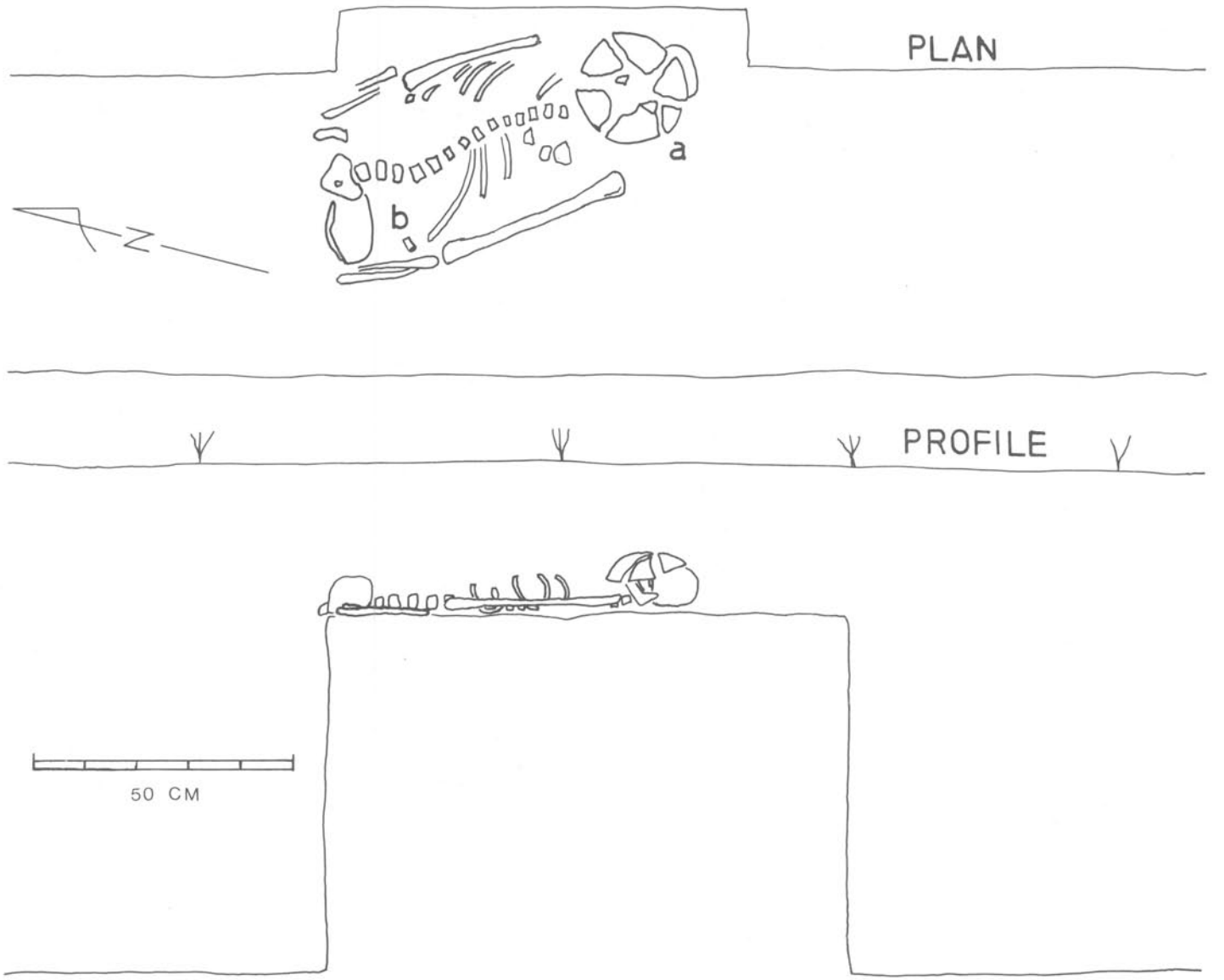


Figure 2-6. Site 1A, Burial 1975/1: (a) shallow gray plate (Category 029), (b) cylindrical ceramic bead.

Figure 2-7. Site 1A, Burial 1975/2: (a) see Plate 22 a, (b) see Plate 22 b, (c) see Plate 22 c, (d) see Plate 15 b, (e) light blue stone bead, (f) see Plate 22 d.

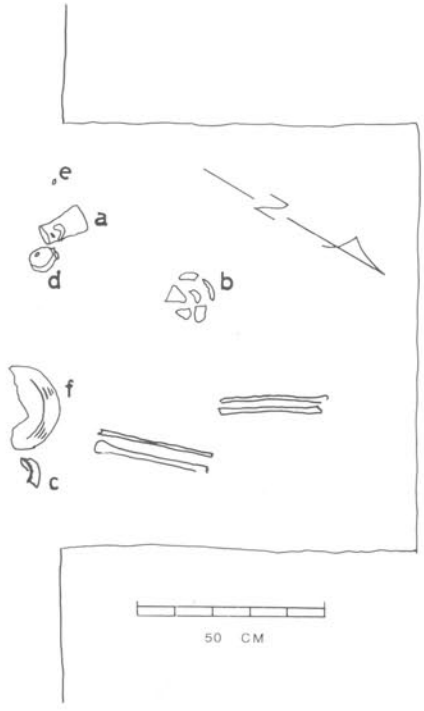
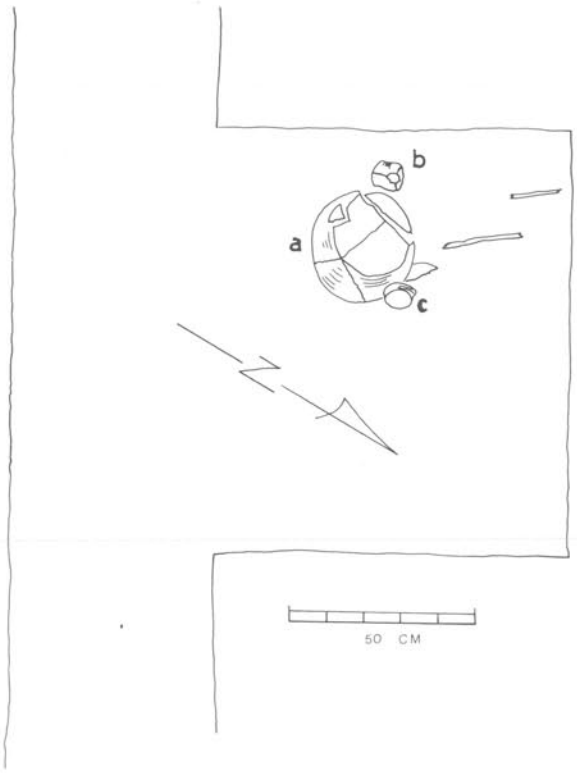


Figure 2-8. Site 1A, Burial 1975/3: (a) Object 1, (b) Object 2, (c) Object 3.



Twenty-six m north of Burial 1975/1 on Calle Cipres ceramic samples were collected from a 10 m trench section in 25 cm levels. The stratigraphic sample from this control trench is reported by levels in Appendix 2.3.

Excavations stopped after 1 m, a sufficient depth for pipe laying, though sterile soil had not been reached.

Water pipe trenches, Site 1A mound complex. Excavations were resumed in the main site complex after a new site for the water tower was approved at the north end of the ridge next to two already existing cisterns. Test Pits 2, 3, 4, and 5 were excavated as bases for the tower (Fig. 2-4), and it was agreed that pipes could be placed in the unauthorized trench along the west side of the complex (Fig. 2-5) to bring river water to the tower since these trenches were already open. To complete the system, two new trenches would have to be dug, one to connect the pipe line to the old cistern and another fork to connect the pipe line to the proposed water tower and to proceed on to Calle Cipres (Fig. 2-5).

A control grid of 3 m squares was plotted over a broad area where the two new pipe lines would fork and excavations began with a plan to explore architectural features. This procedure had to be stopped and a concession was made to observe excavations only in the 60 cm wide pipe trenches. Wider trenches would cause engineering problems.

Section A. This section of pipe trench is 6.5 m long extending from the fork in the trenches to the old cistern (Fig. 2-5). The first 3.5 m from the fork already had been excavated during the phase of unauthorized digging. Therefore, the tabulation in the Appendix only includes materials from the last 3 m connecting to the cistern. The ground slopes down toward the cistern and the area is fairly eroded with a soil depth of less than 20 cm in places. The pipe excavations actually cut into the soft limestone bedrock.

Tramo 1. The right fork of the pipe trench was divided into 10 m sections as were the trenches on Calle Cipres. These 10 m x 60 cm sections or tramos were treated as excavation units and are numbered sequentially beginning at the intersection with the western pipe line. There are three sections between this fork and the water tower. At the tower the trench line continues almost at a right angle toward Calle Cipres (Fig. 2-5).

A stucco floor was visible 40 cm below the surface in the trench wall of the unauthorized western trench at the area of intersection with the new fork. The original plan for the excavation called for cleaning of this floor and plotting its extent within a 3 m grid that used the open trench as a baseline. However, this plan was abandoned. Thus, the sample tabulated as Level 1 of Tramo 1 includes all materials found above the floor in a 3 m x 3 m square at the beginning of the trench as well as the contents from above the floor in the rest of the 60 cm wide Tramo 1 for as far as the floor extended, 1.5 m beyond the square.

Level 2 of Tramo 1 includes only materials from below the stucco floor within the trench. Bedrock was reached at a depth of 1 m.

Tramo 2. Architectural features were not found in this section. Limestone bedrock was reached at 90 cm. Two sherd lots were collected, one from Square B6, a 3 m x 3 m area at the north end of the section, and a second from the remainder of the section.

In Tramo 3 the ground sloped downward. Topsoil was thin and few potsherds were unearthed. Also, there is no artifact sample from Tramo 4 as bedrock was reached almost immediately.

Tramo 5. In the very center of the 10 m section an SRH workman struck an overturned pot which covered the face of a burial 50 cm below ground surface, Burial 1975/2 (Fig. 2-7), described above. Burial 1975/3 (Fig. 2-8) was found immediately below 1975/2.

Four separate samples are tabulated for this pipe section: (1) a general sample from the back dirt, (2) the contents of Burial 1975/2, (3) the contents of Burial 1975/3, and (4) the fill from Burials 1975/2 and 1975/3.

Test Pit 1. At the northern end of Site 1A the ruins of a small rectangular chapel (inside dimensions of 16 m x 6 m) are situated atop a prehispanic mound (Fig. 2-4). Test Pit 1, a 3 m x 3 m square, was plotted on the interior of the chapel against the northern wall beginning 9 m from the northeast corner of the building (Fig. 2-5). The location was selected because there were indications that a long ceramic sequence and a series of sealed deposits might be found. The chapel, La Iglesia de San Sebastian, is a colonial structure tentatively dated to the sixteenth or seventeenth century according to architectural style. The ground had been eroded under the foundation in the northwest corner exposing an earlier stucco floor. Other floors were visible in a pit left by a looter on the interior

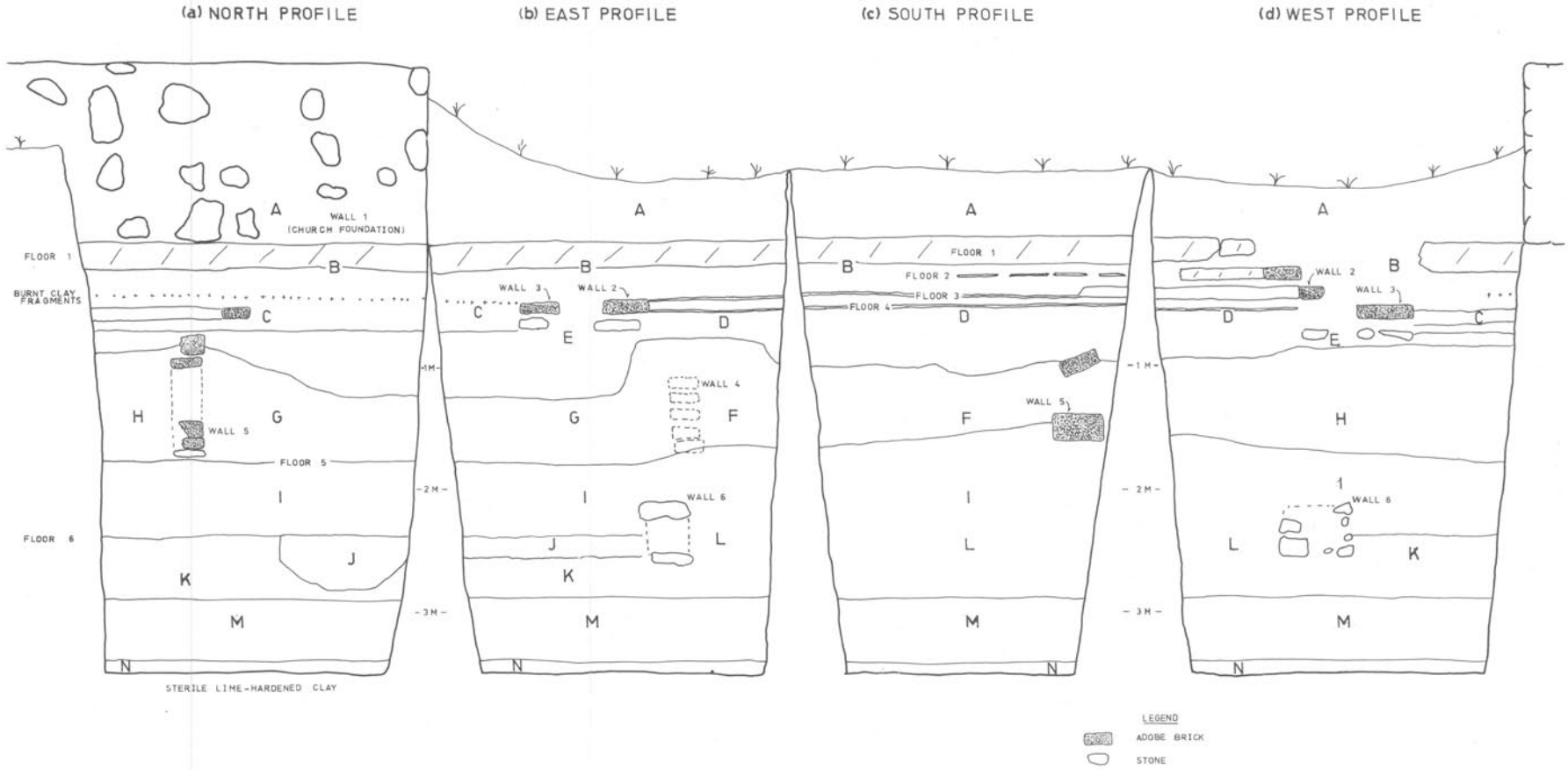
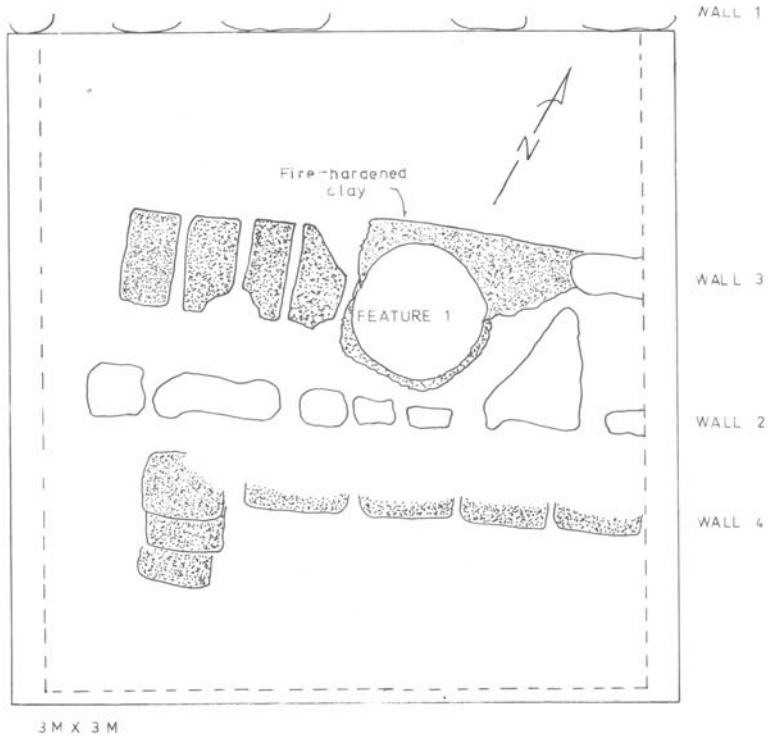


Figure 2-9. Site 1A, Test Pit 1 Excavation Profile.

Figure 2-10. Site 1A, Test Pit 1: top plan, 5 November 1975.



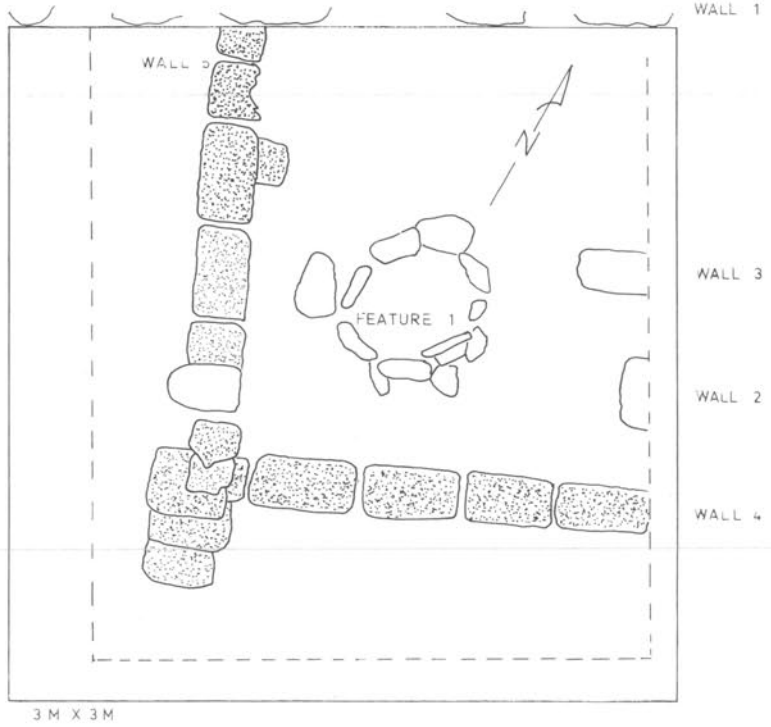


Figure 2-11. Site 1A, Test Pit 1: top plan, 7 November 1975.

of the chapel. Furthermore, the chapel is situated 15 m south of the earlier discovered Burials 1975/2 and 1975/3, Period II and I burials respectively.

Excavations began with the cleaning of the looter's pit along the south wall. A 50 cm balk was left between the sacker's pit and Test Pit 1. Floor 1 (Fig. 2-9), a 23 cm thick floor composed of stone slabs and rubble set in stucco was evident in the north wall of the sacker's pit. This floor does not corresond to the chapel but preceded its construction as it continued beneath the foundation of the north wall of the building (Fig. 2-9). A narrow trench was placed opposite Test Pit 1 on the exterior of the church wall and remains of the floor were found. Upon further examination of the looter's pit, it was noted that Floor 1 did not continue beneath the south wall of the chapel.

Zone A. This topmost layer consists primarily of building debris from the colonial structure. Zone A ends at Floor 1 and varies in thickness from 0.5 m to almost 1.2 m next to the chapel wall where the most rubble had accumulated. Traces of a floor could not be found in this zone which might indicate that the church had a shallow dirt floor. A very tough root system of thorn bush was encountered on the western side of the pit which had broken through the pavement of Floor 1 (Fig. 2-9 d). Thus, Floor 1 does not completely seal a stratigraphic level.

Zone B. The zone begins with Floor 1 and terminates with the top course of adobes of Walls 2 and 3 (Figs. 2-9 and 2-10). Within this zone fragmentary remains of an additional stucco floor, Floor 2, were found in the southwestern portion of the square varying in thickness (Fig. 2-9 c, d).

Zone C. The zone within the test pit between Wall 3 and the northern wall of the pit, beginning at a level even with the top of Wall 3 is designated Zone C. This zone consists of a band of gray loam with a depth of 20 cm. Zone C, in the western half of the square, consisted of distinct layers of brown clay and grayish brown loam (Fig. 2-9 a, d).

Zone D. Zone D is situated beneath Floor 3, a thin stucco floor on the southern half of the test pit. The zone has a depth of 60 cm, extending downward to the top of Wall 4. It terminates where an area of boulder and rubble fill, Zone F, begins. Within Zone D another thin stucco floor, Floor 4, is found 8 cm beneath Floor 3.

Feature 1 (Figs. 2-10 and 2-11). Walls 2 and 3 each consist of a course of adobe set on a course of stone. The two walls are not exactly parallel but diverge from each other. Between the walls a cylindrical slab-lined pit with a diameter of about 60 cm, Feature 1, appeared at a depth even with the top of Wall 3 (Figs. 2-10 and 2-11). The mouth of this pit was composed of heat hardened clay and had a depth of 57 cm. It was filled with burnt adobe fragments, charcoal, ash, and a few sherds. Large chunks of wood charcoal were found towards the bottom. The floor of the feature was also made of limestone slabs. It does not seem to have been a kiln as there was no tunnel outlet at the base. Presumably this is an intrusive feature contemporary with Floor 3 and the layer of burnt clay at a depth of 40 cm using the very bottom of the church foundation as a baseline (Fig. 2-9 a)

Zone E. In the next stage of excavation, after the fill from Zones C and D was removed, Walls 2 and 3 were removed and Feature 1 was left standing. Zone E includes these walls and an earth zone beneath the stone foundations of the walls down to the beginning of the rubble fill of Zone G.

Zones F, G, and H. Walls 4 and 5 are perpendicular adobe walls set on a dirt floor. The floor, Floor 5, appears at a depth of 2.8 m. Zones F, G, and H all occur at the same stratigraphic position but are defined by divisions defined by Walls 4 and 5 (Fig. 2-11). Zone F includes the fill on the south side of Wall 4; Zone H is the zone west of Wall 5; and Zone G consists of the fill enclosed by the walls in the remaining northeast portion of the square.

The architectural function of Walls 4 and 5 remains enigmatic. Wall 5 is crudely constructed from adobe fragments and rocks haphazardly piled together atop a single course of adobes which is neatly aligned. Wall 4 is more neatly constructed, consisting of 5 tiers of adobes. Wall 4 does not appear in the east profile as it ends immediately before reaching the pit wall (Figs. 2-9 b and 2-10). Possibly these walls enclosed the room of a building that fell into decay. It may be that in renovating the mound the collapsed Wall 5 was hastily piled back up to contain the rubble of a superimposed layer of fill. Or, possibly these walls were constructed specifically to retain fill.

Zone I. After Walls 4 and 5 were removed the entire horizontal area of the pit below the layer of boulder and rubble fill as a unit, Zone I, was excavated. This zone consisted of a gray brown loam. Sixty cm beneath Floor 5 another floor of compact earth was encountered in the northwest quarter of the square, Floor 6,

Table 2-2. Stratigraphy of Test Pit 1, Site 1A.

Zone	A	B	C	D	Ftr 1	E	F	G	H	W_4	I	J	K	L	W_6	M	N
Bags	94	95 96	97 103	98 99 100	105	104	101 102	106 107	108	111	109 110 112	113 116	114 117	115	118	119 120 121	122
Total Count	27	77	35	80	15	38	249	151	10	6	173	36	21	26	26	99	1
PRM V																	
001	3.7																
007	3.7																
012		1.3															
100				1.2													
SEC IIIb-IV																	
043								0.7									
046		2.6	5.7	6.2	6.7	2.6	2.8	6.0			1.7						
047		1.3		2.5		2.6		2.0									
PRM II																	
057							0.4	0.7			0.6					6.0	
061								0.7									
063								0.7									
105	7.4																
SEC II																	
044	3.7	2.6	5.7			2.6	2.0	0.7	10.0								
064				1.2		7.9		0.7			0.6						
065								0.7	10.0		0.6	2.8		3.8		1.0	
PRM I																	
067				3.7	6.7	7.9	0.8	2.6			4.6	5.6			3.8	5.0	
068			5.7	1.2		5.3	1.6	2.0	10.0	16.6	3.5	11.1	9.5	7.7	3.8	10.1	
069							0.4									4.0	
070	3.7	3.9	2.9	3.7			4.4	6.6			5.8	8.3	9.5		11.5	9.1	
071	3.7	2.6	5.7	2.5	6.7			3.3			7.5	22.2		27.0	23.0	15.1	
072				3.7	6.7		3.2			16.6	1.2	5.6			3.8	7.1	
073			2.9				0.4				0.6						
075	3.7	1.3		2.5				1.3			0.6		5.0			2.0	
076				1.2		2.6	0.4				0.6			3.8	3.8	1.0	
077			2.9													1.0	
083		2.6	2.9	2.5			2.4	1.3			8.7	5.6					
087	3.7	3.9					0.4	2.0				5.6	5.0			1.0	
089						5.3	0.8	0.7								1.0	
SEC I																	
054						2.6	0.4	1.3			0.6			3.8			
078											1.2		4.8		7.7	1.0	
079			5.7				2.0	2.6	10.0		1.7	2.8					
080			2.9				1.6										
086		3.9		1.2	2.6		3.2	1.3			1.7	11.1		11.5	7.7	1.0	
LATE																	
013				1.2													
016											0.6						
030							0.8										
101		1.3															
MIDDLE																	
048		2.6	2.9						20.0								
049							0.4										
051	25.9	33.8	31.4	27.5	20.0	21.1	28.9	19.9	20.0		16.8	16.7	33.3	19.2	11.5	5.1	
056							1.6				1.7						
095				1.2													
097	7.4	1.3		3.7		5.3	1.6	2.0			1.2					1.0	100.0
098	11.1	9.1	14.3	6.2	13.3	10.5	12.9	12.6		16.7	16.2	2.8	23.8	7.7	11.5	9.1	
099		1.3	2.9	5.0	6.7	2.6	2.0	0.7			1.2					2.0	
EARLY																	
055				2.5			0.4				0.6						
066	3.7	2.6		1.2			0.4										
081		1.3						0.7						3.8	3.8	6.1	
082	3.7	2.6	2.9	3.7				0.7	10.0	16.7	1.2						
084		2.6		1.2			4.4	3.3			0.6				3.8	2.0	
085	7.4	3.9	2.9	6.2	6.7	5.2	13.7	7.9			7.5					1.0	
090				2.5			1.2	2.0			4.0						
MISCELLANEOUS																	
104	7.4	11.7	5.7	3.7	26.6	13.2	4.4	9.2	10.0	50.0	6.9	5.6	9.5	11.5	3.8	8.1	

NOTE: Counts are listed as a percentage of the total provenience inventory.

which abutted on a low standing wall of masonry set in mud, Wall 6, running east-west across the middle of the excavation square. The appearance of the features marks the termination of Zone I.

Zones J, K, L. A trench running north-south cut through Floor 6 on the east side of the square. The trench fill is designated Zone J and consists of a loose fill of brown loam (Fig. 2-9 a). The trench cut into Wall 6 but did not extend as far as the south wall of the test pit.

Zone K lies directly beneath Floor 6. This floor is one of four superimposed layers of compact earth, possibly representing successive renovations or attempts to level the floor.

Zone L is located south of Wall 6. Its beginning was arbitrarily defined at a level even with Floor 6. Excavations proceeded downward another 50 cm, beyond the base of Wall 6 without an interruption in the fill.

Zone M. The beginning of Zone M was arbitrarily delineated at a level 50 cm below Floor 6 though the changes in fill were not clearly demarcated. The fill of Zone M was a mixture of loose earth and pebbles.

Zone N. Zone M terminates with the appearance of a layer of very compacted clay. The compacted clay is designated Zone N and was 5 cm to 10 cm thick. Only two or three sherds were found and only one of those was a rim sherd. The layer was speckled with charcoal. Various bones of small animals were found, including a jaw tentatively identified as that of an opossum.

Zone N overlays sterile soil consisting of clay hardened by percolating lime.

The water tower foundation. The construction of the water tower at Site 1A involved digging four 3.4 m x 3.4 m squares for the cement foundations of the four legs of the tower. These squares are treated as test pits and are numbered Test Pits 2, 3, 4, and 5 (Fig. 2-4). They were excavated in arbitrary levels.

Test Pit 2. Excavations proceeded in arbitrary 25 cm levels to a depth of 75 cm. The first level of fill was heavily mixed with brick fragments and other construction debris washed down from the ruins of the colonial Church of San Sebastián. This type of debris seemed to characterize the upper levels of all four pits.

Test Pit 3. This square was situated closer to the chapel on the side of the hillock and mound. Sterile soil was struck on the southern half of the square at 40 cm. The sterile layer, like the bottom of Test Pit 1, consisted of a lime hardened clay.

After the initial layer of earth and brick rubble was cleared the rest of the fill consisted of medium size boulders, averaging around 40 cm in diameter, presumably part of the original mound fill. Two metates were included as part of the boulder fill. At a depth of about 1 m in the northern half of the square a row of aligned slabs running east-west appeared.

The sterile layer of clay and cascajo did not show up in the northern end of the pit until a depth of 1.2 m was reached.

Test Pit 4. Sterile soil was reached at 25 cm. Much of the material was mixed with debris left from the construction of the brick cistern next to the pit.

Test Pit 5. This square was excavated in 25 cm levels to a depth of 50 cm. Almost the entire fill seemed to consist of recently disturbed material.

Sites 3 and 6

Previous designation. Sites 3 and 6 are previously reported by Brockington (1973:15, 16). They are considered components of a single site as they are spaced only 70 m apart.

Location. The site is located upstream from the Site 1A complex on a ridge that parallels the Miahuatlan River. The Site 3 component is found on the northern end of this ridge and Site 6 on the southern end.

Environmental setting. River banks. Below the ridge is an expanse of river bottomland 200 m wide. The soil at the site is rocky and sandy.

Modern utilization. The Site 3 segment of the site lay fallow when visited at the height of the rainy season. However, remnant plow scars indicated it had been a milpa in previous years. The Site 6 portion of the ridge had been recently plowed.

Chronological site numbers. MIA-II-2, MIA-Trans-IIIa-2, MIA-IIIb-IV-2, MIA-V-2.

Archaeological remains. Site 3 is a 20 m x 20 m area of refuse on the northern end of the ridge. Quantities of broken and cut shell were encountered during Brockington's survey (1973:15). However, two pieces of obsidian including blades

and spalls were found. Two of the obsidian pieces were green and the rest, gray. One of the green pieces was an awl. This area of the site seems to have been occupied continuously from Period II through Period V so it is uncertain with which ceramic period the lithic and shell materials are associated.

While investigating Site 3 Brockington excavated two burials, one found in a flexed position on its side and the other in a seated position, presumably associated with the Period V occupation.

On the south end of the same ridge is Site 6, an area of ceramic refuse consisting exclusively of Period V materials. There are no architectural remains visible on the surface of either Site 3 or Site 6.

Site 3 measures 20 m x 20 m and Site 6, 70 m x 30 m. Thus, in Period II through IV only the Site 3 area was occupied and the site extent is calculated as 20 m x 20 m. In this survey Period II and Period Transición-IIIa ceramics were not found but Period II, III, and V diagnostics were recovered during Brockington's investigations at Site 3 (1973:15).

In Period V both Sites 3 and 6 were occupied and the total site area is calculated as 0.25 h.

Settlement classification. The site is designated an isolated residence for Periods II through IV and in Period V, a hamlet.

Site 7

Previous designation. The site is referred to as Site 7 and 7a by Brockington (1973:16, 17).

Location. Site 7 is located directly across the river from Site 1A, to the right of the oxcart road to San Miguel Yogovana.

Environmental setting. River banks. The site is situated on a gentle slope rising from the river floodplain. The soil is rocky and sandy. There is a prominent outcropping of bedrock immediately above the site.

Modern utilization. The northern edge was plowed and planted in corn. The remaining area lay fallow.

Chronological site numbers. MIA-Trans-IIIa-3, MIA-V-3.

Archaeological remains. Architectural features were not visible on the surface. Ceramics were very sparsely scattered over a 90 m x 70 m area. It took a careful scanning of the area to collect only a small sample.

Settlement classification. Hamlet. The same classification is applied to both periods of occupation.

Site 8

Previous designation. Brockington's report refers to this site as Site 8 and 8A (1973:17). They are treated as components of a single site with a field designation of Site 8.

Location. The site is located at the northern edge of the town of Miahuatlan on the left side of the old dirt road to Xitla. Immediately past this area the road descends and crosses the river. A monument commemorating the 1868 victory of Porfirio Díaz over the troops of Maximilian can be seen directly across the river.

Environmental setting. River banks. The field where the site is located slopes gently down to the narrow floodplain of the Miahuatlan River.

Modern utilization. Most of the site area is wet season milpa. An oxcart road cuts through an edge of the site. The highest concentration of ceramic debris lies between the road and the field in an eroded brush covered area.

Chronological site numbers. MIA-I-2, MIA-II-3, MIA-Trans-IIIa-4, MIA-IIIb-IV-3, MIA-V-4. Brockington found materials from Periods II, III, and V (1973:17). During this survey Period I and IIIb-IV diagnostics were collected as well.

Archaeological remains. Two hillocks in the field may be the plowed remnants of mounds. A third eroded mound of earth by the road may also have been a platform. Ceramics were notably concentrated in the vicinity of this third mound.

The site extends over a 50 m x 20 m area.

Settlement classification. Hamlet. Throughout the sequence the site was probably the location of an isolated residence or small hamlet. Quite possibly it was one of many residences extending southward into the area occupied by present-day Miahuatlan. As Brockington notes, "Sites 8 and 8A mark the northern edge of the prehispanic occupation underlying modern Miahuatlan" (1973:17). Although SRH excavations were carried out mostly in the barrios at the southern edge of town, it

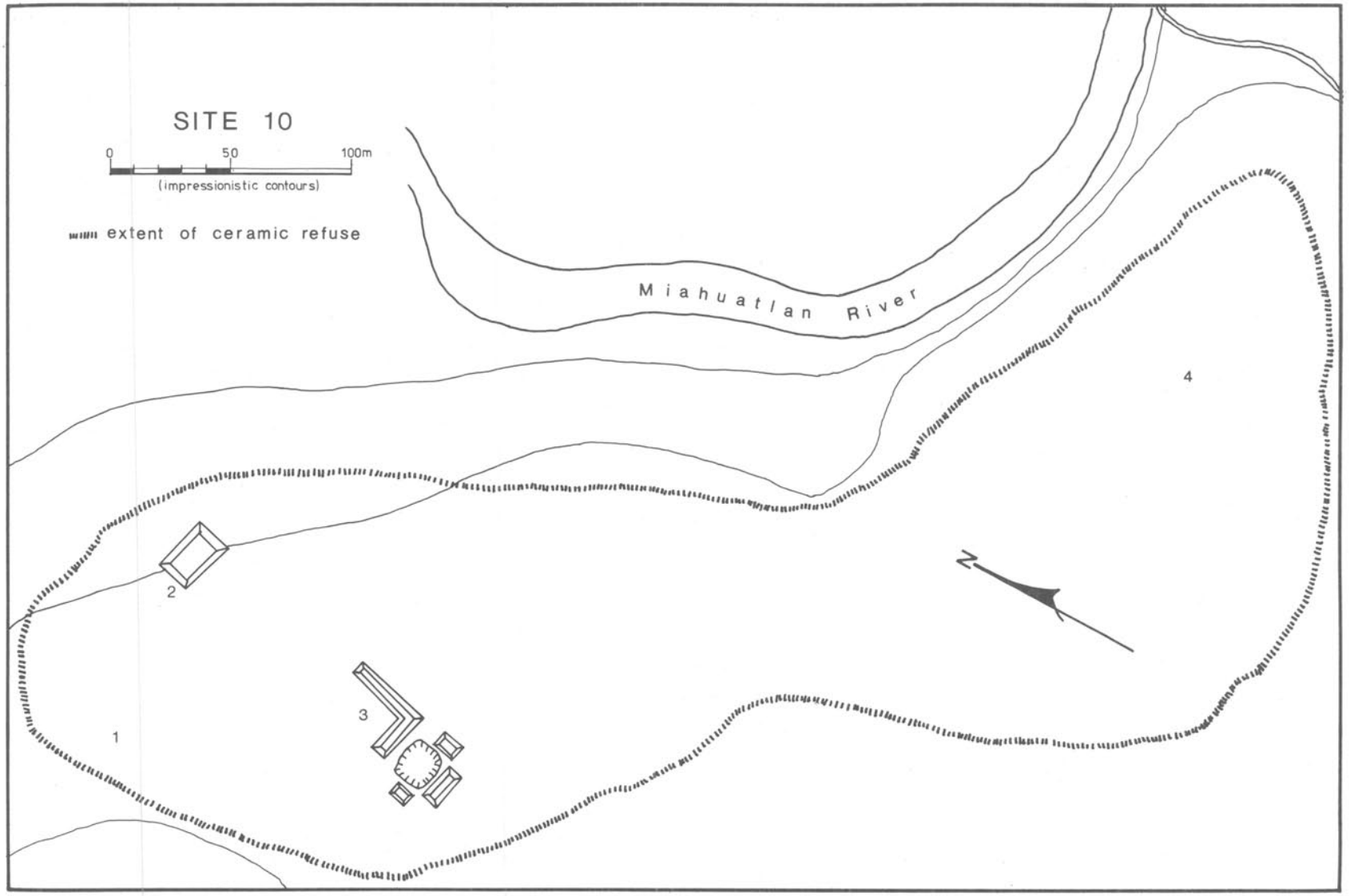

SITE 10
0
50
100m
(impressionistic contours)
extent of ceramic refuse
Miahuatlan River
1
2
3
4
N

Figure 2-12.

seems likely that ancient settlement extended to the northern periphery. Probably ancient settlement was dispersed in a haphazard pattern throughout the area of upper alluvium where today there is a gridiron town plan.

Site 9

Previous designation. Site 9, discussed in Brockington's Miahuatlan report (1973:17), could not be located in the 1975-1976 survey. The following description is derived from the above report.

Location. The site is located about 2 km downstream from Site 8 on the right bank of the Miahuatlan River.

Environmental setting. River banks. The site is situated on a second river terrace above the floodplain.

Modern utilization. Corn is cultivated on these river banks during the rainy season.

Chronological site number. MIA-V-5.

Archaeological remains. Architectural remains are not reported. Ceramic debris included various Mazapan style figurines (see Category 010).

Settlement classification. Isolated residence.

Site 10

Previous designation. This is the site referred to in Brockington's report as the Site 10 complex (1973:17-19).

Location. The site is located about 1.5 k upstream from Monjas on the left bank of the Miahuatlan River.

Environmental setting. River banks. Site 10 is located on the gently rolling, almost flat terrain above the floodplains of the Miahuatlan River. A sharp escarpment separates the site area from the fields of lower alluvium (Fig. 2-12). The Rio Yegoviche, a tributary stream, joins the Miahuatlan River at the southeast edge of the site.

Modern utilization. The site is used for wet season corn cultivation.

Chronological site numbers. MIA-I-3, MIA-II-4, MIA-Trans-IIIa-5, MIA-IIIb-IV-4, MIA-V-6.

Archaeological remains. Subdivision of the site complex are measured: Area 1--250 m x 150 m; Area 2--60 m x 50 m; Area 3--70 m x 50 m; Area 4--300 m x 150 m.

Architectural remains from Period I consist of a single plowed over, low lying mound. The concentration of ceramic debris in the area of this mound, Area 2, is one of the heaviest found in the Miahuatlan Valley. Nonetheless, it would be considered a moderate concentration by the standards of sites in the central sections of the Valley of Oaxaca. The ceramics include not only Period I materials but also ceramics from all periods through Period V.

Period II ceramics are found in the vicinity of the central mound complex, Area 3, as well as in Area 2 to the north (Fig. 2-12). This central mound complex may have been originally built in Period II. The total site extent for Period II is calculated as 0.65 h.

Besides the concentration of ceramic debris in Area 2, fragments of painted red stucco floor can be found within the patio area and in the corn field west of the complex.

The Period Transición-IIIa occupation, 4.0 h, includes Areas 1 and 2. Areas 1, 2, and 3 are included in the 4.5 h occupied in Period IIIb-IV.

The entire 9 h of the site are covered with Period V materials and judging from the relative abundance of ceramics, it seems that this occupation was the densest and most significant.

Settlement classification. The Period I occupation of Site 10 is classified as a Hamlet. The site is considered as a village through the rest of the sequence.

Site 12

Previous designation. The field designation, Site 12, is derived from Brockington's earlier Miahuatlan report (1973:19).

Location. The site is found upstream from Miahuatlan on a hill between two major tributary streams just before they converge to form the Miahuatlan River.

Environmental setting. River banks. Site 12 is situated on a gently rolling hillside between the headwaters of the Miahuatlan River. The soil is rocky and sandy. Below the site to the northeast are expanses of floodplain.

Modern utilization. The area lay fallow when visited. Other hilly areas between the headwater tributaries are used for goat and cattle grazing.

Chronological site numbers. MIA-II-5, MIA-Trans-IIIa-6, MIA-IIIb-IV-5, MIA-V-7.

Archaeological remains. The only visible remains were some very sparsely distributed, weathered sherds. From the sample only Period V diagnostics are recognized (see Appendix 2.3). Brockington excavated four test pits at this site and reports Periods II, III, IV, and V materials (1973:19).

The site extent is 50 m x 40 m. Changes in site dimensions through time are uncertain.

Settlement classification. Hamlet.

Site 14

Previous designation. Site 14 is described by Brockington (1973:20), but could not be located during this survey. The following description is based on Brockington's report.

Location. "Due south of Site 13 overlooking a narrow strip of floodplain along the Tamazulapan branch" (Brockington 1973:20).

Environmental setting. River banks.

Modern utilization. This area between the headwater branches of the Miahuatlan River is used for cattle and goat herding as well as corn cultivation.

Chronological site number. MIA-V-8.

Archaeological remains. ". . . a thin scatter of Period V and modern sherds" (Brockington 1973:20).

Settlement classification. Isolated residence.

Site 15

Previous designation. The small area of ceramic refuse described by Brockington (1973:20) as Site 15 had been washed away between his visit in 1968 and the investigation of 1976 when it was not possible to locate ceramics in the designated area. The description is based on his report.

Location. Site 15 is located where the road from Miahuatlan to Xitla crosses a shallow arroyo about 800 m beyond the Río Yegoviche crossing.

Environmental setting. Rolling piedmont. A series of small springs feed into some stagnant pools at the site. This area consists of rolling hills covered with scrub brush. Topsoil is very thin and rocky.

Modern utilization. The area is used for sheep grazing when used at all.

Chronological site number. MIA-V-9.

Archaeological remains. "We found some Period V sherds along the right bank and others in a natural cut in the left bank to a depth of .25 meters" (Brockington 1973:20).

Settlement classification. Isolated residence.

Site 16

Previous designation. The site is within the town of Cuixtla.

Location. A winding path ascends to an extensive flat area where the ayuntamiento and central church are located. A cut near the top of the path exposes a 1.5 m profile of black topsoil with sherds in the uppermost levels.

Environmental setting. Hill flanks. Cuixtla is nestled between spurs of the surrounding mountains. The site is situated on an extensive natural terrace. The modern community of Cuixtla is well watered by springs above this terrace area. The water is directed in open ditches and diverted to irrigate garden plots.

Modern utilization. This site area is a household garden.

Chronological site numbers. MIA-IIIb-IV-6, MIA-V-10.

Archaeological remains. The field above the road cut had a concentration of 25 sherds per square meter. Also a good many ceramics had washed down the foot-path. Prehispanic architectural remains were not evident. A sixteenth century church is located less than 100 m from here.

The ceramic sample comes from a single 50 m x 50 m plot. Scattered ceramics could be seen in various other household garden plots but residents opposed our entering their property to take samples.

Settlement classification. Hamlet.

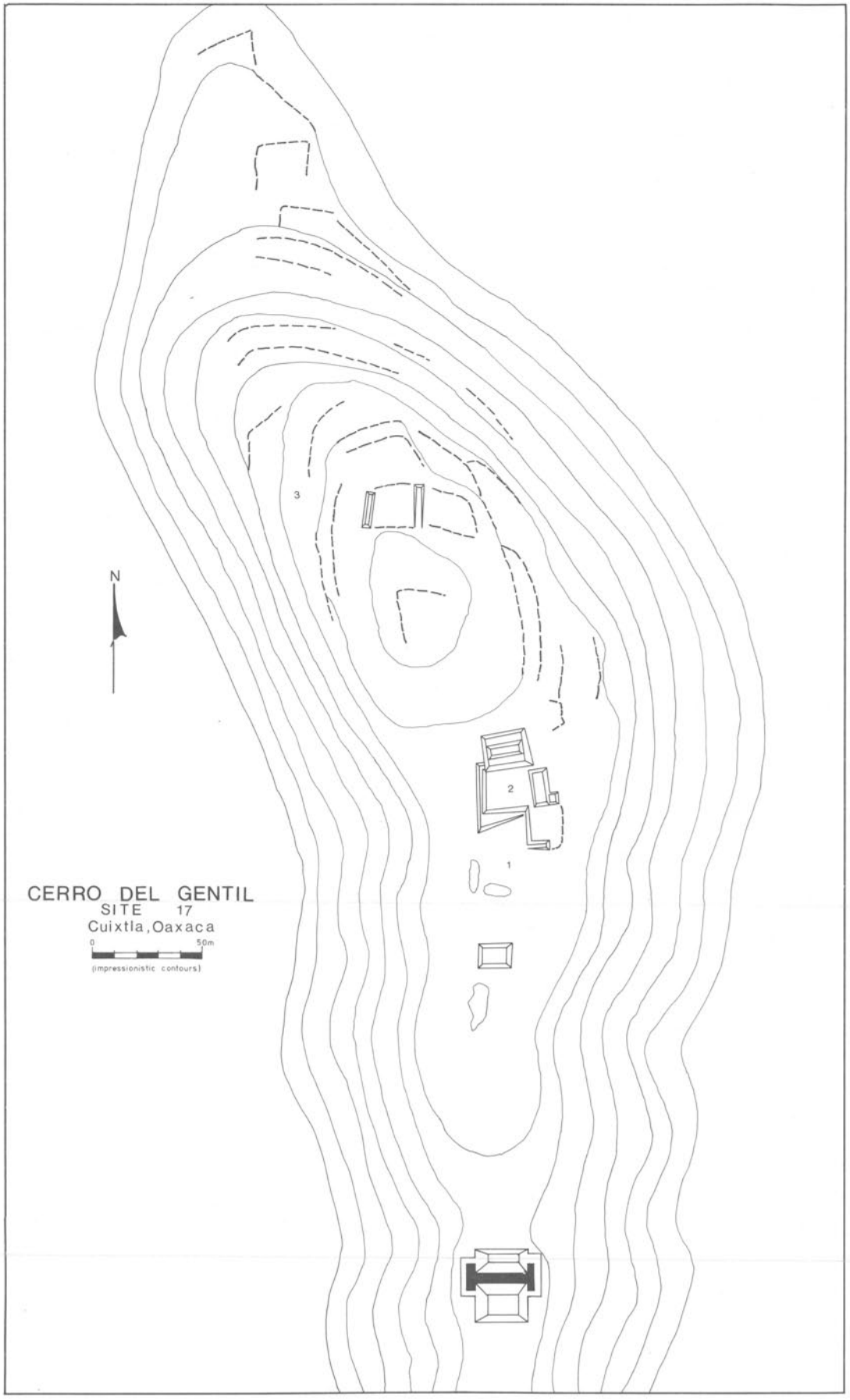

CERRO DEL GENTIL
SITE 17
Cuixtla, Oaxaca
0
50m
(impressionistic contours)
N
1
2
3

Figure 2-13.

Site 17

Previous designation. Locally, the site is referred to as Cerro del Gentil or in Zapotec, Lo-Ri-Bla (Fig. 2-13).

Location. Cerro de Gentil is situated on a mountain ridge directly east of Cuixtla, on the ridge of a mountain bordering the village.

Environmental setting. Hilltop. Extending along the ridge of a mountain, this site is the most prominent archaeological feature visible in aerial photographs of the Miahuatlan Valley. In Figure 2-13 the contour lines are not represented beyond a 40 m descent from the peak though in actuality the steep down grade continues. The Yegoviche River, reached by a fifteen to twenty minute hike down a winding footpath, seems to be the closest water source. Soil is rocky and thin except where topsoil is retained by rock and boulder terracing walls.

Modern utilization. Limited portions of the site are planted with corn during the rainy season. Mainly, the area is used for goat herding.

Chronological site numbers. MIA-IIIb-IV-7, MIA-V-II.

Archaeological remains. The site has some of the best preserved architecture of any site in the Miahuatlan Valley, largely due to its inaccessibility. A series of architectural structures and plazas are arranged along a ridge, taking advantage of the natural terrain (Fig. 2-13). At the southern end of the site a ball court is situated in a saddle-like trough between two rises. Masonry walls of the ball court, 2 m high in places, remain standing. The court has dimensions similar to ball courts at Site 109 and Site 207. Proceeding northward there is an extensive naturally flat area where an open patio, Area 1, and a closed patio, Area 2, have been defined by an arrangement of mounds and low walls (Fig. 2-13). Just to the north beyond a peak in the ridge is another patio defined by two elongated mounds. Fragments of red painted stucco were found in this area.

On the northernmost end of the site, the hillside has been reworked into a series of terraces, some of which are presently maintained for cultivation. Several of the terracing walls are constructed of tightly fitted boulders as large as a meter in diameter. Presumably, much of the terraced area around the northern end of the site was residential though house foundations are not apparent on the surface.

Though it was not possible to distinguish temporal components from the mixed surface ceramics, judging from relative quantities of surface debris, Period V was the most significant occupation.

The site covers a total area of 6.0 h.

Settlement classification. Town.

Site 18

Previous designation. Locally, Site 18 is referred to as El Zapato because at one time there was a carving in the natural rock here in the shape of a shoe. The rock was blasted while widening and improving the dirt and gravel road from Miahuatlan to Cuixtla.

Location. Site 18 is located at the base of Cerro San Andrés, on the right side of the road about 0.5 k before entering Cuixtla from Miahuatlan.

Environmental setting. Rolling piedmont. The site is situated on a small hill above a dry arroyo. The Yegoviche, a permanent stream, lies 200 m or 300 m to the west. Soils are thin, black, and calcareous lithosols interspersed with a good deal of rock.

Modern utilization. Corn is cultivated during the summer rains.

Chronological site number. MIA-V-12.

Archaeological remains. There is a much eroded mound about 1 m high in the center of the site area. Possibly this mound was constructed atop an extensive low platform though the "platform" may be the result of recent attempts to terrace the area to avoid erosion.

Ceramic refuse from the site was found over a 50 m x 20 m area the day after plowing. The previous day no ceramic or lithic debris could be noted.

Settlement classification. Hamlet.

Site 19

Previous designation. The people of Cuixtla refer to this site as El Gueche, the same name applied to Site 1A by the Miahuatecos.

Location. Site 19 is located 150 m north of Site 26 in an area 3 km directly west of Miahuatlan. The large mound which is the central feature of the site can be seen on the right about 250 m from the graded dirt road when traveling from Miahuatlan to Cuixtla; 200 m to the west the Río Yegoviche, a perennial stream originating from the springs above Cuixtla, flows northward and eventually feeds into the Miahuatlan River.

Environmental setting. Limestone plateau. The site is located in the middle of a flat field that is a continuation of the flat area where Site 26 and Site 24 are located. The thin soils vary from black to reddish brown and are interrupted by intermittent outcroppings of limestone. To the west this level expanse is interrupted by the gully cut by the Río Yegoviche.

Modern utilization. Milpas and fallow lands surround the site. Irrigation is not practiced despite the proximity of running water.

Chronological site number. MIA-II-6.

Archaeological remains. The site consists of a single 3 m high mound. A pot hunter's pit on the top of the mound exposes limestone masonry set in mud mortar. Very little pottery was encountered on the surface of the mound or the surrounding area. Sherds were very weathered. Period II dating is suggested by a single G.12 rim with an incised double line (Category 085).

Settlement classification. Isolated ceremonial place. It may be that this site is associated with Site 26 (MIA-II-7). They are treated as separate entities because there is a 150 m zone without archaeological refuse between the two.

Site 20

Location. MIA-V-12 is located northeast of Miahuatlan on the left bank of a dry arroyo which eventually crosses the north end of town. Following the arroyo, the site is 1.5 km from town.

Environmental setting. Piedmont spur. The site is situated on a low rise above a broad expanse of floodplain. The arroyo and floodplain are dry most of the year but there is a high water table in the floodplain. The site itself is situated on a plot of rocky and sandy soil.

Modern utilization. Maguey cultivation.

Chronological site number. MIA-V-13.

Archaeological remains. Remains consisted of a very light scattering of sherds, 4 or 5 sherds per square meter over a 20 m x 20 m area. Neither primary nor secondary ceramic markers were noted. A hard, well-fired gray figurine body in a curious fluid pose may indicate colonial or modern occupation rather than Period V (Plate 11 m).

Settlement classification. Isolated residence.

Sites 21 and 22

Location. The site is located to the right of the road from Miahuatlan to Cuixtla just as one reaches the summit of the embankment above the Miahuatlan River.

Environmental setting. River banks. The site is situated on a hill above the river floodplain. A dry gully parallels the river on the opposite side of the hill. The area has a characteristic piedmont soil containing a high clay content and grading from brownish gray to reddish brown.

Modern utilization. The area is used for corn cultivation during the rainy season without the use of irrigation.

Chronological site numbers. MIA-I-4, MIA-IIIb-IV-8, MIA-V-14.

Archaeological remains. Remains consist of two areas of ceramic debris located in the same field: Site 21 measuring 150 m x 50 m and Site 22 measuring 30 m x 20 m. A Period I occupation is noted only at Site 22. Period IIIb-IV and Period V remains are found in both component areas.

Settlement classification. Hamlet. The same classification is applicable for all periods of occupation.

Site 23

Location. Site 23 is located on either side of Highway 175 heading south immediately beyond the city limit of Miahuatlan. The largest portion of the site is located on a hill on the east side of the road.

Environmental setting. Piedmont spur. Most of the site area and the heaviest sherd concentrations are found along a ridge above the surrounding area of flat upper alluvial soil.

Modern utilization. Most of the site is cultivated during the rainy season. The use of city trash for fertilizer has confused the archaeological picture in some portions as ancient sherds are often mixed in with the municipal refuse. A modern house is located on the site. The present day community of Miahuatlan is beginning to expand into this area. In the portion of the site west of the highway, there is little surface debris though a pit dug for adobe clay exposed a large concentration of sherds.

Chronological site numbers. MIA-Trans-IIIa-7, MIA-V-15.

Archaeological remains. Architectural features were not visible on the surface. The site has one of the heaviest sherd accumulations encountered in the survey. Around 30 sherds per square meter could be counted on the ridge and 3 sherds to 15 sherds per square meter in other areas of the site. The site covers an area of 400 m x 70 m.

Settlement classification. Hamlet.

Site 24

Location. Site 24 lies on the right bank of the Río Yegoviche, a small perennial stream fed by springs above Cuixtla. The site is located between MIA-I-6 (Sites 25 and 26) and MIA-V-12 (Site 18).

Environmental setting. Limestone plateau. The site is situated on an almost completely flat area above the Río Yegoviche. The soil is a black calcareous lithosol with the ground surface strewn with chunks of rock.

Modern utilization. Wet season milpa.

Chronological site number. MIA-I-5. Primary and secondary diagnostics of other periods were not encountered though the sample includes General Late material.

Archaeological remains. No architectural remnants were found. Sherds were sparsely scattered.

Settlement classification. Hamlet.

Sites 25 and 26

Location. The site is located on the right bank of the Río Yegoviche between Miahuatlan and Cuixtla. It is made up of two neighboring sites, Sites 25 and 26. A short distance to the south is Site 24 and to the north, Site 19.

Environmental setting. Limestone Plateau. The terrain is fairly flat. The soil in the Site 25 area is a rocky calcareous lithosol that grades into a more sandy soil in the Site 26 area.

Modern utilization. Though situated next to a stream, the area is not irrigated. Corn is cultivated during the rainy season.

Chronological site numbers. MIA-I-6, MIA-II-7, MIA-IIIb-IV-9.

Archaeological remains. Two neighboring sites, Site 25 and 26, make up MIA-I-6. The first, Site 25, is L-shaped. Two ceramic samples were collected from the uninterrupted scatter at Site 25, the Area 1 sample collected at the south end of the elongated section of the "L" paralleling the river, and the Area 2 sample from the base of the "L" running perpendicular to the river. No architectural remnants were visible in these areas.

Site 26 is a zone some 50 meters north of Site 25 where there is a slight rise in the field and the soil is lighter colored than in the surrounding areas.

The subdivisions are measured: Site 25, Area 1--140 m x 40 m; Site 25, Area 2--150 m x 60 m; Site 26--30 m x 30 m. The Period I occupation area includes all subdivision which totals 1.55 h. In Period II only Site 26 was occupied. The Period IIIb-IV occupation measures 1.0 h which includes Site 25 (Area 1) and Site 26.

Settlement classification. Hamlet. The same classification is applicable for all phases of occupation.

Sites 27 and 33

Sites 27 and 33 are components of a single site.

Location. Site 33 is located on the left bank of the Río Yegoviche, a tributary of the Miahuatlan River, a little over 0.5 km from where it feeds into the main river. Site 27 is situated just across the stream.

Environmental setting. River banks. Unlike other sites designated "River banks," this site is not on the banks of the Miahuatlan River itself. The Rio Yegoviche is a stream fed by springs above Cuixtla and flows throughout the year. The right bank can be characterized as rolling piedmont. Soils are thin and rocky. On the left bank where Site 33 is located there are extensive flat areas of alluvial soil mixed with gravel.

Modern utilization. When visited the Site 33 segment had been recently plowed in order to plant corn. The Site 27 component lay fallow.

Chronological site numbers. MIA-II-8, MIA-V-16.

Archaeological remains. The only architectural remains are on the right bank of the stream, at the component designated Site 27. Here, atop a rocky ridge, two mounds were found, both much damaged by plowing and erosion. On the better preserved of the two, lines of stones were exposed on the east and west sides in alignment with the ridge, 24°NW. Across the shallow stream is Site 33, consisting of a scatter of ceramics. A concentration of 30 sherds per square meter was noted in a 10 m x 10 m area in the center of the site. The concentration was less dense in the remaining peripheral areas.

Measurements of the subdivisions are: Site 27--90 m x 30 m; Site 33--50 m x 50 m. The Period II occupation includes only Site 33. Both components were occupied in Period V.

Settlement classification. Hamlet. The same classification is applicable for both periods of occupation.

Site 28

Location. Site 28 is located directly across the Miahuatlan River from MIA-I-1, some 200 m back from the river.

Environmental setting. River banks. The site is set back about 100 m from the escarpment separating this secondary river terrace from the bottom lands. It is situated in the center of a flat field with a sandy loam soil containing a good deal of gravel.

Modern utilization. This is one of the few plots in the Miahuatlan Valley where mechanized farming is practiced. The land is tractor plowed and irrigated by gasoline pumps. Also, the field is fertilized with manure. Hay was being grown at the time of the field study.

Chronological site numbers. MIA-I-7, MIA-V-17.

Archaeological remains. Remains consist of no more than a very light scattering of ceramic materials crumbled into small fragments by the tractor and steel plow. The site extent is 20 m x 20 m.

Settlement classification. Isolated residence.

Site 29

Location. Site 29 lies directly across the river from Site 3.

Environmental setting. River banks. It is situated on the hillcrest above the strip of floodplain. Soil is rocky and sandy.

Modern utilization. Wet season farming.

Chronological site number. MIA-V-18.

Archaeological remains. A very thin scattering of sherds, 2 sherds to 5 sherds per square meter over a 100 m x 50 m area.

Settlement classification. Hamlet.

Site 30

Location. Site 30 is located on the left bank of the Miahuatlan River above La Junta, the point where the Río San Miguel and the Río Tamazulapan converge to form the Miahuatlan River.

Environmental setting. River banks. The site is located on a hillcrest high above the river floodplain. Soil is sandy and rocky.

Modern utilization. The plot us used for corn cultivation.

Chronological site numbers. MIA-Trans-IIIa-8, MIA-IIIb-IV-10, MIA-V-19.

Archaeological remains. The only evidence of architecture found on the surface was a single worked square slab of limestone 20 cm x 20 cm. An accumulation of 10 sherds to 15 sherds per square meter was distributed over the 30 m x 20 m site area. The soil in this zone is slightly darker than that of the surrounding areas.

Settlement classification. Hamlet.

Site 31

Location. The site is located on the steep embankment rising high above the bottomlands on the left bank of the Río San Miguel Yogovana 100 m south of La Junta.

Environmental setting. River bank. The site has been exposed as a result of the erosion of the hillside. Possibly, at one period, the site was situated on a broader ledge that has since eroded away.

Chronological site number. MIA-Trans-IIIa-9.

Archaeological remains. A pot hunter's trench some 5 m long had exposed archaeological materials consisting mainly of ceramics. However, a metate was discovered as well. Architectural features could not be discerned.

Settlement classification. Isolated residence.

Site 32

Location. Site 32 is located on the left bank of the Rio Yegoviche, about 200 m southwest of Site 33 across a plowed field.

Environmental setting. River banks. The site is situated on a gentle slope slightly above a 200 m wide expanse of alluvial soils. The area is much eroded with very thin rocky sandy soil and covered with vegetation of a scrub brush and cactus.

Modern utilization. The area above the bottomlands is used for goat herding. A cart trail cuts through the site. In the adjacent alluvial plots only wet season cultivation is practiced despite the water available for irrigation. Corn is the main crop as in most areas of the valley.

Chronological site number. MIA-V-20.

Archaeological remains. No architectural features remain. The site has a concentration of about 30 sherds per square meter, a very heavy accumulation for the Miahuatlan area. The site extent measures 30 m x 30 m.

Settlement classification. Hamlet.

Site 34

Location. Site 34 is located about 1.5 km south of Miahuatlan, or 800 m south of La Junta, where an oxcart road begins to ascend from the bottomlands on the right bank of the Miahuatlan River.

Environmental setting. River banks. It is situated on a hillside slightly above the broad floodplain.

Modern utilization. Corn is cultivated on the hillside and in the bottomlands.

Chronological site number. MIA-IIIb-IV-11.

Archaeological remains. A road cut exposed fragments of a stucco floor as well as sherds. Several sherds were found in the surrounding area measuring 30 m x 20 m area.

Settlement classification. Isolated residence.

Site 35

Location. In a field between the highway on the east side of Miahuatlan and a farm building belonging to the municipal president, a dirt road leads from the highway to the building.

Environmental setting. Piedmont spur. Site 35 is situated on a ridge above an alluvial area with a water table between 1.5 m and 2 m below the surface. This alluvial expanse is dissected by an arroyo which is dry except during the height of the rainy season.

Modern utilization. The plot is planted in corn during the summer. Trash is used for fertilizer which may possibly account for some of the archaeological materials. In the adjacent low-lying areas gasoline pumps are used to draw water from the ground for irrigation.

Chronological site number. MIA-V-21.

Archaeological remains. A fragment of stucco with red paint was the only architectural remnant encountered. Sherds were very lightly scattered over a 60 m x 50 m area.

Settlement classification. Hamlet.

Site 36

Location. The site lies northeast of Miahuatlan just beyond the highway bypass and across an arroyo that runs parallel to the road.

Environmental setting. Piedmont spur. Site 36 is situated on a piedmont spur above a broad area of rich alluvial soil. The stream below the site is dry except for brief periods during the rainy season. Water is available in the alluvial zone 1.5 m to 2 m beneath the ground.

Modern utilization. The farmer who works fields comprising the site said that he cultivates corn on the lomas only during the rainy season. He also worked a plot in the bajos that he irrigated with a gasoline powered pump and grows crops year round. The previous winter he had grown beans as a cash crop. To his knowledge, no one in the area had practiced pot irrigation in the last twenty years.

Chronological site number. MIA-II-9, MIA-V-22.

Archaeological remains. No architectural remains are to be found on the surface. The site consists of a scattering of temporally mixed ceramic debris over a 30 m x 30 m area.

Settlement classification. Hamlet.

Site 37

Location. Site 37 is located 100 m upstream from Site 36 above the same arroyo. The site lies northeast of Miahuatlan beyond the highway bypass that forms the northeast town boundary. The site is reached crossing the arroyo running parallel to the highway.

Environmental setting. Piedmont spur. It is situated on a piedmont spur above a broad area of alluvial soil. The stream which deposited this soil is dry except for brief periods during the rainy season. However, ground water is available 1.5 m to 2 m beneath the surface.

Modern utilization. Corn is grown during the wet season. The adjacent bottomlands are cultivated year round using a gasoline pump to irrigate. According to the owner, in the previous year a summer crop of corn was rotated with a winter cash crop of beans.

Chronological site number. MIA-V-23.

Archaeological remains. Surface remains consist of no more than a scattering of sherds. The site extent measures 30 m x 30 m.

Settlement classification. Hamlet.

Site 38

The site is not known from surface remains but from materials unearthed during SRH trenching in Miahuatlan. Archaeological remains were observed along 75 m of the trench profile.

Location. It is located on Calle Cipres between Site 1A and the central plaza of Miahuatlan.

Environmental setting. River banks. Site 38 is situated on a ridge above an area of rich floodplain.

Modern utilization. Today the area is a residential zone within the town of Miahuatlan.

Chronological site numbers. MIA-IIIb-IV-12, MIA-V-24.

Archaeological remains. A simple burial, Burial 1975/1, and a slab-lined tomb, Tomb 1975/1 (Fig. 2-14), were discovered by workmen excavating a trench down the middle of Calle Cipres. Various architectural features were exposed in the trench profile including stucco floors with red paint and remains of an adobe wall. Back dirt was heavily mixed with ceramic debris.

Tomb 1975/1 was discovered at the north end of the site. Before the arrival of the author, the SRH team had emptied it of its contents and then presented him with a package of bones and artifacts. Artifacts included three fragments of unworked shell plus two perforated shells, and an obsidian blade, a complete Frying Pan Censer (Category 031) and the fragment of another one, a miniature olla (Category 096, Plate 7 g), a Reddish Yellow Round Bowl (Category 048, Plate 24 b), and a large fragment of a Medium Gray Flat Bottomed Bowl (Category 051).

Tomb 1975/1 is a single chambered tomb with floor dimensions of 220 cm x 70 cm constructed of slabs. When investigated it had been sliced across the center by a perpendicular water pipe trench. Figure 2-14 demonstrates the tomb structure

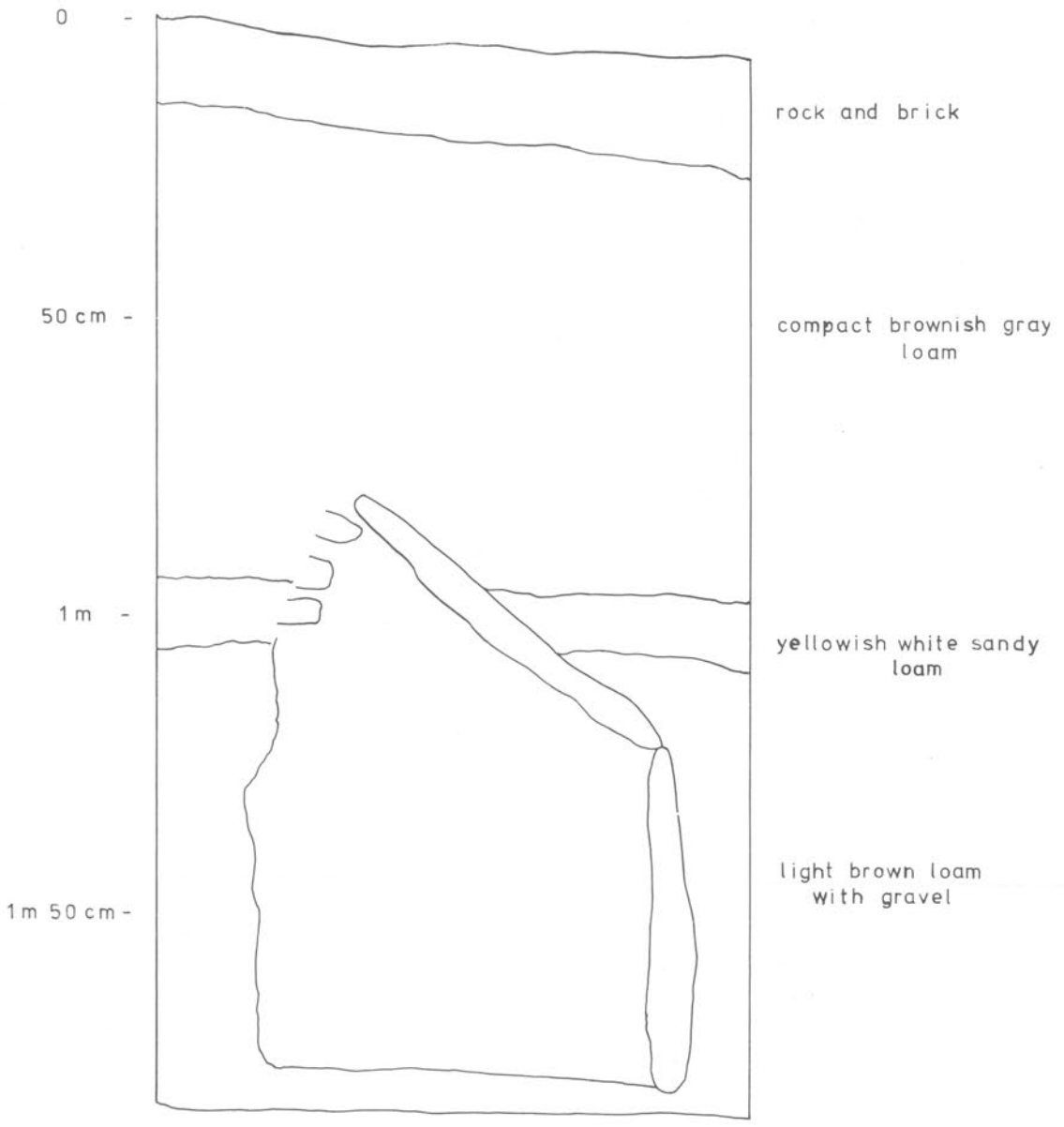


Figure 2-14. Site 38, Tomb 1975/1.

in profile as seen in the trench wall. The roof slabs on one half lean on a stack of projecting slabs which form the other half of the vault.

Later a simple burial, Burial 1975/1, was encountered and it also was removed by SRH workmen before it could be observed in situ. Two complete vessels accompanied this burial: a Bowl with Red Paint Bands (Category 013, Plate 15 a) and a Shallow Round Gray Bowl (Category 029, Plate 14 a, bottom example.)

Period IIIb-IV and Period V materials were mixed in the backdirt.

Settlement classification. Hamlet. The same classification is assigned to both temporal components.

Site 39

The site was discovered from water pipe excavations. Ceramics were mixed in with the backdirt along a 140 m section of trench on Calle Magnolia and 60 m on a perpendicular branching street.

Location. The site is located within Miahuatlan on Calle Magnolia on the southern end of town.

Environmental setting. Upper alluvium. This is an area of sandy alluvial soils deposited by tributaries of the Miahuatlan River.

Modern utilization. The area is a neighborhood within Miahuatlan.

Chronological site numbers. MIA-IIIb-IV-13, MIA-V-25.

Archaeological remains. Quantities of ceramics were mixed with the backdirt and were visible in the trench walls. A hearth area, a shallow charcoal pit, was exposed in the profile on the trench branch off the west end of the main trench.

Settlement classification. Hamlet.

Site 40

Location. Site 40 is located in the southern end of Miahuatlan on Calle Las Palmas. The site is known from excavations in the streets, not from surface remains. A nearby street, Calle Tamarindo, was excavated before my arrival. Workmen claim ceramic refuse was unearthed in this area as well as on Las Palmas.

Environmental setting. Upper alluvium. Soil is sandy. The site is located some 200 m from the spring that feeds the stream bisecting the Site 1A complex.

Chronological site numbers. MIA-I-8, MIA-II-10, MIA-IIIb-IV-14, MIA-V-26.

Archaeological remains. Four samples of materials from Site 40 are reported in the ceramic tabulation (Appendix 2.3), two from backdirt collections and two from burials. Unfortunately, the SRH crew immediately removed the skeletal materials along with associated grave goods offering no opportunity to carry out a proper excavation. Thus, the reported ceramics were delivered and examined but associations are tentative. Burial 1975/1 may have been a Period I burial based on a bridge spout vessel characteristic of that epoch (Category 080, Plate 23 c). A miniature gray bowl was also included in the package of materials (Category 051, Plate 14 g).

Burial 1975/2, a Period V burial, included three Shallow Round Gray Bowls (Category 029, Plate 14 a, top 2 samples), one of which has three tubular supports (Category 103, Plate 24 a).

Settlement classification. Hamlet.

Site 41

Location. Site 41 is located about 2 km south of Miahuatlan on the right bank of the Río Tamazulapan, a headwater tributary of the Miahuatlan River.

Environmental setting. River banks. The site is situated on a spur of piedmont surrounded by river bottomlands on three sides. The soil is a thin calcareous lithosol. Above the site is a large outcropping of limestone bedrock.

Modern utilization. Corn is grown during the rainy season.

Chronological site number. MIA-Trans-IIIa-10.

Archaeological remains. Archaeological structures are not evident on the surface. A very light scattering of sherds, 2 sherds to 3 sherds per square meter, were found over the site surface. Two obsidian blades, one black and one green, were collected along with the sherd sample.

Settlement classification. Hamlet.

Site 42

Previous designation. The site is locally known as El Yeguino. This is probably the same site referred to as Site 13 by Brockington (1973:19).

Location. El Yeguino lies about 1.5 km upstream from where the San Miguel Yogovana and Tamazulapan Rivers merge to form the Miahuatlan River (Fig. 2-1). It is situated between these two river branches on the right bank of the San Miguel Yogovana River in an area surrounding an isolated guanacaste tree.

Environmental setting. River banks. The site lies on a broad ridge high above the Río San Miguel Yogovana. The soil is a thin and very rocky calcareous lithosol. Along these headwater tributaries of the Miahuatlan River bottomlands are narrower than in the section of river running by the town. There is a more extensive zone of lower alluvium along the Río Tamazulapan than along the San Miguel. The latter passes through a narrow gorge. It is a precipitous descent from Site 42 to the Río San Miguel. The terrain slopes more gently toward the Río Tamazulapan.

Modern utilization. The site area was being used for cattle grazing.

Chronological site numbers. MIA-I-9, MIA-II-11, MIA-IIIb-IV-15, MIA-V-27.

Archaeological remains. A single mound, 1.5 m in height and in a poor state of preservation marks the southern boundary of the site.

A very curious feature encountered at Site 42 was a round opening, some 40 cm in diameter, carved in the limestone bedrock in the center of the site. Descending through this hole is a small chamber, presumably a natural hollow some 3 m in diameter. The floor was excavated by hauling backdirt out through the narrow opening with a bucket and rope. There was nothing to suggest that the materials encountered were anything other than surface refuse washed in from above. The fill was mixed with the bones of rodents that apparently had been trapped after falling in. No evidence remained to indicate whether the hole had been used as a storage or refuse pit. An elderly herdsman told us that during the Revolution it served as a fox hole.

The ceramic surface refuse at the site was heavy for the Miahuatlan area though by other standards it might be considered quite light. Some 20 to 30 sherds per square meter were noted in most areas.

The total site area measures 130 m x 70 m. The sample designated Area 1 in the tabulation comes from an area of about 20 m x 20 m around the pit.

It was not possible to determine how the extent of the site might have changed through time. Neither was it possible to date the mound.

Settlement classification. Hamlet.

Site 43

Location. Across the river from the north end of the town of Miahuatlan the site lies 100 m south of the buildings of the rancho of Sr. Don Guillermo Rojas.

Environmental setting. River banks. The site is situated on an old river terrace above the present day floodplain of the Miahuatlan River.

Modern utilization. The area lay fallow when visited. The adjacent bottomlands are cultivated year round using a gasoline pump to draw water from the river.

Chronological site number. MIA-V-28.

Archaeological remains. The sole archaeological remains evident on the ground surface consist of a scattering of sherds, perhaps 5 sherds per square meter. The site extent measures 100 m x 80 m.

Settlement classification. Hamlet.

Site 44

Location. It is located 150 m north of Site 22 (MIA-IIIb-IV-8) on the same ridge along the left bank of the Miahuatlan River. Several hundred meters further to the north is the monument commemorating the 1868 victory of Porfirio Diaz.

Environmental setting. River banks. The site is situated above a secondary river terrace. The plot is third class agricultural land, having rocky soil and poor access to water.

Modern utilization. The area has been fertilized with trash. At the time of our visit it was plowed but still unplanted.

Chronological site number. MIA-IIIb-IV-16.

Archaeological remains. A low rise marks the place where there was once a mound. The mound had been removed recently according to a local campesino. He also noted that sherds are always unearthed in plowing the plot.

The site area measures 60 m x 50 m.

Settlement classification. Hamlet.

Site 45

Location. Site 45 is located on the left bank of the Miahuatlan River, directly across from Site 101 and the ex-hacienda of Monjas.

Environmental setting. River banks. It is situated on an old river terrace above the present day bottomlands. The soil on the site plot is sandy alluvium.

Modern utilization. Corn is cultivated during the rainy season only.

Chronological site number. MIA-V-29.

Archaeological remains. Remains consist of a scattering of sherds, perhaps 2 sherds per square meter over a 20 m x 20 m area.

Settlement classification. Isolated residence.

Site 46

Location. Site 46 is located 150 m upstream from Site 10 also on the left bank of the Miahuatlan River.

Environmental setting. River banks. Most of the archaeological debris is scattered on the embankment separating the bottomland and an upper river terrace. It seems that the occupation was originally situated on this upper terrace and the remains have since been washed down the hillside.

Modern utilization. Milpa.

Chronological site numbers. MIA-II-12, MIA-IIIb-IV-17, MIA-V-30.

Archaeological remains. A 20 m x 20 m scattering of ceramic debris constitutes the sole evidence of past human activity.

Settlement classification. Isolated residence. The household may have been a satellite of a community centered at Site 10.

Site 47

Previous designation. Site 47 is reported by Donald Brockington as Xitla 2 (1973:20). The description of this site is based on the Brockington report.

Location. The site is on the way from Miahuatlan to Xitla 1.5 km after the road crosses the Río Yegoviche; 100 m to the west is a huge ahuehuete tree which can be seen from Miahuatlan, 3 km in the distance.

Environmental setting. Hill flanks. Site 47 is located at the point where the mountains begin their ascent from the rolling piedmont. Soils are thin and cover limestone bedrock. However, the terrain is hilly and variegated unlike areas classified as limestone plateau. Water is available from a spring beneath the ahuehuete 100 m to the west.

Modern utilization. The area is used to graze sheep and goats.

Chronological site numbers. MIA-Trans-IIIa-11, MIA-V-31.

Archaeological remains. "A hundred meters east of the tree are 3 low mounds, two cut by the road. The nearest is about one meter high built of earth and laja, and the lines of three stucco floors are visible. Period V sherds were found there. The second mound, 20 meters to the east, is of similar size and construction, but a broken vessel (Figure 8, U), probably of Period IIIa, and a sherd like those from Site 3 and Figure 8, V were found there. The third mound, about 30 meters to the south of the others, has been looted. A few sherds of Period V were found for a hundred meters in each direction" (Brockington 1973:20).

Settlement classification. Hamlet.

Site 101

Previous designation. The site is located in the vicinity of the ex-hacienda of Monjas and is referred to as Monjas.

Location. Highway 175 runs through Site 101 on the south edge of the community of Monjas.

Environmental setting. River banks. The site is situated on a piedmont spur inside a triangle formed by the intersection of a small tributary stream and the Miahuatlan River (Fig. 2-15). The soil on the site is rocky and sandy. Nearby are expanses of river bottomland.

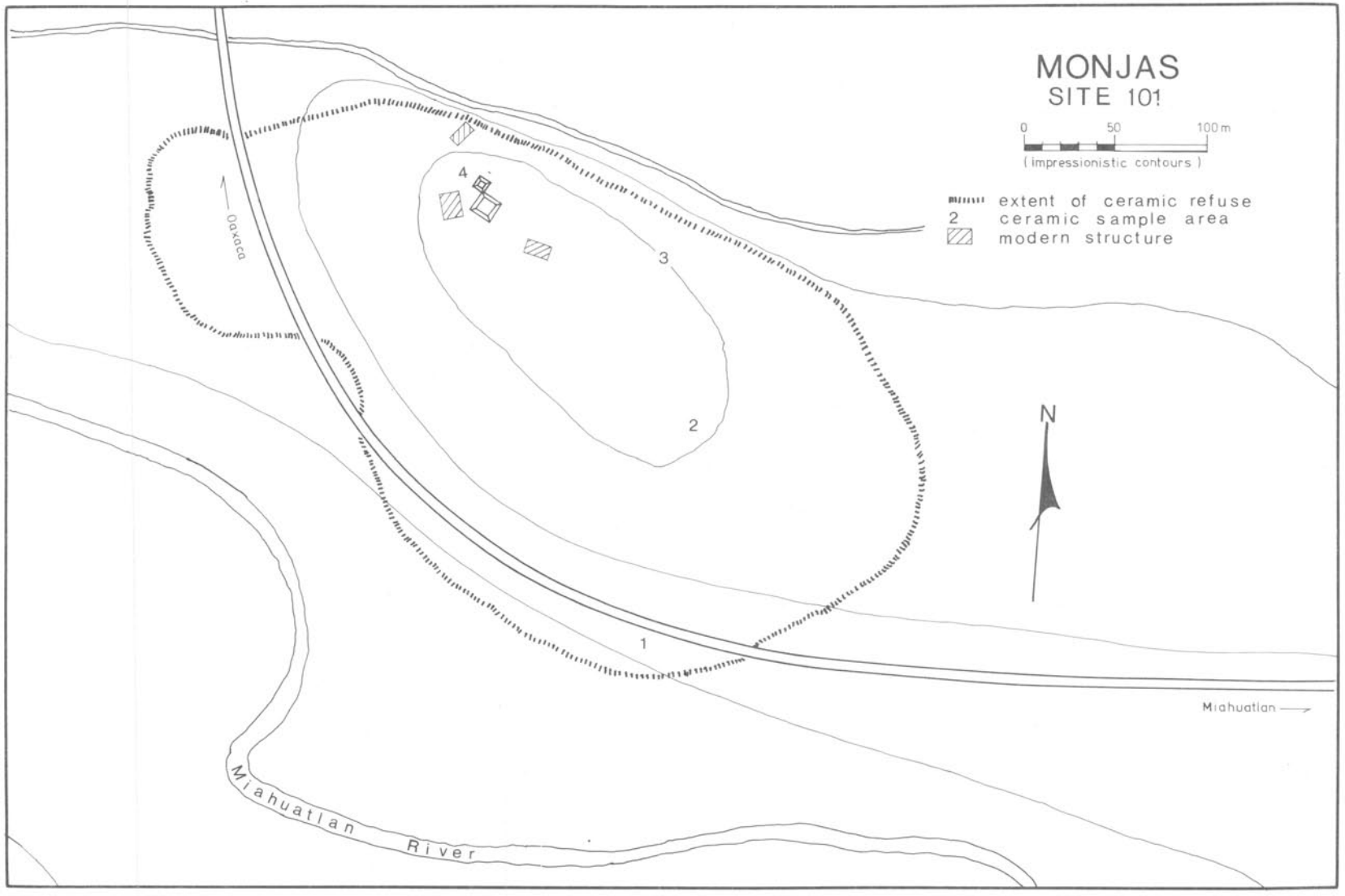

MONJAS
SITE 101
0
50
100 m
(impressionistic contours)
extent of ceramic refuse
2 ceramic sample area
modern structure
N
Oaxaca
Miahuatlan
Miahuatlan River
1
2
3
4

Figure 2-15.

Modern utilization. Most of the area is non-irrigated milpa. Several houses are on the site. The remaining mounds have been damaged by extensive adobe and stone robbing.

Chronological site numbers. MIA-II-13, MIA-IIIb-IV-18, MIA-V-32.

Archaeological remains. The site includes two badly destroyed mounds which seem to date from the later occupations. On one of these, a 2.5 m structure, three superimposed stucco floors are exposed. The mounds have a fill of dirt and stone slabs. The facing is completely worn away.

Ceramics were collected in four areas of the site (Fig. 2-15) which are measured: Area 1--100 m x 50 m; Area 2--250 m x 150 m; Area 3--50 m x 30 m; Area 4--50 m x 50 m. The only Period II diagnostic was found in Area 3. Ceramics from Period IIIb-IV were found in collections from all areas. Period V ceramics were found in all sites except Area 4.

Settlement classification. MIA-II-13 is classified as a hamlet. MIA-IIIb-IV-18 and MIA-V-32 are considered villages.

Site 102

Location. Site 102 is on the left bank of the Miahuatlan River downstream from Monjas, 400 m east of the Monjas cemetery.

Environmental setting. River banks. The site is situated on a hilltop above an expanse of river bottomland. The topsoil has been severely sheet washed leaving a surface of rocks and gravel.

Modern utilization. The plot is barren and abandoned.

Chronological site number. MIA-V-33.

Archaeological remains. A single fragment of stucco was the sole architectural remnant encountered. The plot is covered with a scatter of weathered sherds, about 10 sherds per square meter, over a 40 m x 40 m area.

Settlement classification. Hamlet.

Site 105

Location. The site is located within Monjas between two tributary streams of the Miahuatlan River, 50 m to 100 m east of the highway. The buildings of the ex-hacienda lie across the stream northeast of the site about 100 m away.

Environmental setting. Upper alluvium. The perennial streams on either side have eroded deep channels. The archaeological zone is situated in an area of dark alluvial soil.

Modern utilization. Milpa. Rainy season farming only is practiced despite the availability of water for irrigation.

Chronological site number. MIA-V-34.

Archaeological remains. Single sherds occur at intervals of several meters. In two areas separated from each other by about 50 m, there are more compact accumulations where about 5 sherds per square meter can be found. The total site area measures 150 m x 100 m.

Settlement classification. Hamlet.

Site 108

Location. Two tributary streams of the Miahuatlan River converge at Monjas. Site 108 is located about 2 km north of Monjas between the two but closer to the western branch.

Environmental setting. Piedmont spur. The site is situated on a rocky area between two streams. The stream bed below the site is dry most of the year. Soils surrounding bottomlands are basically sandy alluvium but include a fairly high clay content.

Modern utilization. Castor bean and corn are grown during the summer rains. Irrigation is not practiced.

Chronological site number. MIA-V-35.

Archaeological remains. A scattering of about 5 sherds per square meter covers the area. The site measures 40 m x 20 m.

Settlement classification. Hamlet.

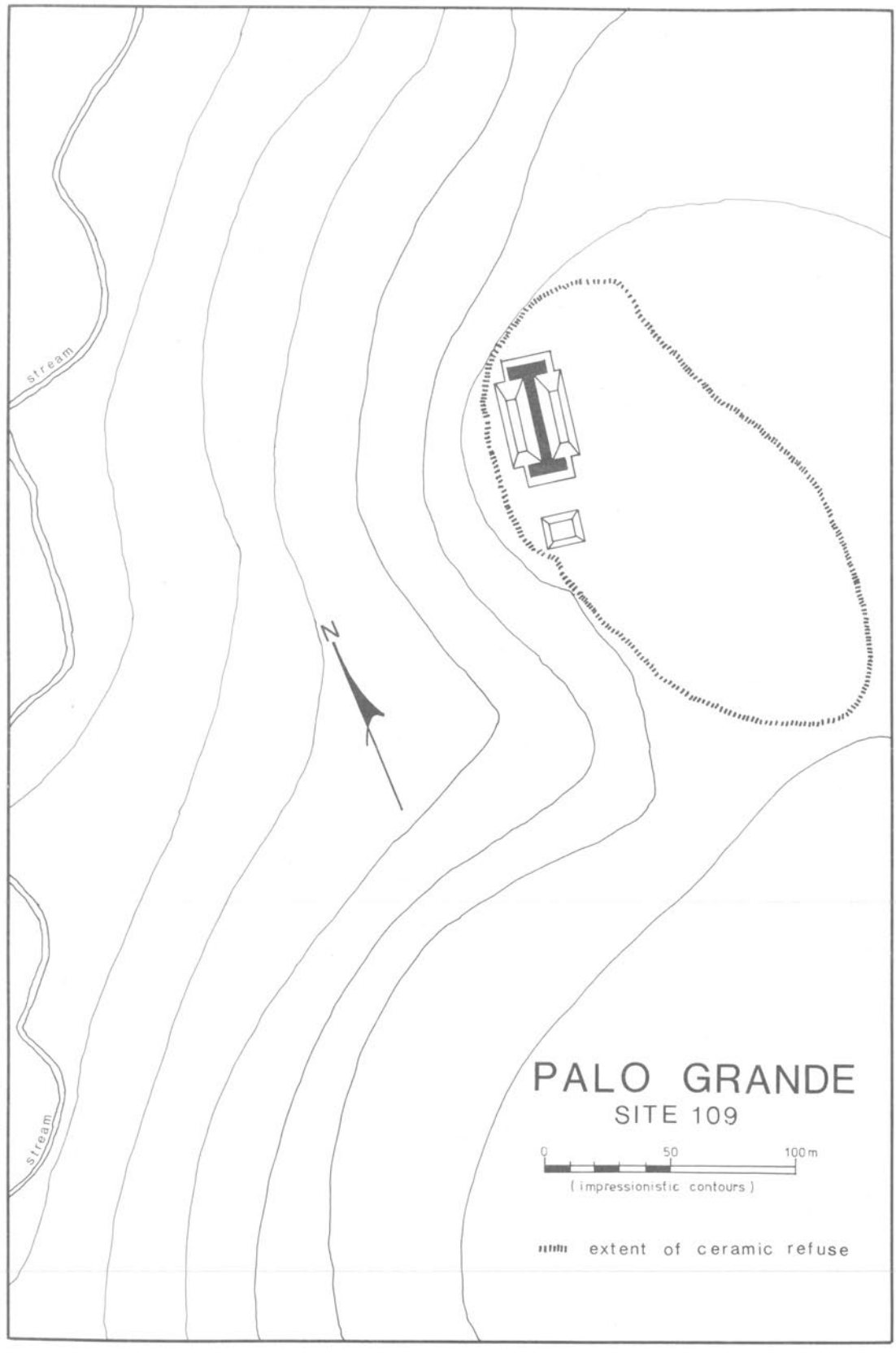

Stream
Stream
N
PALO GRANDE
SITE 109
0
50
100 m
(impressionistic contours)
extent of ceramic refuse

Figure 2-16.

Plate 11 a illustrates the most complete example and is the easiest to relate to known Period I figurines of the Valley of Oaxaca. The applique lips and the use of punctuation to represent a necklace and to suggest hair are common features of Period I. Female breasts and genitalia are frequently represented on anthropomorphic figurines of Period I at Monte Alban. In this example sexual characteristics are not depicted.

Several rather ambiguous body fragments from anthropomorphic figurines have been included in this category. The classification and dating of figurines shown in Plate 11 e, g, h, i are based as much on provenience association as on style. The same can be said for the zoomorphic figurines of Plate 11 n-p. Examples o and p were recovered from water pipe excavations in the streets of Miahuatlan, an area designated Site 40. The anthropomorphic figurine shown in Plate 11 a and the olla in Plate 7 a come from the same provenience.

Paste. The paste is coarse or sandy, varying from dusky red to a light yellowish brown. Plate 11, examples e, g, n, and o have a sandy gray paste.

Surface treatment. Except for the punctate and applique features, surfaces are smooth or grainy, but not burnished.

Comparable material. As mentioned above, these figurines have a general similarity to materials from the Valley of Oaxaca during Period I; for example, the discussion by Caso and Bernal (1952:324, Fig. 479).

Illustration. Plate 11 a, c, d, e, g, h, i, n-p.

Type material. 10 examples.

Dating. Primary Period I. Possibly, some may be dated to Period II.

Geometrically Incised Bottom 078

Form. The vessel form is a conical bowl.

Paste. The paste is medium and gray.

Surface treatment. Interior and exterior surfaces are smoothed. In some cases the interior surface is lightly burnished. The interior base of the bowl bears an incised design of parallel sets of concentric lines alternating with concentrically arranged patterns of parallel diagonal or vertical lines. The design has strict radial symmetry and uniformity that contrasts with the more freely executed design on the Comb Bottom (Category 086). Though it is known that these bases correspond to a rim type with a double incised line, it is not certain which variant of the double line rim, the Well Defined Double Lined Bowl (Category 079) or Double Line Conical Bowl (Category 085). There is the possibility that it may be both.

Comparable material. This decorative element is identical to G.12 materials from Monte Alban (CBA:25-26, Fig. 5, the two rightmost examples on the bottom row); and Period I materials from Monte Negro (CBA:Fig. 6, extreme right and left examples).

Illustration. Plate 5 a, c, h.

Type material. 8 sherds.

Dating. Secondary Period I. This design falls within the G.12 category known from Periods I through IIIa at Monte Alban. This particular variant of that category seems to be confined to Period I. This type of fine workmanship and finish is characteristic of Period I (CBA:67).

Well Defined Double Line Bowl 079

Form. Vessel form is a conical bowl. This ceramic marker is distinguished by the rim. Though the Comb Bottom (Category 086) and Geometrically Incised Bottom (Category 078) and undecorated bottom are known to correspond to this same rim, examples complete enough to demonstrate both rim and base are rare in surface collections. Vessel walls tend to be thinner than the less meticulously manufactured and more common Double Lined Conical Bowl (Category 085).

Paste. The paste is medium, hard, and gray.

Surface treatment. Surface color is gray, usually well burnished on the bowl interior and either burnished or smoothed on the exterior.

The most distinctive feature of this ceramic marker is the application of two parallel lines around the interior lip of the bowl. These lines were neatly and uniformly incised before firing, in contrast to the Double Line Bowl (Category 085).

Comparable material. This ceramic marker falls within the range of materials designated G.12 at Monte Alban (CBA:25, 26, 176, 180).

Illustration. Plate 5 k.

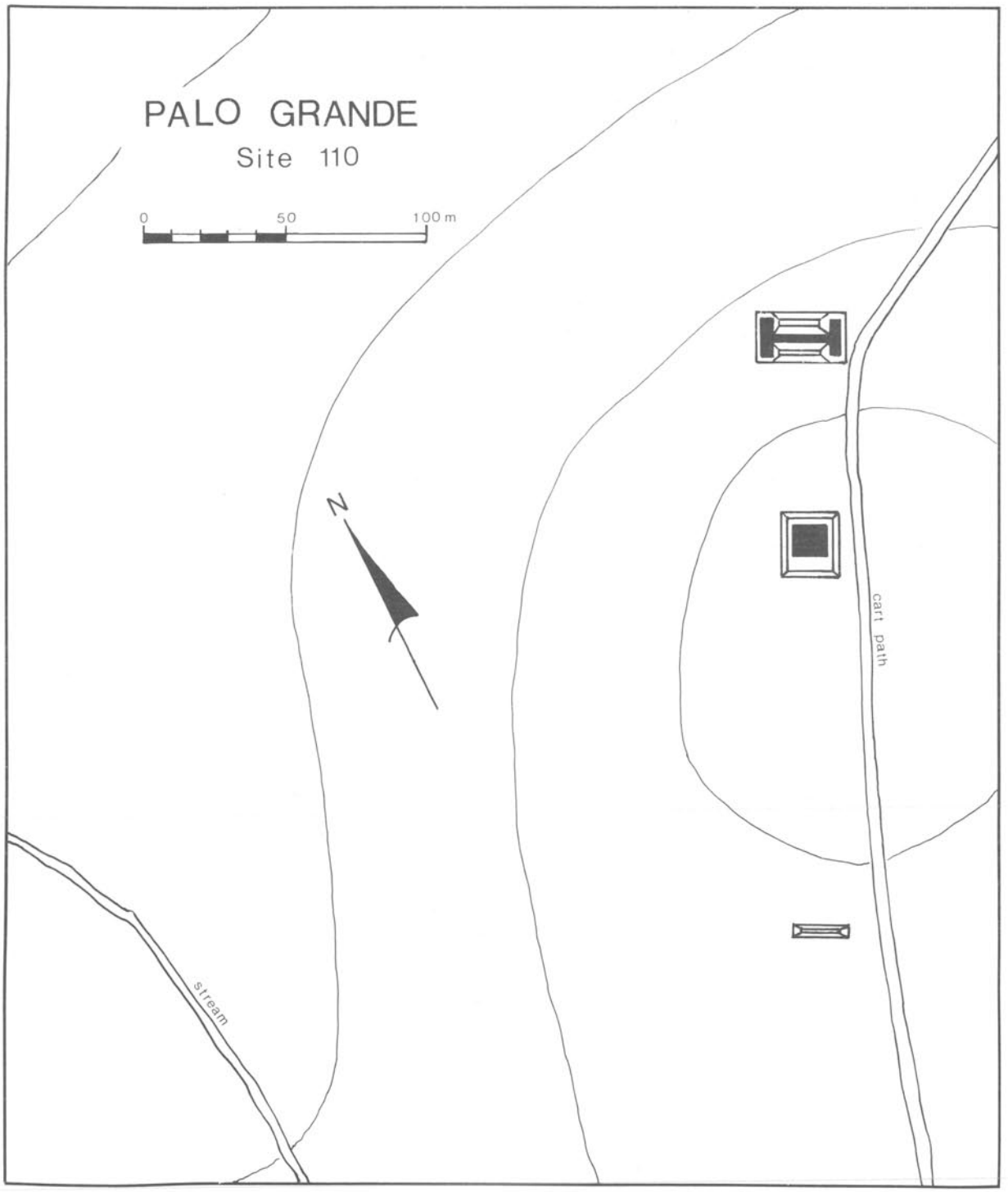


Figure 2-17.

Modern utilization. None.
Chronological site number. MIA-V-38.
Archaeological remains. A damaged mound of rubble and dirt can be found on the crest of the hill. It stands less than 1 m high and has a 10 m x 10 m base. A meager sherd sample was recovered after combing the surrounding area. The total site area measures 40 m x 10 m.
Settlement classification. Isolated residence. Perhaps this was a ceremonial rather than residential site.

Site 112

Previous designation. Site 112 is referred to as El Gueche by inhabitants of the area as are Sites 1A and 19. Gueche is also used in the area as a generic term referring to an archaeological mound.
Location. The site lies in a direct line between Xitla and Monjas, about 3 km northeast of Xitla.
Environmental setting. Rolling piedmont. The area is characterized by gently rolling terrain. Very thin soils cover limestone bedrock. The site is situated on a broad ridge. A perennial stream fed by springs above Xitla flows in a ravine below the site area.
Modern utilization. The area is occasionally used for grazing sheep and goats.
Chronological site number. MIA-V-39.
Archaeological remains. A single low broad platform remains. It measures about 15 m x 10 m at the base and stands 1 m high. The structure was in a very poor state of preservation and showed evidence of recent removal of limestone slabs. Ceramic debris was extremely light. Most sherds were weathered beyond recognition.
The site area measures 50 m x 50 m.
Settlement classification. Hamlet.

Site 201

Previous designation. The site is located within the community of Almolongas and is known locally by that name (Fig. 2-18). Basilio Rojas in his compendium of local lore points out that Almolongas means "place where the water gushes out" (1961:199). He also explains that the Zapotec name for the town is Yeexhui, meaning "Town of the castor bean" or "place where the castor bean grows" (ibid.). Presumably this name would have been applied after Spanish contact as castor is of African origin.
Location. The center of the modern community of Almolongas and the archaeological site, Site 201, both surround the same spring.
Environmental setting. Limestone plateau. Almolongas is located in the midst of an extensive flat area where a spring emerges from the limestone. The spring is surrounded by three huge ahuehuete trees or sabinos. A nearby stream cuts a deep and narrow gorge; 1.5 km to the north the Miahuatlan River cuts another gorge at the interface of this area of limestone and the hills of gneiss. Soils in the site area are black calcareous lithosols.
Modern utilization. Site 201 is located around the main square of present day Almolongas. Several public buildings, a school house, and a prison are built on part of the central archaeological platform mound. Modern houses are located in the midst of the site area. Two of the site's patios are presently milpas. Corn and castor bean are the principal crops of Almolongas, and most fields are irrigated with water diverted from the spring.
Chronological site numbers. MIA-I-11, MIA-II-14, MIA-IIIb-IV-21, MIA-V-40.
Archaeological remains. The central feature of the site is a large 3 m high platform with area dimensions of about 50 m x 50 m (Fig. 2-18). A smaller elongated mound is situated along the southern end of this central platform. The remains of three other mounds are also to be found--all very poorly preserved. The zone is still inhabited and a good deal of destructive activity goes on daily: potting, adobe manufacturing, plowing.
The two mounds to the west of the central platform along with this platform seem to be part of a complex designed to form a U-shaped patio. To the east of the spring is a large low platform, about 40 m x 30 m in extent and 1 m high.
Ceramics were collected from three samples areas: Area 1 is a field west of the mounds, Area 2 includes the central platform, and Area 3 is south of the western-most platform where a 10 m x 4 m pit was dug to make a swimming pool that was

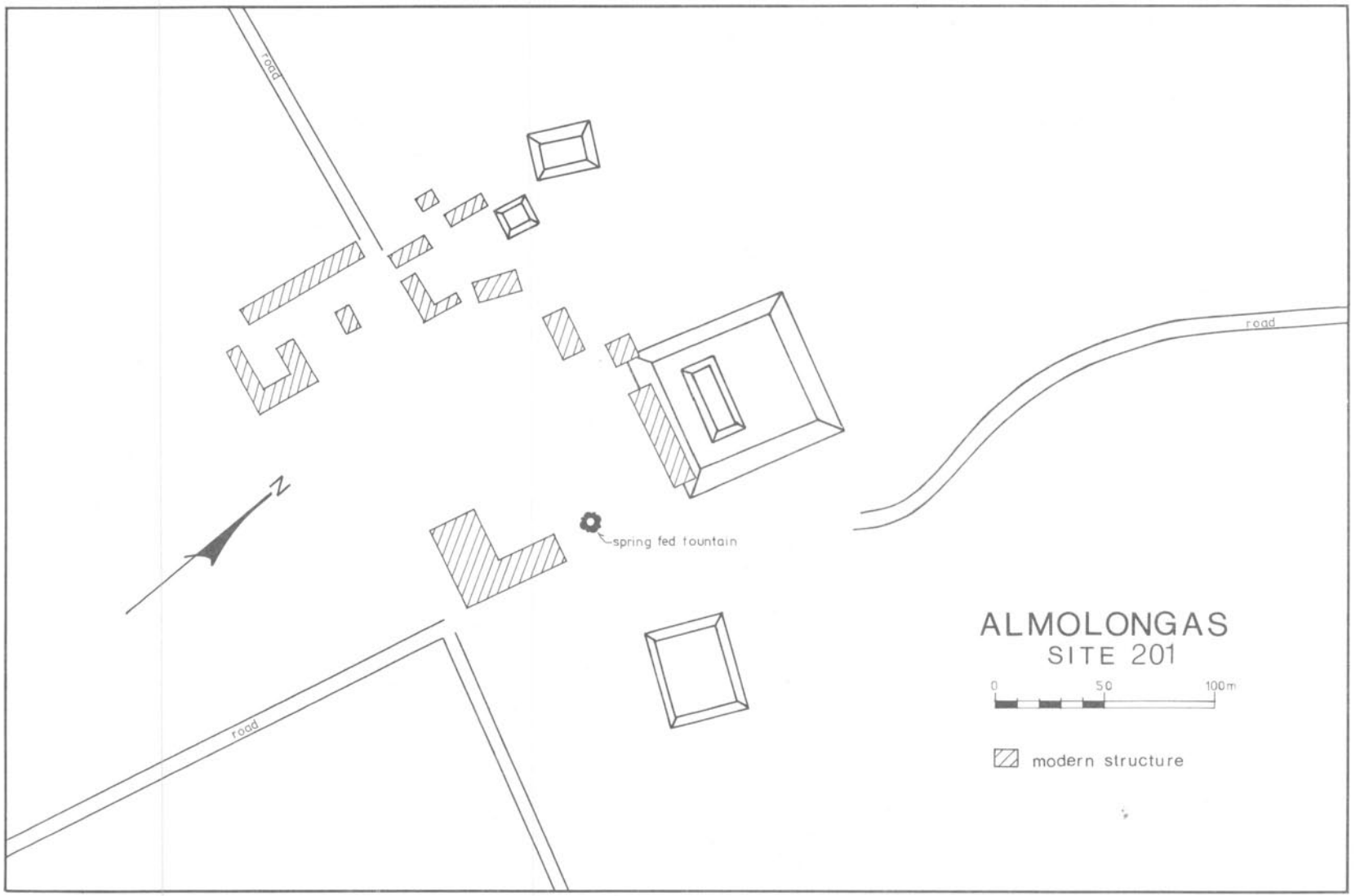

road
road
road
N
spring fed fountain
ALMOLONGAS
SITE 201
0
50
100m
modern structure

Figure 2-18.

never completed. These subdivisions of the site are measured: Area 1--150 m x 150 m; Area 2--200 m x 100 m; Area 3--50 m x 50 m. A Period I occupation is noted in Area 1. The Period II occupation includes the entire site. Areas 1 and 2 were occupied in Period IIIb-IV. Period V materials were found in all areas of the site.

Besides ceramics, two projectile points were found atop the central platform, Area 2, both probably from Period V (Plate 25 b, c). One is a very finely crafted notched point of brown obsidian (Plate 25 c). The tip is broken off, but if complete, it would be about 4 cm long. The other, a stemmed point, is made from a greenish blue stone interspersed with white chert.

Settlement classification. The Period I occupation is classified as a hamlet. In all other periods of occupation the site is considered to have been a village.

Site 202

Location. Site 202 is located within San Bernardo 150 m northwest of the ayuntamiento.

Environmental setting. Limestone plateau. The site is situated on an expanse of flatland. The soil, derived from the underlying limestone, is thin, rocky, and black. Spring water is channeled to irrigate fields throughout much of San Bernardo. The water table is about 6 m below the surface.

Modern utilization. Corn and castor beans are the principal crops. Fields are irrigated by a system of ditches fed by upland springs.

Chronological site numbers. MIA-II-15, MIA-V-41.

Archaeological remains. The remnants of three large mounds ranging between 2 m and 4 m in height are dispersed over the site area. All have been severely damaged by stone robbing that has exposed fill of masonry set in a mud mortar. The remains of a platform, less than 1 m high are located in the road next to the site. It was in a very poor state of preservation at the time of our visit.

None of the structures could be assigned to a specific period of occupation.

The site area measures 300 m x 200 m.

Settlement classification. Village.

Site 203

Previous designation. The site is referred to locally as El Guisho.

Location. 5.5 km southwest of Almolongas.

Environmental setting. Hilltop. The site is situated atop a high hill with a commanding view to the north toward the Miahuatlan River. An expanse of flat limestone plateau begins at the foot of the hill and extends beyond Almolongas to the river. To the south, a range of higher hills define the Miahuatlan River Valley. The hill where the site is situated is composed of limestone, and there are three shallow caves near the summit. The nearest water is a spring fed stream 1 km away, which continues past Almolongas cutting a deep ravine in its lower reaches.

Modern utilization. Recently the area had been cleared of underbrush and trees in preparation for planting.

Chronological site numbers. MIA-I-12, MIA-II-16, MIA-Trans-IIIa-14, MIA-V-42.

Archaeological remains. Though the site was heavily covered with brush, there are many well preserved architectural details including the remains of an elaborate stone terracing system, rectangular stone house foundations, and three low platforms between 1 m and 1.5 m high.

The site covers a 250 m x 150 m area.

Settlement classification. Village.

Site 204

Location. Site 204 like Site 202 is located within the community of San Bernardo. The site lies 1 km north of the ayuntamiento.

Environmental setting. Limestone plateau. Though classified as plateau the terrain has a slight grade. Two to three hundred meters to the west is a spring fed stream flowing through a deep ravine.

Modern utilization. The area is used for growing corn and is irrigated by a gravity flow system of ditches which originates at a spring 2 km to the south and passes through San Bernardo before reaching these fields.

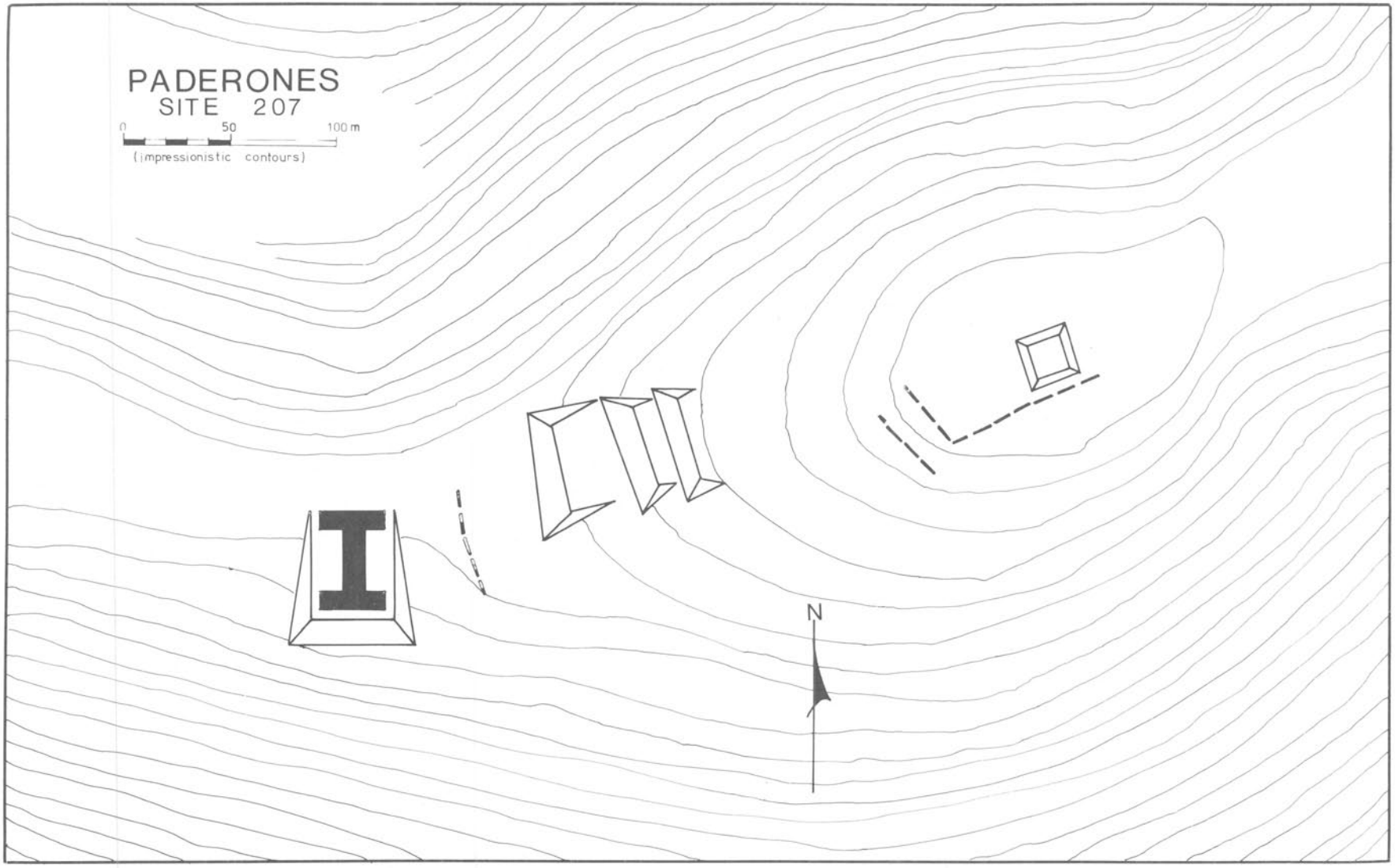


Figure 2-19

Chronological site numbers. MIA-II-17, MIA-Trans-IIIa-15, MIA-IIIb-IV-22, MIA-V-43.

Archaeological remains. The remains of 2 mounds can be discerned. The first is 1 meter high. The second has been completely leveled leaving a 10 m x 10 m area of light soil which is especially apparent on an aerial photograph. The total site area measures 100 m x 100 m.

Settlement classification. Hamlet.

Site 206

Previous designation. Locally the site is referred to as El Llavero.

Location. Looking north-northwest from the town of Miahuatlan is a mountain mass 5 km to 6 km in the distance which is referred to as Cerro Colorado. A lone peak stands out at the western end of the ridge. Site 206, El Llavero, is situated on this pinnacle. The site can be reached by taking a dirt road to the right off Highway 175 just northwest of San José Llano Grande and heading west.

Environmental setting. Hilltop. The site is situated on the peak of a steep hill. No water was found in the immediate area.

Modern utilization. Corn is grown during the rainy season. Sheep are herded here as well.

Chronological site numbers. MIA-Trans-IIIa-16, MIA-IIIb-IV-23, MIA-V-44. The bulk of the ceramics date from the later two periods.

Archaeological remains. Ceramic debris covers the peak of the mountain. A 30 m x 30 m area has been terraced though ceramic debris is scattered over a broader area of the mountain peak. Within the perimeter of the terracing are two mounds, one a 3 m platform and the other, an elongated structure standing about 1 m high.

The site extent measures 200 m x 150 m.

Settlement classification. Village.

Site 207

Previous designations. Locally the site is known as Paderones (Fig. 2-19).

Location. Paderones is found 9.5 km northeast of El Llavero, Site 206, atop a ridge on the highest point of the Cerro Colorado. La Cumbre, Site 208, is 400 m to the west on the same ridge. These mountains are visible in the distance looking north from Miahuatlan.

Environmental setting. Hilltop. Site 207 is situated on the crest of a mountain 600 m above the level of the Miahuatlan River. Quite likely much of the area was covered with scrub brush and forest at one time but since has been denuded. Soil is thin and rocky. The area is mostly red clay derived from gneiss with extensive bare gneiss outcroppings. The red clay gives the color for which the mountain range is named, Cerro Colorado.

Modern utilization. Most of the site area lies fallow, but there are patches of the ridge that are planted in corn.

Chronological site number. MIA-V-45.

Archaeological remains. The remains of a ball court, a stepped series of terraced platforms, and a 2 m high mound are evident at the site (Fig. 2-19). The ball court was built into the hillside. Its outside dimensions are approximately 50 m x 30 m. Ceramic debris was very sparsely scattered over the site. The site extent measures 300 m x 100 m.

Settlement classification. Village.

Site 208

Previous designation. Locally Site 208 is referred to as La Cumbre.

Location. Site 208 is located on the west end of the same ridge with Site 207, Paderones. About 400 m separates the two sites.

Environmental setting. Hilltop. The site area is 600 m above the level of the Miahuatlan River atop a mountain ridge.

Modern utilization. Corn is planted on the flat terrace areas during the rainy season.

Chronological site number. MIA-V-46.

Archaeological remains. An elongated platform, 2 m high is located at the east end of the site. The rest of the site area consists of a series of flat terrace areas some of which are maintained by retaining walls of rock. It is not certain if

these walls are part of the prehispanic site or if they have been built or perhaps rebuilt more recently to prevent erosion.

Along with the ceramic sample, a finely manufactured triangular projectile point of white chert was recovered from the surface (Plate 25 a).

The site covers a 200 m x 100 m area.

Settlement classification. Village.

Site 209

Location. Site 209 is located 1 km southwest of Almolongas on the right bank of the stream that also passes west of Almolongas.

Environmental setting. Limestone plateau. The site is situated on the extensive area of limestone plateau that surrounds Almolongas. Next to the site a permanent stream has cut a ravine with steep walls. Topsoil is extremely thin.

Modern utilization. The area is nearly barren and lies fallow. There was a single plow line through the rocky topsoil but it seems that whoever began gave up before continuing further. Blue maguey was being cultivated in an adjacent plot. Across the canyon stream soil was much thicker and alfalfa and sugar cane were grown using water from the stream to irrigate.

Chronological site number. MIA-V-47.

Archaeological remains. A medium scattering of ceramic debris, 10 sherds to 15 sherds per square meter over a 100 m x 50 m area.

Settlement classification. Hamlet.

Site 301

Previous designation. Locally the site is referred to as El Mesquite.

Location. Site 301 is a little more than 1 km southwest of Almolongas on the opposite side of the canyon stream that passes by Almolongas (Site 201).

Environmental setting. Limestone plateau. The site is located on the same extensive area of flatland as Site 201 with thin dark soils derived from the underlying limestone. Water is available from the perennial stream running past the site 200 m to the east.

Modern utilization. At the time the site was visited sheep and goats were foraging admist the stubble left from the corn crop of the previous season.

Chronological site numbers. MIA-I-13, MIA-II-18, MIA-V-48.

Archaeological remains. The remains of a 2 m and a 3 m mound are situated at opposite ends of the refuse area. A light scattering of ceramic debris covers the 300 m x 200 m area with the heaviest concentrations around each mound.

Settlement classification. Village.

Site 302

Previous designation. The local name for Site 302 is San Dieguito.

Location. San Dieguito is found 2 km southwest of San Nicolas to the right of an oxcart road leading to San Guillermo.

Environmental setting. Rolling piedmont. The site is situated on a ridge in an area of variegated terrain. Soil is thin and mixed with chunks of limestone. The nearest water source is 400 m from the site where a large cypress tree marks the location of a spring.

Modern utilization. Corn is cultivated during the rainy season.

Chronological site number. MIA-V-49.

Archaeological remains. The sole architectural remnants are the rubble remains of a mound standing 1.5 m high. The site area measures 100 m x 50 m.

Settlement classification. Hamlet.

Site 303

Previous designation. Locally the site is referred to as Agua del Higo, the same as the modern rancheria to which it corresponds.

Location. Site 303 is located just west of the present day community of Agua del Higo.

Environmental setting. Upper alluvium. Site 303 is situated next to an alluvial area deposited by the Rio del Higo. This river is usually dry except during the summer rains. Soil is sandy and reddish gray, derived from decomposed gneiss. The surrounding landscape is barren and hilly.

Modern utilization. Corn is cultivated during the rainy season.
Chronological site number. MIA-V-50.
Archaeological remains. Two low mounds are found here. One 8 m long stands about 1 m high and a second is a square 1.5 m high mound.
The site extent measures 250 m x 100 m.
Settlement classification. Hamlet.

Site 401

Previous designation. Locally the site is called El Mogote del Higo.
Location. Site 401 can be found 1.5 km upstream from the center of Yogana on the left bank of the Miahuatlan River.
Environmental setting. River banks. Site 401 lies a little more than 3 km from the confluence of the Miahuatlan and Atoyac Rivers. Thus it is located at the gateway between Oaxaca and Miahuatlan Valleys.
The site is situated on a high ridge above the river. The terrain in this portion of the river valley is quite variegated, but there are narrow strips of bottomland. It seems likely that these rich areas of lower alluvium have shifted substantially even in recent times. Some areas of bottomland that were visible on an eight-year-old aerial photo had since been washed away. A village official pointed out specific areas that had been swept away from flooding in the previous rainy season.
Modern utilization. The site is on ejido land. In the previous season corn was cultivated using chemical fertilizers.
Chronological site numbers. MIA-I-14, MIA-II-19, MIA-Trans-IIIa-17, MIA-IIIb-IV-24, MIA-V-51.
Archaeological remains. Architectural remains include a series of terraced platforms. Also there are two small mounds. In the terraced areas broken pieces of stucco floor with traces of red paint were found. The site measures 400 m x 100 m. Surface ceramics indicate a continuous occupation from Period I through V though changes in site dimensions were not discerned.
Settlement classification. Hamlet.

Site 502

Location. Site 502 is located on a ridge 1.5 km southwest of La Noria.
Environmental setting. Rolling piedmont. The site is situated atop an elongated ridge in the very hilly region surrounding the confluence of the Miahuatlan River with the Atoyac. The area is exceptionally barren and rocky. Soils are yellow and derived from decomposed gneiss.
Modern utilization. Corn is grown during the summer rains. On the surrounding hillside maguey is cultivated.
Chronological site number. MIA-V-52.
Archaeological remains. There are two low rises in a field that may be the remains of house mounds. Very few sherds were encountered though a local farmer mentioned that some are turned up with annual plowing.
The site measures 20 m x 20 m.
Settlement classification. Isolated residence.

CHAPTER III

SETTLEMENT DYNAMICS

Settlement Patterns: Subareas of the Valley

The subareas of the Miahuatlan Valley are units of analysis of an intermediate level of scale between sites and settlement patterns. These divisions are defined according to both natural environment and settlement clustering (Fig. 3-1), and the significance of each subarea throughout the entire course of the prehispanic sequence is analyzed. Then valley-wide settlement patterns are viewed period by period.

For a thorough discussion of the physiography and natural environment of the Miahuatlan Valley and for specific definitions of the terms used in this analysis, see Chapters I and II.

The Miahautlan Area

The most dense and obvious site clustering occurs along the Miahuatlan River from the northern end of the town of Miahuatlan and extends upstream 2 km beyond the junction of the two major headwater streams (Figs. 3-1 and 2-1). Also, the most expansive areas of alluvial soil in the valley are found in this area.

The Site 1A complex (Sites 1A, 1B, 5, and 5A) just south of town probably served as an administrative-religious center for the entire valley throughout the prehispanic sequence, judging from its size and architectural complexity. Also this site probably was the center of an even larger dispersed community, with the sites clustering to the north along the river and to the south within the town of Miahuatlan representing satellite hamlets (Figs. 3-2 through 3-6). An analogy to support the interpretation can be seen in the present-day community of Almolongas that is discussed in Chapter II. The town of Miahuatlan probably had a similar dispersed pattern at one time, but the grid pattern that was imposed during the colonial period developed beyond such an embryonic form because of the higher population density in this section of the valley. The basis for proposing a satellite relationship between the Site 1A complex and surrounding sites rests on spatial proximity.

The size of the Site 1A complex and the profusion of small sites in the subarea seem to increase through time. The Period V archaeological remnants in the area probably represent the remains of the town of Miahuatlan mentioned in the colonial documents as having been a market center prior to Spanish contact (Paso y Troncoso 1905).

The Monjas Area

A distinct clustering of sites is found about 3 km downstream from Miahuatlan between the confluence of the Río Yegoviche and the ex-hacienda of Monjas. A separate subarea is defined because the grouping of sites is spatially separate from the cluster in the Miahuatlan area. Physiographically, the Monjas area is generally similar to the Miahuatlan area though bottomlands are narrower and there is little upper alluvium.

Archaeological sites are found almost exclusively along the edge of the river. Settlement was very sparse up to Period IIIb-IV when Site 101 (MIA-IIIb-IV-18) at the ex-hacienda of Monjas reached its maximum and on the opposite bank of the river, 1 km upstream Site 10 (MIA-IIIb-IV-4) also became a sizable village.

Cuixtla-Xitla Hill Flanks

The area has a diversity of physiographic zones. The modern communities of Cuixtla and Xitla are each nestled between the mountain flanks facing the open valley. Springs above the towns feed streams that dissect the piedmont on their way to the Miahuatlan River.

Early in the sequence, during Periods I and II, settlement was restricted to the piedmont along the Río Yegoviche. Later, especially during Periods IIIb-IV and V, there was a retreat into the hill flanks and to the hilltop Site 17 (MIA-IIIb-

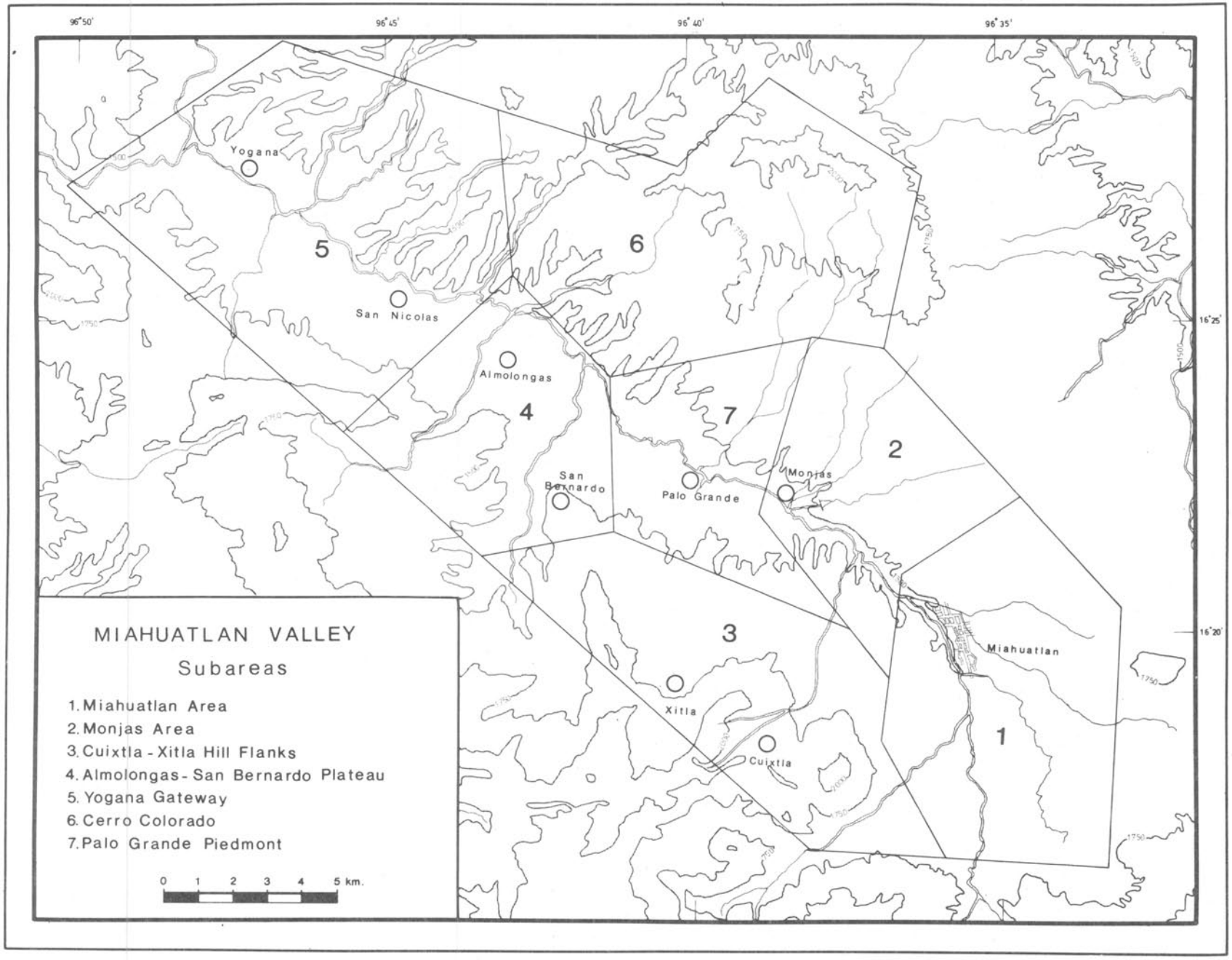

96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
Yogana
San Nicolas
Almolongas
San Bernardo
Palo Grande
Monjas
Miahuatlan
Xitla
Cuixtla
1
2
3
4
5
6
7
MIAHUATLAN VALLEY
Subareas
1. Miahuatlan Area
2. Monjas Area
3. Cuixtla - Xitla Hill Flanks
4. Almolongas - San Bernardo Plateau
5. Yogana Gateway
6. Cerro Colorado
7. Palo Grande Piedmont
0 1 2 3 4 5 km.

Figure 3-1.

IV-3, MIA-V-10), which in Period V might have been as important as the Site 1A complex at Miahuatlan. Also the extensive hillside terrace, where the present town square of Cuixtla is situated, seems to have been occupied first in Period IIIb-IV, as part of this general movement into the hills.

Almolongas-San Bernardo Plateau

The Miahuatlan River, midway along its course between headwaters and confluence with the Atoyac River, cuts a channel at the interface of two geological zones. On the right bank is the beginning of a rolling piedmont with eroding soils derived from metamorphic rock. To the left, sheer cliffs mark the edge of a flat limestone expanse that extends 4 km or 5 km to the base of the surrounding hills (Fig. 1-3 d). Compared with the Miahuatlan and Monjas areas this plateau has been very sparsely inhabited. Thus, the subarea is defined more on the basis of physiography rather than on site clustering.

In Period I there were two sites in the area. Site 201, located next to a gushing spring, in the midst of present day Almolongas, seems to have been a significant settlement through all periods except Period IIIa. Further south toward the hills is El Mesquite with Period I and II occupations that seem to have been abandoned thereafter until Period V. Like the early sites in the Cuixtla-Xitla area, the natural setting of El Mesquite is located on an area of limestone plateau in the open valley along a tributary stream.

The hilltop site of El Guisho (Site 203 or MIA-I-12) marks the most notable departure from the general pattern of early site location. The natural setting foreshadowed Period IIIb-IV and V settlement trends. However, unlike later hilltop sites, good agricultural areas were fairly accessible. The hill is not tucked away in a mountainous zone but rises from the southern edge of the limestone plateau. There are indications that El Guisho was inhabited through Period V, but there is no evidence of an occupation during Period IIIb-IV.

The Yogana Gateway

The countryside surrounding the last 10 km of the course of the Miahuatlan River is quite hilly and rocky. In this area agriculture is almost entirely restricted to maguey cultivation. The mountains are closer to the river on either side, and even areas of piedmont are much steeper than the piedmont along upstream portions of the valley. The area is almost devoid of archaeological remains. Site 401, Mogote del Higo, is situated above the river 2 km from the confluence with the Atoyac. The continuous occupation of this locus probably can be attributed to two factors: first, because the hills close in on the river, access between the Miahuatlan Valley and the Valley of Oaxaca is constricted, and it was possible to benefit from or, perhaps, control trade and movement between the two valleys; second, because there are bottomlands, agriculture was possible.

Cerro Colorado

The north central section of the survey area is barren and mountainous. The orange and red hills seen in the distance from the town of Miahuatlan are appropriately named the Cerro Colorado. The area was probably never heavily populated though there are rather impressive architectural features at several sites that can be assigned to Periods IIIb-IV and V. Period I and II remains are lacking.

Though the hilltop site of El Guisho (Site 203) in the Almolongas-San Bernardo area was settled as early as Period I, El Llavero (Site 206) atop a peak in the Cerro Colorado represents the first site in a remote mountain setting with traces of Period IIIa activity. However, most of the ceramic debris at the site can be assigned to Period IIIb-IV and Period V. In Period V two additional sites, Paderones, Site 207 (MIA-V-44), and La Cumbre, Site 208 (MIA-V-45), were constructed at the highest ridge of the Cerro Colorado. Though there are major architectural features at these sites it seems the ridge was very sparsely inhabited. Compared with Cerro del Gentil (Site 17) in the Cuixtla-Xitla area, there is very little ceramic refuse and terracing. The Cerro Colorado sites were probably empty ceremonial centers and outposts for monitoring movement through the valley rather than residential centers.

The piedmont between Monjas and the limestone plateau of San Bernardo is a barren hilly landscape. Archaeological remains are rare except on a single piedmont ridge above Palo Grande where Sites 109 and 110 are situated. Evidence at Site 109 suggests human occupation as early as Period I. The mountainous terrain and present-day erosion suggest that settlement of the areas was not based on the availability of agricultural resources.

A ball court at each site probably indicates its use as a civic-ceremonial center. The ball courts were probably constructed after Period IIIa. By far the greatest volume of surface ceramics come from Periods IIIb-IV and V, especially at Site 110. At Site 109 the dimensions of the court are almost identical with structures that clearly date to Period IIIb-IV or later. The ball courts at Sites 109, 17 (Cerro del Gentil), and 207 (Paderones) have outside dimensions of roughly 50 m x 20 m (Figs. 2-16, 2-13, 2-19). Stylistically the court at Site 109 is closest to the one at Cerro del Gentil near Cuixtla. In both, the central alley of the I-shaped court is 3 m wide and is enclosed and defined by two steep-sloped mounds, each 20 m long and 2.5 m high. The court dimensions are similar at Paderones in the Cerro Colorado (Site 207); however, the court was constructed by enlarging a natural ravine and by adding stone facing for the banks of the court, not by building free-standing mounds.

The ball court at Site 110 is smaller than the others with outside dimensions of 33 m x 19 m.

The Historic Synchronic Interpretation of Valley Wide Settlement Patterns

The Period I Settlement Pattern (600-150 B.C.)

In this survey no materials were found that predate Period I. So far, the only suggestion of prior occupation is a Trinidad projectile point reported by Brockington from Site 3 that may be dated to 4,000 B.C. (1973:15, Fig. 6 e).

Fourteen sites are assigned to Period I. The total surface area of all archaeological zones is 37.95 h, less than half of Period V, the most extensive occupation. The graph in Figure 3-8 is based on the extent of settlement in each period. This curve probably reflects population trends though there are tremendous problems in converting archaeological data into population figures.

Period I remains in the valley are concentrated in and around the present-day community of Miahuatlan, a natural setting including a broad flat area of upper alluvium and the most extensive strips of river bottomlands in the survey region. Both of these types of environmental settings are conducive to traditional irrigation techniques--pot irrigation and gravity flow canal irrigation--which are still practiced in the Oaxaca Valley.

The correspondence between settlement and agricultural resource distribution is far more pronounced in Period I and Period II than later in the prehispanic sequence. The only hilltop site is El Guishó, Site 203. This site is not tucked away in the remote hills as are many of the Period V hilltop sites but is at the edge of a broad expanse of limestone plateau. Of all the piedmont sites only Palo Grande (Site 109) is in the barren rolling piedmont. All the other piedmont sites are in areas of flat limestone plateau, and always within less than 100 m of a spring or stream.

Thus, the area was sparsely populated by a people practicing simple irrigation agriculture. The concentration of sites in areas suited to traditional pot and canal irrigation further suggests that they may have been practiced as early as Period I. However, the antiquity of these techniques remains uncertain in absence of direct archaeological evidence.

The Period II Settlement Pattern (150 B.C.-150 A.D.)

Nineteen sites are assigned to this period. The total surface area is 43.40 h, an increase of 10 to 15 percent over Period I. Besides the growth in number and size of sites, there were not any fundamental changes in the settlement pattern. Settlement is still heavily concentrated in the alluvial areas, mainly around the town of Miahuatlan. The prime determinants of settlement location

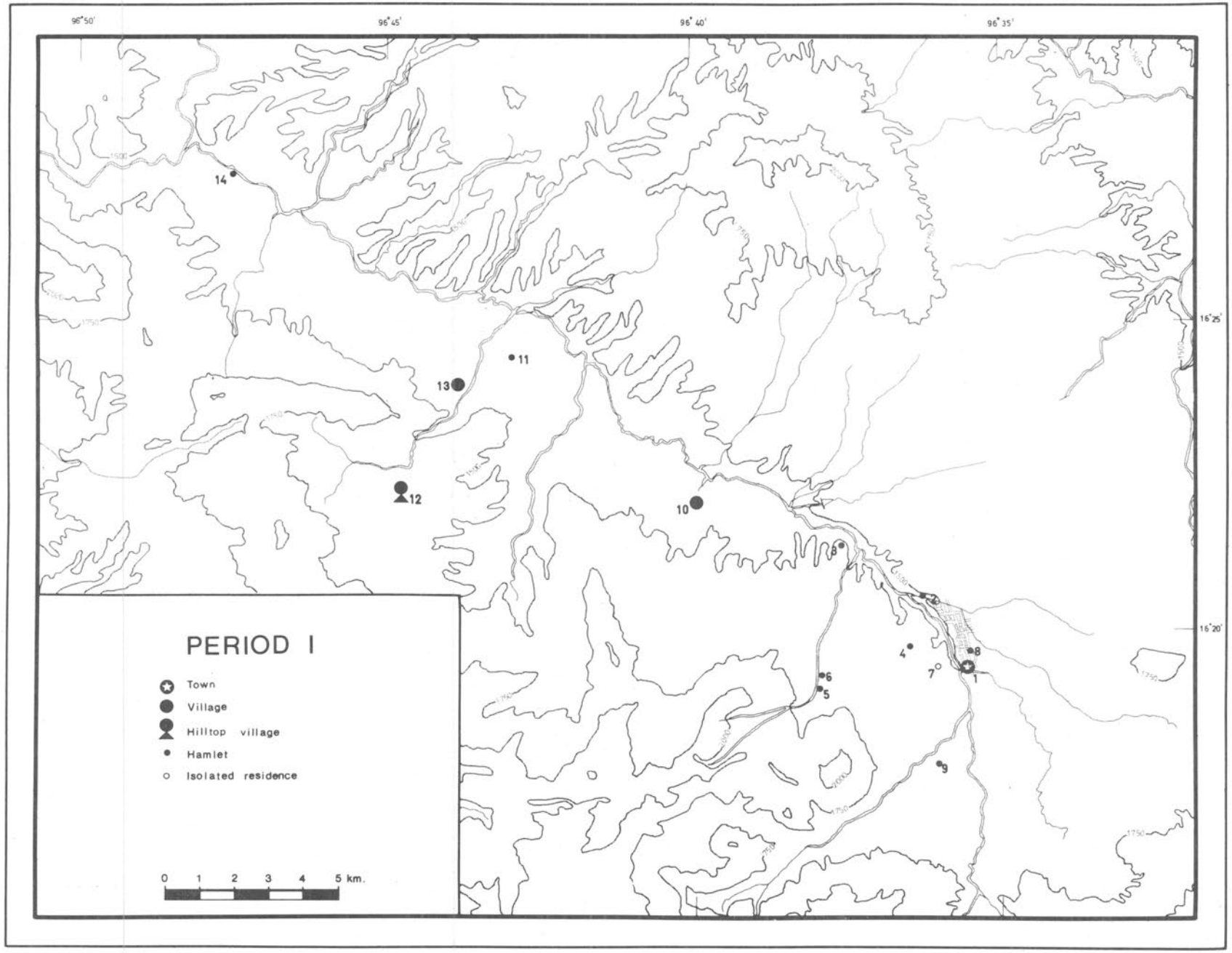

96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
PERIOD I
Town
Village
Hilltop village
Hamlet
Isolated residence
0 1 2 3 4 5 km.
1
2
3
4
5
6
7
8
9
10
11
12
13
14

Figure 3-2.

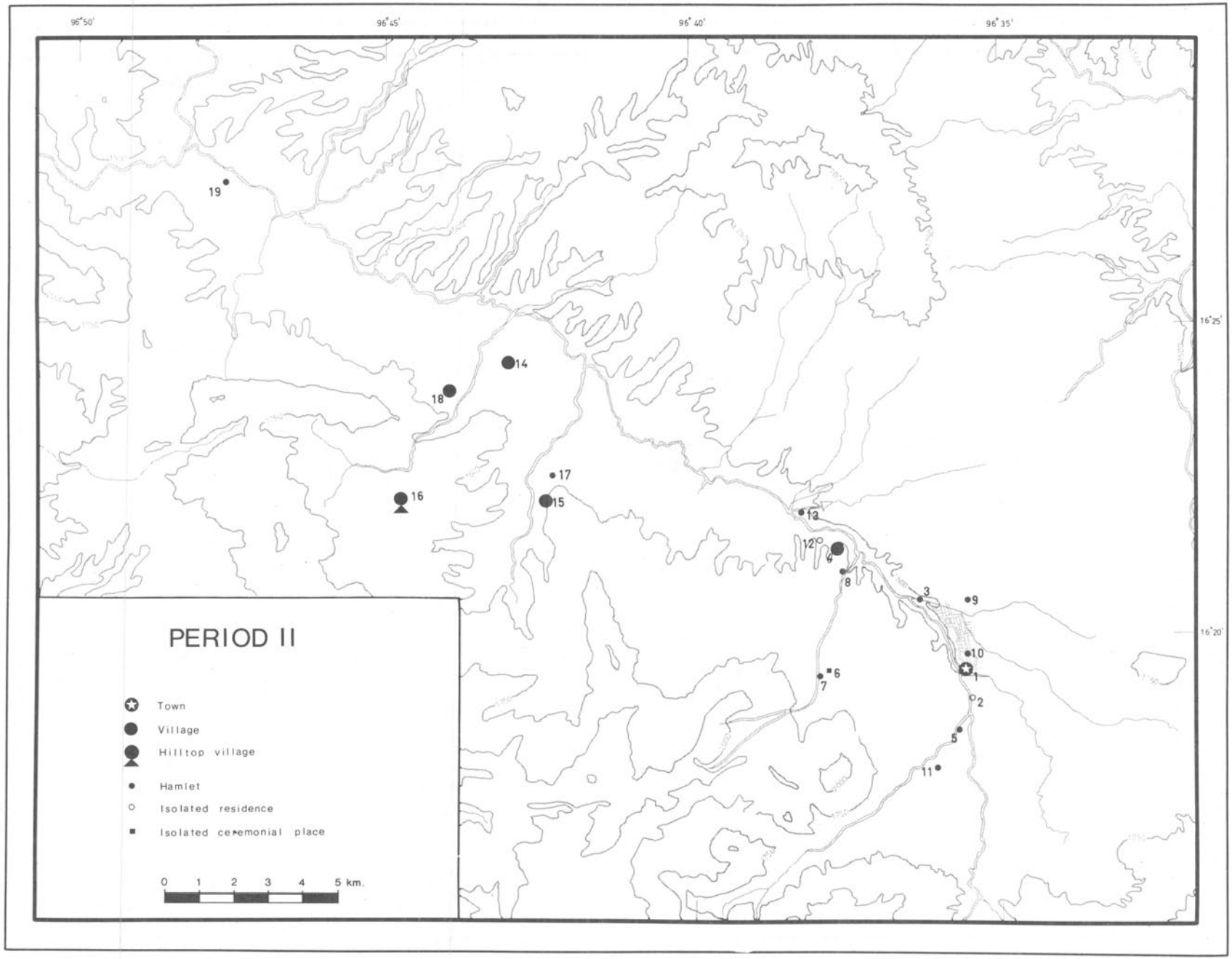
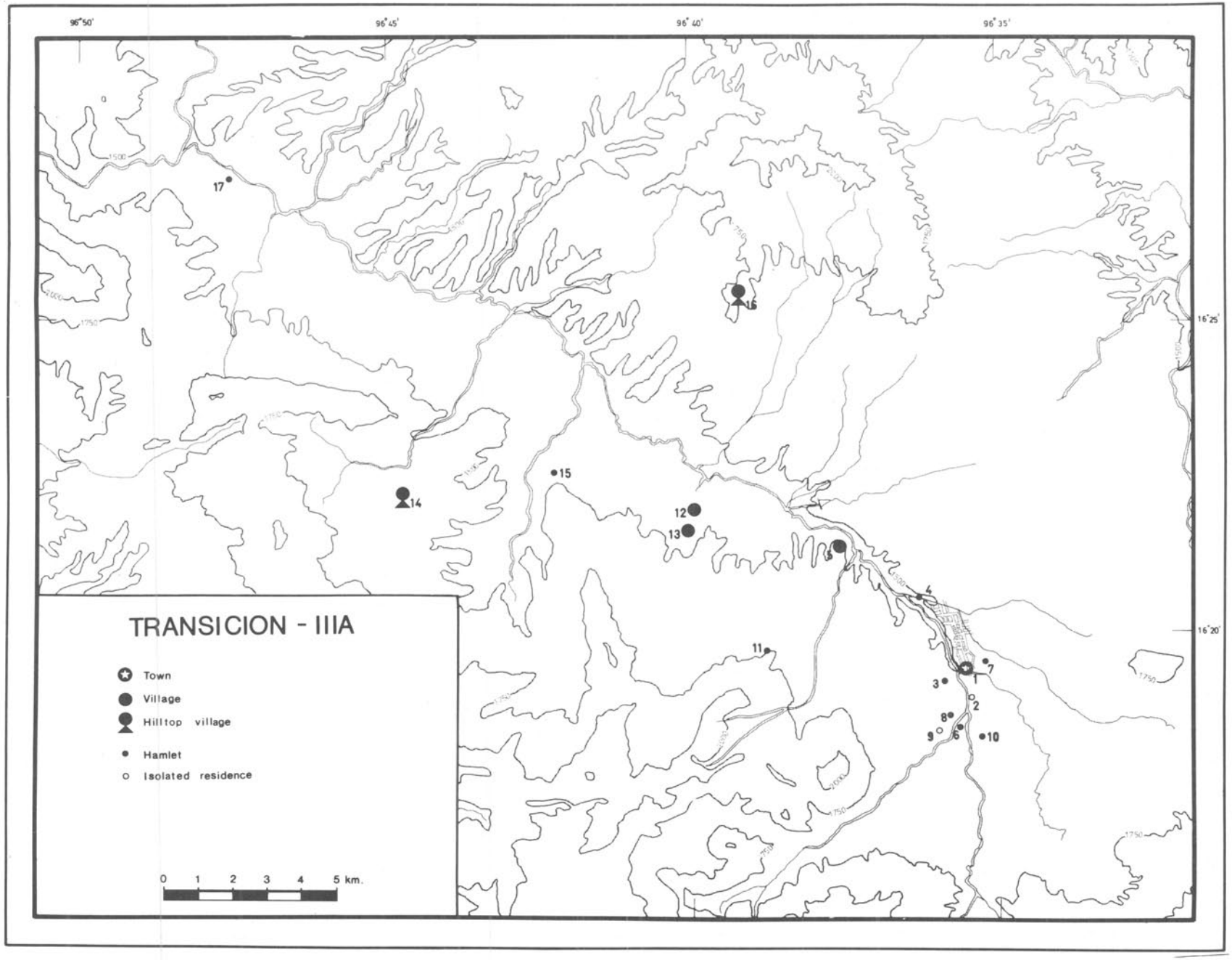

96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
PERIOD II
Town
Village
Hilltop village
Hamlet
Isolated residence
Isolated ceremonial place
0 1 2 3 4 5 km.

Figure 3-3.


96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
TRANSICION - IIIA
Town
Village
Hilltop village
Hamlet
Isolated residence
0 1 2 3 4 5 km.
1
2
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6
7
8
9
10
11
12
13
14
15
16
17

Figure 3-4.

remain the same: the valley's inhabitants sought to situate themselves where a combination of flat terrain and running water would be easily accessible.

An increase in the number of public structures tentatively dated to Period II suggests increased administrative complexity in that area.

The Period Transición-IIIa Settlement Pattern (150-450 A.D.)

Seventeen sites are assigned to this period. The total surface area of the combined valley archaeological zone decreases to 39.20 h (Fig. 3-8) probably indicating a decline in population, though the decline in surface area should be attributed to the ceramic record as well. Most period diagnostics are ornate, probably non-utilitarian, ceramics that could not have been manufactured and discarded as rapidly as those ceramics used to measure occupations of other periods.

The basic pattern of environmental distribution of sites is similar to that of earlier periods, though a larger portion of sites is found in riverine settings than in Period II (Fig. 3-7). The Period Transición-IIIa settlement pattern is marked by a dense clustering in the riverine areas, an aspect of the valley settlement pattern maintained throughout the sequence. In addition, the complexity of Site 1A with its monumental architecture and the clustering of other settlements around it suggests that this area retained its position as the principal administrative and ceremonial center of the river valley.

Besides these constant features of settlement patterns, new ones begin to emerge, and they characterize subsequent periods. In Period Transición-IIIa, there are traces of activity in the barren rolling piedmont and in the remote mountain zones, establishing a pattern that reaches its apex in Period V. On the other hand, there is evidence of declining activity in the areas of limestone plateau (Table 3-2)--less than in preceding periods--until Period IIIb-IV when the occupation of the area reaches its nadir. Though not fully understood, this phenomenon might be attributed to erosion from overuse of the thin calcareous lithesols. The reoccupation of these areas in both Period IIIb-IV and V though smaller than the settlement in Period I or II might be related to a land shortage resulting from increased population in the valley.

The Period IIIb-IV Settlement Pattern (450-1000 A.D.)

Twenty-four sites are assigned to this period. The total surface area is 54.10 h. Though in many respects the settlement distribution in this period is similar to that in previous ones with the bulk of the population adjacent to alluvial areas along the main river, evidence suggests that agricultural factors were not as dominant as before. The large-scale architectural remains in the mountainous settings and on the barren rolling piedmont indicate the influence of other factors for determining site location: economic and strategic. First, increased development of a market system might enable people inhabiting the mountain zone to obtain provisions from the inhabitants of the valley in exchange for highland resources such as firewood and medicinal plants. Second, hilltop sites could have functioned as check points to monitor the movement of people through the valley or as defensive positions. Though architectural fortifications cannot be recognized, the natural situation of any of these sites presents a formidable defensive advantage.

The Period V Settlement Pattern (1000-1500 A.D.)

Fifty-two sites are assigned to this period. The total surface area is 92.40 h. It is difficult to determine whether the increase in the number of sites is related to a corresponding increase in population. The period V presence is detected largely by everyday household wares, mainly G.3M plain gray bowls (see ceramic Categories 005 and 006) presumably produced in great quantities and frequently broken and discarded.

The pattern of site distribution in Period V is very much the same as in Period IIIb-IV (Fig 3-7 and Tables 3-1 and 3-2). The trend apparent in Period IIIb-IV--the increase in proportion of population in the piedmont and in the mountainous zones--is further amplified in Period V.

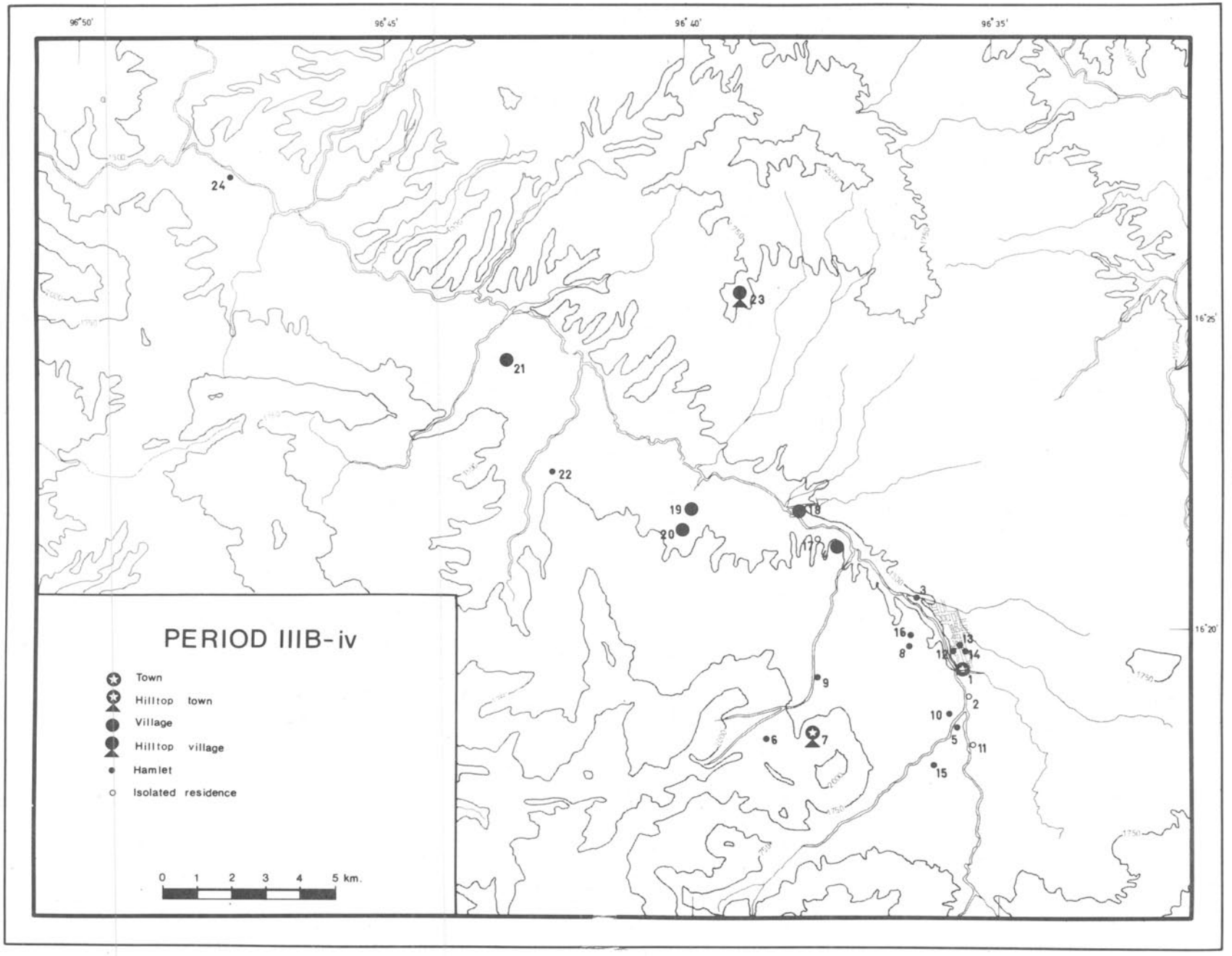
96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
PERIOD IIIB-iv
Town
Hilltop town
Village
Hilltop village
Hamlet
Isolated residence
0 1 2 3 4 5 km.

Figure 3-5.

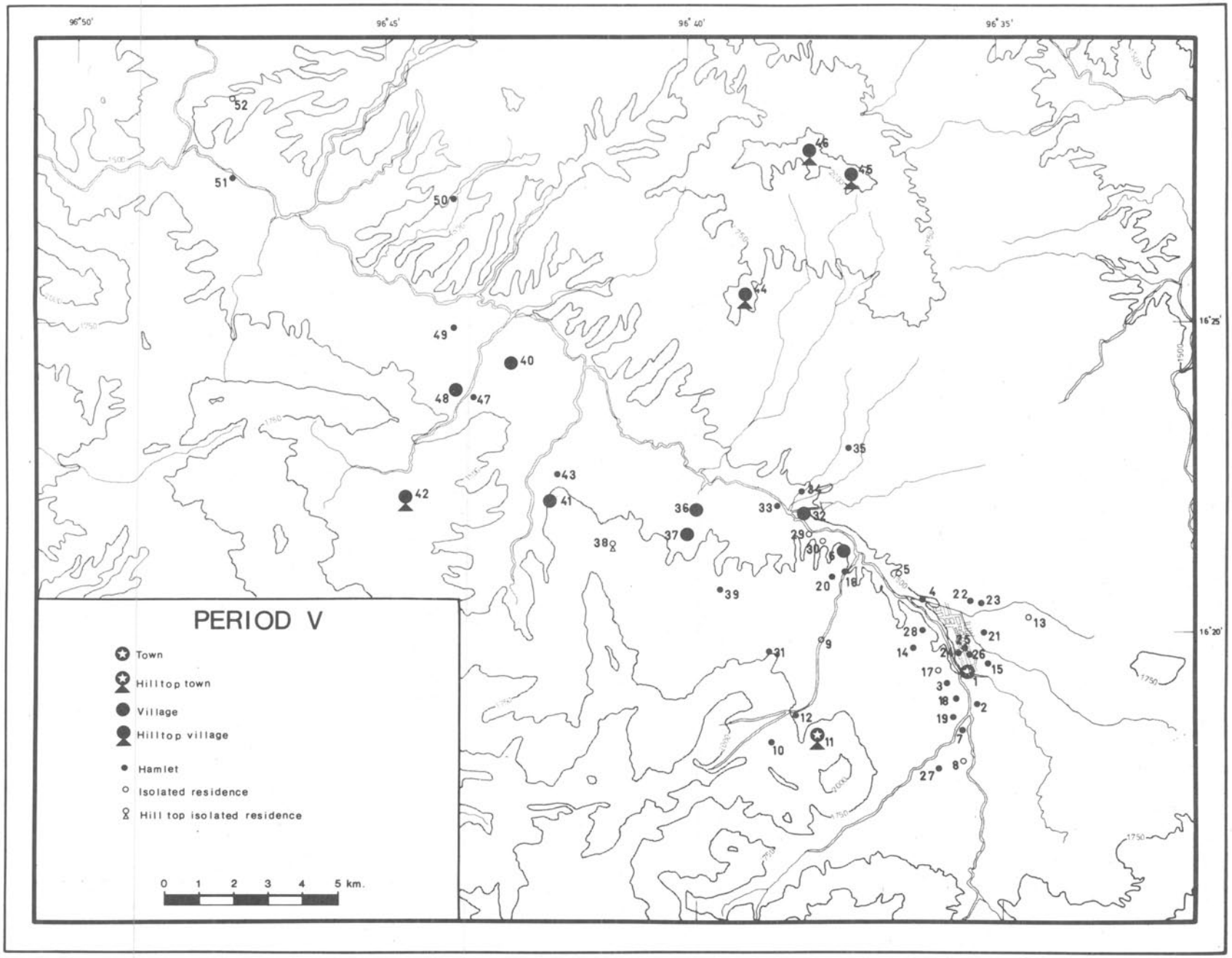
96°50'
96°45'
96°40'
96°35'
16°25'
16°20'
PERIOD V
Town
Hilltop town
Village
Hilltop village
Hamlet
Isolated residence
Hill top isolated residence
0 1 2 3 4 5 km.

Figure 3-6.

The Historic Diachronic Interpretation of Settlement Patterns

A chronological series of settlement configurations representing the distribution of habitation points for successive time segments has been described--configurations that express the net result of processes by which the human population distributed itself over the landscape and articulated with the environment. At the next level of analysis, the historic diachronic level, factors are delineated which underly three outstanding features of Miahuatlan settlement history: (1) the initial large-scale occupation of the valley in Period I; (2) the propensity throughout the sequence for sites to cluster in alluvial areas; and (3) the Postclassic spread from the riverine and limestone plateau areas into the uplands. These features of the settlement pattern history reflect changes in land use, population size, sociopolitical structure, and economic organization. In the following discussion the settlement patterns of the Miahuatlan Valley are interpreted into historical trends and cultural processes, and the events and trends observed in the Miahuatlan Valley are related to changes in the rest of the Central Oaxaca settlement system. Causes that may explain the dynamics of the changing settlement system are tentatively offered.

Still much data must be gathered before a chronological series of static settlement configurations or patterns can be determined that will lead to a reconstruction of a dynamic settlement system. In order to delineate the circumstances which transformed one settlement pattern to the next, it would be desirable to have better data for interpreting site functions and intersite relationships as well as a more refined ceramic chronology. In the meantime, interpretations rest on the assumption that human settlement, land use, and sociopolitical structures are integrated elements of a larger sociocultural system and that the congruence of these elements means that the form of one can be derived from knowledge of the others.

Though the Miahuatlan Valley is part of an interaction sphere that at times encompassed all of Mesoamerica, for practical purposes it has been necessary to define a study area with more limited boundaries. The close stylistic affinities between the ceramics of the Miahuatlan and Oaxaca Valleys are discussed in Appendix I and suggest that these areas should be considered parts of the same local system. Other geographic and historic reasons for including these areas together are discussed in Chapter I. The primary concern here is to ascertain the role of the Miahuatlan Valley within the local system, leaving aside the question of the latter's role in the Mesoamerican system.

Thus, the reconstruction of a dynamic model of sociocultural processes begins with a tentative reconstruction of agricultural history and population trends in the Miahuatlan Valley, fundamental factors influencing and influenced by the dynamics of the overall system.

Agricultural History

The reconstruction of changing patterns of land use relies on three basic sources: (1) what is known from surrounding areas, mainly the neighboring Valley of Oaxaca; (2) limited ethnohistorical accounts pertaining to the Late Postclassic and early Colonial Period; and (3) the distribution of archaeological remains and their relationship to the distribution of agricultural resources. In addition, several assumptions must be made for this reconstruction:

1. Partially supported by the observation of the dendritic drainage pattern suggesting that stream locations have not changed during the past three millennia, the relative distribution of land and water resources has not changed significantly during the time period under consideration even though there probably have been fluctuations in the extent of usable land.

2. Areas conducive to prehispanic agriculture include only those areas classified as either riverine or limestone plateau. The heavy clays and steep terrain of much of the rest of the piedmont and the combination of steep terrain and thin soil in the mountain zone do not lend themselves to digging stick agriculture.

3. In preindustrial agricultural societies set in arid environments, land and water accessibility are primary considerations in choosing settlement locations, and thus the settlement distribution generally reflects patterns of utilization of land and water.

4. In a preindustrial, agricultural society, deviations from the correlation between site and agricultural resource distribution generally reflect the intervention of non-agricultural considerations, either military, political, economic, or ceremonial-religious. In turn, the first two might be related to demographic factors, mainly population growth and pressure. Also the exploitation of non-agricultural resources as well as marketing and transportation factors might be sources of deviation from this expected pattern of settlement distribution.

Data from the Tehuacan and Oaxaca Valleys indicate that by the Early Formative the subsistence of societies in these areas was based largely on the cultivation of a variety of locally domesticated plants with corn being a central dietary staple (MacNeish 1972:500). Furthermore, by at least the Middle Formative and perhaps earlier, several basic techniques of irrigation were practiced. In the Valley of Oaxaca evidence of pot irrigation and gravity flow irrigation systems exists from Middle Formative times. The profile of a well used in pot irrigation was exposed by adobe brickmakers near Mitla and is associated with pottery from the Guadalupe Phase (Flannery et al. 1967:450) and specialized jars reported from this period might have been used in such irrigation (Flannery and Marcus 1976:378). Pot irrigation is used today in the Oaxaca Valley in alluvial areas where the water table can be reached by digging a well 1.5 m to 3 m deep. Water is drawn from the well in a pot on a rope and splashed on surrounding crops.

Possibly the gravity flow irrigation techniques observed in the Oaxaca and Miahuatlan Valleys can be traced to the Middle Formative. The remains of two small canal systems in the piedmont of the central portion of the Oaxaca Valley dating to Monte Alban I have been identified (Flannery and Marcus 1976:378).

Two extensive systems of irrigation works in the Oaxaca Valley are dated to have begun in Early Monte Alban I. The first at Xoxocatlan at the base of Monte Alban has been surveyed and investigated (Blanton 1978:54, Fig 3.20). The system of canals and agricultural terraces is fed by a dam located east of the South Platform at Monte Alban. The use of this system reached its apex during Late Period I and declined in Period II (Blanton 1978:54).

The most spectacular evidence of ancient gravity flow irrigation exists at Hierve el Agua just outside the Oaxaca Valley and east of Mitla. Here a 0.5 square kilometer system of canals and artificial terraces has been fossilized by travertine carried in solution and deposited by water originating from a group of permanent feeder springs. The irrigation system was operative between 400 B.D. and 1300 A.D. (James Neely 1967).

The prototype for gravity flow irrigation techniques can be seen in rain run-off systems of the Early and Middle Formative. Drainage ditches in association with houses, one leading to a bedrock cistern at Tierras Largas dating to the San José Phase, exist (Winter 1976:30). Such ditches are also found at San José Mogote.

The assumption that the inhabitants of the Miahuatlan Valley practiced these subsistence technologies is corroborated by the distribution of sites. Throughout the archaeological sequence there is a strong propensity for sites to cluster either in flat areas where there is running water available for gravity flow irrigation or in areas where the ground water is reached at a shallow depth and is available for pot irrigation.

Assuming that agricultural developments in the Miahuatlan Valley parallel those of the Oaxaca Valley remains predating Period I probably would be located in areas of upper alluvium within the town of Miahuatlan and immediately to the southeast, where most of the materials that could be dated to Early Period I were found (Plate 11 a, o, p and Plate 23 c).

The migration of people to the rolling piedmont and mountain zones in Periods IIIb-IV and particularly in Period V--probably linked to an intensification of warfare and to population growth--might have been aided by changes in agricultural production and developments in the economic system. With the development of a native market in the Postclassic, households would have become less self-sufficient, and would have produced such specialized non-subsistence products as cochineal dye. Such a market development would have resulted in a proportional decline in the occupation of areas ideal for the production of corn, and this decline is substantiated by changes in the archaeological settlement patterns. The production of cochineal does not require prime farm land because the producing insect (Dactilopius coccus) lives on the nopal cactus (Opuntia) found in the

Table 3-1. Environmental Distribution of Settlements

		Riverine Zone			Piedmont		Mountain	
		River Banks	Upper Alluvium	Piedmont Spur	Limestone Plateau	Rolling Piedmont	Hill Flanks	Hill Top
a) Period I	Town	1						
	Village				1	1		1
	Hamlet	5	1		3			
	Isolated Residence	1						
b) Period II	Town	1						
	Village	1			3			1
	Hamlet	6	1	1	2			
	Isolated Residence	2						
	Isolated Ceremonial Place				1			
c) Period Transición-IIIa	Town	1						
	Village	1				2		2
	Hamlet	6		1	1		1	
	Isolated Residence	2						
d) Period IIIb-IV	Town	1						1
	Village	2			1	2		
	Hamlet	8	2		2		1	1
	Isolated Residence	3						
e) Period V	Town	1						1
	Village	2			3	2		4
	Hamlet	14	4	5	2	3	2	
	Isolated Residence	5		1		2		1

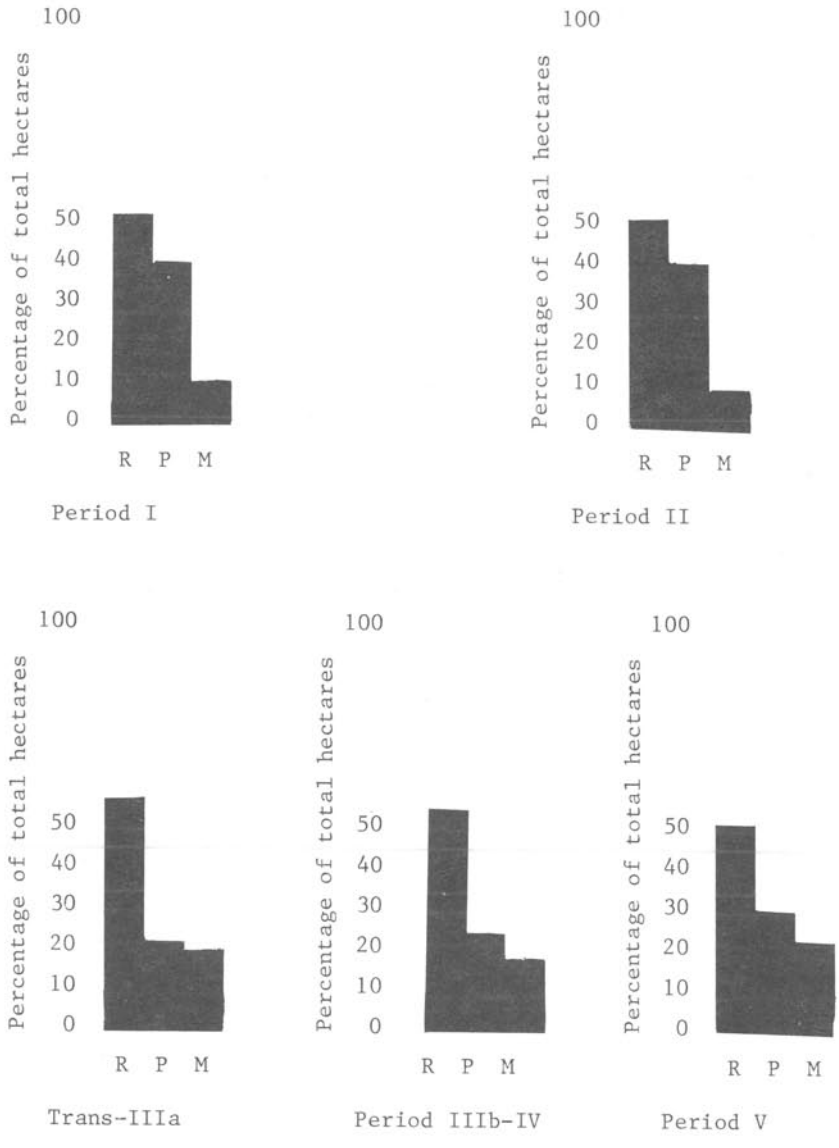

Figure 3-7. Histograms, Each Presenting the Percentages of the Total Site Area in the Three Major Environmental Zones.

R = Riverine Zone P = Piedmont M = Mountains

Table 3-2. Sequence of Sites in Their Environmental Zones.

	Period I	Period II	Trans-IIIa	Period IIIb-IV	Period V
Riverine Zone					
River Bank	7	10	10	14	22
Upper Alluvium	1	1	--	2	4
Piedmont Spur	--	1	1	--	6
Piedmont					
Limestone Plateau	4	6	1	3	5
Rolling Piedmont	1	--	1	1	7
Mountains					
Hill Top	1	1	2	2	6
Hill Flanks	--	--	1	1	2

piedmont and in the mountains. Thus Postclassic market development would mean that permanent inhabitants of the mountain zone--even today they produce palm for thatching, hallucinogenic mushrooms, various medicinal plants, firewood, charcoal, and other useful products--would be able to readily obtain their subsistence and other needs from inhabitants of the valley in exchange for upland products. In addition, Miahuatlan was an important market center during the Late Postclassic. Many basic subsistence items were available within the market including fish, maize, chile, and salt (Paso y Troncoso 1905:122) and local merchants dealt in cochineal (ibid.:126,136). During the Colonial Period, with access to a wider market, the production of cochineal assumed an even greater role in the local economy.

Population History

Archaeological data, albeit problematical, delineate population trends Figure 3-8 attempts to relate site size and population. The lowest curve is derived from Miahuatlan Valley data plotting sites for each period and indicating the fluctuations in total occupied area, and presumably fluctuations in population as well, through the sequence. The other curves, derived in a similar manner, include the data of surveyed areas of the Oaxaca Valley and the combined data of both valleys. Figure 3-8 does not relate population density to sherd density, the density of surface ceramic debris, suggested in some earlier studies of Mesoamerican settlement patterns (Parsons 1971; Blanton 1972; Varner 1974; Hirth 1974; Kowalewski 1976 and others). At most sites in the Miahuatlan and Oaxaca Valley scattered diagnositc ceramics of several periods can be found mixed in the surface debris which will be composed of mainly non-diagnostic ceramics. Thus it is difficult to date the scatter of sherds to a specific period of occupation.

The archaeologically derived curves showing the relationship between site size and population are tenuous, for they can be distorted by certain intervening variables:

1. Because of the broad temporal units of measurement, site size represents the cumulative sum total of activities that occurred during periods spanning several centuries. Population movements, complete or partial abandonments, and reoccupations occurring during any particular period cannot be assessed.
2. Changes in the rate of producing and discarding ceramics are unknown.
3. Erosion, deposition, and differential preservation have affected the extent and density of archaeological surface remains; they represent an incomplete sample of ancient settlement, especially smaller sites. For example, significant accumulations of ceramic debris were exposed in fields that lacked any archaeological remains prior to plowing. Also SRH workmen in the streets of Miahuatlan uncovered sites that had been previously undetected. Sheet wash has affected the recovery of surface remains particularly the size of the sample of small sites in areas of steep terrain. For example, extensive plots in the valley exist where the topsoil of the hillside has been washed leaving plowscarred bedrock.

The most pronounced features of the curves show two aspects of the population history of the Miahuatlan Valley: (1) the first large-scale occupation of the Miahuatlan Valley which correlates with a quantum leap in population levels over the entire Central Oaxaca area, and (2) the general growth which continues throughout the rest of the sequence in the valley. The archaeological remains of the early occupations are restricted to riverine and limestone plateau areas but remains of later occupations appear in the mountain and rolling piedmont zones as well, suggesting a spread in population from more to less desirable agricultural areas during the Postclassic (Fig. 3-7, Table 3-2).

The curve representing the combined Oaxaca and Miahuatlan Valleys indicates a tremendous population increase in Period I though other fluctuations are less clearly understood. For example, the sharp drop in the overall site extent in Period Transición-IIIa probably results from the nature of the ceramic record rather than from demographic trends. The diagnostic ceramics of Period Transición-IIIa are mostly ornate, probably non-utilitarian ceramics that would not have been manufactured and discarded as rapidly as those ceramics used to measure occupations of other periods. It may be that many household wares produced during this period include General Middle categories that can be associated with other periods as well (see Appendix I). A refinement of the ceramic chronology is needed to resolve this interpretive problem.

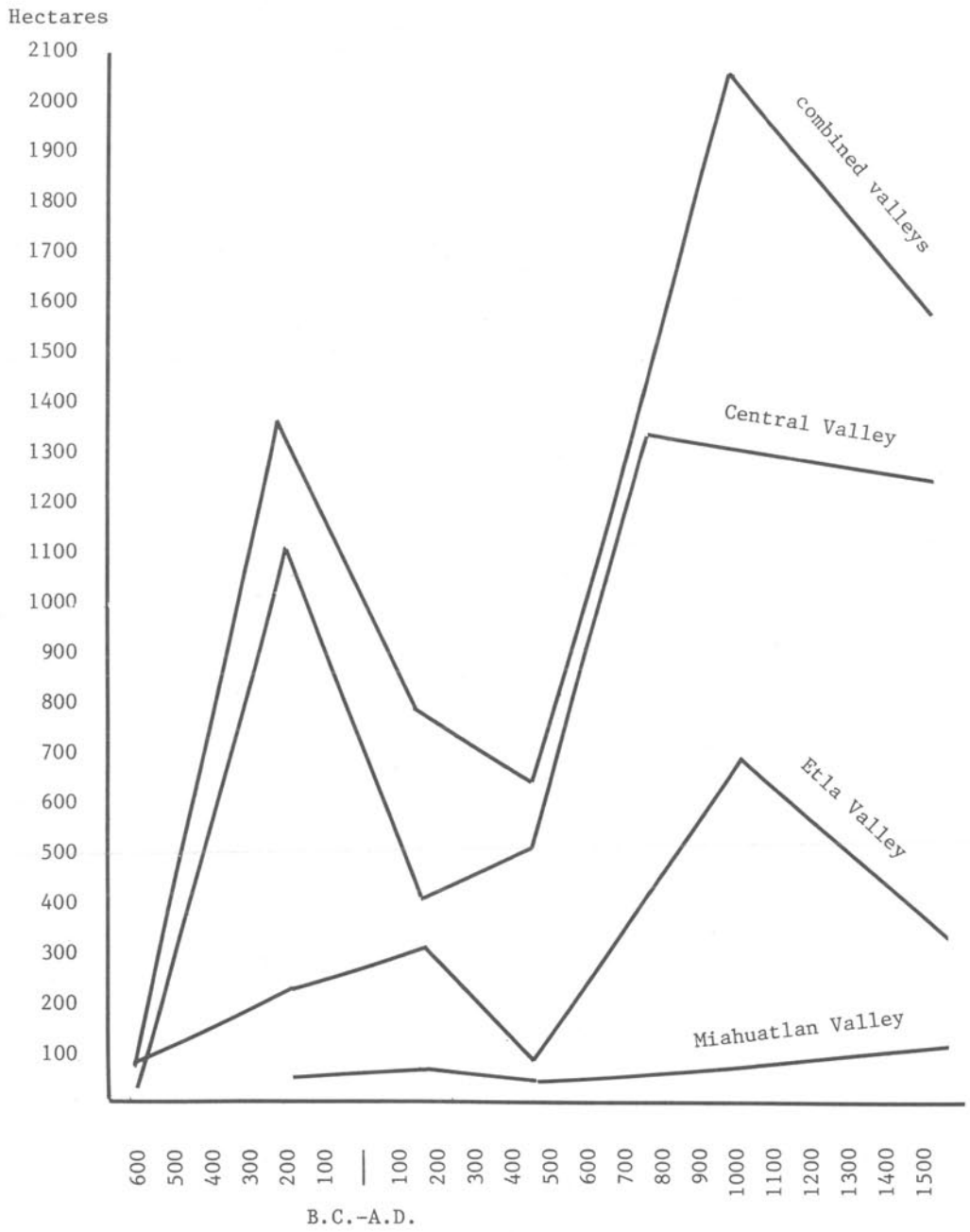

Figure 3-8. Total Site Extent through Time, the Miahuatlan and Oaxaca Valleys.

Urbanization and Regional Organization

In a previously uninhabited or lightly inhabited area the growth of sedentary human population will occur first as an increase in the number of communities or settlements, and after the area fills up, any further growth will occur as an increase in the size of pre-existing communities. If a relationship between settlement size and the number of functions performed there exists, then nodal growth and changes in the regional distribution of settlement sizes may reflect changing relationships between units of the regional settlement lattice. In this section the changing pattern of site size distribution within Central Oaxaca is discussed and is considered along with other systemically related characteristics of the settlement system.

A relationship between the size of a city and its rank within the system of cities in an area was observed by Zipf (1941) who proposed that the kth city could be predicted to be 1/kth the largest city in the area. This statistical regularity is known as the "rank size rule." Zipf sought, with limited success, to explain the regularity in terms of the "principle of least effort" (1949). Subsequently, various attempts have been made to explain observed deviations from the expected rank-size or lognormal distribution as well as cases of conformity (Berry 1961; Berry and Garrison 1958; Garner 1967; Vapñarsky 1975).

Two methods are used to ascertain the relationship between size and rank for sites within the Central Oaxaca area and to compare this aspect of the settlement patterns from different subareas and from different periods. Both methods have been adapted from the literature of geography where they have been used for comparative analysis of modern countries. The first is a graphic technique where the city size distribution is plotted for each area being compared, and the second, an index of primacy, the ratio of the size of the largest city to the combined size of the next four in each area. Plotting the cumulative percentage of cities over 20,000 people from 38 countries, Berry (1961) was able to demonstrate a general correlation between the shape of the city size distribution curve and the index of primacy. Furthermore, he proposes a developmental model for city size distribution that proceeds from a primate curve to rank-size or lognormal distribution as the system reaches a state of maturity characterized by increased urban complexity (Fig. 3-9).

Procedures similar to those of Berry (1961) were used to plot the size distributions in Figures 3-10 through 3-15 that represent distributions for sequential phases of prehistory in the Oaxaca and Miahuatlan Valleys. Figure 3-12, for example, presents cumulative percentile diagrams for the surveyed area of the Oaxaca and Miahuatlan Valleys as well as a diagram for the sum of all data during Period I. The upper limit in each case is 100 percent, indicating that all sites are either large enough to fit this category or larger. The composite curve is a profile of the site size distribution for the entire regional system though data from the Southeastern (Tlacolula) and the Southern (Zimatlan) arms of the Oaxaca Valley, are lacking.

A major modification of Berry's technique is that size is not measured in population but instead is measured in hectares of archaeological refuse. Once again, the caveats discussed above regarding the relationships between archaeological remains and population are appropriate for tempering the interpretation of data.

Eight size classes are distinguished: A--128:.0 h to maximum; B--64.0 h to 127.9 h; C--32.0 h to 63.9 h; D--16.0 h to 31.9 h; E--8.0 h to 15.9 h; F--4.0 h to 7.9 h; G--2.0 h to 3.9 h; H--1.0 h to 1.9 h. Sites of less than 1.0 h are not considered, because at this end of the size scale the rate of recovery is low and because sites of less than 1.0 h are not reported for the Etla Valley.

If a region is defined as an ecological system, there are various defining characteristics which are systemically related: lognormality of the settlement size distribution, closure, and internal interdependence (Vapñarsky 1975). These characteristics are considered below in the discussion outlining the trajectory of regional development in Central Oaxaca. Closure is defined as the proportion of all existing interactions beginning or terminating within a particular system which are also completed within the same system (Vapñarsky 1975:372). Theoretically, systems can vary between those exhibiting absolute closure, where all interactions are completed within the system, and zero closure, where all interactions that begin in the system terminate outside the system and all interactions which are completed within the system are initiated from the outside. Thus, high

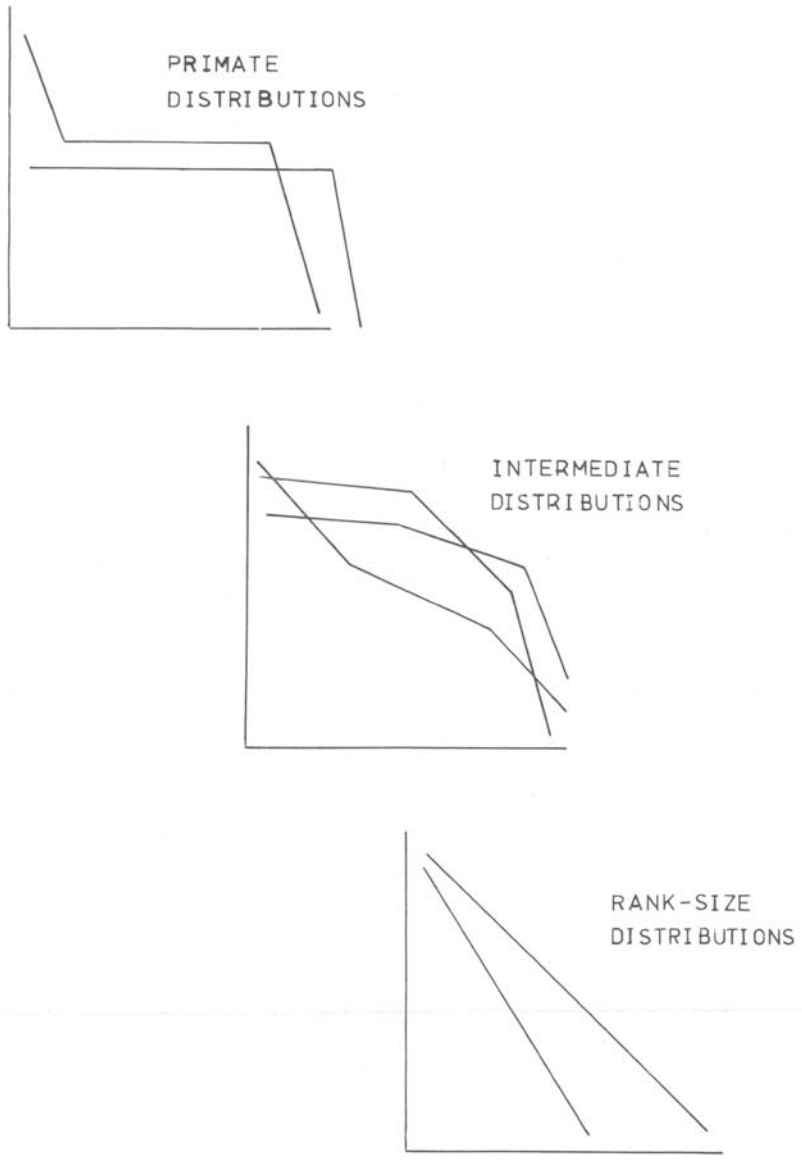

Figure 3-9. A Developmental Model for City Size Distributions. The vertical axis measures the cumulative percentile of cities while the horizontal axis measures population size. Both are logarithmically calibrated.

Sources: Garner 1967; Crumley 1976: Fig. 1. After Berry 1961:575-578.

closure indicates that the area under consideration is isolated and largely self-sufficient. Conversely, low closure indicates that there is a great deal of interaction with other areas.

Internal interdependence is defined as the total amount of interaction that takes place between all possible pairs of units within an area, divided by the total population living in these units (Vapñarsky 1975:373). Thus high internal interdependence indicates that communities within an area interact a great deal and are dependent on each other. Low internal interdependence indicates that within the area being considered communities are not dependent on each other though they may interact with the outside.

There are four possible combinations of the characteristics of closure and internal interdependence and each is logically associated with a particular configuration of city size distribution (Vapñarsky 1975:374). Furthermore, these combinations are ordered into a developmental sequence that encompasses the developmental model proposed by Berry (1961) and roughly corresponds to North's stages of regional economic growth (1955):

1. High closure, low internal interdependence. This combination characterizes a state of underdevelopment where a rank-size pattern is poorly developed and no sizable cities can be expected. Local communities are largely self-sufficient and exchange is minimal.

2. Low closure, low internal interdependence. At this next stage one city or a few cities establish the link with the outside world and thus experience disproportionate growth. The resulting city size distribution curve is a primate curve (Fig. 3-9). Berry observed that small countries with large empires and former political and/or economic colonies that had only recently achieved independence typically demonstrated high primacy (1961:582). In the case of colonies, the capital is a center for administrating the extraction of resources and goods for export to the imperial power and grows in relation to this function. Local economic development and interdependence is hindered because of a dependence on imports.

The primacy of the colonizing country also arises from the fact that one city, the capital, is a nexus for external interaction. The imperial capital functions as an administrative and economic center of a realm which extends well beyond the national boundaries.

3. Low closure, high local interdependence. Established centers retain primacy because of their continuing role linking the area with the outside. However, secondary local centers emerge as goods and services are produced locally to replace imports at lower cost and local communities become dependent on each other for goods and services. The city size distribution curve which results is intermediate between rank-size and primate (Fig. 3-9).

4. High closure, high local interdependence. At this stage the area has developed to where it is self-sustaining and not dependent on the outside. Cities within the system are linked through either complementary or hierarchical economic, ceremonial, or administrative roles. The forces affecting the distribution are many and act randomly in contrast to primate distributions which tend to be produced by systems where there are relatively few forces acting to affect the settlement distribution. Lognormal distributions are associated with conditions of high closure and high local interdependence and characterize the state of urban maturity delineated by Berry (1961).

The sequence proposed by this model is discussed below as it relates to the Miahuatlan Valley and to the overall Central Oaxaca region.

The Relationship of the Miahuatlan Valley to the Valley of Oaxaca

Ethnohistoric sources document that in the Late Postclassic Miahuatlan functioned as a nexus of highland-lowland exchange and the Miahuatlan River Valley as a corridor of trade (Ball and Brockington 1978; Paso y Troncoso 1905; etc.). The town of Miahuatlan served to supply the Valley of Oaxaca with lowland products and goods through Cuilapan, its closest trading partner (Ball and Brockington 1978:114). The large Postclassic hilltop sites were established to maintain control of the trading corridor which was threatened by competing polities. It is known, for example, that the Kindgom of Tututepec to the southwest repeatedly invaded the Miahuatlan area and at one time succeeded in conquering it in an attempt to monopolize highland-lowland trade (Ball and Brockington 1978:113).

A large Late Classic and Early Postclassic hilltop site with agricultural and residential terraces, similar to Cerro del Gentil at Cuixtla (Site 17), is located in the coastal area at San Miguel del Puerto and is on the same highland-lowland communications route which includes the Miahuatlan Valley. In the Early Colonial times as well as today this route along the Copalita River canyon connects the eastern coast of Oaxaca from Huatulco, an important center engaged in seaborne trade, to the Miahuatlan and Oaxaca Valleys (Ball and Brockington 1978: 114).

The symbiosis between the coast and highlands of Oaxaca has origins which extend back well into the Preclassic. Brockington, for instance, notes a trade between Bajos de Chila and Monte Alban in Late Preclassic times (1969:35,36). Miahuatlan functioned continuously as an entrepôt of highland-lowland exchange from at least Period I though the mode of exchange was certainly modified through time. During the Late Preclassic and Classic Periods a larger portion of the goods which moved from Miahuatlan into the Oaxaca Valley probably came in response to elite tribute demands rather than in response to the demands of an open market. By the Postclassic Monte Alban had completely dwindled in importance and a single centralized polity controlling trade had not developed to fill the vacuum. Distribution in Postclassic Oaxaca was conducted by locally-based merchants who travelled from market to market and did not act as political emissaries as did the guild organized pochteca of the Valley of Mexico (Berdan 1980).

The site size distributions of the Miahuatlan Valley result from its role as a marginal subarea of the Valley of Oaxaca and a corridor into the main valley. The broad fluctuations from period to period in the site size distribution which are apparent in the combined Oaxaca-Miahuatlan curve are not paralleled in the Miahuatlan Valley curve (Fig. 3-11 through Fig. 3-15). However, in Period V the Miahuatlan Valley does parallel the overall Central Oaxaca region and there is a pronounced drop in the index of primacy (Table 3-3)--a shift related to an increased emphasis on market exchange, an increase in local interdependence, and a concommitant decline in the subsistence self-sufficiency of individual communities.[1] By Period V population was no longer as impelled to aggregate in the limited fertile zones as in the earlier periods and large sites appear in the uplands. Other than the Period V deviation, the index of primacy and the shape of the site size distribution curves for Miahuatlan (Fig. 3-11 through Fig. 3-15) demonstrate continuity throughout the sequence. Even in phases when the primacy of the combined site size distribution becomes most pronounced, the curve for the Miahuatlan Valley remains intermediate between rank-size and primate because the Miahuatlan Valley is a peripheral subarea of a larger system and remains environmentally, economically, and politically marginal. Within the overall Central Oaxaca distribution range, the Miahuatlan sites are small and communities mostly consisted of aggregations of few people performing the function of serving only the immediate surrounding area. Most sites presumably were not loci of higher order urban functions at all. The potential for population growth and urbanization was limited in the Miahuatlan Valley because areas where prehispanic agricultural techniques are viable are quite limited. The Miahuatlan Valley, when compared to the neighboring Valley of Oaxaca, always had a very low carrying capacity, and until the Postclassic the larger population aggregations are found only in the few fertile areas. As a result of this low carrying capacity, the total area of the archaeological zones in the Miahuatlan Valley falls far below that of either the central portion of the Oaxaca Valley or the Etla Valley for any given period (Fig. 3-8) though the total survey area is roughly equal to that of either of these surveyed areas, between 200 square kilometers and 300 square kilometers. The total number of sites also falls far below comparable areas of the Oaxaca Valley. Consequently, the Miahuatlan site size distribution curve looks like a detail of the lower end of either a rank-size or a primate distribution curve (Fig. 3-9), as might be expected of an area that is a peripheral segment of a larger region.

Miahuatlan in the Central Oaxaca System of Settlements

Figure 3-10, the first in the series of site size distribution graphs, depicts the situation in the Middle Formative immediately prior to the founding of Monte

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[1] The site size distribution curve for the Miahuatlan Valley for Period V demonstrates what appears to be an increase in primacy but this is a "group primacy" resulting from the comparatively large number of large sites.

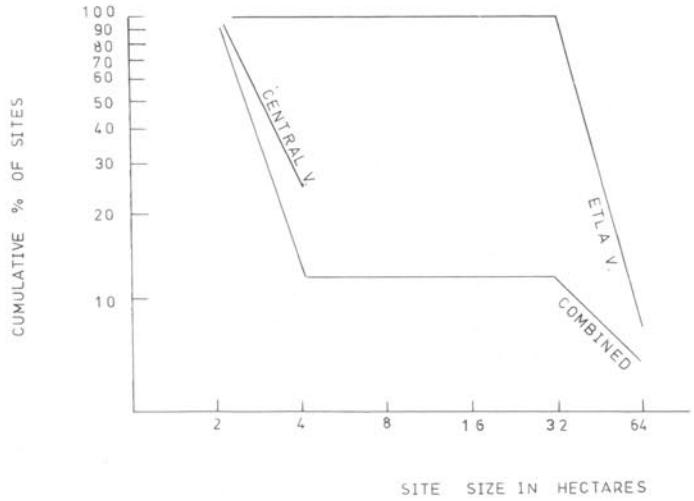


Figure 3-10. Guadalupe/Rosario Site Size Distribution. There is no record of occupation in the Miahuatlan Valley for this time period.

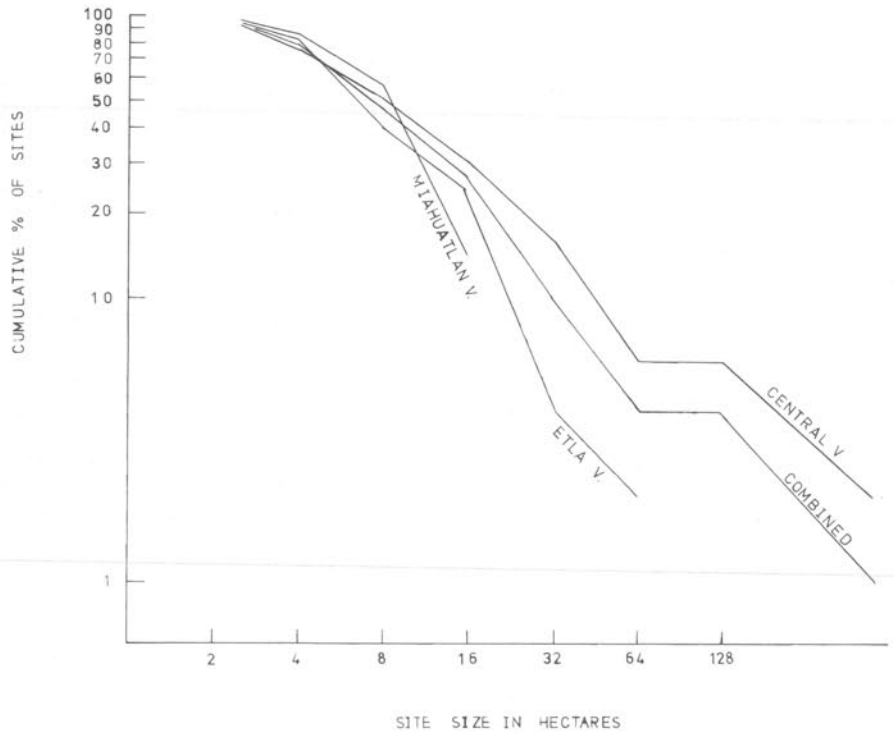


Figure 3-11. Period I Site Size Distribution.

Alban. During the Rosario/Guadalupe phases, there exists no record of occupation in the Miahuatlan Valley. San José Mogote in the Etla Valley covered an area of 36.0 h at the close of the period with all other sites in the surveyed area being in the range of 2 h or less except for Tierras Largas, measuring about 3 h. The settlement system at this time had already evolved beyond the first hypothesized developmental stage and the site size distribution is like the second stage suggested by Vapňarsky (1975:374) and thus would be expected to demonstrate low closure and low local interdependence.

Flannery (1968) proposes that the growth of San José Mogote was related to its role of linking the area with the Gulf Coast Olmec. Trade with the Olmec area had ceased by the Guadalupe/Rosario Period but the site size configuration results from processes begun in the San José Period that established San José Mogote as the most important local center. The increasing variation in the elaborateness of house structures and burials at San José Mogote during the San José Period implies the development of status differentiation that was stimulated by exchange with the Olmec. The local elite presumably accrued status and power by their control over the production and export of items such as magnetite mirrors. Through their trading relationship with the Olmec the local elite obtained an ideology that legitimized their new status. Exotic ceremonial and luxury items served as symbols reconfirming their rank. The appearance of objects produced in the Olmec art style reveal attempts by the local elite to mimic high status Olmec. Thus, the demands of production for trade and those imposed by a more elaborate ceremonialism created new modes by which individuals could articulate with the economy and contributed to the growth and development of San José Mogote. The pre-existing society of subsistence agriculturalists was transformed into a ranked society and the movement toward urbanism was initiated.

Whereas Early and Middle Formative developments resulted from influences from afar, Late Formative developments in Central Oaxaca were largely brought about by local forces. The shape of the Period I combined Miahuatlan-Oaxaca Valley site size distribution curve (Fig. 3-11) would be expected to correlate with low closure and high local interdependence. The shape of the curve is in part determined by the fact that Monte Alban demonstrates tremendous primacy, covering 442 h. However, the site size distribution pattern for Period I is the net product of events taking place during four centuries following the Guadalupe/Rosario Period. Early in Period I a number of villages emerged which equalled but did not exceed San José Mogote in size, Monte Alban being one of them. A reconstruction of the political configuration during Early Monte Alban I suggests that seven independent petty states, each made up of a dominating village and its surrounding hamlets existed in the Valley of Oaxaca (Flannery et al. 1967). Evidence shows that Monte Alban developed as the capital of an expanding empire (Blanton 1978, Caso 1947, Marcus 1976), and the ascendence of Monte Alban came about from its early success in intervillage warfare. The emergence of a hierarchical society in the preceding phase of development provided a means for intervillage raiding and trading to escalate and develop into a pattern of conquest and tribute. The hierarchical structure of village organization that arose during the Early and Middle Formative formed the basis for the administrative structure necessary for Late Formative empire building. Conquest, consolidation, and the exacting of tribute became viable activities that in many cases would be more "cost-effective" than establishing trading relations.

The combined site size distribution for Period I conforms to the pattern in the third developmental stage that, as mentioned, can be expected to correlate with low closure and high local interdependence. Though Monte Alban demonstrates tremendous primacy, the rest of the combined region including the Oaxaca and Miahuatlan Valleys demonstrates lognormality with a continuous range of smaller sites of 41 h or less. As expected, low closure and high local interdependence are suggested by the Central Oaxaca ceramics and by other artistic manifestations at this time. Period I is characterized by a clearly defined regional ceramic assemblage, and yet stylistic parallels are noted between Monte Alban Period I ceramics and items from almost all areas of Mesoamerica (CBA:Tabla IX). An art style that is distinctively Oaxacan emerges out of the fading Olmec tradition. The emergence of a regional style following the Olmec decline is paralleled in other areas of Mesoamerica as well (Scott 1978). The local iconography is exemplified by the appearance of certain motifs including the representations of Cocijo, the Oaxaca rendition of the ubiquitous Mesoamerican rain god. The Period I Cocijo urn from Miahuatlan (Plate 23 a) is an early example of a representation

which is clearly discernible as the Oaxaca version of the deity. The widespread appearance within the region of such distinctive forms indicates a situation of high local interdependence.

The artistic developments of Period I occur along with radical changes in the site size distribution. The Period I curves (Fig. 3-11) reflect a major transition which has taken place in the interim following the Guadalupe/Rosario Period--a transition marked by a tremendous increment in the number and size of sites, by the appearance of the first settlements in the Miahuatlan area, and by the growth of Monte Alban. Monte Alban is a dominating focal point but the range in size and elaborateness of smaller sites suggests an increase in regional complexity; that is, there are secondary foci of civic, ceremonial, and economic activity. In Period II the configuration of site size distribution for the combined surveyed areas is quite similar to Period I despite a very dramatic shift in the central portion of the Oaxaca Valley. The Central Valley develops a very exaggerated primate distribution as Monte Alban absorbs the population in the immediate vicinity. The primacy of Monte Alban increases and culminates in Period IIIa. Recalling that a primate city size distribution is characteristic of small countries with large empires (Berry 1961) this trend toward primacy would be congruent with the interpretation that Monte Alban developed as the capital of a far-reaching empire that was expanded and consolidated between Periods I and IIIa (Blanton 1978, Caso 1947, Marcus 1976). According to an interpretation of a glyphic inscription at Mound J at Monte Alban dating from Period II, Miahuatlan was a tributary within this empire (Marcus 1976:129). Thus, the Site 1A complex, because of the evidence of its size and cultural complexity far exceeding any other site in the Miahuatlan Valley until Period IIIb and IV, might be the administrative center of the valley. However, the Miahuatlan site size distribution is not clearly primate as would be expected in a colonial area (Berry 1961:582). The site size distribution curve of the Miahuatlan Valley is never particularly primate, and there is a slight but continuous decrease in the index of primacy from Period I through IIIa (Table 3-3).

Urbanization at Monte Alban during the Classic Period resulted not only from a continuing internal development of interdependence in the Central Oaxaca region but also from a growing interaction with Teotihuacan and other distant centers. In Period Transición II-IIIa Teotihuacanoid elements appear in the ceramics of Oaxaca (Bernal 1965:801,803). The presence of a Oaxaca ethnic sector at Teotihuacan suggests peaceful interaction between the two areas. Also, glyphic inscriptions on Classic Period monuments at Monte Alban document a relationship of diplomacy between Monte Alban and Teotihuacan (Marcus 1980:58-62). Quite likely mutual trading was instrumental in the growth and development of both centers and some of the same processes were operating by which growth occurs in modern cities. Initially foreign trade creates new work by stimulating production for export, and later local economies are further stimulated as the result of an import replacement multiplier effect; that is, by the growth of local industries to replicate imports at lower cost (Jacobs 1969).

The chain reaction decline of the major Classic Period urban centers was due to the interdependence that had developed as part of the process of urban growth. The faltering of Teotihuacan may have been initiated by a totally local occurrence but had the effect of setting off a wave of disruption throughout the entire Mesoamerican trade network. The faltering was experienced at far off centers like Monte Alban by a decrease in imports, a shrink in the market for exports, and the onset of economic stagnation.

Although there is little to suggest that Teotihuacan ever posed a direct military threat to Monte Alban, the spector of Teotihuacan expansion during the Classic Period was an underlying factor in the evolution of a Zapotec state (cf. Blanton 1978:57, 108). The indirect threat presented an impetus for maintaining military preparedness and an organizational potential for mobilizing manpower. Likewise, the waning of Teotihuacan resulted in loss of the power held by the elite at Monte Alban and a weakening of regional cohesiveness in the Central Oaxaca area (cf. Blanton 1978:103, 108). The cessation of economic and competitive stimulation from Teotihuacan coincides with the decline of Monte Alban. Teotihuacan motifs and elements cease to appear in the ceramics of Monte Alban at Period IIIb. By Period IV the construction and maintenance of public buildings had come to a halt.

The curve for the combined region for Period IIIb-IV would approach a rank-size configuration even more closely if data from the Southern Valley (Zimatlan) and especially the Southeastern (Tlacolula) Valley were included. During this period, the site of Lambityeco in the Southeastern Valley reached full florescence

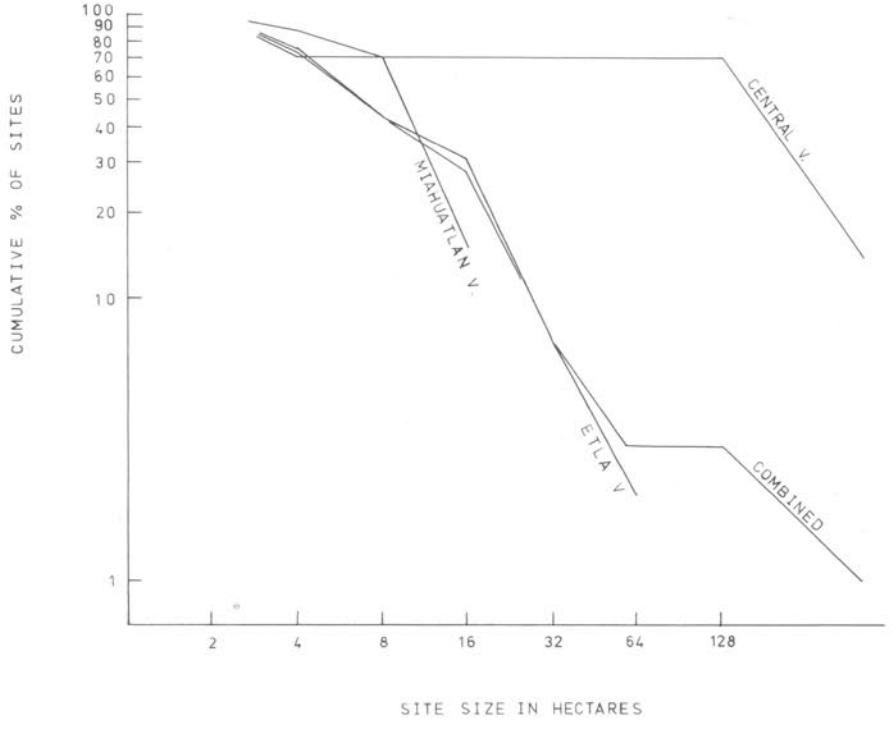


Figure 3-12. Period II Site Size Distribution.

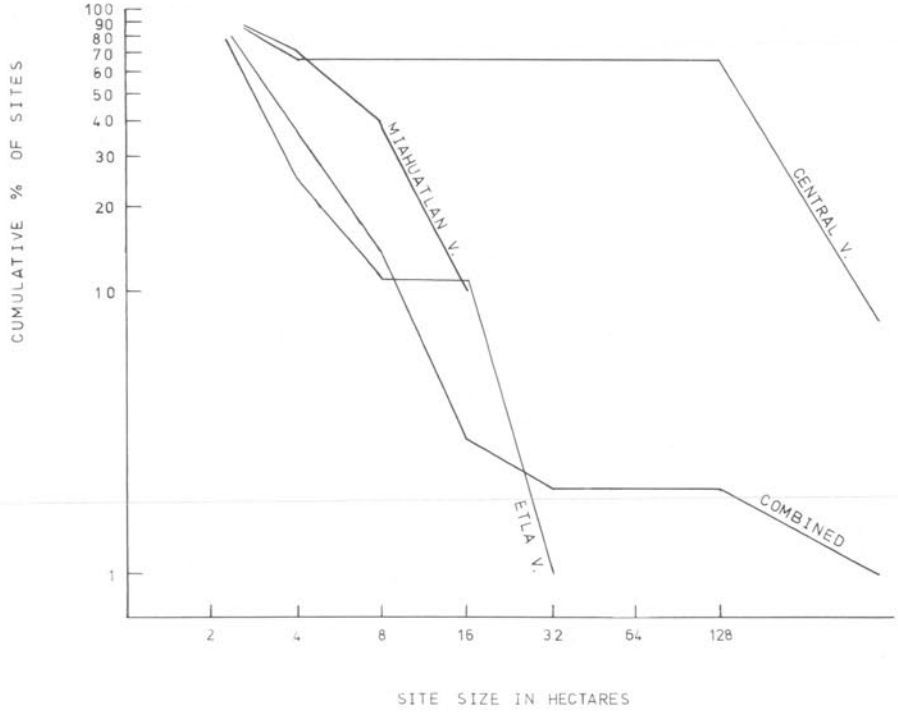


Figure 3-13. Period Transición-IIIa Site Size Distribution.

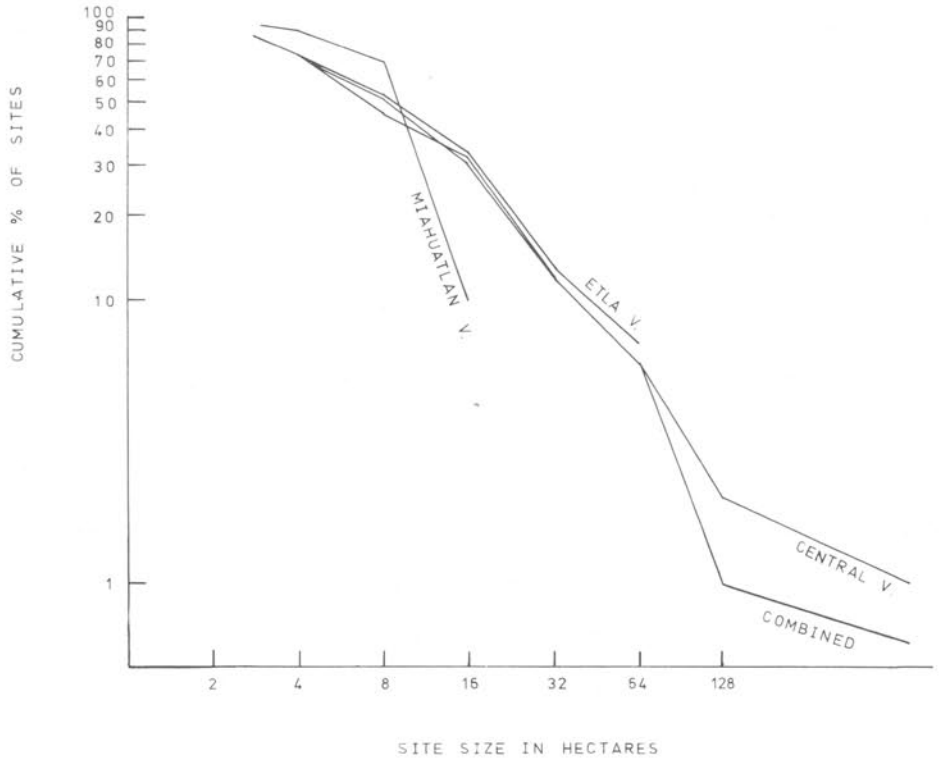


Figure 3-14. Period IIIb-IV Site Size Distribution.

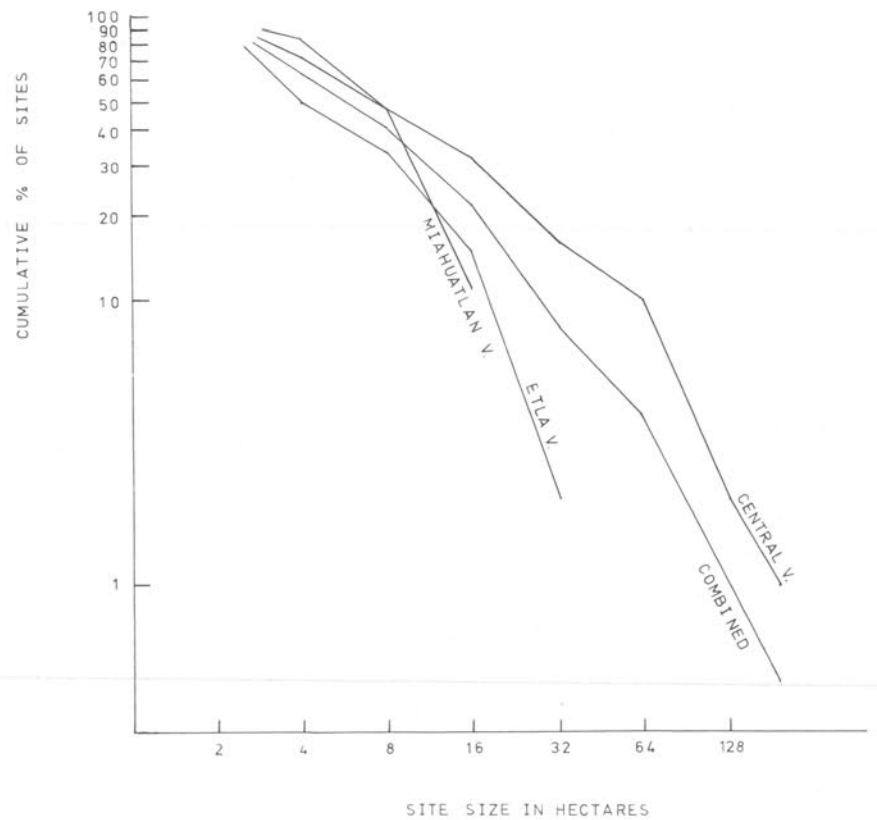


Figure 3-15. Period V Site Size Distribution.

and maximum size. Another distortion in the picture arises because quite likely the sites represented in the size distribution profile were not simultaneously occupied. During the five and a half century span of Period IIIb-IV, Monte Alban both increased to its peak level of population and extent, and in Period V began to decrease until it reached the level of almost total abandonment. Sometime during Period IIIb-IV, Monte Alban was eclipsed by various expanding urban centers on the valley floor.

In contrast to the preceding period, Period IIIb-IV was a time of high closure and high local interdependence, and the site size distribution curve for the combined valleys is closer to a lognormal configuration. The reduced primacy reflects the emergence of an economic system that was becoming less elite dominated, less centralized, and oriented more towards local exchange. Long-distance trade that had been oriented toward the elite dwindled with the widespread decline of major Classic centers. The weakening of the central elite meant freer development of local market exchange and a concurrent reduction in the role of tribute taking and redistribution as a means of allocation. Also the non-elite segment of society who were most directly involved in the administration of economic activities became increasingly powerful and autonomous and were instrumental in the growth of outlying settlements. Marc Winter (1976a) has provided evidence that the middle range administrators at Monte Alban, who controlled economic activities, including labor and goods, began to move out on to the valley floor and establish small towns and cities where they could be nearer the agricultural and other economic resources and products brought into the Valley of Oaxaca from other areas. Investigations at Lambityeco support this interpretation. The growth of Lambityeco in Period IV has been shown by David Peterson (1976) to have been based on salt production, and Marc Winter has demonstrated the strong parallels between the middle range house forms at Monte Alban and the elite residences at Lambityeco in size, construction, and tomb contents (1976a).

Thus, a fundamental change in the organization of society took place. A new secular elite emerged at the outlying centers. Its power and status was derived from control of production and exchange. The friezes found in high status houses at Lambityeco which convey secular themes (Rabin 1970) evidently reflect the new order.

The linguistic evidence corroborates the settlement data in depicting the Postclassic as a period dominated by trends towards decentralization, dispersal, and regional fracturing. Major divergence in the Zapotec language family follow the decline of Monte Alban. Juan José Rendón (1967) divides the Zapotec-Chatino language family into four major groups: (1) Mitla, Juchitan, and Tejalapan, which has a divergence of 6.5 to 8.5 centuries; (2) Loxicha and Miahuatlan, often referred to as Southern Zapotec, with at least 7 centuries divergence; (3) North Zapotec languages (Atepec, Comaltepec, and Yagatzachi) with 9.5 to 12 centuries divergence; and (4) Chatino with a divergence of 19 centuries. Thus, the divergence of the Northern Zapotec branch would coincide with Period IV; the Southern Zapotec and Mitla-Juchitan divergences, with Period V; and the movement of the Mixtec speakers into the Valley of Oaxaca, with a significant drop in the index of primacy in the Miahuatlan Valley (Table 3-3).

The Period V site size distribution is closest to the rank-size distribution. The configuration resembles city size distributions of modern countries that are politically and economically complex with long histories of urbanism in which many forces have affected the settlement configuration. Spatially, Period V is more complex than Period IIIa where Monte Alban served as a primary focus of both political and ceremonial activities. The region was not integrated through a single hierarchically ordered administrative network as in the Classic period where religious, economic, and military leadership were more clearly synonymous. Instead, religious economic, and military-administrative networks integrated the region and each of these overlapping networks operated with a degree of independence. The tiered hierarchy of settlement suggested by Central Place Theory (Christaller 1966) would be much less appropriate as a model of Period V settlement than it would be a model of Period IIIa settlement. In Postclassic Oaxaca the location of political administration did not coincide with centers of religious life. For instance, Zaachila in the Southern Valley (Zimatlan) was an important political-military capital while Mitla in the Eastern Valley (Tlacolula) was important as a ceremonial religious center (Whitecotton 1977:129). Other large settlements were primarily economic centers. For instance, the populous dispersed settlement in Period V, which extends from the base of Monte Alban to the modern town of Cuilapan, was not a center of political administration and its size reflects only its economic role within Central Oaxaca (Blanton et al. 1979:389).

Table 3-3. Data on Site Size by Distribution

Subareas[a]	Number of Sites, by Size Class[b]								Index of Primacy
	A	B	C	D	E	F	G	H	
M Pre-Period I	-	-	-	--	--	--	--	--	--
CPO Guad/Ros							1	3	1.00
E Guadalupe			1				_	11	5.00
COMBINED			1				1	14	5.00
M Period I					1	3	2	1	.81
CPO M.A.I[c]	1		2	5	8	10	11	14	3.27
E M.A.I	_		1	1	9	7	19	8	.72
COMBINED	1		3	6	18	20	32	23	2.88
M Period II					1	4	1	1	.73
CPO M.A.II[c]	1						4	2	31.76
E M.A.II	_		1	3	13	6	16	15	.49
COMBINED	1		1	3	14	10	21	18	4.28
M Trans-IIIa					1	3	4	2	.65
CPO M.A.IIIa	1						7	4	37.11
E M.A.IIIa	_			1	_	7	10	53	1.35
COMBINED	1			1	1	10	21	59	9.13
M Period IIIb-IV					1	6	2	1	.70
CPO M.A.IIIb[c]	1	1	3	5	17	12	23	23	3.03
E M.A.IIIb-IV	_	_	5	5	15	15	15	20	.34
COMBINED	1	1	8	10	33	33	40	44	2.57
M Period V					2	7	7	3	.56
CPO M.A.V[c]	1	1	8	6	17	15	25	29	.76
E M.A.V	_	_	_	2	13	19	18	51	.41
COMBINED	1	1	8	8	32	41	50	83	.76

[a]M = Miahuatlan Valley; CPO = Central portion of the Oaxaca Valley; E = Etla Valley.

[b]Size classes: A = 128.0 h to maximum; B = 64.0 h to 127.9 h; C = 32.0 h to 63.9 h; D = 16.0 h to 31.9 h; E = 8.0 h to 15.9 h; F = 4.0 h to 7.9 h; G = 2.0 h to 3.9 h; H = 1.0 h to 1.9 h.

[c]Monte Alban is included. In Period V Monte Alban is not the largest site in the CPO.

Note: Data for areas of the Valley of Oaxaca are culled from Blanton (1978), Kowalewski (1976), and Varner (1974).

Postclassic Central Oaxaca consisted of numerous Zapotec speaking petty states, many of which were linked through dynastic ties. Often relationships between polities were antagonistic which in part explains the preponderance of sites in defensible hilltop settings in the Miahuatlan Valley. Ethnohistoric sources relate that Miahuatlan and other Southern Zapotec towns were constantly at war with one another (Whitecotton 1977:128).

In the fourteenth century Mixtec speakers began to invade the western portion of the Valley of Oaxaca and late in the fifteenth century this area came under the hegemony of The Empire of the Triple Alliance. At the time of the Spanish conquest there were four populous Zapotec states in south central Oaxaca: Miahuatlan, Coatlan, Amatlan, and Ocelotepec (Gerhard 1972:187). Miahuatlan and Coatlan had recently fallen within the sphere of Mexican influence with rulers appointed from Tenochtitlan. Miahuatlan allied itself with The Empire to protect itself from Tututepec who at one time had conquered Miahuatlan and was attempting to reconquer the area (Ball and Brockington 1978:113).

Thus, the Central Oaxaca area during Period V was politically fractured and the settlement size distribution was determined by a multiplicity of independent political, economic, and religious forces, the type of circumstance that can be expected to produce a lognormal city size distribution (Berry and Garrison 1958). The Postclassic can be characterized not only by decentralization of political control but also by a spatial separation of administrative, religious, and economic functions.

In sum, the pattern of changes in the chronological series of site size distribution graphs for the Miahuatlan and Oaxaca Valleys is a cyclical or spiraling pattern, suggesting that Berry's progression (Fig. 3-9) is but one phase in an ongoing process. The settlement system oscillates between periods of aggregation or centralization characterized by primate settlement size distributions and periods of dispersal or decentralization, characterized by lognormal distributions. Furthermore, in each cycle of centralization there is a tendency for the scale of integration to increase: for a broader geographical area to be incorporated into a single sociopolitical system. These alternating tendencies toward aggregation, then dispersal, in most cases are congruent with traditional interpretations of processes occurring in major epochs of Mesoamerican prehistory: The Preclassic tendencies toward aggregation culminate in the urban developments of the Classic. The decline of the major Classic centers marks a reversal of such trends. In the very Late Postclassic with the continuing expansion of the Tenochtitlan Mexica empire a new phase of Mesoamerican centralization might have profoundly affected Oaxaca but was thwarted by the Spanish conquest. Incorporation at the close of the prehispanic epoch of areas of Oaxaca into the Mexica tribute realm was of such short duration that neither a dominating provincial capital nor a local stronghold of resistance had time to develop to give the region a primate site size distribution. The Zapotec garrison at Guiengola in the Isthmus of Tehuantepec might have represented the beginnings of the latter type of urban center.

More specific interpretations of the Miahuatlan and Oaxaca data must be considered hypotheses for further testing. At present, it is not possible to delineate a causal sequence of interaction between elements of the settlement system which have been discussed: agricultural history, population, and regional social organization. Thus, two areas of investigation, archaeological and ethnohistorical, are suggested in order to further understand the processes which produced the observed settlement patterns. First, a refinement of our knowledge of the ceramic chronology is needed to sort out sequences of events before causal relationships between operating factors can be delineated.

Second, further ethnohistorical data are needed as a basis for testing assumptions which have been used in interpreting archaeological data. An ethnohistorical investigation should focus on documentary materials relative to commercial networks, land use, patterns of localized non-agricultural production, administrative interrelationships, demography, social structure, ethnic interactions; that is, the factors underlying the cultural-environmental system. A perusal of documentary accounts from the early Colonial Period in which the final phase of prehispanic times is reflected will probably result in a clearer and more detailed identification of sociocultural processes as related to changes in the archaeological settlement configuration.

Conclusions: Towards an Explanatory Model of Settlement

Oscillations between aggregation and dispersal, centralization and decentralization suggest a pendulum-like movement between limiting conditions and that a stochastic growth model would be more appropriate than a deterministic one. A problem in constructing a dynamic model is to delineate the operating factors as well as to identify and define the limiting conditions at any one point in time and thus provide a baseline from which future sets of parameters can be predicted.

The limits of urban growth are not defined solely by the available environmental resources or the available means for extracting subsistence and other resources. The growth of an urban center is also limited by interrelated factors such as the size of the hinterland which can be efficiently integrated into the urban supply system; that is, by the ability of the managerial-administrative segment of the city to command resources either through trade or tribute. Ideological limitations also must be considered and they are related to administrative ones. The effectiveness of an administration rests in part on the effectiveness of the informational system to convey a sense of the power of the administrators and the legitimacy of their authority.

An explanatory settlement model might also consider that urban population growth occurs as a response to new work or employment opportunities--opportunities for individuals to articulate with the system of allocation--which develop at a given location. This does not deny the possible role of coercion as a factor in urban growth. However, for a city to increase its population even through forced settlement, there must be viable means of providing the urban population with the minimum life sustaining necessities. From this perspective, the growth and development at Monte Alban, for example, are viewed as a response to a particular set of "employment" opportunities which in this case were related to the city's role as a capital of a centrally administered, elite dominated empire. The consumptive demands of the elite created work for craftsmen and traders. Imperial expansion created opportunities for warriors and administrators and, workers were needed to build monuments that would publicly reconfirm elite power and authority. These manpower demands resulted in population concentration at the capital. Likewise, the waning of Monte Alban and the development of secondary centers in Period IV can also be viewed in these terms. The decline of the elite central administration meant a decrease in elite generated opportunities and the emergence of new work generated by an increasingly autonomous "entrepreneurial" class which established centers away from the old capital. These lower order centers grew because they represented new nodes of opportunity.

Thus, decentralization is part of the process of systemic growth. Lower order centers represent new nodes of growth and their development can be expected to eventually result in a competition for control of resources with the original center. Decentralization trends reach their limits as the system eventually becomes fractured and weakened, making conquest and tribute exaction "cost effective" activities.

The dynamic forces generating growth and an increased scale of intergration are produced by ecological mechanisms, mainly the mutually causal relationships between systemically related factors. Deviations initiated in one subsystem cause changes in other subsystems and reverberate to amplify the initial deviation. For instance, population growth can stimulate increased sociopolitical complexity, but, in turn, the demands of the more complex sociopolitical structure can be expected to stimulate further population growth. Likewise, agricultural intensification may be stimulated by the need to feed growing populations but conversely, the demands of intensive agriculture encourage further population growth. Preindustrial agriculture is increasingly efficient and less burdensome to individual household members the larger the household, a fact which produces an impetus for increased family size.

The process of systemic growth does not continue *ad infinitum* as there are limits to the amount of matter and energy that can be integrated into a system. Natural systems will either stabilize or fluctuate below their growth limits. The trajectory of the Central Oaxaca settlement system suggests that in cultural systems the limits themselves can evolve and become broader with each fluctuation. Thus, the construction of a dynamic model of a human settlement system does not only entail an understanding of the multiple factors, their mutual relationships, and the parameters of the system at any one point in time, but there is the additional problem of predicting future sets of factors and limiting conditions; that is, future evolutionary circumstances.

APPENDIX

CERAMIC DESCRIPTIONS

Introduction

Ceramics and figurines are used in this study for dating proveniences and for measuring the extent of archaeological sites. This appendix presents the data upon which these assessments are made.

Two works are essential for the dating and identification of Miahuatlan ceramics. First, La Cerámica de Monte Albán (Caso, Bernal, and Acosta 1976, hereafter cited as CBA) defines the ceramic sequence for the Valley of Oaxaca from which the Miahuatlan chronology is derived (Table 1-1). Second, Archaeological Investigations in Miahuatlan, Oaxaca (Brockington 1973) contains a detailed analysis of local ceramics and chronology. In addition, Yagul, El Palacio de los Seis Patios (Bernal and Gamio 1974), while not as basic as the above publications, is important for identifying materials from the last two periods of the Oaxaca sequence. This appendix is meant to be read with these sources at hand and no new typology has been presented. Whenever possible the described categories are related to published types as they occurred in sherd collections from the field study. These relationships are noted within each ceramic category description under the Comparable material subheading. However, for some ceramics, made up of materials not previously described, new categories were defined. Future investigations and analysis may reveal their significance.

Laboratory Procedures

After all sherds were marked with provenience designations, they were sorted into large groupings according to paste or clay body. Three major pastes can be defined with regard to hardness, clay source, and firing. These distinctions form the basis of Brockington's divisions of the Miahuatlan ceramics into three types: Miahuatlan Fine Grey, Miahuatlan Medium Gray, and Miahuatlan Coarse Rough (1973). The fine and the much more common medium pastes are not always clearly distinguishable as there seems to be a continuous range of textures. The fine and medium pastes are apparently derived from alluvial clays and are most frequently gray though in some cases, especially toward the coarser end of this continuum, reddish yellow or reddish brown. The reddish yellow or reddish brown color can presumably be attributed to firing in an oxidizing rather than in a reducing atmosphere. Specks of biotite, a gold-colored mica, often can be seen in the paste of the oxidized medium textured ceramics.

The original clay sources of the Miahuatlan Coarse Rough pastes appear to be geologically derived from the decomposed gneiss common to the Miahuatlan Valley. Pastes often contain visible chunks of quartz, 1 mm to 5 mm in diameter and are either gray or more frequently reddish brown, depending on the firing atmosphere. Some examples are brownish black or have a maroon tinge. This color probably can be attributed to a high manganese content. In a few examples of both medium and coarse pastes there are basaltic granules, a component of the original clay. In general, when local ceramics contain mineral inclusions it appears these were present in the original clay and are not the result of the addition of tempering (William O. Payne 1975, personal communication).

The sorting of ceramics into finer categories depended heavily on distinctions made on the basis of form and decorative features and sometimes surface treatment as well. An attempt was made to distinguish as many different categories as possible so that a maximum amount of information could be recorded in the tabulation. There is considerable variation in the number of critical attributes by which categories are defined; that is, some categories are much more specifically defined than others. If a particular sherd displayed any feature by which it could be distinguished from other materials, whether the feature be an element of paste, form, or surface finish, a new category was defined. However, in practice compromises had to be made and within each category some range of variation exists; 105 categories were established.

In some special cases materials were placed in separate categories though they might be parts of a single vessel, but because of the fragmentary nature of the surface potsherds complete vessel form could not be determined. For example, many of the materials classed as Category 012 (Coarse Reddish Brown Bowl) may be bowl fragments from censers of Category 011 (Coarse Reddish Brown Frying Pan Censer) with the handle missing. In this case, complete bowls and frying pan censers are known from comparable materials at Yagul (Bernal and Gamio 1974:Lámina núm. 1 a-d) but there are other instances where the complete vessel form is unknown.

Chronological Designations

Though ceramics are used in this study as a chronological index, some of the described ceramic categories are far more useful than others as diagnostics. Each category is therefore ranked according to how precisely it demarcates one particular period of the chronology. The chronological designation can be considered an assessment of the reliability of the category as a diagnostic. The chronological designation and the basis for this designation are presented in the Dating subsection of each category description. Also, ceramic categories are grouped according to chronological designation in the listing below.

According to the system of chronological designations there are primary and secondary period markers for each period as well as ceramics that cannot be associated with any one period either because they are known to be associated with deposits from several periods or because the category is made up of indistinctive mixed surface materials. These categories, designated "General Early," "General Middle," and "General Late," indicate the broad segments of the sequence to which the ceramics are assigned. General Early means: the materials could have been produced from Period I through Period IIIa; General Middle, from Period II through Period IV; and General Late, from Period IIIa through Period V but most likely after Period IIIa. Of these three designations General Middle is the least precise and is applied to some of the more ambiguous categories.

The distinction between primary and secondary period markers reflects a somewhat subjective assessment. For example, Primary Period I means: materials within this category are certain diagnostics of Period I. Dating is less certain with categories designated Secondary Period I. The Secondary Period I designation might be applied where it is known that in some rare instances this type is associated with deposits other than Period I.

Though a statistical seriation has not yet been performed, in some cases ceramic dates are based on distributional data from the survey and from stratigraphic information obtained at Site 1A. The excavations and other investigations at Site 1A are reported in Chapter II.

Only the primary and secondary markers are used in the settlement analysis for dating proveniences.

Category 104 has been established for general miscellaneous materials, and includes many unique or unidentified sherds and figurines.

The 105 categories of materials are derived from a survey collection of 5,228 sherds, 17 whole vessels, and 76 figurines. The bulk of this sample is made up of materials that are often common plain household wares with either a General Early, General Middle, or General Late chronological designation. In contrast, the categories designated primary or secondary period markers usually occur in relatively low frequencies. Because the materials tend to be distinctive and clearly defined as temporal diagnostics in other studies it was often profitable to create new categories even with very few sherds.

Ceramic Markers Listed According to Chronological Designations

Primary Period V

001 Coyotepec Olla Rim
002 Thin Olla with Net and Stripe Burnishing
003 Tubular Support
004 Serpent Effigy Support
005 Compound Silhouette Bowl
006 Thin Bowl with a Break
007 Square Lip Two Tone Bowl
008 Red on White
009 Thin Gray Plate
010 Period V Mold Made Figurine
011 Coarse Reddish Brown Frying Pan Censer
012 Coarse Reddish Brown Bowl
100 Coarse Reddish Brown Bowl with One Smoothed Side
103 Patojo Vessel

Secondary Period V

none

Primary Period IIIb-IV

017 Anthropomorphic Whistling Figurine
019 Jaguar Paw Support
021 Imitation Balancan Fine Orange
022 Hill Glyph Motif
025 Hollow Bulbous Support, Net Burnished Bottom
038 Ceramic Mold
093 Period IIIb-IV Urns

Secondary Period IIIb-IV

014 Gray Bowl with Net Burnished Exterior
015 Medium Gray Molcajete
023 Spiked Urn
024 Hollow Bulbous Support, Medium
026 Hollow Cylindrical Support
027 Tecomate with a Molding
028 Conical Bowl with Slab Supports
043 Thin Burnished Black Tecomate
046 Burnished Black Conical Bowl
047 Burnished Black Round Bowl

Primary Period Transición-IIIa

036 Kaolin Ware
037 Applique Coffee Bean Ornament
038 Ceramic Mold
039 Gray Transición III-a Incised Ware
040 Red on Gray Incised Ware
045 Brazier with Inside Rim Supports
094 Period IIIa Urns

Secondary Period Transición-IIIa

None

Primary Period II

057 Bowl with Scraped Exterior
058 Conical Bowl with Incised Exterior
059 Red on Buff
060 Incised Red on Buff
061 Zoomorphic Vase
062 Period II Urn
063 Shallow Flat Bottomed Red Bowl
105 Miscellaneous Period II

Secondary Period II

035 Corrugated Bowl
044 Cylindrical Outflaring Bowl
064 Plain Tall Cylindrical Vase
065 Tall Incised Vase

Primary Period I

067 G.5, G.33
068 G.15, G.16, G.17, G.18
069 Thick Walled Plain Incense Burner
070 Thick Multitoned Reddish Brown Olla
071 Thick Multitoned Reddish Brown Bowl
072 Coarse Multitoned Comal
073 Period I Compound Silhouette Bowl
074 Incised Compound Silhouette Bowl
075 Pedestal Vessel
076 Miscellaneous Period I
077 Period I Figurines
083 Single Lined Bowl
087 Outfolded Rim
089 Labial Molding

Secondary Period I

054 Thick Wall Gray Bowl
078 Geometrically Incised Bottom
079 Well Defined Double Line Bowl
080 Bridge Spout Vessel
086 Comb Bottom

General Late

013 Bowl with Red Paint Bands
016 Rough Bottom Comal
018 Unique Late Figurines
020 Paw Shaped Nub
029 Shallow Round Gray Bowl
030 Two Toned Bowl
031 Frying Pan Censer
032 Yellowish Red Bowl with Everted Rim
034 Loop Shaped Handle
050 Thin Gray Vase
101 Miscellaneous Coarse Reddish Brown Comal

General Middle

033 Red on Cream
041 Fine Reddish Yellow Conical Bowl
042 Thin Burnished Black Vase
048 Reddish Yellow Round Bowl
049 Medium Gray Tecomate
051 Medium Gray Flat Bottomed Bowl
052 Olla with Eccentric Pattern Burnishing
053 Gray Bowl with Painted Red Rim
056 Medium Gray Olla with Burnished Rim and Shoulder
092 Long Neck Thick Gray Olla
095 Thick Walled Gray Olla
096 Thin Hard Gray Olla
097 Medium Gray Round Bowl
098 Coarse Plain Olla
099 Plain Medium Gray Olla
102 Red on Gray

General Early

055 Thick Wall Gray Tecomate
066 Triple Lined Conical Bowl
081 Coarse Olla with Flattopped Rim
082 Red Rimmed Black Ware
084 Pattern Burnished Bottom
085 Double Lined Conical Bowl
088 Hour Glass Censer
090 Basal Molding
091 Coarse Cream with Smoothed Surface

Miscellaneous

104 General Miscellaneous

Ceramic Category Descriptions

Coyotepec Olla Rim 001

Form. The category is defined mainly on the basis of form. The typical sherd is an olla rim with a lip that is angular in section. A similar rim form is presently manufactured in Coyotepec in the Valley of Oaxaca and corresponds to a large globular olla with a short constricted neck. However, the modern day Coyotepec ollas are black, unlike these (see Comparable material, below).

Paste. The paste is fine, gray, and hard.

Surface treatment. Surfaces are smoothed but not burnished. The ollas are light gray. Several examples have jab marks below the rim that presumably were made with a stick (Plate 7 p).

Comparable material. As mentioned above, the form has a counterpart in the modern black wares of Coyotepec. This marker would probably fit in Brockington's Miahuatlan Fine Grey category (1973:23, 24) though this particular form is not described.

Illustration. Plate 7 p, q.

Type material. 12 sherds.

Dating. Primary Period V. The date is based primarily on its provenience association with other Period V diagnostics and on its identification with comparable materials (see above). It was found in the uppermost level of Pit 1 at Site 1A. There remains the possibility that the form was also manufactured during Period IV but less frequently.

Thin Olla with Net and Stripe Burnishing 002

Form. No complete ollas of this type are known from this survey. Most samples are body sherds and are placed in this category mainly on the basis of surface treatment. Vessel walls are thin (0.2 cm to 0.4 cm).

Paste. The paste is fine to medium, gray, and hard, consistently harder than the paste of ollas in Category 052, Olla with Eccentric Pattern Burnishing.

Surface treatment. The shoulder and body of the olla has a rectilinear burnished design consisting of either parallel stripe design or a design of criss-cross lines, what Brockington calls "net burnishing" (1973:24). The designs are much more regular than those of the Olla with Eccentric Pattern Burnishing (Category 052).

Comparable material. Brockington's Miahuatlan Fine Grey, Zone Burnished encompasses materials in this category as well as Olla with Eccentric Pattern Burnishing (Category 052). Categories 002 and 052 have decorations which fit Brockington's Pattern B design description (1973:24).

Illustration. Plate 7 c, d.

Type material. 11 sherds.

Dating. Primary Period V. The main basis for this dating is the high frequency of associated Period V materials found mainly in Sites 6 and 10. Dating is also based on the identification with Miahuatlan Fine Grey, Zone Burnished that

is regarded as a Postclassic type (Brockington 1973:52). The dating of pattern burnished ollas requires caution. Plate 7 a, for example, illustrates a Period I olla classed as Miscellaneous Period I (076), and it demonstrates a Pattern A burnish design as described by Brockington (1973:52). However, this olla has a more coarsely textured paste and is not as hard as Brockington's Miahuatlan Fine Grey, Zone Burnished ollas (1973:52) or the Olla with Net and Stripe Burnishing (Category 002) described here. Also, the vessel illustrated in Plate 7 a has a profile characteristic of many Period I ollas. Fragmentary samples might be mistakenly placed in Category 002.

The olla fina described by Bernal and Gamio (1974:67, Lámina 8 f) is quite similar to the Thin Olla with Net and Stripe Burnishing. They suggest its manufacture extends back to Monte Alban I but at Yagul it ceases being made during Period IV (1974:67). This dating differs from what was found at Miahuatlan.

Tubular Support 003

Form. Vessel forms include shallow round bowls and probably globular tripod ollas. The supports are tubular and hollow with a small perforation on one side. When complete they will rattle because of a clay bead inside. They can be divided into three distinct forms: (1) those with tapered rounded ends (Plate 18 k); (2) those with slightly bulbous ends (Plate 18 l); and (3) those with pinched ends (Plate 18 m). Frequently, the vertical parallel lines of a burnishing pebble can be seen where the vessel base and the support are joined.

Paste. The paste is medium, gray, and hard.

Surface treatment. Surfaces are smoothed or burnished, often with the parallel vertical lines of the burnishing pebble visible. Most examples are gray though some are brownish gray or yellowish gray. One support fragment is burnished yellowish red (7.5 YR 6/6) with a gray paint band around the joint between vessel body and the support itself.

Comparable material. Bernal and Gamio (1974) illustrate numerous examples of complete vessels from Yagul with comparable supports in the photograph section. Most of these vessels are identified as G.3M wares. The tubular supports described here could probably be included in Brockington's Miahuatlan Fine Grey, Plain category (Fig. 8 r, right example, and Fig. 8 s).

Illustration. Plate 18 k, l, m.

Type material. 1 whole vessel, 26 sherds.

Dating. Primary Period V. The dating is based on provenience associations and comparable materials (see above).

Serpent Effigy Support 004

Form. A hollow tubular vessel support terminates in the form of a serpent's head.

Paste. The paste is uniform, fine, hard, and gray.

Surface treatment. Smoothed or sometimes lightly burnished. In some examples lines made by a burnishing implement are visible.

Comparable material. Bernal and Gamio (1974:Lám. 16-19); Brockington (1973).

Illustration. Plate 18 n.

Type material. 2 sherds.

Dating. Primary Period V. This form is a widely recognized late Postclassic diagnostic for highland Oaxaca (Bernal and Gamio 1974; Brockington 1973; CBA).

Compound Silhouette Bowl 005

Form. The typical vessel form is a round bottomed bowl with short cylindrical walls. The walls are much more vertical than on the Thin Bowl with a Break (Category 006).

Paste. The paste is gray and almost powdery fine.

Surface treatment. The bowl is burnished on one or both surfaces. Frequently, there are two tones of gray on the same piece, probably due to differential firing.

Comparable material. Similar compound silhouette vessels with G.3M paste are described at Monte Alban (CBA:451, Fig. 378).

Illustration. Plate 14 f.

Type material. 1 complete vessel, 25 sherds.

Dating. Primary Period V. A similar form occurs in Period I, Category 073, but the Period V materials seem to be more highly fired and when tapped against a hard surface produce a high pitched "tinc" rather than the muted "tonc" of the earlier materials. These sound characteristics are discussed by Brockington (1973:23, 51).

Thin Bowl with a Break 006

Form. The typical vessel is a thin shallow bowl with a round bottom and walls in the form of an inverted truncated cone. In cross section the curvature of the bowl is interrupted by an angle or "break" where the rim and body meet. On some bowls the angle is on the interior, on others on the exterior, and on still others there is a break or angle on both interior and exterior (Plate 14 b). This break is what distinguishes this type from Two-Toned Bowls (Category 030), a simple shallow round bowl.

Paste. The paste is medium to fine and gray. It is identical to the paste of Category 007.

Surface treatment. Most examples are simply smoothed but some may be burnished on one or both sides. Frequently there are two shades of gray on a single sherd.

Comparable material. This category falls within the range of materials designated G.3M at Monte Alban (CBA:448). Materials in this category can be included in either of two categories defined by Brockington, Miahuatlan Fine Grey (1973:24) or Miahuatlan Two Toned (1973:28-30).

Illustration. Plate 14 b.

Type material. 137 sherds.

Dating. Primary Period V. The dating is based on comparable materials (see above).

Square Lip Two Tone Bowl 007

Form. Vessels are either subhemispherical or hemispherical bowls with thin walls. The variants with the squared lip (Plate 14 e) are treated as a distinct type, Category 007, in the ceramic tabulations. The more common variety, Category 030, has a rounded lip (Plate 14 c, d) but is like Category 007 in every other respect.

Paste. The paste is medium to powdery fine, homogeneous, gray, and very hard.

Surface treatment. Ceramics are either smoothed or burnished on one or both surfaces. There are two shades of gray on any one sherd, probably due to differential firing.

Comparable material. G.3M (CBA:448). Miahuatlan Fine Grey and Miahuatlan Hard Grey, Two Toned (Brockington 1973:24, 28, 30).

Illustration. Plate 14 e (Category 007). Plate 14 c, d (Category 030).

Type material. 11 sherds (Category 007), 305 sherds (Category 030).

Dating. The square lip variant, Category 007, is classed Primary Period V. The Two Tone Bowl, Category 030, is designated General Late. Though this latter type is most characteristic of Period V, related material, the G.3M is known from IIIb context at Monte Alban (CBA:440-443, Table 16; Brockington 1973:51-53).

Red on White 008

Form. It is difficult to define vessel form as only two sherds were found in this survey, neither of which are large enough to accurately determine the vessel shape. The type is distinguished mainly on the basis of paste and surface treatment. Vessel walls are 0.3 cm and 0.9 cm thick, and probably are fragments of small bowls.

Paste. The paste is powdery fine and chalky white, distinct from any other wares found in the Miahuatlan area.

Surface treatment. The bowl interior surface is smoothed and left the original white or cream while the exterior is painted with a series of horizontal red paint bands.

Comparable material. The category is probably related to the Yanhuitlan Red-on-Cream from the Mixteca Alta dated to Period V (Spores 1972:30-32, Figs. 4, 5, 7 a-c).

Illustration. Plate 15 l, m.

Type material. 2 sherds.

Dating. Primary Period V. Dating is based on comparable materials (see above).

Thin Gray Plate 009

Form. Vessel form is a thin walled shallow gray plate. It is often possible to confuse small rim fragments of the Shallow Round Gray Bowl (Category 029) with this material.

Paste. The texture is fine, gray, and hard.

Surface treatment. All surfaces are smoothed.

Comparable material. Though gray plates are known from Period I at Monte Alban, these Category 009 plates are closer to the G.3M materials in paste and surface finish.

Illustration. Plate 14 g.

Type material. 12 sherds.

Dating. Primary Period V. Dating is based on provenience association and comparable materials (see above).

Period V Mold Made Figurines 010

Form. Design details on these thin, flat, anthropomorphic figures are depicted in two-dimensional shallow relief. The reverse side of the figurines is smooth and blank. Presumably they were manufactured by pressing a mold over a sheet of wet clay lying on a flat surface, perhaps a rock. The back side of some examples have markings suggesting the clay was then separated from the flat surface using a twine cord to cut it loose.

A headdress or hair arrangement is suggested by thin raised lines radiating straight out from the head or falling to the shoulders. Facial features are stiff and highly stylized. Eyes and mouth each consist of an oval surrounding a horizontal bar. The nose is simple, an elongated triangle of clay, a very subdued feature. Earplugs are represented by applique disks.

Body elements of the figurines are also highly stylized. The arms consist of curved raised lines to either side of the body. A most distinctive feature of the figurine body is the pectoral element that frames one of three motifs. The first is tentatively called the "quadruped" motif (Plate 10 m) as it seems to be a stick drawing of a four legged animal. The second, the "m" motif (Plate 10 i, j) is described by Brockington as "resembling an 'm' with several short lines between the legs of the 'm'" (1973:44). Possibly the "m" motif may be a cursive rendering developed from the "quadruped." The third motif is designated the "bull's-eye" motif and consists of two or more concentric circles (Plate 10 k, l). Brockington suggests that the designs may identify social groupings such as clans, lineages, military societies, or other units (1973:44). Speculating further it may be that these designs represent associations that tied together broad reaches of the valley by drawing members from distantly separated communities. The following table presents a distribution of recognizable designs:

	quadruped	bull's-eye	m
Site 10	2	2	
Site 17			1
Site 39		1	
Site 206		1	1

Unfortunately, provenience data on motif distribution from Brockington's collection were not available to be included in this table.

Paste. The texture is medium and gray. One example, illustrated in Plate 10 k, is oxidized and reddish brown.

Surface treatment. The surfaces are smoothed but not burnished.

Comparable material. This type is the same as Brockington's Miahuatlan A figurine type (1973:43-44, Fig. 16). He notes that there are similarities to the Mazapan figurines from the Valley of Mexico (Brockington 1973:44), and even closer similarities with figurines from Amapa in western Mexico reported by Grosscup (1961:391, Fig. 1a). The Type A mold-made Mazapan figurines from Amapa in Nayarit are most like these (Meighan 1976:69, Plates 27 and 28). The Museo Frissell de Arte Zapoteco has two of these figurines on display; both are supposedly from Miahuatlan. These materials are reported from the Isthmus of

Tehuantepec (Wallrath 1967:126, Fig. 73 e-h) but have not been found within the Valley of Oaxaca.

Illustration. Plate 10 a-m, Plate 12 l.

Type material. 20 examples.

Dating. Primary Period V. These figurines, if contemporary with the Mazapan ones, would be placed in the Early Postclassic or A.D. 900 to A.D. 1200. It is possible that they are slightly later. Clement Meighan notes, "The so-called 'Mazapan' types seem to originate in Central Mexico and spread in all directions as an accompaniment of 'Toltec' material culture" (1976:69).

Coarse Reddish Brown Frying Pan Censer 011

Form. No complete vessels were found in this survey though it can be deduced that a complete incense burner from this type consists of a bowl with a tubular handle. Most likely, many bowl fragments that pertain to this type were classed Coarse Reddish Brown (Category 012) and Coarse Reddish Brown Bowl with One Smoothed Side (Category 100). In some few cases fragments of the bowl are still attached to one end of the handle. Sherd counts reported in the appendix include only tubular handles or bowls with fragments of handles evident.

Compared with the Frying Pan Censer (Category 031), these are much more rudely fabricated and are smaller. The handle diameter of the Coarse Reddish Brown Frying Pan Censer ranges from 1.5 cm to 2.5 cm whereas the Frying Pan Censer varies from 3.0 cm to 4.0 cm.

Paste. The paste is sandy, reddish brown, and crumbly.

Surface treatment. Surfaces are rough and grainy. The painted and incised designs described by Brockington for Miahuatlan frying pan censers (1973:33) were not found on samples collected in this survey.

Comparable material. These censers conform to Brockington's Miahuatlan Coarse Red variety (1973:33, 36). This type as well as Categories 012 and 100 can be equated with the ware with "reddish-brown paste with extremely coarse and dense sand inclusions" that Brockington dates to Period V (1973:16, 17). Similar pieces at Yagul are assigned to Period V (Bernal and Gamio 1974:Lám. 1 a, u, Lám. 3). Describing this ware at Yagul Bernal and Gamio say, "Todos son del tipo de loza amateur, frequente en Yagul, muy burda y obviamente hecha por no alfareros" (1973: 24). In a footnote of a report by John Paddock (1957) Brockington has noted a possible survival of a Precolumbian custom in the Southern Zapotec Loxicha villages where mourners, non-craftsmen, make the crude ceramic objects for burial as mortuary offerings. The crudeness of these censers might be due to a similar custom.

Illustration. Plate 20 f.

Type material. 76 sherds.

Dating. Primary Period V. The dating is based on comparable material (see above). Brockington notes that within the Miahuatlan Coarse Red variety incense burners increased in frequency from lower to upper levels of Pit 2, Site 1A (1973:36).

Coarse Reddish Brown Bowl 012

Form. The vessel form is a round bottomed bowl. A few examples flare outward at the rim.

Many sherds placed in this category may actually be fragments of the Coarse Reddish Brown Frying Pan Censer (Category 011) with the handle portion of the vessel missing. Like the censer they are rudely manufactured, some having an irregularly shaped rim.

Most are small, having a diameter of about 10 cm though there are examples as large as 20 cm. Walls are thin, 0.6 cm, when compared with other wares having reddish brown paste (Categories 070, 071, 072).

Paste. The paste is coarse, reddish brown to light brown. Chunks of quartz and diorite from 1 mm to 5 mm are clearly visible.

Surface treatment. Surfaces are rough and lumpy. Examples similar to the above description but smoothed on the interior surface are classed separately in Category 100.

Comparable material. Bernal and Gamio (1974:Lám. 3 f, g and Lám. 5). Also note comparable material for Category 011.

Illustration. Plate 20 a.

Type material. 50 sherds.

Dating. Primary Period V. The dating is based on comparable materials (see above).

Bowl with Red Paint Bands 013

Form. One complete vessel was found, a round bottomed bowl 15 cm in diameter (Plate 15 a).

Paste. The paste is medium and yellowish red or brownish red. The clay is identical to that used to manufacture many of the common medium, gray wares. Only in this case, the ceramic has been fired in an oxidizing rather than a reducing atmosphere. The clay is from an alluvial source and contains specks of gold colored biotite.

Surface treatment. The bowls are burnished inside and out, and are brownish red. The specks of biotite are visible on the surface and sparkle when wet. A design is painted on the interior of the bowl consisting of well-defined bands of paint about 1 cm wide. William Payne (1976, personal communication) suggests that the sharpness of the line was probably achieved by applying grease or wax to the pot before painting and firing that would prevent the paint from running or spreading.

Illustration. Plate 15 a.

Type material. 1 whole vessel, 3 sherds.

Dating. General Late. Dating is based on the association in Burial 1975/1, Site 38 with a Shallow Round Gray Bowl (Category 029, Plate 14 a, bottom) and its position in the upper levels of Test Pit 1, Site 1A.

Gray Bowl with Net Burnished Exterior 014

Form. Vessel form is a round bottomed bowl similar in profile to what Brockington refers to as a "high hemispherical bowl" (1973: Fig. 10 c). Vessel walls are 0.3 cm to 0.6 cm thick.

Paste. The paste is medium, gray.

Surface treatment. The exterior of the bowl is burnished in a net or criss-cross pattern (Plate 14 k). Bowls are burnished uniformly on the interior. This uniform burnishing continues on the exterior but terminates 1.5 cm to 3.0 cm below the rim forming a band at the rim. Surfaces are two tones of gray, darker gray in burnished zones and lighter in the unburnished areas.

Comparable material. These would fit Brockington's category, Miahuatlan Medium Grey (1973:30) especially the example illustrated in Figure 11 s of that report. However, the form of that vessel is somewhat different from examples collected in this survey. It is a deeper, more globular bowl, a form referred to as a "constricted orifice bowl" (Brockington 1973:Fig. 10 d).

Illustration. Plate 14 k.

Type material. 5 sherds.

Dating. Secondary Period IIIB-IV, most probably during Period IV. Brockington assigns Miahuatlan Medium Grey to "Tradition IV," meaning that during Period IV it reached a maximum popularity (1973:53), although the type may have been manufactured both before and after this period.

Medium Gray Molcajete 015

Form. These are shallow round bottomed bowls with a rough surface on the interior formed by deep incising.

Paste. The paste is medium, gray, the same as that of Category 014.

Surface treatment. Most examples are smoothed or burnished on the exterior surface although one example is brushed. On the interior there is a smoothed or lightly burnished band 1.5 cm to 3.0 cm wide at the rim. Below this band the bowls are deeply incised in the crisscross pattern (Plate 20 b). Using an analogy with modern practice, it might be inferred that this surface would be used for grating.

Comparable material. Brockington 1973:30, 58, Fig. 10 i, Miahuatlan Medium Grey.

Illustration. Plate 20 b.

Type material. 10 sherds.

Dating. Secondary Period IIIb-IV (see Category 014 dating). In Brockington's excavations grater bowls were found in the lower levels of Pit 2 at Site 1A, a provenience dated IIIb and IV (1973:58).

Rough Bottom Comal 016

Form. The vessel form is a comal, a flat round ceramic griddle. Except for the rim which is thicker they tend to be 0.5 cm to 1.0 cm thick. Rims come in a variety of forms (Plate 8 w).

Paste. The paste is coarse with visible chunks of quartz. Some few examples have reduced cores but most are oxidized and yellowish red (5.0 YR 5/6 or 7.5 YR 6/6). This is a hard, well fired ceramic.

Surface treatment. The top surface of the griddle is burnished while the underside is very rough. The surface color is uneven and any one piece may have various tones varying from reddish brown (5.0 YR 4/4) to reddish yellow (7.5 YR 6/6).

Comparable material. These are like the Miahuatlan Coarse Rough comales described by Brockington (1973:33).

Illustration. Plate 8 w.

Type material. 120 sherds.

Dating. General Late. In Pit 2 at Site 1A with levels representing a time span from Period IIIb through Period V "Ollas, comales, and incense burners of Miahuatlan Coarse Rough type, both Coarse Grey and Coarse Red varieties were of uniform vertical distributions" (Brockington 1973:58).

Anthropomorphic Whistling Figurines 017

Form. This class features a variety of solid standing anthropomorphic figurines supported from the rear by a hollow chamber. A whistling noise can be produced by blowing across an opening in the chamber. The figurine supports, with a strap across the mouthpiece that Brockington describes (1973:56), were not found.

There are several standard representations within the general figurine type (see below). Comparable material from the Valley of Oaxaca makes it possible to associate some of the body types with head types. No complete examples were obtained in this survey.

Paste. The paste is medium and sandy. All examples are oxidized rather than reduced and subsequently, the paste is red or reddish brown (7.5 YR 6/6).

Surface treatment. The surfaces are usually very weathered. However, examples shown in Plate 13 a, b, j, and k, as well as the example in Plate 12 a, retain traces of white. The figurine illustrated in Plate 13 l has a fugitive red pigment.

Comparable material. Examples in Plate 12 j and k can be related to the "diosa con tocado de yalalteca" (Caso and Bernal 1952:296-300) displaying the characteristic braided hair style of Yalalag. Very likely, these heads correspond to body types such as those illustrated in Plates 13 i-l. The body style is referred to at Yagul as "mujer con quechquemitl" (Bernal and Gamio 1974:80, Láms. núms. 30, 32, Color Plate 18). These figurines are depicted wearing an ankle length skirt and a triangular bib-like garment, the quechquemitl. Unfortunately, among the examples from Miahuatlan, none is sufficiently complete to determine the position of the arms.

The example in Plate 13 f is almost identical to the "hombre con capa de pluma y bastón ceremonial" from Yagul (Bernal and Gamio 1974:78-79 and Láms. 29, 30). Though the example illustrated in Plate 13 is quite fragmentary, the staff and feathered cape are clearly recognizable. Possibly the figurine head fragment in Plate 12 h may correspond to this body type.

The example in Plate 13 g may be a distinctive Miahuatlan variant of the anthropomorphic whistling figurine. A round feature is found on the right flank, perhaps a representation of a shield. The figurine seems to be wearing a quechquemitl-like garment but the skirt is shorter than usual. Two block shaped legs are showing. Two figurines of this type were recovered.

There are various examples that are too fragmentary to relate to any known motifs. It is possible that Plate 13 c may be from a whistling figurine like the "dios con tocado de idolo" (Caso and Bernal 1952:261, 262, and Fig. 411-412). The fragment illustrated would be the undulating skirt and maxmatl or breech cloth associated with Oaxacan representations of the god Xipe Totec (Caso and Bernal 1952).

The example illustrated in Plate 13 a is almost identical to the piece illustrated by Brockington as an example of his 2D figurine type (1973:43 and Fig. 15 f). It shows a standing figure in an ankle length skirt with an apron-like clothing item. The right arm extends to the side and left hand is placed on the left side of the stomach. This figurine body type probably corresponds to a head form such as that illustrated in Plate 12 a. A portion of the necklace is visible in the example illustrated by Brockington (1973:fig. 15 f). The figurine wears earplugs and a headdress, a portion of which remains.

Examples in Plate 13 b, d, and e, as well as examples in Plate 12 b, c, e, f, g, and n, cannot readily be associated with known motifs but are identifiable with the general figurine type.

Illustrations. Plate 12 a-h, j, k, m and Plate 13 a-g, i-l.

Type material. 39 examples.

Dating. Primary Period IIIb-IV. The dating is based on comparable materials (see above).

Unique Late Figurines 018

Several figurines are unique pieces or cannot be associated with any of the described categories. They are described here piece by piece.

The example in Plate 13 h is the body of an anthropomorphic figurine included as part of an offering with Burial 1975/1 of Site 1A, a Period V burial. (See Site 1A description, Chapter II.) Unfortunately, the head is missing. Unlike the whistling figurines of Category 017, this one is created in the round rather than in two dimensional relief and is in an unusual seated position rather than standing. The position is also unlike the standard cross-legged position of the Oaxaca urns. Here the knees are raised, feet and buttocks rest on the ground and the arms rest on the knees. The position is similar to the large terra-cotta figures depicted on the Mixtec xantiles illustrated by Paddock (1970:Figs. 291-293). A distended belly is marked with pin size punctuate marks. On the upper right arm is a remnant of an armlet created from applique disks. Paste and surface are yellowish brown. The surface is smoothed but not burnished.

The figurine in Plate 11 b resembles the Period I hand modeled figurines (Category 017). However, it probably can be dated to Period V, and is identified as a "Period V ugly," a term used to describe a group of late period renditions of the hand modeled figurines of Period I (Jorrín, in preparation). These figurines share many of the characteristics of the earlier version but tend to be sloppily made. In the illustrated example, the hair is rendered with punctuation, a technique that is standard in Period I. Also like Period I materials are the paste and surface finish; the form is created in a coarse texture café paste and the surface has the multitoned quality of Categories 070, 071, 072. Eyes and eye-brows are created by thumbnail impressions.

The example in Plate 11 k is another example of a hand modeled figurine from a late position in the local sequence. This piece, excavated from the city streets of Miahuatlan, was associated with predominantly Period IV material. The fragment represents an anthropomorphic torso wearing a loin cloth. The piece is created with attention to realistic details. Traces of white paint are found on the gray surface. The paste is medium textured and gray.

The figure in Plate 11 m is manufactured in a finely textured gray paste. It also depicts an anthropomorphic torso but in a curious fluid pose. Possibly this is a colonial or modern figurine.

Plate 12 i is similar in motif and style to figurines described by Caso and Bernal as "silbato de diosa con tocado de banda horizontal" (1952:314). The body is missing on this example and on the examples illustrated by Caso and Bernal (1952:Fig. 465). The heads were probably part of figurines generally similar to those of the Anthropomorphic Whistling Figurines (Category 017). Backs are flat and unfinished and the paste is also sandy textured and reddish brown. The figurines have a decorative band above the forehead falling on either side of the head. The decoration within this band consists of raised lines forming "greca-like" patterns. The band on the Miahuatlan example is somewhat different than either example illustrated by Caso and Bernal. Earplugs are depicted in applique. The face of the Miahuatlan example protrudes, the nose especially. Based mainly on the style of the eyes, Caso and Bernal place this type of figurine in Period IIIA (1952:314).

Form. This item is a globular hollow appendage with three or four toe-like nubs (Plate 18 e). Some examples have been slightly flattened. Though complete vessels are not known, judging from known comparable materials, it is presumed that the element would extend from the base of a goblet.

Paste. The paste is coarse, crumbly material derived from decomposed gneiss, and is reddish brown.

Surface treatment. All examples were highly weathered and grainy. There are implications that they were originally smoothed.

Comparable material. The claw vessel produced in a variety of pastes and finishes is a familiar form from the Valley of Oaxaca (CBA:Fig. 337; Bernal and Gamio 1974:Láms. 7 h, 10 d, 26; Paddock, Mogor, Lind 1968:Fig. 12). Crumbly coarse brown degenerate examples most like these from Miahuatlan are known from Yagul (John Paddock, 1975, personal communication).

Illustration. Plate 18 e.

Type material. 4 sherds.

Dating. Primary Period IIIb-IV. The dating is based on comparable materials.

Paw Shaped Nub 020

Form. These applique elements may correspond to various different vessel forms. The only clear vessel association is with an olla (Plate 18 g). The form consists of an applique nub that has two or three deeply incised lines on one side that give it the aspect of a paw. These nubs in some cases may have served as lugs though they may also be simply ornamental elements.

Paste. The paste of some examples is identical to the coarsely textured reddish brown paste of the Jaguar Paw (Category 019). However, there are others where the form is manufactured in a medium textured gray.

Surface treatment. Most reddish-brown examples are highly weathered though there are indications that they were smoothed as are the gray nubs.

Comparable material. A comparable element is reported at Yagul (Bernal and Gamio 1974:Lám. 5 d and Lám. 25 a). The former is part of an Olla delgada burda Bernal and Gamio 1974:66-67). The stratigraphic position would place it no later than Period IV. The latter is attached to a "Patojo" vessel which is part of a Period V offering (Bernal and Gamio 1974:29).

Somewhat similar elements form the feet of a zoomorphic censer from Period II at Monte Alban (CBA:Fig. 183, 184 b) though these early Monte Alban ceramic appendages tend to protrude more than the nubs from Miahuatlan.

Illustration. See comparable material. Plate 18 g.

Type material. 5 sherds.

Dating. General Late. The dating is based on comparable materials (see above).

Imitation Balancan Fine Orange 021

Form. A complete vessel would be a thin walled, barrel shaped beaker or vase.

Paste. The paste is medium to fine, with uniform grain size and gray. Examples appear to be manufactured in a local clay used for many of the gray wares.

Surface treatment. Interior and exterior surfaces are burnished and vary in color from reddish yellow (7.5 YR 6/6) to dark gray (7.5 YR 4/4). The exterior has incised designs (Plate 18 a, b, c).

Comparable material. Balancan Fine Orange is reported at Lambityeco (Paddock, Mogor and Lind 1968) and at Miahuatlan (Brockington 1973:55, Fig. 6 b).

Illustration. Plate 18 a, b, c.

Type material. 3 sherds.

Dating. Primary Period IIIb-IV. Balancan Fine Orange appears in Pit 2 Level 7 of Brockington's excavations at Site 1A, a Period IV provenience (1973:55).

Hill Glyph Motif 022

Form. The applique element occurs on a variety of vessel forms. Of the two examples collected, one is an outleaning beaker and the other a bulbous element of a rather complex vessel (Plate 18 d). The glyph is shaped like a wave or parabolic curve with a circle above. This element has been referred to as a "medallion" (Paddock, Mogor, and Lind 1968:21). Bernal and Gamio also believe it

represents a medallion; a jade bead hanging on a necklace (1974:66). However, on almost all examples the curve has an upward trajectory with the circle situated at the vertex. Thus Brockington suggests that the element represents a hill (1973: 30).

Paste. The paste is medium with uniform sized grain, gray, and hard.

Surface treatment. Surfaces are smoothed or lightly burnished and gray and are decorated with the applique ornament described above.

Comparable material. Bernal and Gamio (1974:66), Brockington (1973:30, Fig. 10), Paddock, Mogor, and Lind (1968).

Illustration. Plate 18 d.

Type material. 2 sherds.

Dating. Primary Period IIIb-IV. Period IV diagnostic at Lambityeco (Paddock, Mogor, and Lind 1968).

Spiked Urn 023

Form. The fragmentary nature of samples makes it difficult to determine the shape of the complete vessel though presumably it was an urn adorned with distinctive clay spikes or pointed nubs.

Paste. The paste is sandy, coarse, and either red or gray depending on the firing.

Surface treatment. The exterior surface is left rather rough and is adorned with the clay spikes described above. The interior of the vessel is wiped.

Comparable material. Bernal and Gamio (1974:Lám. núm. 7 d, f, Lám. núm. 28 b, Fotos 23, 8 a). See discussion of Gris grueso (ibid.:69).

Illustration. Plate 18 f.

Type material. 4 sherds.

Dating. Secondary Period IIIb-IV. Dating is based primarily on proveniences at Yagul. Most examples are from Period IV. Yet the vase depicted in Lámina 23 (Bernal and Gamio 1974) is a Period V offering.

Hollow Bulbous Support, Medium Gray 024

Form. The ceramic marker consists of a hollow bulbous vessel support with a small perforation on one side and a ceramic ball on the inside, causing it to rattle when shaken. The support joins a conical bowl of medium thickness (0.5 cm to 0.8 cm) at the basal angle. No complete vessels were found, so it is not certain how many supports any one vessel had. Possibly many sherds classified Medium Gray Conical Bowl (Category 051) are fragments of vessels which had these supports.

Paste. The paste is medium and gray.

Surface treatment. Most frequently, surfaces are smoothed but not burnished. However, the bowl exterior and more often, the interior surface may be burnished.

Comparable material. See Brockington's Miahuatlan Medium Gray (1973:30, Fig. 11 o).

Illustration. Plate 18 i.

Type material. 133 sherds.

Dating. Secondary Period IIIb-IV (see Category 014 dating).

Hollow Bulbous Support, Net Burnished Bottom 025

Form. The vessel form and support are identical to those described for Hollow Bulbous Supports, Medium Gray (Category 024).

Paste. The paste is the same as that described for Hollow Bulbous Supports, Medium Gray (Category 024).

Surface treatment. The exterior of the bowl is either burnished or smoothed. The interior is uniformly burnished and the interior bottom has a pattern burnished design consisting of crisscross lines creating a net pattern.

Comparable material. See Brockington's Miahuatlan Medium Gray (1973:30, Fig. 11 f). Bernal and Gamio illustrate a similar piece but with a burnish design consisting of wavy parallel lines (1974:60, Lám. núm. 15 a).

Illustration. Plate 18 j.

Type material. 3 sherds.

Dating. Primary Period IIIb-IV. The dating is based on comparable materials (see above).

Hollow Cylindrical Support 026

Form. The support consists of a hollow cylinder with flat base and a small perforation on the side. It corresponds to a conical bowl. A ceramic bead inside the support will rattle when shaken.

Paste. The paste is medium and gray.

Surface treatment. The bowls may be burnished on one or both sid s though the base of the bowl as well as the supports are simply smoothed.

Comparable material. See Brockington's Miahuatlan Medium Grey (1973:30, Fig. 11 p). This ware is generally similar to the G.35 cajetes conicos described at Monte Alban (CBA:348, 385-395). At Monte Alban no examples are described with this cylindrical support. However, several examples with the same vessel form have supports modeled to resemble the face of a monkey (CBA:Fig. 318 d, e).

Illustration. Plate 18 o.

Type material. 6 sherds.

Dating. Secondary Period IIIb-IV. See dating notes for Category 014. G.35 appears at Monte Alban during Period IIIa but is most frequent in M.A. IIIb-IV. CBA reports 24 examples from Period IIIa as opposed to 551 from IIIb-IV proveniences (385).

Tecomate with a Molding 027

Form. The vessel is a tecomate, a globular bowl with a constricted orifice. There is a molded ridge encircling the vessel exterior below the rim.

Paste. The paste is medium to coarse, sandy, very dark gray (5.0 YR 3/1) to dusky red (2.5 YR 3/2).

Surface treatment. Most examples were highly weathered and rough. In some cases surfaces were wiped. Surface color is generally the same as the paste.

Comparable material. Bernal and Gamio illustrate a similar form from Yagul which also has loop handles (1974:Lám. núm. 11 a). The piece is classified as a G.3 (ibid.:70).

Illustration. Plate 8 o.

Type material. 6 sherds.

Dating. Secondary Period IIIb-IV. The provenience at Yagul, Pit 1, Level 7, suggests that the example illustrated in Lámino número 11 a, was produced before M.A. V, probably in Period IV (Bernal and Gamio 1974:60).

Conical Bowl with Slab Supports 028

Form. The complete vessel is a flat bottomed conical bowl with slab supports. As no complete vessels were found it is not possible to determine how many supports a bowl would have though based on comparable materials it would be a tripod. The vessel is finely made with thin walls (0.3 cm to 0.4 cm).

Paste. The paste is the common medium gray. One example is oxidized and reddish brown.

Surface treatment. Vessels are burnished on both surfaces or just the interior surface. On some examples the slab supports are incised with parallel vertical or slightly oblique lines (Plate 20 l).

Comparable material. The ware has a close resemblance to Huamelula Fine Wares identified as Late Classic, Early Postclassic on the coast of Oaxaca (Long 1973: Plate V b, Plate VI a). Also Brockington illustrates very similar materials from the coast (1966:294, Plate LIX g, Plate LX, a, b, c).

Illustration. Plate 20 l.

Type material. 4 sherds.

Dating. Secondary Period IIIb-IV. The dating is based on comparable materials (see above).

Shallow Round Gray Bowl 029

Form. These are simple thin, shallow round bowls. Brockington refers to them as a "subhemispherical" bowl (1973:24).

Paste. The paste is fine to medium, homogeneous in particle size, hard, and gray.

Surface treatment. Most examples are fairly worn being from surface collections. Were the surfaces in better condition it might be possible to include

many of these with Two Toned Bowls (Category 030). As it is, some appear to have been smoothed or lightly burnished. Surface color is uniformly light gray.

Comparable material. These would fit Brockington's Miahuatlan Fine Grey type (1973:23-30). The G.3M's at Monte Alban are quite comparable (CBA:448).

Illustration. Plate 14 a.

Type material. 3 whole vessels, 301 sherds.

Dating. General Late. Complete vessels that fit the above description could be said to be Period V. The "General Late" categorization reflects the uncertainty in the identification of many sherds placed in the category which were small weathered rim fragments. Possibly some few may even be fragments of conical bowls.

Two Tone Bowl 030

See Category 007 description.

Frying Pan Censer 031

Form. The complete vessel is an incense burner consisting of a small round bowl, 8 cm to 15 cm in diameter, with a long tubular handle. The bowl has a number of perforations 0.5 cm to 1 cm in diameter.

Paste. The paste is sandy and reddish brown. In some cases these sahumadores are gray.

Surface treatment. Most fragments are weathered and grainy though some show evidence of smoothing or burnishing.

Comparable material. See Brockington's Miahuatlan Coarse Rough (1973:33, 36, Fig. 13 k).

Illustration. Plate 24 c.

Type material. 1 whole vessel, 49 sherds.

Dating. General Late. It has been possible in the Valley of Oaxaca to date frying pan censers according to the size and arrangement of the perforations. However, complete vessels are needed for this type of dating.

Yellowish Red Bowl with Everted Rim 032

Form. Vessel form consists of a round bottomed bowl with an everted rim. Walls are of medium thickness (1.0 cm to 1.2 cm), tapering towards the base of the bowl (0.5 cm).

Paste. The paste is hard and rather fine, yellowish brown to yellowish red, but the core is often gray.

Surface treatment. The bowls are burnished on the interior, smoothed on the exterior. However, on very weathered fragments the burnishing is not apparent. Surface color varies from brownish gray to yellowish gray.

Illustration. Plate 20 e.

Type material. 7 sherds.

Dating. General Late. The ceramic was generally found in mixed materials. Its occurrence at Site 206 is the most convincing indication that it is a late item.

Red on Cream 033

Form. The most common vessel form for this type is the conical bowl. Less frequent are thin (0.4 cm to 0.5 cm), round bowls. However, the principal distinguishing characteristic is not form but surface treatment.

Paste. The paste is fine, homogeneous, and is yellowish gray to off-white.

Surface treatment. The surface has a design painted in orange or dark reddish brown on a yellowish white or yellowish gray background. The background is lighter than the background of Red on Buff (Category 059). The surface is smoothed. Some examples have a simple band painted at the rim. Others have zig-zag or parallel line designs on either the interior or exterior surface.

Comparable material. See Dating subsection below.

Illustration. Plate 15 h, i, j.

Type material. 13 sherds.

Dating. General Middle. Possibly ceramics placed in this category represent local variants of A.9 wares of Monte Alban II (CBA:70). However, these are distinct and cannot be as readily identified with A.9 as can the Red on Buff (Category 059) materials. On the other hand, they might represent a distinctive

local variant of Yanhuitlan Red on Cream, a Period V ceramic from the Mixteca Alta (Spores 1972:30-32). Local provenience data are ambiguous as sherds of this category always appear in temporally mixed surface collections or at sites where very small samples were available. So far these materials are not known from a stratified context.

Loop Shaped Handles 034

Form. Possibly some of these loop forms may be handles while others are actually vessel supports. No complete vessels are known from this survey, though one example is clearly an olla lug (Plate 18 h). Apparently, these loops have been manufactured by perforating an applique wad of clay rather than applying a strap of clay to the vessel.

Paste. The paste is coarse, sandy, crumbly, and reddish brown.

Surface treatment. Most examples are highly weathered. In some cases they are lightly burnished but most examples have a rough grainy surface.

Illustration. Plate 18 h.

Type material. 7 sherds.

Dating. General Late. This category probably represents a mixed lot.

Corrugated Bowl 035

Form. These are thin walled round bottomed bowls with horizontal corrugations or undulations on the exterior surface (Plate 17 b).

Paste. The paste is medium, hard, and gray.

Surface treatment. All surfaces are burnished black.

Comparable material. Brockington's Miahuatlan Burnished Black (1973:30, 33) has a comparable surface treatment though he does not report comparable forms.

From the Isthmus of Tehuantepec Wallrath's Lieza Self Slipped, Pilas Variety (1967:36, Fig. 16 a) has a red pigment that rubs off and washes away easily.

Illustration. Plate 17 b.

Type material. 5 sherds.

Dating. Secondary Period II. The dating is based on the stylistic association with the Isthmus material of the Goma Phase, a period roughly contemporary with Period II.

Kaolin Ware 036

Form. Examples are fragments of small rounded bowls.

Paste. The paste is fine, quite possibly of exotic origin, pinkish white (7.5 YR 8/2) to reddish yellow (7.5 YR 6/6).

Surface treatment. All examples have incised designs. One piece is burnished and painted with fugitive reddish yellow (7.5 YR 7/8) paint (Plate 17 c). The other (Plate 17 d) is weathered so that the original surface treatment cannot be determined.

Illustration. Plate 17 c, d.

Type material. 2 sherds.

Dating. Primary Period Transición-IIIa. This particular type of kaolin ware is a Period IIIa diagnostic in Oaxaca (John Paddock, 1975, personal communication).

Applique Coffee Bean Ornament 037

Form. The only example of this decorative element was found on the outside of a broad cylindrical bowl fragment along the base.

Paste. The paste is medium comparable to that of many common gray wares. Instead of being fired in a reducing atmosphere, it was fired in an oxidizing atmosphere, resulting in a reddish brown color (7.5 YR 5/6).

Surface treatment. The most distinctive feature of this marker is the coffee bean shaped applique elements found in a series along the outside base of a bowl.

Illustration. Plate 17 f.

Type material. 1 sherd.

Dating. Primary Period Transición-IIIa. This type of bowl and ornament is one of a number of widespread Classic Period ceramic traits reflecting an influence which emanates from Teotihuacan.

Ceramic Mold 038

Form. Only one example was found. This rectangular ceramic element was produced by gouging and modeling a negative design. The reverse side is blank and rough. The piece was presumably used as a mold for manufacturing ornamental elements for urns.

Paste. The paste is medium, very hard, and light gray.

Surface treatment. The back side of the mold is rough. The other side bears a negative design produced by gouging and modeling.

Illustration. Plate 17 e.

Type material. 1 sherd.

Dating. Primary Period IIIb-IV. Molds used for producing decorative elements on urns are diagnostic of Period IIIb-IV in Oaxaca.

Gray Transición-IIIa Incised Ware 039

Form. The form of this ceramic marker is highly varied as the surface treatment is the main distinguishing feature. Most commonly, these markers occur as conical bowls. Also there are barrel shaped vases (Plate 16 n, o).

Paste. The most common paste is medium gray. However, some examples have been fired in oxidizing rather than reducing atmosphere resulting in a reddish brown paste.

Surface treatment. Vessel interiors are burnished and exterior surfaces are ornately decorated with a variety of incised designs.

Comparable material. See dating below.

Illustration. Plate 16 a-v. The illustrations present the entire collected sample.

Type material. 22 sherds.

Dating. Primary Period Transición-IIIa. Though most of the designs are distinctive these examples fit into the general pattern of incised wares widespread in the Oaxaca highlands during the Classic.

Red on Gray Incised Ware 040

Form. The most common vessel form is the conical bowl, a flat bottom bowl with outward leaning or flaring walls. Less frequent are cylindrical vessels with slab supports (Plate 17 g) and vases (Plate 17 m).

Paste. The paste is common medium, gray.

Surface treatment. Vessel exteriors are incised with a variety of motifs. Most incising is deep though in some examples the incising is shallow and scratchy. Most are burnished on one or both sides and are gray except for traces of fugitive red paint.

Illustration. Plate 17 g-o. The illustrations present the entire collected sample.

Type material. 9 sherds.

Dating. Primary Period Transición-IIIa. See dating of Category 039. The cylindrical vessel with slab supports is a characteristic Teotihuacanoid Classic trait.

Fine Reddish Yellow Conical Bowl 041

Form. Vessel form is a conical bowl with a 25 cm to 40 cm diameter. Walls are fairly thin, averaging 0.6 cm.

Paste. The paste is fine and hard. Cores tend to be gray (reduced), but near the surface the paste is yellowish red or reddish gray.

Surface treatment. The surface is a distinctive yellowish gray or yellowish red and bowls are burnished on the interior or in many cases, on both interior and exterior surfaces. Frequently, the parallel lines produced by the burnishing instrument can be seen.

Comparable material. These materials might be identified with the red on buff variants of Brockington's Miahuatlan Burnished Black, a ware which was manufactured mainly during Period IIIb-IV. However, some samples within this category may actually be considered local examples of the C.8 wares of Period II at Monte Alban (CBA:68, Fig. 46).

Illustration. Plate 20 k.

Type material. 36 sherds.
Dating. General Middle. Dating is unclear (see comparable material above).

Thin Burnished Black Vase 042

Form. Vessel form is a vase, broad at the base and narrowing towards the rim. The walls are thin, around 0.4 cm.
Paste. The paste is medium, gray or brownish gray.
Surface treatment. Vessels are highly burnished and black on both interior and exterior surfaces. Only two fragments constitute the sample for this survey. On one of these, the parallel horizontal lines of a burnishing instrument are visible on the exterior surface.
Comparable material. This marker falls within the range of materials designated Miahuatlan Burnished Black by Brockington (1973:30, 33).
Illustration. Plate 20 d.
Type material. 2 sherds.
Dating. General Middle. This marker might possibly be assigned to Period IIIb-IV based on its identification with Miahuatlan Burnished Black that is found in high frequency during that period.

Thin Burnished Black Tecomate 043

Form. The characteristic vessel form is a thin walled tecomate. There is a slight thickening on the inside of the vessel at the lip.
Paste. The paste is medium, gray.
Surface treatment. Vessels are highly burnished and black on both sides or just on the exterior in some cases. The quality of the burnishing in some cases can be mistaken for a slip.
Comparable material. These materials fit within Brockington's Miahuatlan Burnished Black category (1973:30, 33).
Illustration. Plate 8 s.
Type material. 7 sherds.
Dating. Secondary IIIb-IV (see Category 042 dating).

Cylindrical Outflaring Bowl 044

Form. These are flat bottomed bowls. In cross-section, the vessel walls spring perpendicularly from the base and flare outward at the rim (Plate 14 l). The walls are medium in width, averaging around 0.8 cm.
Paste. The paste is medium and gray.
Surface treatment. Most examples are burnished black on one or both sides. Others are burnished but vary in color from a yellowish gray to gray.
Comparable material. The vessel form and surface appearance are similar to the Period II "Cajetes de cuerpo cilindrico" from Monte Alban (CBA:229, Fig. 201, especially 201 c). However, the Miahuatlan examples tend to have a more angular intersection of the vessel wall and base and a more pronounced outward flare at the rim.
Illustration. Plate 14 l.
Type material. 20 sherds.
Dating. Secondary Period II. The dating is based on the identification with Monte Alban materials and is reinforced by the high frequency of the ware in middle to upper levels of Pit 1 at Site 1A, a provenience associated with a preponderance of Period II materials.

Brazier with Inside Rim Supports 045

Form. This marker is known from a single fragmentary example (Plate 17 a). Presumably this item is one of three supports that would protrude from the inside of the rim of a massive conical bowl brazier. A second vessel would be heated while resting on the brazier supports.
Paste. The paste is coarse, sandy, and yellowish red (7.5 YR 5/8).
Surface treatment. The surface has been wiped, but retains a grainy texture. The support is decorated with modeled circular elements.
Comparable material. This is one of several Teotihuacanoid items which appear in the ceramics of Oaxaca in the Period II-III transition (John Paddock 1975, personal communication).

Illustration. Plate 17 a.
Type material. 1 sherd.
Dating. Primary Period Transición-IIIa. The dating is based on comparable materials (see above).

Burnished Black Conical Bowl 046

Form. Vessels are conical bowls, that is, bowls with flat bottoms and walls that lean or flare outward. Vessel walls are of medium thickness.
Paste. The paste is medium and gray.
Surface treatment. This marker is distinguished from the Medium Gray Conical Bowl (Category 051) by the black burnishing on the vessel interior or on both surfaces. In some cases the burnishing may be crazed and can be mistaken for a slip.
Comparable material. The ware fits Brockington's Miahuatlan Burnished Black description (1973:30, 33, Figs. 12 d, e).
Illustration. Plate 14 n.
Type material. 89 sherds.
Dating. Secondary Period IIIb-IV. There are indications that the burnished black finish reached a peak of popularity in Period IV, though it was produced before and perhaps after this period (Brockington 1973:55, Table 6).

Burnished Black Round Bowl 047

Form. These are subhemispherical or hemispherical bowls. Vessel walls are thin (0.4 cm to 0.6 cm).
Paste. The paste is medium and most frequently gray, though there are examples with oxidized rather than reduced cores, consequently yellowish gray to yellowish red rather than gray.
Surface treatment. Either the interior or both surfaces of the vessel are highly burnished and black.
Comparable material. These materials can be placed into Brockington's Miahuatlan Burnished Black category (1973:30, 33, Figs. 12 d, e).
Type material. 21 sherds.
Dating. Secondary Period IIIb-IV. The burnished black finish seems to have had a peak in popularity during Period IV, though it was probably produced before and after this period as well (Brockington 1973:55, Table 6).

Reddish Yellow Round Bowl 048

Form. Vessel form is a deep bowl with round bottom and cylindrical walls.
Paste. The paste is medium, hard, yellowish red or buff color.
Surface treatment. Surface color is the same as the paste. The bowls are smoothed on all surfaces.
Illustration. Plate 24 b.
Type material. 1 whole vessel, 16 sherds.
Dating. General Middle. This category was of little use as a temporal index. Some examples may be oxidized variants of the Burnished Black Round Bowl (Category 047) while others appear to be variants of the Medium Gray Round Bowl (Category 097). An example was included as part of the burial offering of Tomb 1975/1, Site 38 (MIA-IIIb-IV-12).

Medium Gray Tecomate 049

Form. The vessel shape is a tecomate, a globular vase. Vessel size is quite varied.
Paste. The paste is medium. One example from the total sample of 10 was oxidized and reddish yellow rather than gray.
Surface treatment. In some cases surfaces are burnished. Most are simply smoothed. Color includes a wide range of gray. The oxidized sample is reddish yellow or buff.
Comparable material. Some materials within this category fit Brockington's Miahuatlan Medium Gray description (1973:30).
Illustration. Plate 8 r.
Type material. 2 sherds.

Dating. General Middle. This utilitarian form manufactured in the common Oaxaca gray paste is a ceramic that quite likely was manufactured over a very long time span.

Thin Gray Vase 050

Form. The characteristic form is a vase or beaker-like vessel. Vessel walls are thin, 0.3 cm to 0.6 cm.

Paste. Paste is medium, hard, and gray.

Surface treatment. Surfaces are gray. There is burnishing on the vase exterior or on both exterior and interior. On some examples traces of the burnishing instrument can be seen as parallel horizontal lines.

Comparable material. These could be placed in Brockington's Miahuatlan Fine Grey, Plain variety (1973:24, Fig. 8 j).

Illustration. Plate 20 c.

Type material. 3 sherds.

Dating. General Late. Based on the identification with Miahuatlan Fine Grey, Plain, this material most likely can be assigned to Period V. However, it may have been manufactured during Period IV or even earlier (Brockington 1973:52).

Medium Gray Flat Bottomed Bowl 051

Form. The most characteristic vessel form by far is the conical bowl, a form that could be described as an inverted truncated cone. Some few examples have concave walls (Plate 14 q). Vessel walls vary in thickness, but on the average are of medium thickness, 0.7 cm or 0.8 cm. Some few examples assigned to this category are miniatures (Plate 14 o, p).

Paste. The paste is medium and gray.

Surface treatment. Bowls are smoothed or burnished on one or both sides, gray and are without decoration.

Comparable material. The category includes materials very similar to the G.35 wares described at Monte Alban (CBA:80-82). These are also comparable to materials that fall within Brockington's Miahuatlan Medium Grey category (1973:30) especially examples illustrated as Figure 10 e and g.

Illustration. Plate 14 m, o, p, q.

Type material. 3 whole vessels, 1249 sherds.

Dating. General Middle. Most samples are fragmentary, and are not highly distinctive. Because of the affinity with the G.35 and Miahuatlan Medium Grey materials it is probable that most were manufactured during Period IV. However, at Monte Alban G.35 appears in Period IIIa, though it is most abundant during Monte Alban IIIb-IV. Furthermore, a variant of G.35 appears in Period II (CBA:67).

Olla with Eccentric Pattern Burnishing 052

Form. The basic form is a thin walled olla that may vary greatly in size. The main distinguishing feature is the surface treatment.

Paste. The paste is medium and gray. Sherds are not as hard as those classed as Thin Olla with Net and Stripe Burnishing (Category 002).

Surface treatment. The shoulder and body of the olla have a burnished design. Usually this design is irregular, consisting of straight lines as well as curvilinear lines. Also, in some cases it consists of burnished points as well (Plate 7 b). Designs tend to be more freely drawn than on the Thin Olla with Net and Stripe Burnishing (Category 002).

Comparable material. Brockington's Miahuatlan Fine Grey, Zone Burnished encompasses materials in this category as well as Thin Ollas with Net and Stripe Burnishing (Category 002). Both have decorations which fit Brockington's Pattern B design description (1973:24, Fig. 9 c).

Illustration. Plate 7 b, e, f.

Type material. 1 whole vessel, 9 sherds.

Dating. General Middle. This class includes an eclectic collection of materials. The main unifying feature, the burnishing decoration, is a technique that extends back to Period I. With further study of design variations it may be possible to establish a chronology of these materials. Some may be fragments of Period I ollas such as that illustrated in Plate 7 a (see Category 076), while others could be unidentified fragments which belong with Category 056 or even the Period V Category 002.

Gray Bowl with Painted Red Rim 053

Form. The vessel form is a small round bowl. Complete vessels are not known.
Paste. The paste is medium and gray.
Surface treatment. The vessel is burnished black except for an exterior band at the rim. This band, defined by an incised line, was first scraped and roughened, then fugitive red paint was applied.
Comparable material. These vessels may be related to the Huilotepec Decorated: Huilotepec Variety of the Isthmus of Tehuantepec (Wallrath 1967:73-79), especially materials from the Tixum phase when tempering became coarser and designs more slip-shod. However, the Huilotepec material was a brown or black paste whereas the Miahuatlan Grey Bowl with Painted Rim has a gray or dark gray paste.
Illustration. Plate 20 g.
Type material. 3 sherds.
Dating. General Middle. Comparable material from Tehuantepec dates from the Tixum phase, contemporary with Period IIIb. However, the correspondence of this material to the Isthmian Huilotepec Variety is tenuous.

Thick Wall Gray Bowl 054

Form. The characteristic vessel is a conical bowl. These are very similar to the Medium Grey Flat Bottomed Bowl (Category 051), only the vessel walls tend to be thick, between 1 and 2 cm. On the other hand, the walls of Medium Gray Flat Bottomed Bowl are less than 1 cm.
Paste. The paste is medium to coarse, grainy or sandy, and gray.
Surface treatment. Bowl interiors are smoothed or wiped and exteriors are wiped.
Comparable material. These materials seem to correspond to a range of thick walled undecorated conical bowls assigned to Period I at Monte Alban, mainly G.1 and G.2 wares (CBA:23, 24).
Illustration. Plate 8 x.
Type material. 31 sherds.
Dating. Secondary Period I. Temporal placement is based on the comparable material at Monte Alban and on local provenience associations, mainly the occurrence in lower levels of Pit 1, Site 1A. However, the ware is not very distinctive, often making identification questionable; therefore, the "Secondary" rather than "Primary Period I" designation.

Thick Wall Gray Tecomate 055

Form. The characteristic vessel is a large thick walled tecomate. Wall thickness is close to 2.0 cm. Some examples have handles (Plate 8 n).
Paste. The paste has a medium texture and usually the paste is gray though there are examples with oxidized cores.
Surface treatment. The surface of the olla body is left rough and uneven. Only the rim area is smoothed. Some examples have an incised line on the rim (Plate 8 m).
Comparable material. The ceramic is generally similar to the thick gray undecorated wares of Period I at Monte Alban, mainly G.1 and G.2 (CBA:23, 24).
Illustration. Plate 8 m, n, p, and q.
Type material. 31 sherds.
Dating. General Early. Dating is suggested by proveniences in the Miahuatlan area as well as the general correspondence with Period I materials at Monte Alban.

Medium Gray Olla with Burnished Rim and Shoulder 056

Form. The characteristic vessel is a medium sized olla with an outward curving rim. One example has a flat strap-like handle (Plate 7 s). Vessel walls vary in thickness from 0.3 cm to 0.7 cm.
Paste. The paste is fine to almost powdery in texture, gray, and very hard.
Surface treatment. The olla is burnished in two zones: (1) on a narrow band on the inside of the rim and (2) on the body beginning just below the neck. Since no whole ollas were found in this survey, it is uncertain whether this burnishing continues beyond the olla shoulder.
Comparable material. Some of these materials might be identified as Brockington's Miahuatlan Fine Grey, Zone Burnished wares with a Pattern A design (1973:24, 28, Fig. 9 b).

Illustration. Plate 7 r, s.
Type material. 27 sherds.
Dating. General Middle. The provenience distribution data are ambiguous. It occurs with early materials in Test Pit 1 at Site 1A and in mixed lots elsewhere. Brockington's stratigraphic data would indicate a Period IV occurrence of comparable material (1973:24). Quite likely the ceramic was produced over a long time span.

Conical Bowl with Scraped Exterior 057

Form. The vessel form is a conical bowl, described otherwise as a flat bottomed bowl with outward leaning or flared walls.
Paste. The paste is medium to slightly coarse and of medium hardness. Most examples have been fired in an oxidizing atmosphere and are dark reddish gray (5.0 YR 4/2) or yellowish red (5.0 YR 5/6). However, some examples are reduced and gray.
Surface treatment. The interior surface of the bowl is smoothed or in some cases burnished with the horizontal lines of the burnishing instrument visible. The smoothing extends over the rim and down the exterior a short span forming a narrow band. Below this band the exterior surface is scraped and rough.
Illustration. Plate 19 c.
Type material. 43 sherds.
Dating. Primary Period II. Marcus Winter identified the Miahuatlan sample and notes that similar material is consistently associated with Period II deposits at Monte Alban, and probably can be considered the M.A. II variety of G.35 (1975, personal communication).

Conical Bowl with Incised Exterior 058

Form. The characteristic vessel is a conical bowl, a flat bottomed bowl with either outward leaning or flaring walls. In some cases, the bottom is slightly rounded. Complete vessels are not known.
Paste. The paste is medium, gray or yellowish gray.
Surface treatment. The bowl is burnished on the interior or on both interior and exterior. A most distinctive feature is the incising on the exterior wall. An incised design covers almost the entire area between the rim and the base consisting of chevrons or parallel zig-zag lines. The design is set off in a panel defined by an incised line near the rim and a parallel line near the base.
Comparable material. Though vessel decorations are locally distinctive, these materials are generally similar to various Period II tripods and tetrapods from Monte Alban (CBA:Fig. 205, 208 b, c).
Illustration. Plate 15 n.
Type material. 6 sherds.
Dating. Primary Period II. This marker quite likely can be placed in Period II based on stylistic affinities with materials from the Valley of Oaxaca.

Red on Buff 059

Form. This marker comes in a variety of forms. Most common is the conical bowl. One example is a round bottomed bowl. A most unusual piece is modeled in the form of a skull (Plate 15 b).
Paste. The paste is finely textured, homogeneous, and yellowish red or yellowish gray.
Surface treatment. The surface is smoothed or in some cases lightly burnished. Red or brown red paint is applied on the buff colored vessel in a variety of designs. In some cases there is simply a red band on one or both sides of the vessel rim. Others have elaborate designs on vessel interior and exterior surface (Plate 15 e, f, g). On one example, the design is both painted and incised (Plate 21 d). Though the incising might place it in Category 060, it was counted with the Category 059 materials mainly because of the paste.
Comparable material. This category corresponds to A.9 ceramics, a Period II diagnostic at Monte Alban (CBA:70, Figs. 48, 49, 50, Lám. IX, Fig. 48, 49).
Illustration. Plate 15 b, e, f, g. Plate 21 d.
Type material. 1 whole vessel. 22 sherds.
Dating. Primary Period II. These are designated Period II markers based on their affinity with A.9 ceramics from the Valley of Oaxaca.

Incised Red on Buff 060

Form. Though no complete vessels were found, vessel form can be deduced to be a conical bowl, possibly with bulbous supports. A bulbous support was found with the same paste and surface treatment, only lacking incising. Based on the similarities with materials at Monte Alban, mainly C.11, it seems reasonable that the support was part of a vessel of this category.

Paste. The paste is gray to very dark gray, and contains visible granules of white diorite.

Surface treatment. The surface is burnished and buff color with areas painted red. In the red zones, there is incising in patterns of zig-zag parallel lines set off in incised rectangular panels. The incising has a scratching quality and seems to have been executed after painting and firing.

Comparable material. The design motif of the Miahuatlan material is distinct, yet there is a close correspondence with the C.11 category defined at Monte Alban (CBA:68, Lám. 10 a-c).

Illustration. Plate 15 c, d.

Type material. 7 sherds.

Dating. Primary Period II. This ceramic marker is designated Period II diagnostic based on its affinity with the C.11 materials from Monte Alban.

Zoomorphic Vase 061

Form. This ceramic is represented by only two samples. One is a complete vessel, an offering from Burial 1975/2 of Site 1A, and the other, a fragment. The vessel is basically a tall cylindrical vase, but has modeled arms, snout, ears, and eyes. The eyes of Plate 21 i are incised not modeled. The effigy that is created is a tlacuache or opossum, which is recognized by its pose, paws placed on the snout, a characteristic mode of presenting this animal in Precolumbian Mesoamerican art (Caso and Bernal 1952:266, Fig. 413).

Paste. The paste is made up of medium-sized granules, tends to be somewhat sandy, and is pinkish gray (7.5 YR 7/2).

Surface treatment. The surface is burnished and has visible marks from the burnishing instrument. The surface color is uneven and has charred areas. The color varies from dark gray (7.5 YR 4/0) to brown (7.5 YR 5/4) in the lighter uncharred areas.

Whereas the eyes on the example illustrated in Plate 21 i are incised, those of Plate 22 are modeled and coffee bean shaped.

Comparable material. The basic shape of the vessels is similar to the plain vasos cilindricos common at Monte Alban in Period II (CBA:240).

Caso and Bernal illustrate a cylindrical vase in the form of a tlacuache from Miahuatlan (1952:Fig. 415). The vessel is generally like the one illustrated, a cylindrical vase with modeled zoomorphic body elements. However, the style of this vessel, especially the bulging eyes, are characteristic of Period IIIb-IV.

The depiction of the tlacuache on Oaxaca urns is discussed by Caso and Bernal who suggest it represents part of a widespread cult in Mesoamerica (1952:263-273). Representations are found on Period I vessels from Period II-IIIa transition. The tlacuache effigy persists on later urns and vessels as well. However, at the time of their writing, Caso and Bernal lacked examples from Period II though they expected that the cult continued through Period II (1952:267).

Illustration. Plate 21 i, Plate 22 a.

Type material. 1 whole vessel, 1 sherd.

Dating. Primary Period II. Dating is based on associated materials in Burial 1975/2 at Site 1A and on comparable materials at Monte Alban.

Period II Urn 062

Form. Only two fragmentary examples were obtained in the survey, both probably from the same urn (Plate 9 p, q). The form consisted of a bowl with a pedestal base. The basic form was elaborated with incised and applique decorative elements. Unfortunately, the examples illustrated here are too fragmentary to discern the complete decorative configuration. Quite possibly, the vessel was an anthropomorphic or zoomorphic effigy.

Paste. The paste is coarse, containing inclusions of various sizes, dusky red (2.5 YR 3/2).

Surface treatment. The surface is grainy and dusky red (2.5 YR 3/2) except for the applique spiral elements that are painted red.
Illustration. Plate 9 p, q.
Type material. 2 sherds.
Dating. Primary Period II. The dating is based largely on stylistic criteria but also on the association with other Period II materials at Site 10.

Shallow Flat Bottomed Red Bowl 063

Form. The vessel form is a shallow bowl with a very broad flat bottom. The walls are of medium thickness, averaging around 0.7 cm.
Paste. The paste is a bright yellowish red, and medium in texture.
Surface treatment. The bowl interior is burnished while the exterior is simply smoothed. It is yellowish red. Some examples have polka dots and circles painted in black on the interior bottom of the bowl.
Illustration. Plate 22 d.
Type material. 1 whole vessel, 5 sherds.
Dating. Primary Period II. The dating is based on the association with Burial 1975/2 of Site 1A (see Chapter II, Site 1A description). Such a vessel was included with the burial, covering the face.

Plain Tall Cylindrical Vase 064

Form. The vessel form is a tall cylindrical vase or beaker.
Paste. The paste is medium and gray.
Surface treatment. The vessel exterior is burnished. The interior surface is burnished for only a short span below the rim. In some examples, the joints between clay coils can be seen on the interior of the vessel.
The surface color is uneven with a dark gray (7.5 YR 4/0) charred area and other areas brown or gray.
Comparable material. "Vasos cilindricos" in a variety of pastes are generally associated with Period II deposits at Monte Alban (CBA:240)..
Illustration. Plate 22 b.
Type material. 1 whole vessel, 15 sherds.
Dating. Secondary Period II. The dating is based mainly on the association with Site 1A, Burial 1975/2 (see Chapter II, Site 1A description), and on its stylistic affinity with Monte Alban II materials from the Valley of Oaxaca.

Tall Incised Vase 065

Form. Though no complete vessels were found, it might be deduced from comparable materials (see below) that the characteristic vessel is a tall vase that tapers slightly at the neck and has a slight outward flare at the rim.
Paste. The paste is medium, hard, and gray.
Surface treatment. The vessel exterior is burnished black. On the interior burnishing extends for only a short distance from the lip down; that is, it is restricted to a zone that could be easily reached. A most distinctive feature of this ceramic is the elaborate incised design covering almost the entire vessel exterior. Designs consisting of hatching or parallel lines are divided into panels bordered by double or triple parallel lines.
Comparable material. These appear similar to tall incised vases from Monte Alban and Zimatlan (CBA:188, Figs. 152, 154, 155).
Illustration. Plate 19 m-r.
Type material. 6 sherds.
Dating. Secondary Period II. This type of vase is known in the Valley of Oaxaca in Period I, but is most common during Monte Alban II.

Triple-Lined Conical Bowl 066

Form. The vessel form is a conical bowl. Vessel walls tend to flare outward.
Paste. The paste is medium, hard, and gray.
Surface treatment. The interior of the bowl is either burnished or smoothed and the exterior is smoothed. Basically, the vessel is the same as the Double-Lined Conical Bowl (Category 085), except there are three rather than two concentric incised lines on the interior below the rim. Usually the three lines are not

evenly spaced; two are close together and a third is nearer the lip. This third line is often not as heavily incised as the other two.

Comparable material. This ceramic marker fits the description of G.12 at Monte Alban (CBA:25, 26, 180). Though most commonly G.12 vessels have only two parallel lines incised around the inside rim, there are examples with three lines (CBA:Fig. 4, Fig. 132 b).

Illustration. Plate 5 j.

Type material. 13 sherds.

Dating. General Early. Assuming this type has the same temporal distribution as G.12 at Monte Alban, it would be produced with maximum frequency in Periods I and II. Also there are examples from Period IIIa though they occur in much lower frequency.

G.5, G.33 067

Form. The vessel form is a conical bowl. On some examples the rim is wavy or scalloped (Plate 6 g). Vessel walls are of medium thickness averaging around 0.7 cm.

Paste. The paste is coarse, somewhat crumbly in some cases, and gray.

Surface treatment. The exterior surface is smoothed and the interior is usually wiped. On the interior of the vessel walls, there is a pattern burnished design consisting mainly of wavy or zig-zag lines. Imprints from the palm of a hand can be seen on the interior base.

Comparable material. Since the publication of CBA reconstructable vessels have been found by Marcus Winter (1975, personal communication) at Monte Alban that demonstrate the palm impressed bases that characterize G.33 (CBA:41, Fig. 15 b) and vessel walls which could be classified as G.5 (CBA:25, Fig. 3).

Illustration. Plate 6 e, f, g.

Type material. 31 sherds.

Dating. Primary Period I. Based on a comparison with materials at Monte Alban this marker would be placed in Period Ib and Ic (CBA:25, 41).

G.15, G.16, G.17, G.18 068

Wares in this category originally were defined at Monte Alban and were all Period I diagnostics. In this study, they are combined as a single class, Category 068, for seriational purposes. However, they are described separately below.

G.15 068 (cont.)

Form. The most common form is a thin shallow plate with an everted rim. There are also G.15 conical bowls.

Paste. The paste is medium and light gray.

Surface treatment. Vessels are burnished on one or both sides and are light gray (7.5 YR 6/0 or 5/0). All are decorated with incising or engraving in a variety of design motifs. Often parallel straight lines or undulating lines decorate the interior and exterior walls of bowls and the upper broad rim surface of plates.

Comparable material. This material is very similar to G.15 at Monte Alban (CBA:32, Figs. 8, 9).

Illustration. Plate 1 a-c and h-m.

Type material. 10 sherds.

Dating. Primary Period I. Dating is based on the affinity with material from Monte Alban. Caso, Bernal, and Acosta note that G.15 appears early in Monte Alban I (CBA:26).

G.16 068 (cont.)

Form. Like G.15 the most common form is a thin shallow plate with an everted rim. There are also G.16 conical bowls. The ceramic tends to be thin.

Paste. The paste is medium, homogeneous, hard, and light gray.

Surface treatment. Vessels are burnished on one or both sides. Surface color is light gray (7.5 YR 6/0 or 5/0). All are decorated with incising with cross-hatching that is frequently used as a design element.

Comparable material. This material fits the description of G.16 (CBA:32, Figs. 10 and 11).

Illustration. Plate 3 a-f, i.

Type material. 12 sherds.

Dating. Primary Period I. G.16 is described as a Period I ceramic at Monte Alban (CBA:32), though it may possibly have persisted into Period II as well (CBA:Tabla VII).

G.17, G.18 068 (cont.)

Form. The most common form is a shallow bowl or plate with a wide everted rim. In the Valley of Oaxaca G.17 also occurs as a patojo or duck shaped vessel. Often the rim forms the wings or fins of a stylized bird or fish.

Paste. The paste is medium. G.17 paste is light gray whereas G.18 is yellowish gray.

Surface treatment. Surfaces are burnished. G.18 is distinguished by its uneven yellowish gray and pinkish surface colors. G.17 has the more common light gray surface. Rim borders of plates are not only incised, but sometimes have decoration in modeled relief. As mentioned above the rims may form the wings or fins of a stylized bird or fish. G.17 decorations are divided into three types (CBA:35): (a) those that have a simple everted undulating rim, without incisions; (b) those with an everted undulating rim and vertical engraved lines on the rim (Plate 2 e); and (c) those with modeled figures completed with incising (Plate 1 d-g, Plate 2 a-c, f-k). No "a" types were found in this survey.

Comparable material. These wares could be identified as G.17 as defined at Monte Alban (CBA:32, Figs. 12, 97, 101, 113, 114, 115, Lám. 1).

Illustration. Plate 1 d-g, Plate 2 a-m, o, Plate 3 h.

Type material. 32 sherds.

Dating. Primary Period I. According to dating at Monte Alban of G.17 and G.18. "A pesar de que los dos subtipos (a) y (b) son más sencillos, los hemos encontrado solo en el nivel Ib; en cambio el tipo (c), mucho mas complicado, aparece desde nivel Ia" (CBA:35).

Thick Walled Plain Incense Burner 069

Form. It is difficult to deduce the vessel form of this incense burner as no reconstructable or complete examples were found. The shape seems to be that of a massive bowl with walls 1.0 cm to 2.0 cm thick.

Paste. The paste is grainy or sandy, but fairly uniform; that is, the paste does not include chunks of extraneous material as are often found in the clay body of coarse wares. Most examples have oxidized brown (5.0 YR 5/4) cores though there are some examples that are light gray (5.0 YR 7/).

Surface treatment. Vessels are without decoration. They have been scraped but not burnished on the bowl interior and left rough on the exterior. A feature that truly distinguishes this marker from the Thick Walled Gray Bowl (Category 054) is the charcoal staining on the bowl interior. The surface color is most frequently light gray (5.0 YR 7/1) but it may be brown (5.0 YR 5/4).

Comparable material. This thick, roughly finished gray ware strongly suggests the G.1 ceramics of Monte Alban I. The description of G.1 at Monte Alban does not explicitly mention incense burners among the variety of forms in the G.1. category (CBA:22, 24, Fig. 1).

Illustration. Plate 8 y.

Type material. 7 sherds.

Dating. Primary Period I. Dating is based on the identification with comparable material from Monte Alban. The dating is further supported by its occurrence in the lower levels of Test Pit 1 at Site 1A.

Thick Walled Reddish Brown Olla 070

Form. The vessel form is a large olla with an outcurved rim and wide mouth.

Paste. The paste is coarse and crumbly. The clay used in manufacture is a decomposed gneiss containing large visible chunks of diorite and quartz. The paste closely resembles the café paste of Monte Alban ceramics (CBA:49). It varies in color as does the surface but tends to be a dusky red (2.5 YR 3/2).

Surface treatment. Fragments are burnished on both sides. A distinguishing characteristic is the multitoned quality of the surface due to uneven firing. Surface colors on a single fragment will vary from dark red (2.5 YR 3/6) to black (2.5 YR 2.5/0).

Comparable material. This ceramic is very similar to the café household wares common at Monte Alban during Period I, specifically K.19 (CBA:51, Fig. 31). In the CBA report K.19 is described as having a slip. However, according to William Payne (1975, personal communication), the ware, like many Oaxacan ceramics, does not actually have a slip though the burnished surface may give this impression.

Illustration. Plate 8 i.

Type material. 71 sherds.

Dating. Primary Period I. The dating is based on the cross-connection with Monte Alban materials, mainly K.19, and is further supported by the high frequency of its occurrence in the lower levels of Test Pit 1, Site 1A at Miahuatlan. At Monte Alban K.19 is most abundant in Period I, though there is a frequency of its occurrence in Period II (CBA:51).

Thick Multitoned Reddish Brown Bowl 071

Form. The vessel form is the only feature of this ceramic marker to distinguish it from other reddish brown multitoned ceramic markers (Categories 070 and 072). These are thick walled (0.7 cm to 2.0 cm) conical bowls with outflaring or outleaning walls and either rounded or flat bases.

Paste. The paste is coarse and crumbly, derived from a decomposed gneiss containing large quartz and diorite inclusions, and dusky red (2.5 YR 3/2).

Surface treatment. Fragments are burnished on both sides. A distinguishing characteristic is the uneven multitoned quality of the surface. Surface colors on any single fragment may vary from dark red (2.5 YR 3/6) to black (2.5 YR 2.5/0).

Comparable material. This ceramic is most similar to the K.19 undecorated household ceramics of Monte Alban (CBA:51, Fig. 31) though some few examples may be more closely related to the lighter colored K.3 wares (CBA:50, Fig. 27). None of the examples exhibits the reed mat impression on the interior base frequently found on the K.3 bowls of Monte Alban.

Illustration. Plate 19 d-f.

Type material. 82 sherds.

Dating. Primary Period I (see Category 070 dating).

Coarse Multitoned Comal 072

Form. The vessel form is a comal with a thickness of about 1.0 cm to 1.5 cm at the rim tapering to 0.5 to 0.8 cm in the center of the circular griddle. Some examples have rim tabs, that is, scalloping on the rim (Plate 8 v).

Paste. The paste is the same as Thick Multitoned Reddish Brown Bowls (Category 071) and Thick Multitoned Reddish Brown Ollas (Category 070). The paste is coarse and crumbly, derived from a decomposed gneiss containing large quartz inclusions, and dusky red (2.5 YR 3/2).

Surface treatment. Fragments are burnished on one or both sides, though some are unburnished. A distinguishing feature is the uneven multitoned quality of the surface; surfaces have darkened charred areas due to uneven firing. Surface colors vary from dark red (2.5 YR 3/6) to black (2.5 YR 2.5/0).

Comparable material. Materials within this category are comparable to K.19 wares at Monte Alban (CBA:51, Fig. 31). K.19 is described as having a slip (CBA:51); however, according to William Payne (1975, personal communication) this ware, like many Oaxaca ceramics, does not have a slip, but the burnished surface can give this impression.

Illustration. Plate 8 t, v.

Type material. 36 sherds.

Dating. Primary Period I. K.19 appears at Monte Alban in the middle of Period I and survives in low frequency into Monte Alban II:

> Parece una variante corriente del anterior K.8, usada especialmente para fabricar grandes comales. Se continuó su uso durante la Época II, aunque no fué may abundante. . . . El K.19 parece en el segundo período de la Época I (Ib) (fig. 31).
>
> La aparición del comal en esta época tan temprana, es muy importante, pues nos determina el uso del maíz para hacer "tortillas" desde el Horizonte Formativo. (CBA:51)

Period I Compound Silhouette Bowl 073

Form. The vessel form is a shallow round bowl with a cylindrical neck.
Paste. The paste is medium and gray. It is not as highly fired and hard as the Compound Silhouette Bowl (Category 005) of Period V that has a G.3M (CBA:448) paste.
Surface treatment. Some examples are burnished black on both sides. Others are also burnished but vary from a light yellowish gray on the bowl interior to a brownish gray on the exterior.
Comparable material. CBA (174, 176, Fig. 128 f, e, i).
Illustration. Plate 19 g.
Type material. 4 sherds.
Dating. Primary Period I.

> Esta forma de vasijas, tan característica de Monte Albán I, desaparece totalmente a partir de la Época II, hasta que los mixtecos de la Época V vuelven a introducir unos cajetes bastante semejantes. Estos siguen en uso hoy día, con pocos modificaciones, en la céramica negra de Coyotepec (fig. 129). No se trata de un neo prehispanismo sino de una verdadera supervivencia cultural y otras formas de la Época I, que iremos señalando también se continuan haciendo en ese lugar. (CBA:176)

Wares from Period V and I can be easily distinguished by the paste.

Incised Compound Silhouette Bowl 074

Form. The vessel form is that of a round bottom bowl with cylindrical walls.
Paste. The paste is gray (7.5 YR 7/2), hard, composed of medium sized grains.
Surface treatment. The bowl is burnished on all surfaces. There is a double line incised around the exterior just below the rim.
Comparable material. These are very similar to examples of the "cajetes de silueta compuesta" at Monte Alban (CBA:174, 176, Fig. 128).
Illustration. Plate 4 e.
Type material. 3 sherds.
Dating. Primary Period I. The dating is based on comparable materials (see above). This type may be more specifically assigned to late Period I (Marcus Winter 1975, personal communication).

Pedestal Vessel 075

Form. The basic vessel form suggests two round bowls or hemispheres welded base to base, though in some cases the bottom hemisphere is no more than a mere flange.
Paste. The paste is medium and gray.
Surface treatment. The interior surface of the bottom hemisphere is scraped and rough. The lip of this bottom hemisphere bears wear marks that further confirm that it served as the base of the vessel. All exterior surfaces as well as the interior of the upper bowl are burnished and gray. The exterior of the base often bears an incised design of parallel horizontal lines or a more elaborate incised design.
Comparable material. These are comparable to Period I "suportes de vasijas" from Monte Alban (CBA:185, 188, Figs. 149 b, 150, 151). Also, see Paddock (1970: Fig. 9 top right).
Illustration. Plate 19 j, k, l.
Type material. 15 sherds.
Dating. Primary Period I. The dating is based mainly on comparable materials (see above). There are Monte Alban II pedestal vessels, but they are distinct from those of Period I (CBA:188).

Miscellaneous Period I 076

This category is made up of an array of unique items that can be sytlistically identified with Period I materials at Monte Alban and the Oaxaca Valley.
Plate 21 a. This is a fragment of a vessel of medium textured gray paste. It is smoothed on the exterior and burnished on the interior surface of the bowl.

The interior has parallel incised lines that presumably are part of a spiral design like that on the interior of the pedestal bowl illustrated from Tomb 31, a Period I tomb at Yagul (Chadwick 1970:Fig. 9).

Plate 2 n. Illustrated is a sherd, perhaps a fragment of a thin walled vase or olla. The parallel lines suggest the type of decoration found on the G.13 wares of Period I at Monte Alban (CBA:26, Fig. 7). The exterior surface is lightly burnished and gray.

Plate 2 p. This is a fragment of a thin walled bottle with a burnished gray exterior. The complete vessel was presumably similar to Monte Alban bottles and spouted vessels from Period I (CBA:Figs. 124, 125).

Plate 3 g, j-m. This group of incised gray sherds could not be related to any particular category but they are stylistically identifiable with the Period I materials from Monte Alban.

Plate 7 a. The olla illustrated here demonstrates a distinctive broad and squat olla profile known from Monte Alban I in the Valley of Oaxaca. The decoration on the vessel shoulder consists of alternating burnished bands and rings of burnished dots. At the very bottom of the shoulder is a ring of vertical burnished lines. Pattern burnishing is a technique of decorating ollas that persists throughout the sequence and becomes most frequent in the Postclassic (see Categories 002, 052, and 056). The vessel illustrated here has a medium textured gray paste and is not as highly fired as the Thin Olla with Net and Stripe Burnishing (Category 002). Surfaces without burnishing are smoothed. Vessel walls are thin and the ware presents an overall impression of care in manufacturing.

Plate 23 a. This miniature anthropomorphic urn that was an offering with Burial 1975/3 of Site 1A (see the description in Chapter II. This vessel has various features that identify it as a Cocijo, a representation of the Zapotec rain deity frequently depicted on the large urns of Periods IIIb and IV in Oaxaca: a protruding bifurcated tongue, fangs, a two-part mask, the lower part curling around the mouth, and the upper part consisting of exaggerated upper eyebrows or eyelids.

The style, however, is decidedly Period I. The block.shaped ears are characteristic of figurines and urns of this period. Also, like other Period I Cocijos, there are no mask elements bordering the lower part of the eyes.

In the middle of the forehead is an oval in a position where a variant of the C glyph is usually found on the more elaborate renditions of the Cocijo. There are several other unusual aspects to this object. Most frequently Period I urns show only the head of the Cocijo; however, this piece like the IIIb-IV urns demonstrates the entire body. The figure is seated with the hands on the knees, a characteristic pose of the figures on the large urns of later periods. Seated, full length Cocijo representations that may be from Period I are noted at Monte Negro in the Mixteca Alta (Caso and Bernal 1952: Fig. 20; Dixon 1958: Fig. 2 b). The example illustrated by Dixon is also a miniature. Similar miniature urns have also been noted from Period I at Huamelulpan, also in the Mixteca Alta (Glaxiola 1976).

An interesting aspect of this urn is the realistic quality of the eyes and nose of the face beneath the mask.

The surface is burnished and has a multitoned quality probably produced by uneven firing. The surface is predominantly dark gray (7.5 YR 4/0) but has areas which are lighter gray as well.

Plate 23 b. This small gray vase, 6.5 cm high, was also part of the offering accompanying Burial 1975/3 at Site 1A. It is evenly burnished on all surfaces except for two rectangular panels on the exterior that are burnished in a criss-cross pattern. It is comparable to G.24 materials from Monte Alban (CBA:35).

Plate 21 b and c. These are fragments of incised medium gray vessels.

Period I Figurines 077

Form. This category contains both anthropomorphic and zoomorphic hand modeled figurines. The mouths of the anthropomorphic figurines are usually created in applique (Plate 11 a, c, d). The eyes depicted in Plate 11 d are unusual, consisting of two horizontal bands of applique between which a punctuation is used to represent the iris. Possibly this piece is of a later period. The nose and lower part of the face have been damaged but it is possible to discern a fragment of an applique lip. The figurine wears a hair style with tassels hanging at either side of the head.

Plate 11 a illustrates the most complete example and is the easiest to relate to known Period I figurines of the Valley of Oaxaca. The applique lips and the use of punctuation to represent a necklace and to suggest hair are common features of Period I. Female breasts and genitalia are frequently represented on anthropomorphic figurines of Period I at Monte Alban. In this example sexual characteristics are not depicted.

Several rather ambiguous body fragments from anthropomorphic figurines have been included in this category. The classification and dating of figurines shown in Plate 11 e, g, h, i are based as much on provenience association as on style. The same can be said for the zoomorphic figurines of Plate 11 n-p. Examples o and p were recovered from water pipe excavations in the streets of Miahuatlan, an area designated Site 40. The anthropomorphic figurine shown in Plate 11 a and the olla in Plate 7 a come from the same provenience.

Paste. The paste is coarse or sandy, varying from dusky red to a light yellowish brown. Plate 11, examples e, g, n, and o have a sandy gray paste.

Surface treatment. Except for the punctate and applique features, surfaces are smooth or grainy, but not burnished.

Comparable material. As mentioned above, these figurines have a general similarity to materials from the Valley of Oaxaca during Period I; for example, the discussion by Caso and Bernal (1952:324, Fig. 479).

Illustration. Plate 11 a, c, d, e, g, h, i, n-p.

Type material. 10 examples.

Dating. Primary Period I. Possibly, some may be dated to Period II.

Geometrically Incised Bottom 078

Form. The vessel form is a conical bowl.

Paste. The paste is medium and gray.

Surface treatment. Interior and exterior surfaces are smoothed. In some cases the interior surface is lightly burnished. The interior base of the bowl bears an incised design of parallel sets of concentric lines alternating with concentrically arranged patterns of parallel diagonal or vertical lines. The design has strict radial symmetry and uniformity that contrasts with the more freely executed design on the Comb Bottom (Category 086). Though it is known that these bases correspond to a rim type with a double incised line, it is not certain which variant of the double line rim, the Well Defined Double Lined Bowl (Category 079) or Double Line Conical Bowl (Category 085). There is the possibility that it may be both.

Comparable material. This decorative element is identical to G.12 materials from Monte Alban (CBA:25-26, Fig. 5, the two rightmost examples on the bottom row); and Period I materials from Monte Negro (CBA:Fig. 6, extreme right and left examples).

Illustration. Plate 5 a, c, h.

Type material. 8 sherds.

Dating. Secondary Period I. This design falls within the G.12 category known from Periods I through IIIa at Monte Alban. This particular variant of that category seems to be confined to Period I. This type of fine workmanship and finish is characteristic of Period I (CBA:67).

Well Defined Double Line Bowl 079

Form. Vessel form is a conical bowl. This ceramic marker is distinguished by the rim. Though the Comb Bottom (Category 086) and Geometrically Incised Bottom (Category 078) and undecorated bottom are known to correspond to this same rim, examples complete enough to demonstrate both rim and base are rare in surface collections. Vessel walls tend to be thinner than the less meticulously manufactured and more common Double Lined Conical Bowl (Category 085).

Paste. The paste is medium, hard, and gray.

Surface treatment. Surface color is gray, usually well burnished on the bowl interior and either burnished or smoothed on the exterior.

The most distinctive feature of this ceramic marker is the application of two parallel lines around the interior lip of the bowl. These lines were neatly and uniformly incised before firing, in contrast to the Double Line Bowl (Category 085).

Comparable material. This ceramic marker falls within the range of materials designated G.12 at Monte Alban (CBA:25, 26, 176, 180).

Illustration. Plate 5 k.

Type material. 33 sherds.

Dating. Secondary Period I. Based on the identification with G.12 the ceramic could have been manufactured any time from Period I through Period IIIa. However, this marker has a quality that suggests the more meticulous manufacture of Period I. Finer workmanship and finish tend to be associated with the Period I G.12 ceramics at Monte Alban (CBA:67).

Bridge Spout Vessel 080

Form. The vessel form is a bottle with a globular body and elongated cylindrical neck. A tubular spout rises from the upper part of the body parallel to the neck and is attached to the rim by a strap forming a bridge. Most often this bridge springs from a molding around the mouth of the vessel.

Paste. The paste is medium and gray.

Surface treatment. All exterior surfaces are burnished. Color is uneven varying from gray to dark gray or dark brownish gray.

Comparable material. Generally, similar vessels are known from Monte Alban (CBA:174, Fig. 125).

Illustration. Plate 23 c.

Type material. 1 whole vessel, 10 sherds.

Dating. Secondary Period I. Bridge spout vessels were manufactured through several periods. However, the form and the quality of the ceramic changed with time such that vessels from each period are distinct.

Olla with Flattopped Rim 081

Form. The vessel form is a medium sized wide mouthed olla with a very short neck and thick vessel walls. The lip has been flattened, producing a block shaped rim profile.

Paste. The paste is coarse and red (10 YR 5/6) or light brown (7.5 YR 6/4), similar to the multitoned reddish brown wares in Categories 070, 071, and 072.

Surface treatment. Most samples are weathered so that the original surface cannot be determined. Some show light burnishing and the multitoned quality of markers in Categories 070, 071, and 072. The color varies from red to light brown.

Comparable material. This ceramic is similar in surface finish and paste to various Period I café wares from Monte Alban including K.1 (CBA:49) and K.3 (CBA: 50) or K.19 (CBA:51). However, the rim form of these ollas from Miahuatlan seems to be a distinctive local variant.

Illustration. Plate 8 a.

Type material. 17 sherds.

Dating. General Early. The dating is based on the general similarities with Period I materials at Monte Alban and is supported by provenience associations at Miahuatlan.

Red Rimmed Black Ware 082

Form. This marker occurs as both conical bowls and shallow round bowls. The latter have a slight molding around the exterior below the rim (Plate 19 a). The category is defined principally by the surface treatment, not form.

Paste. The paste is medium to coarse. Frequently, it is oxidized near the rim and reduced below.

Surface treatment. Bowls are highly burnished on the interior and smoothed on the exterior. In some cases burnished areas are crazed. The bowl interior is black except for the rim which is reddish yellow. On some examples the entire exterior of the bowl is this reddish yellow color though more often it is black.

Comparable material. See dating below.

Illustration. Plate 19 a, b.

Type material. 25 sherds.

Dating. General Early. There does not seem to be any material from nearby regions that is strictly comparable. The dating is based mainly on provenience associations. It occurs in middle and upper levels of Test Pit 1 at Site 1A along with many Period I and II diagnostics.

Single Lined Bowl 083

Form. The vessel form is a conical bowl. Rims are thickened; in some cases there is a molding on the exterior below the rim. The walls tend to be thin, 0.5 cm to 0.8 cm.

Paste. The paste is medium, hard, and gray (7.5 YR 5/0).

Surface treatment. Bowls are burnished on the interior or on both interior and exterior. A very distinctive feature is a single incised line on the lip of the bowl. Surface color varies from dark brown (7.5 YR 3/2) in unburnished areas to dark gray (7.5 YR 4/1) in burnished areas.

Comparable material. This material can be identified with the G.26 material from Monte Alban (CBA:37-41, Fig. 14). The far right example on the fifth row of Figure 14 has identical counterparts in Miahuatlan as can be seen in Plate 4 b.

Illustration. Plate 4 b.

Type material. 40 sherds.

Dating. Primary Period I. Assuming that this material corresponds to G.26, it can be assigned to late Period I (CBA:39, 214).

Pattern Burnished Bottom 084

Form. One complete vessel was recovered, a large conical bowl (Plate 6 a).

Paste. The paste is medium, hard, and gray. In some few examples cores are oxidized rather than reduced and are reddish gray.

Surface treatment. The interior base of the bowl bears a burnished design consisting of wavy lines or, in some cases, straight parallel or criss-cross lines. The burnished designs are haphazardly executed. It does not seem that there is chronological significance to the different designs; all are found in the lowest level of Test Pit I, Site 1A.

Bowls are smoothed on interior and exterior surfaces or, most commonly, on the interior only.

All examples except that illustrated in Plate 6 a consist of base fragments without rims. This example has a double line incised around the interior parallel to the rim which could also place it in Category 085, Double Lined Conical Bowl.

Comparable material. There are several early wares from Monte Alban that share one or more attributes with this ceramic. One is the Monte Alban I G.24 (CBA:35, Fig. 13) that has a burnished design on the interior base as do the later G.35's. Rims are neither described nor illustrated for G.24.

Another Monte Alban ceramic that shares characteristics with this material is G.21 (CBA:67, 347, Figs. 43, 285 3, f). Like both the example illustrated in Plate 16 a and the Monte Alban G.12 conical bowl (CBA:25, 26), G.21 has a double line around the interior of the rim. In all other respects G.21 differs significantly. It is not smoothed or burnished, and the design on the interior base, though it demonstrates a very similar motif, is incised rather than burnished.

When only fragmentary samples which lack rims are available, it is quite difficult to distinguish this ceramic from G.35-like materials. For instance, a fragment of just the interior base of the Hollow Bulbous Support with Net Burnished Bottom (Category 025) could easily be placed in this category by mistake.

Illustration. Plate 6 a, Plate 16 a-d.

Type material. 1 whole vessel, 30 sherds.

Dating. General Early. Most materials were recovered from proveniences with a high frequency of Period I and Period II ceramics, mainly from all levels of Test Pit I, Site 1A. The one nearly complete example (Plate 6 a) was included with Burial 1975/3 at Site 1A, which is clearly a Period I burial.

Associated categories from Monte Alban, G.24 and G.21, are considered Period I and Period II markers, respectively. Possibly some of the more fragmentary samples are actually examples of G.35-like material that most likely would have been manufactured during Period IIIb-IV.

Double Lined Conical Bowl 085

Form. The vessel form is a flat bottomed bowl with conical walls. This ceramic marker is distinguished solely by the rim though the Comb Bottom (Category 086), Pattern Burnished Bottom (Category 084), and Geometrically Incised Bottom (Category 078), are known to correspond to vessels with this rim. Also the type is known to occur with plain undecorated bases.

Paste. The paste is medium, hard, and gray.

Surface treatment. The bowl is lightly burnished on the interior surface. Exteriors are simply smoothed, and in some cases, the interior is simply smoothed.

A most distinctive feature of this ceramic marker is the double line incised around the interior rim of the bowl.

Comparable material. Similar materials from Monte Alban include G.12 (CBA: 25, 26, 176-180) and G.21 (CBA:67, 347). Possibly this type of rim may also correspond to a G.24-like material in the Miahuatlan area as shown in Plate 6 a (see Category 084).

Illustration. Plate 5 l, m, Plate 6 a (see Category 084).

Type material. 152 sherds. (The vessel illustrated in Plate 6 a is counted with Category 084.)

Dating. General Early. Comparable materials at Monte Alban are found mainly in Period I and Period II deposits with some rare Period IIIa occurrences.

Comb Bottom 086

Form. The vessel form is a conical bowl. This ceramic marker comes from the same vessels as the Double Lined Outflared Bowl (Category 085). However, surface samples are always quite fragmentary so that it is rare to find a piece which includes both rim and base. It is not possible to determine if other rim forms correspond to these bottoms. It is known that bowls with the double lined rim may have other bottoms besides these. Therefore Categories 085 and 086 are treated separately.

Paste. The paste is medium, hard, and gray.

Surface treatment. Bowls are smoothed or burnished on the interior surface and simply smoothed on the exterior.

The most distinguishing characteristic is the incised design on the interior base of the bowl. This design was produced by incising with a comb-like instrument. The design consists of parallel lines that are either concentric wavy lines, or simple concentric circles. Usually a ring of wavy lines will be alternated with a ring of concentric regular lines. The design does not seem to be executed with the precision of the Geometrically Incised Bottom (Category 078).

Some few examples have a more freely executed design produced with a single pointed stick rather than with a comb-like instrument (Plate 5 i).

Comparable material. This material matches the description of G.12 from Monte Alban (CBA:25, 26, 225, 347, Figs. 5, 6, 130, 131).

Illustration. Plate 5 b, d-g, i.

Dating. Secondary Period I. Though G.12 materials are known from Period I through IIIa this particular design feature seems to be largely confined to Period I.

Outfolded Rim 087

Form. Vessel form is uncertain as only fragments make up the sample. The portion of the vessel that is used in defining the category is the rim. These rims probably correspond to rounded bowls and in most cases, rather shallow rounded bowls. The rim of the bowl has been folded outward, forming a flange or skirt. Often the edge has an undulating or scalloped form (Plate 4 i).

Paste. The paste is medium, hard, and gray.

Surface treatment. Most frequently bowls are burnished on the interior and smoothed on the exterior. There is an overall impression of careful manufacture and finish. In all except the one undecorated example (Plate 4 f), the flange is decorated with an incised design. The various design motifs are often the same as those described for Category 068, as well as the double incised line of Categories 079 and 080. Only these have the distinctive everted rim described above.

Comparable material. This material is quite comparable to G.16 and G.17 ceramics from Monte Alban (CBA:32-35). One example (Plate 3 d) is not included in this category but is put into Category 068 because it is an exact match for a G.16 sherd illustrated in CBA (Fig. 11, second row, left).

Illustration. Plate 4 f-j.

Type material. 21 sherds.

Dating. Primary Period I. The dating is based mainly on the identification with materials from Monte Alban and it is recognized by provenience associations in the Miahuatlan area.

Hour Glass Censer 088

Form. Though no whole vessels were recovered in this survey, the vessel form can be construed to have an hour glass form consisting of two hemispherical bowls welded base to base. There is a hole between the two halves and there are prongs on the interior base of the upper half. The number of prongs of a complete incense burner could not be determined from the fragmentary examples available.

Paste. The paste is coarse, sandy, and pinkish gray (7.5 YR 6/2).

Surface treatment. Most examples are weathered and have a rough sandy texture. The surface color is the same pinkish gray as the paste.

Comparable material. The samples within this class may well correspond to three pronged incense burners, a vessel type with broad temporal and geographic distribution in Southern Mesoamerica (Borhegyi 1951a, 1951b).

Illustration. Plate 8 z.

Type material. 7 sherds.

Dating. General Early.

Labial Molding 089

Form. This ceramic marker is defined from the rim only of a bowl. These rims are characterized by a molding at the lip on the vessel exterior. In some cases the molding is exaggerated and forms a flange around the exterior of the vessel below the lip (Plate 4 c, left). In some of the more complete samples, but not all, the vessel base has a slight molding.

Paste. The paste is medium, hard, most commonly gray, but in some cases the core has been oxidized.

Surface treatment. The bowl is burnished on the interior and sometimes on the exterior as well.

Comparable material. This material is identified with G.26 ceramics at Monte Alban (CBA:37-41, Fig. 14).

Illustration. Plate 4 c, d.

Type material. 10 sherds.

Dating. Primary Period I. Assuming that this material corresponds to G.26, it can be chronologically placed in late Period I (CBA:38, 41).

Basal Molding 090

Form. This ceramic marker is defined from the basal angle of the bowl only. The complete vessel is a flat bottom bowl with outward leaning walls. The variety or varieties of rims that correspond to this base are uncertain due to the fragmentary nature of samples. The bottom of the bowl protrudes beyond the intersection of the wall, forming a basal flange or molding. Some rims are plain and others have a slight labial molding (Plate 4 a).

Paste. The paste is medium, hard, generally gray, though in a few instances cores are oxidized.

Surface treatment. Some have burnished interiors. Otherwise, the bowl is simply smoothed on all surfaces. In one example the burnishing is black though the common vessel color is gray.

Comparable material. Some may be identified as G.25s (CBA:37-41, Fig. 14).

Illustration. Plate 4 a.

Type material. 23 sherds.

Dating. General Early. G.25 appears late in Period I at Monte Alban, but is most frequent in Period II. However, it is questionable whether all materials in this category can be identified as G.25. The distinguishing attributes of this ceramic marker cannot be assigned to any one period. The basal molding is a feature of long duration and appears on several distinct wares.

Coarse Cream with Smoothed Surface 091

Form. The vessel form is a thin, about 0.5 cm, shallow round bowl.

Paste. The paste is dark gray (7.5 YR 4/1) and contains visible granules of white diorite.

Surface treatment. Bowls are slipped and well smoothed. The color of the slip varies from pinkish white (5 YR 8/2) to reddish yellow (5 YR 6/6).

Illustration. Plate 19 h.

Type material. 3 sherds.

Dating. General Early. Some of these pieces could possibly be of the Rosario phase, immediately preceding Period I, though it is questionable whether the definitive characteristics of this ceramic marker have temporal significance.

Long Neck Thick Gray Olla 092

Form. This olla has a long neck and moderately thick walls (about 0.8 cm). This ceramic marker is defined principally on the basis of form. Yet its form is not highly distinctive. There is a continuous range of olla forms that also includes the Plain Medium Gray Olla (Category 099) and the Coarse Plain Olla (Category 098). These tend to have longer necks than the ollas in the other two categories.

Paste. The paste is coarse to sandy, and gray or yellowish gray.

Surface treatment. Surfaces tend to be rough and weathered but uniform in texture.

Comparable material. The vessels resemble the olla burda described at Yagul (Bernal and Gamio 1974:66), especially examples illustrated in Lám. núm. 4 a and b.

Illustration. Plate 8 b.

Type material. 36 sherds.

Dating. General Middle.

Period IIIb-IV Urns 093

Form. A very characteristic vessel of the valleys of Oaxaca and Miahuatlan is the large vase in the form of a seated human figure. Most commonly these are depictions of deities or humans in the disguise of deities. Zapotec urns were created in Periods I through IV, and during this time they went through various stylistic and technical changes. In Period IIIb-IV the urn reached an epitome of elaborateness created in a style that might be considered baroque. At this point the human figure is lost in an agglomeration of decorative elements and is usually smaller than its ornamented headdress.

Unfortunately, no complete vessels were recovered in the survey of Miahuatlan, but fragments of headdress and other elements can be recognized (Plate 9 a-l). Plate 9 g shows the foot of one of these figures that are commonly seated in a cross-leg fashion. The item in Plate 9 k can be recognized as the pectoral element of a IIIb-IV urn and is discussed below.

Paste. The paste is grainy and either gray or reddish brown.

Surface treatment. Except for the molded decorations, surfaces are left plain or slightly smoothed.

Comparable material. The most complete catalog of Oaxaca urns is Caso and Bernal's Urnas de Oaxaca that includes a classification as well as discussion of iconography and glyphic representations. From that work two glyphic elements can be recognized. Plate 9 j depicts the C glyph, the central element in the headdress of several different deity representations. The evolution of this glyph is discussed in detail by Howard Leigh (1970). Plate 9 k is a representation commonly found as a pectoral element on the Oaxaca urns. This detail consists of a rectangular cartouche with bars radiating from each of the four corners. Within the cartouche are two vertical bars. The urns illustrated by Caso and Bernal (1952) display different combinations of bars and dots aligned either vertically or horizontally within the cartouche.

Interestingly, of the four examples that have the exact combination of two vertical bars as illustrated here, two are from Miahuatlan (Caso and Bernal 1952:Figs. 276, 277) and one is from Amatengo (ibid.:Fig. 288), immediately north of the Miahuatlan survey area.

Illustration. Plate 9 a-l.

Type material. 12 sherds.

Dating. Primary Period IIIb-IV.

Period IIIa Urns 094

Form. The vessel form is generally the same as the Period IIIb-IV urns (Category 093). Though the stylistic differences between the two periods may be easy to see on whole vessels, they are not so clear when dealing with fragmentary samples such as those available from the Miahuatlan survey. Identifications are tenuous. The pieces included in this category are all illustrated (Plate 9 m-o).

Paste. The paste is grainy. Examples m and n of Plate 9 have a gray paste. Example o is oxidized and the paste is yellowish brown.
Surface treatment. Surfaces are simply smoothed. The decorative elements of Plate 9 m and o, are created from a mold. In Plate 9 n, the design is incised.
Comparable material. Examples of Period IIIa urns can be found in Caso and Bernal's Urnas de Oaxaca (1952).
Illustration. Plate 9 m-o.
Type material. 3 sherds.
Dating. Primary Period Transición-IIIa.

Thick Walled Gray Olla 095

Form. This olla has massively thick walls (2.0 cm). The neck is very short and the rim is everted.
Paste. The paste is sandy textured. Paste color is light gray (5.0 YR 7/1) to reddish brown (5.0 YR 5/4).
Surface treatment. Surfaces tend to be weathered red and sandy textured but evenly formed.
Comparable material. This type of vessel seems to be a South Valley phenomenon; that is, it occurs in the southern arm of the three armed valley of Oaxaca and in the Miahuatlan area. It does not occur in the Etla or Mitla arms of the valley or at Monte Alban or in the center of the Oaxaca Valley (Fig. 2).
Illustration. Plate 8 c.
Type material. 4 sherds.
Dating. General Middle.

Thin Hard Gray Olla 096

Form. Most are of medium size ollas though some examples are miniatures (Plate 7 g). Vessel walls are thin, averaging 0.3 cm to 0.4 cm.
Paste. The paste is gray and tends to be of fine texture. Vessels are well fired and hard.
Surface treatment. The olla exterior lacks decoration. Surfaces are smoothed or lightly burnished.
Comparable material. This ceramic marker is comparable to materials within the range of ceramics described at Yagul under the heading "olla fina" (Bernal and Gamio 1974:67, Lám. núm. 8 a, b, c, e). These ollas would also fall within Brockington's Miahuatlan Medium Grey category (1973:30).
Illustration. Plate 7 g depicts a miniature from Site 38, Burial 1975/1.
Type material. 1 whole vessel, 40 sherds.
Dating. General Middle.

Medium Gray Round Bottom Bowl 097

Form. Most examples are fragments of shallow round bowls of thin to medium thickness. Less frequent are hemispherical bowls or round bottom bowls with cylindrical walls.
Paste. The paste is medium, hard to medium hard, and gray.
Surface treatment. Bowl interiors are smoothed or lightly burnished and in some examples the exterior is smoothed as well. Surface color is mainly gray though some few examples are yellowish gray.
Comparable material. This is an ecletic category that contains materials that would fall within Brockington's Miahuatlan Medium Grey category (1973:30) as well as some materials that border on the range of the Thin Shallow Round Gray Bowl (029) or Two Tone Bowl (030). Both of the latter two categories contain materials that fit the G.3M category of Monte Alban (CBA:448).
Illustration. Plate 14 h, i, j.
Type material. 247 sherds.
Dating. General Middle. Most examples within this category are probably of Period IV. However, the gray round bottom bowls were very likely manufactured as early as Period IIIa or earlier. G.3M-like examples could have been manufactured in Period V.

Coarse Plain Olla 098

Form. The vessel form is a medium sized olla with moderately thick walls (0.6 cm to 1.0 cm). Most rims are short and everted. Others are short but not so sharply everted.

Paste. The paste is coarse, derived from decomposed gneiss containing angular quartz inclusions, reddish brown, though some few examples have reduced cores.

Surface treatment. Most examples have a rather rough sandy texture though some show light burnishing. Surface color in some cases is reddish brown or in instances where the ware was reduced, gray.

Illustration. Plate 8 d-h, j.

Type material. 433 sherds.

Dating. General Middle. This category is basically made up of miscellaneous "leftovers." Many pieces were placed in Category 098 because they could not be confidently classed as a Thick Multitoned Reddish Brown Olla (Category 070), or a Plain Medium Gray Olla (Category 099) or Long Neck Thick Gray Olla (Category 092).

Plain Medium Gray Olla 099

Form. These are ollas of medium size and thickness (averaging 0.5 cm). Rims are outfolded and vary in form. In some cases strap handles are present.

Paste. The paste is gray, except for a few examples with oxidized cores, and of medium texture.

Surface treatment. Most examples are simply smoothed over the entire exterior surface of the olla. A few are lightly burnished.

Illustration. Plate 7 h-o.

Type material. 195 sherds.

Dating. General Middle. This ceramic marker has little temporal significance. Materials are fairly nondescript, and are sometimes not clearly distinguished from other markers including the Thin Hard Gray Olla (Category 096), the Coarse Plain Olla (Category 098), and the Long Neck Gray Olla (Category 092). It is a basic utilitarian ware and undoubtedly survived for a long time.

Coarse Reddish Brown Bowl with One Smoothed Side 100

Form. This is a shallow round bottom bowl that has been rather rudely fashioned.

Possibly some sherd samples placed in the category may actually be fragments of Coarse Reddish Brown Frying Pan Censer (Category 011). Like the censer these are rudely manufactured, some having an irregularly shaped rim.

Most are small, with a diameter of less than 10 cm though there are examples as large as 20 cm. Vessel walls are thin when compared to many ceramics made from the reddish brown or café paste. Thickness averages around 0.6 cm.

Paste. The paste is coarse, derived from decomposed gneiss containing inclusions of white quartz and diorite large enough to be visible, dusky red to light brown.

Surface treatment. The bowl interior is smoothed or lightly burnished. It is this feature that distinguished this ceramic marker from Coarse Reddish Brown Bowls (Category 012).

Comparable material. See Category 011.

Type material. 38 sherds.

Dating. Primary Period V. See dating of Category 011.

Miscellaneous Coarse Reddish Brown Comal 101

Form. The vessel form is a round flat griddle. Thickness of the vessel and shape of the rim varies.

Paste. The paste is coarse, derived from a decomposed gneiss containing white inclusions of quartz and diorite. However, the grains that make up the paste tend to be more homogeneous than in the paste of the multitoned reddish brown markers, Categories 070, 071, and 072. Also these comales are harder and less crumbly than the Coarse Multitoned Comales (Category 072).

Surface treatment. The griddles are smoothed or burnished both on top and bottom. The surface color is uniform and usually reddish brown.

Comparable material. This type might fit Brockington's Miahuatlan Coarse Red description (1973:33, 36).

Illustration. Plate 8 u.
Type material. 51 sherds.
Dating. General Late. This category is made up of materials which could not be confidently grouped with the Coarse Multitoned Comal (Category 072) or the Rough Bottom Comal (Category 016). See dating notes for Category 016.

Red on Gray 102

Form. There are no complete vessels in the survey sample. The vessel form is probably a conical bowl. Some have a slightly everted rim. Wall thickness is 0.5 cm on the average.
Paste. The paste is medium, crumbly, though one example is fairly hard, and yellowish gray to brownish gray.
Surface treatment. Vessels are highly smoothed on all surfaces and are gray or dark gray in color. The bowl exterior has vertical red paint bands about 1.5 cm to 2.0 cm wide. In some cases there is also a thin red line on the lip.
Illustration. Plate 15 k.
Type material. 5 sherds.
Dating. General Middle. It is questionable whether this category represents a useful temporal marker. Variation within the category is rather broad.

Patojo Vessel 103

Form. The distinctive vessel shape that characterizes this ceramic marker has been alternately described as a shoe, a breast, or a duck's body. Basically the vessel is an olla with an asymmetrical body. It is rather crudely manufactured and has a less finished appearance than the patojo vessels known from Period I. Vessel walls are thin, averaging 0.4 cm.
Paste. The paste is coarse, derived from decomposed gneiss, containing quartz and diorite inclusions, dark red (2.5 YR 3/6). The clay body is essentially the same as Categories 070, 071, and 072.
Surface treatment. The vessel exterior is burnished haphazardly and varies from dark red (2.5 YR 3/6) to black (2.5 YR 5/0).
Comparable material. The patojo vessel is one of several forms that appear in Oaxaca in Period I and then reappear in Period V. The compound silhouette bowl is another such item. Period V patojos, however, are easily distinguished from Period I examples, mainly by the crudeness of their manufacture.
Period V patojos are reported at Yagul by Bernal and Gamio (1974:29, Lám. 25, Foto 49). The one complete example from Miahuatlan lacks the supporting base seen on the Yagul vessels.
Illustration. Plate 24 a.
Type material. 1 complete vessel, 1 sherd.
Dating. Primary Period V.

General Miscellaneous 104

This category contains an array of materials that could not be placed in any of the other categories, some because they are unusual pieces that cannot be recognized, others because the samples are too fragmentary and worn to be distinguished.
One illustrated example is Plate 19 i; this piece has a cream paste as described for Category 091 but the vessel form and painted design, very dark gray (7.5 YR 3/0) or brown (7.5 YR 4/4), make it distinct from anything else encountered. It comes from Wall 6 at the lowest levels of Test Pit 1, Site 1A.
Reddish brown olla fragments are illustrated in Plate 8 k, l.
Unidentified figurine fragments were also placed in this category (Plate 11 f, j, l).

Miscellaneous Period II 105

Examples Plate 21 g and h are rim sherds from cylindrical vases which when complete presumably had lids. A slight molding for the lid to rest on is found below the lip around the vessel exterior. This is a characteristic form of Period II at Monte Alban (CBA:241-244). These examples have a medium gray textured paste and have well-burnished surfaces.

A unique Period II vessel is a gourd or hour glass shaped bottle which was included as an offering with Burial 1975/2 at Site 1A (Plate 22b). The paste is medium, reddish brown as is the surface color. The exterior surface is well burnished.

Plate 21 illustrates two unusual sherds assigned to Period II. Plate 21 e is a medium gray ceramic with a white slip on the vessel interior. Plate 21 f is a burnished black ceramic with a medium gray paste. Red paint has been applied in panels between lines of the incised design.

Ceramic Plates

Plate 1

	Ceramic Classification	Provenience	
		Site number	Bag number
A, B	068 (G.15)	1A	119
C	068 (G.15)	1A	110
D	068 (G.17, 18)	1A	121
E	068 (G.17, 18)	1A	119
F	068 (G.17, 18)	1A	101
G	068 (G.17, 18)	1A	84
H	068 (G.15)	1A	97
I	068 (G.15)	1A	85
J, K	068 (G.15)	1A	101
L	068 (G.15)	401	129
M	068 (G.15)	1A	103

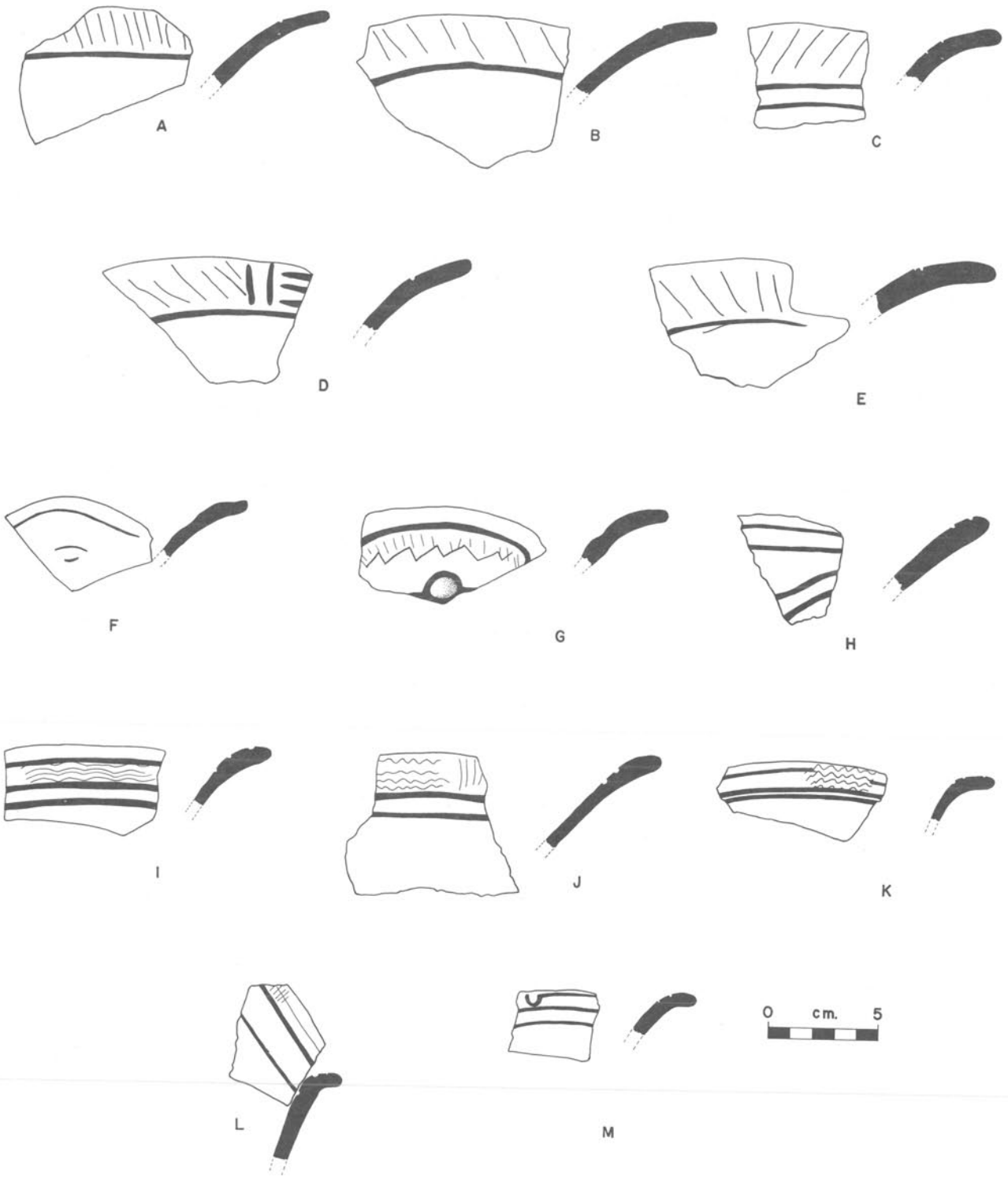

A
B
C
D
E
F
G
H
I
J
K
L
M
0 cm. 5

Plate 2

	Ceramic Classification	Provenience	
		Site number	Bag number
A	068 (G.17)	1A	114
B, F, J	068 (G.17)	1A	120
C	068 (G.17)	1A	84
D	068 (G.17)	28	30
E	068 (G.17)	1A	98
G, I	068 (G.17)	1A	112
H	068 (G.17)	1A	101
K	068 (G.17)	1A	108
L	068 (G.17)	1A	104
M	068 (G.17)	1A	118
N	076	1A	103
O	068 (G.17)	1A	113
P	076	1A	110


A
B
C
D
E
F
G
H
I
J
K
L
0 cm. 5
M
N
O
P

Plate 3

	Ceramic Classification	Provenience	
		Site number	Bag number
A	068 (G.16)	1A	120
B	068 (G.16)	1A	115
C	068 (G.16)	1A	114
D	068 (G.16)	1A	107
E	068 (G.16)	1A	116
F	068 (G.16)	8	28
G	076	1A	107
H	068 (G.17, 18)	1A	107
I	068 (G.16)	1A	104
J	076	1A	98
K	076	1A	104
L	076	1A	119
M	076	1A	115

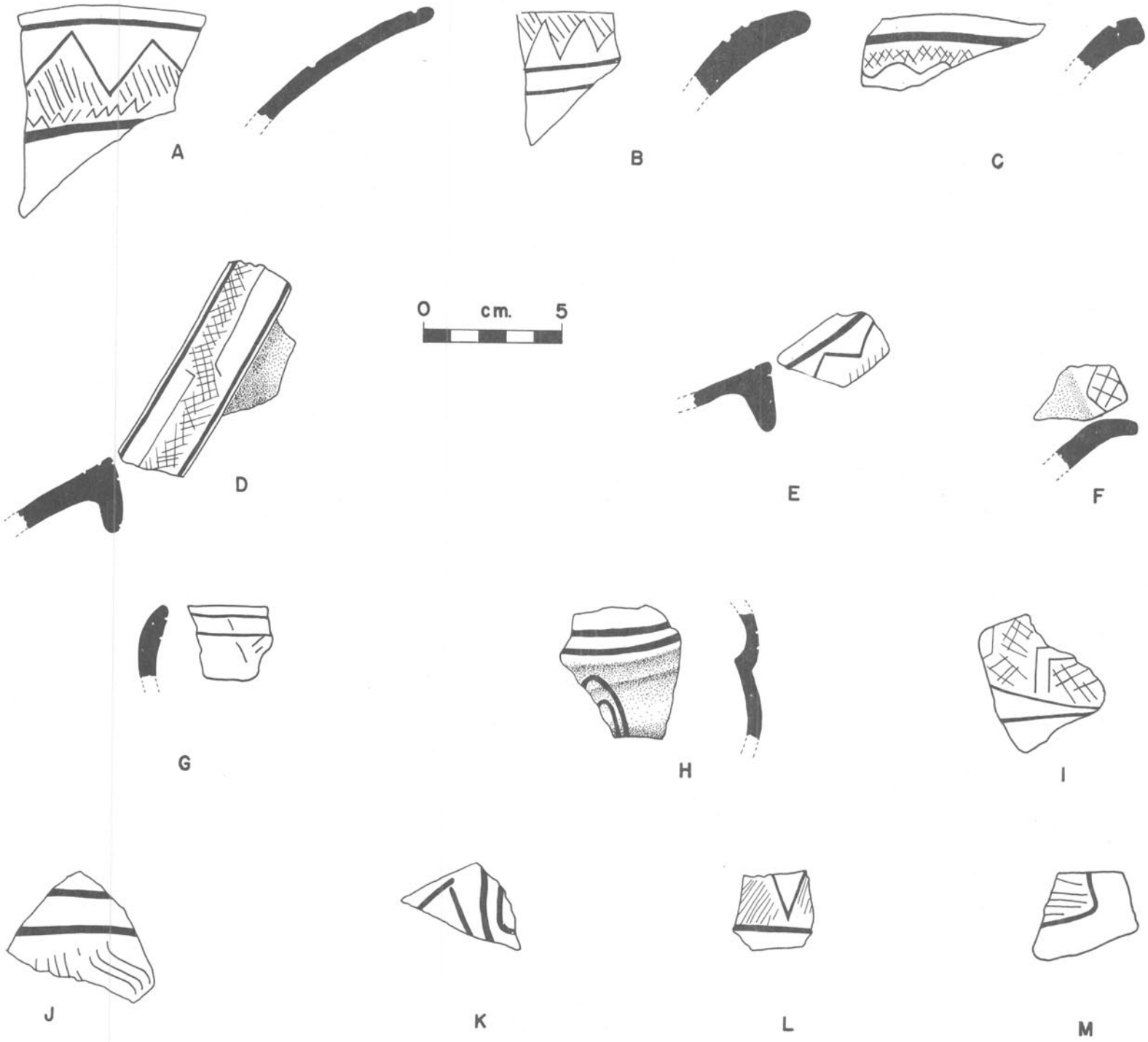

A
B
C
0 cm. 5
D
E
F
G
H
I
J
K
L
M

Plate 4

	Ceramic Classification	Provenience	
		Site number	Bag number
A	090	1A	107, 84, 71 (left-right)
B	083	1A, 1A, 40 (left-right)	101, 113, 60 (left-right)
C	089	1A	107, 98, 104 (left-right)
D	089	1A	109, 69, 119 (left-right)
E	074	401	129
F, I	087	1A	106
G	087	1A	120
H	087	1A	144
J	087	1A	96

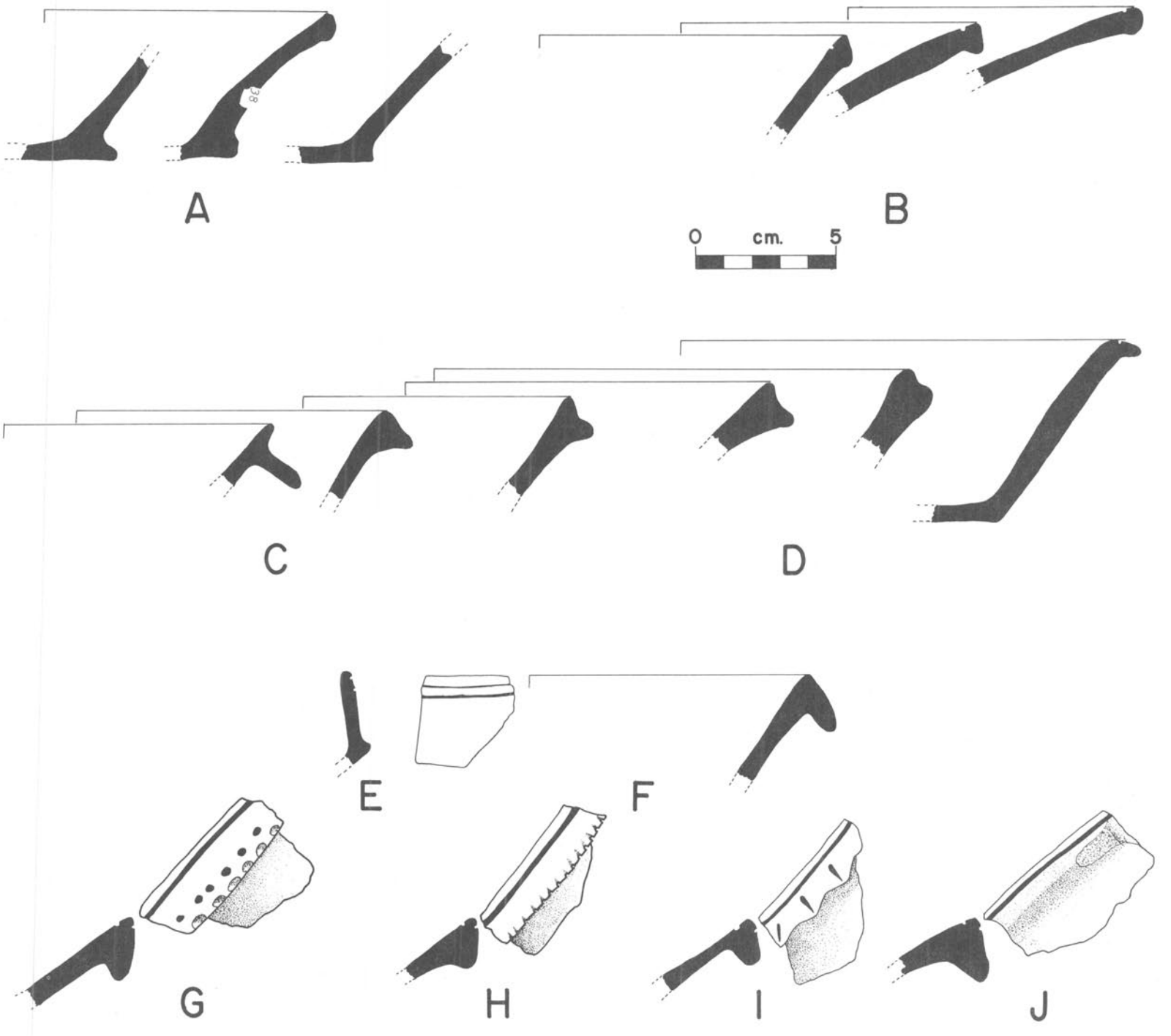

A
B
0 cm. 5
C
D
E
F
G
H
I
J

Plate 5

	Ceramic Classification	Provenience	
		Site number	Bag number
A	078	1A	114
B	086	1A	112
C	078	1A	112
D	086	1A	107
E	086	1A	86
F	086	1A	106
G	086	1A	101
H	078	1A	89
I	086	1A	115
J	066	1A	96, 94, 71 (left-right)
K	079	1A, 401 (left-right)	74, 129 (left-right)
L	085	1A, 201 (left-right)	73, 124 (left-right)
M	085	26, 202 (left-right)	26, 202 (left-right)

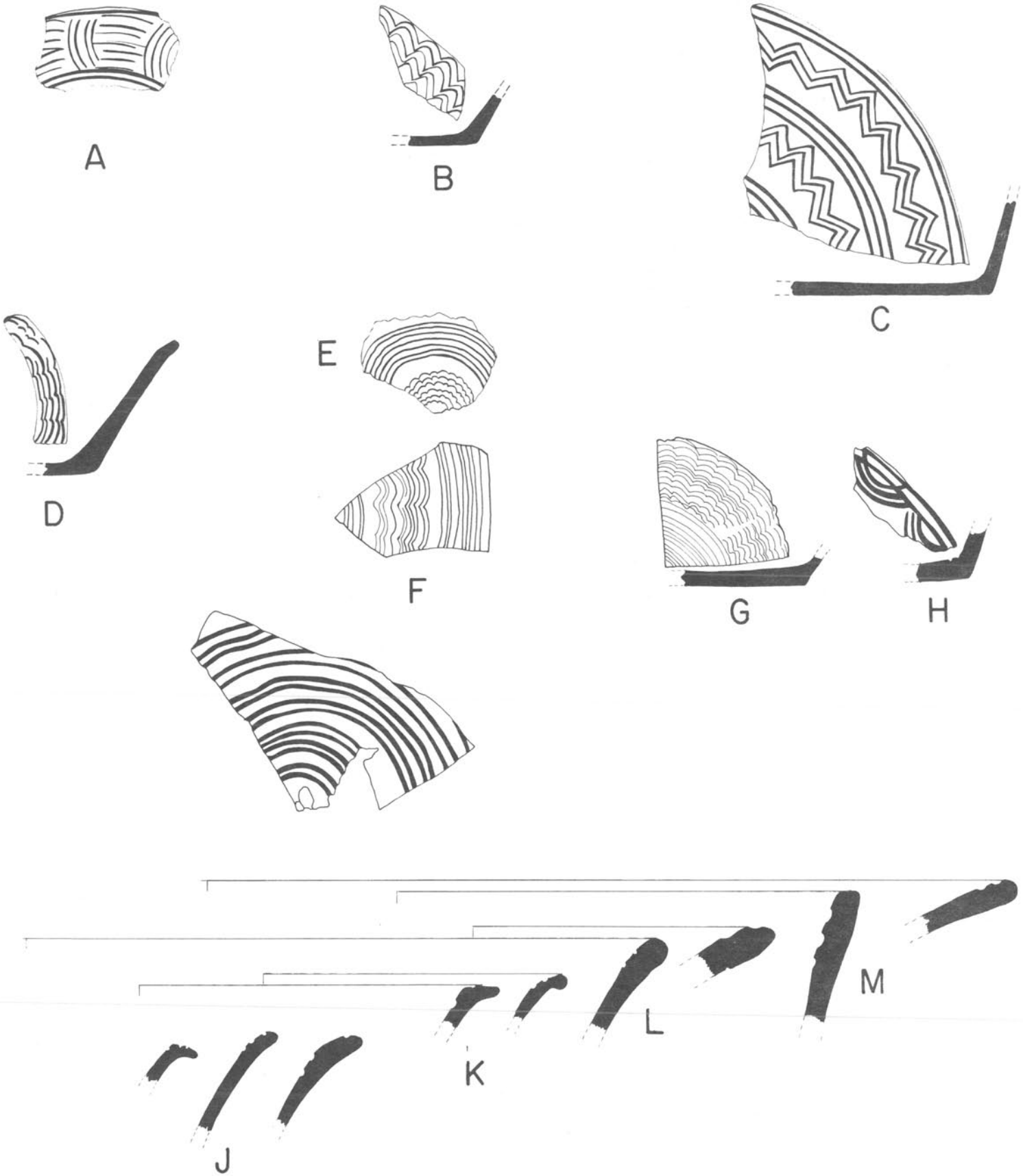

A
B
C
D
E
F
G
H
J
K
L
M

Plate 6

	Ceramic Classification	Provenience	
		Site number	Bag number
A	084, 085	1A	91
B	084	1A	109
C	084	1A	120
D	084	1A	101
E	067	1A	99
F, G	068	1A	110

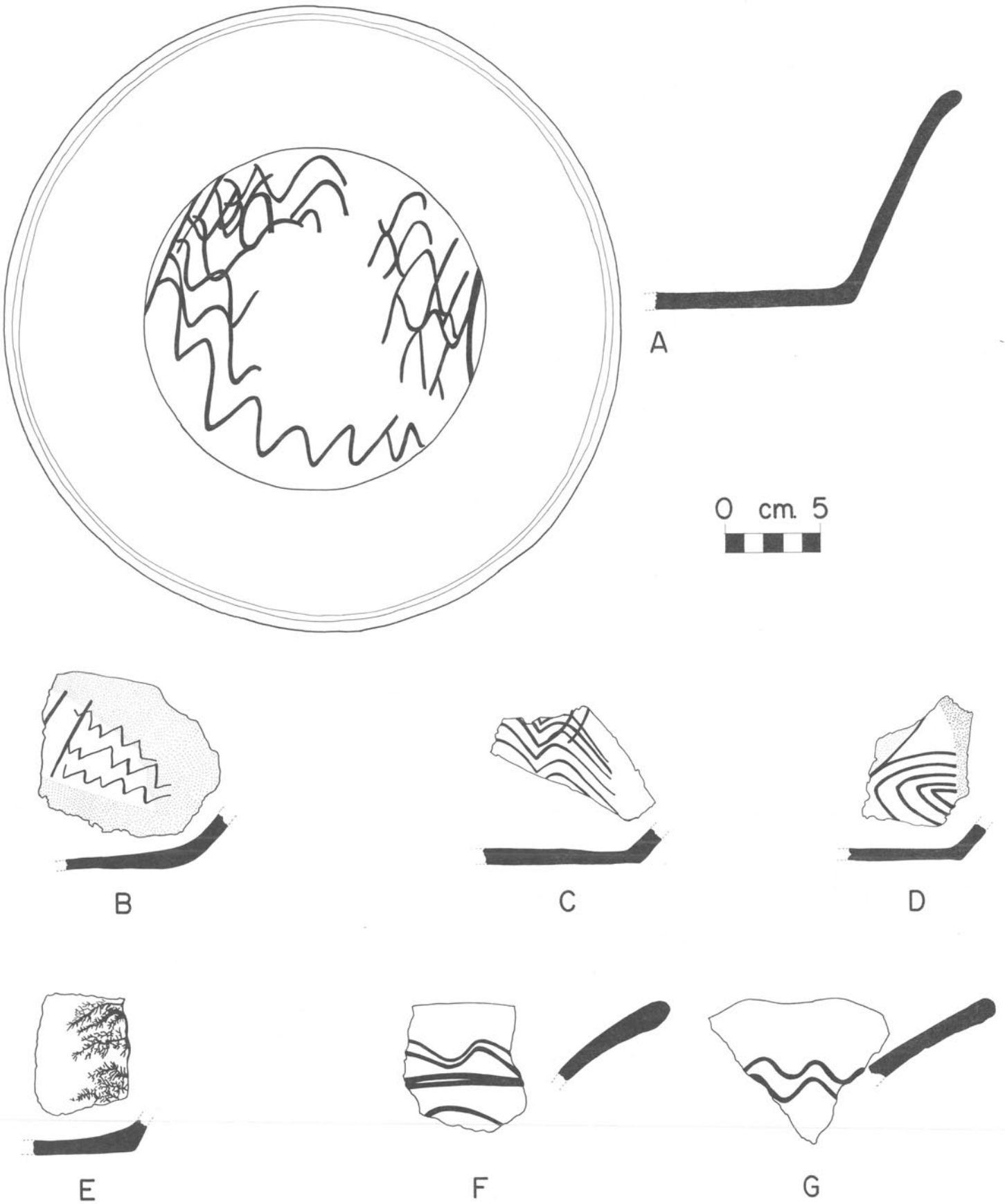

A
0 cm. 5
B
C
D
E
F
G

Plate 7

	Ceramic Classification	Provenience	
		Site number	Bag number
A	076	40	57
B	002	1A	79
C	002	10	52
D	002	6	15
E	002	201	124
F	002	10	7
G	096	38	14
H	099	1A	121
I	099	207	136
J	099	1A	89
K	099	101	45
L	099	40	60
M	099	1A	84
N	099	1A	73
O	099	1A	71
P	001	5	12
Q	001	23	22
R	056	1A	72
S	056	1A	84

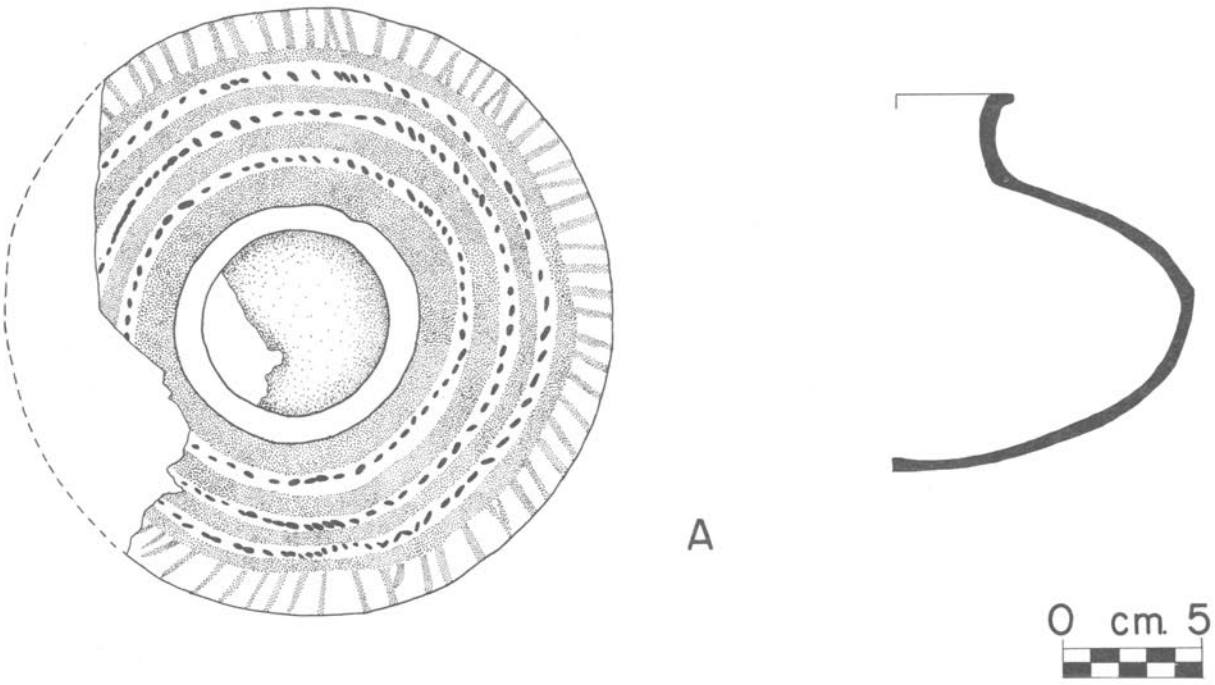

A
0 cm. 5
B
C
D
E
F
G
H I J K L
M N O
P Q
R S

Plate 8

	Ceramic Classification	Provenience	
		Site number	Bag number
A	081	1A, 201, 1A (left-right)	119, 125, 120 (left-right)
B	092	1A, 40 (left-right	86, 60 (left-right)
C	096	24	23
D	098	38	54
E	098	1A	77
F	098	1[illegible]	107
G	098	3[illegible]	33
H	098	1A	73
I	070	1A	107
J	098	1A	77
K	104	1A	71
L	104	3	36
M	055	23	65
N	055	209	142
O	027	1A	71
P	055	1A	98
Q	055	1A	150
R	049	1A	71, 150 (left-right)
S	043	101, 1A (left-right)	46, 71 (left-right)
T	073	1A	107, 101 (left-right)
U	101	23	22
V	072	1A	101
W	016	1A, 1A, 410 (left-right)	71, 89, 129 (left-right)
X	054	1A	74
Y	069	1A	119
Z	088	110	127


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
0 cm. 5
S
T
U
V
W
X
Z

Plate 9

	Ceramic Classification	Provenience	
		Site number	Bag number
A, B, C, D	093	1A	85
E	093	10	53
F	093	1A	84
G	093	206	135
H	093	44	139
I, K	093	1A	150
J	093	1A	144
L	093	1A	66
M	094	203	130
N	094	1A	74
O	094	31	33
P, Q	062	10	53

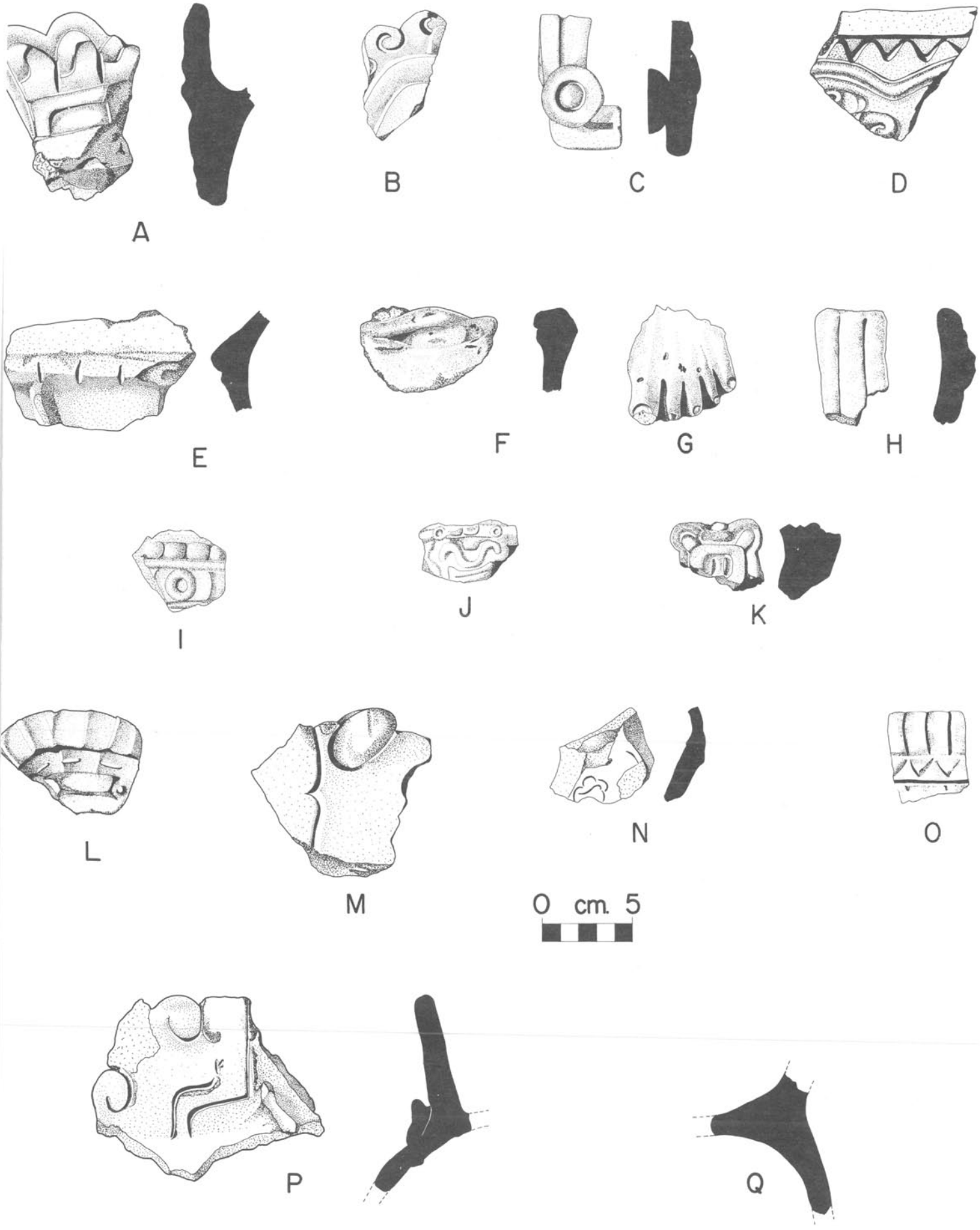

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
0 cm. 5
P
Q

Plate 10

	Ceramic Classification	Provenience	
		Site number	Bag number
A, E	010	10	53
B	010	410	129
C	010	37	42
D	010	1A	77
F	010	1A	82
G, H, K, M	010	10	51
I	010	17	5
J	010	10	7
L	010	39	18

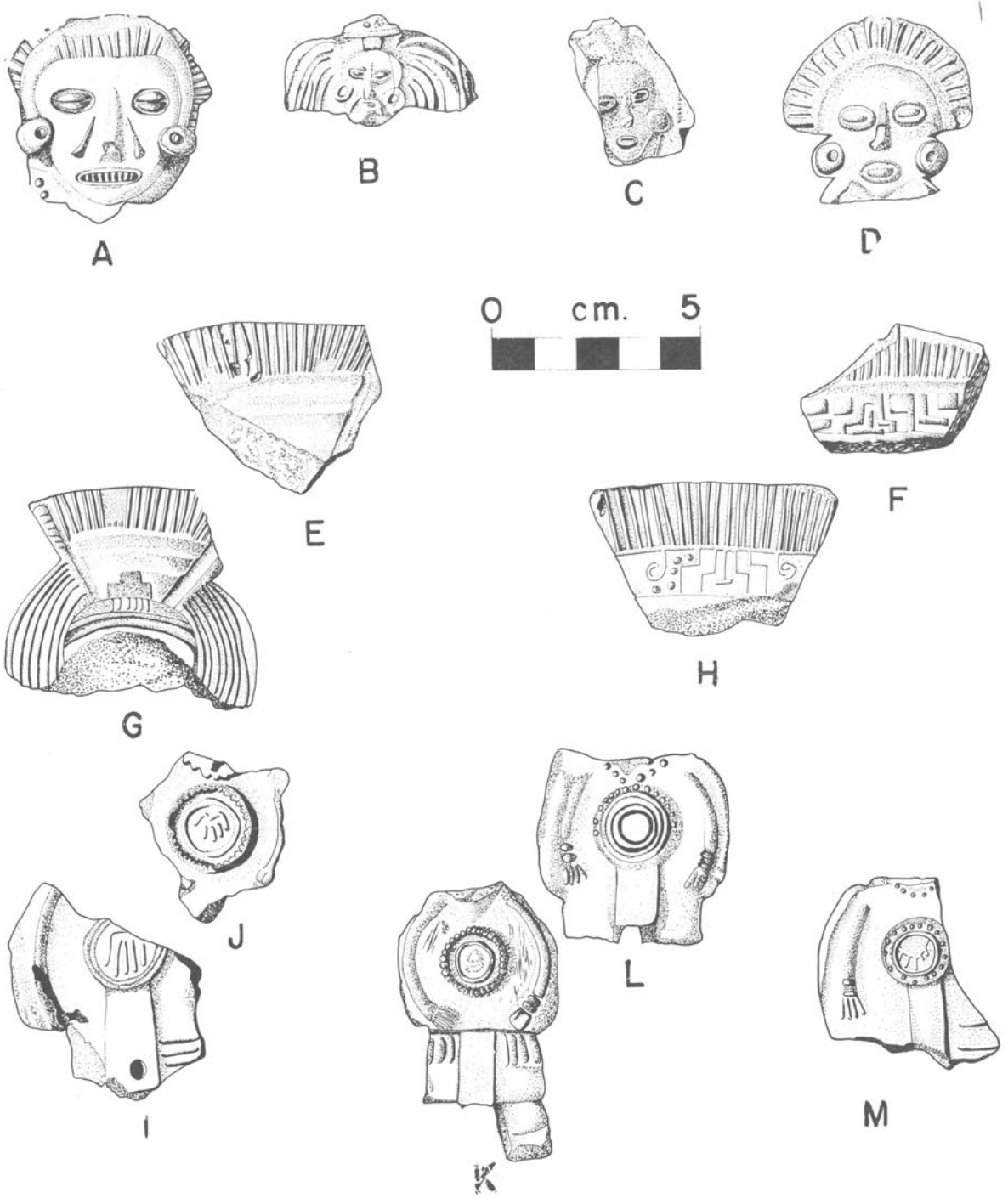

A
B
C
D
0 cm. 5
E
F
G
H
I
J
K
L
M

Plate 11

	Ceramic Classification	Provenience	
		Site number	Bag number
A, O, P	077	40	57
B	018	23	21
C	077	1A	120
D	077	1A	77
E	077	1B	8
F	104	5	12
G	077	1B	10
H	077	25	25
I	077	1A	97
J	104	19	27
K	018	1A	82
L	104	42	67
M	018	20	17
N	077	26	26

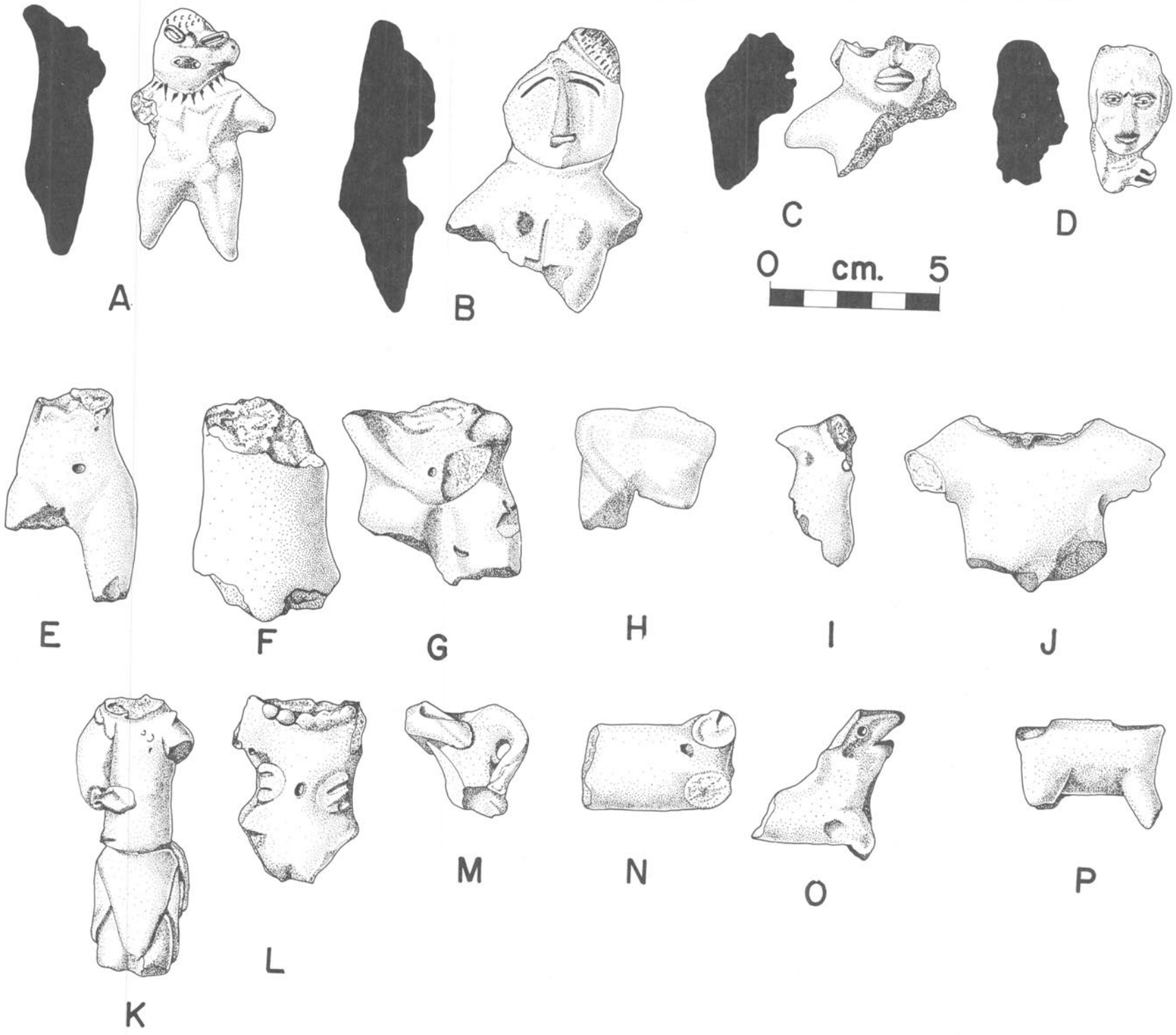

A
B
C
D
0 cm. 5
E
F
G
H
I
J
K
L
M
N
O
P

Plate 12

	Ceramic Classification	Provenience	
		Site number	Bag number
A, B, E, M	017	1A	77
C	017	1A	64
D	017	1A	89
F, H, K	017	1A	82
G	017	1A	88
I	018	1A	149
J	017	204	133
L	010	1A	88

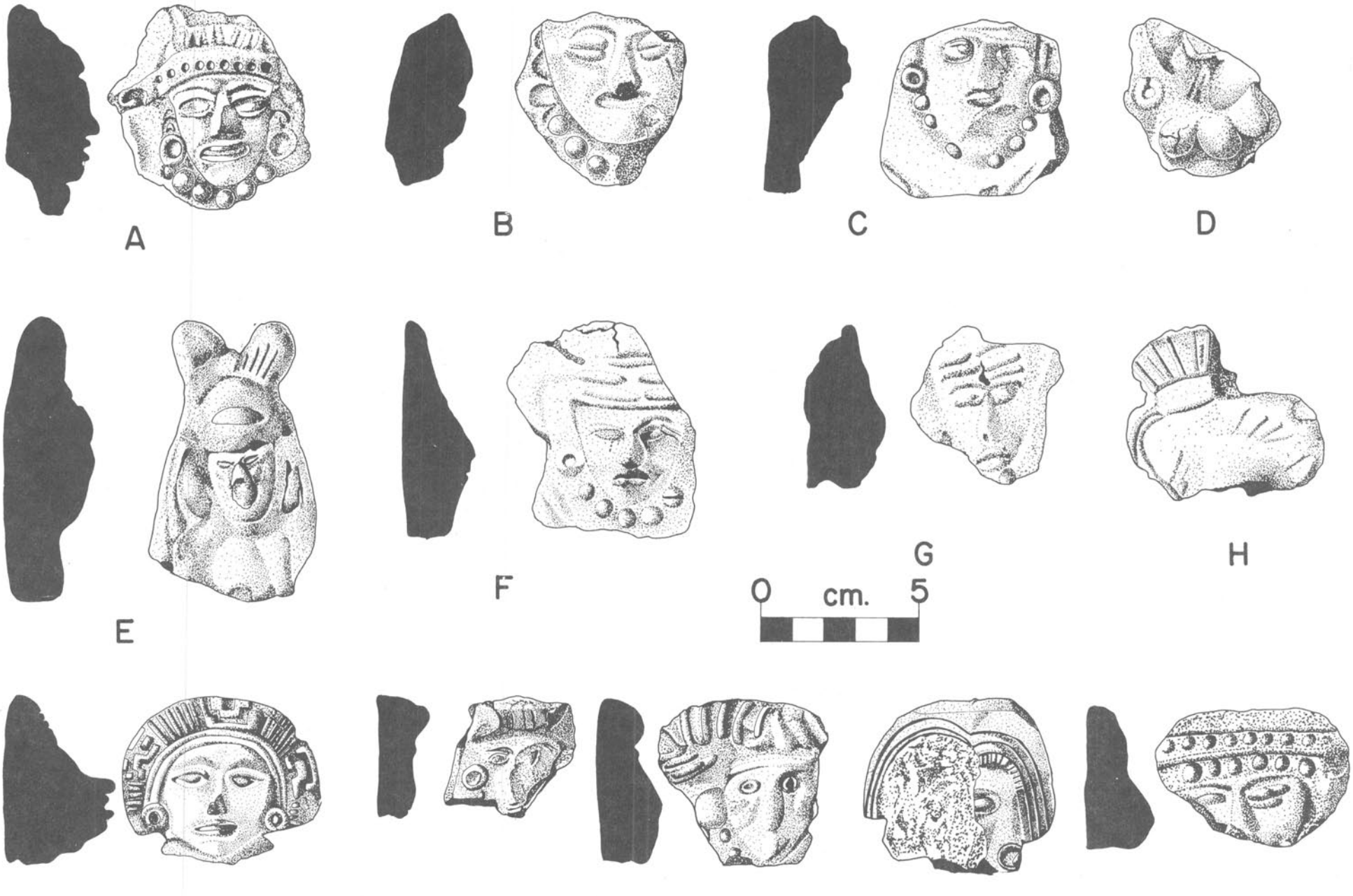

A
B
C
D
E
F
G
H
0 cm. 5
I
J
K
L
M

Plate 13

	Ceramic Classification	Provenience	
		Site number	Bag number
A, I	017	1A	84
B	017	1A	87
C	017	17	5
D	017	1A	71
E	017	1A	146
F, K	017	1A	82
G	017	1A	150
H	018	1A	79
J	017	1A	80
L	017	1A	89

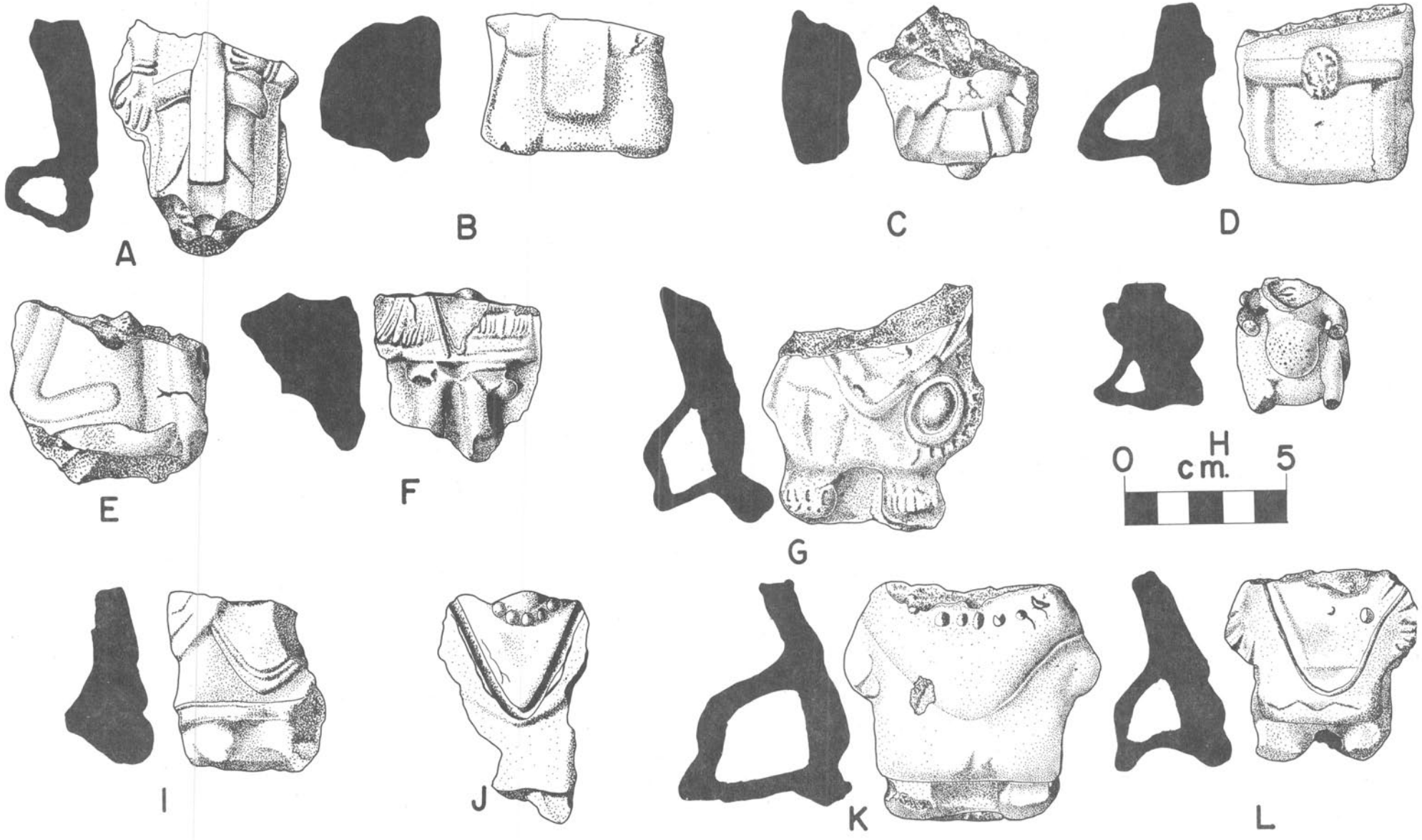

A
B
C
D
E
F
G
H
0 cm. 5
I
J
K
L

Plate 14

	Ceramic Classification	Provenience	
		Site number	Bag number
A	029	40, 40, 38 (top-bottom)	59, 59, 61 (top-bottom)
B	006	17	5
C	030	101	45
D	030	1A, 1B (left-right)	71, 11 (left-right)
E	007	17	5
F	005	1A	93
G	009	17, 10 (left-right)	5, 7 (left-right)
H	097	33	35
I, J	097	38	54
K	014	1A	89
L	044	1A	101, 106 (left-right)
M	051	33, 1A (left-right)	35, 112 (left-right)
N	046	38	54
O, P	051	1A	91
Q	051	40	58

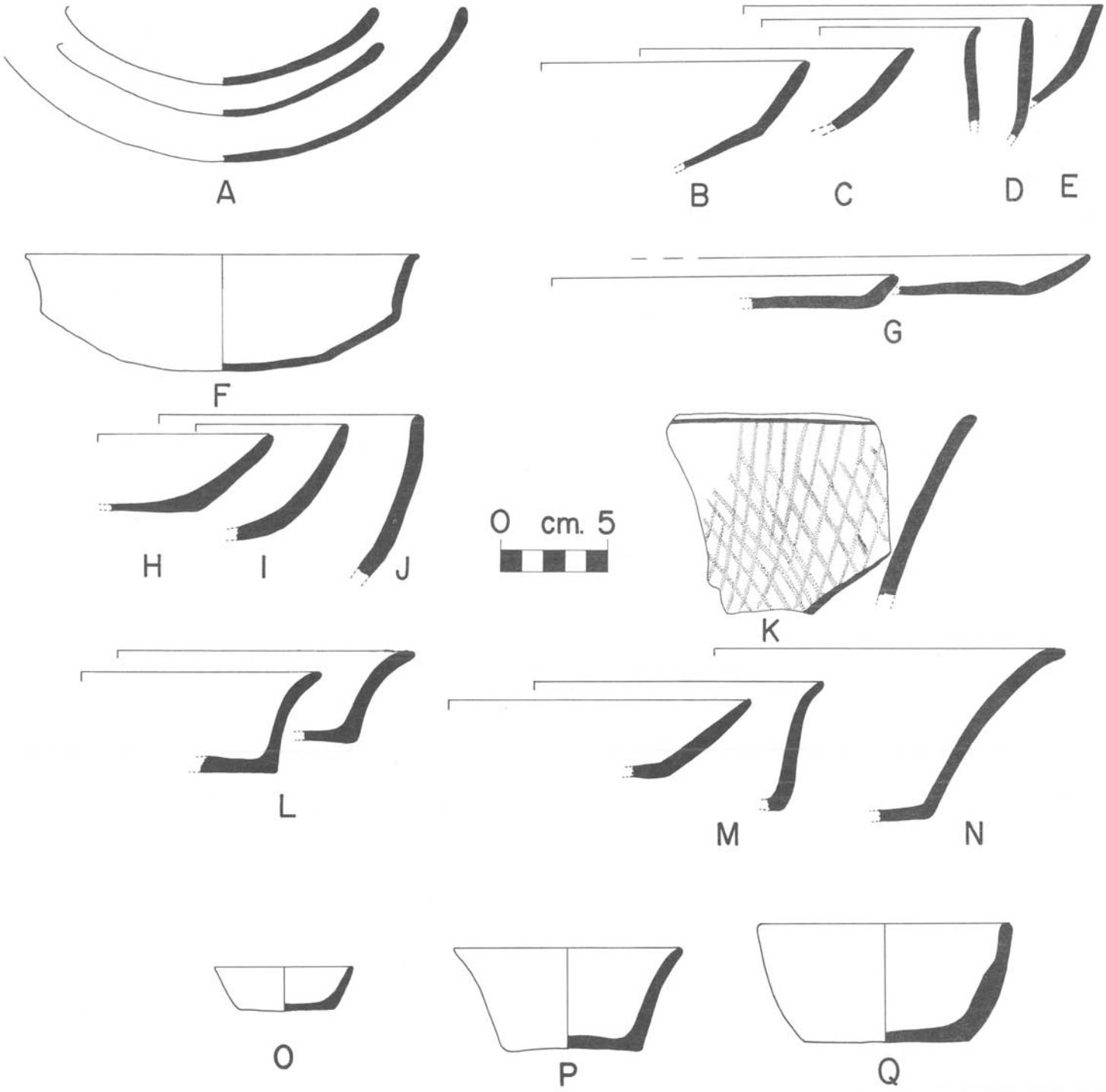

A
B
C
D
E
F
G
H
I
J
0 cm. 5
K
L
M
N
O
P
Q

Plate 15

	Ceramic Classification	Provenience	
		Site number	Bag number
A	013	38	61
B	059	1A	90
C	060	401	129
D	060	201	125
E	059	1A	74
F	059	1B	9
G	059	201	124
H	033	109	126
I	033	1A	144
J	033	42	64
K	102	201	124
L	008	36	41
M	008	42	63
N	058	42	64

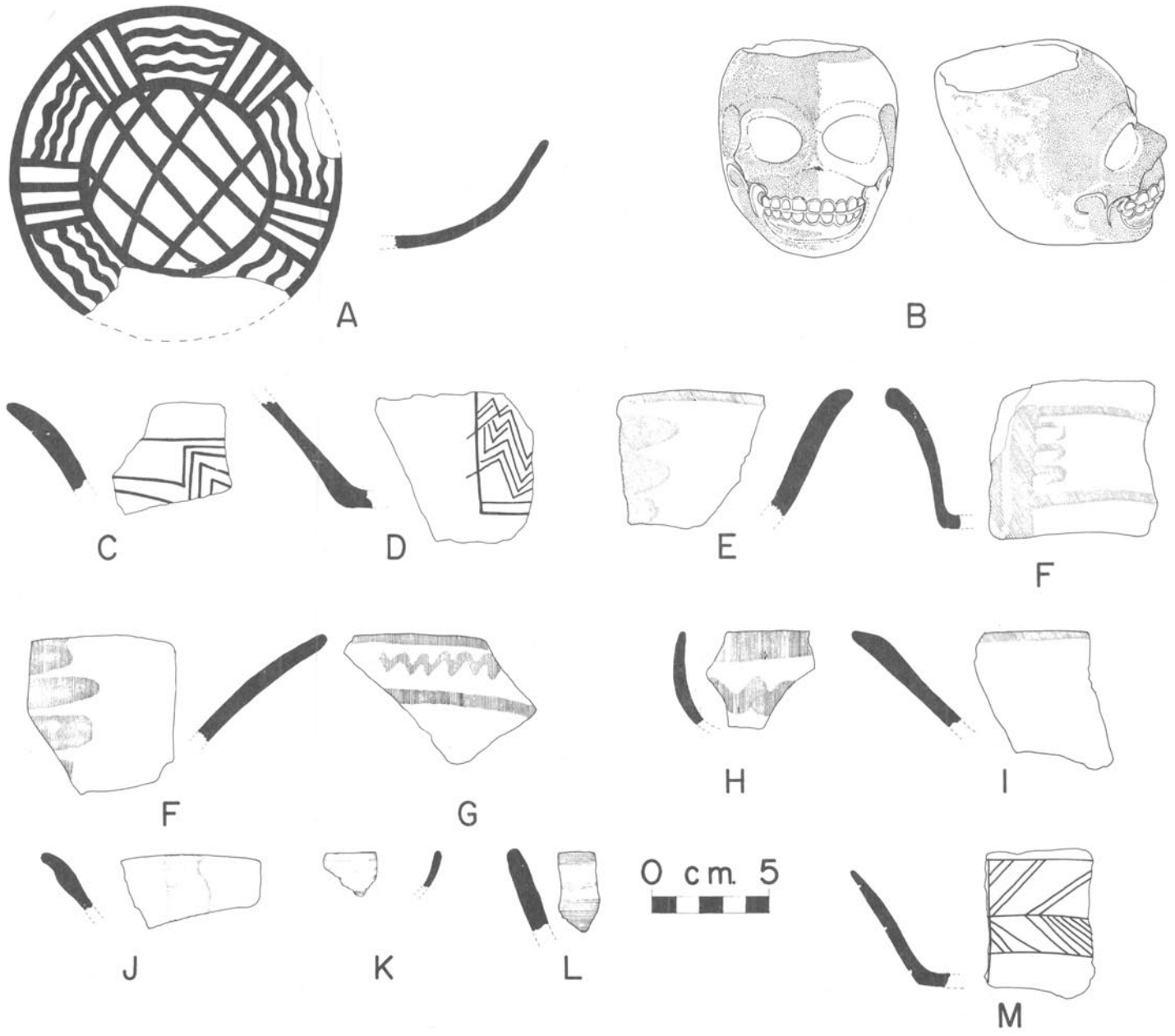

A
B
C
D
E
F
F
G
H
I
J
K
L
0 cm. 5
M

Plate 16

	Ceramic Classification	Provenience	
		Site number	Bag number
A	039	206	135
B, Q	039	1A	71
C	039	109	126
D	039	1A	74
E	039	201	124
F, V	039	1A	150
G	039	1A	69
H	039	1A	143
I	039	1B	10
J	039	7	16
K	039	204	133
L	039	204	144
M	039	1A	85
N, T	039	401	129
O	039	41	62
P, U	039	203	130
R	039	10	51
S	039	23	21

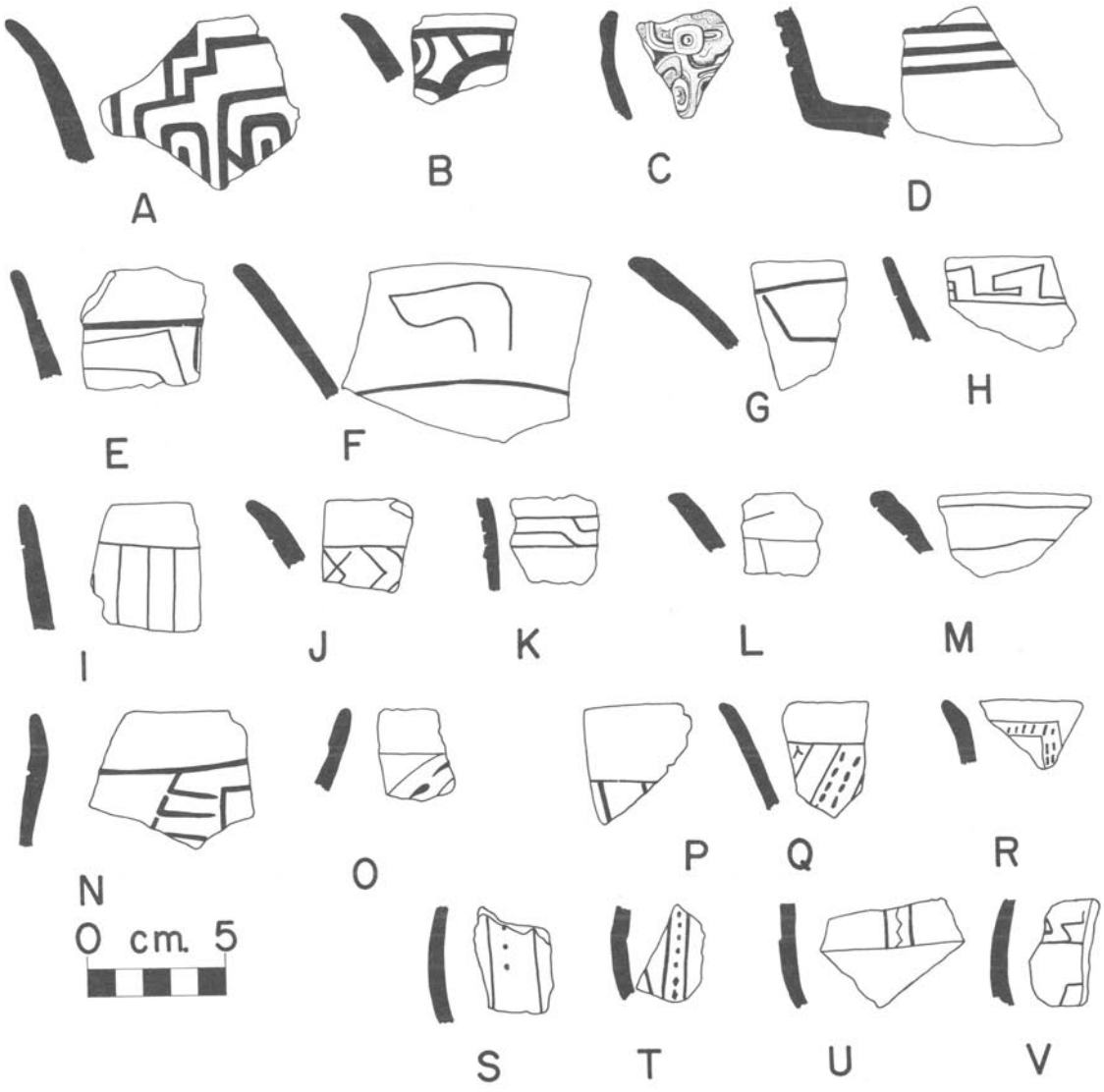

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
0 cm. 5

Plate 17

	Ceramic Classification	Provenience	
		Site number	Bag number
A	045	1A	86
B	035	1A	150
C	036	5	12
D	036	30	32
E	038	1A	87
F	037	1B	9
G, J	040	1A	73
H	040	1A	149
I, O	040	109	126
K	040	10	52
L	040	1A	150
M	040	1A	71
N	040	401	129

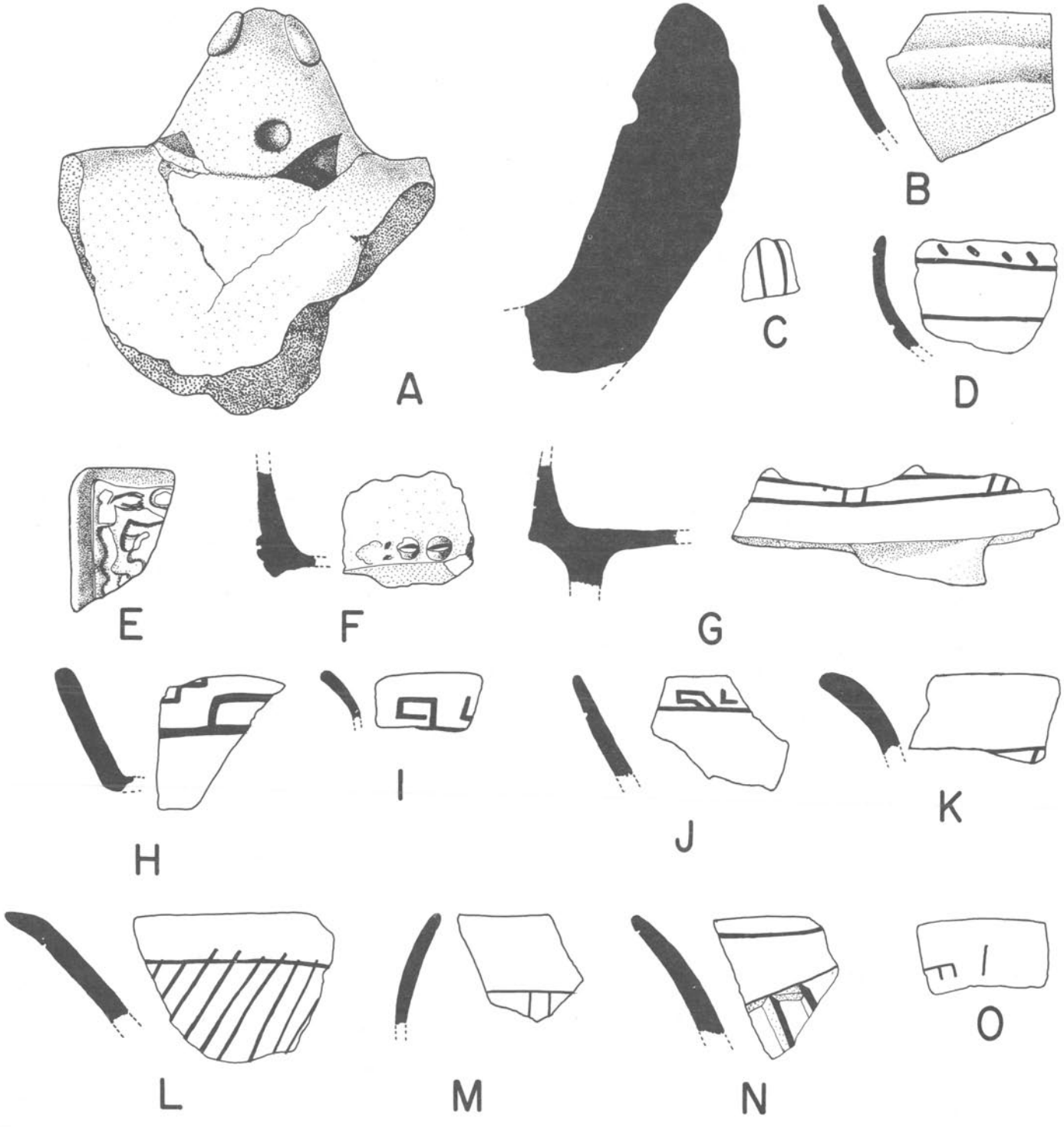

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

Plate 18

	Ceramic Classification	Provenience	
		Site number	Bag number
A	021	8	28
B	021	25	25
C	021	1A	150
D	022	1A	85
E	019	17	5
F	023	1A	69
G	020	17	5
H	034	201	123
I	024	1A	89
J	025	1A	86
K	003	40	59
L, M	003	1A	89
N	004	6	15
O	026	1A	66

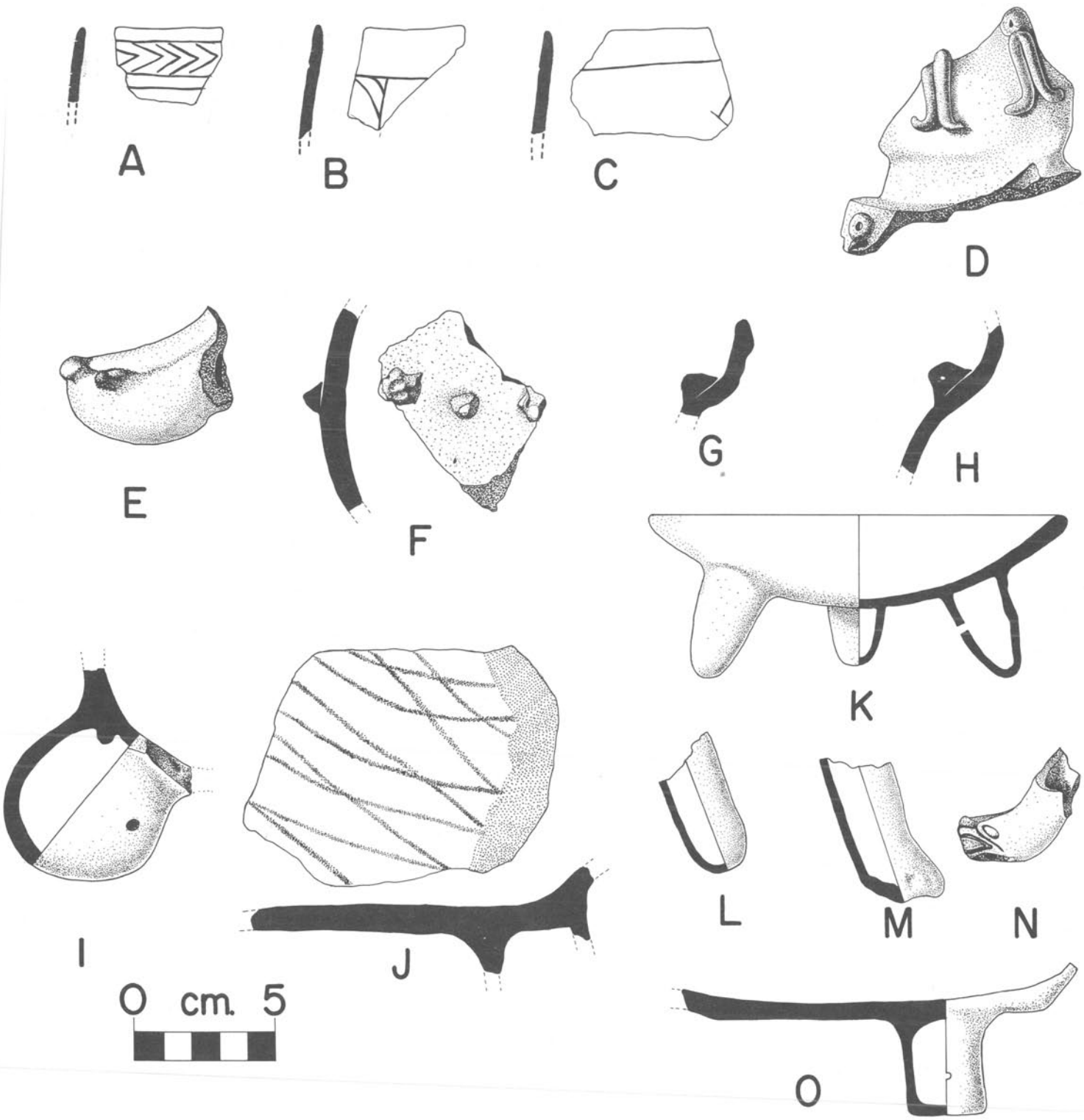

A
B
C
D
E
F
G
H
K
I
J
L
M
N
O
0 cm. 5

Plate 19

	Ceramic Classification	Provenience	
		Site number	Bag number
A	082	19	27
B	082	1A, 23 (left-right)	21, 120 (left-right)
C	057	1A, 104 (left-right)	120, 49 (left-right)
D	071	1A	120
E	071	1A	101
F	071	1A	112
G	073	1A	101
H	091	1A, 39, 1A (left-right)	89, 18, 74 (left-right)
I	104	1A	118
J	075	1A	114
K	075	1A	107
L	075	1A	98
M	065	1A	112
N	065	1A	115
O	065	1A	113
P	065	1A	119
Q	065	1A	106
R	065	1A	108

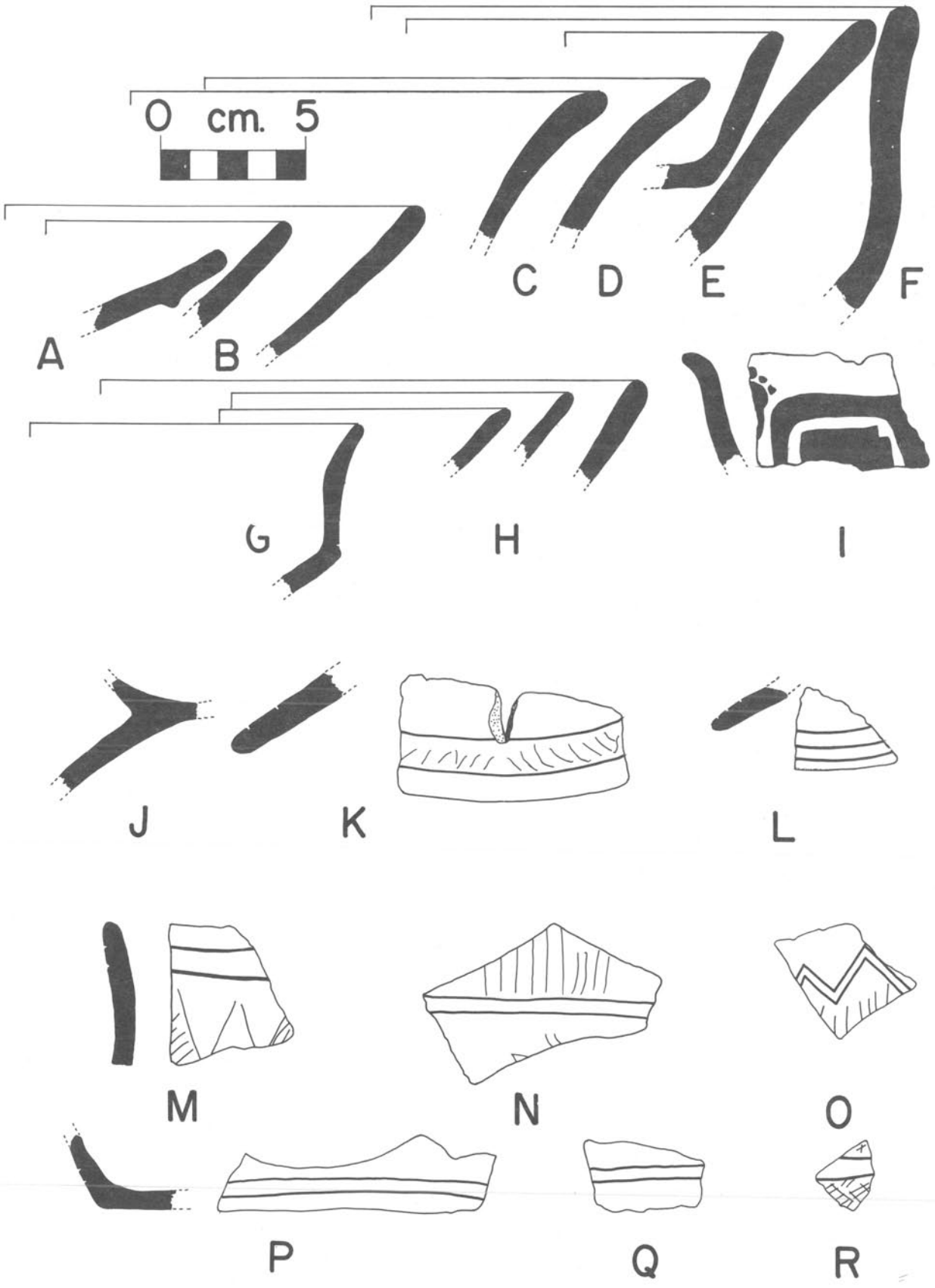

0 cm. 5
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R

Plate 20

	Ceramic Classification	Provenience	
		Site number	Bag number
A	012	207, 1A (left-right)	136, 146 (left-right)
B	015	1A	71
C	050	38, 1A (left-right)	54, 150 (left-right)
D	042	1A	89, 151 (left-right)
E	032	1A	150
F	011	18	6
G	053	1B	8
H	104 (incised; gray paste)	110	127
I	076 (incised; gray paste)	25	25
J	104 (burnished gray; fugitive red paint)	1A	95
K	041	1A	85, 71 (left-right)
L	028	1A	85

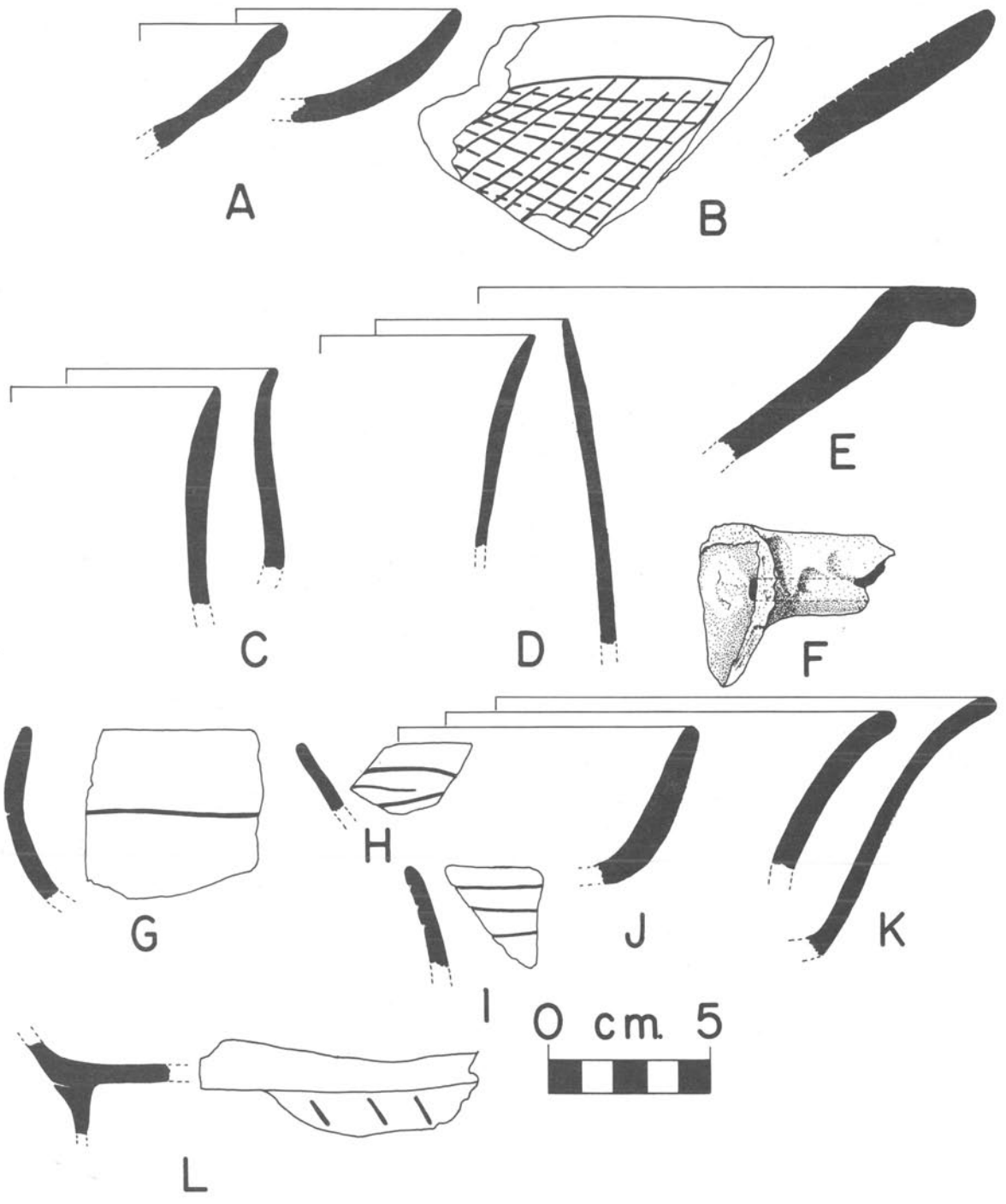

A
B
C
D
E
F
G
H
I
J
K
L
0 cm. 5

Plate 21

	Ceramic Classification	Provenience	
		Site number	Bag number
A	076	1A	71
B	076	1A	150
C	076	1A	101
D	059	301	131
E, H	105	26	26
F	105	1A	85
G	105	1A	94
I	061	1A	107

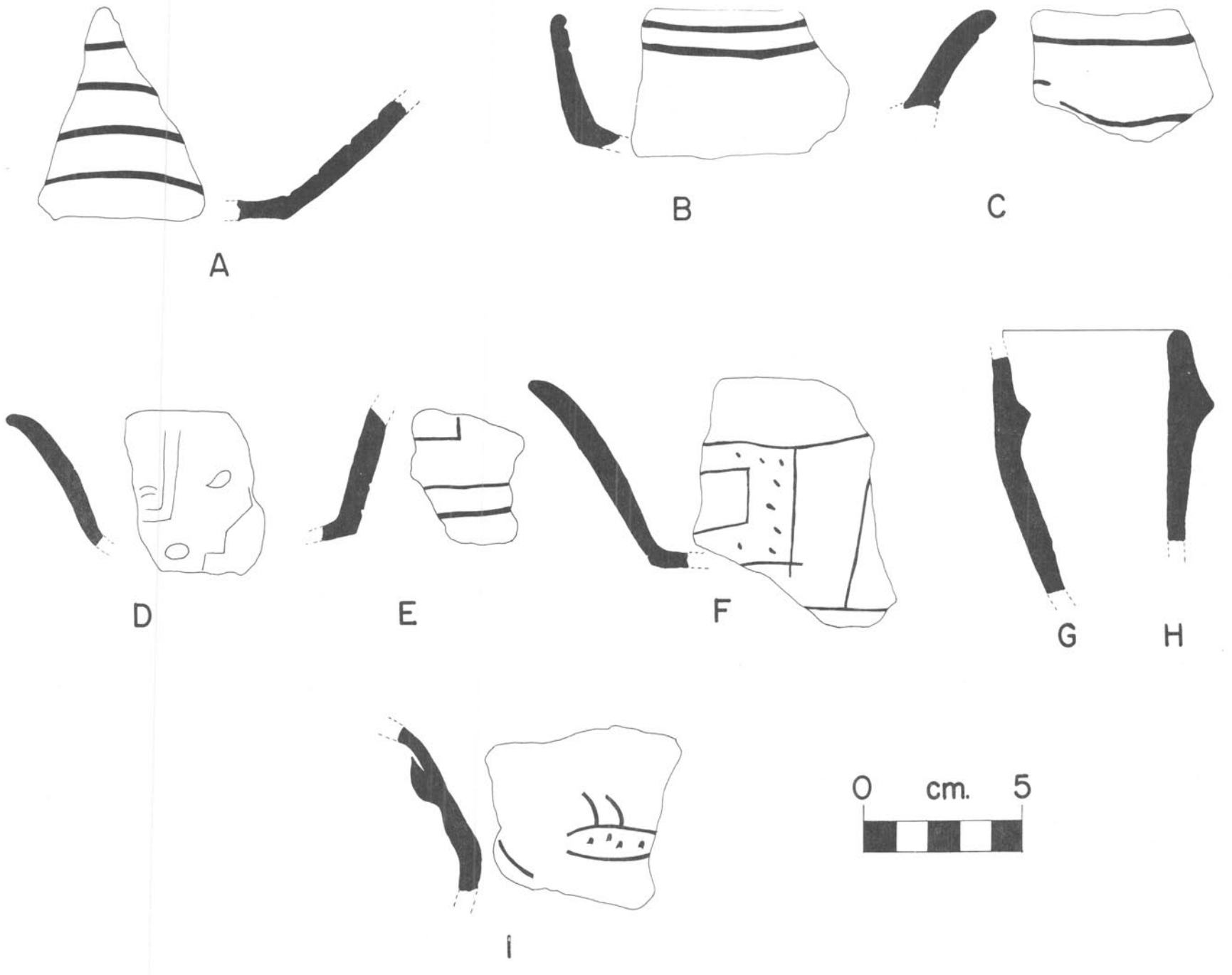
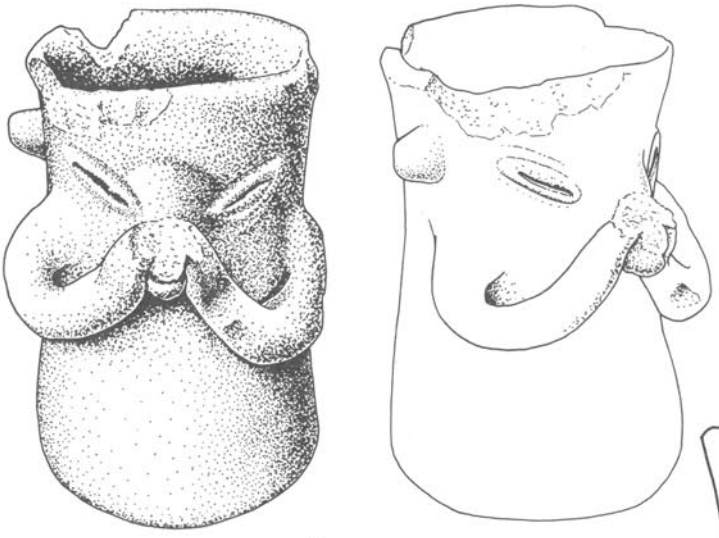

A
B
C
D
E
F
G
H
I
0 cm. 5

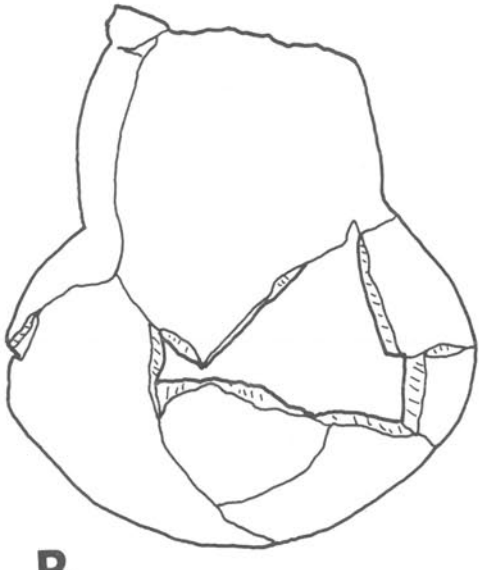
Plate 22

	Ceramic Classification	Provenience		Size*
		Site number	Bag number	
A	061	1A	90	height 12 cm
B	105	1A	90	height 20 cm
C	064	1A	90	height 13 cm
D	063	1A	90	diameter 24 cm

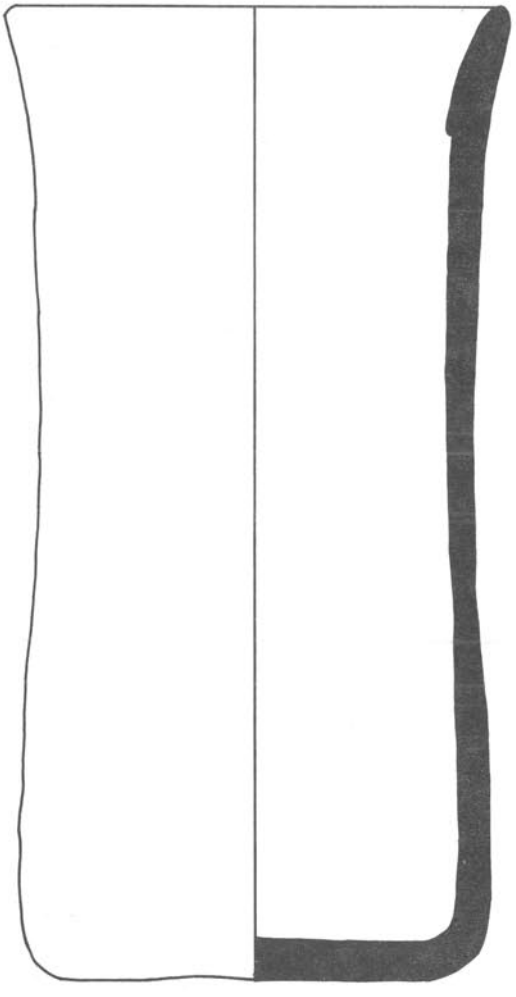
*Items are drawn to different scales.



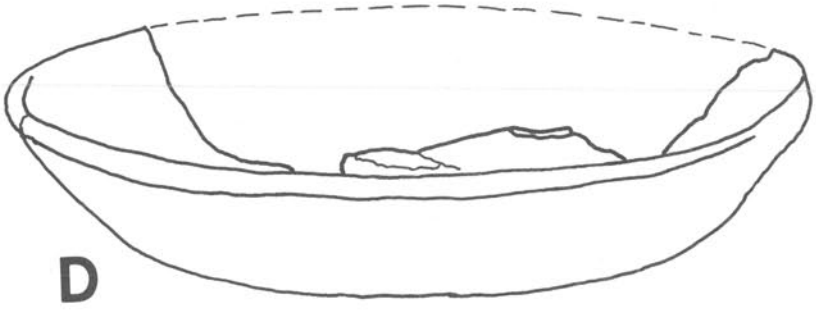
A



B



C

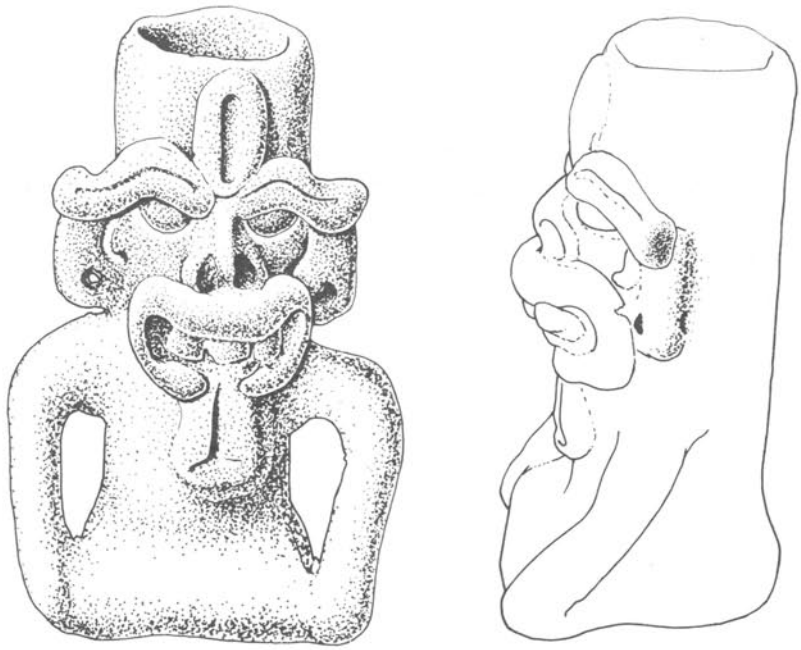


D

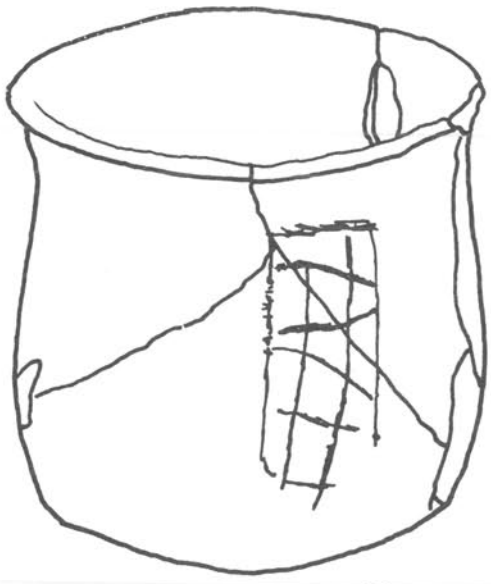
Plate 23

	Ceramic Classification	Provenience		Height*
		Site number	Bag number	
A	076	1A	91	7.5 cm
B	076	1A	91	6.5 cm
C	080	40	58	21.0 cm

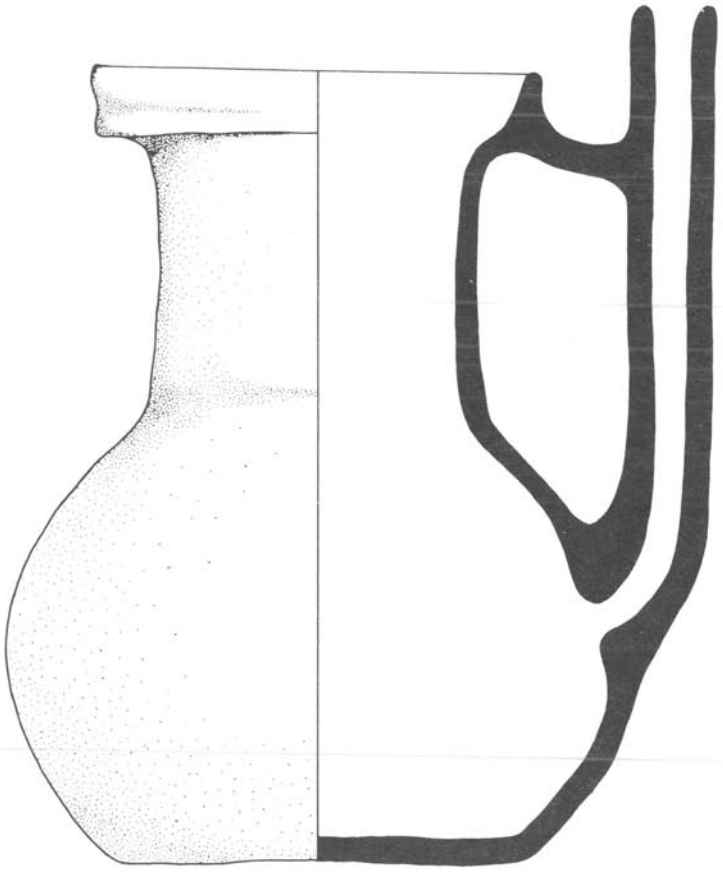
*Items are drawn to different scales.



A



B



C

Plate 24

	Ceramic Classification	Provenience		Size*
		Site number	Bag number	
A	103	40	60	height 13 cm
B	048	38	14	diameter 14.5 cm
C	031	1A	93	length 31 cm

*Items are drawn to different scales.

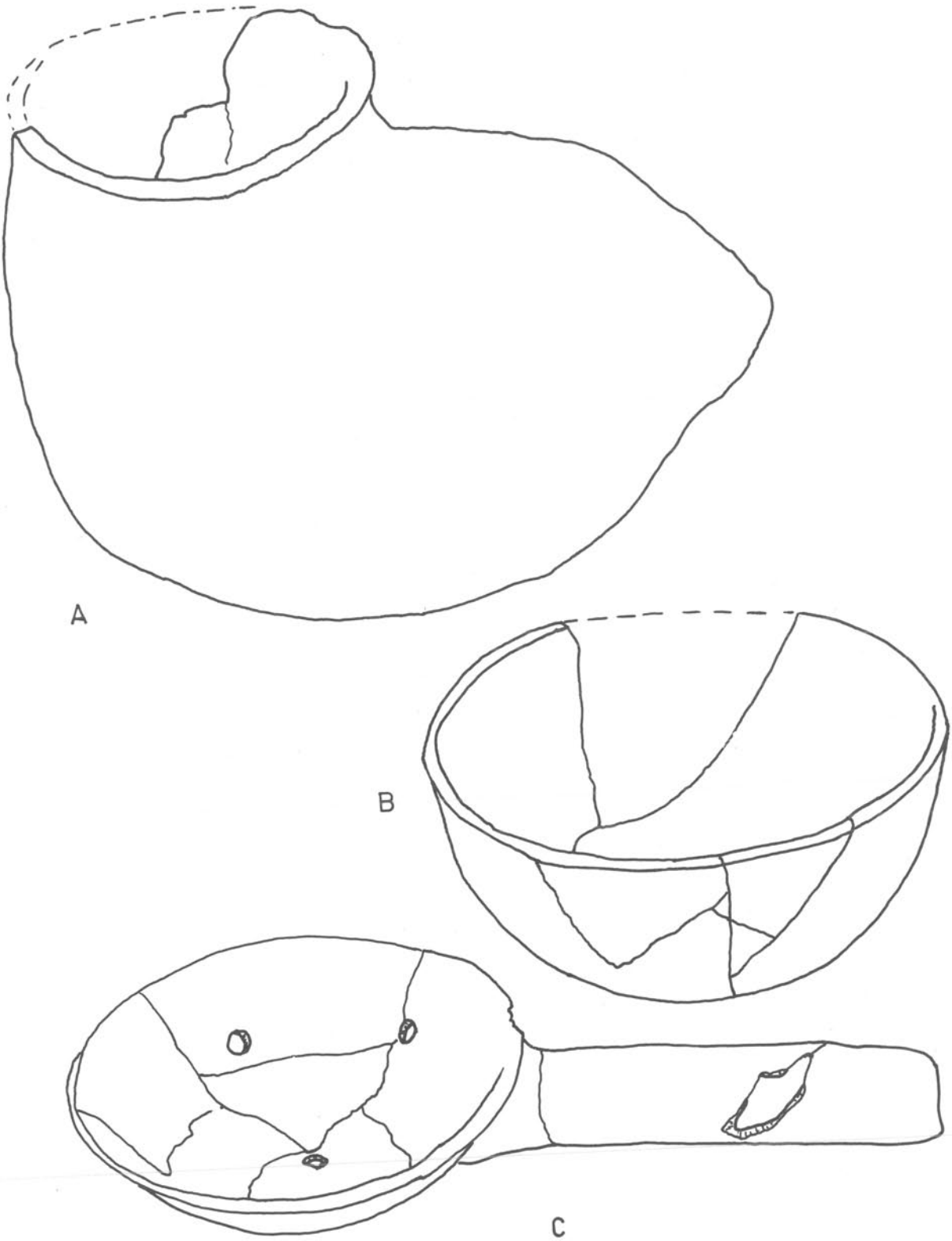
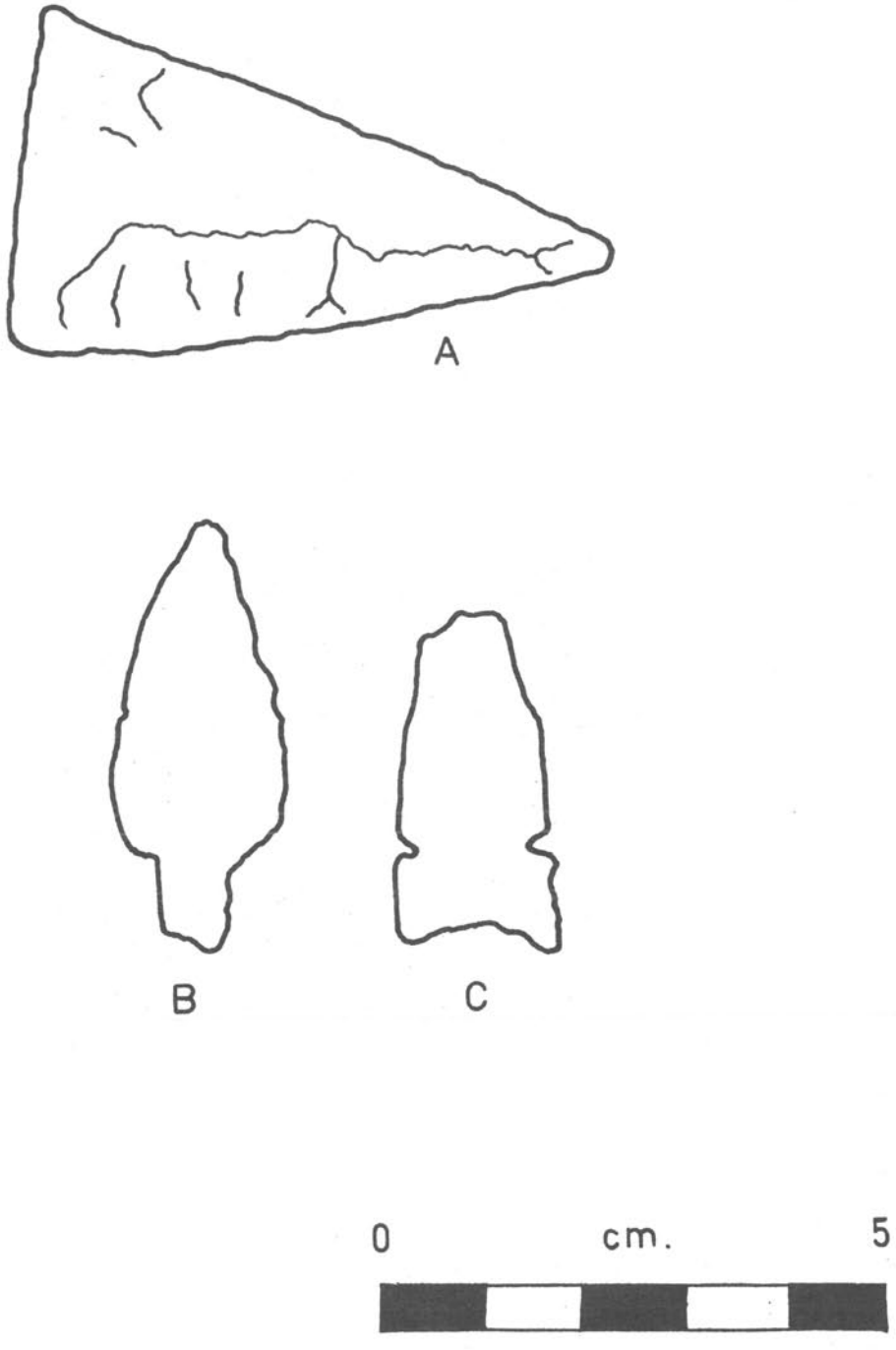

A
B
C

Plate 25

A White chert projectile point; Site 208, Bag 137.

B Stemmed projectile point produced from greenish blue stone with white chert inclusions; Site 201, Bag 124.

C Brown obsidian notched projectile point; Site 201, Bag 124.


A
B
C
0
cm.
5

REFERENCES

Autry, William O., and Marcus C. Winter
1975 Archaeological Salvage at Miahuatlán de Porfirio Diaz: April 1975. Ms. on file, Centro Regional de Oaxaca, Instituto Nacional de Antropología é Historia.

Ball, Hugh G. and Donald L. Brockington
1978 Trade and Travel in Prehispanic Oaxaca. In Mesoamerican Communication Routes and Cultural Contacts, edited by Thomas A. Lee, Jr. and Carlos Navarette, pp. 107-114. Papers of the New World Archaeological Foundation 40.

Bernal, Ignacio
1965 Archaeological Synthesis of Oaxaca. In Handbook of Middle American Indians (Vol. 3, Part 2), edited by Gordon Willey, pp. 788-813. University of Texas Press, Austin.

Bernal, Ignacio, and Lorenzo Gamio
1974 Yagul: el Palacio de los Seis Patios. Instituto de Investigaciones Antropológicas, Mexico.

Berry, Brian J. L.
1961 City Size Distributions and Economic Development. Economic Development and Culture Change 9:573-587.

1971 The Passing of Central Place Theory. In Special report ETL-SR-71-1: Research Institute Lectures on Geography, edited by Roger A. Leestma. U.S. Army Engineers Topographic Laboratories, Fort Belvoir, Virginia.

Berry, Brian J. L., and William L. Garrison
1958 Alternative Explanations of Urban Rank-Size Relationships. Annals of the Association of American Geographers 48:83-91.

Blanton, Richard E.
1972 Prehistoric Settlement Patterns of the Ixtapalapa Peninsula Region, Mexico. Occasional papers in anthropology, Pennsylvania State University 6.

1978 Monte Albán: Settlement Patterns at the Ancient Zapotec Capital. Academic Press, New York.

Blanton, Richard E., Jill Appel, Laura Finsten, Steve Kowalewski, Gary Feinman, and Eva Fisch
1979 Regional Evolution in the Valley of Oaxaca, Mexico. Journal of Field Archaeology 6:369-390.

Borhegyi, Stephen F.
1951a A Study of Three-Pronged Incense Burners from Guatemala and Adjacent Areas. Notes on Middle American Archaeology and Ethnology 4(101): 100-124.

1951b Further Notes on Three-Pronged Incense Burners and Rim Head Vessels in Guatemala. Notes on Middle American Archaeology and Ethnology 4(105): 162-176.

Brockington, Donald L.
1966 The Archaeological Sequence from Sipolite, Oaxaca, Mexico. Society for American Archaeology, Archives of Archaeology 28.

1973 Archaeological Investigations at Miahuatlan, Oaxaca. Vanderbilt University Publications in Anthropology 7.

Caso, Alfonso
1947 Calendario y Escrituras de las Antiguas Culturas de Monte Albán. In Obras completas de Miguel Othón de Mendizábal (Tomo 1), pp. 115-143. N.p., Mexico.

Caso, Alfonso, and Ignacio Bernal
1952 Urnas de Oaxaca. Instituto Nacional de Antropología é Historia, Mexico.

Caso, Alfonso, Ignacio Bernal, and Jorge R. Acosta
1967 La Cerámica de Monte Albán. Instituto Nacional de Antropología é Historia, Memorias 13. (Cited as CBA.)

CBA
See Caso, Bernal, and Acosta (1967).

Chadwick, Robert
1970 The Tombs of Monte Alban I Style at Yagul. In Ancient Oaxaca, edited by John Paddock, pp. 245-255. Stanford University Press, Stanford.

Christaller, Valter
1966 Central Places in Southern Germany. Translated by Carlisle W. Baskin. Prentice Hall, Englewood Cliffs. (Originally published as Die Zentralen Orte in Suddeutschland, 1933.)

Coe, Michael D.
1968 San Lorenzo and the Olmec Civilization. In Dumbarton Oaks Conference on the Olmec, edited by Elizabeth P. Benson, pp. 41-78. Dumbarton Oaks, Washington, D.C.

Crumley, Carole L.
1976 Toward a Locational Definition of State Systems of Settlement. American Anthropologist 78:59-73.

1979 Three Locational Models: an Epistemological Assessment. In Advances in Archaeological Method and Theory (vol. 2), edited by Michael B. Shiffer, pp. 141-173. Academic Press, New York.

Dixon, Keith A.
1958 Two Masterpieces of Middle American Bone Sculpture. American Antiquity 24:53-62.

Flannery, Kent V.
1968 The Olmec and the Valley of Oaxaca: A Model for Inter-Regional Interaction in Formative Times. In Dumbarton Oaks Conference on the Olmec, edited by Elizabeth Benson, pp. 79-100. Dumbarton Oaks Research Library, Washington, D.C.

Flannery, Kent V., Anne V. Kirkby, Michael J. Kirkby, and Aubrey W. Williams
1967 Farming Systems and Political Growth in Ancient Oaxaca, Mexico. Science 158:445-454.

Flannery, Kent V., and Joyce Marcus
1976 Formative Oaxaca and the Zapotec Cosmos. American Scientist 64:374-383.

Garner, B. J.
1967 Models in Geography and Settlement Location. In Models in Geography, edited by Richard J. Chorley and Peter Haggett, pp. 303-360. Mathuen, London.

Gerhard, Peter
1972 A Guide to the Historic Geography of New Spain. Cambridge University Press, London.

Glaxiola, Margarita
1976 Las Excavaciones en San Martín Huamelulpan, Oaxaca, 1975. Unpublished thesis, Escuela Nacional de Antropología é Historia.

Grosscup, Gordon L.
1961 A Sequence of Figurines from West Mexico. American Antiquity 26:390-406.

Hirth, Kenneth G.
1974 Precolumbian Population Development Along the Rio Amatzinac: The Formative through Classic Periods in Eastern Morelos, Mexico. Ph.D. dissertation, University of Wisconsin, Milwaukee. University microfilms, Ann Arbor.

Jacobs, Jane
1969 The Economy of Cities. Random House, New York.

Jorrín, María
In preparation Figurines and Minor Ceramic Objects. Oaxaca Coast Project Reports, part 3. Vanderbilt University Publications in Anthropology.

Judge, W. James, James I. Ebert, and Robert K. Hitchcock
1975 Sampling in Regional Archaeological Survey. In Sampling in Archaeology, edited by James W. Mueller, pp. 82-123. The University of Arizona Press, Tucson.

Kowalewski, Stephen
1976 Prehispanic Settlement Patterns of the Central Part of the Valley of Oaxaca, Mexico. Ph.D. dissertation, University of Arizona. University Microfilms, Ann Arbor.

Leigh, Howard
1970 The Evolution of the Zapotec Glyph C. In Ancient Oaxaca, edited by John Paddock, pp. 256-269. Stanford University Press, Stanford.

Long, Robert
1973 The Late Classic and Early Postclassic Ceramics from the Eastern Portion of the Oaxaca Coast. Unpublished M.A. thesis, Department of Anthropology, University of North Carolina at Chapel Hill.

MacNeish, Richard S.
1972 Summary of the Cultural Sequence and Its Implications in the Tehuacan Valley. In The Prehistory of the Tehuacan Valley (vol. 5), edited by Richard S. MacNeish, pp. 496-506. University of Texas Press, Austin.

MacNeish, Richard S., Frederick A. Peterson, and James A. Neely
1972 The Archaeological Reconnaissance. In The Prehistory of the Tehuacan Valley (vol. 5), edited by Richard S. MacNeish, pp. 341-495. University of Texas Press, Austin.

Marcus, Joyce
1976 The Iconography of Militarism at Monte Albán and Neighboring Sites in the Valley of Oaxaca. In Origins of Religious Art and Iconography in Preclassic Mesoamerica, edited by H. B. Nicholson, pp. 123-139. Latin American Center, University of California, Los Angeles.

1980 Zapotec Writing. Scientific American 242:50-64.

Meighan, Clement W.
1976 The Archaeology of Amapa, Nayarit. Institute of Archaeology, University of California, Los Angeles.

Munsell Color Company
1971 Munsell Soil Color Charts. Munsell Color Company, Baltimore.

Neely, James A.
1967 Organización Hidráulica y Systemas de Irrigación Prehistóricos en el Valle de Oaxaca. Boletín 27:15-17.

North, Douglass C.
1955 Location Theory and Regional Economic Growth. Journal of Political Economy 63:243-258.

Paddock, John
1957 The 1956 Season at Yagul. Mesoamerican Notes 5:13-36.

1970 Oaxaca in Ancient Mesoamerica. In Ancient Oaxaca, edited by John Paddock, pp. 83-242. Stanford University Press, Stanford.

1977 Mesoamerica Is Not the Valley of Mexico. University of the Americas, Santa Catarina Martir, Puebla, Mexico.

Paddock, John, Joseph R. Mogor, and Michael D. Lind
1968 Lambityeco Tomb 2: A Preliminary Report. Boletín de Estudios Oaxaqueños 25.

Parsons, Jeffrey R.
1971 Prehistoric Settlement Patterns in the Texcoco Region, Mexico. Memoirs of the Museum of Anthropology, University of Michigan 3.

Paso y Troncoso, Francisco del (editor)
1905 Relaciones Geográficas de la Diocesís de Oaxaca. Papeles de Nueva España (Segunda serie, Tomo 4). Sucesores de Rivadeneyra, Madrid.

Peterson, David
1976 Salt Production at Lambityeco. Ph.D. dissertation, State University of New York, Binghamton.

Rabin, E.
1970 The Lambityeco Friezes: Notes on Their Content. Boletín de Estudios Oaxaqueños 33.

Rendón, Juan José
1967 Relaciones Internas de las Lenguas de la Familia Zapoteco-Chatino. Anales de Antropología 4:187-190.

Rojas, Basilio
1961 Miahuatlán, un Pueblo de Mexico. N.p., Mexico.

Scott, John F.
1978 The Danzantes of Monte Alban: Part 1. Dumbarton Oaks, Washington, D.C.

Smith, C. Earle, Jr.
1978 The Vegetational History of the Oaxaca Valley. In Prehistory and Human Ecology of Oaxaca, edited by Kent V. Flannery and Richard E. Blanton. Memoirs of the Museum of Anthropology, University of Michigan 10.

Spores, Ronald
1972 An Archaeological Settlement Survey of the Nochixtlan Valley, Oaxaca. Vanderbilt University Publications in Anthropology 1.

Vapñarsky, Cesar A.
1975 The Argentine System of Cities: Primacy and Rank-Size Rule. In Urbanization in Latin America: Approaches and Issues, edited by Jorge E. Hardoy, pp. 369-390. Anchor Press, Garden City, New York.

Varner, Dudley
1974 Prehispanic Settlement Patterns in the Valley of Oaxaca, Mexico. Ph.D. dissertation, University of Arizona. University Microfilms, Ann Arbor.

Wallrath, Matthew
1967 Excavations in the Tehuantepec Region, Mexico. Transactions: American Philosophical Society 57.

Whitecotton, Joseph W.
1977 The Zapotecs: Princes, Priests, and Peasants. University of Oklahoma Press, Norman.

Winter, Marcus C.
1974 Residential Patterns at Monte Alban, Oaxaca, Mexico. Science 186:981-987.

1976a Classic Period Households in the Valley of Oaxaca and the Mixteca Alta. Paper presented at the 41st Annual Meeting, Society for American Archaeology, Saint Louis.

1976b The Archaeological Household Cluster in the Valley of Oaxaca. In The Early Mesoamerican Village, edited by Kent V. Flannery, pp. 25-31. Academic Press, New York.

Zipf, George K.
1941 National Unity and Disunity. Principia Press, Bloomington, Indiana.

1949 Human Behavior and the Principle of Least Effort. Addison-Wesley, Cambridge, Massachusetts.