JALIEZA, OAXACA:

ACTIVITY SPECIALIZATION AT A HILLTOP CENTER

by

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Chapter 1

INTRODUCTION

Research Objectives

In 1988, I conducted a program of systematic intensive surface collection at a sample of prehispanic terraces at the archaeological site of Jalieza in the Valley of Oaxaca, Mexico. On the basis of building rubble and artifact debris on their surfaces, these terraces are believed to have had residential and/or other special functions. They were not agricultural terraces.

The broad objective of the research was to contribute to our understanding of structural and organizational change in a major prehispanic Mesoamerican state. More specific goals included: (1) clarification of the function played by a significant class of settlement type in prehispanic highland Mesoamerica, i.e., increased understanding of the role of hilltop terraced sites in the Valley of Oaxaca in the southern Mexican highlands, (2) a better understanding of function, specialized activities and their organization at a major secondary center in the Valley of Oaxaca, and (3) an improved understanding of variation between Early Classic and Early Postclassic centers. Lesser objectives were to attempt to clarify somewhat the chronological problems plaguing the Classic-Early Postclassic portion of the Valley of Oaxaca sequence, and to collect obsidian for neutron activation analysis to determine the nature of long-distance trade routes and connections and whether they altered significantly in the past.

Our knowledge of site function at secondary centers in early Mesoamerican states is very general and often based on the more cursory kind of archaeological data best suited to regional rather than local analysis. In highland Mesoamerica, detailed study of Classic Period sites especially has focused predominantly on primary centers such as Monte Albán in Oaxaca and Teotihuacán in the Basin of Mexico. This study also makes a first step toward filling a major gap in the archaeology of the southern highlands of Mesoamerica. In the Valley of Oaxaca, there had been no systematic investigation of a Classic period settlement, other than Monte Albán, prior to this research at Jalieza. And hilltop terraced site are both ubiquitous and enigmatic in the Valley of Oaxaca where, during some phases including the Classic period, they account for more than half the region's population. Yet their specific economic, administrative, civic-ceremonial and other roles remained poorly understood. Although such sites continued to be important during and after the Classic period decline, in what has come to be called the Epiclassic (Diehl and Berlo 1989), we know next to nothing about the nature and scope of structural and functional changes at hilltop centers as major regional reorganization occurred.

A major question facing the Valley of Oaxaca Settlement Pattern Project since its first work at Monte Albán more than twenty years ago was why so many people lived on the tops and sides of hills, usually in remote, out-of-the-way places where water was scarce and where even living space had to be constructed. Monte Albán, resplendent atop its lofty mountain overlooking modern Oaxaca city, is only one of the dozens of settlements located on hills within and at the margins of the Valley. Exhaustive analyzes of the regional survey data collected for hilltop sites suggest that defense (Blanton 1978; Elam 1989), boundary maintenance (Kowalewski et al. 1983), piedmont agriculture (Blanton et al. 1982; Kowalewski 1982), craft production, and agricultural labour (Kowalewski et al. 1989) may have been important, although not all of these variables played a role in every locality. But other than the reconstruction and salvage excavations carried out by Alfonso Caso and Jorge Acosta (Acosta 1958; Caso 1932, 1935, 1938, 1942), only four residential terraces have been excavated at Monte Albán (Kuttruff and Autry 1978; Winter 1974; Winter and Payne 1976). Until the work at Jalieza in 1988 no hilltop site in the Valley of Oaxaca except Monte Albán, had been subjected to more intensive study than the regional survey site recording procedures employed by the Settlement Pattern Project. There had been no research designed to explore the range of activities at secondary centers or terraced sites.

Theoretical Background

In 1980, the final stage of a multiyear program of extensive regional surface survey in the Valley of Oaxaca was completed, and the results of this research have subsequently been published (Kowalewski et al. 1989). This program resulted in the recovery of all large and an estimated 95 percent of the small prehispanic archaeological sites visible on the surface of the Valley of Oaxaca. Several thousand sites were mapped over an area of 2150 sq km. The analyzes of settlement pattern and other data indicate two major secular trends in Valley of Oaxaca regional society from Classic to Postclassic times: decentralization and commercialization (Blanton et al. 1981, 1982; Finsten 1983; Kowalewski et al. 1989). Decentralization is apparent in the decline of Monte Albán, the regional capital for 1200 years prior to A.D. 700, followed by the emergence of a settlement hierarchy lacking a well-defined pyramidal structure or central focus. Commercialization, or greater dependence on markets, is especially apparent by Late Postclassic times (ca. AD 1000-1521) when there is abundant evidence of craft production, most of it small scale, as well as spatial indications that competition for markets was an important factor in the locations of artisans' workshops (Finsten 1983).

Blanton (1983) has argued that the evolutionary tendency linking decentralization and commercialization, apparent in many ancient states, occurs when market institutions assume greater importance in times of weakened political institutions. Where state and market are closely related, a decline in political power would have a negative affect on a state's ability to fill its economic role. Market institutions may then become stronger and more autonomous in an environment of a weak polity, as they develop to perform tasks the state no longer can.

The regional data from the Valley of Oaxaca offer very strong support for this argument, particularly when we compare the Early Classic (Monte Albán IIIA) and the Late Postclassic (Monte Albán V) phases. A major problem, however, has been understanding the finer grained mechanics of these processes, which should be very clear during the Late Classic, when Monte Albán apparently had reached its demographic peak, and the Early Postclassic when it had lost its position as regional capital and guardian of a heavily administered regional economy. During this time, when political power probably was most diffuse, one would expect to see evidence of burgeoning autonomous economic institutions emerging to assume market roles. Yet analysis of the regional data provides only weak support for this theoretically based expectation (Finsten 1983).

Resolution of this problem, and thus the potential to refine and modify this theoretical description of fundamental societal change from Classic to Postclassic times in prehispanic Oaxaca, requires a shift in focus. Needed are studies which emphasize smaller scales of human organization and smaller scales of analysis, particularly specific communities and households or domestic units. These smaller activity and analytical units can yield data that speak more directly than do regional survey data to questions fundamental to understanding long-term economic change: data about production and consumption.

As a basic building block of human society, households are a highly productive scale of analysis for the study of social processes. Households make fundamental decisions about production, reproduction and consumption, based on both perceived and real constraints imposed by the social, cultural, economic and political structures within which they are embedded. The collective actions of households, based on these decisions, in turn affect those fundamental structures. Thus households are both actors and "reactors" in social process. A growing interest among Mesoamerican archaeologists in households as basic units of organization and analysis (e.g., Blanton 1994; Manzanilla 1986; MacEachern, Archer and Garvin 1989; Santley and Hirth 1993; Wilk and Ashmore 1988) is part of broader trend in the social sciences (e.g., Becker 1981; Elder 1981; Laslett 1972; Netting, Wilk and Arnould 1984).

The analytical strategy I employ here does not make *a priori* predictions about the kinds of changes in community organization and domestic production that might be expected in a situation of change from state-dominated to commercialized production and of drastically reduced central power, since similar patterns may be the product of quite different processes. I have chosen to proceed inductively, by examining and comparing the archaeological collections from different terrace groups (domestic units) and components (temporally separated communities bracketing the Classic-Postclassic regional transformation), in search of differences. Potential variables include the relationship between elite and/or civic-ceremonial architecture and specialized productive activity, the spatial concentration of evidence for different kinds of specialized activities, variability in the sizes of units at which different kinds of specialized activities took place, and variability in the arrangement of and relationship between elite/civic-ceremonial and commoner/domestic sectors of communities.

Most hilltop sites in the Valley of Oaxaca have large populations and relatively small numbers of mounded buildings, compared to valley floor sites where the reverse relationship between population size and mounds is found (Blanton et al. 1982; Kowalewski et al. 1989). This is one of the puzzles of hilltop sites which, based on various criteria, often account for many of the top ranking sites in the settlement hierarchy in the later prehispanic phases. Why were people so numerous in these settlements? What were the predominant activities carried out by their inhabitants? Is the inference that there was little civic-ceremonial activity, based primarily on the relative paucity of mounded architecture, accurate for both the Early Classic and Early Postclassic occupations or are there significant cross-temporal differences between the components? Is there a discernible relationship between the importance of civic-ceremonial activity and the degree of socioeconomic status differentiation, and does this change over time? In this report I explore these and other issues.

Jalieza: The Archaeological Site

The site at Jalieza is ideally suited to the problems motivating the research reported here. It was first recorded by Ignacio Bernal as three or four separate hilltop centers. Regional survey by the Valley of Oaxaca Settlement Pattern Project in 1977 found that these foci were actually joined in a spatially continuous archaeological site (Blanton et al. 1982), which I call "Greater Jalieza". Greater Jalieza is located in the southern part of the Valley, on the mountain passes between the Tlacolula, Ocotlán, and northern Valle Grande subvalleys. It occupies an east-west ridge (*Cerro Ticolutle*) joined on its eastern end by a north-south trending mountain chain (*Cerro Piedra de Gavilán)*, both of which rise from the Valley floor at 1550 m ASL to over 1900 m ASL. In total area, Greater Jalieza is the largest archaeological site in the Valley of Oaxaca, although it was never all occupied at once. In the Early Classic phase, settlement spread over 4 sq km of the western and central portions of the site, with an estimated population of nearly 13,000 (Figure 1). In 1977, the Settlement Pattern Project mapped 698 terraces and 44 mounded structures dating to Monte Albán IIIA. Nearly 75 percent of these terraces and more than 80 percent of the structures were determined to be single component (Blanton et al. 1982; Finsten 1978). During Monte Albán IIIA, Jalieza was the second-ranking center in the Valley based on population size, not far behind Monte Albán with its estimated 16,500 inhabitants in this phase (Blanton 1978). A near demographic rival to Jalieza may have been a group of three closely clustered sites in the central Tlacolula Valley - Dainzu, Macuilxochitl, and Tlacochahuaya-Guadalupe (Kowalewski et al. 1989). The DMTG, as these sites are collectively called, have an estimated aggregate population of 12,300 people, although there may be as many as a half-dozen distinct architectural foci. The DMTG are located the same distance from both Monte Albán and Jalieza as these latter two sites are from one another; these three large sites form the points of a roughly equilateral triangle.

In the Early Postclassic phase, occupation at Jalieza moved to the eastern hills, covering 5.3 sq km with an estimated 16,000 people (Figure 2). In Monte Albán IV, it was by far the Valley's most populous place. Monte Albán had declined until its population probably was just over 4000 (Blanton et al. 1982). Jalieza's nearest demographic rival was Macuilxochitl, a large valley floor settlement in the heart of the Tlacolula valley, and with a much smaller population of an estimated 6200 inhabitants. In 1977, regional survey crews mapped 1157 terraces and 47 mounded structures at Jalieza dating to Monte Albán IV. Fewer than twenty percent of these terraces and only one structure were judged to have another phase present (Blanton et al. 1982; Kowalewski et al. 1989).

Even preliminary mapping and site

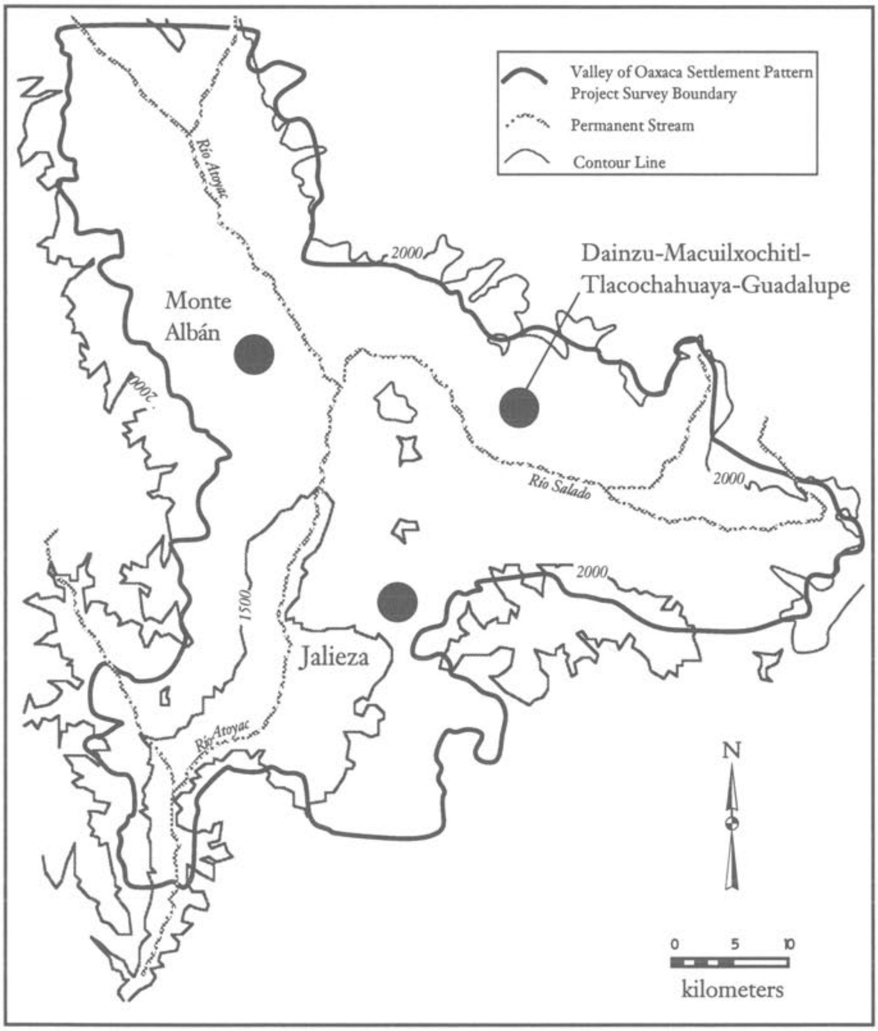

Figure 1. Jalieza in the Valley of Oaxaca in Monte Albán IIIA

recording in 1977 revealed that Jalieza has a wide variety of archaeological contexts: residential and perhaps agricultural terraces, areas of dense and of barely perceptible occupation, residential zones with no apparent specialized activities and others littered with chipped and ground stone debris or indications of pottery manufacture such as kilnwasters and ceramic urn or figurine molds, and clusters of mounds and plazas or patios in a variety of arrangements.

The Nature of the Sample

The Sample of Terraces

For the program of systematic intensive surface collection whose results are reported here, eight groups of adjacent terraces were selected from each of Jalieza's Early Classic and Early Postclassic components. Terraces are houselots carved into the hillsides and so their archaeological remains are primarily the residues of the domestic units or households. Groups of terraces, rather than individual terraces, were chosen as the primary units of collection and analysis because of the problems of artifact movement presented by erosion and recent agricultural activity, to increase sample sizes of collections for analytical and comparative purposes, and because of the logistical nightmare of attempting to relocate several hundred individual terraces among the more than two thousand scattered across nearly nine sq km of archaeological site.

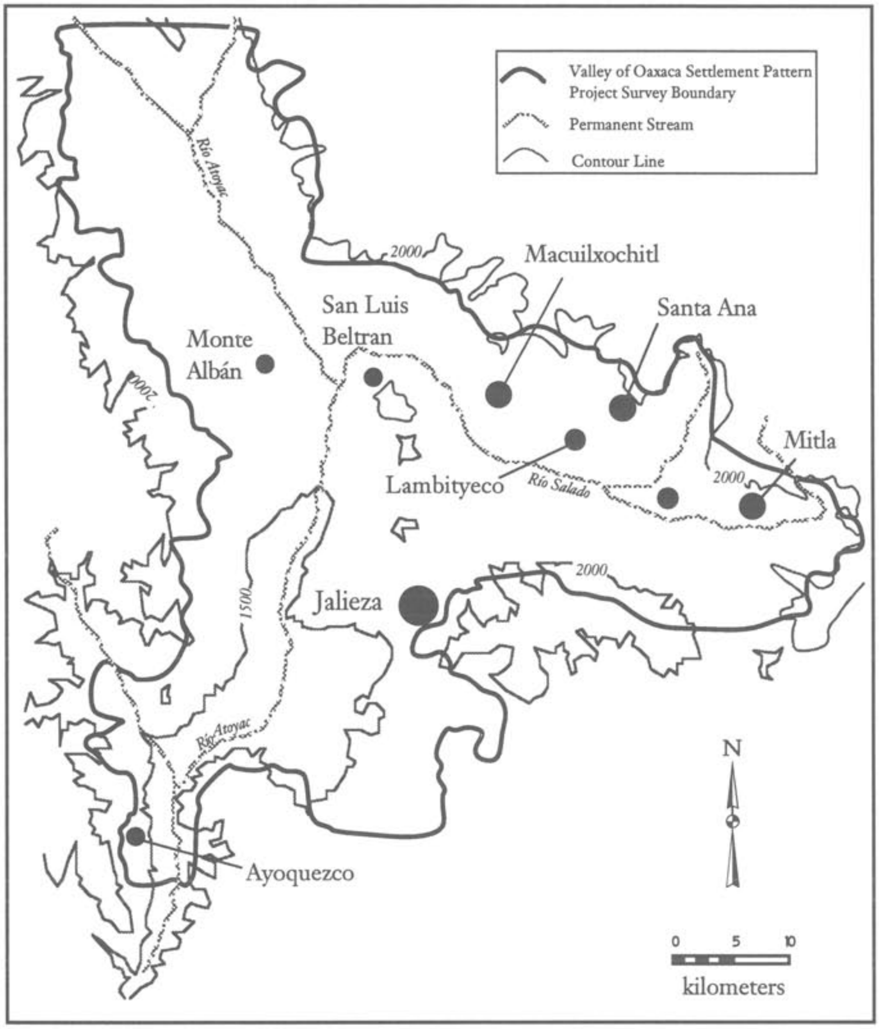

Figure 2. Jalieza in the Valley of Oaxaca in Monte Albán IV

Groups of terraces were selected to distribute the sample area roughly proportionally between the Early Classic and Early Postclassic components, and to focus on single component contexts and avoid those where multicomponency would later present problems with the temporal attribution of architecture and chronologically nondiagnostic artifacts. Other selection criteria emphasised already known dimensions of variation in order to make the sample as comprehensive as possible with the information about the site that was available at that time. These were: (1) prior evidence of craft production or other specialized activities, (2) terrace sizes, and (3) proximity to mounded architecture. Groups of terraces were selected on the basis of apparent topographic and/or architectural coherence or interrelatedness. The total number of terraces selected for surface collection was 249.

For a number of reasons, the study areas were redefined very slightly in the field. Individual terraces were omitted from the originally defined terrace groups because they were being planted at the time we arrived to collect, or they were too far downslope to include in a ridgeline group, or they were too severely eroded or of dubious prehispanic origin on reinspection. In other cases, terraces were added to originally defined groups because when I was actually on the site, it was clear that their spatial positions relative to other terraces indicated a probable functional and/or other connection.

The result was systematic intensive surface collection of 226 terraces in sixteen groups, eight in each of the Early Classic and Early Postclassic components (see Figures 3 and 12 in Chapter 3). One of the Early Postclassic terrace groups (IV-B) does not correspond to the group originally defined, which was omitted for lack of time. Instead, it is the result of expanded surface collection along the site's primary ridgeline to include groups of terraces both north (IV-A) and south (IV-B) of the saddle. The sample of Early Classic terraces (n = 96) constitutes slightly less than fourteen percent of terraces dated to Monte Albán IIIA. A little more than eleven percent (n = 130) of Early Postclassic terraces were surface collected.

Field Procedures

Terraces were combed carefully by a crew of two or more. From each terrace, crews collected and bagged all ceramic rim, basal angle, basal support, and decorated body sherds. In the case of jars, all neck/shoulder sherds were also collected, as were all fragments of urns, figurines, ceramic molds, worked sherds, ceramic disks, ceramic tubes or tiles, kilnwasters (misfired vessel fragments), clay lumps, *sahumadores*, and so on. In addition, most portable lithics, including all chipped stone tools and all obsidian, were collected. Any fragments of worked or unworked shell, and of worked bone were collected. Nearly 30,000 ceramic artifacts were collected and tabulated, as were several thousand lithic artifacts.

Field notes recorded the current condition of each terrace (ploughed or unploughed, degree of erosion, current ground cover), its location relative to other terraces in the group, and the presence/absence of house mounds or walls, plaster, adobe, and building stone. Where the abundance of local chipped stone debris made collecting it all impossible, counts of cores were noted. Notes also recorded counts of other bulky artifacts that could not be collected, such as manos,metates and large local chipped stone cores, especially where the latter occurred in great numbers.

Finally, a map of all collected terraces was made, using an engineer's transit and handheld clinometer. The purpose of this map is to show the spatial and altitudinal relationships among terraces within groups, as well as among groups within site components.

Sorting, Tabulation and Analysis

Surface collection produced so much material at times that carrying artifact bags to the field vehicle, generally a 30-45 minute walk away, required multiple trips. On one occasion when we were especially heavily laden with sherds and other artifacts, we were fortunate enough to arrange a short term burro rental with a passing resident of Santo Domingo Jalieza. The volume of artifacts on the surface and the difficulties encountered in collecting and transporting them in the field had consequences not only for the field work and the size of the terrace sample.

The tabulation of collections could not keep pace with the fieldwork. Washing, drying, and preliminary sorting of artifacts all were carried out at a field laboratory in Oaxaca City in 1988. All the collected lithic material was coded and about twenty percent of the ceramic collections were tabulated at this time. The remaining ceramics were tabulated during the summer of 1989. Data were checked and entered into the computer during September-October 1989.

The ceramic data tabulated are of three major kinds: (1) descriptive and/or chronological types according to the typologies of Caso, Bernal and Acosta (1967) and Kowalewski, Spencer and Redmond (1978), (2) functional vessel type (decorated/undecorated serving bowl, utilitarian bowl, jar, comal) frequencies, and (3) ceramic vessel metric data. Vessel metrics recorded included thickness for all analysable rim sherds, and mouth diameter estimates for all sufficiently large bowl rims. All collected lithic material was coded according to raw material and artifact form. Other materials collected were tabulated for analytical purposes by estimated minimum frequency of complete objects represented. Raw counts are not presented here. Thus, based on paste, firing, and form, six ceramic urn fragments, for example, may be judged to represent anywhere from one to six vessels.

Presentation to Follow

The remainder of this report consists of seven additional chapters. Chapter 2 discusses Jalieza's culture history and reconsiders the ongoing Late Classic-Early

Postclassic chronological debate. In Chapter 3, the sixteen terrace groups that form the basic units of this study are described and characteristics of terrace size are analyzed. Chapter 4 analyzes the ceramic vessel size data. In Chapter 5, evidence of craft production in ceramics, obsidian, local lithics and textiles is presented and interpreted. An effort to identity patterns in ritual activity is made in Chapter 6. Chapter 7 presents the results of the instrumental neutron activation analysis of fifty obsidian samples from Jalieza, and discusses their significance for understanding patterns of interregional exchange and long-distance interaction. Finally, Chapter 8 summarises the earlier chapters, presents conclusions and discusses directions for further research.

The analyses reported here are based on three data sets. Appendix A, the terrace data set, records information about terrace size, multicomponency (other phases present, and the numbers of diagnostics for other phases in each terrace collection), ploughing, looting, adjacent mounded architecture, housemounds on terraces, the nature of building debris present, and counts for all ceramic, lithic and other artifact categories (excepting local chipped stone, which are compiled in a separate data set), kilnwasters, etc. Appendix B summarizes these data for the sixteen terrace groups. Appendices A and/or B can be obtained from the author in paper or electronic form (Microsoft Excel/ text files) for anyone who is interested.

Chapter 2

JALIEZA IN CULTURE-HISTORICAL CONTEXT

Introduction

In total area (ca. 9 sq. km.), "Greater Jalieza" is the largest site in the Valley of Oaxaca and probably in all the southern Mexican highlands. When the site at Jalieza was located by the Valley of Oaxaca Settlement Pattern Project in 1977, grab bag collections at many terraces and inspection of surface pottery at all others led to the conclusion that it consisted of three major temporal components, each of which was largely spatially discrete.[1] The westernmost component, spilling down the slopes of a hill between the modern towns of Santo Tomás Jalieza and San Pedro Guegorexe, was dated to the early phase of the Classic period (Monte Albán IIIA). A northern component focuses on the crest of the ridge to the immediate east, designated *Cerro Ticolutle* on the INEGI topographic maps (see INEGI map sheet number E14D58, Tlacolula de Matamoros, scale 1:50,000). This, the smallest of the three major components, was not included in the 1988 study. Collections taken and field observations made in 1977 suggested that this occupation probably dates to the earlier part of the Late Postclassic (Monte Albán V) since Mixtec polychrome, known to occur only in the later part of this period, was absent, and because no settlement is mentioned in this area in the Relaciones Geográficas or other sixteenth century sources (see Appel 1982:142 for a discussion of this omission). However, other diagnostics that occur throughout the Late Postclassic phase, especially G-3M bowls, were abundant. The third component, and the largest, focuses on the *Cerro Piedra de Gavilán* which forms the divide separating the Tlacolula and Ocotlán Valleys. Evidence of prehispanic habitation is found down the *Cerro*'s western slope and onto the Valley floor. East of the *Cerro Piedra de Gavilán* the site spreads over rolling hills, continuing almost as far as the modern town of Santo Domingo Jalieza. This component was assigned to the Early Postclassic phase (Monte Albán IV). All three of these major components conjoined on the valley floor south of the *Cerro Ticolutle* and on its southern slopes in a very light sherd scatter that extends from the modern town of Santo Tomas Jalieza to the western base of the *Cerro Piedra de Gavilán*. A number of small, patchy Late Postclassic reoccupations were noted in both the Monte Albán IIIA and IV components. In the former, a small area of Late and Terminal Formative (Monte Albán Late I and II) occupation was also mapped. No Late Classic (Monte Albán IIIB) components were identified.

The program of systematic intensive surface collection at a sample of terraces in the Monte Albán IIIA and IV components, undertaken in 1988, provides the opportunity for closer examination of Jalieza's occupational history. Larger, more inclusive sherd samples as well as eleven intervening years of agricultural activity and erosional processes have resulted in a somewhat more complex historical picture, although the broader placement of the site in the Valley of Oaxaca's settlement history remains unchanged. While debate continues about the Late Classic-Early Postclassic part of the Valley of Oaxaca sequence (see especially Marcus and Flannery 1990; Winter 1989), the additional radiocarbon dates required to settle some elements of the dispute still are lacking. However, several aspects of ceramic variability and the vessel type distributions among the Monte Albán IIIA and IV components at Jalieza provide some indirect support for the view that favors the existence of distinct Monte Albán IIIB and IV phases, representing early and late ends of a single Epiclassic period (see Marcus and Flannery 1990:193), and perhaps the earlier and later parts distinguishable in the Xoo phase, according to Lind (1994:109-111). In order to avoid contributing further to the confusion that presently reigns over the later parts of the Valley of Oaxaca ceramic sequence, here I employ the original period

[1] These interpretations are summarized in map form in Blanton et al. 1982, pp.309-312, 319.

and phase names[2] assigned by Caso, Bernal and Acosta (1967). Below I discuss temporally diagnostic and sensitive ceramic types and attributes, and their distributions across the spatially discrete components that form the focus of the present study.

In both east and west at Jalieza, the 1988 sherd collections indicate more extensive Late Postclassic reuse and/or reoccupation than was believed to be the case in 1977. In virtually all instances, however, Monte Albán V sherds are few in number compared to those of other phases.[3] Previously unidentified Late and/or Terminal Formative occupation was also noted in limited central parts of Jalieza's eastern segment. Until the present study, this part of the site was thought not to have been occupied prior to the Early Postclassic. Potential implications are discussed further below.

Classic Period Diagnostics

The Early Classic phase, Monte Albán IIIA, is relatively easily distinguished both from Formative period phases and from Monte Albán IIIB and IV.[4] In surface collections, the most common, readily identifiable diagnostic vessel types of Monte Albán IIIA are the G-23 variants, which are known from stratigraphic excavations to occur only in this phase (Caso, Bernal and Acosta 1967). Made on a *gris* paste, these vessels have flat bases, burnished interiors, and burnished, smoothed or scraped exteriors with designs, in cartouches, which are carved when the clay is leather hard (Caso, Bernal and Acosta 1967:80; Kowalewski, Spencer and Redmond 1978:180; Marcus and Flannery 1990:197). Variants include outlean walled bowls with direct or slightly flaring rims (type 1264 in the typology of Kowalewski, Spencer and Redmond 1978:180) and hemispherical bowls (type 1265; ibid.). An identically finished and decorated but oxidized *gris* or *amarillo* vessel, designated A-8 by Caso, Bernal and Acosta (1967:83) and type 3410 by Kowalewski, Spencer and Redmond (1978:192) has bowl forms the same as those enumerated for G-23s as well as convex bowls and cylinders. This type also has a temporal distribution which is limited to the Early Classic.

At Jalieza, 457 examples of these three diagnostic types (1264, 1265, and 3410) were collected at terraces in the Monte Albán IIIA component of the site; only two were tabulated in collections from the Monte Albán IV component (Table 1).

A previously undescribed *gris* bowl type is very similar to the G-23, occurring in similar shapes and forms and with similar interior and exterior surface treatments. But rather than applying the surface decoration when the clay is leather hard, these bowls have thin-line, often very crude decorative lines which were incised when the clay was still wet. Although these vessels have not been shown by stratigraphic excavation to date to Monte Albán IIIA, associations provide strong evidence for an Early Classic date. Seventy-three examples of these "G-23-like" vessels were collected from terraces in the Monte Albán IIIA component at Jalieza. None were recovered elsewhere at the site.

Thin Orange pottery, the Classic period ceramic workhorse of Central Mexico, is very rare in surface collections at Valley of Oaxaca sites (Blanton 1978; Blanton et al. 1982; Kowalewski et al. 1989). Collections from Jalieza's Early Classic component included two sherds of this ware, a possible third, and two other sherds that may represent local imitations of Thin Orange. Neither imported nor imitation Thin Orange was recovered from the Early Postclassic component.

The distributions of hemispherical and outlean walled G-23s, A-8s (or oxidized G-23s), and Thin Orange clearly establish the existence of a large Early Classic occupation in the westernmost component, consistent with the date assigned to this part of the site in 1977 on the basis of visual inspection of surface remains and small grab bag sherd collections. These distributions are likewise consistent with the absence of any significant occupation in Monte Albán IIIA at the eastern portion of the site.

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2 These are Monte Albán IIIA, IIIB and IV and correspond to the Early Classic, Late Classic and Early Postclassic phases, respectively.

3 See Appendix A for a summary of terraces with Late Formative, Terminal Formative and Late Postclassic occupation and an indication of its intensity in the latter cases.

4 Discussions of this point include Kowalewski (1976), Blanton (1978), Blanton et al. (1982), Feinman (1980), Finsten (1983), Kowalewski et al. (1989) and, most recently, Marcus and Flannery (1990).

Table 1. Distribution of Early Classic Ceramic Diagnostics

Component	G-23 (1264)	G-23 (1265)	A-8 (3410)	Thin-line G-23	Thin Orange
IIIA	344	29	84	73	2
IV	2	0	0	0	0

Monte Albán IIIB and IV Diagnostics

The ceramic assemblages of Monte Albán IIIA, IIIB and IV are dominated by plain, often sloppily finished flat-based conical *gris* bowls that may have hollow round, solid nubbin, or no supports. Based on their exhaustive study of thousands of ceramic collections from Monte Alban's terraces, Kowalewski, Spencer and Redmond (1978; Kowalewski 1983) concluded that some varieties of G-35 bowl probably have more limited temporal distributions than do others. Surface associations at Monte Albán suggest that G-35 bowls with rims that are reinforced on the exterior with a roughly smoothed strip of clay (type 1122; Kowalewski, Spencer and Redmond 1978:178) likely date to Monte Albán IIIB. Other G-35s have an incipiente annular base, formed by walls rising vertically for about a centimetre before slanting outward (type 1138). These appear to be much more common in Monte Albán IIIB although they are present in all three phases in which G-35s occur (ibid.). No examples of the type 1122 variant were present in the 1988 collections from Jalieza. The single sherd identified as a type 1138 G-35 variant was recovered in the westernmost component.

The near absence of these G-35 variants attributed to the Late Classic phase indicates that Monte Albán IIIB, as it has been defined based on greyware pottery from Monte Albán surface collections, is virtually absent at Jalieza. Study of ceramic samples from across the Valley of Oaxaca has shown that Monte Albán IIIB diagnostics are widespread at sites in the Etla Valley and the Central Area surrounding Monte Albán (Kowalewski 1976; Feinman 1980; Finsten 1983; Kowalewski et al. 1989). But the distinctive G-35 vessel forms and *gris-cremosa* pastes associated with Monte Albán IIIB are found only very rarely at sites in the southern and eastern arms of the Valley of Oaxaca. Jalieza is no exception.

Other lines of evidence do suggest the possibility of very limited continuity into the Late Classic-Early Postclassic at a few locales in Jalieza's westernmost component. Although there are no unambiguous Monte Albán IIIB ceramic types, at least one rare type (numbered 3035) apparently is found in both IIIA and IIIB assemblages (Feinman 1980:346). Many other types that occur in both Monte Albán IIIB and IV are more abundant in one phase than the other. The data from Jalieza indicate that the IIIB-IV ceramic assemblages of the western and eastern components differ quite markedly from one another, both in terms of identifiable ceramic types and in terms of more qualitative characteristics, based on observations made during the tabulation process in the laboratory in 1988 and 1989. As I will argue below, the simplest, most expedient interpretation of this variation is that the components pertain to different

Table 2. Distribution of Late Classic and Early Postclassic Ceramic Diagnostics

Component	Imitation Fine Orange	3035	Monkey Support	Batclaw Vessel	Hill Motif	Polished Black
IIIA	2	6	1	0	1	0
IV	1	0	13	4	9	93

phases, the limited occupation in the west to Monte Albán IIIB and the more extensive eastern occupation to Monte Albán IV. However without stratigraphic excavations and radiocarbon samples from good contexts, this interpretation must remain somewhat speculative.

A rare, unnamed ceramic type, numbered 3035, was not described until Blanton's Monte Albán mapping project. Sherds are of a very light *gris* or whitish *amarillo* paste and have orange surfaces. The paste is very friable, however, and vessels are thin walled but of indeterminate form. Both the interior and exterior surfaces are burnished, and decoration with a streaky orange-coloured paint may be found on one or both surfaces. Based on distributions at the regional capital, Kowalewski, Spencer and Redmond (1978: 192) suggested that this type might date to Monte Albán IIIB. After the 1977 surveys of the Valle Grande and major sites in Etla, however, Feinman (1980: 346) suggested a Classic period date, i.e., this type appears to date to both Monte Albán IIIA and IIIB. At Jalieza, six sherds from the western component were identified as specimens of type 3035 (Table 2), and a number of other very fragmentary sherds may also represent this type. None were encountered in the site's eastern component. Because this type appears to date to both the Early and Late phases of the Classic period, its absence from the eastern component at Jalieza is particularly relevant and serves to underscore the differences between the assemblages of these two spatially discrete components. If IIIB-IV were a single phase as some have suggested, type 3035 vessels ought to occur in the eastern component but they do not. Instead, the distribution of these sherds is consistent with a predominantly Early Classic occupation, perhaps with some continuity into the Late Classic, in the west and a later, Monte Albán IV occupation in the east.

Early Postclassic diagnostics are more numerous, although most also occur, if less frequently, in the Late Classic. A Monte Albán IV diagnostic first associated with this phase from excavations at Lambityeco, Polished Black (Kowalewski et al. 1989), is relatively common in collections from the eastern component at Jalieza but absent elsewhere at the site (Table 2). Polished Black vessels at Jalieza consisted of flat-bottomed outlean walled bowls with direct rims, often with hollow supports, and made of *gris* pastes whose cores were either green-to-yellow in color (a local ceramic paste variant) or, more commonly, a salmon pink-to-orange-brown , which may be a local variant of the brownish paste used for Polished Black at Lambityeco (Stephen A. Kowalewski, personnel communication). Surfaces are slipped black both inside and out. Both of these unusual looking pastes (green and pink) are also found in a variety of other *gris* vessel forms without the slip. In fact, most greywares at Jalieza's eastern component would be more accurately described as "greenwares". Even the G-35s usually have a distinctive yellow-green coloration. Unlike Classic and Early Postclassic greywares from most other Valley of Oaxaca sites, many of the greywares from eastern Jalieza are uncharacteristically soft, lacking the sharp "snap" when broken that signals a Classic or Postclassic paste. This appears to result from a combination of factors: a local tendency to underfire many vessels (so that they retain a brownish color at the core), and postdepositional factors that produce "soggy" sherds.

Tiny batclaw cups (Caso, Bernal and Acosta 1967:409) are known to date to the Early Postclassic and, according to Paddock (1966:218, Fig. 276), occur in this phase exclusively at Lambityeco. Few examples were encountered in collections at Jalieza, which is not surprising given that very small, fragile vessels are unlikely to be identifiable in surface collections. But four vessels were tabulated in the collections from terrace groups in the eastern component, while none were found in the western part of the site (Table 2). The appliqué hill glyph or bifid tongue, which occurs more frequently in Monte Albán IV than in IIIB, is much more common in Jalieza's eastern component, where nine examples were noted on a variety of vessel types and forms. A single example was tabulated in the collections from the western component. G-35 bowls with sculpted or mold-made monkey-face hollow supports (Caso, Bernal and Acosta 1968:388 Fig.318 d, e) are an example of a variety whose more precise temporal association is unknown, although they were not found in Monte Albán IIIA contexts at Monte Albán. Their distribution at Jalieza is instructive, since all but one of the total seven specimens occurred in collections from terrace groups in the eastern component which the weight of evidence suggests dates to a distinguishable Monte Albán IV phase.

Type of figurine manufacture sheds no light on chronological issues. The proportions of hand molded figurines are nearly identical in the two site sectors (11.6% in the west and 9.5% in the east) although hand molding was more popular earlier in the sequence. It may be significant that figurines are relatively rare in both parts of Greater Jalieza, although the sample from the western component (*n*=43) was twice the size of that recovered from the eastern part of the site (*n*=21).

Balancán (or Z) Fine Orange, a Tabasco tradeware known to date to A.D. 800-1000, was found in Monte Albán IV deposits at Lambityeco (Paddock 1983) and sherds from imitations of these vessels (type number 3030 [Kowalewksi, Spencer and Redmond 1978:191-92]) occur in very small numbers on the surface at many other Valley of Oaxaca sites dated to the Early Postclassic (Blanton et al. 1982; Finsten 1983; Kowalewski et al. 1989). A single example of imitation Fine Orange (type 3030) was collected from a terrace group in the eastern component, and two sherds were collected from a terrace group in the western component (Table 2). Oddly, imitation Fine Orange is the only Monte Albán IV type whose distribution at Jalieza appears to contradict the broad chronological interpretation published in 1977 and the refinements I propose here. But it is so rare at Jalieza that its distribution is difficult to interpret except in the most general terms. Although neither ceramic type is abundant, imitation Fine Orange and the 3035 ceramic type that more likely dates to the Late Classic never occur in the same terrace groups in the western component where both types are found.

Dating Jalieza and the Monte Albán IIIB-IV Debate

Jalieza is unique among major Valley of Oaxaca sites in having three large temporal components that overlap spatially very little with one another. Systematic collections from a sample of terraces in two of these components make possible refinement of our understanding of this important site's occupational history and contribute to resolution of the debate about the Late Classic-Early Postclassic segment of the Valley of Oaxaca's chronology.

Already known to have been subject to scattered reoccupation in the Late Post-classic, like many other Valley of Oaxaca sites, Monte Albán V sherds were found to be more widespread at Jalieza than the 1977 data indicated, although their distribution is still patchy and they are relatively few in number. Small areas of Late and/or Terminal Formative occupation have been identified in both the western and eastern site foci, the former in 1977 and the latter in 1988. Given the potential strategic importance of the *Cerro Piedra de Gavilán*, a small Late/Terminal Formative occupation in this area is not surprising. Its abandonment in the Early Classic is less easily understood but if such an occupation had existed in the same locality at any level of intensity, it surely would not have gone undetected in the 1988 field study.

The ceramic vessel type and variant distributions discussed here support the broad chronological conclusions reached on the basis of analysis of grab sample collections taken and observations made during site mapping in 1977 (Blanton et al. 1982). Terrace groups in the western component attributed to the Early Classic yielded large numbers of G-23 and A-8 vessels, both of which are known to be Monte Albán IIIA diagnostics. Collections from the eastern component, attributed to the Early Postclassic, had virtually no G-23s but abundant G-35s and smaller numbers of vessels elsewhere attributed to Monte Albán IV only (Polished Black and bat claw cups). Appliqué hill glyphs, thought to be much more common in the Early Postclassic than the Early Classic, are fairly numerous as well. Curiously, imitation Fine Orange, which is widely accepted as one of the most reliable diagnostics of Monte Albán IV at Valley of Oaxaca sites, was present but very rare at both components. With the exception of Fine Orange, these distributions suggest an Early Classic occupation in the west and an Early Postclassic occupation in the east.

But are there grounds for arguing for the presence in the eastern component of a Late Classic occupation? And is there any evidence to suggest that Monte Albán IIIB and IV are not separate phases but contemporaneous regional expressions? These questions are closely related. Late Classic diagnostics are very rare. Most studies have relied on the presence of particular variants of types, such as G-35 bowls with incipiente bases, and high frequencies of *gris-cremosa* pastes to identify Monte Albán IIIB assemblages. The bowl variants singled out as Late Classic diagnostics at Monte Albán and useful for identifying this phase in Etla and the Central Area are virtually absent at Jalieza, and *gris-cremosa* pastes are relatively rare. The single type known to occur in both Monte Albán IIIA and IIIB (3035) is present in the western component of Jalieza but absent in the eastern part of the site. Clearly its absence from the latter component cannot be attributed to regional variation (i.e., Etla-Central Area versus Tlacolula-Valle Grande). Additional evidence to suggest that chronological separation is at work, rather than different regional expressions, is found in the ubiquitous and numerous "greenwares" of Jalieza's eastern component. Although there are indications, summarized below, of limited continuity into Monte Albán IIIB in the western component, these obviously locally made and very distinctive wares are entirely absent.

The 1988 collections indicate that the western component is predominantly Early Classic in age, although Late Postclassic reoccupation was more widespread than the 1977 survey indicated. In addition, there is some evidence of small-scale continuity into the Late Classic phase which went undetected in the earlier study. In addition to the presence of type 3035, mentioned above, are isolated occurrences of appliqué hill glyphs and monkey-face hollow supports, both of which have been attributed to Monte Albán IIIB and IV. The types known to occur only in Period IV, however, such as Polished Black and batclaw cups, were not found at terrace groups in the eastern part of the site. Thus the identification of small pockets of continued occupation in Monte Albán IIIB is based on both positive and negative evidence.

Although firm conclusions cannot be drawn from the surface collections gathered by the 1988 study at Jalieza, the weight of evidence points to a chronological separation of Monte Albán IIIB and IV. A type known to date to Monte Albán IIIB but not to Monte Albán IV does not occur in collections from the eastern part of the site, which is dated to the Early Postclassic. And types known to date to Monte Albán IV but not to IIIB similarly are absent from the western component where limited continuity from the Early Classic to the Late Classic is posited. Given the regional patterns of site distribution for these phases and the close proximity of the earlier and later components at Jalieza, regional differences in a single phase cannot be at work. The existence of distinct phases, albeit of a single period, is the best explanation of the ceramic variation seen at Jalieza.

Chapter 3

THE TERRACE GROUPS

Introduction

This chapter consists of two sections. The first describes each of the sixteen terrace groups collected in the field study. The second analyzes variability in terrace size, focussing on similarities and differences among terrace groups of each component and on comparison of the Early Classic and Early Postclassic components. The data upon which the terrace group descriptions and statistical analyses are based are summarized in Appendices A (Terrace data) and B (Terrace group data).

Terrace Group Descriptions

The Monte Albán IIIA Component

Terrace Group IIIA-A is situated at the base of the hill that was the focus of occupation in the Early Classic, on very gently sloping ground to the west of the summit. Its low-lying location is unique among Early Classic terrace groups, indeed among all the groups collected at Jalieza (Figure 3). This group consists of five terraces and a large area (IIIA-A-1), probably including one or more destroyed prehispanic terraces, which was subdivided into three units for collection and data recording purposes (Figure 4). A ninth terrace mapped in 1977 and slotted for surface pickup in 1988 was no longer distinguishable, presumably having been destroyed by subsequent agricultural activity and erosion. However, its location on the 1977 field map on the aerial photograph indicates that it lies within the area designated IIIA-A-1. This area also included two areas described in 1977 as "possible terraces". Many segments of the site clearly had experienced significant erosion in the intervening decade, virtually all of which is attributable to agricultural activity and grazing.

Only one of the eight terraces and other collection units was ploughed at the time of collection in 1988. This was the only terrace in this group to yield building rubble, in this case fragments of plaster presumably from a destroyed floor. Most terraces (six, or 75%) had small quantities of Late Postclassic ceramics.

Four mounds are situated within the terrace group, although none form mound groups. The metric data for the mounds are summarized in Table 3. Two broad mounds with large top areas, measuring only 1 or 2 meters in height (Structures 76 and 87), are located within IIIA-A-1. A third area, marked by a slight rise and an unusually high density of rubble, was identified in 1977 as a "possible structure". This designation was used in instances where probable mounded buildings had been destroyed to the point where they were neither absolutely identifiable as architecture nor measurable. A long, narrow mound sits at the back of IIIA-A-3 (Structure 84), overlooking it and projecting onto it from the east. This structure, which measures 4 meters high from the west but has only a negligible height from the east, is built into the bedrock and naturally embellishes it. In 1977, field crews observed plaster and dressed building stone on this structure through a looter's pit that was no longer apparent in

Table 3. Structure Dimensions in Terrace Group IIIA-A[5]

Str.No.	Base	Top	Height
76	32x30	24x24	2.0
84	24x5	16x3	4.0
86	36x30	25x25	1.0
87	24x25	19x19	1.0

[5] All measurement in Tables 3-8 are in meters. Structure numbers and dimensions in Tables 3-8 are those published in Blanton et al. 1982, Appendix XI.

Figure 3. Terrace Groups Surface Collected in Monte Albán IIIA

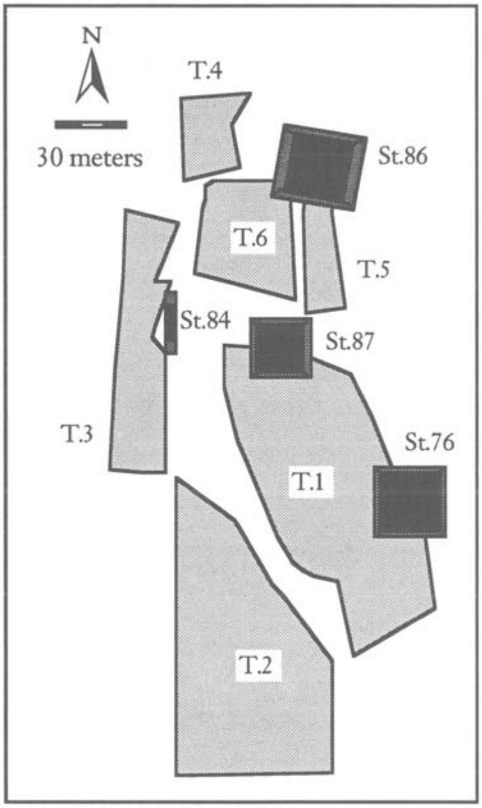


Figure 4. Terrace Group IIIA-A

1988. A mounded building lies to the east of IIIA-A-6 (Structure 86), and was presumably associated with it.

The dimensions of at least three of these structures suggest that they served as large house mounds for elite occupants of the site. On this basis, IIIA-A is designated an "elite" terrace group for comparative and analytical purposes. This does not mean that all terraces within this group would have housed elite occupants of Jalieza, but that their overall character is affected by the presence of elites. Some of these terraces may have housed servants and retainers, and/or served as specialized areas for carrying out domestic and other activities for the elite occupants of the area.

Surface study in 1977 failed to identify the presence of any phases other than Early Classic on terraces and the adjoining mounds in this group. In 1988 some Period V sherds were collected on six of the eight terraces, although the numbers were all very small (ranging from one to a high of eleven at IIIA-A-2, the largest terrace). On terraces IIIA-A-5 and IIIA-A-6, where overall sherd densities were quite low, the Monte Albán V presence is more substantial.

Average terrace size is 2800 sq m, the largest by far of any group in either phase, but this mean figure is heavily skewed by the presence of one very large terrace (IIIA-A-2). Terrace area ranges from 750 to 9000 sq m, although all but the largest one are 2250 sq m or less.

Terrace Group IIIA-B, consisting of twenty terraces, is located in the northern portion of the component, along and immediately below the crest of the ridgeline (Figure 5). At approximately 1680 m asl, it is somewhat lower in elevation than IIIA-C, the civic-ceremonial focus of the Early Classic occupation described below. IIIA-B is both architecturally and physiographically distinct from IIIA-C.

The majority of terraces in this group (75%) had been ploughed recently, and one had been looted. Despite these activities, building rubble (plaster) was observed on only two terraces (10%). These figures do not include building stone from the mounds, but refer to other kinds of building debris that would be indicative of buried architectural features on the terraces.

Seven (35%) of the collections from terraces in this group yielded very small numbers of Monte Albán V ceramics. In all but one case (terrace IIIA-B-11) the proportion of Late Postclassic sherds is small enough to be considered negligible. However, three terraces (only one of which is included in the seven above) had a clear Early Postclassic (Monte Albán IV) presence, and three others may have had some occupational traces in Monte Albán II, IIIB, and IV. All but one of these latter terraces also had some Monte Albán V ceramics.

This group is designated as elite-focused because mounds are present on or associated with several terraces. The metric data for mounds in this group are summarized in Table 4. As was the case in IIIA-A, none of the structures form obvious formal mound groups, which tend to be associated with civic-ceremonial activities. However, two structures, described below, associated with a single terrace, suggest the possibility of an open two-mound group. Preservation is not adequate to be certain on the basis of surface

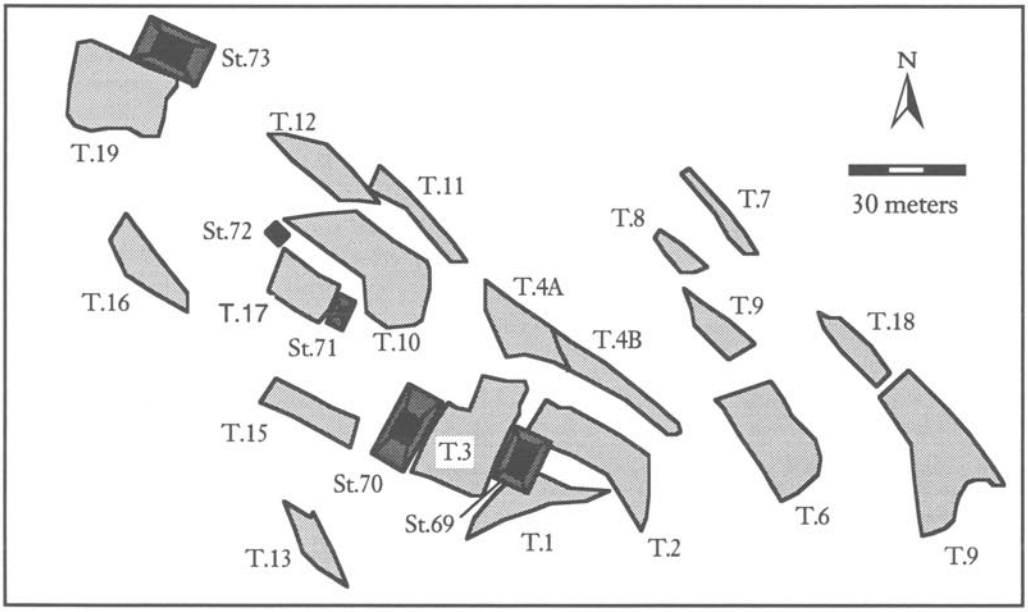


Figure 5. Terrace Group IIIA-B

Table 4. Structure Dimensions in Terrace Group IIIA-B

Str.No.	Base	Top	Height
69	16x10	8x5	2.5
70	21x10	12x4	1.5
71	17x10	4x4	5.0
72	10x12	4.5x4.5	0.7
73	18x12	9x7	1.0

examination alone. All mounds in terrace group IIIA-B are small compared to those in IIIA-A, in terms of basal and top areas.

A small structure (Structure 69) measuring 2.5 m high, interpreted in the field as a house mound, sits on the eastern side of terrace IIIA-B-1. Another terrace, IIIA-B-3, appears to have been an open area functionally related to both this latter structure, which flanks IIIA-B-3 to the east, and to a slightly broader but lower mound only 1.5 m high (Structure 70) immediately to its west. The structures roughly parallel one another. This group of terraces and structures constitutes the only example of a possible formal mound group in terrace group IIIA-B.

The tallest structure in terrace group IIIA-B (Structure 71) lies immediately east of terrace IIIA-B-17, and appears to have been functionally associated with it. Its height from the terrace is approximately 5 m. To the west of terrace IIIA-B-17 the crest of the ridge drops sharply, and the slopes to the north and south are precipitous. Easy access to the terrace, which may have functioned as a patio, was possible only by way of Structure 71 on its west edge.

A fourth small structure (Structure 72), less than 1 m high, is located further northwest along the ridgeline. This very small mound was constructed on a bedrock outcrop. Crews in 1977 observed that it was connected by ramps to terrace B-10 and to Structure 71, described above. None of these connections was still apparent in 1988.

The final structure in this group is located on terrace IIIA-B-19. Like another mound-terrace association (IIIA-B-17) discussed above, Structure 73 and its associated terrace are located at the west end of the highest portion of this ridge segment. Continuing west from this point, the ridge drops considerably to an area of a few terraces with no mounded buildings. Measurements made in 1977 indicated a small, flat structure, probably a house mound, about 1 m high. However, observations in 1988 indicated a total increase in elevation from the terrace to the top of the mound of approximately 2.0-2.5 m.

Terrace area in the IIIA-B group ranges

from 40 to 800 sq m, averaging 300 sq m (335 sq m if terraces B-4A and B-4B are recombined), a figure very similar to the mean areas for terraces in groups IIIA-C and IIIA-D. Three of the four terraces with mounds are very close to average in area, while the fourth is the second largest terrace in the group, with an area of 600 sq m. Both of the terraces on which plaster was observed are considerably larger than the group average.

Terrace Group IIIA-C, consisting of seventeen terraces, is located on the highest part of the Early Classic component, atop two peaks joined by a saddle at about 1720 m asl (Figure 6). Within it are a completely closed four-mound and plaza group at the north end, and a single mound associated with an elevated plaza sculpted from bedrock to the south. Between these is a broad, badly eroded plaza on the saddle. This entire arrangement is reminiscent in some ways of a miniature version of the Main Plaza at Monte Albán, which is bounded by the North Platform, with its massive four-mound groups, and by the South Platform, with its stacked mounds and platforms. Other terraces in IIIA-C, not directly associated with mounds, are located immediately downslope from the hilltop and probably were related functionally to the civic-ceremonial architecture on the summit. This group is isolated from below by a considerable segment of very steep slope that would have inhibited access to the summit from the east, south, and west. Terrace group IIIA-B, to the northwest, is separated from IIIA-C by a vertical drop of about 40 m. The nature and location of IIIA-C, lofty and generally inaccessible, suggests that it was Jalieza's civic-ceremonial core. This does not mean that it had no residential function, for it may have housed the highest ranking personages at Jalieza. However, the terrace group's paramount characteristics derive from other functions.

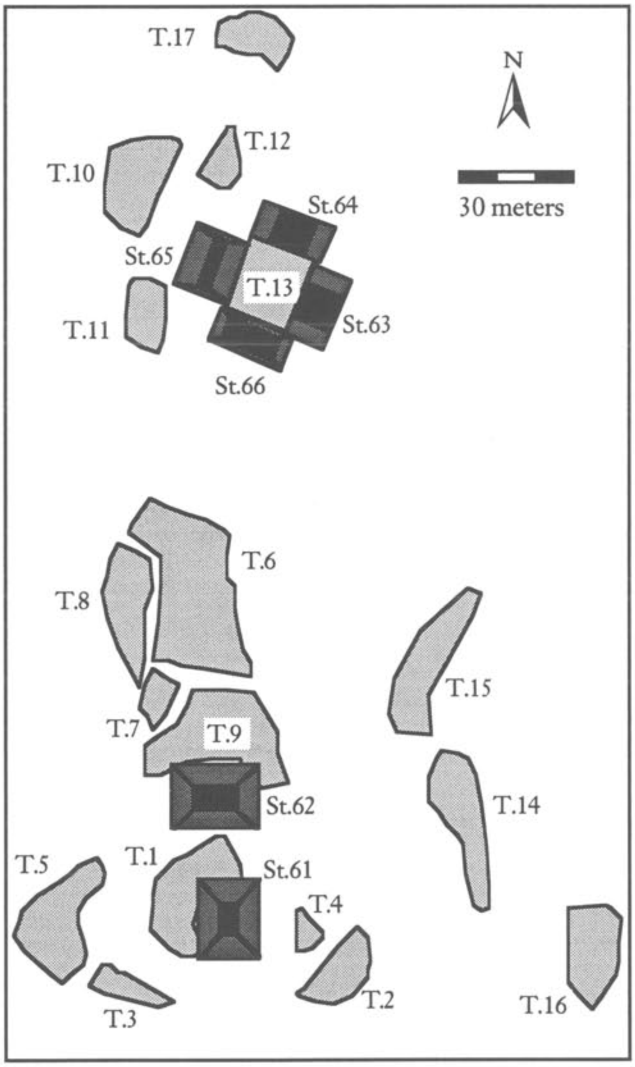


Figure 6. Terrace Group IIIA-C

None of the terraces in this group had been ploughed recently, although three had been looted. Stone housewall foundations were visible on one completely undisturbed terrace downslope and east of Structure 61 (IIIA-C-2). Building stone was observed on four others, and plaster on only one.

Six terrace collections yielded traces of Late Postclassic ceramics, while on a seventh, Monte Albán V sherds accounted for a fairly large proportion of the collection. This latter terrace (IIIA-C-9) also has strong indications of occupation continuing into Monte Albán IIIB. Another of the terraces with some Monte Albán V had probable Late Classic sherds and may also have had a trace of

Period II. Possible Monte Albán IIIB diagnostics were present on two other terraces, and a fifth was identified as having IIIB and/or IV. On another terrace a trace of Monte Albán Late I may be present.

Although the 1977 study indicated the presence of six mounds within the confines of terrace group IIIA-C, only five were still apparent in 1988. The first, a small mound about 2.3 m high, lies atop terrace IIIA-C-1, on its eastern edge (Structure 61) (see Table 5). This terrace and its associated mound lie at the southern end of the main hilltop's crest, mimicking in miniature the South Platform at Monte Albán's Main Plaza.

The four remaining mounds comprise a tightly closed four mound group at the north end of the principle hilltop (Structures 63-66). These buildings range in height from 3.0 to 4.5 m and surround a closed plaza designated terrace IIIA-C-13. This group might be construed as a greatly downscaled replica of the massive North Platform at Monte Albán. It is not the individual structures or mound-plaza groups alone in IIIA-C that allude to Monte Albán's Main Plaza. Rather the similarity arises from the combination of their individual characteristics and their locations relative to one another.

Table 5. Structure Dimensions in Terrace Group IIIA-C

Str.No.	Base	Top	Height
61	21x16	8x5	2.3
62	17x22	7x12	2.5
63	19x10	10x9	4.5
64	19x10	10x9	4.0
65	14x17	3x14	3.0
66	10x20	6x15	4.0

The sixth mound mapped and described in 1977 (Structure 62) was situated to the north and downslope into the saddle from IIIA-C-1 and its associated structure. Crew members described this structure as associated with a group of terraces in the saddle. Its height from the saddle was recorded as 2.5 m, which is not inconsiderable, although the notes indicate that the structure was built into the slope behind it, to the south. In 1988 the mound was no longer definable, and the terraces mapped in the saddle area eleven years earlier had largely lost their distinctive forms. Although fallow in 1988, the area had been under cultivation in 1977. Apparently continuing agricultural activity has resulted in the erosion of most of the surface soil since by 1988 bedrock was exposed through much of this area and elsewhere soils were very thin. It seems most likely that ploughing in the saddle has destroyed Structure 62.

Terraces in this group range from 25 to 1400 sq m, and average 385 sq m. However, this mean is heavily skewed by two terraces with areas of 1400 sq m. In fact eleven terraces (65%) are smaller than the average.

<u>Terrace Group IIIA-D</u>, consisting of eleven terraces, is located on relatively steep ground on the slope south of IIIA-C (Figure 7). It is one of four terrace groups in the Early Classic component at Jalieza that lack structures, except low housemounds less than 1 m high. Such groups are labelled "nonelite residential"; they lack terraces that were elite residences or served civic-ceremonial functions. Many terraces in these groups probably served as residences for commoners at Jalieza. However, this categorization is not intended to suggest that the only activities which occurred in these terrace groups were domestic in nature. For example, specialized production for local and broader markets occurred on some nonelite residential terraces.

None of the terraces in this group had been ploughed recently or looted. Housemounds were observed on three, or slightly more than 25 percent. Building stone was recorded at three terraces, including two of those with housemounds. Of the four terraces on which plaster was visible, two also had housemounds. Adobe was observed on one terrace where the only other apparent building debris was plaster.

Some Late Postclassic sherds were present in the collections of most terraces (9), although everywhere they comprise very small proportions of the total ceramic assemblages. Using Monte Albán IIIA utilitarian bowls as a baseline, the highest proportion of Late Postclassic pottery is less than ten percent, and at most terraces in this group the proportions are much smaller. Traces of Period II may be present on three terraces, two of which also had Late Postclassic sherds. Thus, only one of the eleven terrace collections was pure Monte Albán IIIA, although the degree of multicomponency is very slight in almost

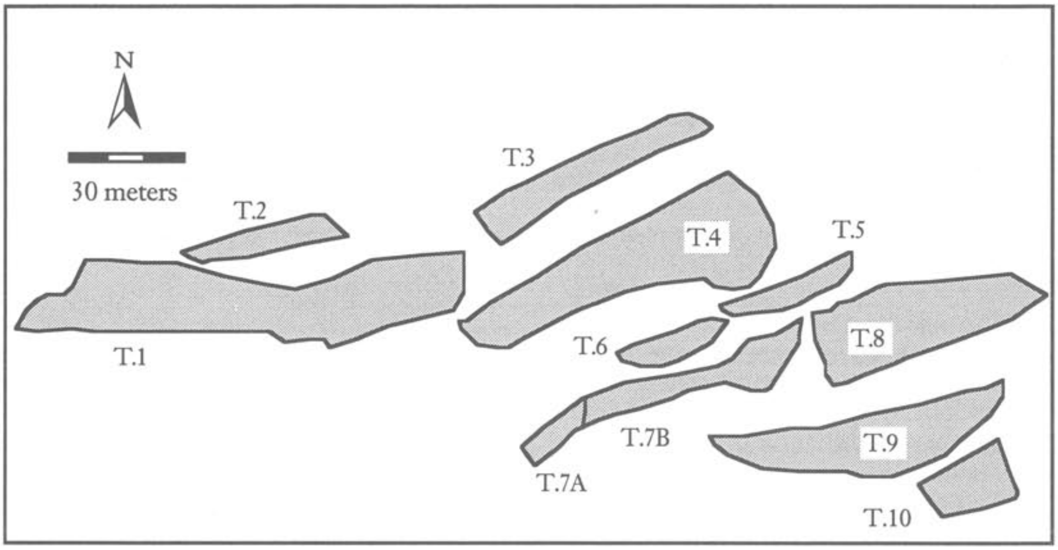


Figure 7. Terrace Group IIIA-D

all cases.

Terraces in this group tend to have relatively high densities of debris including remnants of building materials not found at many other localities in the Early Classic component. Deposits in IIIA-D were among the deepest in this portion of the site, and erosion was far less extensive than elsewhere. Thus the presence of substantial proportions of terraces with housemounds, plaster, and buiding stone may be largely a product of less agricultural activity and less erosion.

Terrace areas range from 120 to 1000 sq m, averaging 365 sq m. A single large terrace skews this average upward somewhat, however, since the second largest terrace is only 500 sq m in area. Omitting the largest terrace produces an average area of 300 sq m.

Terrace Group IIIA-E, consisting of only six terraces, is another group lacking mounds, although a very small structure 1.6 m high is situated just beyond the southeast corner of the group (Figure 8). This group, like IIIA-D, is designated nonelite residential. It is situated near the southerly limit of the terraced part of the Early Classic component, on slightly sloping but severely eroded ground.

None of the terraces in this group had been ploughed recently or looted. Although no housemounds were observed, plaster remnants were recorded on two terraces (33%), and adobe was observed on three (50%) including one of those with plaster. Given the extremely poor condition of this

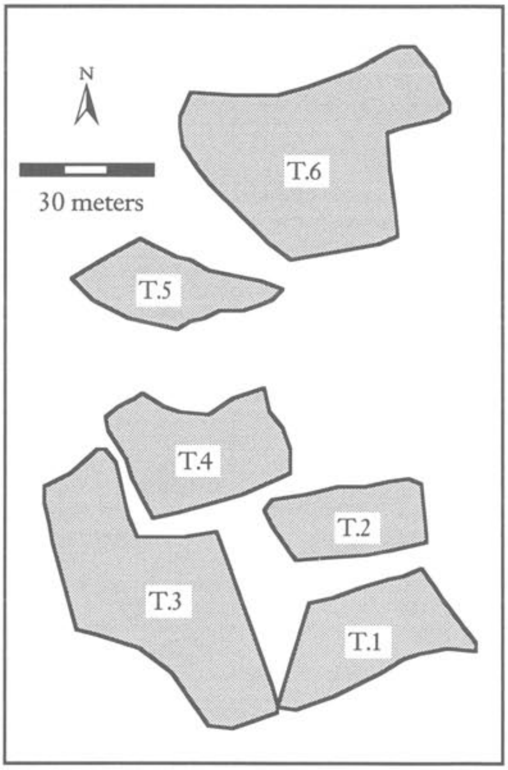


Figure 8. Terrace Group IIIA-E

part of the site, the possibility that mounds had been eroded beyond recognition cannot be ruled out. However, the absence of building stone, even though other building debris was recorded, suggests that house construction in this terrace group was less substantial than elsewhere.

Monte Albán V sherds were present in trace amounts (varying from one to three sherds) on four (67%) of the terraces in this group. Two terraces, including one of those with a trace of Monte Albán V, may have been occupied in Monte Albán II. Only one of the six terrace collections was pure Monte Albán IIIA, but the degree of admixture is not problematic given the very large numbers of sherds collected from terraces in this group.

Terraces of this group are quite variable in size although they tend to be large, and densities of occupational debris vary from average to high. Terraces range from 400 to 1500 sq m in area and average 740 sq m. Mean area is reduced to 585 sq m when the largest terrace is omitted. Although erosion in this part of the site was severe and retaining walls were no longer evident on most terraces, the flattened areas produced by terrace construction were easily identifiable.

Terrace Group IIIA-F, consisting of twelve terraces, lacks mounds and is designated nonelite residential (Figure 9). Situated near the northern limit of the site, it lies on the north slope of the ridgeline where, farther east, IIIA-B is found. There are no mounds in the vicinity whatsoever and, in contrast to IIIA-D and IIIA-E, terraces tend to be small and have relatively light densities of surface debris.

The majority of terraces in this group had been ploughed recently (8, or 67%), but none had been looted. Despite recent ploughing, no building debris of any sort was visible. However, even though ceramics and other archaeological remains were relatively sparse, they occur in sufficient quantities to eliminate with fair certainty the possibility that terraces in this group were agricultural in function. More likely, a combination of low status and short occupation account for the sparse and limited range of material present.

Traces of Late Postclassic reuse (ranging from one to three sherds) on three terraces (25%) were the only indications of multicomponency in this terrace group.

Terraces range in area from a minimum of 50 to a maximum of only 675 sq m, and at 240 sq m have the smallest average in the Monte Albán IIIA component. More than half of the terraces (7) have areas of less than 200 sq m.

Terrace Group IIIA-G consists of fourteen terraces (Figure 10). Like IIIA-A and IIIA-B it is designated an elite residential group because of the presence of mounds but the absence of closed, formal mound groups or of large mound-plaza complexes. IIIA-G is located at the major break in slope on the southeast part of the hill. Most terraces are situated on moderately to slightly sloping ground, and erosion tends to be heavy.

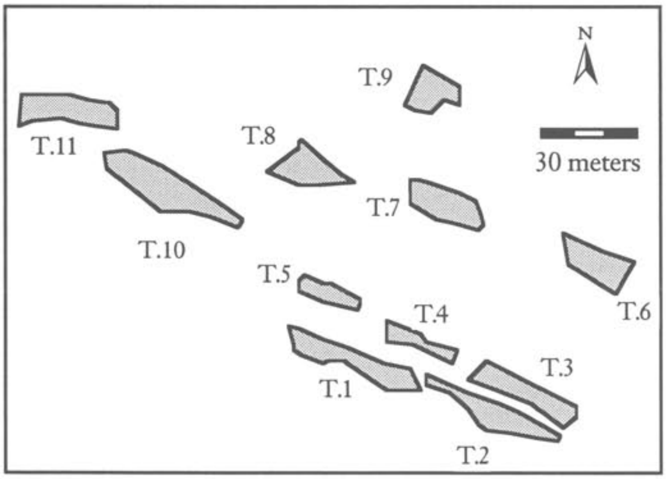


Figure 9. Terrace Group IIIA-F

None of the terraces in this group had been ploughed recently, although two had evidence of looting, in one case very recent. Mounds were present on four terraces (more than 25%). Despite this, plaster was observed on only one, with a mound. Adobe was recorded at four terraces, two of which were among those with mounds.

This terrace group had the most widespread evidence of Late Postclassic reoccupation found in the Early Classic component at Jalieza, with some Monte Albán V sherds coming from all but two of the terrace collections. In the case of terrace IIIA-G-13,

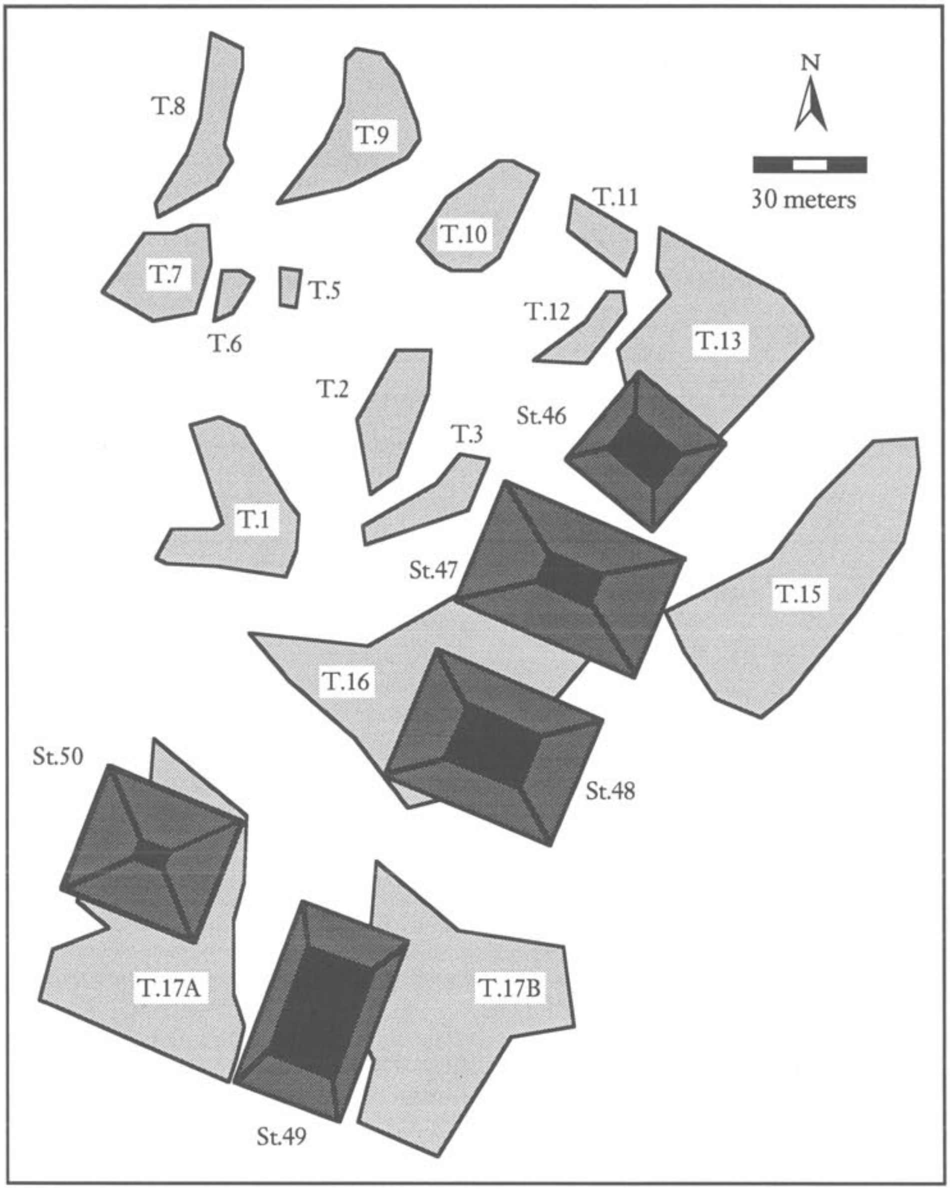


Figure 10. Terrace Group IIIA-G

the number of Period V diagnostics may call into question the temporal attribution of nonceramic artifacts since, using only utilitarian bowls as the baseline, they account for nearly 25% of the rims. In addition, Monte Albán II sherds were identified on one terrace, and may be present on two others.

The terraces are large, ranging in area from 350 to 7000 sq m, and averaging 1635 sq m. More than one-third of terraces in this group (5) have areas of 1000 sq m or more. All of those with mounds are larger than 2000 sq m.

Some of the most severe problems in relocating terraces in the field were encountered in this group. Heavy ploughing and erosion in the eleven years since the original study, and the recent construction of small checkdams and stone walls in an attempt to inhibit further erosion all had changed the landscape considerably. Because of the fairly gentle slope, agricultural activity has been quite intense, and its consequences have been devastating for both the integrity of the archaeological remains as well as for the soil and future agricultural utility of the area.

Five mounds are present (Table 6). Four may form pairs, each on single, relatively large terrace. The two tallest mounds are located on what was mapped in 1977 as a single terrace. In 1988 I chose to divide this terrace into two sections, IIIA-G-17A and 17B, because of a gradual but significant difference in elevation. This elevation change does not appear to be a recent phenomenon attributable to erosion. Structure 50, located on terrace G-17A is the tallest mound in this terrace group. Indeed at 3.75 m it is one of the tallest in the entire Early Classic component at Jalieza. It has a substantial base but a very small top area, which suggests that it may not have been residential in function. The structure located on G-17B (Structure 49), immediately east of 17A, is also quite high at 3.25 m. However it has very large base and top areas, more consistent with a residential function. Immediately south of Structure 49 is a localized, very dense con-centration of ceramics and plaster fragments, probably marking the erosion of a house floor into the modern ground surface. Human bone was observed only a few centimeters below the ground surface, eroding out of a shallow erosional channel nearby, in 1987. Although sherds diagnostic of Monte Albán V were observed on both of these structures in 1977 and Period V pottery was collected from these two terraces in the present study, the relative proportions of Late Postclassic sherds are very low.

Table 6. Structure Dimensions in Terrace Group IIIA-G

Str.No.	Base	Top	Height
46	30x30	17x11	1.0
47	33x52	8x15	3.0
48	36x48	14x21	1.5
49	50x30	30x18	3.25
50	38x34	8x5	3.75

Two mounds (Structures 47 and 48) are located on terrace IIIA-G-16, which is the largest terrace of this group and lies to the north of and across an arroyo from IIIA-G-17. The mounds are aligned north-south relative to one another, and are separated by about 40 m of flat terrace. The structures lie toward the eastern edge of the terrace. Both mounds are moderately large in base and top area. At 3.0 m high, the structure on the northern part of the terrace is twice as high as the one to the south.

The fifth mound (Structure 46) in this terrace group may also have been part of a two-mound group. The original study mapped a possible structure to the southeast of this building, in a relative position similar to that existing between the two mounds discussed above. However the 1988 study recorded no trace of any such remnant structure. The extant structure (Structure 46), situated on the western end of terrace IIIA-G-13, was probably an elite housemound, although it measured only 1 m high. The no longer apparent possible structure would have been located on terrace IIIA-G-15, adjacent to and southeast of G-13. Terrace IIIA-G-15 includes what was mapped in 1977 as a possible and a definite terrace adjacent to the southeast, on which the possible structure was located. However, in 1988 these different areas could not be distinguished with any certainty, indicating that erosion has proceeded at a rapid pace to produce a substantially changed landscape eleven years later.

<u>Terrace Group IIIA-H</u>, consisting of eight terraces, is the fourth group designated nonelite residential in function (Figure 11). It is situated on the west slope of the hill, on quite steeply sloping ground. Immediately upslope, and separating it from IIIA-C, is an unoccupied area that probably is too steep to have been terraced successfully in prehispanic times. This stretch of sheer, nearly vertical rock made a natural barrier to communication between the summit terrace group IIIA-C and lower lying parts of the community. Terraces in this group have no discernible, direct connection to any mounded architecture, vary considerably in size, and tend to have light artifact densities.

None of the terraces in this group had been ploughed recently, although evidence of looting was observed on one. There was no building debris of any kind.

Traces of Late Postclassic reoccupation are present on half of the terraces in this group. One of the terraces with a smattering of Monte Albán V sherds may also have been in use during Monte Albán IIIB and/or

IV. Several sherds that likely date to the Late Classic phase were identified in the collection of a fifth. Fewer than half of the terraces in this group have pure Monte Albán IIIA collections.

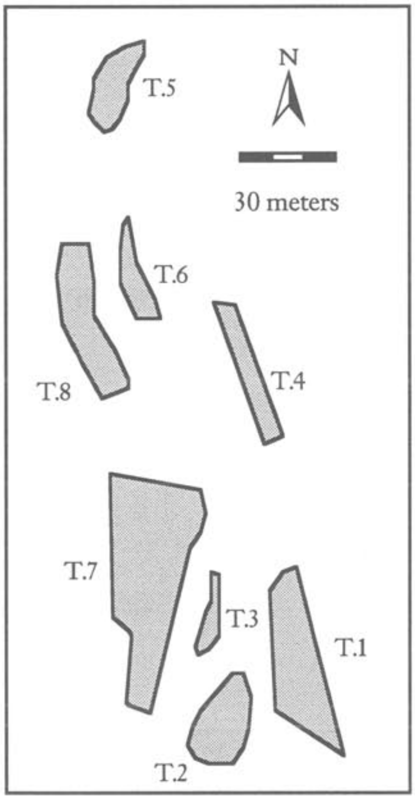


Figure 11. Terrace Group IIIA-H

Terrace areas range from 140 to 990 sq m, and average 485 sq m. This average figure, however, is somewhat misleading as a characterization of the entire group. Median terrace size in this group is only 385 sq m. Two terraces measure 990 sq m in area, but all others are smaller than the average size.

The Monte Albán IV Component

Terrace Group IV-A is situated along the crest of the *Cerro Piedra de Gavilán*, the major north-south running ridge that forms the spine of the Monte Albán IV component (Figure 12). Group IV-A lies to the north of the juncture with the secondary ridge approaching from the east. The major communication route from the east in prehispanic times undoubtedly was along this secondary ridge, as is discussed in greater detail below (see Terrace Group IV-C). The location of IV-A affords a spectacular view of most of the rest of the site, of much of the southern Valley of Oaxaca, and of the Tlacolula Valley. Terraces in this group are located either on the crest of the ridge or immediately below it. IV-A, containing 22 terraces, is one of two terrace groups in the Early Postclassic component of Jalieza designated civic-ceremonial in function. It has a tightly closed four-mound and plaza group (Figure 13).

More than half the terraces in IV-A (12) had been ploughed recently. In fact, because ploughing and planting were occurring in this area as our work proceeded, some alteration of original field objectives in this part of the site was necessary. Looting was apparent on only one terrace. The only mounded architecture is a four mound group whose plaza was terrace IV-A-32. Although other building rubble was absent, plaster was observed on all but four terraces. This may indicate that many of these terraces were public spaces rather than private residences. Other evidence in support of this argument is evaluated in Chapter 6. Minimally, the evidence from building debris indicates residential space for the relatively well-to-do sector of Jalieza'a Early Postclassic population.

Multicomponency turned out to be far more widespread and problematic in this terrace group than was predicted on the basis of the 1977 study. More than half of the terraces (13) had some Late Postclassic sherds (five or fewer, with the exception noted below), although only in one case was the proportion of Period V ceramics high enough to throw into doubt the Early Postclassic attribution of nonceramic archaeological remains (terrace IV-A-32). Traces of Monte Albán IIIA were present on two terraces, and small numbers of Monte Albán Late I and/or II diagnostics were tabulated on nine others. As a result only five terraces (< 25%) in this group can be said with certainty to have been occupied only in the Early Postclassic, although this latter phase is clearly the dominant one. The Late Postclassic evidence suggests periodic ritual re-use of parts of IV-A rather than reoccupation (see Chapter 6).

Terraces of this group vary greatly in size, and artifact densities range from very light to very heavy. Terrace areas range

Figure 12. Terrace Groups Surface Collected in Monte Albán IV

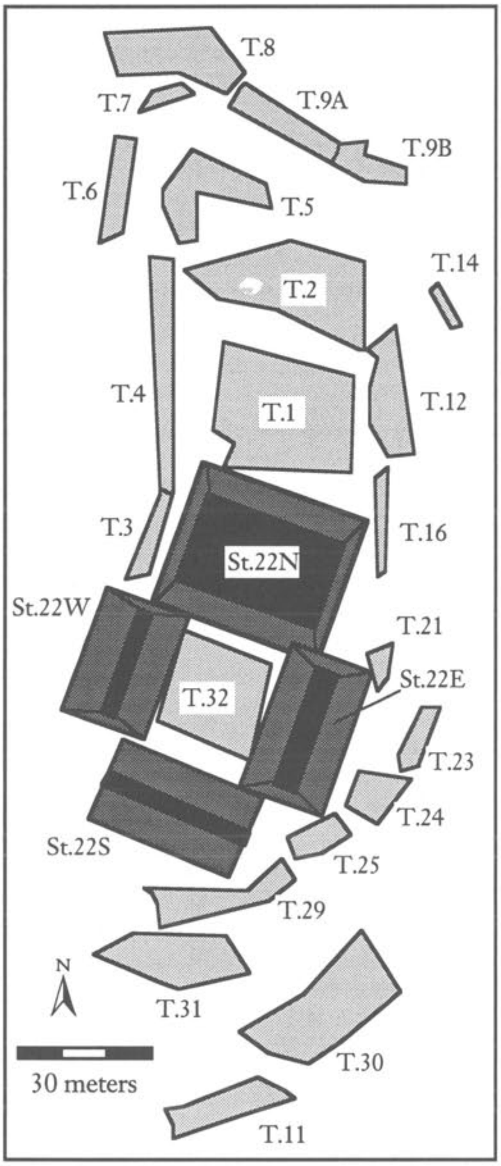


Figure 13. Terrace Group IV-A

from 45 to 1025 sq m, with an average area of 230 sq m. The mean is heavily skewed by a few exceptionally large terraces. Median terrace area is a mere 145 sq m, and seventeen (more than 75%) terraces in this group are smaller than the average figure.

The four-mound group (Structure 22) around terrace IV-A-32 includes mounds that range in height from 1.5 to 4.0 m measured from the central patio (see Table 7). Although some Late Postclassic sherds were noted on one of these structures in 1977 , I included it in the 1988 study because of its probable importance for understanding the nature of activity differentiation and community organization at the Monte Albán IV component. The south and west mounds of the group are long and very narrow, while the structure to the north has the broadest top area. The tallest mound borders the eastern side of the group, while the lowest structure is found to the west of the patio.

Table 7. Structure Dimensions in Terrace Group IV-A

Str.No.	Base	Top	Height
22North	25x30	15x25	2.4
22East	53x?	28x6	4.0
22South	?x35	3x35	2.0
22West	30x?	25x3	1.5
7	49x40	40x3	6.0
8	25x18	16x8	12.0
9	34x16	0x2.5	1.0
10	40x?	30x2	4.0
11	30x6	18x2	2.5

Many terraces originally designated for inclusion in this terrace group, all on the ridgecrest south of IV-A and descending into the saddle, could not be collected because planting was taking place when we arrived to carry out the study. Among these were five buildings (Structures 7-11), including a four-mound group (Structures 7-10) located in the saddle on the lowest portion of the ridgeline, where the secondary ridge supporting terrace group IV-C and the ancient roadway adjoins. As the measurements in Table 7 indicate, the buildings in the group vary considerably in size, both in terms of basal and top area, and in height. The tallest, at 12 m, is by the far the highest mound at all of Jalieza. It is interesting to observe that while the scale of the two four-mounds groups differs substantially, both in the height and top area of the largest mounds, their overall configurations are identical. In both groups, the mound to the east of the enclosed patio is the highest, and the structures to the north follow, at about half this height. The lowest buildings, which are no more than 1.0-1.5 m high, border the western sides of the patios. Again in both groups, by far the largest top area is found on the building to the north of the patios, while the top areas of the two lowest mounds are the smallest, and are found on the west and south sides of the patios. In other words, the configuration of the terrace IV-A-32 mound group is repeated, although on a considerably larger scale, in this uncollected group located further south along the principle ridgeline at a critical transportation and communication nexus.

Terrace Group IV-B, consisting of 21 terraces, is situated along the same ridgeline as IV-A, but near the site's southern limit. It is separated from IV-A by the saddle where the secondary ridge from the east connects to the principle ridgeline and where Structures 7-10 are located. Like IV-A, this group has some mounds, although in IV-B they are not found in well-preserved formal arrangments (Figure 14). The architectural evidence is consistent with an elite residential rather than civic-ceremonial function.

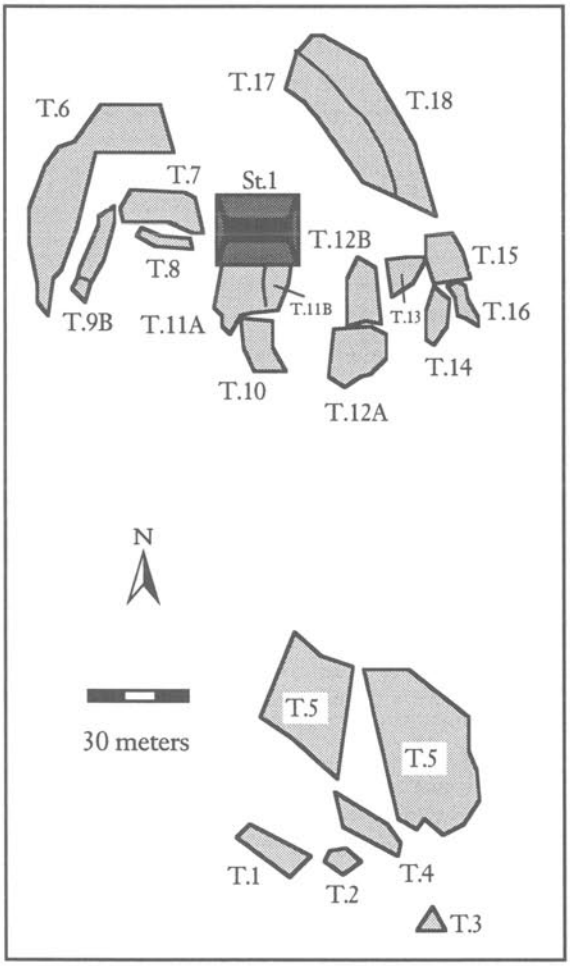


Figure 14. Terrace Group IV-B

More than half the terraces in this group (13) had been ploughed recently or were under cultivation at the time of the study. One exhibited evidence of looting. The only building debris present was plaster, observed on four terraces.

This terrace group had far less multicomponency than IV-A. Although nearly half of the terraces (10) had some Late Postclassic pottery, in only one case do Monte Albán V diagnostics account for a problematically high proportion of the sherds present (terrace IV-B-14). Monte Albán II and/or IIIA was present on one terrace and may have been present on a second. A trace of Monte Albán I and/or II may have been present on two other terraces in this group.

The single mound (Structure 1) located in this terrace group is a masonry structure on the northern edge of terrace IV-B-9. The building is long and narrow, measuring 21x26 m at the base, 6x21 m on top, and 4.5 m high. The structure itself probably served as a platform for an elite residence, while terrace IV-B-9 was a patio or courtyard.

The terraces vary tremendously in size, although most tend to be small or moderate in area. Artifact densities were also highly variable. Terrace areas range from 60 to 2750 sq m, with an average of 405 sq m and a median of only 250 sq m. The vast majority of terraces (17, or 80%) are smaller than the mean, indicating skewing by a small number of exceptionally large terraces.

Terrace Group IV-C is located to the east of the principle ridgeline, on a secondary ridge sloping gently down to form the small valley where the modern town of Santo Domingo Jalieza is situated. Because the archaeological site at Jalieza lies along the eastern boundary of the Valle Grande, the location of IV-C affords no view of the central valleys, to either the west or the north. IV-C consists of the largest single collection of mounded architecture (in terms of the number of structures) and the most complex architectural configurations found anywhere in the Early Postclassic component (Figure 15). Most terraces in this group are

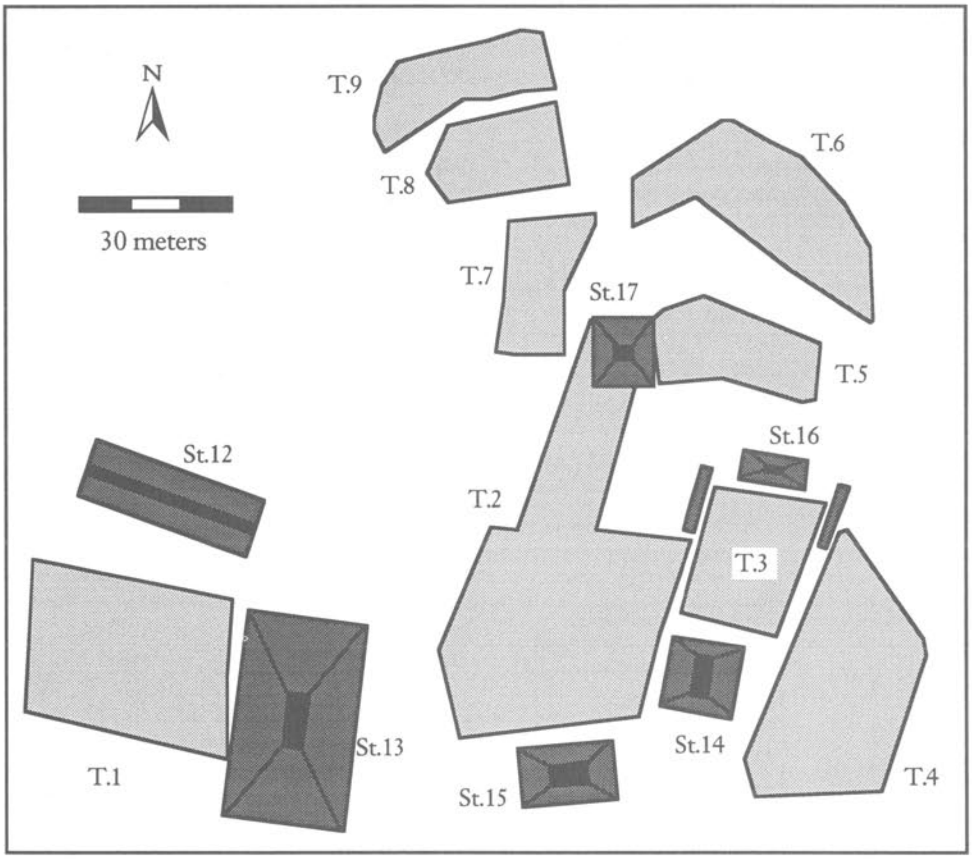


Figure 15. Terrace Group IV-C

directly associated with one or more mounds, and the presence of both formal mound/patio and mound/plaza groups suggests a civic-ceremonial function.

Terrace group IV-C is adjacent to (immediately north of) the *Camino Real* that linked Tlacolula and Ocotlán in colonial times. This roadway can be traced into the saddle separating IV-A and IV-B, from where it makes its descent into the Valle Grande. The road's relationship to Early Postclassic architecture suggests that it may have been in use during at least part of the site's prehispanic occupation. Because of the proximity of major mound complexes, including the unstudied group (Structures 7-10) discussed above, traffic along the road may have been regulated by the state.

All nine terraces of this group had been recently ploughed and were under cultivation at the time of the field study. We found no evidence of looting. Building stone was present on more than half of the terraces (5). We observed plaster remnants on six (67%) terraces, including four of those with building stone. The single terrace on which we observed adobe had no other building debris. The high proportion of terraces with building stone and/or plaster is consistent with the interpretation of this group as one with civic-ceremonial functions.

Unexpectedly, collections from terraces in this group revealed multicomponency. There was little re-use of terraces in this group in the Late Postclassic. Although five terraces had some Monte Albán V diagnostics, these range in number from one to three, accounting for fewer than three percent of utilitarian bowls in every case. However, there were possible traces of Monte Albán IIIA on two terraces, and sherds dating to Monte Albán II and/or IIIA may be present on a third. Four other terraces may have been occupied in Monte Albán I and/or II. Thus multicomponency is a widespread and complex problem in terrace group IV-A, although generally the earlier pottery is present in low enough numbers that terrace collections can be used for other analyses.

Terraces of this group are large, ranging in size from 400 to 1850 sq m, averaging 740 sq m. The mean is misleading because it is heavily skewed by a single enormous terrace. But more than half of the terraces (5) have areas falling between 400 and 550 sq m, while three (33%) have areas of 780-900 sq m. Median terrace size is 550 sq m.

Terrace group IV-C contains six mounds and two ploughed features that were either very small mounds or walls. Mound measurements are presented in Table 8. Structures and terraces appear to form two fairly distinct groupings. The first architectural complex, situated in the southeast portion of the terrace group, involves two buildings and two terraces. A third terrace mapped in 1977 was no longer distinguishable in 1988. Terrace IV-C-8, by far the largest of this group, is bounded on the northeast by a much smaller terrace (IV-C-1). The larger mound (Structure 13) flanks terrace IV-C-8 on its eastern/southeastern side, while the other building (Structure 12) is adjacent to terrace C-1 on its northeastern side. Both mounds are about 2.5 m high, but they have very different forms. The larger building has a substantial base area and probably was topped by a house. Structure 12 is long and extremely narrow. It probably served to provide a measure of privacy and seclusion for the complex.

Table 8. Structure Dimensions in Terrace Group IV-C

Str.No.	Base	Top	Height
12	12x36	2x34	2.5
13	38x24	11x4.5	2.6
14	14x14	3x5	4.0
15	19x12	6x4	4.0
16	12x6	3x1	2.5
17	12x14	3x4	4.75

The second architectural complex is larger and contains many more distinct architectural elements. Three terraces (IV-C-2,3,4) clearly are a part of this complex, and a fourth (IV-C-5) may be. Included are four mounds and two small, ploughed out mounds or walls. Terrace IV-C-2, the largest terrace, has a peculiar shape. It was mapped in 1977 as two terraces, one squarish in form and the other long and narrow. These portions had been ploughed together by 1988 to the point where they were no longer clearly distinct, and so they were collected and described as a single unit. The larger, squarish portion is oriented southwest, while the other part runs to the northeast from the north side. Two mounds, aligned approximately perpendicular to one another, flank the south (Structure 15) and east (Structure 14) sides of terrace IV-C-2. Both measure 4 m in height, and both are small in area at the base and on the top. At the north end of terrace IV-C-2 is a third structure (Structure 17) measuring about 8 m high from the terrace, but only 1.5 m from the opposite side because of the use of the natural topography in the mound's construction. This is the highest mound in terrace group IV-C, but the structure is comparable in base and top areas to the two small buildings at the south end of the terrace. Abutting against the eastern side of Structure 17 is the west end of terrace IV-C-4. South of terrace IV-C-4 is the fourth mound (Structure 16), a very small structure measuring only 2.5 m high. To the immediate south, this mound flanks a small terrace (IV-C-3) that was probably a patio. On the east and west sides of terrace IV-C-3 are the two destroyed mounds or walls that would have enclosed this terrace from those directions. To the south of terrace IV-C-3 is the north side of Structure 14.

<u>Terrace Group IV-D</u> is one of five groups in the Early Postclassic component that lack mounded architecture, except low housemounds, and are designated nonelite residential in function. Consisting of twelve terraces, it is situated in the northeast part of the site on moderately sloping ground (Figure 16). It is in fact located on a different ridgeline (although part of the same ridge system) than the three elite or civic-ceremonial groups already discussed.

All but one terrace in this group had been ploughed recently at the time of the study, and none had been obviously looted. Housemounds were observed on two terraces, one of which also had some plaster. There was no other architectural debris.

Late Postclassic re-use of terraces in this group was minimal. Three terraces had one or two Period V sherds. Two terraces may have had some occupation in the Early Classic, however, and one of these terraces

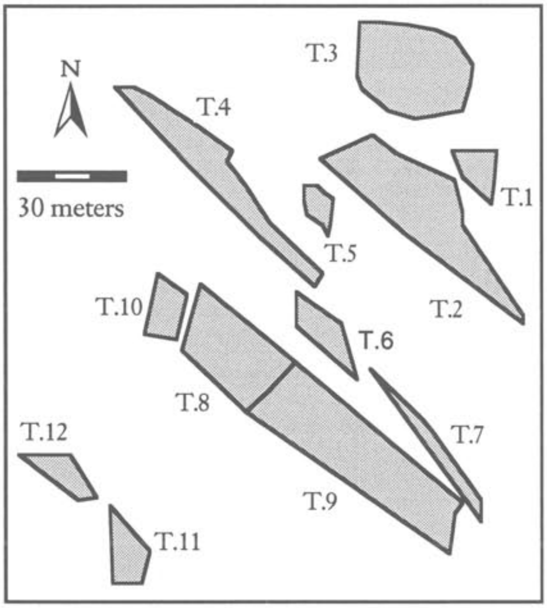


Figure 16. Terrace Group IV-D

had a few sherds suggestive of Monte Albán I and/or II. Possible Monte Albán I and/or II sherds were also present on three other terraces. Although fewer than half (5) of the terraces in this group had pure Early Postclassic ceramic collections, in the majority of cases evidence of other phases is present in only trace amounts or is ambiguous.

Terraces range in area from 50 to 1140 sq m, averaging 385 sq m. As is always the case, however, the average size is not a particularly informative figure. In this group, half (6) of the terraces are 150 sq m or less in area, while 25 percent (3) have areas of 840 sq m or larger. This very distinctive distribution of terrace sizes will be discussed in greater detail in a later section of this chapter.

Terrace Group IV-E consists of fourteen terraces on a secondary ridge east of Group IV-B (Figure 17). This group has been designated residential in function, since the only architecture in the vicinity is a single low housemound on one of the terraces. Like IV-D, the terraces are situated on moderately sloping ground.

Half the terraces in this group (7) had been ploughed recently when the study was undertaken. Nonetheless, no building debris of any kind was observed. There was no apparent looting.

A single Late Postclassic sherd was recovered from this terrace group, indicating that multicomponency does not present a problem.

Terraces tend to be small, ranging in size from 90 to 440 sq m, and averaging only 250 sq m. This is probably one of the few cases in which the mean is an accurate representation of terrace area tendencies.

Terrace Group IV-F consists of nineteen terraces to the west and about 50-100 m downslope from IV-A (Figure 18). No mounds are associated with this group, and it is sufficiently removed from IV-A not to be considered a part of that group. This is another of the groups designated nonelite residential in function.

None of the terraces of this group had been ploughed recently, and looting was apparent on only one. A single terrace yielded building debris in the form of plaster.

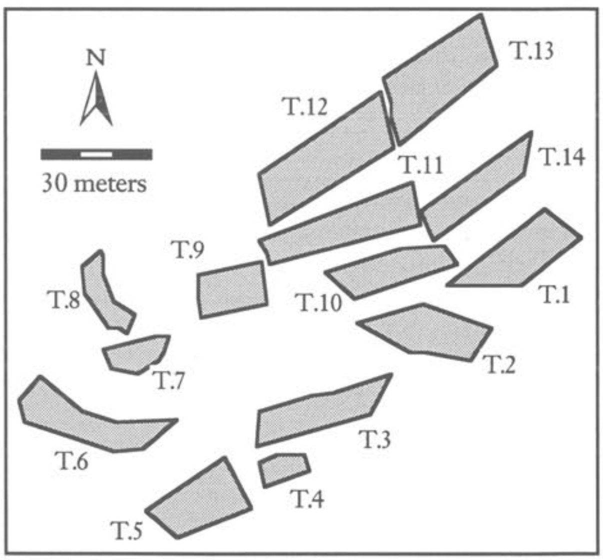


Figure 17. Terrace Group IV-E

Only one Late Postclassic diagnostic sherd was collected from terraces of this group, indicating at most a fleeting re-use of a small area in Monte Albán V. All other ceramic diagnostics were consistent with an Early Postclassic occupation.

Terraces of this group range in area from

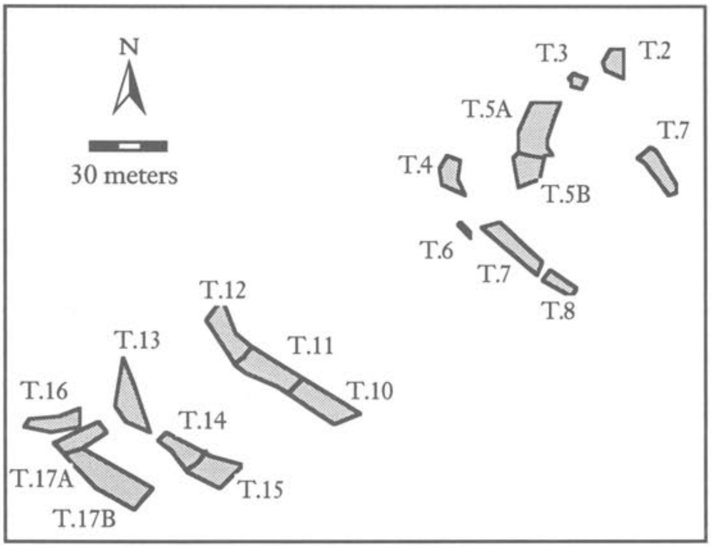


Figure 18. Terrace Group IV-F

only 40 to 280 sq m, and average a mere 125 sq m.

Terrace Group IV-G is located at about the same elevation as Group IV-F but near the site's southern boundary, to the west and downslope from Group IV-B on a secondary ridge descending into the Valle Grande. It consists of seventeen terraces, none of which had any mounded architecture (Figure 19). This group is another of those designated nonelite residential in function.

None of the terraces in this group had been ploughed recently or discernibly looted at the time of the study.

No construction debris of any sort was observed on any terraces of this group, and artifacts were relatively sparse. In these respects, as well as in terms of general location within the site and in relation to topographic features, this group of terraces closely resembles IIIA-F, where I suggested that the evidence pointed to a residential occupation of very short duration.

Terraces of this group are very small on average (120 sq m), and range from 45 to 195 sq m in size (total area).

Terrace Group IV-H is situated just above the major break in slope at the Valle Grande valley floor, near the site's southern boundary. Natural springs flow in this area. This group consists of sixteen terraces, only one of which has a low housemound (Figure 20). Because there are no other mounds in the vicinity, I categorize this group as having had a predominantly nonelite resi-dential function.

None of the terraces in this group had been ploughed recently or discernibly looted at the time of the study.

No construction debris of any sort was observed on any terrace in this group (including the one with the housemound), and artifact debris was relatively sparse. In these respects, as well as in terms of general location within the site and in relation to topographic features, this group of terraces closely resembles IV-G and IIIA-F, where the evidence points to a residential occupation of very short duration.

Terraces in this group have a very small average size (155 sq m), and range only from 75 to 315 sq m.

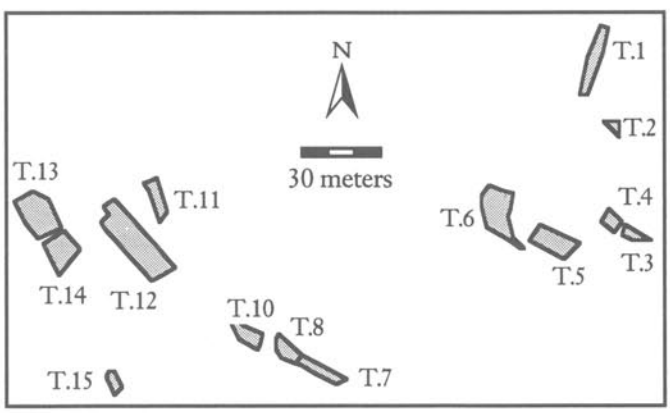


Figure 19. Terrace Group IV-G

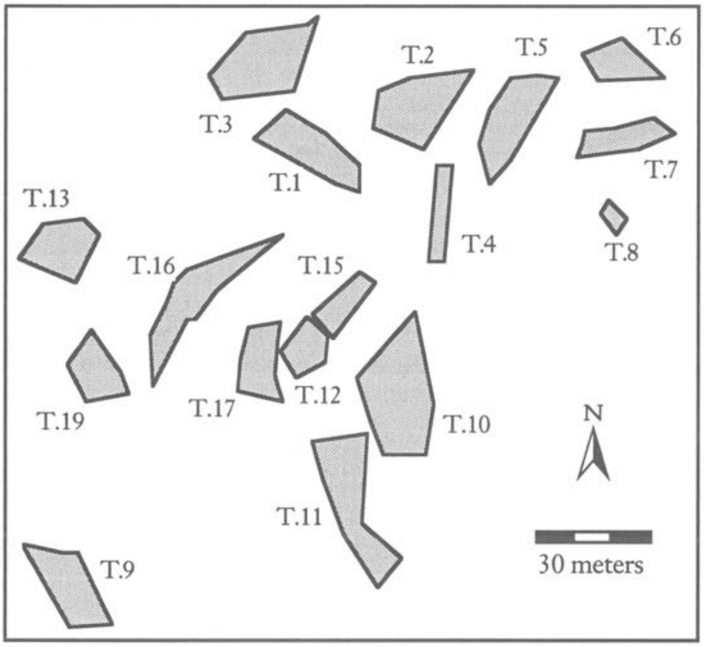


Figure 20. Terrace Group IV-H

The size characteristics of terrace groups belonging to these different classes are analyzed and compared below.

A second important factor affecting terrace size is the number and/or nature of activities for which terraces were designed or subsequently modified. Specialized production, for example, may require a large area to accommodate the various steps in production from storing raw materials through making and warehousing the finished product. Civic-ceremonial activities such as public ritual and administration may have required large spaces where considerable numbers of people could gather to observe and/or participate in rites and ceremonies. Generally, then, specialized activities including but not limited to production are expected to be associated with larger terraces. In the preceding discussion of terrace group architectural characteristics, I have attempted to identify groups that played civic-ceremonial roles, primarily on the basis of the number and configuration of structures. These designations will be explored further in subsequent analyses, in the present and later chapters.

The analyses that follow examine variation in terrace size (area) among terrace groups of each temporal component. Average terrace size for each of the eight terrace groups within each component, and variability in terrace size, are the fundamental measures. Size and variation in terrace size, individually as well as by group, are compared for the Early Classic and Early Postclassic components, as well.

Variability in Terrace Size

Terrace size depends upon a number of factors. Terraces are essentially houselots and other spaces engineered for domestic and other activities. Steepness of slope, measured roughly by elevation, has been shown not to be a significant determinant of terrace size (Kowalewski et al. 1989). Although variables such as modern and recent land use, degree of erosion, and other nonbehavioral factors may play a role, these are not considered systematically in this analysis. Other studies have shown a positive relationship between house size and social status (Kramer 1982; Ashmore and Wilk 1988). Although house size itself is not accessible from these terrace size data, I assume a positive relationship between houselot and house size. Tiny terraces could only have had very small houses on them, while larger terraces may have accommodated much larger dwellings. And a larger terrace itself represents a greater commitment of resources and labor, irrespective of house size. I have attempted to make status distinctions on the basis of the architectural characteristics of entire terrace groups, since these are the fundamental units of analysis.

Early Classic Terrace Size

Statistical measures of variability in terrace area for each of the eight terrace groups collected from the Early Classic component at Jalieza are presented in Table 9. Terraces in IIIA-A have by far the largest mean area (3000 sq m), although this is partly because a single very large terrace

Table 9. Monte Albán IIIA Terrace Group Size Statistics

Terrace Group	Mean	S.D.	Median	C.V.
IIIA-A	3000.0	3182.6	1675	106.1
IIIA-B	301.5	188.7	290	62.6
IIIA-C	386.5	407.6	225	105.5
IIIA-D	364.1	244.4	300	67.1
IIIA-E	738.3	430.1	580	58.3
IIIA-F	237.9	189.2	175	79.5
IIIA-G	1636.8	1784.2	860	109.0
IIIA-H	483.7	327.3	380	67.7

skews the average upward (Figure 21). Terraces in IIIA-G rank second, and also have a mean area much larger (1637 sq m) than is found in the remaining six Early Classic groups. These two groups also have among the most variable terrace areas, although this statistic may be somewhat misleading in the case of IIIA-A. However they share in common an elite residential function, which may explain the presence of one or two very large terraces together with other more average-sized ones. The largest terraces tend to have on or near them mounds that likely housed elites, and the terraces themselves may have served as patios, courtyards or other open spaces associated with fine residences. Many smaller terraces may have been places where cooking or other domestic activities in support of elites were carried out, while others might have housed retainers and servants.

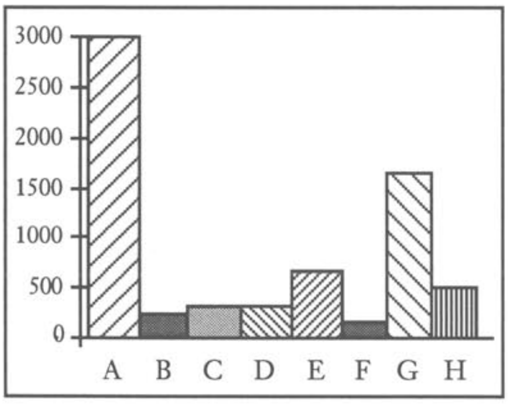


Figure 21. Monte Albán IIIA Mean Terrace Area (sq m) by Terrace Group

Next, in descending rank order, is IIIA-E with a mean terrace area of 738 sq m. This latter group stands out among all groups, not only because of its relatively large average terrace size, but for its low coefficient of variation. Terrace Group IIIA-E is unique in the Early Classic component for its consistently large terraces. As is discussed in Chapter 5, IIIA-E is one of three terrace groups with indisputable evidence for a ceramic workshop.

The remaining five terrace groups have quite similar average terrace areas and coefficients of variation, with the exception of Group IIIA-C. In area, IIIA-C ranks in the middle of these five terrace groups in average terrace size, but it is distinguished by its coefficient of variation which is among the highest of all Early Classic terrace groups. In essence, the data indicate that IIIA-C shares size characteristics with two other sets of terrace groups. Like IIIA-A and IIIA-G, it has terraces that vary greatly in size. However, like IIIA-B, IIIA-D, IIIA-F and IIIA-H, most terraces in IIIA-C tend to be small and the larger ones are not so incredibly large that they skew the mean upward significantly. IIIA-C, located at and around the summit, is the Jalieza's civic-ceremonial core in the Early Classic. In all three cases (IIIA-A, IIIA-C and IIIA-G), more variable terrace area is associated with mounded architecture, suggesting an elite residential and/or civic-ceremonial function. This provides strong support for my contention that two principle variables underlying terrace size are function and the social status of residents.

These terrace group comparisons suggest some similarities shared by groups with the same functional labels "elite", "civic-ceremonial", and (nonelite) "residential". When terraces are aggregated by these architectural categories (Table 10; Figure 22)[6] rather than by terrace group, the differences discussed in the group-by-group analysis above become more striking. Elite terraces are much larger on average and, as a group, are much more variable in size than are other terraces. Residential terraces have a

[6] Because of the subjectivity involved in distinguishing elite residential from civic-ceremonial terrace groups, I include a category (Elite/C-C in Tables 8 and 9) that presents statistics for a single category that combines them.

Table 10. Monte Albán IIIA Terrace Area Statistics by Terrace Group Designation

Designation	Mean (sq. m.)	S.D.	C.V.
Elite	1173.6	1832.3	156.1
Civic-Cerem.	386.5	407.6	105.5
Residential[7]	409.7	322.1	78.6
Elite/C-C	938.9	1586.7	169.0

slightly larger average size than do civic-ceremonial ones, but their areas are far less variable. Terraces in civic-ceremonial groups have an average size slightly less than that for nonelite residential ones, but are considerably more variable. A simplified functional designation that combines elite and civic-ceremonial groups also shows a marked difference in terrace size (Figure 23), although on a lesser order of magnitude.

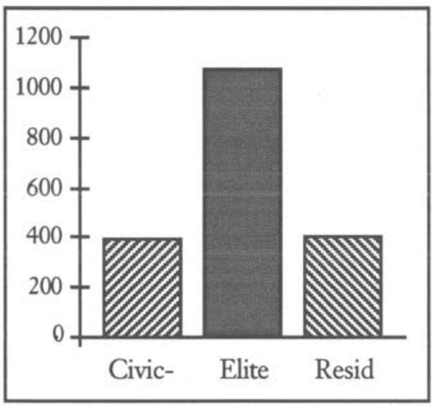


Figure 22. Monte Albán IIIA Mean Terrace Area (sq m) by Terrace Group Designation

Early Postclassic Terrace Size

The largest average terrace size in the Early Postclassic component at Jalieza is found in IV-C (740 sq m), a civic-ceremonial group (Table 11; Figure 24). These terraces average nearly twice the size of the next largest group. The low coefficient of variation indicates that terraces of this group tend to be consistently large, rather than having a spuriously high average because of one or two exceptionally large terraces.

A second tier of terrace groups includes IV-B and IV-D, with means of 409 sq m and 384 sq m, respectively. IV-B was considered to have been elite residential in function on the basis of its architecture, while IV-D is nonelite residential. Although these groups have very similar-sized terraces, on average, they differ greatly in terms of variability in terrace size: terraces in IV-B are far more variable than are those in IV-D. This is consistent with the notion that terraces in elite and/or civic-ceremonial groups will vary more in size because of a wider range of

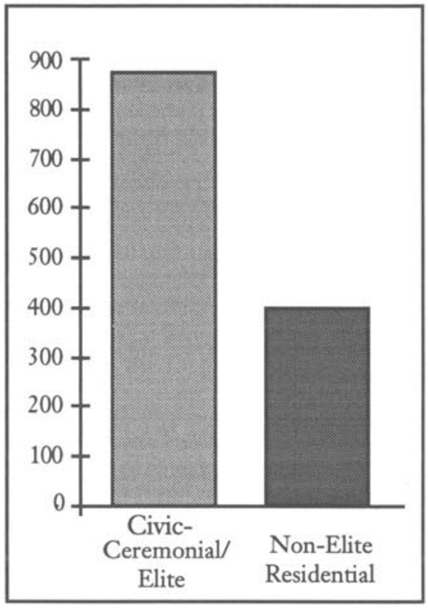


Figure 23. Monte Albán IIIA Mean Terrace Area by Simplified Terrace Designation

Table 11. Monte Albán IV Terrace Group Size Statistics

Terrace Group	Mean	S.D.	Median	C.V.
IV-A	231.6	267.3	145	115.4
IV-B	409.1	603.0	265	147.4
IV-C	739.4	459.7	550	62.2
IV-D	383.7	382.8	200	99.7
IV-E	245.4	131.9	260	53.8
IV-F	123.7	77.7	100	62.8
IV-G	120.3	55.5	95	46.1
IV-H	156.3	73.2	125	46.8

7 The label "residential" is used for terrace groups designated "nonelite residential".

specific activities being carried out within the group, and because of the different functions of individual terraces within the group. The larger but less variable terraces of IV-D are associated with craft specialization, in this case obsidian working as is discussed in greater detail in Chapter 5.

A third tier of terrace groups based on size characteristics includes IV-A and IV-E, although this pairing shares the characteristics and problems of the second tier discussed above. Both groups have remarkably similar means but very different coefficients of variation. IV-A, in fact, has among the greatest variation in terrace area, while IV-E has among the least. As was the case for the two groups of the second tier, functional differences may account for this. IV-A is civic-ceremonial, while IV-E is one of five nonelite residential terrace groups. Again there is a relationship between elite/civic-ceremonial function and terraces of highly varying sizes.

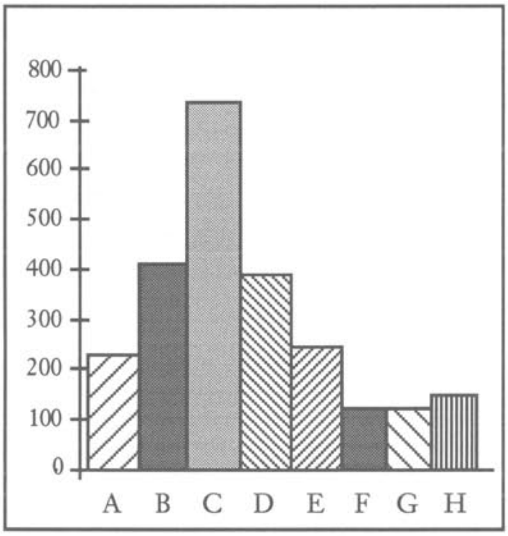


Figure 24. Monte Albán IV Mean Terrace Area by Terrace Group

The final tier consists of IV-F, IV-G, and IV-H, all of which have very small terrace areas on average and relatively low coefficients of variation. Their locations in the site, sparse archaeological remains, and lack of observable architecture all were interpreted as indicating not only nonelite residential function but may also reflect a relatively short-lived occupation. Situated on the peripheries of the site, these terraces may have been part of a short-lived, late growth spurt or expansion down toward the floor of the Valle Grande before the settlement was relocated to the north-central ridge *(Cerro Ticolutle)* in the Late Postclassic.

Variation in terrace size characteristics by functional designation are significant. Terraces in civic-ceremonial and elite groups have very similar average areas (Table 12). However, terraces in elite groups have much higher coefficients of variation than terraces in either civic-ceremonial or residential groups. Thus terraces in elite groups stand out because they are not only large but highly variable in size compared to others terraces. Residential terraces, on the other hand, are striking in that they are uniformly small. Combining elite and civic-ceremonial terrace groups still produces a set of terraces whose characteristics differ markedly from those of terraces in residential groups, averaging more than twice the size of the latter (Figures 25 and 26).

Table 12. Monte Albán IV Terrace Area Statistics by Terrace Group Designation

Designation	Mean (sq.m.)	S.D.	C.V.
Elite	409.5	603.0	147.4
Civic-Cerem.	379.0	401.6	106.0
Residential	191.5	189.1	98.8
Elite/C-C	391.2	487.5	124.4

Comparison of the Early Classic and Early Postclassic Components

Regional settlement pattern and other data suggest that by the Early Postclassic, major evolutionary changes in the structure and organization of Valley of Oaxaca society were well underway (Blanton et al. 1982; Finsten 1983; Kowalewski et al. 1989). Political decentralization, including a marked decline of Monte Albán's power and influence, and commercialization are the major secular trends characterizing long-term change from Classic to Postclassic times, not only in the Valley of Oaxaca but elsewhere in Mesoamerica, as well. Evidence of increasing commercialization at the regional scale is found in larger numbers (both absolute and per capita) of ceramic,

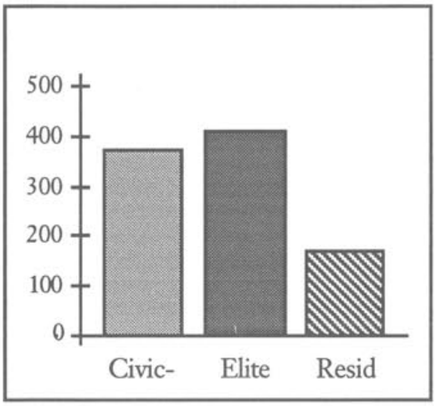


Figure 25. Monte Albán IV Mean Terrace Area by Terrace Group Designation

obsidian and other craft-producing workshops, and a tendency for workshops to locate between the borders of polities in order to optimize access to markets or at the edges of major centers (Finsten 1983). Archaeologically identified settlement clusters that may correspond to Late Postclassic petty kingdoms average populations of about 8000, a figure consistent with the size of standard marketing areas in Imperial China, premodern Mexico, and elsewhere (Blanton 1982). Classic period ceramics, among the least labour-intensive of the prehispanic Valley of Oaxaca sequence, are consistent with a heavily administered system of production and distribution and limited consumer choice (Feinman 1980). In contrast, Late Postclassic pottery is among the most labor-intensive ever produced in the Valley of Oaxaca prior to European intrusion, suggesting greater competition among potters for consumers (ibid.).

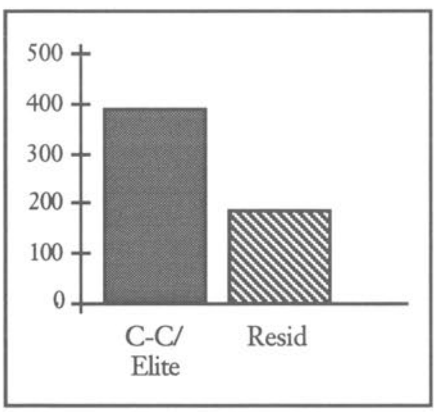


Figure 26. Monte Albán IV Mean Terrace Area by Simplified Terrace Group Designation

Here I focus on cross-temporal differences in terrace sizes at Jalieza, in order to distinguish changes at the community and household level that may have accompanied decreased political centralization and, especially, growing commercialization, to the extent that it was already present by Early Postclassic times.

Overall, terraces at the Early Classic component of Jalieza are larger and much more variable in size (Table 13). An unpaired, two-tailed t-test indicates that the differences in size are not the result of chance or of sampling error (DF=221, unpaired value=3.713, probability=0.0003). A similar, statistically significant cross-temporal difference in terrace size was noted using measurements produced during routine mapping of the entire site at Jalieza in 1977 (Finsten 1978). In other words, the sample studied in greater detail in 1988 appears to be a fair representation of terrace sizes at Jalieza.

Table 13. Temporal Differences in Terrace Size

Phase	Mean (sq.m.)	Standard Deviation	Standard Error
IIIA	695.4	1234.45	128.007
IV	271.4	353.50	31.004

Histograms of the size distributions for each phase show these differences graphically (Figure 27). The vast majority of Early Postclassic terraces are less than 200 sq m in area. In contrast, few Early Classic terraces are less than 100 sq m in area, and most are 200-400 sq m. Both distributions show a minor peak at 800-1000 sq m and share similar distributions in this size range, although neither phase shows a truly bimodal size distribution. In both the Early Classic and Early Postclassic, both the numbers and proportions of terraces larger than 600 sq m are very low. The major cross-temporal differences are: (1) the relatively small number of terraces greater than 200 sq m in the Monte Albán IV component, and (2) the presence of a small

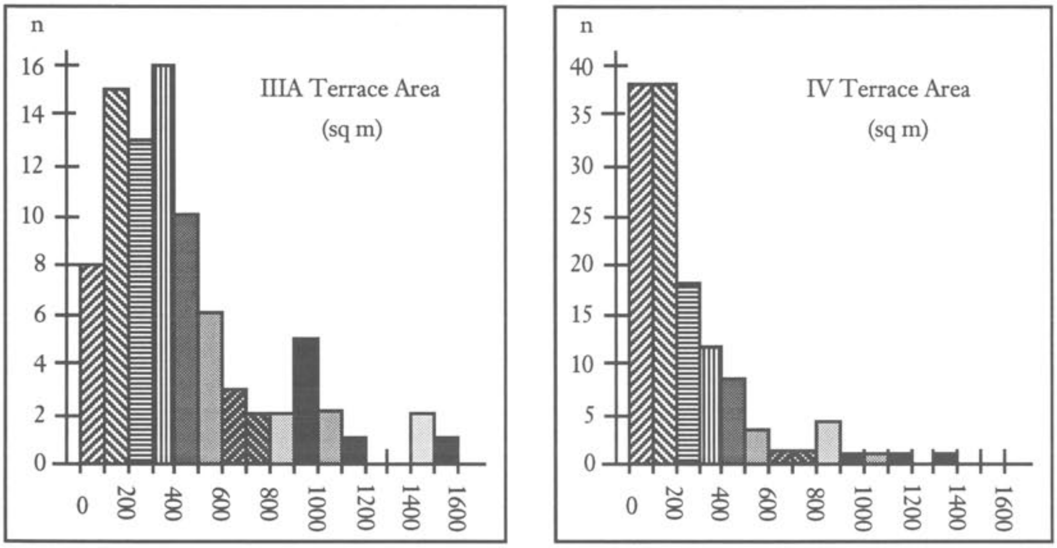


Figure 27. Terrace Size Distributions

number of very large terraces in the Monte Albán IIIA component. What factors account for these temporal differences? Are all Early Classic terraces consistently larger, irrespective of specific, identifiable functions, or is the pattern more complex? In order to answer these questions, I compare terraces in Monte Albán IIIA and IV according to functional/status designations based on architecture and location within the site.

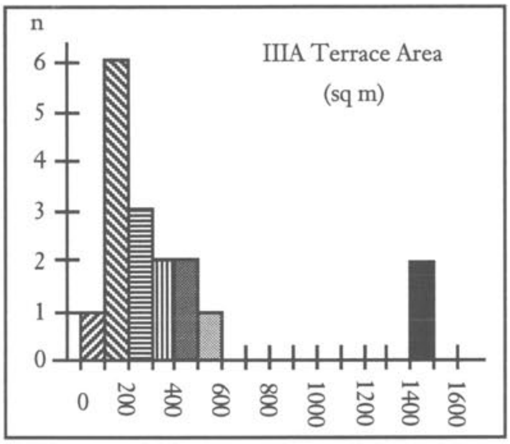
In both phases, terraces in civic-ceremonial groups have nearly identical average sizes and coefficients of variation (Table 14), suggesting that at least some qualities of civic-ceremonial activity remained unchanged in the Early Postclassic phase. However histograms reveal important cross-temporal differences (Figure 28). While the Early Classic size distribution is bimodal, the Early Postclassic is unimodal. This may be partly attributable to the small size of the Early Classic sample for this functional group.

Elite residential terraces in the Early Classic component are nearly three times as large as elite Early Postclassic terraces on average, but have very similar coefficients of variation. In the Early Classic component, terraces in elite groups stand apart from all other terraces for their very large size and great size variation. However, in the Early Postclassic component, terraces in elite groups average about the same area as those in civic-ceremonial groups. The major difference lies in the degrees of variation. The distribution of terrace sizes in elite groups is multi-modal and highly variable in IIIA, but not in IV (Figure 29). Early Classic elite groups have a much higher proportion of terraces with areas larger than 500 sq m than do Early Postclassic ones.

Combining the elite and civic-ceremonial designations can be justified, indeed may even be preferable, given the subjectivity involved in making this distinction on the basis of surface evidence alone and, to a lesser extent, the small samples involved for some groups in one phase or other. In the combined sample, Monte Albán IIIA terraces have an

Table 14. Temporal Comparison of Mean Terrace Area by Terrace Group Designation

Terrace Group Designation	IIIA Mean	IIIA C.V.	IV Mean	IV C.V.
Civic-Ceremonial	386.5	105.47	379.0	105.95
Elite	1101.2	156.12	409.0	147.42
Residential	409.7	78.61	191.5	98.77
C-C/Elite	884.2	169.00	391.2	124.64



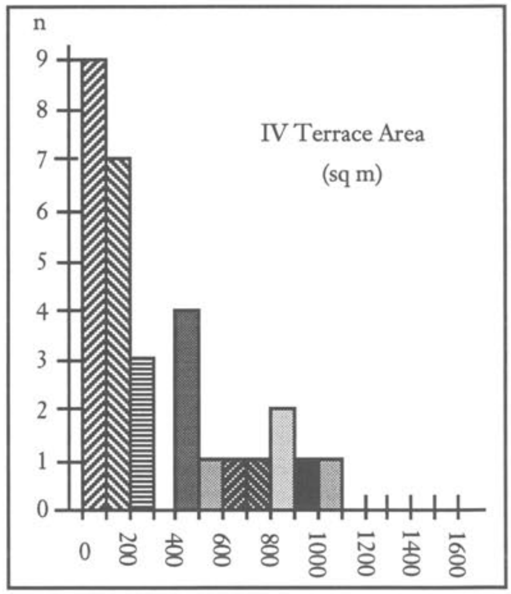


Figure 28. Terrace Size Distribution in Civic-Ceremonial Groups

average area more than twice that of Monte Albán IV terraces. Interestingly, combining terraces from elite and civic-ceremonial groups results in the greatest cross-temporal difference in coefficients of variance yet seen. Size distributions for both phases are essentially unimodal (Figure 30), although the modal sizes differ drastically (300-400 sq m in Monte Albán IIIA and 1-100 sq m in Monte Albán IV). For Early Classic elite/civic-ceremonial terraces, a significant proportion of the sample are 1-600 sq m in area. But in the Early Postclassic component, few terraces of this class have areas larger than 300 sq m.

Nonelite residential terraces in the Early Classic are more than twice as large on average as in the Early Postclassic, but the coefficients of variation indicate that they are somewhat less variable in size. The Monte Albán IIIA size distribution is slightly bimodal, although most terraces (70%) are 100-500 sq m in area (Figure 31). A second, much smaller group would include terraces 500-1100 sq m in area. In Monte Albán IV, a vast majority (67%) of terraces in nonelite residential groups are a mere 1-200 sq m in area. Beyond that, numbers diminish more or less steadily as size increases.

To summarize these cross-temporal

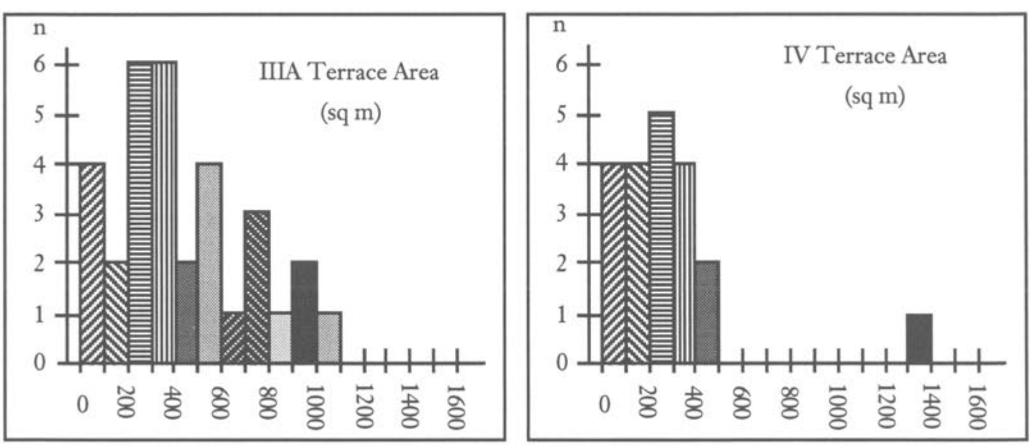
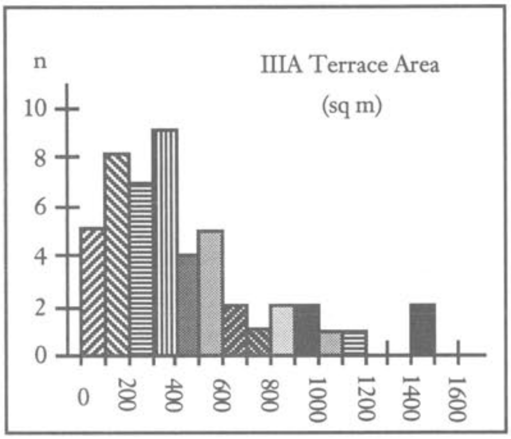


Figure 29. Terrace Size Distribution in Elite Terrace Groups



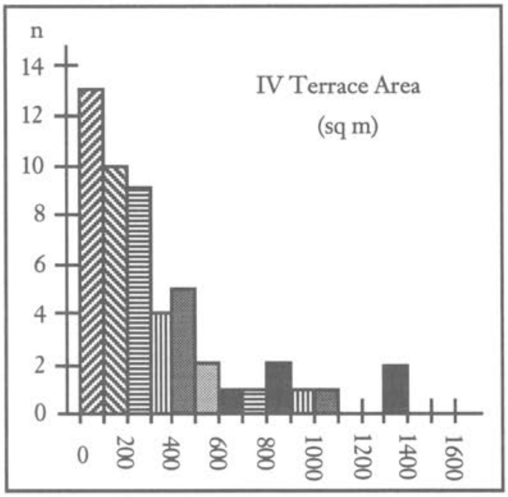
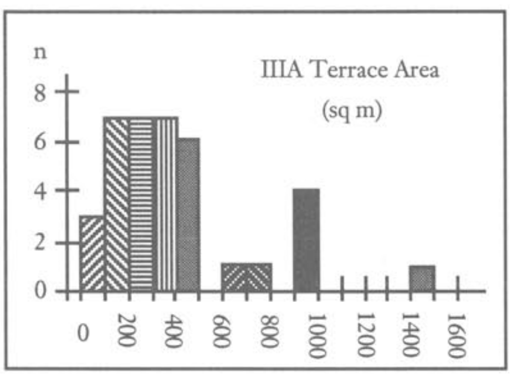


Figure 30. Terrace Size Distribution in Elite/Civic-Ceremonial Groups

comparisons, terraces in civic-ceremonial groups have nearly identical mean areas while terraces in elite groups have the most disparate mean areas (Figure 32). Early Classic elite terraces are nearly three times as large, on average, as their Early Postclassic counterparts. Terraces in nonelite residential groups also show a significant size difference, and again Early Classic terraces have larger average areas, although the difference for this functional group is somewhat less, on the order of about 200 percent. The bar graph suggests the presence of two "unusual groups": Monte Albán IIIA elite groups and Monte Albán IV nonelite residential groups. The former are unusually large, and the latter are unusually small. Coefficients of variation are very similar for terraces in both civic-ceremonial and elite groups, differing to any significant degree only for terraces in nonelite residential groups where Early Postclassic terraces are somewhat more variable in area.

Combining terraces from both civic-ceremonial and elite groups for the purposes of comparison alters this picture in interesting ways. Although the temporal difference is less marked, it is still considerable, with Early Classic terraces of this class averaging slightly more than twice the size of Early Postclassic ones (Figure 33). In addition, terrace size is considerably more variable in the Early Classic sample. This latter temporal difference was not apparent in



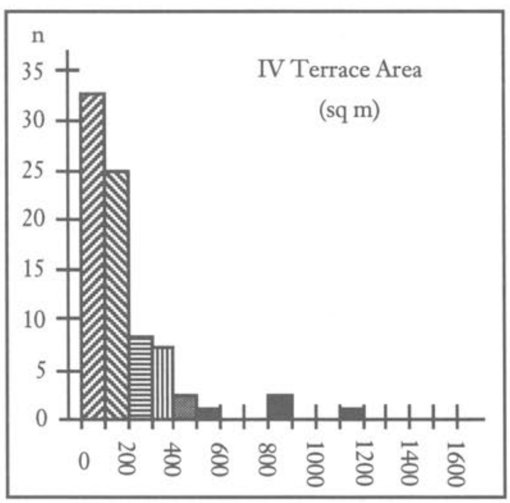


Figure 31. Terrace Size Distribution in Nonelite Residential Terrace Groups

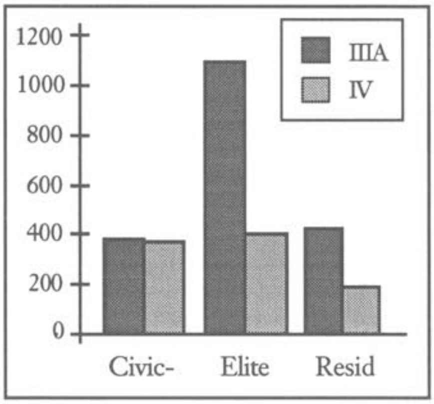


Figure 32. Temporal Comparison of Mean Terrace Area by Terrace Group Designation

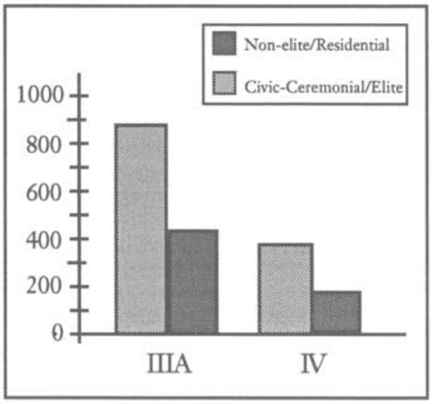


Figure 33. Temporal Comparison of Mean Terrace Area by Simplified Terrace Group Designation

the tripartite comparison.

Comments on Architectural Categories and Terrace Size

Although architectural category designations were made entirely on the basis of architectural associations, there are significant differences in the average size, variability in sizes, and size distributions of terraces depending upon these categories. In addition, cross-temporal differences are apparent. The analyses carried out in this chapter, then, suggest that architecture, together with specific location within the settlement, is a meaningful indicator of broad functional categories of terraces.

Early Classic terraces tend to be larger and, generally, more variable in size than Early Postclassic terraces. We have seen that the greatest size discrepancy is in terraces of elite groups, but it is also apparent that Early Classic terraces of all functional designations are larger. There may have been a decline in the size of the basic residential unit, from extended to nuclear household, for example, but such hypothesized changes cannot be tested with the existing data. Other possible explanations, briefly mentioned below, are explored in greater depth in the final chapter.

Two hypotheses that may account for temporal differences in terrace size are explored further in the final chapter. First, I examine the idea that the much greater size of terraces in elite groups in the Early Classic component is, in part, the result of aggregating elite residential functions (as defined previously) and craft production. Craft activities are largely divorced from elite settlement in the Early Postclassic component. A second hypothesis is that Early Postclassic elites were relatively less well off, compared to the comparable status group in Monte Albán IIIA. Jalieza's Early Postclassic elites had the advantage of not operating under a large centralized state's power. However, a decided disadvantage may have existed in the form of competition for cadre among the lower ranks of elite factions by a number of smaller, politically autonomous centers in the Valley, of which Jalieza was but one. Thus, there may have been fewer demands upon the local citzenry for tribute, including communal labor, making it theoretically possible for the Jalieza elite to extract more. But at the same time, competition for cadre would have made it practically difficult to do so. Local labor, the elite's principle source of wealth, may effectively have been more limited.

Chapter 4

CERAMIC VESSEL VARIATION

Introduction

In this chapter, I examine ceramic vessel variability, looking at two different kinds of data. First I define and discuss the different vessel categories analyzed for comparative purposes, and the general goals of those comparisons. The subsequent discussion deals first with the Early Classic component, next with the Early Postclassic component and, finally, with cross-temporal comparisons. The first analytical segment of each section examines the frequencies and distributions of different functional kinds of vessel forms. The second analyzes statistical variation in vessel size distributions, using two different measures of pot size. For all measures, where sherds were clearly from the same vessel (i.e., fit together), they were counted, measured and recorded as a single vessel. The first measurement made is rim thickness, measured using calipers at a standard .25 cm beneath the lip. Rim thickness is an imperfect measure of vessel size, but has the distinct advantage of universality. Any rim sherd large enough from which to identify vessel form can be measured for rim thickness. The second measure estimates vessel diameter at the mouth, and was recorded only for bowls. Many sherds were too small to derive an accurate measure, taken by placing the sherd over a series of concentric circles. The size of the circle with the best fit, expressed in four graduated measures, was the size recorded for the vessel. These mouth diameter sizes are discussed further below.

Functional Vessel Forms

For the purposes of this analysis, all identifiable ceramic vessel fragments have been grouped into four categories which are thought to have had distinct social and/or functional contexts. Although many other groupings are possible, the categories described below are best suited for identifying differences in the social status of occupants of different parts of the site, as well as differences in the relative importance of activities defined by the purposes to which vessels were put, such as food storage, food preparation, social display behavior, and so on.

<u>Serving bowls</u> (SB) are vessels that probably were used for serving food or other consumables, possibly in routine domestic consumption but perhaps more often on social occasions when guests other than immediate family members were present. These are "display" ceramic vessels, more intended to impress one's social peers or even superiors than they are oriented toward one's own immediate family or other coresidents. This category includes two subcategories. The first, decorated serving bowls (DSB), consists of a variety of decorated bowl types, first defined by Caso, Bernal and Acosta (1967), including the G-23, G-12, and A-7, as well as other untyped decorated bowls. The second subcategory, undecorated serving bowls includes undecorated wares of particularly fine manufacture, generally with very well finished and usually highly polished exterior and, occasionally, interior surfaces. One example of such a ware is the "Polished Black" identified in Monte Albán IV collections at Lambityeco, as it is described by Stephen A. Kowalewski (personal communication 1993). It should be noted that, using surface collections, it is more difficult to identify undecorated serving bowls. While a little erosion will not remove incised decoration, it may remove enough of a highly polished but unincised surface to make it unidentifiable. However, there is no reason to think that erosional or other processes varied enough, at least between components, to introduce an unacceptable level of uncertainty into these identifications and the subsequent analyzes. The much lower frequency of incised decoration in Early Postclassic assemblages does make meaningful cross-temporal comparisons difficult but comparisons among terrace groups within components are not affected. This temporal difference has implications for the ways in which the data are analyzed.

Subcategories of serving bowls are used not because it is apparent *a priori* that there were signficantly different uses for decorated and undecorated varieties, but because whether or not there were such differences in their uses is an important question to investigate. Decorated and undecorated varieties of serving bowls are not treated as entirely distinct categories for a very different reason, however. In fact, decorated wares are extremely rare in Early Postclassic ceramic assemblages from Valley of Oaxaca sites, and so their frequency and distribution cannot be compared meaningfully across time. However, it is not clear beforehand whether the appropriate comparison for Monte Albán IV undecorated serving bowls would be all Early Classic serving bowls, or only those that are also undecorated. By treating the two varieties of serving bowl as manipulable, it is possible to get more meaningful and interesting results.

Utilitarian bowls (UtBwl) are the largest category and include a broad variety of bowls whose uses probably were primarily domestic in nature, focusing on food preparation and other household tasks. Utilitarian bowls are almost exclusively undecorated, and tend to have minimal or even sloppy surface finishes. The impression they make is that function, not appearance, is what mattered most in their design and production. Vessels in this category were used primarily in the "hidden" domestic domain, and would rarely if ever have been trotted out for use in formal settings, except perhaps by the poorest of the settlement's occupants. It is possible that some vessels in this category functioned in other kinds of specialized activities. *Apaxtlis*, or enormously large, thick, often very crude basin-like vessels that may have been used in domestic as well as specialized contexts for food and/or beverage preparation, storage, and other purposes. Among utilitarian bowls are a variety of ceramic types recognized by Caso, Bernal and Acosta (1967), such as the G-1, G-2, and G-35. Many others have not been categorized formally in a typology.

Jars include both *ollas* (necked jars) and *tecomates* (neckless) jars. All jars were combined to form this category with the following exceptions: decorated jars, miniature jars, and small, very finely made jars. None of these latter kinds of vessels occurred with much frequency. However, having excluded them, I can state with reasonable certainty that the vast majority of jars likely served in domestic contexts, for water storage, for the preparation of beverages, possibly for the storage of some dried foods such as corn and beans. Heavily charred and encrusted jar fragments from the partial excavation of one terrace (Finsten 1992) suggested that cooking may often have involved jars which, perhaps because of their form, could more easily be suspended above a heat source than could bowls. See Brumfiel (1991:238-241) for a discussion of Aztec-period cooking pot forms in the Basin of Mexico.

Comales are the last functional category of ceramic vessel analyzed here. These are a flat or slightly concave plate-like griddle that was used specifically for cooking tortillas. Generally, they have lightly burnished upper surfaces, while on the lower surface they may be wiped around the rim and unfinished beyond that. All *comales* were lumped together, with the exception of forms whose rims are diagnostic of Late Postclassic *comal* types. Tortilla cooking, of course, is a domestic activity.

Many other vessel types, such as braziers, *molcajetes*, etc. occur so infrequently that their distributions are not analyzed here. In addition, they would inform us little about the sorts of domestic and display activities that are of concern here. The distributions of other ceramic artifacts, such as funerary urns, figurines, *sahumadores* and miniature vessels are examined in detail in Chapter 6.

Monte Albán IIIA

Frequencies of Ceramic Vessel Forms

Table 15 presents vessel shape mode and other frequencies for terrace groups in the Early Classic component. Note that under the serving bowl (SB) category, a cumulative frequency that includes decorated serving bowls (DSB) is presented. It is calculated by adding the frequency of Decorated Serving Bowls and of undecorated serving bowls (which are not shown separately). Similarly, the frequencies given for the category jars (Jar) include both necked jars (Olla) and neckless jars (*tecomates*, which are not listed separately).

Decorated serving bowls (DSB) are most common in terrace group IIIA-C, the civic-ceremonial core, and least common in group IIIA-G, an elite group with ceramic and lithic production specialties (see Chapter 5). However, with the possible exception of

Table 15. Vessel Form Frequencies in Monte Albán IIIA

Terrace Group	DSB	SB	UtBwl	Olla	Jar	Comal
IIIA-A	.15	.26	.57	.13	.15	.02
IIIA-B	.16	.16	.63	.16	.18	.04
IIIA-C	.17	.18	.66	.13	.15	.02
IIIA-D	.11	.12	.71	.13	.14	.01
IIIA-E	.16	.19	.64	.14	.16	.02
IIIA-F	.13	.18	.67	.12	.13	.02
IIIA-G	.09	.12	.68	.15	.18	.02
IIIA-H	.13	.18	.54	.11	.12	.02

their relatively rare occurrence in IIIA-G, the frequencies among Early Classic terrace groups vary little.

The more inclusive serving bowl category (SB) provides better differentiation of terrace groups, with frequencies varying from .12 to .26. Group IIIA-A stands out as having a notably higher frequency of serving bowls than any other group. IIIA-A is an elite group near the settlement's western boundary, and on very flat terrain. Groups with moderate frequencies include another elite group (IIIA-B), the civic-ceremonial core (IIIA-C), and three nonelite groups (IIIA-E, IIIA-F and IIIA-H). The two groups with low frequencies of serving bowls are both ceramic producing places, although one is nonelite (IIIA-D) and the other is elite (IIIA-G), on the basis of architecture.

The frequency of serving bowls clearly is low in terrace group IIIA-G, whether the bowls are decorated or not, since it is singled out as low in both categories presented here. While the civic-ceremonial core has a relative abundance of decorated serving bowls, considering fine, undecorated bowls lowers this terrace group in the rankings and boosts one of the elite groups. It is unclear why this group should rank above the civic-ceremonial core and its associated elite group (IIIA-B). Finally, the failure of either of these fancy serving bowl categories to distinguish elite from nonelite, and obvious craft specialist from other groups is both puzzling and disappointing.

Utilitarian bowl (UtBwl) frequencies range from a low of .54 to a high of .71. Although there is a reasonable spread in these values, terrace groups differ little from one another, forming a quite smooth continuum from the extreme of most abundant, in terrace group IIIA-D, to least frequent, in terrace group IIIA-H.

Ollas range in frequencies from a high of .16 in terrace group IIIA-B to a low of .11 in terrace group IIIA-H. As was the case with utilitarian bowls, there is so little variation in *olla* frequencies that terrace groups are not distinguishable. Instead, the values form a real continuum. Broadening the category to include *tecomates* (Jar) appears to alter this somewhat. Terrace groups IIIA-B and IIIA-G are tied at first rank. As was the case for *ollas*, IIIA-E, IIIA-C and IIIA-A rank third through fifth, respectively, although in the Jar category they fall into a middle group with very similar frequencies. Groups IIIA-D and IIIA-F have nearly identical frequencies that rank them sixth and seventh, respectively, the same rankings they receive in the category consisting only of *ollas* .

Finally, *comales* account for a very small proportion of the assemblages in all terrace groups. Frequencies range from a high of .04 in terrace group IIIA-B to a low of .01 in group IIIA-D. While IIIA-B's higher value may be distinctive, the remaining groups' frequencies form a continuum in which no clustering is apparent.

The vessel form frequency data for individual vessel catefories suggest surprisingly little variation among terrace groups, overall. However considered together, several terrace groups are distinguished repeatedly in the rankings, showing consistently unusual positions in several vessel form categories. Terrace group IIIA-B, for example, has high frequencies of both jars and *comales*. I have identified this group as elite on the basis of architectural evidence. Its location strongly suggests a close link to the civic-ceremonial core (IIIA-C). The ceramic vessel frequencies are consistent with an interpretation of an area whose purpose was, at least in part, to perform domestic service for IIIA-C.

Group IIIA-G, despite its elite designation, has the lowest frequency of serving bowls and ranks very high in all other categories. This is consistent with the craft producing functions that are identified in this terrace group in the next chapter.

Statistical Measures of Ceramic Vessel Variation

Here I examine distributional and statistical measures of size for the four major ceramic vessel forms discussed above. For bowls, rim diameter frequencies are expressed as four size categories. There are no serving bowls in the largest size category (>40 cm in diameter), and very few belong to the smallest (<10 cm in diameter) (Table 16). At all terrace groups, nearly all measurable specimens are divided between the two intermediate rim diameter size categories. Very high frequencies of smaller serving bowls (10-20 cm in diameter) were recovered from terrace groups IIIA-E and IIIA-G. Both are ceramic producing terrace groups, although only the latter is an elite group. The high frequency of such vessels at IIIA-E might be attributable to manufacture, but there is no other evidence that serving bowls were produced at this terrace group. At other locales in Jalieza where vessel varieties are known to have been manufactured (based on the presence of unusable kilnwasters), they have not shown up in disproportionately high numbers. It is interesting that both IIIA-E and IIIA-G are among the three groups that have any serving bowls smaller than 10 cm in diameter, although it is unclear how this might be significant.

At three terrace groups, more than half the serving bowls were of the larger size (20-40 cm in diameter). Two-thirds of measurable serving bowls from group IIIA-B and more than half of those from both IIIA-C and IIIA-F are 20-40 cm in diameter. Large serving bowls are expected at terrace groups IIIA-B and IIIA-C, an elite group and the civic-ceremonial core with which it is associated. Such a high proportion is unexpected and inexplicable at IIIA-F, a group of nondescript, nonelite residential terraces. Small sample size may be responsible. However, the second measure of bowl size, rim thickness, suggests that sample size may not be pertinent, since this measurement could be made on virtually every specimen, while rim diameter estimates could be made only on larger sherds.

The thickest serving bowl rims, on average, come from terrace group IIIA-F, and although the sample size is somewhat larger than it was for rim diameter, it is still a considerably smaller sample than for most other terrace groups (Table 17). Interestingly, this group also has the least variable rim thickness. The few serving bowls tabulated for IIIA-F tend to have thick rims and largish rim diameters, suggesting a large size.

Note, however, that the means vary little, ranging from a high of 0.74 to a low of 0.68, a spread of only 0.06 cm. The coefficients of variation likewise indicate considerable homogeneity, suggesting only that terrace groups IIIA-G and IIIA-B had somewhat more variable serving bowl rim

Table 16. Monte Albán IIIA Serving Bowls: Rim Diameter Distributions

Terrace Group	<10 cm n	<10 cm %	10-20 cm n	10-20 cm %	20-40 cm n	20-40 cm %	>40 cm n	>40 cm %
IIIA-A	1	2	34	67	16	31	0	0
IIIA-B	0	0	11	34	21	66	0	0
IIIA-C	0	0	5	45	6	55	0	0
IIIA-D	0	0	38	62	23	38	0	0
IIIA-E	7	3	223	91	14	6	0	0
IIIA-F	0	0	6	40	9	60	0	0
IIIA-G	6	2	229	87	29	11	0	0
IIIA-H	0	0	40	62	24	38	0	0

Table 17. Monte Albán IIIA Serving Bowls: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IIIA-A	0.71	.095	13.45	0.4	0.9	124
IIIA-B	0.74	.177	23.74	0.6	1.5	72
IIIA-C	0.68	.095	13.92	0.5	0.9	44
IIIA-D	0.69	.090	12.98	0.5	0.9	177
IIIA-E	0.70	.111	15.82	0.5	1.1	283
IIIA-F	0.74	.094	12.74	0.6	1.0	28
IIIA-G	0.70	.127	18.11	0.4	1.3	299
IIIA-H	0.68	.106	15.61	0.4	1.0	138

thicknesses than other groups. In addition to IIIA-F, other groups whose coefficients of variation are very low are IIIA-D, IIIA-A and IIIA-C.

Utilitarian bowls are more diverse in size, as is indicated by their rim diameter frequencies (Table 18). All four size categories are represented at all terrace groups, although some interesting variation is apparent. There is little to distinguish groups in terms of the prevalence of the smallest utilitarian bowls, since this category ranges in a continuum from a high of five percent at terrace group IIIA-D, to a low of 1 percent at both IIIA-B and IIIA-G. Considerably more disparity is apparent in the remaining size categories, however.

Small utilitarian bowls (10-20 cm in diameter) are most abundant at terrace group IIIA-E, where they account for 62 percent of measurable utilitarian bowls, and nearly as prevalent at IIIA-F (58%). Group IIIA-G lags somewhat behind this, with 51 percent. Groups IIIA-A, IIIA-B, IIIA-D and IIIA-H all have 36 to 40 percent in this size category. However, small vessels account for only 28 percent of the utilitarian bowl assemblage at the civic-ceremonial core, IIIA-C.

At six of eight terrace groups, 46 to 56 percent of utilitarian bowls fall into the medium size category (20-40 cm in diameter). Only at two (IIIA-E and IIIA-F) are the proportions considerably different (35 and 36%, respectively). Thus, larger utilitarian bowls tend to be somewhat rarer at nonelite terrace groups, although several groups count as exceptions (IIIA-D, which has the second highest proportion of vessels of this size, and IIIA-H).

The remaining size category (greater than 40 cm in diameter) includes only very large vessels, such as *apaxtlis* and thick, often bevelled-rim basins. Generally these account for only a small proportion of measurable utilitarian bowls, but the variation is interesting. At IIIA-C, 19 percent of utilitarian bowls were greater than 40 cm in diameter, a figure which sets the civic-ceremonial core apart from all others. Relatively high proportions are also found at

Table 18. Monte Albán IIIA Utilitarian Bowls: Rim Diameter Distributions

Terrace	<10 cm		10-20 cm		20-40 cm		>40 cm	
Group	n	%	n	%	n	%	n	%
IIIA-A	2	2	40	38	54	52	8	8
IIIA-B	2	1	75	40	104	56	5	3
IIIA-C	2	4	16	28	28	49	11	19
IIIA-D	22	5	149	36	221	54	19	5
IIIA-E	20	3	480	62	271	35	9	1
IIIA-F	1	2	29	58	18	36	2	4
IIIA-G	17	1	815	51	726	46	26	2
IIIA-H	5	4	49	40	58	48	10	8

Table 19. Monte Albán IIIA Utilitarian Bowls: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IIIA-A	0.92	.314	34.05	0.4	2.5	289
IIIA-B	0.80	.191	23.92	0.4	2.1	413
IIIA-C	0.83	.267	32.22	0.4	2.5	285
IIIA-D	0.82	.213	25.93	0.4	1.9	1104
IIIA-E	0.88	.269	30.60	0.4	3.1	869
IIIA-F	0.81	.207	25.44	0.5	1.7	132
IIIA-G	0.88	.260	29.58	0.4	3.3	1777
IIIA-H	0.88	.330	37.67	0.5	4.0	274

the elite group IIIA-A and at the nonelite group IIIA-H. At all others, the proportions are low (less than 5%).

The statistical measures of vessel size (rim thickness) tend to isolate two clusters of four terrace groups each (Table 19). Groups IIIA-A, IIIA-E, IIIA-G, and IIIA-H have higher mean rim thicknesses (.88-.92 cm) than the remaining four groups, which range from .80 to .83 cm. With the exception of IIIA-C, these latter groups also have low coefficients of variation. Among the first group, IIIA-H and IIIA-A have high coefficients of variation, indicating that bowls tend to have thicker lips but that the assemblages are highly variable.

In sum, then, utilitarian bowls overall tend to be somewhat larger, measured by rim thickness, in terrace groups IIIA-A, IIIA-E, IIIA-G and IIIA-H. Two of these terrace groups are elite groups, two are nonelite. At IIIA-A and IIIA-H, however, rim thicknesses are more variable than in the other two groups, which in part may be accounted for by the relatively high proportion of vessels greater than 40 cm in diameter at the mouth. The former is an elite group, the latter is nonelite. What factors might account for this pattern is not apparent. The single outstanding characteristic of the size data for utilitarian vessels is the very high proportion of *apaxtlis* and other large bowls at IIIA-C, the civic-ceremonial core. At present, however, I am unable to account for this.

The only size statistics available for jars are those that measure rim thickness, since mouth diameter was not considered to be a useful measure of vessel size for this shape mode. The range of means is fairly limited, although there may be some interesting trends (Table 20). Jars range from a high of .98 cm thick on average in terrace group IIIA-C to a low of .75 cm in group IIIA-F.

Note that both of these groups have low coefficients of variance. In other words, in IIIA-C, most jars have thick rims while in IIIA-F, most are thinner. Interestingly, IIIA-

Table 20. Monte Albán IIIA Jars: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IIIA-A	0.91	.337	37.15	0.5	2.6	60
IIIA-B	0.91	.346	38.09	0.4	2.2	43
IIIA-C	0.98	.280	28.61	0.6	1.6	18
IIIA-D	0.85	.250	29.39	0.4	1.9	133
IIIA-E	0.90	.259	28.86	0.4	1.7	214
IIIA-F	0.75	.198	26.36	0.4	1.1	12
IIIA-G	0.92	.269	29.08	0.4	2.0	429
IIIA-H	0.82	.254	30.87	0.4	1.6	31

Table 21. Monte Albán IIIA *Comales*: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IIIA-A	1.14	.159	13.89	0.8	1.3	9
IIIA-B	1.19	.170	14.32	0.9	1.5	22
IIIA-C	1.13	.153	13.48	1.0	1.3	3
IIIA-D	1.01	.188	18.66	0.7	1.4	49
IIIA-E	1.17	.164	14.06	0.9	1.5	26
IIIA-F	1.32	.117	8.88	1.2	1.5	6
IIIA-G	1.04	.213	20.44	0.6	1.4	51
IIIA-H	1.14	.174	15.24	0.7	1.4	14

C has the highest minimum value, but ties with another group for the lowest maximum value. This underscores the importance of larger jars. In fact, more than forty percent of jar rims in IIIA-C are thicker than 1.0 cm.

Four groups, IIIA-A, IIIA-B, IIIA-E and IIIA-G, have means of .90-.92 cm. Three of these are elite terrace groups. Two of these, IIIA-A and IIIA-B, have distinctively high coefficients of variation and the highest maximum values.

Generally, then, jar rims tend to be thicker and more variable in elite terrace groups, and are thickest on average in the only civic-ceremonial group. Nonelite terrace groups more often have thinner jar rims and presumably smaller jars, and their assemblages show less variation in size than is the case for other kinds of terrace groups.

The last vessel shape mode for which statistical data are available is *comales*, the ceramic griddles used for cooking tortillas. Because *comales* are very shallow, or may even be flat, no attempt was made to estimate mouth diameter. Rim thickness was the only measurement made, and it may not be a very accurate predictor of *comal* size. Note that because of the relative rareness of this vessel form, the sample sizes for several terrace groups are very small (n<10 in IIIA-A, IIIA-C, IIIA-F). Statistics for these groups are not used in the following discussion.

Average *comal* rim thickness ranges from a high of 1.32 cm in terrace group IIIA-F to a low of 1.01 in group IIIA-D (Table 21). Most groups fall into a loose cluster between these values (IIIA-B, IIIA-E, and IIIA-H). Group IIIA-G has a low mean value (1.04 cm) very similar to that for IIIA-D. *Comales* in IIIA-F were not only thickest, on average, but far less variable than in other groups. However, the distinction of terrace group IIIA-F is problematic, since the sample size for this group is very small. The two other groups with problematically small sample sizes would fall into the middle-sized group. The small sample size for IIIA-C may be meaningful in itself, suggesting that such domestic activities as cooking tortillas took place rarely in the civic-ceremonial core.

Interestingly, the greatest variability in *comal* rim thickness occurs at those terrace groups with the lowest averages (IIIA-D and IIIA-G). In both cases, ceramic production was carried out in the terrace group, although it is not clear how this might be related to *comal* rim thickness.

Monte Albán IV

Frequencies of Ceramic Vessel Forms

Table 22 presents the frequencies of vessel forms for terrace groups in the Early Postclassic component of the site. Note that the decorated serving bowl (DSB) category is not listed separately in this phase, since decorated vessels are so rare in Monte Albán IV. Serving bowl (SB) frequencies are uniformly low across the component, ranging from a high of only .12 in terrace group IV-E to a low of .03 in IV-C, a civic-ceremonial group. The remaining terrace groups fall continuously between these extremes, without forming any apparent clusters.

Utilitarian bowls (UtBwl), surprisingly are most prevalent in terrace group IV-C and closely followed by IV-A and IV-B, the second civic-ceremonial and the only elite terrace groups, respectively. This vessel form is relatively infrequent at the nonelite

Table 22. Vessel Form Frequencies in Monte Albán IV

Terrace Group	SB	UtBwl	Olla	Jar	Comal
IV-A	.07	.80	.10	.11	.02
IV-B	.06	.79	.13	.15	.01
IV-C	.03	.85	.09	.10	.02
IV-D	.08	.77	.12	.13	.02
IV-E	.12	.63	.22	.24	.01
IV-F	.05	.67	.25	.27	. 01
IV-G	.07	.70	.23	.24	.00
IV-H	.10	.63	.22	.26	.02

residential groups IV-E, IV-F, IV-G and IV-H. A fifth nonelite group, IV-D, is more similar to the elite/civic-ceremonial groups than the other nonelite groups. Group IV-D, with both ceramic and obsidian workshops, shares a number of characteristics with elite/civic-ceremonial groups (see Chapter 6).

The frequencies of jars break down to form two distinct clusters. In the first, jars are relatively infrequent (.10-.15). The two civic-ceremonial (IV-A and IV-C) and one elite (IV-B) groups plus IV-D fall into this cluster. In the second cluster, jars account for approximately twenty-five percent of the assemblages (frequencies range from .24 to .27). The remaining nonelite terrace groups (IV-E, IV-F, IV-G, IV-H) fall into this cluster.

Comales are uniformly rare in all terrace groups.

The distinguishing characteristics appear to be the ratios of utilitarian bowls and jars in assemblages. Both serving bowls and *comales* are rare in all terrace groups, irrespective of socioeconomic status or function. But with the exception of terrace group IV-D, jars account for a uniformly higher percentage of assemblages in nonelite groups, while they remain relatively infrequent in civic-ceremonial and elite groups. The exceptional status of group IV-D is interesting and suggests, perhaps, that craft activities outweighed in importance domestic activities at this terrace group. IV-D may have been more like the elite and civic-ceremonial groups in that relatively little of some domestic activities, such as water and grain storage, for example, actually took place there.

Statistical Measures of Ceramic Vessel Variation

Serving bowls are reasonably well represented at all but one terrace group (IV-G), which is omitted from the following discussion because of very small sample size (Table 23). As was the case in the Early Classic component, no vessels of this functional class are greater than 40 cm in diameter at the mouth. Unlike the earlier

Table 23. Monte Albán IV Serving Bowls: Rim Diameter Distributions

Terrace	<10 cm		10-20 cm		20-40 cm		>40 cm	
Group	n	%	n	%	n	%	n	%
IV-A	13	9	118	83	12	8	0	0
IV-B	7	7	91	92	1	1	0	0
IV-C	12	15	67	85	0	0	0	0
IV-D	2	2	73	87	9	11	0	0
IV-E	20	91	2	9	0	0	0	0
IV-F	1	8	12	92	0	0	0	0
IV-G	2	100	0	0	0	0	0	0
IV-H	2	11	17	89	0	0	0	0

assemblage, few serving bowls fall into the medium category, either. The vast majority are small (10-20 cm in diameter). In terrace group IV-E most are less than 10 cm in diameter at the mouth. Elsewhere the smallest size accounts for proportions ranging from a low of two percent at group IV-D to fifteen percent at IV-C. With the exception of terrace group IV-E, where most serving bowls are less than 10 cm in diameter, the small size category (10-20 cm in diameter) accounts for a uniformly high proportion of serving bowls at all terrace groups, ranging from 83 to 92 percent. Serving bowls of medium size (20-40 cm in diameter) account for an appreciable proportion of terrace group assemblages in only two cases: IV-A and IV-D. This is another way in which terrace group IV-D, the craft specialist area, is more like one or more elite and/or civic-ceremonial groups.

The mean rim thicknesses for serving bowls vary little from one terrace group to another, ranging from a high of .71 in group IV-D to a low of .57 in group IV-C (Table 24). With the exception of IV-E, whose average is .10 cm greater than that of the next groups, no appreciable clusters of terrace groups are discernible. Coefficients of variation form three loose, ill-defined clusters. In the first, the most variable rim thicknesses are apparent in groups IV-C and IV-E. Four of the remaining terrace groups for which the statistic is available form a cluster in which rim thickness of serving bowls is somewhat less variable (IV-A, IV-B, IV-D and IV-H). Group IV-F stands apart with a considerably lower coefficient of variation than other terrace groups.

Although rim thickness is employed here as one measure of vessel size, it may also gauge the degree of technical expertise and fanciness in production. A better made serving bowl may be finer and have thinner, better finished walls than a somewhat less well-made vessel. In this light, the relative lack of difference among terrace groups in mean rim thickness, and the weak ability of the coefficients of variation to discriminate groups, suggest that quality was not affected by differential access to serving bowls. Essentially the same fine (or cruddy masquerading as fine) products were uniformly available to all inhabitants of the community.

Using rim diameter as the measure, the distribution of different sized utilitarian bowls is surprisingly uniform across the Early Postclassic component, with only one obvious exception (Table 25). Virtually everywhere, very small (<10 cm in diameter) and very large (>40 cm in diameter) bowls are extremely rare. The vast majority of bowls fall into the two more moderate categories, and are very nearly evenly split between them. The only major exception to this pattern is terrace group IV-G, where utilitarian bowls are distributed nearly equally between the smallest two size categories (<10 cm, and 10-20 cm in diameter). No reason for this is apparent, although we note that a terrace in this group turned up the only evidence for urn manufacture at the Early Postclassic component in the form of an urn mold fragment.

In addition, although proportions of large utilitarian bowls (>40 cm in diameter) differ little among terrace groups, presence/absence may be a more significant yardstick by which to evaluate the significance of their distribution. Very large

Table 24. Monte Albán IV Serving Bowls: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IV-A	0.61	.124	20.29	0.3	1.0	195
IV-B	0.60	.127	21.02	0.4	0.9	144
IV-C	0.57	.142	25.04	0.4	1.3	104
IV-D	0.61	.118	19.33	0.4	1.0	142
IV-E	0.71	.181	25.56	0.5	1.2	31
IV-F	0.59	.093	15.95	0.4	0.8	20
IV-G	0.60	-	-	0.5	0.7	3
IV-H	0.59	.128	21.58	0.3	0.8	23

Table 25. Monte Albán IV Utilitarian Bowls: Rim Diameter Distributions

Terrace Group	<10 cm n	<10 cm %	10-20 cm n	10-20 cm %	20-40 cm n	20-40 cm %	>40 cm n	>40 cm %
IV-A	15	1	497	49	484	48	22	2
IV-B	12	1	434	45	501	52	22	2
IV-C	14	1	798	54	623	42	34	2
IV-D	15	2	338	53	283	44	5	1
IV-E	1	1	53	44	67	55	0	0
IV-F	2	2	63	52	56	46	0	0
IV-G	18	49	18	49	1	3	0	0
IV-H	3	5	31	49	28	44	2	3

bowls are entirely absent at three of five nonelite residential groups. The tasks which involved the use of very large vessels appear to be associated more often with elite and civic-ceremonial terrace groups than nonelite ones. Preparation of very large quantities of food may be one such task.

The rim thickness statistics for utilitarian bowls show an astonishing degree of similarity in average rim thickness across terrace groups (Table 26). The range is limited to a high of .89 cm in terrace group IV-G to a low of .79 in group IV-D. These figures support impressionistic observations, uttered by virtually every archaeologist who has surveyed in the Valley of Oaxaca, of the homogeneity of Classic period ceramic assemblages, which are heavily dominated by utilitarian bowls. Perhaps more telling are the coefficients of variation which indicate that the greatest variation in rim thickness is found in terrace group IV-A. The remaining values do not separate out well into clusters, but rank IV-C and IV-B next. Thus the three elite and civic-ceremonial terrace groups have the most variation in rim thickness. The maximum values are notable in this regard, indicating the presence of some monstrously thick vessels at these terrace groups, but absent from the rest. These statistical data, then, would seem to confirm the general interpretation of the rim diameter data discussed above. A major difference, if one that is not numerically significant, between elite/civic-ceremonial and other groups is the presence only in the former of very large utilitarian vessels.

Jars are so infrequent at terrace group IV-G that the resulting statistics for this group are omitted from further discussion. Jar rims range in thickness from .98 cm at groups IV-B and IV-E to .84 at IV-C (Table 27). Between these extremes is a cluster of more moderate values that includes terrace groups IV-A, IV-D, IV-F and IV-H. Much of the small size of jars at the civic-ceremonial core seems to be accounted for by the absence of thick vessels which were presumably used for storage ($\geq$2.0 cm in thickness). Interestingly, such vessels are present in the remaining civic-ceremonial

Table 26. Monte Albán IV Utilitarian Bowls: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IV-A	0.84	.368	43.81	0.3	4.2	1170
IV-B	0.88	.323	36.59	0.4	4.0	1105
IV-C	0.88	.332	38.00	0.4	6.4	1761
IV-D	0.79	.235	29.67	0.4	2.3	693
IV-E	0.83	.227	27.47	0.4	1.9	149
IV-F	0.88	.260	29.58	0.4	1.8	157
IV-G	0.89	.311	35.10	0.5	2.1	48
IV-H	0.88	.290	33.14	0.5	1.9	103

Table 27. Monte Albán IV Jars: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IV-A	0.90	.304	33.66	0.4	2.0	161
IV-B	0.98	.355	36.30	0.4	2.7	157
IV-C	0.84	.233	27.73	0.4	1.5	174
IV-D	0.90	.322	35.79	0.4	2.2	105
IV-E	0.98	.277	28.10	0.5	1.7	38
IV-F	0.91	.264	28.84	0.5	1.4	42
IV-G	0.83	.330	40.05	0.5	1.2	4
IV-H	0.90	.236	26.11	0.5	1.3	22

and the only elite group, as well as in IV-D, the ceramic producing group. Coefficients of variation distinguish IV-A, IV-B and IV-D as groups whose jar rims vary more in thickness than do those of other groups. Again, vessels of very great thickness seem to be the determining factor.

These jar data distinguish IV-C as different from other elite and/or civic-ceremonial groups. Unlike IV-A and IV-B, the groups on the principle ridgeline, the mean jar rim thickness in IV-C is small, the assemblage is relatively unvarying, and jars with rims thicker than 1.5 cm are lacking. Despite the large size of the collection from this group, apparently no storage jars were recovered.

These data also distinguish IV-D from other nonelite residential terrace groups, as do other kinds of data discussed in other sections of this report. It shares more similarities with IV-A and IV-B, in having relatively thick jars on average, and a variable assemblage.

No *comales* were recovered from terrace group IV-G, and the numbers from three of the remaining four nonelite groups are so small that the resulting statistics are not used for analysis (Table 28). These very low numbers are surprising, since *comales* are generally considered to be one of the basic elements in every domestic ceramic assemblage. Small sample size may be the culprit, and it should be noted that except at terrace group IV-C, *comales* are relatively rare across the Early Postclassic component.

Among the remaining four groups for which sample sizes are adequate, average thickness of *comal* rims ranges from a high of .98 cm in terrace group IV-C to a low of .80 cm in IV-D. Group IV-D has a considerably lower average rim thickness. This group also has the highest coefficient of variation, although IV-C is not far behind. *Comales* are least variable in rim thickness in terrace group IV-A.

Terrace group IV-D appears to differ somewhat from the remaining groups in the size and variation of its *comales*, all of which are elite and/or civic-ceremonial.

Table 28. Monte Albán IV *Comales*: Rim Thickness Statistics

Terrace Group	Mean (cm)	Standard Deviation	Coefficient of Variation	Minimum (cm)	Maximum (cm)	Sample Size
IV-A	0.91	.131	14.48	0.6	1.2	19
IV-B	0.95	.177	18.67	0.7	1.2	15
IV-C	0.98	.198	20.28	0.6	1.4	46
IV-D	0.80	.173	21.65	0.6	1.2	17
IV-E	0.90	.100	11.11	0.8	1.1	3
IV-F	0.80	.283	35.36	0.6	1.0	2
IV-G	-	-	-	-	-	-
IV-H	0.87	.058	6.66	0.8	0.9	3

However, because no other nonelite residential groups are adequately represented in the sample, it is not possible to determine whether the apparent differences are meaningful.

Discussion

Generally, the ceramic form frequencies and statistical size data show less variation among terrace groups than was anticipated. In addition, many of the observed patterns of variation are counterintuitive. Together with some of the more expected outcomes, these data result in some interesting observations.

In the Early Classic component, decorated serving bowls occur most frequently in terrace group IIIA-C, the civic-ceremonial core, a finding that is expected. Unanticipated, however, is the movement to first rank place of the elite group IIIA-A when undecorated serving bowls are also included, in the more general category of "serving bowls". I am unable to explain this, although two possibilities come to mind. First, the identification of undecorated serving bowls is considerably more subjective, and more affected by extraneous factors such as erosion. In other words, it is possible, although I think unlikely, that the resultant ranking reflects errors in the identification of undecorated serving bowls. A second possibility is that terrace group IIIA-A performed some community functions in which serving bowls played an important role. Perhaps its low-lying location at the site's western edge, near what must have been the ancient roadway between Monte Albán and the Ocotlán Valley, made it an important area for first receiving high-ranking visitors to the settlement. Clearly, however, the present evidence is far too scant to permit more than speculation.

The only other obvious characteristic of serving bowl frequency distributions in the Early Classic component is their rarity in terrace groups IIIA-D and IIIA-G. The latter group has few, whether or not undecorated bowls are included. Both terrace groups have ceramic workshops, although they are not the only ones present in the Monte Albán IIIA component (see Chapter 5). The presence of workshops clearly will skew results, presumably toward the sorts of vessels being produced (and occasionally broken) on the terraces. If this is the case, and the workshops are an important factor in these frequencies, it seems that serving bowls either were not produced, or were a relatively unimportant product, at workshops in these groups. I would hazard a guess that this explanation is a better one for IIIA-G, for reasons of production diversity, which are discussed more fully in the following chapter. This group is also an elite residential group, suggesting that serving bowls should have been present for its elite occupants. Terrace group IIIA-D, on the other hand, is a nonelite group with ceramic workshops. The relative paucity of serving bowls there may reflect the group's nonelite status as much (or more) as it has to do with pottery production.

Very high frequencies of small serving bowls (10-20 cm in diameter) were found in terrace groups IIIA-E and IIIA-G. On the other hand, two-thirds of serving bowls from IIIA-B measured 20-40 cm in diameter, while more than half of those from groups IIIA-C and IIIA-F belong to that size category. However, the sample size for the latter group may be too small for this observation to be meaningful. Rim thickness statistics reveal remarkable homogeneity, in terms of both average measures and degrees of variability among terrace groups.

Utilitarian bowl distributions too are remarkably homogeneous in Monte Albán IIIA terrace groups. They are most frequent in group IIIA-D and least frequent in IIIA-H. The frequencies of the smallest bowls (<10 cm in diameter) also vary little across the site. Bowls with diameters of 10-20 cm are most abundant in terrace groups IIIA-E and IIIA-F, where they account for approximately 60 percent of measurable utilitarian bowls. In IIIA-C, the civic-ceremonial core, this size makes up less than thirty percent of the assemblage. Not surprisingly, medium-sized bowls (20-40 cm in diameter) are less frequent in groups IIIA-E and IIIA-F than elsewhere, where they tend to make up about 50 percent of collections. The largest bowls (>40 cm in diameter) are not abundant anywhere, although in the civic-ceremonial core they account for nearly twenty percent of measurable utilitarian bowls. They make up eight percent of assemblages in groups IIIA-A and IIIA-H. Elsewhere they account for less than five percent.

Generally, larger utilitarian bowls (>20 cm in diameter) tend to be rarer at nonelite terrace groups, with the exceptions of IIIA-D and, especially, IIIA-H. Rim thickness statistics do not bear this observation out precisely, cross-cutting elite/nonelite distinctions to form thicker and thinner categories that include both kinds of terrace groups.

The thickest jars, on average, are found in terrace group IIIA-C, although the maximum rim thickness is only 1.6 cm. However, more than forty percent of jars in this group are thicker than 1.0 cm. Larger storage vessels, with rims greater than 2.0 cm thick, are present at IIIA-A, III-B and IIIA-G, all elite groups. Generally, jar rims tend to be thicker and more variable in elite and civic-ceremonial terrace groups. And in two such groups, IIIA-B and IIIA-G, they accounted for the largest proportion of the assemblages, although the frequencies among terrace groups vary little. In nonelite groups, the thinner jar rims presumably reflect smaller jars, probably reflecting household use. Assemblages also show less variation, suggesting that the range of functions for which jars were used was narrower. Indeed, the lowest frequencies of jars occur at nonelite residential terrace groups, suggesting that many of the uses to which they may have been put in elite and/or civic-ceremonial groups were not relevant in nonelite contexts.

Comales are not numerous anywhere, and show less variability in frequencies and statistical characteristics than many other forms. However, they are relatively common in terrace group IIIA-B, which also has a relatively high frequency of jars.

A number of points deserve emphasis. First is the high frequency of decorated serving bowls in terrace group IIIA-C, the civic-ceremonial core. Second is the preponderance of larger sized serving bowls in group IIIA-B, an elite group that seems to be associated spatially with IIIA-C. Both of these observations suggest that ceramic display in public feasting was an important feature of elite public and private life. Third, the tendency for larger utilitarian bowls to be more abundant in elite and civic-ceremonial terrace groups is interesting. Fourth is the presence of larger storage jars only at elite terrace groups. The latter two points suggest the importance of preparing and, perhaps, storing, large quantities of food and beverage in elite contexts. Storage jars were absent from the civic-ceremonial core, but had the highest average rim thickness and least variability. The importance of food preparation in IIIA-B, probably in part for consumption in IIIA-C, is also suggested by the fifth observation: the relative abundance of *comales* in terrace group IIIA-B.

Serving bowls are much less common in the Early Postclassic component, with frequencies about half those found in terrace groups in the earlier part of the site. This is consistent with the more general observation about changes in the Valley of Oaxaca ceramic assemblages from Classic to Early Postclassic times (Feinman 1980). Ceramic displays in elite and other contexts were greatly reduced in importance. Perhaps given this, variation in serving bowl frequencies and sizes do little to distinguish various terrace groups from one another. Serving bowls also tend to be smaller in the Monte Albán IV component terrace groups, with the vast majority of bowls having diameters of less than 20 cm. Only two groups had signficant frequencies of larger serving bowls, IV-A and IV-D. At all terrace groups, most serving bowls were small and few fell into the smallest size category. The exception is IV-E, where very small bowls predominate, although they tend to be thicker and perhaps, therefore, less well made.

Utilitarian bowls also seem to show less variation in size, overall. The smallest and largest size categories are rare, except at terrace group IV-G where half of the bowls were very small and the other half were 10-20 cm in diameter. At most groups, bowls were more-or-less evenly divided between the small and medium size categories. The largest bowls are entirely absent at three of the five nonelite residential terrace groups, a pattern similar to that found in the earlier component. The most variable assemblages are found in elite and civic-ceremonial terrace groups, probably in part because of the presence only in these groups of extraordinarily thick bowls.

Jars are thinnest in terrace group IV-C, which also lacks thick storage jars. The latter are present only in IV-A, IV-B and IV-D. The jar data distinguish IV-C from other elite/civic-ceremonial terrace groups by this absence of storage jars. They also distinguish IV-D from other nonelite residential groups, which lack these jars. This pattern is much like that observed at the earlier component where storage jars were absent at the civic-ceremonial core but were common in other elite groups.

Comales are so rare that it is impossible to analyze the statisical data meaningfully. However, it may be significant that, except in IV-D, *comales* were collected in sufficient numbers only from the elite groups.

The data for the Early Postclassic show some remarkable parallels with those from the Early Classic component. In both cases, elite and/or civic-ceremonial terrace groups have thick, and very large, utilitarian bowls, large storage jars and, in some cases, perhaps more and larger *comales*. Food preparation clearly was an important activity in these terrace groups. Food storage may also have been important, although excavations to locate and identify storage areas would provide better data on this subject. In both cases, the probable "core" lacked many of these characteristics, suggesting that entertaining, rather than preparation for it, was more important.

In both components, the paucity (or complete lack) of very large bowls and of large storage jars suggests a different orientation among the less well off inhabitants of both communities.

Chapter 5

CRAFT PRODUCTION

Introduction

This chapter describes and discusses the evidence from Jalieza for specialization in production. The craft manufacturing activities best represented in the archaeological record involved three categories of material: ceramics, obsidian, and local chipped stone. There is also very limited evidence for textile production. Particular emphasis is given to the contexts in which production of different kinds occurred, and to cross-temporal comparison of these contexts.

Ceramic Production

The chief indicator of ceramic production from surface remains on Mesoamerican sites is the kilnwaster, or sherd from a misfired vessel. Rice (1987) and Shepard (1956 [1985]) discuss ceramic production and its archaeological traces in general terms. One of the most common reasons for misfiring is inadequate drying of the pot before it is placed in the kiln. The result is expansion of residual moisture as it is heated and forms steam. This produces bubbling, often severe enough to break through the surface, and a misshapen and sometimes useless product. During the tabulation of collections, two different kinds of kilnwasters were identified: those obviously from vessels so severely damaged in the firing process that they could not have been used (designated KWX in the terrace and terrace group data sheets in Appendices A and B), and those apparently from only slightly damaged but still potentially usable vessels (designated KW). For this latter category, "usable kilnwasters", it must be remembered that other parts of the vessel which were not preserved or recovered may have been more severely damaged. However in cases of less severe damage, misfired vessels may have been used and are far less likely to have been found in the specific places where they were actually made. The severely damaged, obviously unusable kilnwasters are much more certain indicators of precise locales where ceramic production took place. A single, usable kilnwaster is regarded here as only tentative evidence of ceramic production.

Other direct indicators of ceramic production include fragments of molds used to make urns or figurines, balls, lumps or strips of fired clay, and the actual kilns themselves. Feinman (1982) summarizes the kinds of evidence for ceramic production commonly found at Mesoamerican archaeological sites. Kilns, the most direct evidence of pottery makings, are detectable in surface studies only in extremely unusual circumstances.

The numbers of misfired sherds, mold fragments, and clay lumps recovered from the surface collections are very small, although they greatly surpass the number of kilnwasters (1) observed in the 1977 study. The total number of misfired sherds is only forty, and the majority of these (68%) were collected from terraces in the Early Classic component of the site (see Table 29). Because of the small numbers, it is difficult to interpret their significance. But nearly twice as many misfired sherds were recovered from terraces in the Early Classic component, despite the fact that the numbers of utilitarian bowls collected were very similar in both components. There is no reason to believe that the preponderance of kilnwasters at the earlier site component is due to sampling bias. More terraces in the Monte Albán IIIA sample are associated with mounds, but there are many more mounds in

Table 29. Temporal Comparison of Ceramic Production Indices

Phase	Us. KW[a]	Un. KW[b]	Total	Util. Bwls[c]
IIIA	14	13	27	4998
IV	8	5	13	5378

[a] Usable kilnwasters
[b] Unusable kilnwasters
[c] Utilitarian bowls

the earlier site component. The potential association of ceramic production with mounds is a research question, not a source of sampling bias. More terraces and terrace groups had suffered moderate to severe erosion in the earlier part of the site, but most terraces collected in the Period IV component had been ploughed very recently and yielded large numbers of artifacts. Clearly, then, postdepositional and recent processes cannot account for the difference in the numbers of kilnwasters in the two components. The obvious conclusion seems to be that there were more ceramic workshops, and/or that more ceramics were produced in the earlier component of Jalieza. This is discussed in greater detail below.

In the Early Classic component, there were unusable kilnwasters in the collections of six of the eight terrace groups collected (Table 30). Four of these six areas also had usable kilnwasters. With the exception of IIIA-H, where there are usable kilnwasters, there were also unusable ones. This suggests that ceramic production took place in all of the terrace groups with kilnwasters excepting, perhaps, IIIA-H. No ceramic molds or clay lumps were recovered in either the 1977 or 1988 field studies, although a fragment of an urn mold was observed in the vicinity of Terrace Group IIIA-G during a 1987 visit to the site. Although Jalieza had been posited as a ceramic producing locale in the Early Classic prior to the 1988 study (see Feinman 1982), it was on the basis only of extremely high densities of some ceramic types. Results of the 1988 field study confirm this conclusion and suggest that ceramic production was indeed widespread in Monte Albán IIIA. The only terrace groups lacking kilnwasters were IIIA-A and IIIA-C, the first designated an elite residential sector and the second, the site's civic-ceremonial core. It should be noted that the artifact sample from IIIA-C was small, and so it is possible that small sample size is responsible for the lack of evidence for ceramic production at this terrace group. However, this is clearly not the case for terrace group IIIA-A where collections produced large numbers of ceramic and other artifacts.

Table 30. Evidence for Ceramic Production in Monte Albán IIIA Terrace Groups

Terrace Group	Us. KW[a]	Un. KW[b]	Mold[c]	Clay Lump
A	0	0	0	0
B	2	0	0	0
C	0	0	0	0
D	1	2	0	0
E	4	3	0	0
F	1	0	0	0
G	6	7	0	0
H	0	1	0	0

[a] Usable kilnwasters
[b] Unusable kilnwasters
[c] Ceramic mold

The most distinctive terrace group is IIIA-G, where nearly half of the kilnwasters found at the Early Classic component originated. I have already mentioned an urn mold fragment noted near this group on a preliminary visit to the site in 1987. Vessels represented by the kilnwasters include several *gris ollas*, several untyped grey bowl forms,[8] and a *gris sahumador*. *Kafé* urns may also be represented, but a positive identification was not possible. Both *gris* jars and the *sahumador* are represented by unusable kilnwasters, and so appear to have been manufactured in terrace group IIIA-G.

The next best case for ceramic manufacture is found in terrace group IIIA-E from which a total of seven kilnwasters was recovered. Among the vessel forms represented are untyped, nondescript utilitarian greyware bowls[9] and G-35 *ollas*. A well-finished, medium thick grey bowl is among the vessels represented by unusable kilnwasters, suggesting that some "top-of-the-line" utilitarian bowls were manufactured in terrace group IIIA-E.

Other terrace groups yielding definitive if sparse evidence of ceramic production are terrace groups IIIA-D and IIIA-H. At IIIA-D, the manufacture of unidentifiable greywares is indicated by two unusable kilnwasters. A third misfired sherd, this one usable, represents a nondescript, untyped *gris* bowl.

8 One variety, a medium thick outlean walled bowl with a direct rim and scraped exterior, is similar to a G-35 in some ways. Another is vertical-walled or slightly incurving with a scraped exterior and well-burnished interior. A third may have been outflaring in form.

9 Utilitarian bowls range from medium to thick and include outleaned and straightsided or slightly incurving walls.

A single, unusable kilnwaster from IIIA-H suggests manufacture of G-35 bowls with nubbin supports.

Possible sites of ceramic production are found in terrace groups IIIA-B and IIIA-F. In IIIA-B, G-35 bowl and untyped, utilitarian *gris* bowl manufacture are suggested by one usable kilnwaster representing each variety. A single usable kilnwaster from an untyped grey jar may represent pot production in IIIA-F.

Thus in the Early Classic component at Jalieza, ceramic production clearly occurred in two of the eight terrace groups studied. The evidence from group IIIA-G is most prolific, diverse and persuasive, including a significant number of unusable kilnwasters. IIIA-E had only half as many kilnwasters, including fewer unusable ones, but since it also had about half as many utilitarian bowls, this is partly a product of the relative scale of the terrace group and the relative density of artifacts. Two other terrace groups have strong evidence of ceramic production, although perhaps at a much smaller scale since the numbers of kilnwasters are much smaller (IIIA-D and IIIA-H). In the former case, the smaller scale of production appears not to be a product of smaller sample size, since IIIA-D ranked second, behind IIIA-G, in terms of collection size. Two other terrace groups yielded what can only be considered possible evidence of small-scale ceramic production, in the form of one (IIIA-F) or two (IIIA-B) usable kilnwasters.

In the Early Postclassic component, unusable kilnwasters were collected from only two terrace groups: IV-B and IV-D (Table 31). Both of these groups yielded persuasive, if not abundant, evidence for ceramic production. At terrace group IV-B, nondescript utilitarian bowls and thin grey *ollas* are both represented by unusable kilnwasters. A third sherd was so badly misfired that vessel form could not be determined. In addition, an unfinished and grossly misshapen G-35 bowl fragment was recovered, suggesting that G-35s were among the vessels made at this terrace group. Finally, a clay lump and a fragment of a ceramic mold or stamp provide additional evidence of pottery production, perhaps including urns.

The second terrace group in the later componentfor which a strong case for ceramic production can be made is IV-D. An unusable kilnwaster from a nondescript utilitarian grey bowl, a form also represented by a single usable kilnwaster, and another unusable one from an indeterminate vessel are among the evidence. An intensely fired, formless piece of clay was also recovered.

Table 31. Evidence for Ceramic Production in Monte Albán IV Terrace Groups

Terrace Group	Us. KW[a]	Un. KW[b]	Mold[c]	Clay Lump
A	2	0	0	2
B	0	3	1	1
C	2	0	0	0
D	1	2	0	1
E	2	0	0	1
F	0	0	0	0
G	0	0	1	0
H	0	0	0	0

[a] Usable kilnwasters
[b] Unusable kilnwasters
[c] Ceramic mold

Somewhat weaker cases for ceramic production can be made for three other terrace groups. At IV-A, two usable kilnwasters from G-35 bowls include one sherd that was bent sharply inward while the clay was wet. Two clay lumps were also collected from this terrace group. At IV-C, usable kilnwasters suggest the manufacture of G-35 bowls and perhaps jars, and of thin grey *ollas*. In terrace group IV-E, both untyped utilitarian grey bowls and thin grey *ollas* are represented by usable kilnwasters. A clay lump was also recovered from IV-E.

The only indicator of ceramic production from terrace group IV-G, an urn mold fragment,[10] is insufficient as evidence that production was taking place in that specific locality. However, IV-G had the smallest collection of any terrace group at the site and the lack of other indicators may be attributable to small sample size. Clearly urns were being made somewhere on the Early Postclassic site, if not in IV-G. Immediately upslope from IV-G is IV-A, where G-35s probably were made.

At the site's Early Postclassic component the evidence for ceramic production is much more diffuse, and lacks

[10] The urn mold fragment is in the form of a corncob, and appears to have been made by pressing wet clay over an actual cob of corn.

concentrations of artifacts or spatial aggregations within the site. The most convincing cases for ceramic production can be made in IV-B and IV-D, on the basis of the presence of unusable kilnwasters, clay lumps and, in one case, a ceramic mold fragment. Less compelling cases can be made for pottery making at terrace groups IV-A, IV-C, IV-E and IV-G.

The major differences in ceramic production between the Monte Albán IIIA and IV components are: (1) the apparent scale of production, which seems to have been greater in the Early Classic, and (2) the dominance of a single large ceramic-producing area in Monte Albán IIIA, with more moderate production occurring in one other terrace group and apparently much smaller scale production occurring in perhaps as many as four others. In contrast, in Monte Albán IV all ceramic production seems to have been smaller-scale, more diffuse and less concentrated. However, it should be kept in mind that in both phases, a majority of terrace groups yielded some evidence of ceramic production, although in a number of cases it cannot be considered conclusive, by any means. Furthermore, the majority of groups with evidence of pottery manufacture have very little.

One possible interpretation is that in both phases, specialists produced ceramics for consumption in a community barrio or neighborhood which may be approximated by the terrace group collection areas in the present study. However, in the Early Classic component, in addition to this kind of production, there was also at least one larger workshop, perhaps one that produced only particular kinds of vessels, for a wider market, such as the community as a whole or even beyond to neighboring, smaller settlements. Because the number of kilnwasters is small and because many kilnwasters came from vessels which were so badly deformed that their types could not be identified, it is difficult with the present data to say with any degree of certainty whether IIIA-G concentrated on production of specific types of vessels. However, the existing data suggest that, in addition to utilitarian vessels that were made at other workshops in the site, such as greyware bowls and jars, some more esoteric pottery objects were produced, perhaps exclusively, at IIIA-G. These clearly include *gris sahumadores*, which are represented by a usable kilnwaster. They may also have included urns, but material collected in the 1988 field study is inconclusive.

Because the production evidence from the Early Postclassic component is much more diffuse, it is difficult to draw even tentative conclusions about its organization. Both jars and bowls appear to have been made in the two terrace groups with the strongest cases for pottery manufacture, as well as in two other groups where the evidence is less persuasive. One terrace group has tentative evidence only for the production of G-35 bowls, and the single urn mold fragment is unaccompanied by evidence of other kinds of vessel production.

Obsidian Production

The 1977 survey did not yield a single shred of evidence to suggest that obsidian blades or other tools were produced at Jalieza. Indeed, at Valley of Oaxaca sites predating the Late Postclassic, evidence for obsidian production is exceedingly rare except at Monte Albán, the regional capital. At Jalieza, the apparent lack of obsidian working was especially interesting, given the site's status as a demographic near rival of Monte Albán in the Early Classic, and as by far the largest site in the Valley of Oaxaca in the Early Postclassic. In the 1988 field study, very strong evidence for two obsidian workshops[11] and possible evidence of two others was recovered. One very likely workshop is located in the Early Classic component, although its dating is

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11 While the best documented workshops at Jalieza are identified on the basis of the presence of cores and/or core fragments, detritus and/or flakes and, at times, finished tools such as blades, it is important to note that the scale of production does not even begin to approach that found at Central Mexican sites such as Teotihuacán. See Clark (1986) for a discussion of the uses and misuses of the term "workshop" in Mesoamerican archaeology. In Central Mexico and other localities, monopoly control over sources and/or massive scale production for export often led to enormous workshops, any one of which likely would yield more obsidian than the entire Valley of Oaxaca has to date. In Oaxaca, wherever they have been found, obsidian workshops are very small scale, leading me in an earlier study (Finsten 1983) to suggest that they be called "work areas", to avoid confusion with the much larger scale of production implied by the term "workshop", as it is widely used in Central Mexico.

somewhat problematic. The second is in the Early Postclassic component and is clearly attributable to Monte Albán IV. A third possible workshop in the Early Postclassic component may be associated with multicomponent occupation. A fourth possible workshop was detected in the Early Classic component.

There are several difficulties in identifying the most problematic case, in terrace group IIIA-B, as an Early Classic workshop. Unlike the strong case discussed in detail below, the evidence for obsidian production is both relatively scant and dispersed over several terraces in the group. A number of terraces in this group had pottery that dates to Monte Albán IIIB and/or IV, or may have. One terrace (B-7) yielded two preforms, one grey and one green, and no other obsidian. Terrace B-7, however, had no ceramic admixture from any other phases, suggesting that the assignment of these artifacts to the Early Classic is correct. From another terrace (B-19) two grey blades, one black blade and two grey core fragments were collected. In this case, there was a trace of pottery that probably dates to the Late Classic phase. A small black obsidian eccentric in the shape of a hook was collected together with two black blade fragments from another terrace (B-10), but this one had pure Early Classic pottery. No chipping detritus was recovered from any terraces in the group, but this is not surprising. Debitage is rarely visible on the surface, and conditions on most terraces in the group (ploughed) at the time of the field work did not promote the detection of debitage.[12] Although every bit of evidence is important, debitage may not be a particularly reliable indicator of work areas because it likely was collected and dumped away from activity areas where it would not constitute a safety hazard. So while some small scale obsidian working, perhaps focusing on nonutilitarian objects, may have been conducted at terraces in group IIIA-B, the present evidence is inconclusive. Other terraces in the group yielded a total of only seven blade fragments, and no one terrace had more than three. Since this terrace group had diagnostic pottery dating to Monte Albán IIIB and perhaps IV in addition to IIIA, the temporal attribution of possible obsidian working is problematic, although a Classic date seems likely.

The case for a second work area in the Early Classic component, in terrace group IIIA-G, is somewhat weaker. The material here is also widely distributed, since six of thirteen terraces in the group had some obsidian. As with the previous case, temporal attribution may be a problem, although it is less severe. The weakest link in the case for a workshop is that the direct evidence of production consists of a single core fragment. Of the six terraces from which obsidian was recovered, all have some Period V pottery, and in two cases Late Postclassic diagnostic rims account for a fairly high proportion of bowls. One of these terraces also had several sherds of Terminal Formative diagnostic types and Monte Albán II may have been present on another terrace. But eighty percent of the obsidian collected in this group came from terraces whose numbers of Monte Albán V diagnostics were very small, and only one of them may have had some Period II pottery. Among this material was a black core fragment which, together with an obsidian biface, came from a terrace with only a trace of Monte Albán V in addition to Early Classic pottery. A second biface and seven obsidian blade fragments were recovered from a terrace with a ceramic assemblage. Fourteen other blade fragments were recovered from four other terraces in the group.

The strongest evidence for an obsidian work area is found in the site's Early Postclassic component, in terrace group IV-D, although here there is some problem with temporal attribution, as well. The workshop evidence consists of several core fragments, a single flake, and a large number of prismatic blades and blade fragments (Table 32). There was no chipping detritus. As is discussed in Chapter 7, the vast majority of this material originated from a single source, the Zaragosa mines in the state of Puebla. Three terraces in this group had minimal traces of reoccupation in Monte Albán V (one or two sherds), but the terrace with the obsidian concentration (D-3) is not among them. One of these terraces and four others, among them D-3, had a some sherds that suggest the possibility of, but were not unequivocal evidence for, occupation in the Early Classic. On one terrace there may have been

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12 At one site in the Valley of Oaxaca, debitage fragments were recovered from the surface, but only because an ant colony on an unploughed terrace was dredging up minute flakes as they excavated their ant hill.

Table 32. Evidence for Obsidian Working at Terrace Group IV-D

Color	Blades	Flakes	Other
Green	3	0	none
Grey	18	1	5 core fragments
Black	23	0	2 core fragments

occupation in the Late/Terminal Formative as well. Thus while there is very strong surface evidence for an obsidian workshop, probably producing blades, in terrace group IV-D, it is remotely possible that the workshop may date to the Early Classic rather than the Early Postclassic. Given the inconclusive nature of the problematic pottery, however, I think that a Monte Albán IV date for this work area is acceptable.

A second, possible workshop in the Early Postclassic component is located in terrace group IV-C, a civic-ceremonial area. This terrace group also yielded sherds dating to Monte Albán Late I and II, so once more dating the obsidian is problematic. However as was the case for the obsidian from IV-D, the vast majority originated from the Zaragosa source area, which might indicate contemporaneity indirectly. The evidence for a work area consists only of an extraordinarily large number of blades (twelve grey, five black and one green). No flaking debris or core fragments were recovered from terraces in this group. It is equally plausible that the high concentration of obsidian blades reflects specialized activities that used blades, rather than their manufacture. One use of obsidian blades was in ritual contexts for bloodletting rites (Flannery and Marcus 1976). Designated a civic-ceremonial terrace group, large numbers of obsidian blades might have been found in terrace group IV-C because of the importance of ritual and the use of blades in bloodletting rites.

Local Chipped Stone Production

Richard D. Garvin (n.d.) undertook the enormous task of coding all tools, flakes and cores made from locally available minerals. Included are a large variety of minerals, among them chert, generally of poor quality, and chalcedony, both crypto-crystalline quartzes. There are eight known sources of chert in the Valley of Oaxaca (Parry 1987). Other materials include fine-grained volcanics, coarse-grained igneous rocks, silicified siltstone, quartz and quartzite, and an unidentified hardstone Garvin called "greenstone". Although the specific sources of these lithic materials is unknown, all (with the exception of the latter) are probably available in or very the Valley of Oaxaca.

Fine-grained volcanics include tuff, ignimbrite, rhyolite, andesite, and perhaps basalt. These rocks are widespread in the Valley of Oaxaca. Coarse-grained igneous rocks include some of the material types already discussed, but have a quite different lithic matrix. Generally, these materials were used to make expediency tools. Both quartz and quartzite cobbles are widespread in the Valley of Oaxaca and surrounding mountains. A number of quartz sources were recorded in the southern arm of the Valley in the 1977 surveys (Blanton et al. 1982), and at least one showed evidence of exploitation, probably in prehispanic times. Greeenstone, which is exceptionally rare and used exclusively for decorative rather than utilitarian items, includes jadeite, nephrite and/or serpentine. The source for greenstone is unknown at present.

Production of chipped stone tools from local raw materials was extremely widespread at Jalieza. In fact, at most terrace groups the majority of local chipped stone artifacts collected were chipping debris and/or cores, rather than tools (Table 33). Recognizable tools include bifaces, projectile points, burins, scrapers and utilized flakes. Predominant among the "other" category are flake fragments with no observable usewear. However, microscopic analyses were not carried out and these specimens were fragmentary. Many may have been fragments of flake tools produced quickly for a specific task and then abandoned. Artifact categories such as ground stone, decorative items and chopping tools occur so rarely that they are omitted from the present discussion.

In the Early Classic component, a somewhat lower frequency of production debris (core fragments, decortication and other reduction flakes) is found on terrace group IIIA-B, together with the highest frequency of unidentifiable fragments, many of which may have been simple flake tools. At all other terrace groups, frequencies of

Table 33. Frequencies of Major Local Chipped Stone Artifact Categories in Monte Albán IIIA

Terrace Group	*n*	Prod Deb[a]	Unid Frag[b]	Tools
A	64	.69	.16	.16
B	150	.55	.32	.11
C	71	.77	.13	.10
D	347	.74	.14	.10
E	267	.77	.11	.11
F	85	.79	.11	.11
G	626	.70	.14	.13
H	61	.77	.13	.10

[a] Production debris
[b] Unidentifiable fragments

unidentifiable fragments and of tools are very similar. Terrace groups vary little in terms of proportions of different major artifact categories, although simple tool production, perhaps most frequently emphasizing expediency tools, is well-represented in every terrace group.

There is somewhat more variation among terrace groups in the frequencies of major local material types represented. Fine-grained volcanics, particularly basalt, are uniformly the least frequently represented raw material in the lithic collections, occurring no more often, and generally less often, than obsidian (Table 34). Silicified siltstone is fairly uniformly represented, although it occurs less frequently in terrace group IIIA-F than in other groups, and somewhat more frequently in IIIA-G and especially IIIA-H. Crypto-crystalline quartzes (cherts and chalcedony) are among the most abundant raw material at most terrace groups. An exception is terrace group IIIA-G, where the most frequent raw materials are coarse-grained igneous rocks and unknown materials; crypto-crystalline quartzes are relatively rare. However at five of eight terrace groups, artifacts of these latter materials compromise 25 percent or more of local chipped stone assemblages and were manufactured on terraces in the group.

In the Early Postclassic component, production debris accounts for an even higher frequency of local chipped stone artifact assemblages collected on most terrace groups (Table 35). Although sample sizes are quite small at several terrace groups, production debris still comprises the bulk of material collected. In contrast to the Early Classic component, however, tools are relatively rare and nearly always account for a smaller proportion of the sample than all other artifact categories.

The categories of major local material types occurring most commonly also differ considerably compared to the Early Classic period (Table 36). Fine-grained volcanics are rare to absent, as was the case in Monte Albán IIIA. Silicified siltstone is fairly common in two terrace groups (IV-A and IV-F), but infrequent elsewhere. And crypto-crystalline quartzes, which accounted for a substantial proportion of assemblages in most Early Classic terrace groups, are very rare in Early Postclassic terrace groups. Although IV-H appears to be an exception, its sample is very small. Unknown materials account for the bulk of raw materials in most terrace groups.

In both the Early Classic and the Early Postclassic phases, local chipped stone artifact assemblages are dominated by production debris in every terrace group. Tools tended to form about ten percent of Early Classic collections and even less of Early Postclassic lithic assemblages. There seems little doubt that many artifacts

Table 34. Frequencies of Major Local Material Types in Monte Albán IIIA Terrace Groups

Material	A	B	C	D	E	F	G	H
Fine-grained volcanics	.07	.05	0	.02	.03	.02	.03	.04
Silicified siltstone	.16	.15	.16	.18	.17	.09	.20	.23
Crypto-crystalline quartz	.30	.21	.33	.19	.25	.42	.14	.36
Coarse-grained igneous	.07	.37	.22	.17	.28	.15	.23	.17
Unknown	.18	.17	.24	.40	.16	.25	.36	.11
Other	.23	.06	.05	.05	.11	.07	.03	.09

Table 35. Frequencies of Major Local Chipped Stone Artifact Categories in Monte Albán IV

Terrace Group	*n*	Prod Debris[a]	Unid Frags[b]	Tools
A	96	.76	.14	.06
B	289	.81	.14	.04
C	322	.76	.14	.07
D	243	.77	.12	.08
E	55	.73	.18	.09
F	24	.96	0	.04
G	11	.64	.27	.09
H	24	.71	12	.12

[a] Production debris
[b] Unidentifiable fragments

identified only as production debris were put to some use that left no macroscopically visible trace. The higher, overall degree of erosion at the site's Monte Albán IIIA component initially suggested to me the hypothesis that the predominance of lithic production debris resulted from the use of large numbers of expediency tools for clearing and constructing terraces as building fill. However, the frequency of such debris is at least as high in the Monte Albán IV component where erosion is less pronounced.

In both phases, fine-grained volcanic rocks are extremely rare. Crypto-crystalline quartzes are more common in Monte Albán IIIA assemblages but among the more infrequent material types in Monte Albán IV. This may suggest that Early Postclassic site occupants did not travel as far afield for local raw materials to make rough implements for day-to-day use. Access to sources may have been limited as the regional state disintegrated into smaller, competing polities with strong territorial concerns. However, Valley of Oaxaca cherts are generally of poor quality so this did not necessarily mean a reduction in the quality of material or products. Coarse-grained igneous materials, in both phases, account for only a modest proportion of local chipped stone. The bulk of artifacts are made of unidentifiable, poor quality minerals, probably derived from the bedrock on or near the site.

Textile Production

Spindle whorls are very rare in the collections from Jalieza, and so evidence for textile production is scant. No complete or partial spindle whorls were collected from terrace groups in the Monte Albán IIIA component. It is possible that sampling error is at play here, although the complete mapping of the site in 1977 also failed to turn up any artifacts related to textile manufacture. Spinning seems to have been a rare activity at the Early Classic community.

Two complete spindle whorls, both perforated ceramic discs, were collected in the Monte Albán IV component. A very small spindle whorl, measuring 2.2 cm in diameter, was collected from terrace group IV-C. The second one, larger at 4.5 cm in diameter, was found in terrace group IV-F. Both spindle whorls appear to have been made for the task, rather than having been produced from broken and ground potsherds. A third ceramic disc from group IV-G, also made as a disc, may be another spindle whorl but it was too fragmentary to determine whether it was perforated.

The evidence for textile production is so slender that any interpretations must be considered highly tentative. Nonetheless it is interesting that the smaller whorl,

Table 36. Frequencies of Major Local Material Types in Monte Albán IV Terrace Groups

Material	A	B	C	D	E	F	G	H
Fine-grained volcanics	0	.06	.06	.03	.05	0	0	0
Silicified siltstone	.29	.09	.09	.15	.05	.39	0	0
Crypto-crystalline quartz	.11	.04	.02	.10	.03	.17	0	.24
Coarse-grained igneous	.15	.11	.25	.27	.18	.09	.29	.24
Unknown	.42	.68	.56	.45	.63	.26	.71	.53
Other	.03	.02	.02	.01	.08	.09	0	0

probably used in spinning cotton (Parsons 1972), was collected from an elite/civic-ceremonial context. As a relatively rare raw material, it is unlikely that many commoners would have been able to afford cotton even if there were no sumptuary laws to prohibit their use of it. The larger spindle whorl, which may have been used to spin coarser fibres such as *maguey,* came from a terrace in a nonelite residential group.

The numbers of spindle whorls are so small that meaningful cross-temporal comparisons cannot be made.

Discussion

By the standards of Central Mexican sites, the evidence for craft production is scant indeed. However, compared to other Valley of Oaxaca sites, indicators for craft production at Jalieza suggest a diffuse and diverse craft industry, with some interesting differences between the Early Classic and Early Postclassic phases.

In Monte Albán IIIA, ceramic production occurred in both elite and nonelite contexts. I interpret the evidence as indicating that larger scale, more diverse ceramic production took place in terrace group IIIA-G, an elite context, than in either IIIA-D or IIIA-E, both nonelite terrace groups. However, this interpretation must be considered with caution, given the paucity of data. Small scale ceramic production may also have occurred in three other terrace groups, one elite and the other two nonelite. There was no evidence whatsoever for ceramic production in only two terrace groups, one elite and the other the only civic-ceremonial group in the Early Classic component.

Two obsidian workshops may date to the Early Classic phase. One is located in the elite terrace group IIIA-B, a group that also has possible evidence of ceramic production. This group is adjacent to the civic-ceremonial core, along the ridgetop to the northwest of IIIA-C. It may have housed lower-ranking members of the local ruling family. The second more tentative obsidian workshop is also situated in an elite terrace group, IIIA-G, with good evidence for large-scale and varied ceramic production. Identification of obsidian workshops in these contexts may indicate that obsidian working was attached to elites or, less likely, was the work of elites. This discussion is elaborated below.

In Monte Albán IV, evidence overall for ceramic production is less abundant, less concentrated and perhaps less varied, although ceramic assemblages themselves were also less varied. Definite evidence of pottery manufacture was recovered from only two terrace groups, one of which is designated an elite group partly because of its ridgecrest location. The other, IV-D, is a nonelite terrace group. Four other terrace groups have possible evidence of ceramic production, including the two civic-ceremonial groups. The two groups lacking any evidence whatsoever of ceramic production are both nonelite. In contrast to the Early Classic component, no terrace group appears to dominate ceramic production in the way that IIIA-G does. Everywhere pots were made, the numbers of vessels produced were relatively small, and the numbers of types represented are few.

I have already suggested that the evidence may point to a distinction between two kinds of ceramic workshops in Monte Albán IIIA, while only a single kind of workshop has been identified in the Monte Albán IV component. In both components, small workshops probably produced for neighborhood markets. But in the Early Classic, a larger-scale workshop is suggested for terrace group IIIA-G. This workshop may have produced vessels for a larger market, the whole community and perhaps beyond. The evidence also suggests that it may have produced some speciality wares, such as urns, that were not made in the smaller, neighborhood workshops.

By contrast, in Monte Albán IV larger scale workshops serving a broader market appear to have been absent. If such a workshop were associated with mounded architecture, it surely would have been recovered in the 1988 field study. However, it is possible that one or more such workshops could have been missed by the sampling strategy if they were not associated with mounded architecture. This seems improbable given that no kilnwasters whatsoever were recovered from the Early Postclassic component when it was mapped in its entirety in 1977. Yet the present study cannot rule out this possibility.

The only certain obsidian workshop in the Early Postclassic component of the site is located in a nonelite terrace group (IV-D). The other possible workshop, evidenced only by abundant obsidian blades, is more likely an artifact concentration associated with ritual or other activities that took place in IV-C, a civic-ceremonial group. Terrace group IV-D is also one of two terrace groups in the period IV component with very good evidence for ceramic production.

In both phases, local chipped stone tool production is so ubiquitous that meaningful patterns cannot be discerned. Virtually everywhere, crude flake and other tools were fashioned as needed and discarded. These must have been used for various context-dependent tasks, ranging from the maintenance of buildings and terraces themselves to activities associated with other craft production to plant processing and food preparation. The only major cross-temporal difference appears to be in the predominant raw materials employed. While crypto-crystalline quartzes account for a substantial proportion of local raw materials represented in Early Classic assemblages, they are rare and largely replaced by unknown, bedrock-based material in the Early Postclassic.

Evidence suggests that in some contexts, at least, obsidian and ceramic production were "attached", if not to one another then to the same social unit. Two Early Classic terrace groups and one Early Postclassic one have evidence for both ceramic vessel and obsidian tool manufacture (as well as local chipped stone production, which is found nearly everywhere). Obsidian working occurs only in such contexts. Ceramic production occurs in apparently unattached contexts as well, although it is possible that some other production activities which have left no trace may have occurred in some. Apparently among these attached production areas is the single, very large-scale ceramic workshop in the IIIA component.

A major cross-temporal difference between these "attached" production areas is the nature of the social context. In the Early Classic, both cases are associated with elite terrace groups, one of which is clearly linked to the site's civic-ceremonial core. In the Early Postclassic, the single example is found in a nonelite terrace group separated from the civic-ceremonial and most elite areas by a major barranca. Thus while elite control of at least some specialized production is suggested for Monte Albán IIIA, craft production appears to have been free of such control in Monte Albán IV.

Chapter 6

CEREMONIAL IMPORTANCE

Introduction

Some categories of artifacts are objects whose major significance was in the domain of ritual activities, including public and private religious ceremony. These categories include figurines, *sahumadores*, miniature vessels and urns. The latter two are generally considered to have been used as funerary offerings. All of these objects occur with sufficient frequency in the surface collections from Jalieza to permit analysis of their distributions. In this chapter, I examine the distributions of objects of ceremonial importance, comparing terrace groups within components and comparing the Early Classic and Early Postclassic patterns.

Monte Albán IIIA

The numbers of urns,[13] figurines, *sahumadores* and miniature vessels are presented by terrace group for the Early Classic component at Jalieza in Table 37. Of the artifact classes examined here, urns are by far the most common and so will serve as a sort of baseline against which to compare other distributional patterning.

Table 37. Objects of Ceremonial Importance in Monte Albán IIIA (*n*)

Terrace Group	Urns	Fig[a]	Sah[b]	Min[c]
IIIA-A	28	8	1	0
IIIA-B	18	1	3	0
IIIA-C	18	5	5	0
IIIA-D	33	15	17	4
IIIA-E	27	11	3	5
IIIA-F	12	1	0	2
IIIA-G	61	27	23	13
IIIA-H	22	5	8	0

[a] Figurines [b] *Sahumadores* [c] Miniature vessels

In Monte Albán IIIA, the greatest number of urn fragments was recovered from terrace group IIIA-G, although this is among the lowest adjusted frequencies (see below). When Jalieza was first recorded in 1977, evidence for the manufacture of urns in the form of a mold fragment was recovered from this terrace group and a second urn mold fragment was observed in the area during the pilot study in 1987. Unfortunately, the 1988 field study produced no additional evidence for this specialized activity. However the possibility of urn manufacture in this locale has been suggested elsewhere in this report.

Grouping terrace groups solely by raw number of urn fragments, terrace groups IIIA-A, IIIA-D, IIIA-E, IIIA-H, perhaps together with IIIA-B and IIIA-C, are all similar. IIIA-F has the smallest number of urns, although its adjusted frequency (see below) is the highest. Recall that terrace group IIIA-F had the lowest overall artifact density in the Early Classic component. It is very difficult to interpret these data. Table 38 presents adjusted frequencies for the different artifact categories.[14] When terrace groups are clustered by the adjusted frequency of urns, three clusters of terrace groups are apparent. The first includes IIIA-A and IIIA-F with relatively high frequencies. The second consists of groups with intermediate frequencies and includes IIIA-B, IIIA-C, and

13 Young (1993) analyzes in detail urn motifs and their distribution across Jalieza.

14 Although no artifact category is ideally suited for such standardization, of those available from the Jalieza collections utilitarian bowls are most appropriate. *Comales*, used for a variety of standardization purposes by Brumfiel (1976), are too infrequent in the Jalieza collections to be useful for this purpose. At Jalieza, utilitarian bowls are ubiquitous and abundant in all contexts, and are less likely than any of the other relatively abundant categories to vary according to minor differences in precise chronological placement, socioeconomic status, or economic specialization. They serve well as a general yardstick against which to to measure the relative abundance of other kinds of archaeological materials.

Table 38. Objects of Ceremonial Importance in Monte Albán IIIA (Adjusted Frequencies).

Terrace Group	Urns	Fig[a]	Sah[b]	Min[c]
IIIA-A	9.86	2.82	0.35	0.00
IIIA-B	5.73	0.32	0.96	0.00
IIIA-C	6.32	1.75	1.75	0.00
IIIA-D	3.00	1.36	1.54	0.36
IIIA-E	3.05	1.24	0.34	0.56
IIIA-F	9.30	0.78	0.00	1.55
IIIA-G	3.56	1.58	1.34	0.76
IIIA-H	7.77	1.77	2.83	0.00

[a] Figurines [b] *Sahumadores* [c] Miniature vessels

IIIA-H. The third cluster groups terrace groups with relatively low frequencies of urns: IIIA-D, IIIA-E, and IIIA-G.

Terrace groups IIIA-A and IIIA-F have little in common other than their apparent proliferation of urns. IIIA-A is an elite residential group with no evidence whatsoever of craft production, other than the ubiquitous local lithics. It ranks highest in terms of frequency of figurines, sixth in *sahumadores* and, together with three other groups yielded no miniature vessels whatsoever. With fifteen blades, it ranks third in abundance of obsidian. By contrast, IIIA-F is a nonelite group with possible ceramic production. It has few figurines (rank 7) and no *sahumadores* (rank 8) but the most miniatures of any group in the Early Classic component. However, with only two blades it has less obsidian than all its contemporaries.

Figurine frequencies distinguish two terrace groups from the others: IIIA-A with a relatively high frequency of figurines, and IIIA-B with a very low frequency of these items. Generally, however, figurines are rare across the site. The raw numbers are small, the adjusted frequencies correspondingly low, and the differences among terrace groups are slight.

Sahumadores also occur only in small numbers. The adjusted frequencies of these objects distinguish three clusters: IIIA-H with a relatively high frequency, and IIIA-A and IIIA-F, both of which had extremely low (to absent) adjusted frequencies of *sahumadores*. The remaining five terrace groups fall into a middle range, all having very similar adjusted frequencies of *sahumadores*.

Miniature vessels were very rare in the Early Classic component, occurring in only half of the terrace groups collected and always in very small numbers. For the most part, the actual numbers are so small in IIIA contexts that efforts to rank terrace groups according to adjusted frequencies cannot be considered to be meaningful for this class of artifact.

Among terrace groups in the Early Classic component, there do not appear to be any meaningful relationships among these different artifact categories. While urns and miniature vessels might both be expected to be found in burial contexts, they come very close to an inverse relationship. However the numbers of miniatures are too small for statistical manipulation. Figurines and *sahumadores* show neither a similar relative distribution (in terms of rank order), nor follow the same rank ordering as urns.

Monte Albán IV

In the Early Postclassic component, compared to the Early Classic, the numbers of urns in terrace groups with mounds (i.e., elite residential and/or civic-ceremonial groups) are very low (Table 39). Not only urns but especially figurines were less abundant (in terms of raw numbers) overall in the Monte Albán IV terrace groups. On the other hand, *sahumadores* occurred more than three times as often in the Early Postclassic component (although see the specific discussion of *sahumadores* below), as did miniature vessels.

Table 39. Objects of Ceremonial Importance in Monte Albán IV (*n*)

Terrace Group	Urns	Fig[a]	Sah[b]	Min[c]
IV-A	36	4	105	49
IV-B	46	11	21	7
IV-C	49	5	32	13
IV-D	24	10	10	10
IV-E	10	0	12	1
IV-F	13	5	8	2
IV-G	8	0	3	2
IV-H	4	3	5	2

[a] Figurines [b] *Sahumadores* [c] Miniature vessels

The highest adjusted frequency of urns by far is found in group IV-G (Table 40) where the single urn mold fragment was recovered. This is opposite to the situation in the IIIA component where the lowest adjusted frequency of urns was found in the terrace group (IIIA-G) where these vessels may have been made. Clearly no simple relationship exists between urn production and vessel fragment frequencies. The other two groups with relatively high frequencies are IV-E and IV-F, both nonelite residential terrace groups. The elite group, IV-B, ranks fourth. The two civic-ceremonial terraces groups rank lowest among the eight.

Table 40. Objects of Ceremonial Importance in Monte Albán IV (Adjusted Frequencies)

Terrace Group	Urns	Fig[a]	Sah[b]	Min[c]
IV-A	2.93	0.33	8.54	3.99
IV-B	4.06	0.97	1.85	0.62
IV-C	2.75	0.28	1.80	0.73
IV-D	3.20	1.33	1.33	1.33
IV-E	6.58	0.00	7.89	0.66
IV-F	7.88	3.03	4.85	1.21
IV-G	12.90	0.00	4.84	3.23
IV-H	3.88	2.91	4.85	1.94

[a] Figurines [b] *Sahumadores* [c] Miniature vessels

As was the case in the earlier component, in Monte Albán IV the frequencies of figurines are generally low. It is difficult to say if any of these values are meaningful. The highest frequencies are found in two nonelite terrace groups, IV-F and IV-H. No figurines whatsoever were recovered from IV-E and IV-G, among the groups ranking highest in urn frequencies. Elsewhere frequencies are uniformly low.

In raw numbers of *sahumadores*, Monte Albán IV contrasts markedly with Monte Albán IIIA. In general, the later contexts had far more *sahumadores* and, with the exception of group IV-A, their distribution tends to emphasize nonelite terrace groups. This temporal distinction is consistent with observations made by Caso, Bernal and Acosta (1967:435) at Monte Albán. Most obvious is the very large, raw number of *sahumadores* found in terrace group IV-A, one of the two civic-ceremonial areas. This distribution parallels that of miniature vessels, which show an unequivocal concentration in group IV-A. However, there is a serious problem in interpreting these *sahumador* data since the *sahumadores* are virtually all a *kafé* type that recently has been dated to Monte Albán V on the basis of surface associations (category 2220; Blanton et al. 1982:378). Caso, Bernal and Acosta's earlier attribution of some *kafé sahumadores* to Monte Albán IIIB-IV apparently is incorrect. Yet terrace group IV-A had less period V admixture than IV-B, which ranks among the lowest in *sahumadores*. Given the more recent temporal assignment of the small, near-solid handled *kafé sahumadores* , the data probably point to the use of the IV-A site area (on the highest part of the *Cerro Piedra de Gavilán*) as a sacred place in the Late Postclassic, perhaps by the Monte Albán V occupants of the *Cerro Ticolutle.*

By contrast, *sahumadores* in terrace group IV-E, which occur in nearly as high an adjusted frequency, are nearly all made of *gris* paste. A single Late Postclassic sherd was recovered from this terrace group. And although there may have been some Late Formative admixture, none of the *sahumadores* are the *kafé* variety which was attributed to Period II at Monte Albán (Kowalewski, Spencer and Redmond 1978). A second cluster of terrace groups with moderately high adjusted frequencies of *sahumadores* includes three other nonelite groups (IV-F, IV-G, and IV-H). The third cluster, having relatively low frequencies, would include the single elite terrace group (IV-B), both civic-ceremonial groups (IV-A and IV-C) since *sahumadores* in IV-A date to Monte Albán V, and terrace group IV-D, a nonelite residential group with both ceramic and obsidian workshops. With the exception of this latter terrace group, which may have had more a productive than a residential focus, *sahumadores* are relatively common only in nonelite terrace groups. At Monte Albán the vast majority of *sahumadores* were recovered from tombs (96%) and burials. Only two of 440 were recovered from offerings (Caso, Bernal and Acosta 1967: 434-435). Perhaps at Jalieza, *sahumadores* were the burial inclusion of choice among nonelites. Caso, Bernal and Acosta (1967:435) postulate that *sahumadores* were grave accompaniments for the great individuals interred in tombs, priests and/or lineage heads, since these are their predominant contexts. The biases of early excavations at Monte Albán toward monumental architecture and tombs, however, might play a part in producing this view. Given the absence of other indications of burials on most of the terraces in these groups, however, it is possible that they occurred in other contexts, as well.

Miniature vessels are as rare as figurines, in general, but they are much more common in the Monte Albán IV component. Two terrace groups are distinguished by relatively high adjusted frequencies of miniatures: IV-A and IV-G. Although it is possible that some miniatures from IV-A may be Late Postclassic in date, many clearly are forms dated to IIIB-IV at Monte Albán by Caso, Bernal and Acosta (1967). None was clearly identifiable as Late Postclassic in date. Given the fragmentary nature of other specimens, however, I cannot rule out the possibility that IV-A and other site areas were used as burial grounds by Late Postclassic inhabitants of other settlements, and that some miniatures are the result of this activity. But since many miniatures are Late Classic/Early Postclassic types, such as bat claw vessels, I assume here that all pertain to the Monte Albán IV occupation.

Terrace groups IV-A and IV-G share few characteristics in common. Group IV-A is a civic-ceremonial group on the ridgecrest with an enormous number of *sahumador* fragments, most of which likely pertain to Late Postclassic re-use of the terrace group. The individual terraces with the largest numbers of miniatures also had large quantities of *sahumadores*. And although IV-G ranked highest in urn fragments, IV-A ranked very low. Miniature vessels are present on all other terrace groups, although in low frequencies.

Indices of Ritual Importance

Is it possible to distinguish places, in each temporal component, which had a special importance in the domain of ritual activity? Is ritual activity equally important in both phases? Is it distributed differently in the two phases in question? In order to attempt to answer these questions, I constructed an index by which terrace groups could be compared with one another. The Index of Ritual Importance (IRI) is calculated by summing the numbers of urns, figurines, specimens identified only as urn/figurine fragments, *sahumadores*,[15] and miniature vessels, multiplying by 100, and dividing by the number of utilitarian bowls. A second set of values (IRIO) makes the same calculation but includes obsidian blades, knives and the lone obsidian eccentric as ritual objects. There is some potential difficulty with including obsidian blades since it is likely that most of the material in terrace group IV-D is associated with blade and possibly other obsidian tool manufacture, rather than the ritual or other use of obsidian blades. Obviously, this must be taken into consideration in interpreting the Index values and rankings. In addition, the Index assumes an equal weighting among the different artifact categories used in its calculation. Table 41 presents the values of the IRI and the rank ordering of Early Classic terrace groups it produces in each temporal component.

Among the Early Classic terrace groups, IIIA-F, IIIA-H, and IIIA-A rank first, second, and third, respectively, in terms of their simplified Index value (IRI) rankings. Only the latter, IIIA-A, had any associated mounded architecture. Overall densities of debris at these terrace groups varied markedly, so their high index values cannot be attributed to problems of sample size variation. Among the groups that one might have expected to emerge as important on the basis of architectural and locational characteristics are IIIA-B and IIIA-C, the second elite and the only civic-ceremonial terrace groups. But these rank fourth and fifth, falling in the middle range. However,

Table 41. Index of Ritual Importance for Monte Albán IIIA

Terrace Group	IRI	Rank	IRIO	Rank
IIIA-A	10.2	3	14.8	2
IIIA-B	8.9	4	12.7	5
IIIA-C	8.4	5	14.4	3
IIIA-D	6.6	8	7.7	8
IIIA-E	6.9	7	7.8	7
IIIA-F	12.4	1	14.0	4
IIIA-G	7.9	6	9.3	6
IIIA-H	10.6	2	15.2	1

15 Small *kafé sahumadores* dating to Monte Albán V are not included in the calculation of this index.

if the rankings at the upper and middle ranges appear to make little sense, the lower end of the scale does seem to have some logic. The three lowest ranked groups (IIIA-D, IIIA-E, IIIA-G) had among the highest overall densities of debris so, again, sampling problems cannot be used to explain the relatively low densities of the relevant artifacts. However, all three of these groups had clear evidence of craft (ceramic) production, and this clearly distinguished them from the other terrace groups, all of which rank higher in the IRI.

Interestingly, the more complex Index (IRIO) produces rankings which, overall, are very similar. The three ceramic producing terrace groups (IIIA-D, IIIA-E, and IIIA-G) remain at the bottom of the list. The only notable change is that the civic-ceremonial core (IIIA-C) is elevated to rank 3 from 5, and IIIA-F, a nondescript nonelite group, drops from rank 1 to 4.

Taking into consideration the values and their rankings, for both the IRI and the IRIO, several observations can be made. Terrace groups IIIA-D and IIIA-E, both nonelite ceramic producing terrace groups, not only consistently rank seventh and eighth among eight, but have decidedly low values for both indices. The single elite ceramic producing group (IIIA-G) consistently ranks sixth and has a value that sets it above IIIA-D and IIIA-E, but below all the others. This cannot be attributed to urn manufacture, however, since the adjusted frequency of urns is one of the lowest among Early Classic terrace groups. Group IIIA-G appears to be set apart from other ceramic-making terrace groups by its elite status. Why nonelite, elite and the only civic-ceremonial groups would have very similar IRIO values, however, remains inexplicable.

IRI and IRIO index values and their rankings for Period IV terrace groups are presented in Table 42. The highest IRI value is obtained for IV-G, the group with the unusually high adjusted frequency of urns as well as some evidence for the production of urns. Although this may be a case where production has skewed the results upward, the values and rankings for other groups suggest a more complex explanation. The next highest values are found in groups IV-F, IV-E and IV-H, respectively. In fact, these four nonelite groups consistently rank first through fourth, and their absolute values for both indices clearly separate them from the remaining terrace groups. Not surprisingly, the terrace group with the obsidian workshop (IV-D) shows some improvement in the rankings in the IRIO, but this is the only change wrought by including obsidian tools. The elite and civic-ceremonial terrace groups as well as IV-D, a ceramic and obsidian producing terrace group, consistently rank below the nonelite groups, and their values for both indices suggest that they are a separate group from the others.

Table 42. Index of Ritual Importance for Monte Albán IV

Terrace Group	IRI	Rank	IRIO	Rank
IV-A	12.4	5	14.0	6
IV-B	8.2	7	11.4	7
IV-C	6.1	8	8.8	8
IV-D	8.3	6	15.3	5
IV-E	17.8	3	20.4	3
IV-F	19.4	2	24.8	2
IV-G	22.6	1	29.0	1
IV-H	17.5	4	18.4	4

Discussion

In the Early Classic component, the ritually important places that can be identified by the indices calculated in this part of the report are a mix of nonelite, elite and civic-ceremonial terrace groups. Consistently, the lowest ranking terrace groups share one feature in common: all were sites of ceramic workshops. Among these, the only elite residential group ranked somewhat higher but consistently fell well below all groups that lacked or had only possible ceramic production.

In the Early Postclassic component, the indices identify as ritually important places all nonelite terrace groups except IV-D, which had both ceramic and obsidian workshops. One of the groups identified as civic-ceremonial (IV-C) ranked at the bottom, well below all others. The poor showing of IV-D seems attributable to its production activities, and its apparent improvement in the IRIO is clearly attributable to material associated with obsidian production.

Thus one cross-temporal difference is the emphasis in the Early Postclassic on household ritual in the residences of commoners. Although household ritual took place in Early Classic times as well, it assumed even greater importance by Monte Albán IV. This is underscored by the very high actual values of the indices in the later phase, values that are about twice those for groups in Monte Albán IIIA.

A second difference is the reduced importance of ritual objects in the activities at elite and civic-ceremonial terrace groups in the Early Postclassic component. This may be the other side of the trend noted already toward "privatization" of ritual in domestic contexts (Kowalewski et al. 1989), although why ritual objects should assume less importance in elite and civic-ceremonial terrace groups in unclear.

Finally, a common feature of both phases is the relative paucity of ritual objects in terrace groups where principle craft production in ceramics and/or obsidian was a major activity. In both site components, craft production appears to be more important than elite/nonelite status in determining IRI and IRIO rankings.

Chapter 7

OBSIDIAN SOURCES AND IMPLICATIONS FOR EXCHANGE

Introduction

A secondary objective of the field research at Jalieza was to collect obsidian samples to shed light on the nature of internal exchanges between centers, and of long-distance relationships between a major secondary center and other regions, and to determine whether those connections altered significantly over time. Information about variation in obsidian sources exploited within settlements might also contribute to our understanding of the constraints affecting patterns of consumption among elite and nonelite segments of the community.

The Sample

Fifty samples of obsidian were submitted to the Research Reactor at the University of Missouri. Although this is a small sample in absolute terms, obsidian is rare on Valley of Oaxaca sites since there are no local sources and all material had to be acquired through long-distance trade. These fifty samples constitute seventeen (17) percent of all obsidian collected from terrace groups. The small number of obsidian artifacts recovered at Jalieza by systematic intensive surface collection is consistent with the impression based on regional survey for Valley of Oaxaca sites of very low obsidian densities (Appel 1982; Blanton et al. 1982; Finsten 1983; Kowalewski et al. 1989). Subsequently, J. Michael Elam has analyzed an additional 53 samples from Jalieza as part of a larger-scale study (Elam 1993), although the results of his later analysis are not discussed here. However, these results confirm those achieved with the original sample (cf. also Elam, Glascock and Neff 1992).

The samples were chosen in a more or less systematic manner, with the emphasis on ensuring that each terrace group was represented approximately proportionally according to the abundance of obsidian present on its surface. Therefore, for example, terrace group IV-D, which had more obsidian than any other group and far more than most, contributed more to the sample than did any other group. The sample composition also attempted to include grey and black obsidian in approximately the same proportions in which they were present. Because the green obsidian suitable for blade production originates from the Sierra de Pachuca source region, only four pieces identified in the field laboratory as green were included in the sample for analysis. As is discussed below, this may have resulted in underrepresentation of material from one source and overrepresentation of Pachuca obsidian identified visually.

Two techniques were employed: Instrumental Neutron Activation Analysis (INAA) and Prompt Gamma Neutron Activation Analysis (PGNAA) (Elam and Glascock 1990). Table 43 lists the samples by number, provenience, additional phases indicated by the surface ceramics, and the source (ibid.). Drawings of the analyzed pieces, at their actual size, are reproduced elsewhere (Finsten 1990, 1992).

Obsidian is a volcanic glass that is formed when volcanic extrusives cool very quickly. Each flow is unique, in the sense that each has a particular chemical composition. Once samples from different source areas have been analyzed to determine their precise chemical composition and identify the different trace elements present, archaeological materials can be tested and compared to the known sources. The sources of archaeological specimens are determined by obtaining a "chemical signature", or description of the trace elements present, and then comparing this signature to those of known sources.

A total of seven sources are represented by the fifty samples. With only one exception, represented by only one fragment, all sources are located in the Central Mexican Plateau. The most obvious and outstanding feature of the source determination data is the overwhelming dominance of the Zaragosa source area in the modern state of Puebla. In both phases, a large majority of the obsidian analyzed originated in the Zaragosa mines. However, in each phase, four additional sources are also represented, including the Sierra de

Table 43. Sources and Proveniences of Obsidian Samples

Sample Number	Phase	Terrace Group	Terrace Number	Other Phases	Source
1	IV	E	9	none	Pachuca
2	IV	C	9	V(3)	Pachuca
3	IV	A	32	V(14)	Pachuca
4	IIIA	C	5	IIIB/IV(≥1)	Pachuca
5	IV	C	9	V(3)	Zaragosa
6	IV	C	9	V(3)	Zaragosa
7	IV	D	3	none	Zaragosa
8	IV	D	3	none	Pizzarín
9	IV	D	3	none	Zaragosa
10	IV	D	3	none	Zaragosa
11	IV	D	3	none	Zaragosa
12	IV	A	4	V(3)	Zaragosa
13	IV	C	2	V(3)	Zaragosa
14	IV	F	1	none	Zaragosa
15	IV	C	6	none	Zaragosa
16	IV	B	JIVA43	V(8)	Zaragosa
17	IV	G	1	none	Zaragosa
18	IV	G	1	none	Zaragosa
19	IV	B	14	V(10)	Zaragosa
20	IIIA	C	5	IIIB/IV(≥1)	Guadalupe Victoria
21	IIIA	C	5	none	Zaragosa
22	IIIA	G	16	V(10)	Zaragosa
23	IIIA	G	16	V(10)	Zaragosa
24	IIIA	A	4	V(1)	Pico de Orizaba
25	IIIA	C	2	V(1)	Zaragosa
26	IIIA	C	2	V(1)	Pico de Orizaba
27	IIIA	G	1	V(7)	Zaragosa
28	IIIA	B	9	IIIB,IV?(≥1)	Guadalupe Victoria
29	IIIA	G	9	IIIB/IV?(≥1)	Ucaréo, Michoacán
30	IIIA	D	3	II(2?),IIIB/IV?(2)	Zaragosa
31	IIIA	B	19	V(3),IIIB/IV(1?)	Zaragosa
32	IIIA	E	4	V(2)	Zaragosa
33	IIIA	G	15	V(7)	Zaragosa
34	IIIA	A	1B	V(4)	Zaragosa
35	IV	A	32	V(14)	Otumba
36	IV	C	3	V(3)	Zaragosa
37	IV	B	5	V(8)	Pico de Orizaba
38	IV	B	5	V(8)	Otumba
39	IV	B	5	V(8)	Zaragosa
40	IV	C	9	V(3)	Zaragosa
41	IV	C	9	V(3)	Zaragosa
42	IV	F	5B	none	Zaragosa
43	IV	C	5	V(1)	Zaragosa
44	IV	C	7	none	Zaragosa
45	IV	A	2	V(3)	Pico de Orizaba
46	IV	D	3	none	Zaragosa
47	IV	D	3	none	Zaragosa
48	IV	D	3	none	Zaragosa
49	IV	D	3	none	Zaragosa
50	IV	D	3	none	Zaragosa

Pachuca and Pico de Orizaba flows in the states of Hidalgo and Veracruz, respectively.

In Monte Albán IIIA, the two final sources represented in the sample are Guadalupe Victoria, also in the state of Puebla, and Ucaréo, in Michoacán. The latter is represented by a single example. In Monte Albán IV, the sources in addition to Zaragosa, Pachuca and Orizaba are Otumba, in the state of Mexico, and Pizzarín in the state of Hidalgo. Otumba obsidian was extensively exploited during the Classic period by the Central Mexican metropolis of Teotihuacán (Spence 1981). At this time, it was the "obsidian of choice" among the inhabitants of Teotihuacán, who worked the material in dozens of local workshops. Some material was exported, although Pachuca material is thought to have been the favored export.

The Pizzarín material was originally identified as coming from a poorly known "Coastal Oaxaca" source (Elam, Glascock and Finsten 1990). At the time at which the Jalieza samples were submitted for analysis, the "coastal Oaxaca" source had been identified tentatively on the basis of three samples taken from a gravel deposit and submitted to the Research Reactor by Marcus C. Winter of the Centro Regional de Oaxaca of INAH. More recent and extensive study has indicated that the gravels clearly are secondarily deposited. All obsidian present in these samples originates from the Pizzarín source area in the modern state of Hidalgo (J.M. Elam, personal communication).

However, this material presents a potential conundrum to Mesoamericanists who have relied upon visual identification of Pachuca obsidian, since it has long been believed to be the only green obsidian suitable for prismatic blade production. The Pizzarín material, identified at the Research Reactor as green in color, was misidentified in the field as grey. In fact if it had been identified as green, it likely would not have been selected for inclusion in the sample. Thus, more material from this source may be present than the proportion (2%) would seem to indicate. And if this is the case, it is possible that visual identification of green obsidian may overrepresent the Pachuca source region, discussed more fully below. This could have broader consequences for visual identification of Pachuca obsidian throughout Mesoamerica, since it has long been thought to be the only green material suitable for prismatic blade production. However, if this obsidian appears grey in color except when examined microsopically, it seems to be rare indeed at Jalieza since the vast majority of material submitted for sourcing was grey in color.

Clearly, sources other than Zaragosa were of little importance, at least in terms of their numerical contributions to the site assemblage, either on an individual basis or as an aggregate, in Monte Albán IV. In this phase, less than one quarter of the obsidian tested originated elsewhere than at Zaragosa. However other sources were somewhat more important in Monte Albán IIIA, when they account for slightly more than one-third of the obsidian (see Table 44). Generally, the results seem to indicate that the networks of long-distance/interregional exchange that moved obsidian into the Valley of Oaxaca as a whole and to the site of Jalieza in particular changed little between Early Classic and Early Postclassic times. The one exception may be that the Zaragosa source became of even greater importance later in time. The Pachuca source region continued to be exploited, as did the Pico de Orizaba mines but the latter, especially, failed to make a major numerical contribution to the total volume of obsidian. Identifications of Pachuca obsidian made solely on the basis of color by visual inspection indicate that this source accounted for nearly ten percent of all obsidian collected in Monte Albán IIIA, and about thirteen percent in Monte Albán IV. These results are discussed in greater detail in the following sections (see Tables 46 and 48). These figures, however, may be inflated if

Table 44. Obsidian by Source and Phase

Source	MA IIIA		MA IV	
	n	%	n	%
Zaragosa	10	65.2	26	76.5
Pachuca	1	6.3	3	9.0
Pizzarín	0	0.0	1	3.0
Orizaba[a]	2	12.5	2	6.0
GV[b]	2	12.5	0	0.0
Ucaréo[c]	1	6.3	0	0.0
Otumba	0	0.0	2	6.0

[a] Pico de Orizaba [b] Guadalupe Victoria
[c] Ucaréo, Michoacán

material from the Pizzarín source, apparently also green in color under the close examination given in the INAA laboratory, is more abundant than the analyses indicate.

It is difficult to interpret the significance of these results within phases, because of the relatively small sizes of the samples. But there are interesting, if speculative, patterns.

Monte Albán IIIA

In the Early Classic, obsidian from the Zaragosa source was found in every terrace group included in the sample (Table 45). The mound-focused groups all have grey obsidian from a variety of sources. Terrace groups lacking mounded architecture (i.e., nonelite groups) generally had obsidian representing fewer sources. But there are problems in interpreting this result since these were the only Early Classic terrace groups from which more than a single sample was analyzed. Nonetheless, the data resulting from visual inspection to distinguish Pachuca from other obsidian provide support for the more general conclusions derived from the INAA and PGNAA runs (Table 46). Obsidian from other sources, including Pachuca, was absent from two of the four nonelite residential terrace groups, and was very rare at a third, acccounting for only one of twelve pieces collected. At the fourth nonelite group, two of eight pieces originated in the Pachuca source region.

By contrast, elite and civic-ceremonial groups all have obsidian representing multiple sources, ranging from a low of two at terrace group IIIA-G to a high of four at IIIA-C. Although it may be making too much of a small sample to analyze these numbers further, there are some tantalizing suggestions. First, it should be emphasized that the number of pieces submitted for analysis from these terrace groups was not disproportionately large, so it is unlikely that the greater variability in sources represented is merely a function of larger

Table 45. Source Distribution by Terrace Group in Monte Albán IIIA

Terrace Group	Z[a]	Pi	GV	PO	U	O	P	PV[16]	Total Pieces[17]	Number of Sources[18]
IIIA-A	1	-	-	1	-	-	1	y	3	3
IIIA-B	1	-	1	-	-	-	-	y	2	3
IIIA-C	2	-	1	1	-	-	-	y	4	4
IIIA-D	1	-	-	-	-	-	-	y	1	2
IIIA-E	1	-	-	-	-	-	-	n	1	1
IIIA-F	-	-	-	-	-	-	-	n	0	1[19]
IIIA-G	4	-	-	-	1	-	-	n	5	2
IIIA-H	-	-	-	-	-	-	-	y	0	2[20]

[a] *Z* - Zaragosa; *Pi* - Pizzarín; *GV* - Guadalupe Victoria; *PO* - Pico de Orizaba; *U* - Ucaréo, Michoacán; *O* - Otumba; *P* - Pachuca

[16] PV is Pachuca material identified by color through visual inspection; "y" indicates "present", and "n" indicates "absent".

[17] The totals in this column include only those pieces submitted for Instrumental Neutron Activation Analysis (INAA) and Prompt Gamma Neutron Activation Analysis (PGNAA) to the Research Reactor at the University of Missouri.

[18] The presence of material from the Pachuca source region, determined by visual inspection, is taken into consideration in determining the number of sources represented in a terrace group. Note that no attempt was made to identify any other sources visually, although a recent effort has had encouraging results (Brumfiel 1986). Thus group IIIA-C, for example, had material from four sources, three identified by INAA and PGNAA analyses and one by visual inspection. These numbers are best interpreted as "minimum number of sources" since other sources could be unrepresented by the INAA/PGNAA analyses.

[19] In this case, no specimens were submitted for INAA/PGNAA analysis and no green Pachuca obsidian was visually indentified. However, two pieces of obsidian were collected, representing at least one of the sources yielding grey/black material.

[20] No specimens were submitted for analysis, but among the eight obsidian fragments collected were two green pieces, indicating that Pachuca and at least one other source are represented.

Table 46. Frequencies of Green and Other Obsidian by Terrace Group in Monte Albán IIIA

Terrace Group	Green Obsidian n	%	Total Obsidian n
IIIA-A	3	20.0	15
IIIA-B	1	6.2	16
IIIA-C	3	17.7	17
IIIA-D	1	9.1	12
IIIA-E	0	0.0	8
IIIA-F	0	0.0	2
IIIA-G	0	0.0	24
IIIA-H	2	25.0	8
TOTAL	10	9.8	102

sample size. Of three samples from terrace group IIIA-A, each was from a different source, as were the two from IIIA-B. Four samples submitted from group IIIA-C represent three sources. The largest number of samples was submitted for analysis from IIIA-G, yet only two sources are represented. Four of the five specimens were from the Zaragosa source.

The relatively small number of obsidian sources represented by material collected from terrace group IIIA-G may be related to this group's activity specializations. It has already been noted that this group was unlike other Early Classic elite/civic-ceremonial groups in terms its frequency of ritual objects. Much of the obsidian at IIIA-G may be related to production, since there is some evidence for an obsidian workshop in this group. Obsidian production may have emphasized material from a particular source, presumably Zaragosa, since this is the one most commonly represented.

Monte Albán IV

More obsidian was collected from the Early Postclassic component, so the sample size for Period IV terrace groups is somewhat larger. The distribution among terrace groups does not produce a uniformly larger sample, however, since the greater abundance of obsidian in the Monte Albán IV component is accounted for in its entirety by the large number of fragments collected from terrace groups IV-C and IV-D. These groups are both well-represented in the sample of material sourced (Table 47).

The Early Postclassic pattern of source utilization shares a number of characteristics in common with the pattern already discussed for Monte Albán IIIA, although there are some interesting differences, as well. First is the relative variety of sources represented in the samples from most terrace groups with mounded architecture. Obsidian from groups IV-A and IV-B originates from

Table 47. Source Distribution by Terrace Group in Monte Alban IV[21]

Terrace Group	Z[a]	Pi	GV	PO	U	O	P	PV	Total Pieces	Number of Sources
IV-A	1	-	-	1	-	1	1	y	4	4
IV-B	3	-	-	1	-	1	-	y	5	4
IV-C	8	-	-	-	-	-	1	y	9	2
IV-D	9	1	-	-	-	-	-	y	10	3
IV-E	-	-	-	-	-	-	1	y	1	2[22]
IV-F	2	-	-	-	-	-	-	n	2	1
IV-G	2	-	-	-	-	-	-	n	2	1
IV-H	-	-	-	-	-	-	-	n	0	1[23]

[a] *Z* - Zaragosa; *Pi* - Pizzarín; *GV* - Guadalupe Victoria; *PO* - Pico de Orizaba; *U* - Ucaréo, Michoacán; *O* - Otumba; *P* - Pachuca

[21] Refer to notes 16-18 for discussion of PV values and Total Pieces, and explanation of the determination of Number of Sources.

[22] One of four pieces collected from this terrace group was submitted for testing, and was green material from the Pachuca source. The remaining pieces of obsidian were grey, thus representing at least one additional, but unspecifiable, source.

[23] No specimens were submitted for sourcing, no green obsidian was visually identified, but one piece of obsidian was collected.

four sources in both cases. The third elite/civic-ceremonial group, IV-C, is an exception, having material representing only two sources despite the large number of fragments tested. It is possible that some of the obsidian collected from groups IV-A and IV-B is associated with Late Postclassic re-use of these site areas rather than with the Early Postclassic occupation. These groups have comparable degrees of Period V admixture, based on the ratio of G-3M bowl rims to utilitarian bowls. This is potentially more problematic for group IV-A, where the large numbers of Monte Albán V *sahumadores* recovered indicated intensive ritual re-use of the summit in this area. Obsidian blades may very well have been employed in hilltop rituals. The highest proportion of green obsidian was recovered from this terrace group (40%), and Pachuca obsidian was far more common at Valley of Oaxaca sites in the Late Postclassic phase (Finsten 1983). On the other hand, the high social status of IV-A's occupants and/or specialized ritual or other public activities that were conducted there in the Early Postclassic may have permitted access to a wider range of foreign contacts than would have been in the experience of most of Jalieza's inhabitants.

Why terrace group IV-C has a relatively limited range of sources is a mystery. The large number of specimens from this group that were sourced suggests that sampling error is not to blame. In Chapter 5 I suggested that the very large number of obsidian blades present at IV-C might indicate obsidian production. However, the presence of a workshop is uncertain at best since the collections from this group failed to yield flakes, detritus, core fragments, preforms, or any other indicators of obsidian production. It is possible that the designation of IV-C as civic-ceremonial is erroneous and that it is better called an elite residential group. Perhaps the public rituals that took place along the ridgecrest, in terrace groups IV-A and IV-B, merited the use of obsidian blades from a wider range of sources. The more private rituals that took place in the posh lodgings of IV-C may have had to be accomplished with what was available locally, Zaragosa material probably fashioned by artisans in group IV-D. This seems unlikely, though, since it implies an unexpected separation between elite social status and access to rare goods.

Among the remaining five terrace groups, all designated nonelite, IV-D stands apart from the others with three sources represented by the material analyzed. It is not surprising that a terrace group with one or more obsidian workshops would have material from a number of different sources. But this contrasts with IIIA-G where the likely presence of an obsidian (and ceramic) workshop seems to have made the Early Classic elite group more like nonelite groups in terms of the number of obsidian sources represented in its collections. The overwhelming predominance of Zaragosa material in the samples from group IV-D submitted for testing strongly suggests that this was the major, if not the only, source from which raw material was acquired for production at this location. Although Pachuca material is present and clearly associated with the Early Postclassic occupation in this terrace group, it represents only a tiny fraction of the material (Table 48). None of the cores recovered was of Pachuca obsidian. Given the predominance of Zaragosa obsidian across the site and particularly in nonelite residential terrace groups, it seems probable that material was imported in unfinished form for production at the workshop in IV-D. From there, blades and perhaps other tools were distributed to the occupants of the site.

Three of the four remaining nonelite groups each have obsidian from only a single source. Pachuca material was not visually identified in the collections from any of the these groups. In two of them, samples tested indicate that the Zaragosa source was utilized. In the fourth terrace group, IV-E, unanalyzed grey material and

Table 48. Frequencies of Green and Other Obsidian by Terrace Group in Monte Albán IV

Terrace Group	Green Obsidian n	Green Obsidian %	Total Obsidian n
IV-A	9	40.1	20
IV-B	10	25.0	36
IV-C	1	2.0	50
IV-D	3	5.0	61
IV-E	1	12.5	4
IV-F	0	0.0	9
IV-G	0	0.0	4
IV-H	0	0.0	1
TOTAL	24	13.0	185

one sourced piece of Pachuca obsidian indicate that two sources are represented. It is interesting that this is the only one of these four groups at which Pachuca material is present. IV-E was the terrace group with an exceptionally high frequency of *sahumadores.* Green obsidian, valued during the Late Postclassic for its superior blade production, may have been prized for ritual use in this terrace group.

Obsidian Procurement and Exchange

A number of conclusions can be drawn about relationships of long-distance exchange and patterns of consumption from the data on obsidian sources presented and discussed in this chapter. The obsidian source data are also relevant to several broader issues about the role of obsidian production and exchange in Classic period Mesoamerican political economies.

(1) In both the Early Classic and Early Postclassic phases, the predominant obsidian source represented at Jalieza is Zaragosa, Puebla. This contradicts my earlier assumption (Finsten 1983) that Teotihuacán was the major supplier of obsidian, predominantly of material from Otumba, in the Early Classic, and that Monte Albán's special "diplomatic" relationship with Teotihuacán facilitated long-distance trade. This finding also undermines the increasingly shaky argument that a Mesoamerica-wide monopoly on obsidian exchange lay at the heart of Teotihuacán's political power at its height (Santley 1984).

(2) In both phases, small quantities of artifacts, usually blade fragments, from the Pachuca source region in Hidalgo and from Pico de Orizaba in Veracruz are also present. The constant but rare presence of some sources in both phases, Pachuca and Pico de Orizaba, suggests constancy in some inter-regional ties and perhaps, in the former case, a consistently high social value for Pachuca obsidian.

(3) In both phases, small numbers of pieces from two additional sources are present. In the Early Classic, these are Guadalupe Victoria and Ucaréo, while in the Early Post-classic, the additional sources are Pizzarín and Otumba. Some realignment of inter-regional relationships is indicated by the differential presence of certain sources in the two phases, although the nature of those realignments is unclear.

(4) In both phases, there is a strong tendency toward a variety of obsidian sources in terrace groups that, on other grounds, have been identified as either civic-ceremonial cores or high ranking elite residential sectors. However, there are exceptions. In Monte Albán IIIA, IIIA-G is an elite group based on its mounded architecture but its collection represents only two obsidian sources. In Monte Albán IV, IV-C is a civic-ceremonial group in which only two obsidian sources are represented.

The figures suggest that, with the exception of the Pachuca material (which is underrepresented in the INAA/PGNAA results), obsidian from sources other than Zaragosa is present in only "token" amounts. But on the basis of visual identification, which is widely accepted as reliable, the Pachuca source region accounts for a relatively small proportion of the obsidian in both phases. Among the remaining material, individual sources are relatively unimportant in terms of their individual numerical contributions. The social relationships that are represented by the presence of obsidian from at least some of these sources at Jalieza may have been their most signficant aspect. This can explain both the low frequencies of material from sources other than Zaragosa, as well as the limited distribution within the site that concentrates such material in terrace groups housing high ranking elites and/or serving civic-ceremonial functions. In the Early Classic component the two specimens from the Guadalupe Victoria source came from terrace groups IIIA-B and IIIA-C, the ceremonial core and associated elite residential area. The two specimens from Pico de Orizaba are again from IIIA-C, the ceremonial core, and IIIA-A, another elite terrace group. The lone example of obsidian from Ucaréo, Michoacán was found in group IIIA-G, another elite group, although in this case one with craft activity specializations. The pattern in the Monte Albán IV component is nearly identical. One piece each of obsidian from Pico de Orizaba and from Otumba were collected from terrace groups IV-A and IV-B, the civic-ceremonial and elite residential groups along the crest of the *Cerro Piedra de Gavilán.* The lone piece of obsidian attributed to the Pizzarín source in Hidalgo came from group IV-D, where an obsidian work area has been identified.

Independent corroboration for this argument, at least for the Early Postclassic occupation at the site, is provided by the frequencies of Pachuca material identified on the basis of color, which are high only at elite and civic-ceremonial terrace groups. It is entirely absent in three of five nonelite terrace groups. The counts of Pachuca obsidian are so low in the Early Classic component that it is risky to put much interpretive weight on terrace group frequencies.

(5) Nonelite terrace groups not only tend to have less obsidian, but they also tend to have obsidian from fewer sources. This is generally true in both Monte Albán IIIA and IV. With only one exception (IV-D) and not including visually identified Pachuca obsidian, the only material in nonelite groups is from Zaragosa. The exception is the best case for an obsidian workshop, and the only obsidian workshop in a nonelite terrace group in either component. Pachuca material occurs in only two of four Early Classic groups and three of five Early Postclassic groups. This suggests that nonelites probably had access to obsidian only through limited channels, probably within the settlement and perhaps controlled by a select group.

(6) In the Early Postclassic component, at least, the source determinations and evidence for obsidian work areas suggests that Zaragosa material was imported to be worked in local work areas for distribution around the site. At terrace group IV-D, nine of ten samples tested originated at Zaragosa. And at group IV-C where the case for obsidian production is somewhat dubious, eight of nine samples tested originated at Zaragosa.

(7) Zaragosa appears to have been an important source of obsidian for the work area(s) in the Early Classic component as well. Four of five samples from terrace group IIIA-G came from Zaragosa. Because of the problematic ceramic dating for the group, only two samples from IIIA-B were submitted for testing, resulting in equal representation by Zaragosa and Guadalupe Victoria, both sources in the state of Puebla.

Chapter 8

SUMMARY AND CONCLUSIONS

Introduction

In this chapter, the results of the Jalieza project are summarized and the different lines of evidence discussed in previous chapters are drawn together. I focus on several central themes and review the distribution of chronologically sensitive Classic and Early Postclassic ceramic types and its implications for the ongoing debate about the phases Monte Albán IIIB and IV in the Valley of Oaxaca. Architectural variation among the terrace groups that serve as the fundamental analytical units in this study is discussed as are terrace size distributions and their significance. Differences in the frequencies of various functional ceramic vessel types and their importance is discussed. Data pertaining to production and use of both expediency and more refined local chipped stone tools are summarized. The evidence for patterns of obsidian procurement at Jalieza and the distribution of obsidian within the community are discussed. Evidence for textile, ceramic and obsidian production is briefly summarized and the organizational characteristics of craft production in the Early Classic and Early Postclassic phases are compared and contrasted. Finally, I turn to a consideration of how the data shed light on our understanding of activity specialization at Jalieza and of the roles of late prehispanic Valley of Oaxaca secondary centers more generally. Evidence for changing community organization and agrarian state structure in the Valley of Oaxaca from Early Classic to Early Postclassic times is assessed.

Chronological Issues

Systematic intensive surface collection of a sample of residential and other nonagricultural terraces at Jalieza provided the opportunity for closer examination of the site's occupational history than was possible with the regional mapping and site description methods employed in 1977. It also resulted in a sample well suited to contribute to clarification of the ongoing debate concerning the number of phases following the Early Classic (Monte Albán IIIA) and preceding the Late Postclassic (Monte Albán V) phases.

The distribution of temporally diagnostic ceramics at Greater Jalieza confirms the basic outline of the site's occupational history published elsewhere (Blanton et al. 1982), although the historical picture nows seem to have been somewhat more complex than was previously believed to have been the case. Late Postclassic reuse and reoccupation is very widespread across both the eastern and western components, but almost everywhere the relative proportions of Monte Albán V ceramics indicate short term and/or superficial use or habitation. It is also apparent that in addition to the small Late/Terminal Formative component identified in Jalieza's western component in 1977, the summit of this hill may have been inhabited in one or both of these earlier phases as well. Perhaps more significant, scattered remnants of occupation of the same age exist in the core elite areas of the eastern component which was previously thought not to have been settled prior to Monte Albán IV. The more intensive collection strategy of the 1988 project failed to detect any clear evidence for anything more than a trace of occupation in the Early Classic phase, however.

The Early Classic date assigned to the western component in 1977 is supported by the distribution of diagnostics collected by recent more intensive work at Jalieza. Notable here are are the abundance of different forms of G-23s and A-8s as well as spotty occurrences of Thin Orange and a possible local imitation of this Central Mexican ware. Diagnostics for the Late Classic and Early Postclassic phases are relatively few in number, and many types occur in both phases but may be more common in one or other. An Early Postclassic date for the eastern component is supported by the virtual absence of G-23s and other Early Classic diagnostics, the abundance of G-35s which predominate in these three phases, the presence of types believed to date only to Monte Albán IV (polished black and bat claw cups), the absence of a type known to date to both Monte Albán IIIA and IIIB (number 3035), and the relative paucity of an attribute which is known to date to both Monte Albán IIIB and IV but is thought to occur more often in the later phase (appliqué hill glyphs). In fact the distributional data for Greater Jalieza not only support the earlier conclusion of an Early Postclassic date for the eastern component, but suggest that there was some spotty continued occupation from Early Classic into the Late Classic phase in the west.

The Jalieza collections are particularly pertinent to the "IIIB-IV" debate because one potential source of variation often invoked by proponents of the "single phase" argument is absent: regional variance. Whatever differences exist in the Jalieza assemblages clearly cannot be attributed to different regional expressions of a single phase since these components are essentially contiguous. Local production might account for some differences in paste types observed between Central Area and Etla Valley Late Classic sites on the one hand and Tlacolula Valley and Valle Grande Early Postclassic sites on the other. But the collections from Jalieza indicate that even in the absence of these differences, the distributions of temporally diagnostic types make it possible to distinguish two phases: Monte Albán IIIB and Monte Albán IV. Continued debate about the status of this segment of the Valley of Oaxaca chronology in the absence of new data is fruitless.

Jalieza had a major occupation in the Early Classic phase and some continued occupation in the same area through the Late Classic. This hilltop location was abandoned and the settlement was relocated to the east on the *Cerro Piedra de Gavilán* and hills behind the ridge in the Early Postclassic phase. A similar settlement history has been observed at Tlacochahuaya in the central Tlacolula Valley (Kowalewski et al. 1989). Clearly the events and processes of the Classic-Postclassic transition were very turbulent and highly disruptive of both local and regional settlement patterns.

Terrace Groups, Terrace Size, and Community Organization

In the Monte Albán IIIA component, terrace group IIIA-C was designated the civic-ceremonial core on the basis of its unique architectural configurations, similar in some ways to the Main Plaza at Monte Albán, and its location atop the relatively isolated summit overlooking the most heavily occupied slopes, to the east, south and west. A small temple on a platform lies to the south of a plaza, recorded in 1977 but ploughed out in 1988. North of the plaza is a tightly closed group of four large mounds. Three elite terrace groups all had some mounded architecture within their limits. One, located on the ridgecrest north of the civic-ceremonial core, may have housed retainers or other people directly associated with the civic-ceremonial core.

In the Monte Albán IV component two terrace groups, IV-A and IV-C, were designated civic-ceremonial, although distinctive topographic and architectural characteristics do not coincide as they did at IIIA-C in the earlier component. The Period IV component has no obvious equivalent to group IIIA-C. A large, closed four-mound group at the intersection of the ancient *camino real* and the main ridgeline was not included in the study because of planting. It may have been the community's main civic-ceremonial complex but, unlike the Early Classic period's public architecture, it is not physically isolated from the rest of the settlement. Instead, it seems to lie at a critical nexus of internal communication and may have been located on a key regional transportation corridor.

Terrace group IV-A lies on the major ridgecrest, and has one closed group of small mounds. Its view of the Valley of Oaxaca to the west and of Tlacolula to the northeast is commanding. The large numbers of *sahumadores* and other ritual or religious objects support the architectural interpretation of civic-ceremonial status. Abundant Monte Albán V *sahumadores* in the same locale suggest that this ridgetop complex continued to be a sacred place after the site had been abandoned for residential use. There is no analogous complex in the Early Classic component, in the sense of a relatively accessible civic-ceremonial area with clear evidence for ritual activity.

Terrace group IV-C has the largest collection of mounds found anywhere on the site but no four-mound groups, although some individual structures are large. Its location, on a secondary ridge east of the main ridgeline, overlooks the small valley in which much of the Early Postclassic community is found and the western part of the Tlacolula Valley. Like the unmapped four-mound group, this complex is adjacent to the ancient road linking Tlacolula and Ocotlán.

Overall, the architectural and other data are consistent with a reorganization of elite and civic-ceremonial space, and presumably their associated activities, between Monte Albán IIIA and IV. The Early Classic civic-ceremonial complex probably combined administrative and state ritual activities. Its physical isolation from the remainder of the community suggests that most of its ritual was not intended for public consumption. At the same time, however, artifactual evidence summarized below does not support the idea that Early Classic ritual activity occurred largely in domestic contexts. The absence of a comparable architectural complex in the Early Postclassic component may mean that administration and state ritual were more distinct. This idea is consistent with the physical separation of the massive four-mound group and IV-A which clearly was an important sacred place in this phase and later, too.

Although architectural category designations for terrace groups were made entirely on the basis of architectural associations, there are significant differences in the average size, variability in size, and size distributions of terraces depending upon these categories, among other variables. In the Early Classic component, elite terraces are much larger and much more variable than are either civic-ceremonial or nonelite terraces. On average, nonelite terraces are slightly larger than civic-ceremonial ones, but far less variable. In other words, nonelite terraces, in contrast to civic-ceremonial ones, are more consistently small.

In the Early Postclassic component, elite and civic-ceremonial terraces have very similar average areas, but the elite terraces are much more variable. Nonelite residential terraces are uniformly small.

Cross-temporal differences were also apparent. Early Classic terraces tend to be larger and, generally, more variable in size than Early Postclassic terraces. We have seen that the greatest size discrepancy is in terraces of elite groups, but it is also apparent that Early Classic terraces of all kinds are larger. One possible explanation for this change is a decline in the size of the basic residential unit, perhaps from extended to nuclear household, for example. However, such hypothesized changes cannot be tested with the existing (or possibly any) data. Excavation data (i.e., house sizes) from a number of terraces might have been able to shed light on this, but such data are unavailable. Given these limitations, other explanations were explored.

Several hypotheses may be suggested to account for cross-temporal differences in characteristics of terrace size. First, the much greater size of terraces in elite groups in the Monte Albán IIIA component could result, at least in part, from the aggregating of elite residential functions (as defined previously) and specialized craft production. A second hypothesis is that Period IV elites were relatively less well off, compared to their Monte Albán IIIA counterparts. Jalieza's Early Postclassic elites had the advantage of not operating under a centralized state power. However, a decided disadvantage in a Balkanized system may have existed in the form of competition for followers by a number of small, politically autonomous centres in the Valley, of which Jalieza was but one. Thus, there may have been fewer demands upon the local citzenry for tribute, including communal labour, making it theoretically possible for the Jalieza elite to extract more. But at the same time, competition for followers would have made it practically impossible to do so. Thus, local labour, the elite's principle source of wealth, would have been at a premium. Third, Early Postclassic occupants, both elite and nonelite, may have been less well off, compared to the Early Classic population. There is support for this argument at the regional scale (Kowalewski and Finsten 1983) and it has the advantage of explaining smaller terrace size overall, rather than just smaller elite terraces, in Monte Albán IV. However, the data collected in the 1988 study do not lend themselves well to testing this hypothesis at the community level. I will return to a discussion of these hypotheses following summaries and discussions of the surface collection results.

Ceramic Variability

Generally, pottery vessel form frequencies and statistical measures of vessel size showed less variation among terrace groups than was anticipated. In addition, many of the observed patterns of variation were counterintuitive. Together with some of the more easily predicted outcomes, these data result in some interesting observations.

In the Monte Albán IIIA component, the highest frequency of decorated serving bowls was found in terrace group IIIA-C, the civic-ceremonial core, as was expected. Displays of high rank and elite status would have been an important element in feasts and ritual activities, and decorated serving bowls likely were one physical means by which such displays of elevated status were made. Thus it is not surprising that these vessels should be most predominant in the assemblage of the terrace group thought to have been occupied by the settlement's higher status members and to have served as the community's civic-ceremonial core. Status displays would have been directed toward two audiences. One was other members of the community of Jalieza as the authority to rule was legitimated through public ritual, which may have served to consolidate social power through public feasting, etc. High ranking delegates from other communities would have been another as Jalieza's higher status residents sought to better their relative social positions in more private feasts.

The preponderance of larger sized serving bowls in terrace group IIIA-B, an elite group that must have had some functional attachment to the premier civic-ceremonial comples, was also expected. Both the distributions of larger sized and of decorated serving bowls suggest that ceramic display in public feasting was an important part of elite public and private life.

Larger-sized utilitarian bowls are most abundant in elite and civic-ceremonial terrace groups. This result was not expected, but may be related to food preparation and other behind-the-scenes activities associated with elite feasting. Very large jars, probably used for storage, also were found only at elite terrace groups. Preparing and perhaps storing large quantities of food and beverage appears to distinguish elite from nonelite residential contexts . However, storage jars were absent from the civic-ceremonial core itself. But the importance of food preparation in terrace group IIIA-B, at least some of which probably was destined for consumption in the civic-ceremonial core, is also suggested by a relatively high frequency of *comales*.

The Early Postclassic data show some remarkable parallels with those from the Early Classic component. In both cases, only elite and/or civic-ceremonial terrace groups have thick, very large utilitarian bowls and large storage jars. In some cases, they also appear to have more and larger *comales*. Food preparation clearly was an important activity in these terrace groups. In both components, the identified civic-ceremonial core itself lacked many of these artifacts. This suggests the interesting, if not startling, conclusion that feasting, entertaining and rites in which fancy serving bowls were employed took place in civic-ceremonial cores in both phases, but that the associated food preparation took place elsewhere.

In both components, very large bowls and large storage jars are rare or entirely absent in nonelite residential terrace groups. This suggests that food storage, preparation and consumption were domestic affairs carried out by individual households within terrace groups. Grain must have been stored in either subterranean cists or above-ground structures since ceramic vessels apparently were not used for this purpose.

Local Chipped Stone Production and Use

Large numbers of core and flake fragments as well as expedient tools made of various, locally available lithic materials were collected from virtually all terrace groups at Jalieza. Formal tools were considerably more rare. Minerals include cherts available from a number of known sources in the Valley of Oaxaca, chalcedony which may originate in the Mixteca Alta, basalt, rhyolite, tuff, ignimbrite, andesite, quartz and quartzite, silicified siltstone and a number of unidentified materials.

The bulk of manufacture was oriented toward the production of expediency tools, flakes quickly knocked off unprepared or only crudely prepared cores for one-time use on the spot and then discarded. Expediency tool production using local lithic materials is well-represented at every Classic period and most Early Postclassic terrace groups. Crude flake tools made of local materials likely were used for a broad range of purposes, including initial terrace construction and ongoing maintenance, building and maintaining houses, storage and other pits and exterior living surfaces, as well as domestic and perhaps specialized activities. They apparently were made in virtually every household, perhaps by the individuals who used them.

More refined local chipped stone tools such as scrapers, projectile points, and drills are far less abundant and do not appear to have any meaningful distributional pattern. It was not possible to identify localities where formal tools were produced. However, so few of these artifacts occur in the assemblages of either component that large scale production is unlikely to have taken place at Jalieza. Because chert sources are fairly numerous, however, it seems unlikely that these items would have been imported from elsewhere. There is no evidence that any or all of the more refined local chipped stone tools were manufactured by specialists.

Obsidian Procurement and Distribution

In both Monte Albán IIIA and IV, the predominant obsidian source represented is Zaragosa, Puebla. In both phases, small amounts of material from the Pachuca source region in Hidalgo and from Pico de Orizaba, Veracruz are also present. In addition, each phase has small amounts of material from two other (although different) sources. With the exception of terrace group IIIA-G, elite and civic-ceremonial terrace groups tend to have obsidian from a number of different sources, suggesting that elite ties played an important role in procuring the material. However in both phases the amount of material present from sources other than Zaragosa is so small that its significance probably is more in the realm of social ties among elites than economic exchange. The relative homogeneity of obsidian at terrace group IIIA-G may provide indirect support for its very tentative interpretation as an obsidian workshop in the Early Classic phase. This is discussed more fully below.

Intensive surface collection resulted in nearly twice as much obsidian at the Early Postclassic component. However, much of this is accounted for by the large number of pieces recovered from the workshop in terrace group IV-D. The differences are small, although still significant, when standardized against utilitarian bowl frequencies. At Early Classic Jalieza, more than 70 percent of obsidian was recovered from elite and/or civic-ceremonial contexts. This figure rises to nearly 85 percent in Monte Albán IV[25]. Greater abundance of obsidian in the Early Postclassic, possibly including local production by other than attached specialists, apparently did not translate into a more equitable distribution of this import across socioeconomic statuses, however.

Craft Production

By the standards of Central Mexican and many other sites, the evidence for craft production at Jalieza is scant, although Jalieza is not unlike other Valley of Oaxaca centers in having relatively little evidence of activity specialization in craft production. The Jalieza study has shown that ceramic, obsidian and local lithic production all took place at the site. Evidence for textile production is limited to two spindle whorls from the Monte Albán IV component, one in an elite and the other in a nonelite residential terrace group. Ceramic, obsidian and local chipped stone production, on the other hand, are all apparent in both Classic and Early Postclassic contexts. Indicators of craft production and the contexts in which it occurred at Jalieza suggest a diffuse and diverse craft industry, with some interesting differences between the early and later components.

In Monte Albán IIIA, ceramic vessels were produced in both elite and nonelite contexts. The evidence indicates that ceramic production was larger scale and more diverse in terrace group IIIA-G, an elite context, than in either IIIA-D or IIIA-E, both nonelite groups. The diversity of production is clear, since in addition to utilitarian bowls and jars, *sahumadores* and perhaps urns were produced in IIIA-G. Terrace group IIIA-E yielded evidence only of production of utilitarian bowls and G-35-style ollas, while IIIA-D appears to have limited its productive efforts to unidentifiable grey bowls. The issue of the scale of production is more problematic, given the very small numbers of production indicators involved. Some other studies which have attempted to assess scale of production generally have relied on other archaeological indicators, such as the size of area over which kiln debris is found (e.g. Santley, Arnold III and Pool 1989).[26]

25 This is the case when terrace group IV-D with the workshop is omitted from the calculations. The figure is less than sixty percent when it is included.

26 See Costin (1991) and Rice (1981, 1984,

Unfortunately, kiln debris is not found on the surface at Jalieza. However, the much greater number of kilnwasters in IIIA-G than in any other terrace group, despite very large ceramic collections from others (including IIIA-D and IIIA-E) is suggestive of more intensive production. However, as Costin (1991) and others have pointed out, intensity of production should not be confused with scale of production.

Three other terrace groups in the Early Classic component turned up kilnwasters, but these alone could not be interpreted as convincing evidence of ceramic production. Interesting, though, the only two terrace groups where kilnwasters, molds or other production debris were not found were IIIA-A and IIIA-C, an elite group and the community's civic-ceremonial core. It is not surprising that ceramic production did not take place at the civic-ceremonial core, by attached or other specialists, given the logistical difficulties that its hilltop location would have presented. Another factor may have been the inappropriateness of a ceramic workshop at the administrative and ceremonial heart of the Valley of Oaxaca's second largest center, which might very loosely be compared to placing a pottery works on the grounds of Buckingham Palace. I return to the absence of any evidence whatsoever for ceramic production at terrace group IIIA-A below.

Two obsidian workshops may date to the Early Classic phase. One is located in the elite residential terrace group IIIA-B, one of three groups with possible evidence of ceramic production. The location of IIIA-B, on the crest of the ridge just northwest of the Early Classic civic-ceremonial core, suggests a connection between these groups. Terrace group IIIA-B may have housed lower ranking nobles and others who served to ensure the smooth running of the ruler's household and the civic-ceremonial buildings in IIIA-C. Attached specialists working with obsidian may have come to terraces in this group on occasion to produce items specifically commissioned by their elite occupants. A second, more tentative locus of obsidian production in the Early Classic was found in IIIA-G, a major ceramic producing terrace group.

In Monte Albán IV, evidence over all for ceramic production is less abundant and less concentrated. Identifiable kilnwasters suggest that the range of pot types produced was less varied, as well, although Early Postclassic ceramic assemblages themselves were less varied. Definite evidence of pottery manufacture was recovered at only two terrace groups, one of which is designated an elite group largely because of its ridgecrest location (IV-B). The other, IV-D, is a nonelite residential terrace group. Four other terrace groups, including the two civic-ceremonial groups, have possible evidence of ceramic production. The two groups lacking any indications whatsoever of pot making are both nonelite residential groups.

In contrast to the Early Classic component, no terrace group in the Monte Albán IV sample appears to dominate ceramic production in either sheer numbers of kilnwasters or diversity of vessel types represented by them, in the way that IIIA-G does. Everywhere pots were made, the numbers of vessels produced seem to have been relatively small, and the numbers of types (and even of forms) are few.

The evidence points toward the presence of at least two kinds of ceramic workshops in Monte Albán IIIA, while only one can be clearly identified in the Monte Albán IV component. Taking into consideraton both the relative abundance of production indicators and the contexts in which they are found, in both components, small workshops probably produced for neighborhood markets. In both phases, possible indicators of ceramic production were recovered in contexts associated with elite architecture. These may represent attached specialists who produced vessels for elite patrons or as tribute, but with one exception in the earlier component, the evidence of ceramic manufacture in such circumstances is disputable. The second kind of ceramic workshop, found only in the Early Classic component, suggests a very different, possibly larger-scale workshop located in terrace group IIIA-G.

What are we to make of the association of ceramic production with mounded architecture in this locality? In the absence of an indisputable means by which to determine relative scales of production, no clearcut answers to this question are possible. But there are several possibilities. First, ceramic production at IIIA-G may indicate nothing more than grander scale,

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and 1989) for detailed discussions of the problems involved in efforts to determine production scale archaeologically.

more diverse production by attached specialists. The data might be interpreted as providing reasonably sound evidence that some ceramic production was carried out by attached specialists who made a variety of wares for elite consumers. Although attached or "tethered" craft specialists have been suggested in a number of cases (cf. Brumfiel and Earle 1987; Santley et al. 1989), I remain dubious about the likelihood of ceramic production by specialists near the homes of elites to whom they were attached for a number of reasons. Clay is a heavy, bulky material to carry around, and requires considerable preparation, including mixing with tempering, before it can be used. Pottery making requires space to dry vessels, and reduced wares must be fired in specially constructed kilns. Kilns are not a portable kind of special equipment, so they would have had to have been built for the periodic use of specialists to fulfill their obligations to elites at IIIA-G. Where extraordinary degrees of skill and/or access to extremely limited resources are not required, it is difficult to see what advantages attached specialists who actually produced their wares at an elite's home would offer over some other arrangement that involved only the transport of finished goods from a specialist's workshop to the elite's home. Attached specialists need not necessarily be physically attached to elites, in the sense of being physically adjacent to them. However, it is difficult to imagine how archaeology might identify attached specialization in the absence of physical proximity.

Second, the association of ceramic production with mounded architecture in terrace group IIIA-G may reflect administrative control over ceramic production including the manufacture of some specialized wares such as *sahumadores* for a broader market. This may have included the whole community at Jalieza as well as neighboring settlements in Ocotlán and the northern Valle Grande. This interpretation is consistent with the region-wide evidence for ceramic production. The apparent community monopoly over the production of at least some special use ceramic objects suggests a broader market for them although the market (i.e., demand) for these items may actually have involved a relatively small segment of the settlement's population. A recent study of urn distributions indicates that these vessels occur as frequently in nonelite as elite contexts, however (Young 1993). At the community and terrace group levels, though, the case for administrative control over production is not clearcut. It would be more persuasive had kilnwasters of more examples of specialized vessel types been recovered. Although *sahumadores* clearly were produced in IIIA-G and urns may have been, many of the wares produced in this workshop were utilitarian bowls and jars that could have been consumed by the occupants of virtually any household in Early Classic Oaxaca. Similar vessels were produced at workshops in terrace groups lacking mounds and therefore presumably not under any direct administrative control. The evidence suggests that in Monte Albán IIIA, small workshops that produced utilitarian wares for domestic consumption by commoners and others, probably for distribution through neighborhood markets, was not subject to direct administrative regulation. Of course, transactions in formal and informal markets may have been taxed, and this may have been the avenue by which ceramic industries were controlled. In contrast, large workshops that produced the same wares for a broader market and that made specialty wares such as *sahumadores* and perhaps also urns, were under direct administrative control. This is exemplified by ceramic production in terrace group IIIA-G.

By contrast, in Monte Albán IV larger scale ceramic workshops serving a broader market, producing specialty wares, or attached to elite consumers appear to have been absent. The evidence for ceramic production in the Early Postclassic component points to small scale workshops, most of them in nonelite contexts, that turned out one or two utilitarian vessel types. The single indicator of urn production occurred in isolation from other traces of pottery manufacture.

The data point to a major temporal difference in the organization of production and role of administrative regulation in pottery making. Relatively small-scale production by attached specialists may have taken place in both components, although I have outlined the reasons why I think that physical attachment by potters is unlikely to have been a regular occurrence. As well, in both components specialists, either full- or part-time, produced domestic wares for exchange at neighborhood markets. Only in the Early Classic phase, though, is there evidence of administered production of both utilitarian and some specialty wares, perhaps at a larger scale and for not only community-wide but broader distribution. Production at this scale has been termed a "workshop industry" by others (van der Leeuw 1976; Peacock 1982; cf. Santley et al. 1989), although the likelihood of administrative control in the Jalieza case confounds existing typologies.

In the Early Postclassic component, the smaller scales of ceramic production for neighborhood markets and, less convincing, perhaps also for elite consumption by attached specialists are the only kinds apparent. There were no large workshops producing diverse wares, including special vessel types, with or without administrative regulation. Instead a small workshop in an elite terrace group (IV-B) produced basic ceramic wares used daily in domestic contexts. One in a nonelite group (IV-D) may have manufactured somewhat fancier wares, but the misfired sherd remnants were too badly damaged to be identified with any certainty. Other possible ceramic production may have included G-35-making in the two civic-ceremonial groups, urn manufacture in a nonelite group, and bowl and olla production in another nonelite group. The very diffuse nature of ceramic production, from the available evidence, suggests that production for broader markets (i.e., regional markets) was absent.

Taken alone, the ceramic evidence argues against greater commercialization in the Early Postclassic phase. It instead suggests that any specialized ceramic production was for household consumption and neighborhood or community markets only. There is no evidence whatsoever of production for regional markets. However, when other lines of evidence are considered, the picture changes considerably. Craft specialization, even for local consumption, was at least as important in the Early Post-classic as it had been in the Early Classic.

The only certain obsidian work area in the Early Postclassic component of the site is located in a nonelite residential terrace group (IV-D). The other possible work area, evidenced only by abundant obsidian blades, is more likely an artifact concentration associated with ritual or other activities using obsidian blades that took place in terrace group IV-C, a civic-ceremonial group. Terrace group IV-D is also one of the two terrace groups in the later component with good evidence of ceramic production.

The coincidence of ceramic and obsidian production in a nonelite terrace group in Monte Albán IV represents the strongest evidence of specialized production for consumer markets in this component. Situated far from the elite and civic-ceremonial sectors of the settlement, occupants of terrace group IV-D specialized in the production of a minimum of two kinds of craft goods, at least one of which was may have been oriented more toward elite consumption.

Considering possible cases of craft production, the evidence suggests that in some contexts, at least, obsidian and ceramic production were "linked" in the same productive social unit since they are found in the same terrace groups. Two Early Classic terrace groups and one Early Postclassic one have some evidence for both ceramic vessel and obsidian tool manufacture, as well as local chipped stone production, which is found nearly everywhere. Obsidian working seems to occur only in contexts where there is other craft production (i.e., ceramic production). Furthermore, in the Early Classic component, if it was present at all, obsidian working took place only in elite contexts. Ceramic production occurs in apparently "unlinked" contexts as well, although it is possible that some other production activities which have left no trace occurred in some of these terrace groups. Among these "linked" production areas is the single, very diverse ceramic workshop under administrative control in Monte Albán IIIA.

A major cross-temporal difference between the "linked" production areas is the nature of the social context. In the Early Classic component, both cases are associated with elite terrace groups, one (i.e., IIIA-B) of which is clearly related to the site's civic-ceremonial core. In the Early Postclassic component, the single example is found in a nonelite terrace group separated from the civic-ceremonial and most elite areas by a major *barranca*. Thus while elite and perhaps political control of at least some production is suggested for Monte Albán IIIA, most craft production appears to have been free of such control in Monte Albán IV.

At the same time, the relatively small number of workshops, essentially the same in both phases, is noteworthy. Despite the apparent lack of political control over production in Monte Albán IV, there is no evidence of a proliferation of workshops as artisans emerged to compete for markets. Unfortunately scale of production cannot be gauged accurately with the evidence available. However the absence of any indication of very intense production seen in large numbers of kilnwasters at a single locale, for example, suggests little variation in the intensity of production at the ceramic workshops identified.

In contrast to ceramic production, obsidian working occurred only in elite contexts in the Early Classic and only in nonelite contexts in the Early Postclassic. Obsidian working may have been carried out by attached specialists in localities like terrace groups IIIA-B and IIIA-G. In the latter case, however, it is equally possible that elites exercised administrative control over obsidian blade production. Whether IIIA-G constitutes an example of "linked" ceramic and obsidian craft specialization is unclear. In the Early Postclassic, however, such linkage is abundantly clear, as is the absence of any immediate administrative presence, at terrace group IV-D.

Determinants of Terrace Size Reconsidered

Although the data are sparse, there is some support for both the first and second hypotheses suggested earlier to explain larger terrace size, including unusually large elite terraces, in the Early Classic component. The present data suggest that both the aggregation of craft specialization and elite activities and the relative impoverishment of Monte Albán IV elites, perhaps together with other factors unspecified here, operated to produce variable terrace sizes, including exceptionally large elite terraces. The two identifiable craft specializations with meaningful distributions, ceramic and obsidian production both are closely associated with elite contexts in the Monte Albán IIIA component, although ceramic production also occurred in nonelite contexts. In the Monte Albán IV component, though, ceramic production is oriented at least as much toward nonelite terraces, and the only obsidian workshop identified is located in a nonelite terrace group. Thus while some craft production occurred in both kinds of contexts in both phases, the tendencies differ quite markedly. However, an unresolved problem is why Early Postclassic nonelite terraces are uniformly so small, given the tendency for craft production to occur in nonelite contexts. If craft activity played a major role in determining terrace size, one would expect nonelite residential terraces in the Monte Albán IV component to be more variable in size, reflecting the distribution of craft production activities.

Wilk (1988) has suggested that a result of increased production for markets is an increase in the frequency of multifamily households. This in turn should result in large household size and larger living space. The Jalieza data are suggestive. Terraces in group IV-D are larger than other nonelite residential terraces, and this is the only group with solid evidence for more than ephemeral craft production. The regional data have pointed to the beginning of a trend toward commercialization in the Early Postclassic phase. Yet the data from Jalieza provide equivocal support only for this argument. Overall, terraces are much smaller compared to their functionally comparable Early Classic counterparts, especially nonelite terraces. Unadministered commercial production of both ceramics and obsidian appear to have taken place, although there is no evidence large-scale and/or widespread craft production for nonlocal markets. In the Early Postclassic phase, unregulated nonelite specialist production was possible. But at Jalieza it does not appear to have been a major part of the local economy. It may be that Jalieza was not particularly well situated to take advantage of nonlocal markets in this phase, since there were no nearby large communities. Settlements in the Tlacolula Valley might yield evidence of more precocious commercial development, since its site density is considerably higher.

Wealth and Status

Meaningful measures of relative wealth among elites are problematic in the present study.[27] As has been mentioned already and observed elsewhere (e.g., Feinman 1982), fancy pottery types are far less numerous in Early Postclassic collections. The present study has shown that serving bowls, including undecorated forms, account for a considerably smaller proportion of

27 Although see Smith (1987) for a recent discussion of archaeological correlates of socioeconomic status.

collections in the later component. However, another index of wealth, obsidian frequency, suggests the opposite conclusion since obsidian is somewhat more abundant in the later component as a whole. This is quite different from the Valley-wide pattern for obsidian, as well. On a regional scale, the Early Classic phase is second only to the Late Postclassic for abundance of obsidian and both the Late Classic and Early Postclassic phases show a marked decline (Finsten 1983, nd). The Jalieza data, however, indicate that not only did obsidian become more abundant in Monte Albán IV, its proportionate use by elites increased. All in all, however, it seems likely that relative obsidian abundance is greatly affected by the existence of an Early Postclassic workshop, which accounts for a very high proportion of the obsidian recorded in Monte Albán IV. The obsidian distributions had as much to do with changes in elite control over sources and distribution as with relative wealth levels.

The ceramic data are suggestive of more variable differences in nonelite wealth in the Early Postclassic component. Terrace group IV-D is more like contemporary civic-ceremonial and elite than other nonelite residential groups in several interesting ways (i.e., it has a larger proportion of larger-sized serving bowls, a signficant number of storage jars, and a relatively low proportion of its assemblage is accounted for by jars). Successful artisans may have had greater freedom to (and more resources to dedicate to) endeavoring to improve their social status through feasting. Although the evidence is far from conclusive, Early Postclassic artisans appear to have enjoyed greater wealth, and perhaps status, than may have been true for many Early Classic craft specialists.

Activity Specialization at Jalieza

In both major phases of its occupation, Jalieza was an exceptionally large,very populous settlement. Recent research at this archaeological site has shed light on the nature and scale of specialized craft production and has pointed to interesting differences over time in the organization of craft activities at Jalieza. But the results have not been particularly fruitful in providing answers to general questions about why so many people aggregrated in this particular locality. Whatever the answers, they do not rest in the realm of craft production which, for the most part, probably was oriented predominantly toward local rather than regional markets. An economic specialization in piedmont agriculture, especially in the Early Classic (Kowalewski et al. 1989), cannot be ruled out but the data analyzed and discussed here do not lend much, if any, additional support for such an argument.

Domestic activity apparently varied little among commoners across the community, although more nonelite households may have engaged in small scale craft production in Monte Albán IV than earlier. Status differences are apparent in the much greater presence of large utility vessels for food preparation and storage in elite and, perhaps, civic-ceremonial contexts. Clearly feasting was a significant elite activity. In civic-ceremonial terrace groups feasting was likely to have involved predominantly local and regional elites, although on rare occasions the entire community may have participated in rites that also involved some food preparation. Storage and feasting appear also to have been activities engaged in by nonelite artisans of a major, diverse workshop context in the Early Postclassic phase.

A single, slender thread of evidence may link domestic and agricultural activities to suggest different emphases and organization cross-temporally. Although they account for low proportions of the ceramic assemblages in both phases, *comales* declined somewhat in frequency in Monte Albán IV. *Comales* represent the more labor-intensive food preparation activity of making tortillas (see Brumfiel 1991). The advantage of tortillas is their portability (ibid.; Blanton et al. 1993), which makes them well-suited to work away from the home. The relatively higher proportions of *comales* in Early Classic assemblages may indicate that work in fields, possibly at some distance from the community, was common. The lower *comal* frequencies in the Early Postclassic may reflect a reduced need to travel away from home for long enough periods that food had to be carried. This may be related to a declining emphasis on piedmont agriculture in the later phase, perhaps related to somewhat greater productive specialization, and might indicate that more work took place nearer home.

Objects used in ritual contexts have very different distributions over time. Two significant factors set the Early Classic and Early Postclassic phases apart. In the later phase, *sahumadores*, urns, miniatures and so on are distributed more widely across both elite and nonelite contexts than was true in Monte Alban IIIA. A greater centralization of ritual activity is therefore apparent in the Early Classic phase, although architectural and locational evidence suggests that the emphasis on public ceremony may have been greater in Monte Albán IV. The artifact data suggest that Early Postclassic households engaged more in private ceremony. At the same time, however, there is an interesting possibility that different elite and/or public rituals took place in different spatial contexts in the Early Postclassic phase. Excepting areas where obsidian tools were worked, the highest concentrations of obsidian blades are found in a civic-ceremonial terrace group which must also have housed very high-ranking elites. We know that obsidian blades were used in bloodletting rites, among their many other purposes. Large numbers of other kinds of ritual objects, especially *sahumadores* but also miniatures, were found at another civic-ceremonial/elite terrace group, one in an area of the settlement that continued to be the site of a shrine during the Late Postclassic phase. *Sahumadores* were important objects in the rites of this later phase, as well. This suggests that different kinds of rites took place in different civic-ceremonial and/or elite areas of the community. Some, perhaps the bloodletting rites that used obsidian, may have been the private rites of elites while others were more public rituals intended to involve the participation of the entire community. The architectural and locational evidence suggests that these latter kinds of public ceremony may have been far more important in Monte Albán IV than in IIIA.

What is surprising is how little evidence there is of activity specialization, particularly in production, at settlements that were among the largest in the region during the times they were occupied. In this respect, Jalieza is similar to the only other intensively studied hilltop center in the Valley of Oaxaca, Monte Albán. The extent to which other Classic and Early Postclassic secondary centers share this characteristic awaits further study. Were many Early Classic secondary and lower order hilltop centers inhabited primarily by agricultural specialists? Comparison with other hilltop and valley floor centers would be very illuminating. In the Early Postclassic phase, nonelite craft specialists, probably unadministered, were clearly established although they appear not to have been numerically important at Jalieza. The extent to which Jalieza's rather marginal position in the Early Postclassic Valley of Oaxaca regional system accounts for this is an important question that can only be answered by more detailed study at an array of other major Early Postclassic settlements.

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