A COMPARISON OF EARLY AND MIDDLE FORMATIVE POLITICAL DEVELOPMENT IN THE SOCONUSCO AND VALLEY OF OAXACA: SETTLEMENT, MORTUARY AND ARCHITECTURAL PATTERNS

by

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ABSTRACT

Settlement, mortuary and architectural data are used in this thesis to examine the emergence and development of cultural complexity in Early and Middle Formative societies in the Soconusco and Valley of Oaxaca. A model is presented that examines the degree to which a culture is internally or externally focused in order to explore evolutionary process. I posit that there is an inverse relationship between the quantity of energy that is expended on internally focused, intra-polity competition and that which is expended on externally oriented, inter-polity endeavours. The Soconusco data suggest an internally focused political organization that resulted in an early development of political complexity. However, such power was fleeting and populations nucleated around successive political centers across the region, none lasting more than a century or two. Complexity in this region is documented through settlement patterns and the conspicuous consumption of labour reflected in architectural construction, at the heart of each polity. Conversely, data from the Valley of Oaxaca suggest a more externally focused system. San Jose Mogote dominated the political arena for over a thousand years; expanding its size and focus beyond the limits of the valley. Public architecture of a moderate scale and of a more uniform pattern at each site is found throughout the Valley of Oaxaca. Domestic architecture was also modest and underemphasized political and economic differences. The horizontal organization (i.e., internal/external focus) of the two regions affected the rate and form of their respective evolutionary trajectories. Mortuary data from the Early Formative periods of both regions do not reflect the same degree of complexity as the other classes of data and this suggests that when cultural complexity is emerging expressions of social differentiation may lag behind political hierarchy.

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INTRODUCTION

In this paper I use settlement, mortuary and architectural data to examine the development of political inequality in Mesoamerica. Many archaeologists have identified the emergence of systematic and self-perpetuating hierarchical human relations as one of the most fundamental evolutionary changes to have occurred in human history (Earle 1991a; Price and Feinman 1995; Arnold 1996). The evolutionary processes involved in the development of inequality are explored in this paper by comparing two specific archaeological sequences in Formative Mesoamerica: that of the Soconusco and the Valley of Oaxaca (Figure 1 and 2).

The past fifty years of evolutionary analysis have demonstrated that archaeologists, with their diachronic and holistic data, are in the most appropriate position to document evolutionary processes over long expanses of time (Drennan 1991a; Rambo 1991; Spencer 1997). In fact, since the 1970s, most cultural anthropologists have abandoned evolutionary theory for structural and symbolic paradigms (Ortner 1984). The abandonment of an evolutionary paradigm by many cultural anthropologists may be due, at least in part, to the inappropriateness of the temporal scale of their data for exploring long term patterns of change. Ethnographic observation usually encompasses a few years, occasionally a decade and with the help of ethnohistoric documents, a century or two. Such a limited temporal scale contrasts with archaeological data that accesses patterns brought into focus by millennia of human history.

Archaeological data also document forms of cultural organization and evolutionary processes that have not persisted into the twentieth century. For example, there are no pre-industrial states documented ethnographically (Sabloff 1986:115). Other archaeologically documented phenomena such as incipient inequality also lack ethnographic analogues. In fact, some ethnographically documented egalitarian societies were once ranked (Hayden and Gargett 1990) and some foragers were once agriculturalists (Wilmsen 1989). The present "devolution" of these societies is best understood as the latest stage in their evolutionary trajectories and many of the similarities evident between such cultures may actually be the result of co-existing with post-industrial states (Wolf 1982:18-19; Schrire 1984:18). It is therefore not surprising that evolutionary models, derived from ethnographic accounts, have not been satisfactory in exploring the full diversity of human history (Paynter 1989). Archaeological investigation provides, not only a diachronic perspective that

brings into focus evolutionary trajectories, but a richer range of cultural organization and process. The appropriateness of archaeological materials to evolutionary investigation is neither an original nor surprising observation (e.g. Flannery 1972: 404; Plog 1974: x, 5-11). However, a new trend is emerging in the archaeological literature of the 1990s whereby cultural evolution is being reformulated without (to varying degrees) the ethnographic legacy that has hampered such studies in the past.

In such new evolutionary models, indices of complexity can change at different rates (McGuire 1983; O'Shea and Barker 1996) and societies can "skip" levels of complexity (Yoffee 1993; Liu 1996) or cycle between them (Anderson 1994, 1996; Blanton et al. 1996). The fundamental principle of this refined evolutionary archaeology is that cultures change over time and that such change may exhibit regularities when multiple trajectories are compared (e.g. Drennan 1996; Earle 1997). This is not a polemical stance but a hypothesis which requires documentation. If cultures do not evolve in a directional manner, as critics have argued, then how do they evolve? What are some of the underlying processes that explain such evolutionary change? Studies of cultural evolution are becoming more concerned with the type of long term empirical observation provided by archaeological data than correspondence to sets of ordered ethnographies (this theme is emphasized throughout Earle 1991a). The fundamental issue faced by archaeologists interested in cultural evolution is determining the best way to document societies when they change over time and to explore the possible regularity of such changes in order to identify specific evolutionary processes.

I begin this essay by presenting an evolutionary model that focuses on some of the organizational processes that structure society during the development of political inequality. This evolutionary model posits that if a culture is preoccupied with internal matters it will not operate as effectively on an inter-polity level as a society that exhibits internal cohesion and can thus be more concerned with external endeavours. Furthermore, I propose that the overall degree of internal or external focus of a cultural can influence its long-term evolutionary path. Next, I evaluate this proposition using Early and Middle Formative settlement, burial and architectural data from the Soconusco and Valley of Oaxaca. The results of this examination show that the political volatility of the Formative Soconuscan system reflects a high degree of factional competition whereas the relative internal cohesion of the Oaxacan system allowed for a more external focus and that these

dialectical tendencies had a profound affect the evolutionary trajectories of each region. The former resulted in the precocious development of political complexity and the latter led to a slower but eventually more complex form of cultural organization.

THEORY: INTERNAL AND EXTERNAL TENDENCIES OF POLITICAL SYSTEMS

In this section I argue that cultures can be characterized in terms of the relative proportion of energy required for political interaction within a polity compared to the quantity of energy directed to inter-polity relations. Intra-polity interaction has received much attention recently under the rubric of factional competition (Brumfiel 1992; Spencer 1993; Brumfiel and Fox 1994). A factional approach posits that the power base of a leader is dependent on those who support him or her. Within any group of people there will be conflicting goals and aspirations, resulting in the formation of factions to pursue shared objectives. In the following discussion I use the concept of faction loosely as encompassing any interest group that has the ability to act cohesively. A faction can be based on class, ethnicity, lineage membership as well as professional allegiance, gender, age grades, business cartels, secret societies, etc. I say that factions *can* be based on any of these aspects of an individual's identity, however they tend to be based on social and economic factors that are redirected for political ends. Class, ethnicity and kinship are therefore likely to be among the most efficient and commonly employed sources of faction building in small scale societies (Yoffee 1995:303). Brumfiel (1994:3) defines the process of factional competition as "...structurally similar groups...[that]...compete for advantage within a larger social unit such as a kin group, ethnic group, village or chiefdom...[and]...this internal competition provides the dynamic for political development."

As Brumfiel suggests, factional competition occurs at all scales of society, and, each scale of interaction is dynamically integrated with those above and below it. In a discussion of chiefdoms, Timothy Earle (1991b) differentiates four scales of analysis: house, community, polity and region and incorporates the concept of factional competition into his scales of analysis. He describes:

> the household and community as semi-autonomous units that may exist in competition with each other and in opposition to the overarching polity. Thus the centralization of the chiefdom should always be seen as a fragile, negotiated institution that is held together by an economic interdependence, a justifying ideology, and a concentration of force (Earle 1991b:13).

The relationship of faction building and inter-factional negotiation at a given scale and between scales may

provide some of the impetus of cultural evolution. In addition, this perspective de-essentializes the concept of political authority by acknowledging its negotiated nature. Rather than wielding uncontested power, a leader must "shore up" his supporting faction and mediate between their interests, his own interests and those of other competing factions.

The concept of peer polity interaction provides a useful analogue for the mechanisms of factional competition (Renfrew 1986). A polity is defined as an autonomous political entity not subject to the jurisdiction of a higher power where "...change is seen to emerge from the assemblage of interacting polities" (Renfrew 1986: 6). If we recall Earle's (1991b:13) conceptualization of the household and community as "semi-autonomous" units then this logic is equally relevant at a local level. The model of peer polity interaction places the locus of cultural change at the regional scale but the concept functions equally well for any inter-group competition. If the concepts of peer polity interaction and factional competition are fused, the resulting synthesis focuses attention on the relationship between internal factionalism and external relations at multiple scales of analysis. Peer polity interaction is akin to peer faction interaction (i.e. peer households, peer lineages, peer communities) and the higher up the scale the more bureaucratized the factional competition will tend to be due to the increased number of inter-group relations that must be organized and coordinated. Examining inter- and intra-group competition encourages the analyst to explain evolutionary patterns as a process because it is the interaction between the various scales of analysis (i.e., household, lineage, community) that is studied. Such a perspective avoids the description of any one scale of organization in isolation and provides a dynamic framework of analysis in which to document evolutionary process.

The general orientation of this model is consistent with a number of previous authors who focus attention on whether a polity's energy is spent on mediating between factions or if attention can be directed to extra-polity relations. Renfrew (1974) and Drennan (1991b) define Group-Oriented versus Individualized polity building strategies, and Drennan (1991b) demonstrates that from an early stage the type of political organization that will develop from the two strategies can produce very different evolutionary trajectories. The Individualized strategy will tend to result in a less integrated political system and the Group-Oriented form of organization will be more integrated. Blanton et al. (1996) and Feinman (1995) similarly define Network

and Corporate strategies of political negotiation. The former is based on external trade to establish prestige locally and the latter transcends such limitations and allows more politically integrated polities to emerge. Finally, Spencer (1982:62-63) discusses Intra-regional and Inter-regional strategies whereby conquest emerges as the result of focusing internal antagonism outward.

All of these models focus attention on the proportion of energy that is expended on internal factional competition compared with the quantity of resources available for externally focused endeavours. Thus, the degree of internal factionalism is expected to inversely related to the external effectiveness of a political unit. Therefore, factions are not assumed to always be antagonistic and divisive for a society. Instead, they are envisioned as the *potential fissures* along which society may divide. For example, Spencer (1982) proposes two alternate strategies by which chiefs may increase the quantity of resources they control. Either, "...assume control over local surplus production in his own regional system, bypassing the district chief" (Spencer 1982:57). Or, "...commence a strategy of interregional conquest, subjugating and extracting tribute from adjacent chiefdoms" (Spencer 1982:57). The first, is an internally focused strategy and would foster inter-polity factional competition as district chiefs are marginalized by the paramount. However, if successfully instituted, the increased efficiency would create a more powerful centralized authority. The second, externally focused strategy would result in increased peer polity competition as one paramount chief threatens the autonomy of neighbouring paramounts. The externally focused strategy of increased raiding activity would send the elite youth out of the polity to lead raids and thus increase internal cohesion by focusing attention outward as well as remove the leaders of potentially hostile factions from the home territory, and even see some of them die in battle.

An internally focused political strategy is generally characterized by factions that compete with each other and attempt to assert dominance through the expenditure of large quantities of resource bases. Such a strategy is typically employed when factions have independent resources that do not overlap with those of other factions. The material signature of this strategy of integration is the large quantity of resources that are conspicuously consumed or "wasted" on factional competition (Trigger 1990: 125) and so, individual factions become more "visible" archaeologically. The Olmec culture from the Gulf Coast of Mexico, most famous for

its monumental heads, is an example of an internally focused society expending huge amounts of labour on publicly visible media as a strategy of governmentality (see Clark 1997). There is no more blatant way to aggrandize and individual (and by extension their faction) than by transporting a multi-ton boulder 70 km through the jungle, sculpting it into the likeness of a specific leader in question and constructing a drained, landscaped garden to display it in (Coe and Diehl 1980:118-125, 293-326; Lowe 1989:53).

An externally focused political strategy is the result of a more internally cohesive political organization that may occur when a group of factions have more common interests and coordinated objectives. Due to a higher degree of internal integration, a proportionately larger amount of energy can be directed outward and less effort need be expended at the local level. Politically unifying symbols are expected to be produced by such a system. This organizational strategy will tend to be less "grand" as fewer resources are expended in internal competition that often construct monuments attesting to the glory of powerful factions. As a result, an externally focused society will be less volatile and tend to produce longer lasting political structures. The Mesopotamian Ubaid and Uruk societies provide a contrastive example to the Olmec. There is no archaeological evidence of inter-factional media of competitive display in early Mesopotamia and it has been suggested that an integrative ideology emphasized group membership presented a facade of social egalitarianism (despite evident economic differentiation) and consolidated locally based power in each polity (Stein 1994:39-43). Negative evidence of political display must be approached cautiously. However, when evaluated in comparison to the ostentatious nature of Olmec factional display (or Egyptian mortuary pyramids, etc.) it seems reasonable to assume that such publicly visible evidence has not been missed by chance alone throughout the history of Mesopotamian archaeology. In fact, Ubaid society has been characterized by a lack of status differentiation that persists into later Uruk cities (Oates 1977:475).

As polities evolve and expand, the distribution of status symbols will tend to be distributed differently across the landscape depending on the internal/external nature of the political organization. An internally focused society will tend to be centripetally focused in the political capital whereas an external system will tend to have expressions of status distributed more evenly throughout its territory in order to ensure polity-wide integration. The centripetal focus of the symbols of authority is analogous to a modern day military

dictatorship in which huge amounts of resources are expended for the construction of government buildings and monuments extolling the glory of a dictator in the capital city. This form of rulership also maintains the majority of its army in the capital to guard against internal threats such as coupes. In addition, all social, political and economic activity is controlled by, and focused on, the capital. While this highly centralized strategy may maintain power for a time, the dictator is less likely to invade a neighbour or sign a bilateral trade agreement and is more likely to stage military parades as a demonstration of power while battling with rebels in the countryside. Such an integrative strategy is at once costly (due to the large amount of energy invested in maintaining power) and unstable (due to a lack of legitimacy). In contrast, an externally focused polity will likely engage other polities in trade, war etc. and to do so must unite the potential factions within its borders in order to achieve a perceived set of shared goals. Symbols of authority will thus be dispersed throughout the settlement system in order to maintain political cohesion and different communities will perform specialized functions which produce a cohesive and coordinated polity. Religion, nationalism (or other forms of ideological legitimation such as democracy) are the currency of such endeavours and will likely be used to focus cohesion. Some of the expectations of both strategies are summarized in Table 1.

A dictator may well provoke a war with a neighbour to divert attention from internal crisis and a generally unified polity may be divided over any number of issues. However, when examining long expanses of time, as archaeologists do, palimpsests of political strategy can be expected to produce recognizably different patterns. The Gulf Coast Olmec may have invaded the Soconusco (Clark 1997:229) but overall tended to be internally focused. And, while there may have been internal factional competition in Formative Mesopotamia it tended to be a more externally focused society (Yoffee 1993:67). No political system will be completely internally or entirely externally focused and there will be a constant dynamic between the two strategies which are likely linked (e.g. Flannery 1968). Rather than mutually exclusive processes, the internal and external foci of societies are relative descriptions and one society can only be said to be more or less internally focused when compared to another. The important point here is that the relative degree of internal and external focus of a society is not a zero sum situation where more external focus require a decrease in internal focus. Instead, both processes coexist and it is only for descriptive and analytic reasons I find it

convenient to characterize societies as being more one way or the other.

DATA: EVOLUTION IN FORMATIVE SOCONUSCO AND OAXACA

This internal/external perspective will be employed to examine the Barra through Conchas phases in the Soconusco and the Tierras Largas through Guadalupe phases in Valley of Oaxaca (Table 2). In this section, previous research from the two regions is summarized and then a rationale is presented for examining these cultures by their settlement, burial and architectural patterns. I use two comparable data sets that quantitatively document change through time of each class of data. Then, I track Early and Middle Formative trajectories within these data sets, compare them and explore internally and externally focused processes through an examination of the development of political inequality.

Previous Research

The Soconusco region is part of the fertile Pacific coastal plain that straddles the modern border of Mexico and Guatemala (Figure 1). Work on the Mexican side of the border began in the 1950s and 1960s (Green and Lowe 1967; Lowe 1975; Ceja 1985). In 1985, John Clark and Michael Blake began the "Mazatan Early Formative Project" in order to examine the emergence of inequality in the region (Blake 1991; Blake, Chisholm et al. 1992, Blake, Clark et al. 1992; Clark et al. 1994, Clark 1991, 1994, Clark and Blake 1994). The Guatemalan side of the Soconusco was first investigated by Edwin Shook in the 1940s (1947) and latter studied by Michael Coe and Kent Flannery (1967; Coe 1961). More recently excavations by Michael Love (1989, 1991, 1993) have focused on the Middle Formative site of La Blanca and settlement along the Naranjo River. For a chronological overview and phase by phase description of these periods see Blake et al. (1995).

The Valley of Oaxaca is a broad riverine highland valley in Southern Mexico (Figure 2). The excavation of Formative period sites began with the "Prehistory and Human Ecology of the Valley of Oaxaca Project" lead by Kent Flannery (1976). The bulk of work has been carried out by a number of graduate students produced by the Universities of Michigan and Arizona (Winter 1972; Drennan 1976; Whalen 1981; Blanton et al. 1982; Kowalewski et al. 1989). Synthetic discussions of these time periods are included in Flannery and Marcus (1983:41-74) and Marcus and Flannery (1996:chap.7-9). A complete chronology is

provided by Drennan (1983:363-70) and a detailed description of Early Formative Oaxacan ceramics is presented by Flannery and Marcus (1994).

Data Selection

The Early and Middle Formative from both regions encompasses the emergence and development of "chiefdom" or "intermediate" societies. Feinman and Neitzel (1984) provide an empirical, ethnographic basis for selecting the data best suited to study such cultural organization. I have argued that it may not be productive to employ ethnographic typologies for archaeological interpretation. However, cross-cultural, ethnographic information may be used productively to examine the range of cultural activity and to direct the archaeologists in the search for material-behavioural correlates (the utility of ethnographic analogy is not questioned, simply its application). Feinman and Neitzel (1984) survey ethnohistoric and ethnographic information from 106 New World intermediate (i.e. sedentary prestate) cultures and conclude that architecture, chiefly dress, mortuary ritual and settlement patterns provide the clearest classes of data through which to examine such societies (Feinman and Neitzel 1984:73-77). However, "...archaeologists rarely find items of clothing, feathers and other ephemeral types of personal ornamentation, such as tattoos, body painting, and hair style..." (Feinman and Neitzel 1984:75). I will not pursue clothing and ornamentation in the archaeological record and so the following analysis tracks the following: 1) settlement patterns, 2) mortuary patterns and 3) architectural patterns from the Soconusco and Valley of Oaxaca regions. As these three classes of data best characterize intermediate societies, tracking them should be a reliable way to document the emergence and development of political complexity. The next three sections of this paper will comparatively examine each of these lines of evidence.

DATA SET 1: SETTLEMENT PATTERNS

Theory and Expectations

Conventional wisdom among archaeologists interpreting settlement data states that a multi-tiered system indicates political inequality (e.g., Steponaitis 1978:420; Feinman and Neitzel 1984:76; Wright 1984:43; Creamer and Haas 1985:742; Earle 1991b:3). Egalitarian subsistence farmers are expected to be

evenly spaced across the landscape in small villages (close to exploitable resources) forming a single level of settlement. The existence of an additional tier of settlement, above that of the village, is indicative of a coordinating stratum of society that performs non-subsistence roles (i.e., craft and political specialists) and depends, at least in part, on the labour of others to sustain it. This qualitative approach describes archaeological cultures as possessing different numbers of settlement tiers but does not allow differences to be documented between settlement systems with the same number of tiers. To quantify settlement hierarchy I employ a methodology used by Brumfiel (1976) and Peebles (1978) and elaborated on by Steponaitis (1981) to measure political differences in population size. The model assumes that the size of a community is determined by the number of its inhabitants, which is proportional to the amount of food available. The quantity of food available is dependent on the productivity of a site's catchment area and the flow of tribute into or out of the community. Therefore, according to this model: community size = land available X the productivity of such land +/- tribute.

With single-tiered settlement patterns, community size and catchment productivity are expected to correspond linearly and therefore the greater the food supply, the more people can be supported at a particular site (Steponaitis 1981:324). This linear relationship between site size and catchment productivity is expected when there is no inter-community political coordination and each community simply pursues its own subsistence needs. Steponaitis (1981:325-6) demonstrates that this correlation is true even if tribute flow operates within a community as would be the case in a "big-man" society where a leader could accumulate wealth for competitive feasting. Such ritual exchange generally rotates through several communities and would not be expected to affect the size of any individual settlement involved in such inter-community activity (Sahlins 1963). If a constant and unequal flow of resources does occur, then asymmetrical political relations will cause the emergence of a second settlement tier.

In a two-tiered settlement system, village size is expected to equal catchment productivity minus tribute paid, whereas the size of a local center equals its catchment productivity plus tribute received from dependent villages (Steponaitis 1981:326). Therefore, in the two-tiered scenario, the larger size of local centers is attributed to a number of people being provisioned by the influx of tribute from surrounding villages

(Steponaitis 1981:328). The flow of tribute is inferred from the concentration of larger populations found in local centers. Therefore, a two-tiered settlement pattern indicates political power being exercised and its emergence is equated with the development of the most simple chiefdoms.

Material and Methods

Data for the following quantitative analysis is taken from Early Formative settlement components in a 50 km^2, 100% survey block in the Mazatan zone of the Soconusco region of southern Mexico (Clark et al. 1994:98-106) and from the 100% survey of the Valley of Oaxaca (Kowalewski et al. 1989:524-5). Additional data from outside the 50 km^2 in the Mazatan zone are included in order to present a more complete assessment of the available data (Clark et al 1987, 1990). I will also discuss Early and Middle Formative sites from a 200 km^2 survey block in the La Blanca-Ocos zone on the Guatemalan side of the Soconusco (Love 1989, 1991). This last source of data was not recorded in a systematic manner as site size in hectares, and so, quantitative comparisons are not possible.

To apply the model, population (measured as the size of each site) was recorded on the X-axis and plotted against its catchment productivity (defined below) recorded on the Y-axis (Figure 3). Expressed mathematically: site size = catchment productivity +/- tribute, where catchment productivity = catchment area X the productivity of land. The crux of this model is that when a site's catchment productivity is controlled for, the relative quantity of tribute flow can be measured as the difference between the regression line of a region's villages and the position of local centers above this line. The relative quantity of tribute received by these centers is thus used as a proxy measure of political power as it reflects control over resources. In a one-tiered system, the Y-intercept of the regression line of villages is expected to be zero as a total lack of catchment productivity could support no people. In a two-tiered settlement system, the Y-intercept of the lower tier would be zero or lower and a negative number reflects the flow of tribute out of the community. Conversely, the Y-intercept produced by the regression line of the second tier is expected to be above zero because even when there are no resources, the flow of tribute into these centers could sustain some people. Political power can be documented and settlement systems can thus be compared both in terms of their structure (i.e., number of tiers) and the quantity of political power exercised (distance of local centers above

the village level).

Site size was measured in hectares. Survey components were combined to produce sites in keeping with decisions made by the respective investigators. In the Valley of Oaxaca, as many as nine components were combined to form the dispersed center of San Jose Mogote (Kowalewski et al. 1989:61). In the Soconusco, small survey components were combined when they occurred in proximity to large sites and fell within their catchment area or when a number of small components occurred close to each other (see Appendix 1 and 2 for component combinations and site sizes). All sites smaller than 1 ha were excluded from the following analysis because such small settlements would not require large catchment areas to sustain their population--such an assumption was also made by Steponaitis (1981:337) who excluded sites under 2 ha.

Catchment area was defined as a 1 km radius around each site based on Chisolm's (1968:131) ethnographic observation that cultivating within such a distance is optimal. The selection of a 1 km catchment radius is further supported by Steponaitis' (1981:335) conclusion that the size of catchment radii does not proportionately affect catchment productivity results. The methodology used to calculate the size of site catchments is the same as that employed by Steponaitis (1981:335-6) and those interested are referred to his discussion. The only exception to the application of this method of calculating site catchment area is the Jocotal phase in the Soconusco where sites were so densely packed that to divide overlapping catchment areas was not possible and instead all catchment areas were halved.

Land productivity was modeled as a constant by Steponaitis (1981:334-5) and productivity was measured as all the land within a site's catchment radius that could be cultivated. I incorporate land productivity into my calculations and follow Kowalewski's (1982:339-54) three classes of land quality for the Valley of Oaxaca. Clark (1994:215) adheres to this classification system for the major biotic communities of the Soconusco and so the comparison is relatively direct. Both studies use the maize cultivation potential of land to approximate productivity more generally. In the Soconusco, Chahuite and Riparian zones are considered class I land, Tropical Deciduous Forest is class II and Palmar and Savanna are class III (Clark 1994:60). When calculating the quantity of land, a simple correction was used to determine the contribution of each land type based on Clark's (1994:215) estimates of annual crop potential. Class I land can produce

three corn crops yearly and is counted as 133% of actual land, class II land can produce two crops and contributes 100% while only one crop a year is feasibly produced on class III land and thus it contributes 50% of its actual area. These proportions are similar to Kowalewski's (1982:151) land productivity estimates and the same correction percentages are also used for the Valley of Oaxaca. Within each catchment area the quantity of land types was estimated to the nearest 10 percent and catchment areas were adjusted, based on land productivity, to produce an adjusted catchment value (see final columns in Appendix 1 and 2). For example, if a catchment area contained one thousand hectares of land and 10% of it was class I land, 50% class II land and 40% class III land, then class I land is adjusted to 133 ha, class II land to 500 ha and class III land to 200 ha. In this example, the catchment area was 1000 ha but due to the land productivity the adjusted catchment value would be 833 ha.

A concern when employing settlement data from surface survey projects is the under representation of deeply buried sites and the fact that surface shards from such sites may not give a representative picture of the extent of these sites. This problem is controlled to a greater degree than usual by this study due to the comparative nature of the analysis and the fact that earlier period settlement patterns from both regions can be compared with each other. Therefore, I assume that depositional processes affect both regions equally. Another assumption of this study is that population density was the same at each site and that all sites were occupied for the same proportion of each ceramic phase. These simplifying assumptions are required to allow the extent of surface shard scatters to represent population (Kowalewski et al. 1989).

Results

The results of this analysis are presented as a series of nine graphs in Figure 3A-I that document the number of tiers of settlement in the Early and Middle Formative Soconusco and Valley of Oaxaca. Then, Figure 4 summarizes the relative quantity of political power exercised through time in these regions. Overall there appears to have been a two-tiered settlement pattern from both regions in most phases represented in Figure 3. However, variation in the quantity of political power exercised reveals important temporal and regional patterns. In the Mazatan region, these settlement study results suggest a number of polities experienced cycles of political power over time, whereas the in Valley of Oaxaca a single center emerged at

the beginning of the Formative period and persisted for a thousand years.

Mazatan Zone of the Soconusco

In the Mazatan zone of the Soconusco during the Barra phase, the site of Paso de la Amada was more than eight times the size of the next largest settlement (Figure 3A). Besides the two sites represented on the graph there are approximately a dozen other sites smaller than 0.5 ha excluded from the analysis and while these sites were significant during this phase they were nonetheless excluded so that the results are consistent with subsequent periods. During the Locona phase, Paso de la Amada represents a possible exception to the two-tiered pattern as it was twice as far from the regression line of villages as other local centers (Figure 3B). Clark (1994:199) states that while the size of Paso de la Amada during the Locona phase:

> could be interpreted as evidence of a three-tiered settlement hierarchy...there do not appear to be any qualitative indicators of differences from the other large village sites (and their full size remains to be determined), [and] a more conservative interpretation is that...all large villages [are] at the same level in the settlement system.

Four sites in the survey zone (and possibly three others nearby [Clark 1994:201]) were larger than 20ha and had platform mounds up to 3 meters high whereas none of the small sites in the region had platform architecture and all of these villages were only a few hectares in size.

A two-tiered settlement pattern describes the following Ocos phase settlement pattern and Aquiles Serdan exceeds Paso de la Amada in terms of size and political power (Figure 3C). Fewer sites larger than 1 ha existed than during the Locona phase but the total population was similar, with more people consolidated in the sites that persisted from earlier times (Clark 1994:106). There were many relatively large second tier villages during this phase which may reflect the shifting fortunes of various communities and a high degree of inter-community competition during this 150-year period. A significant difference from Locona times was the rise in fortune of the site of Aquiles Serdan, which surpassed Paso de la Amada in size despite its lower catchment productivity. During the Cherla phase there were again fewer sites but a more clearly defined, two-tiered settlement hierarchy returned at a lower order of magnitude than the Ocos period (Figure 3D). Ocos phase obsidian from three different sources were differentially distributed between these local centers and homogeneously within each center and neighboring villages (Clark and Salcedo 1989). Such obsidian distribution indicates that a number of self-contained networks were focused around local centers and provides

an additional, and independent, measure of political activity in the region.

The most dramatic change in settlement patterns occurred during the Cuadros phase when there appears to be a single settlement tier in the survey zone (Figure 3E). The largest sites possessed little power relative to earlier phases (Figure 4) and were only marginally larger than second tier sites. The site of Paso de la Amada and La Calentura (the two original local centers) ceased to exist as centers during this phase. However, during this phase more sites were larger than 1 ha than ever before. This is because the center of power shifted out of the survey zone to the site of El Carmen, occupied throughout much of the Early and Middle Formative along a 500m stretch of the Coatan River (Clark et al. 1987:20-3).

During the Jocotal phase another dramatic change occurred in the survey zone: a clear two-tiered settlement system was re-established with four local centers of the same magnitude as those found during the Locona and Ocos phases (Figure 3F). However, the total number of sites larger than 1 ha increased five times beyond those of any previous period with seventy-one such sites recovered in the 50km^2 survey zone. The large site of El Silencio, located across the river from El Carmen and occupied predominantly in the Jocotal phase, suggests there may be a third tier of settlement in the region (Clark et al. 1990). In the following Middle Formative Conchas phase, population in the Mazatan zone was much reduced (Blake et al. 1995:181) but there was a large site, complete with a 20m mound at Huanacastal (Clark et al. 1987).

La Blanca-Ocos zone of the Soconusco

As stated from the outset, the La Blanca-Ocos settlement data cannot be compared quantitatively but are illuminating for a qualitative comparison with the Valley of Oaxaca. The La Blanca-Ocos zone of the Soconusco was less densely populated than Mazatan with only three sites larger than 1 ha in the Ocos phase (La Victoria, La Blanca and Sage) and only two such sites in the Cuadros/Jocotal phase (Sage and Salinas La Blanca) but none larger than 3 ha (Figure 1). There were no centers in the Early Formative and a single tiered settlement organization existed in this zone despite the fact that it shared the same ceramic sequence as the Mazatan zone 50km up the coast (Love 1989, 1991).

Such a simple settlement system changed quite dramatically during the Middle Formative which Love (1991: 38) interprets as having three tiers of settlement. The paramount center of La Blanca extended over an

area of 100 ha with a central mound over 25m high, and at least 43 residential mounds. There were two second order sites in this area: La Zarca and El Infierno each with large public architecture. The third tier consisted of five multiple household settlements. It was not until the Middle Formative that settlement ranking emerged in this zone (Love 1991:60).

The Valley of Oaxaca

In the Valley of Oaxaca during the Tierras Largas phase, the site of San Jose Mogote was a little more than four times the size of the next largest site (Figure 3G) and this difference is minimal when compared with subsequent phases. A dramatic change occurred during the San Jose phase (Figure 3H) when San Jose Mogote reached almost 80 ha in extent and this large center persisted into the Guadalupe phase (Figure 3I) when San Jose Mogote was just under 70 ha in size. During both of these periods, all other sites were less than a tenth the size of San Jose Mogote. Rather than having an actual first tier, the San Jose and Guadalupe phase settlement patterns were characterized by the single large site of San Jose Mogote and then all other sites in the valley (Kowalewski et al. 1989:66). During the San Jose phase, the site of Tierras Largas stands out from this pattern as the only site (other than San Jose Mogote) during these three phases larger than 3 ha. Tierras Largas reached 6.3 ha which is almost the same size as San Jose Mogote during the Tierras Largas phase (6.8 ha). The Tierras Largas site was situated at an agriculturally marginal location with no class I land within its 1 km catchment radius and its unexpectedly large size (given its poor catchment productivity) may be due to its strategic location on the Atoyac River between the Etla arm and the rest of the valley (Figure 2). During the San Jose phase, when San Jose Mogote was experiencing its population explosion, Tierras Largas increased to four times its previous size.

Power Exercised in the Soconusco and Valley of Oaxaca

The structure of settlement (i.e., number of tiers) has been discussed in the Soconusco and Valley of Oaxaca but not the relative quantity of power exercised. Therefore, the regression line of the village was calculated for each of the nine phases documented in Figure 4 (slope and Y-intercept of villages is recorded on Table 3). The distance above this line was measured for each center and the average tribute level of all centers was calculated for each phase (Table 3--first two columns). This procedure is adapted from Steponaitis

(1981:figure 3) and simplified for a two tiered settlement system. As there was a single second-tier site for the Barra phase in the Soconusco and all three Oaxacan phases, the largest sites and the average of all sites is the same. Thus, for comparative purposes the largest site's size, from each Soconusco phase, is also included in Table 3. The results in Figure 4 comparatively summarize the quantity of political power exercised through time in the two regions and show the detail lost by only examining settlement patterns qualitatively.

In the Soconusco, there appears to be a cyclic pattern to the quantity of political power being exercised in the survey zone. A considerable increase is evident from the Barra to Locona phases which then decreases from the Ocos to Cherla periods. It is significant that while the relative quantity of power was decreasing from the Locona through Cherla times, the stress put on villages (measured as the falling Y-intercept of their regression line) was increasing (Table 3). The exercise of power reached a minimal level during the Cuadros phase (Figure 4) despite an overall increase in the number of sites (figure 3E) and a cessation of the stress put on villages (Table 3). In the Jocotal period, power increased rapidly and it is during this phase that the Y-intercept of villages was its lowest (Table 3) signifying that the greatest amount of tribute was being produced by villages. It is significant that the center of power moved from the survey zone as the result of an Olmec presence in the Soconusco during Cuadros times (Clark 1997) as this settlement data suggest that it may not have been until the Jocotal phase that political authority was re-established in this area.

Obsidian patterns again elucidate political process as the "...amount of obsidian coming into the zone increased steadily from Barra to Cherla times" during the Cuadros and Jocotal phases the amount of incoming obsidian appears to have decreased dramatically, to less than 20% of the former amount" (Clark et al. 1989:278). The initial increases in obsidian distribution levels may be explained if obsidian were being used competitively between factions. The subsequent, dramatic drop in consumption level beginning in the Cuadros phase emphasizes the political rather than economic role of distributing obsidian. The previous level of distribution may reflect the "cost" of maintaining power for the Locona, Ocos and Cherla elite. The amount of power exercised in the Soconusco must have increased during the Middle Formative with the emergence of the polity centered at La Blanca but, as previously noted, exact figures are not available and Conchas values in Figure 4 is a estimate included for comparative purposes.

In the Valley of Oaxaca, power exercised by San Jose Mogote increased between the Tierras Largas and the San Jose phase to a degree unparalleled in this study, and then, declined slightly into the Guadalupe times. However, during each of these phases, the stress on villages was minor (Table 3) and so the power exercised by San Jose Mogote may have had few adverse repercussions on the sites in the rest of the valley. This would have facilitated the voluntary association of villages into a loose political alliance with few economic repercussions. Beginning in San Jose times, the distribution of obsidian in the Valley of Oaxaca suggests a regionally integrative pattern. San Jose Mogote had different proportions of obsidian sources in various residential wards and the proportions corresponded to other sites in the valley (Marcus 1989:175-87). Parry (1983:80-1 in Marcus 1989) found that San Jose Mogote Area C, Abasolo and Tomaltepec all had similar proportions of raw material types. Marcus (1989:176-7) posits that "...each area or ward was occupied by a different descent group...[and that the]...wards at San Jose Mogote may be linked to neighboring hamlets through belief in a common apical ancestor". Area C was linked to Tomaltepec and Abasolo with "fire-serpent" imagery on their ceramic and Area B was linked to Huitzo and Tierras Largas with "were-jaguar" imagery on their ceramics (ibid. 175-6). If economic activities such as the distribution of obsidian was associated with different lineages and such lineages dominated particular communities but were all represented at San Jose Mogote this could have provided the social and economic mechanism that would reinforce political cohesion between the center and periphery of power in the Valley of Oaxaca.

Summary of Settlement Data

Based on the settlement data presented, the Barra phase from the Soconusco and the Tierras Largas phase from the Valley of Oaxaca resemble each other with a single center slightly larger than surrounding villages and political complexity is ambiguous. After these initial ceramic phases, the settlement trajectories of these two regions diverged quite dramatically yet both clearly indicate the establishment of political complexity. In the Valley of Oaxaca, the unchallenged position of San Jose Mogote persisted through the end of the Middle Formative. In the Soconusco, there was also a significant change beginning in the Locona phase, when a hierarchical settlement system developed. However, at least four local centers (and as many as seven) emerged together in a close-packed and probably highly competitive manner.

The demographic disruption, and disappearance of settlement hierarchy in the survey zone, during the Cuadros phase and the rapid (i.e., 50 year) re-emergence of a hierarchy and increase in total population in the Jocotal phase may be explained as the region being incorporated in a larger political sphere centered at El Carmen and then El Silencio on the Coatan River. A similar explanation has been proposed based on evidence of an Olmec ceramic style and monolithic stone sculptures (Clark and Blake 1989, Blake et al. 1995). The placement of all Cuadros and Jocotal phase sites encountered by Coe and Flannery (1967:87) in the La Blanca-Ocos region on waterways further suggests a changing settlement strategy resulting from increasing interregional interaction. The end of the Early Formative was when Mesoamerica's first ceramic and artistic horizon emerged which suggests increased long range contact (Sharer and Grove 1989). In the Valley of Oaxaca, the amount of power exercised increased hundreds of years later than in the Soconusco but once the transition did take place, at the end of the Early Formative, a much higher level of power was exercised while in the Soconusco power levels were fluctuating (Figure 4). Although a regional survey is needed for the entire Soconusco region, there is sufficient evidence to conclude that the political landscape was much more volatile than indicated in the Valley of Oaxaca during this time. The fortunes of Soconuscan centers shifted significantly from one century to the next and the locus of power migrated around the coastal plain. The Soconusco settlement trajectory, with many equally sized, closely spaced and short lived political centers, is consistent with an internally focused form of political relations. The Oaxacan settlement trajectory, on the other hand, represents a stable and long lasting political organization that reflects the internal political cohesion necessary for a greater degree of externally focused activity.

DATA SET 2: MORTUARY PATTERNS

Theory and Expectations

Cross-cultural studies indicate that there is a correlation between an individual's status in life and their treatment in death (Saxe 1970; Binford 1971; also see Brown 1995). Based on role theory (Goodenough 1965) an individual is said to possess many social identities such as father, teacher, chief, etc.. Leaders are expected to possess a larger number of social identities than an average member of the same society due to

their greater interaction in community matters (Tainter 1978:331-2). In this section, I document the quantity of social roles expressed at death as the number of mortuary symbols recovered with an interment. This approach does not attempt to understand what a jade bead found in an individual's mouth, red pigment covering a body or two ceramic vessels around the interred's feet means. Instead, it simply assumes that each type of grave inclusion had a different meaning and records the quantity of such social messages. This does however assume that material culture is employed purposefully and symbolically to communicate social information (Wobst 1977). As Binford (1971:17) states: "Crucial for the consideration of mortuary rites are the number and kinds of referents given symbolic recognition". Mortuary ritual is a purposeful and public stage in the life cycle of an individual and the inclusion of grave offerings as well as their placement is not a random or haphazard occurrence (O'Shea 1984:35-6). Such purposeful symbols provide a medium of social expression and mortuary ritual may be used by a faction to express differences or similarity with other segments of the society.

Differential quantities of social messages ascribed to certain individuals in death may be interpreted as mortuary complexity and two or more distinct levels of social messages would indicate some form of social differentiation operating in a culture. However, continuous and/or similar quantities of burial elaboration *may not* be indicative of a lack of social differentiation. Feinman and Neitzel (1984:76) observe that:

> some leaders receive special funerary treatments of a sort that would not be visible in the prehistoric record. At death their bodies were hung from trees...burned, and/or eaten...Thus although leaders are generally differentiated during life by their dress and at death by their mortuary treatment, the absence of evidence of these differences in the archaeological record is not necessarily sufficient to conclude that social distinctions are not present.

Material and Method

The following analysis employs a data set of 196 Early and Middle Formative interments from the Soconusco (n=58) and the Valley of Oaxaca (n= 138) regions (see appendix 1 and 2). A diversity analysis is employed to document the quantity of burial messages from each mortuary event. Diversity analysis has been productively employed by mortuary analysts to quantify information expressed by those who bury the dead (see Cannon 1989; Sempowski 1992; Howell and Kintigh 1996). In order to calculate the diversity scores used in the following analysis the presence/absence of each type of artifact (i.e. jade bead, ceramic vessel, shell pendant, etc.) was counted regardless of its quantity. So, for example, if five or fifteen jade beads were

recovered around the neck of an individual a diversity score of "1" was recorded. The only situation in which a single artifact type was counted more than once was when it was located at multiple locations of the body. Four body locations were recorded -- at, on, around, above or below -- the head, body and legs or in the mouth. As a result, any artifact type could contribute a maximum of four points towards the diversity score. As well as grave goods, the presence of a tomb or stones covering a burial, evidence of pigment employed at the mortuary event or secondary burials placed in association with a primary interment each contributed a point to the diversity score. In addition, the presence of cranial deformation contributed a point to diversity scores; not because this was part of the interment ritual but because it is the expression of a social message in life. Cranial deformation would have been performed early in life and would have contributed to a public form of discourse throughout the individual's life. The resulting diversity scores were plotted in Figure 5.

There are a number of potential problems with this approach: 1) Not all messages are expressed in a manner that is preserved archaeologically (e.g. signing, dancing etc.) and this could under-represent the quantity of documented messages. 2) A single social role can be expressed by many symbols and this could potentially inflate the apparent number of social roles being symbolized. 3) Non-role signifying grave inclusions (i.e. related to the manner of death, idiosyncratic preferences of an individual, etc.) may further inflate status symbolizing diversity. An additional problem relates to the size and representativeness of the burial populations. Some of the samples are small and none were acquired in a representative or random manner (e.g., most burials were encountered in the course of household excavations or exploring inter-residence areas). The regional nature of this data base and the fact that burials are grouped relative to ceramic phases which last up to 300 years, results in burial populations with no necessary temporal or spatial association. As a result, the criteria required for most statistical manipulation has not been met. Therefore, the data was presented using simple descriptive statistics and the preliminary nature of the results is emphasized.

This quantitative assessment does not incorporate a range of possible qualitative indicators of rank or "badges of authority" (Braun 1979). Flannery and Marcus (1990:31; Marcus and Flannery 1996:99-100) argue that the seated position of burials in the Valley of Oaxaca is an important indicator of high status and hereditary inequality during the San Jose phase. Clark (1991) suggests that mirrors may have been linked to

elite status as Carlson (1981: 130) suggests "...an Olmec or Early Formative origin for a pan-Mesoamerican mirror-cult tradition of royal lineage power". While not sensitive to such factors, diversity analysis is amenable to consistent, quantitative comparisons between time periods and regions and so it provides the sort of common baseline necessary to undertake a comparative analysis of mortuary patterns.

Quantitative Results

Seven graphs (Figure 5) summarize the diversity profiles of burial data. These graphs show three patterns: no burial offerings, a continuous yet limited number of different diversity scores and finally, a discontinuous pattern of burial diversity. All periods in both regions have at least seventy-five percent of burials with a diversity score of zero or one. In the majority of time periods there are a number of burials forming a continuous distribution up to a diversity score of five.

In the Soconusco, the Locona, Ocos and Cherla burials exhibited a continuous distribution of diversity. The only two burials from the Soconusco with a diversity score above zero after the Cherla phase were Middle Formative burials from El Pajon (Pailles 1980:92-106) and Huanacastal (Clark et al. 1987:23-4). Neither of these two interments had any accoutrements and both receive diversity scores of 1 due to frontal occipital cranial flattening. This means that in the Soconusco, no burials (excavated thus far) from between 1000 and 650 B.C. contain a single grave good. Although perhaps the result of small samples, it is also possible that during these periods burials were being treated in a different manner than in earlier times. Clark (1994: 90) estimates that 75% of all research projects undertaken in the Soconusco have focused on the Late Archaic and Early Formative periods and this is approximately the quantity of Middle to Early Formative burials found to date (i.e. 12/58=21%). As the number of Middle Formative burials were not proportionately under-represented, this pattern may signify a shift to mortuary ritual that does not leave archaeological remains as Feinman and Neitzel suggest in the quote above. This change in mortuary ritual corresponded with the demographic and economic disruption of the Cuadros phase and suggests that changes in ritual activity accompanied the political transition occurring at this time.

In the Valley of Oaxaca, the Tierras Largas burial record exhibited a limited amount of diversity which increased into the San Jose phase. From the Middle Formative Guadalupe phase burial record, there

is a hint that two distinct levels of social status, encoded in mortuary ritual, may have emerged. The mortuary pattern from the Guadalupe phase is the only example (from the cases examined here) that suggests ranking of burial diversity. Overall, burial diversity in the Valley of Oaxaca gradually, yet progressively, increased.

Discussion and Qualitative Assessment

This brief discussion will describe some of the burials from each phase that produced the highest diversity scores. In the Soconusco, a child with a mirror headdress and a piece of greenstone behind its head, covered in red pigment (Clark 1991) and an adult male with two ceramic vessels with stone pebbles in one, a mortar and stone cobbles around the body (Clark 1994:402) produced diversity scores of three and four respectively. Both interments date to the Locona phase and were recovered at the Chilo site. A female burial from the Cherla phase at Paso de la Amada was found with a mirror on each side of her head, a stone bowl and cobble at her chest and a greenstone bead at her face producing a diversity score of four (Appendix 3). As already noted, later period burials are not amenable to this form of analysis and such a change may signify evolving social practices, possibly curation above ground which would have been more public, and therefore potentially a more competitive form of display (e.g. Goldman 1970).

In the Valley of Oaxaca, during the Tierras Largas phase a female burial (#19) was encountered at the Tierras Largas site with a diversity score of two as she was interred with a mano and a metate (Winter 1972:325) and a male (#29) was buried at San Jose Mogote in a seated position with a ceramic vessel and thus produced a diversity score of one. The San Jose phase burials with the highest diversity scores were found at Tomaltepec (n=5) and San Jose Mogote (n=4). Of these nine high diversity burials four were female, three male and one was a child. One of the San Jose phase burials (#11) was a male from Tomaltepec with a diversity score of five and was found in a seated position with two ceramic vessels and a greenstone celt at his feet, another vessel at his head, 15 greenstone beads near his neck and one in his mouth (Whalen 1981:147). From the Guadalupe phase, the two highest diversity burials were both women. At Tomaltepec, burial #68 had a ceramic vessel at her head, a chert point at her chest, a greenstone bead in her mouth and one at her chest (Whalen 1981:152). The only burial with a higher diversity score was an old woman from Fabrica San Jose (#39) with a score of eight; interred with a vessel at her feet, two at her chest and one at her head,

forty-seven round and six tabular greenstone beads in her mouth, a brown stone bead and greenstone pendant were also recovered from her mouth and with evidence of red pigment covering part of her body (Drennan 1976: 248).

Summary of Mortuary Data

These burial data suggest similar symbolic structures in the two regions. First, women and children were as likely as men to have high diversity scores. Second, burials with red pigment and high diversity scores co-occurred in both regions. Finally, the highest diversity scores are attributed to the same individuals that possessed badges of authority (e.g. seated position, mirrors) and this correlation suggests that both the quantity and type of grave inclusion may have been used to express social information. However, all of these data indicate that burials were not used to blatantly express social differentiation. A subtle use of mortuary ritualism seems to be the strategy employed by those who buried the dead in both regions and the only hint at more evident differentiation was the relatively lavish burial #39 from Fabrica San Jose. Therefore, the results of this mortuary analysis are ambiguous in terms of differentiating between internal and external political strategies. However, the Cuadros to Conchas pattern in the Soconusco of no grave inclusions may be indicative of an increased level of elite competition as is discussed in the next paragraph.

It is difficult to interpret the negative evidence of the Cuadros, Jocotal and Conchas burial data but if mortuary ritual moved above ground, then this may have provided new sources of competitive display. Goldman describes Polynesian mortuary ritual where: "...funeral feasts went on for a lunar month, during which time the royal corpse...was presented at each of the different districts..." (1970:529) and "...flourishes of speech, song, and gesture, was carried over into the rites of mourning, which added the specifics of wailing, self-laceration, and ritualized violence" (1970:531). If an above ground burial strategy began during Cuadros times, they would have created considerable differentiation from those burials that have been recovered by archaeologists and were put into the ground with little ceremony. Such an increased level of public and ritualized reverence for the deceased (and by extension his/her surviving faction) would be consistent with a predominantly internally focused political strategy. However, based on current evidence this interpretation is conjectural and awaits further data.

DATA SET 3: ARCHITECTURAL PATTERNS

Theory and Method

Feinman and Neitzel (1984:75) identify the "...most frequently reported means of differentiating leaders is by the size, construction and location of their houses." The use of households as status markers has been explored by archaeologists studying emergent complexity (Blake 1991; Blanton 1995) and such behaviour is born out by ethnographic accounts (Goldman 1970:181; Cordy 1981:73-6). In addition, certain egalitarian societies employ social leveling mechanisms that prevent the domestic expression of social differentiation (Wilk 1983). Therefore, the presence of differential household elaboration appears to correspond with the social ethos of a culture. Rather than assume that an increase in the differentiation between households corresponds to an increase in complexity, households are one of many types of material culture capable of expressing social relations (Wobst 1977). However, unlike burials, as permanent fixtures on the social landscape they continuously reinforce differences between those who live in large elaborate residences and those who do not. Blake (1985:51-2) emphasizes the social significance of residential differentiation:

> the house communicates to the household their own social worth and place within the broader society, and it communicates this same information to other households. As a status symbol the house is a statement of the relationship between the household members *as a group* and other similar groups. (emphasis in original).

The type of quantitative comparisons presented in this paper for settlement and burial evidence are difficult to obtain for architectural data due to the number of detailed excavations that would be required from numerous structures in multiple communities in a given region. This type of data does not yet exist in either region, and so, in this section architectural evidence will be discussed qualitatively. Residences will be compared in terms of their size and form which reflects both the expenditure of labour required in construction and the degree to which certain segments of the population were differentiated from others. Public architecture will also be presented and compared between the two regions so that a complete assessment of architectural evolution can be presented and residential architecture can be assessed relative to non-residential architecture. All relevant architectural data discussed in this section are quantitatively summarized, where possible, in Appendix 7.

Architectural Trajectories

The Soconusco

Limited Barra phase architectural remains have been encountered at the sites of Paso de la Amada and San Carlos and consist of simple clay floors defined by postholes measuring as much as 6x4m (Clark 1994:313-4). They are similar to the only known Archaic architecture which consisted of 11 postholes defining 8x4m of floor space from Tlacuachero (Voorhies et al. 1991:30). The data from both phases are insufficient to evaluate residential differentiation. However, beginning in the following Locona phase, residential differentiation exists in the Soconusco and large elite residences were built on raised platforms along side modest residences at Paso de la Amada, La Calentura and San Carlos (Blake 1991; Clark 1994:304-73; Lesure 1997).

Detailed evidence of differential residence construction has been documented at Paso de la Amada. Six successive floors were built at Mound 6 during the Locona phase, all were between 11x5m and 22x10m and were built on platforms that reached a cumulative height of 2.8m (Blake 1991, Blake et al. 1993, Blake et al. n.d.; c.f. Marcus and Flannery 1996:90-91). The remains of these residences consisted of packed clay floors, with postholes, trash pits and the occasional burial under a floor. During the same period, residences at Paso de la Amada were built on smaller platforms (Mound 4, 13 and 32) and as many as forty other residential mounds were small and had no platforms built at all (Lesure 1997). The best preserved of these non-elite residences had floor space of 5x3m (Lesure 1995:99). Therefore, not only were there two tiers of residences (platform versus non-platform) but the size and elaboration of platforms were variable. Platform residences were constructed at Mounds 4, 13, 32 and 6 but by the end of the Locona phase Mound 6 was the only residential platform that was continuously rebuilt and enlarged (Lesure 1997:232). In addition, a ballcourt was built and augmented at least once during the Locona phase, it was kept clean of artifacts and reached a total size of almost 80m long and 40m wide (Hill 1996).

During the Ocos phase, Mound 6 was: "...the highest mound at the site, and the largest building atop it was probably the locus of most or all of the organizational activities previously replicated in different areas of the site..." (Lesure 1997:232). It was during this phase that Aquiles Serdan may have surpassed Paso de la

Amada in the amount of power controlled in the region (Figure 3b) and the elite at San Carlos may have challenged Paso by competitively enlarging their residence (see next paragraph). The consolidation of authority at the dominant household at Paso during the Ocos phase could have been an attempt to more effectively deal with internal and external challenges. During the Cherla phase, Mound 6 was abandoned while residential platforms were enlarged at Mounds 1 and 12 (Lesure 1997:233). This community reorganization corresponds with the halving of Paso's political power during the Cherla phase (Table 3) and so intra-site competition and/or conflict and the resulting loss of central authority (reflected by the abandonment of Mound 6) may be associated with the loss of power at a regional scale. This correlation suggests that factional competition at the local level may have had direct and adverse repercussions at the regional level.

The only detailed, inter-site architectural data is from a comparison made by Clark (1994:345-9) when he examines the largest households at Paso de la Amada (Mound 6) and San Carlos (Mound 1) during the Locona and Ocos phases. San Carlos is one of the local centers (alluded to previously) that falls outside the $50km^2$ survey zone and so was not discussed in the settlement section. Clark compares a dozen distinct rebuilding episodes of these mounds during the Locona and Ocos phases and concludes that construction at the two elite residences appear to have paralleled each other (Clark 1994:349). In fact, there was such temporal correspondence between the building sequences of these large residences: "...that the occupants of both mounds were fully aware of each others' activities and countered or matched any building activity of the other household" (Clark 1994:349). If the dominant elite faction at Paso de la Amada was competing with their counterparts at San Carlos and at the same time contending with other high status households at home, it is not surprising that the polity fell from regional prominence by the Cherla phase.

During the Cuadros phase, Paso de la Amada was basically abandoned and, as we have seen, virtually no political power was exercised in the $50km^2$ survey zone (Figure 4), obsidian distribution was a fifth of previous levels (Clark et al. 1989:278) and burial patterns changed. The Cuadros and subsequent Jocotal phases are crucial in understanding the cultural evolution of the region but unfortunately they are poorly understood and no recent studies have specifically targeted them for investigation. The site of El Carmen was an important locale during Cuadros times and has a central mound 12m high (Clark et al.

1987:21-3). The site of El Silencio has two large mounds and their Jocotal components are each three to four meters high and 100m long (Clark et al. 1990:106). As previously mentioned, large sites shifted to the Coatan River during the late Early Formative and such locations would have facilitated riverine travel and thus extra-regional interaction.

In his 200km^2 survey zone in the La Blanca-Ocos zone of the Soconusco, Love (1991) reports no architectural differentiation for the entire Early Formative period. The architectural innovation in the Middle Formative is not domestic but the large size of non-domestic architectural constructions such as the huge Mound 1 that would have towered 25m over the site of La Blanca (Love 1991:57). Nearby sites of La Zarca and El Infierno had ceremonial mounds reaching heights of 20m and 18m respectively. These three mounds represent an enormous investment of labour and an increase of several orders of magnitude over the ballcourt or elite residences, in fact, I estimate (based on Abrams 1989:70) that it may have taken twenty people almost 2700 days work (or, for example, 900 people two months) to procure the earth needed to construct Mound 1 at La Blanca (Table 4). No Early Formative remains have been found at La Blanca in primary context and the site was abandoned after the Middle Formative -- as a result, all of the architecture is securely dated to the Conchas period (Love 1989:110). In the Mazatan zone, the Middle Formative site of Huanacastal had a mound approximately 20m in height (Clark et al. 1987:23) which suggests a similarity in architectural evolution across the Soconusco despite the low population level in this zone.

At the paramount center of La Blanca three low mounds near Mound 1 have been tested (Suboperation 25, 26 and 27) and each produced evidence of a domestic use with floors, postholes and trash pits as well as human remains (Love 1989:116-167). Suboperation 25, a mound 3.5m high was the largest Conchas phase residential construction excavated to date with a living surface at least 15x7m and at least one distinct episode of platform augmentation consisting of 40cm of fill (Love 1989:118). This elite platform residence was similar in size and composition to those documented in the Early Formative Mazatan (Appendix 7). Besides the three excavated elite residences, at least 40 (and as many as 80) other households may have existed at the site, most of which had no platform construction and are defined by low mounds less than one meter in height (Love 1989:105). Domestic architecture was thus similar from Locona through Conchas times with a few large

elite residences and many small houses. Therefore, factional status differences were emphasized in the Soconusco through residential differentiation for centuries.

The Valley of Oaxaca

Traces of domestic architecture from pre-Tierras Largas Espiridion phase have been documented in Area C at San Jose Mogote by a living surface and a series of postholes (defining floor space at least 4m long) designated House 20 (Flannery and Marcus 1994:103-6). The earliest well documented architecture from the Tierras Largas phase at San Jose Mogote is a series of at least three successive rebuildings of a rectangular, one-room buildings swept clear of artifacts and interpreted as a shrine. The most complete was the final rebuilding recorded as Structure 6, a 5.4x4.4m one room, whitewashed structure on a platform 8x8m and 40cm high (Flannery and Marcus 1994:128-9). Domestic architectural remains from this phase are scant but household LTL-1 from the Tierras Largas site is 6x4m with numerous postholes and trash pits (Winter 1972:31). The beginning of the Formative is very poorly understood architecturally and the cursory glimpse that does exist suggests domestic and ritual structures are of similar size, the later being white washed and raised on a small platform.

Households at San Jose Mogote during the San Jose phase have been interpreted as forming a continuum in social status from elite to non-elite (Marcus and Flannery 1996:103). For example, House 13 in Area A was a simple dwelling 5x3m in size. House 2 in Area C was the same size but white washed and contained higher frequency of deer bone and exotic artifacts. House 16-17 in Area B was also whitewashed and had one room attached to a lean-to shed containing artifacts similar to House 2 but with higher quantities of jade. Better quality houses are thus defined by being whitewashed and by the artifacts found in them. Therefore, houses would not have been significantly differentiated in their size or structure and the unequal levels of wealth (measured by exotic and high labor investment artifacts) contained within these houses did not correspond to overt architectural symbols of social ranking.

Rectangular whitewashed shrines continued to be built at San Jose Mogote in the early San Jose period (Structure 7 in Area C, a lime-plastered building at least 3x4m in size). Structure 16, a second type of public building, was constructed during this period, a 2.85m wide structure built on 1m platform (Flannery and

Marcus 1994:362-3). In the latter part of the San Jose earth was brought in and covered over Structure 16 (as well as nearby residential structures C1-4). Atop this artificial mound Structures 1 and 2 were built -- each approximately 18m wide and together measuring over 20m long (Flannery and Marcus 1994: 367). Structure 1 was built in three episodes the first raised the structure 1.5m, the second and third each increased the platform 0.5m for a final height of 2.5m. Structure 2 was 9-11m east of this and comprised a 1m mound with two narrow stairways in it as well as two zoomorphic stone carvings.

Another form of public architecture was the Terminal San Jose/early Guadalupe phase mound designated Structure 8 at San Jose Mogote. Structure 8 was built by creating a meter wide pile of stones, built up in at least four episodes to a height of 70cm and "...capped with a thick floor of adobe clay. The area between the retaining walls had been filled with hundreds of basket loads of earth. A few postholes were all that remained of the building that had once stood on the platform" (Flannery and Marcus 1976:212).

In the Tlacolula arm of the Valley of Oaxaca, the site of Tomaltepec had high and low status houses from the beginning of the San Jose phase. High status Structure 11 was 4x8m and raised 1m on a platform and is contrasted with low status House 4 measuring 4.9x2.2m (Whalen 1981:43-5). Both of these houses were associated with domestic refuse and storage pits and in addition to size differences, status was inferred by different frequencies of non-local chert, shell ornaments, mica, obsidian and high deer consumption (Whalen 1981:59-60). It is significant that Structure 11 and House 4 represent the only residential differentiation of size and form (i.e., house twice as large on a 1m meter platform) that has been documented from the Early or Middle Formative in the Valley of Oaxaca and it was not at the heart of political power at San Jose Mogote. A large public building designated Structure 12 was built on top of Structure 11 and augmented this elite residence by two meters. Structure 12 is dated by burials # 47 and 68 which were interred just below the floor and contained Guadalupe ceramics (Whalen 1981:64-7,136,152). The fact that a public building replaced a large elite household elucidates the integrative strategy employed at the community as social differentiation is superseded by a less exclusionary symbol of power (*sensu* Abrams 1989:62).

Based on survey data, the site of Huitzo (located at the north end of the Etla arm) was a mere fraction the size of San Jose Mogote in the Early and Middle Formative and yet architectural evidence suggests this

site was more than a simple agricultural hamlet. Huitzo was estimated as measuring 2.7ha during the Early Formative by Flannery and Marcus (1983:60) but Kowalewski et al. (1989:524-5) only found 0.8ha of this site during their survey. Either way: "At least for the Guadalupe phase, architectural patterns are not exactly congruent with the settlement size hierarchy." (Kowalewski et al. 1989:66). Platform 4 at Huitzo employed a similar construction method as Structure 8 at San Jose Mogote and stood two meters high and fifteen meters wide (Flannery and Marcus 1976:212). Structure 3 was built atop this platform, was 1.3m high and 11.5m wide (Marcus and Flannery 1996:113) and may have been connected to two or three other such public buildings arranged around a courtyard (Flannery and Marcus 1976:213). In addition to the non-domestic architecture at Huitzo, there were three Guadalupe phase houses (#1, 3 and 6) that have been interpreted as high status residences due to their proximity to Structure 3 (Flannery and Marcus 1983: 62). Again as at Tomaltepec and San Jose Mogote, public architecture is more elaborate than households and residential status differences are not defined by the size or form of a house.

Finally, the small, salt producing settlement of Fabrica San Jose had higher and lower status households based on the quantity of exotic goods and an elaborate burial (Drennan and Flannery 1983: 67). Burial #39, the woman with a diversity score of eight, was found next to floor H14 and the high status of this house is inferred by the status of this associated burial and not its impressive size of elaborate form (Drennan 1976:90). If this was a member of the Fabrica San Jose elite, sent from San Jose Mogote (Marcus and Flannery 1996:113-5), her high status was not reflected in the house she lived in.

Summary of Architectural Data

In the Soconusco, changing size of elite residential architecture corresponds closely with the political differences inferred from the settlement data. Beginning in the Locona phase, large elite residences were built, augmented and abandoned depending on the political fortunes their inhabitants and residential platform construction both symbolically and materially reflect the fortunes of powerful factions. During the Middle Formative, architectural building activity was less focused on elite residences and more energy was expended in the construction of public architecture which attained a monumental level. However, both required large labour outputs and follow the same strategy of public symbols attesting to the power of the elite within

regional centers. This sis consistent with an internally focused society as specific elite factions (i.e. households/lineages) are emphasized and differentiated through the conspicuous consumption of resources in a manner that persists over time on the social landscape.

In the Valley of Oaxaca, residential differences were not emphasized and households were similar in size and form; which suggests that social hierarchy was not emphasized by this form of material culture. Social distance was not created by elevating elite houses above those of their neighbours, instead differences in the quantity and quality of exotic goods were contained within elite households almost as if to de-emphasize economic differentiation. Throughout the entire Early and Middle Formative all residences were small and "...even the most elaborate Rosario phase residences so far discovered could have been built by the members of one family" (Flannery and Marcus 1983:60). Such an architectural strategy corresponds with an internally cohesive and externally focused political organization.

Public architecture reinforced this strategy in the Oaxacan Middle Formative, for while more energy was expended on public architecture it was a mere fraction of that expended in the Soconusco (Table 4). Structures 1 and 2 at San Jose Mogote were organized in a unifying manner. For example, the two zoomorphic sculptures on Structure 2 at San Jose Mogote may have represented the were-jaguar and fire serpent lineages who inhabited the site (Marcus 1989). If different social groups were represented at this public structure this would have helped to symbolically unify potentially adversarial factions within the community. In addition, households are interpreted as being elite based solely on contextual evidence and have little to quantitatively distinguish them from non-elite residences. Thus while economic differences exist, the outward expression of social differentiation was minimal. Modest signs of social differentiation would have helped to create the internal cohesion necessary for more effective externally oriented action.

Table 4 shows the different levels of labour investment in architectural activity between the Soconusco and the Valley of Oaxaca. Such differences demonstrate that the consumption of labour is significantly more conspicuous in the former region and would have consumed a much larger proportion of the "chiefly domestic product" (*sensu* Drennan 1991b:283 and Feinman 1995:267). While the figures underestimate the labour involved for masonry in Oaxaca, they do reflect the overall size of architecture in the two regions. One thing

is clear, the non-functional architectural consumption of labour in the Soconusco reflects a political strategy of internal competition that "wasted" quantities of labour unparalleled in the Early or Middle Formative Valley of Oaxaca.

SPATIAL ORGANIZATION OF INTERNAL AND EXTERNAL SYSTEMS

Each of the three classes of data have been examined individually but the distribution of burials and architecture within each settlement system is also suggestive of divergent political strategies. I have posited that the symbols of authority will be placed at the heart of political power in a society organized by an internally focused political strategy and more evenly distributed around a polity that can be characterized as externally focused (Table 1). In the Soconusco, symbols of status differentiation were located at the political center of each polity and this suggests the tenuous hold the elite had on power. In the Valley of Oaxaca, the long term trend of cohesion with public architecture and elaborate burials distributed across the valley at sites of all sizes.

In the Valley of Oaxaca, public architecture was as well represented at small sites as at San Jose Mogote and this may indicate the integration of more peripheral parts of the polity. At Tomaltepec, San Jose phase Structure 11 represents the only obvious Early Formative elite residence in the Valley. The fact that it was covered over by a public monument--Structure 12--during Guadalupe times may have signaled this village coming under the control of the San Jose Mogote polity (Whalen 1981:26). The location of independent, local elite power during the San Jose phase may have been transformed into a public and unifying symbol of power, thus incorporating it into the larger polity that was in the process of emerging in the Middle Formative.

Another example of politically integrative architectural evidence comes from Huitzo, fifteen kilometers from San Jose Mogote at the northern limit of the Valley of Oaxaca. In the Guadalupe phase, Huitzo was a small site with large architecture of a variety similar to that of San Jose Mogote (Flannery and Marcus 1976:212). Based on a study by Plog (1976), Marcus and Flannery (1996:113) suggest that the two sites were rivals due to the fact that incised designs around the rim of Atoyac Yellow-white pottery are more dissimilar relative to the distance between Huitzo and San Jose Mogote as between the latter and Tierras

Largas, Fabrica San Jose or Abasolo. They (Marcus and Flannery 1996:113) also cite the fact that Huitzo ceramics have similar design elements with the Valley of Nochixtlan as evidence that this village was receiving support of their political aspirations from outside the valley. I propose an alternative hypothesis: Huitzo functioned as a port of trade (Chapman 1957) beginning in the Guadalupe phase for a polity based at San Jose Mogote that incorporated the Etla arm, part of the Central Area and at least as far as Tomaltepec in the Tlacolula arm of the valley. Located at the north edge of the Valley of Oaxaca overlooking the Atoyac River, all incoming external trade from the north would have had to pass by Huitzo. Therefore, Huitzo may have had dissimilar ceramics due to the unique function of this outpost as a trading center. In fact, such an occupational difference is one of the factors identified by Plog (1976:258) as a potential problem with using a gravity model to document the degree of political interaction through ceramic design. Atoyac Yellow-white is the Oaxacan variety of a ceramic style found across Mesoamerica and even related to Conchas White-to-buff found in the distant Soconusco (Plog 1976:263). Therefore, if Huitzo was the northern port of entry for the Valley of Oaxaca, and engaged in more intense trade with other regions, it would be expected to have more variability in ceramic design and similarity to trading partners than other settlements in the valley.

If this alternative interpretation is correct, it provides further evidence of the San Jose Mogote polity's outward focus reached beyond the valley limits and incorporated small villages in a coordinated set of specialized functions. The small, yet architecturally impressive, trading center of Huitzo may have presented a unified front to foreign traders entering the valley. We have already seen that the site of Tierras Largas was disproportionately large during the San Jose phase, that this was correlated with the explosion of power that San Jose Mogote experienced at the end of the Early Formative and may be associated with the influx of tribute from the rest of the valley. The subsequent drop in Tierras Largas' size during the Guadalupe phase, coupled with the architectural explosion at Huitzo may have been the result of the San Jose Mogote polity actively expanding its focus beyond the limits of the valley.

At San Jose Mogote, Structures 1 and 2 (with the two zoomorphic sculptures) could have functioned in an integrative manner, publicly and symbolically unifying lineal factions during the late San Jose and Guadalupe phases. The possible lineage affiliations (Marcus 1989), may have symbolically integrated some

of the small communities with San Jose Mogote and could have been underwritten by such economic activities as the structure of obsidian distribution and inter-regional craft specialization. Thus, integrative social and economic networks would have formed the base of a political superstructure.

Burial patterns are also suggestive of this same dispersed pattern of political integration. For example, the highest diversity score attributed to burial #39 occurred at the small, salt producing village of Fabrica San Jose. Possibly reflecting a pattern of hypogamy, this high status woman may provide further evidence of San Jose Mogote's strategy of integrating smaller communities through kinship ties (Marcus and Flannery 1996:113-5). This is another strategic, special purpose site that supplied San Jose Mogote with salt since San Jose times (Drennan 1976:257-9). If this woman originally came from San Jose Mogote or not, she represents the most elaborate burial found to date in either region from the time periods examined and she was not found at a center of political power but at a small village. As discussed in the burial section, the cemetery at Tomaltepec also contained numerous high diversity interments. In contrast, the burials excavated at San Jose Mogote had minimal mortuary diversity relative to the political eminence of the site. Therefore, personalized symbols of social status were as common at the periphery of the Guadalupe polity as at the center.

Archeological work in the Soconusco indicates a different, more internally focused pattern. Large residential house platforms from the Early Formative Soconusco were located at the heart of each polity such as Paso de la Amada, La Calentura and San Carlos. Burials with the highest diversity scores and those with badges of authority are all found at sites that dominated the settlement hierarchy. At a regional level, the very settlement structure of the Soconusco was set up along more competitive, and thus internally focused, lines when compared to the Valley of Oaxaca. The closely packed polities were clustered together and the main limiting factor in their catchment productivity was the proximity of other sites (Appendix 1) whereas in Oaxaca there was ample land and the limiting factor was land quality (Appendix 2). The Early Formative Soconuscan polities could have dispersed across the region but political competition likely kept them in proximity to each other (Clark and Blake 1994). At the apex of its power Paso de la Amada built a ballcourt which, by its very nature, expresses the competitive nature of authority. While this ceremonial architecture required less energy to build than some of the elite residences it is by far the largest public building

constructed in either region during the Early Formative period and is larger than any of the Middle Formative construction from Guadalupe times as well (Appendix 5).

At the end of the Soconuscan Early Formative, communities were built around large mounds at El Carmen and El Silencio on the Coatan River. This may indicate a shift from more isolated inland communities to a more externally focused system from large sites on rivers with public architecture many times larger than elite residences. If the overall size of polities increased during this period, a higher degree of cohesion would have been needed to hold them together. In the Middle Formative, even larger mounds were built at La Blanca and nearby towns, as well as Huanacastal. Yet, despite such a progressive increase in the scale and size of public architecture, the Soconusco system continued to be based on conspicuous displays of the control of labour focused at the heart of political power, and at least implicitly on factional competition. The sites of El Silencio, El Carmen, La Blanca, La Zarca and El Infierno, each with a mound requiring thousands of person/days to construct, faced each other across the Coatan and the Naranjo Rivers. The center of power never lasted long in one place and populations moved across the landscape every few generations.

POLITICAL AND ENVIRONMENTAL LANDSCAPES

One explanation for the different political strategies of the Soconusco and the Valley of Oaxaca may be the contrastive characteristics of their political and environmental landscapes. If we compare the two areas at an inter-regional scale, the Soconusco polities operated in an agriculturally rich yet neighbour poor environment whereas the Valley of Oaxaca was relatively land poor and neighbour rich -- with numerous other political units in nearby valleys. The first Early Formative polities in the Soconusco would have been able to produce a larger agricultural surplus and supported a higher population density with less political organization (Clark and Blake 1994:18-19). In addition, as most animal protein from this time came from species available in nearby swamps (e.g., Blake, Chisholm et al. 1992), all subsistence needs would have been met without moving more than a few kilometers from Early Formative villages. Thus, as with their archaic ancestors (Voorhies et al. 1991), animal protein could have been acquired following a collector strategy and mobility would have been minimal (*sensu* Binford 1980). So, while all subsistence needs could have been met at a very

local level, neighbours outside of the Soconusco would have been far less accessible when compared to Oaxaca. The coastal plain was framed by the Pacific Ocean to the southwest and by the Sierra Madre Mountain range to the northeast. Therefore, the Soconusco was a linear, circumscribed environment which could have acted as a ceiling for political developments that were dependant on intensive interaction with extra-local groups (see Clark and Blake 1994:20). A lack of easily accessible neighbours from other regions might not have been significant at the beginning of the Early Formative when a system of simple chiefdoms could have developed in relative political isolation, competing at an intra-Soconusco level. However, when the scale of regular political interaction did increase at the end of the Early Formative, political patterns established during Barra through Ocos times (1550 to 1100 B.C.E.) would have influenced how the Soconusco interacted in a new world order associated with the "Olmec Horizon". As Drennan points out, historic forces tend to perpetuate cultures along distinctive evolutionary trajectories often established, "...within the first two or three centuries of sedentary agricultural living" (1991b:285).

In the Valley of Oaxaca, early sedentary life would have supported fewer people in proximity to each other within the valley. However, other groups of people in neighbouring valleys were only a short distance away. Inter-regional contact would have been frequent especially as the inhabitants of the Valley of Oaxaca would have been hunting large mammals in the forested mountain ranges that linked one valley to the next in a manner not dissimilar to their forager (as opposed to collector) ancestors (Marcus and Flannery 1996:52). Therefore, extra-valley interaction was likely well developed even before political hierarchy emerged. So, while political complexity may have emerged later in Oaxaca than the Soconusco, it was relatively more dependant on interaction with other groups and less on intensifying production from the local environment.

Such differences in the political and environmental landscapes of the two regions (and historic trajectories) can also explain why aspects of the precocious Olmec culture were differentially incorporated into the two regions (Clark 1997:224-9). In the Soconusco, Olmec "foreignness" may have been more exotic and prestigious and thus adopted in a more dramatic manner, further spurring on the highly competitive political environment. In the Valley of Oaxaca, aspects of "Olmec imagery" were incorporated as one among numerous foreign sources of prestige goods (Marcus 1989; Marcus and Flannery 1996: 119-120, 138).

Hierarchical political organization in the Soconusco appears to have emerged early when compared to Oaxaca. However, no single Soconuscan polity lasted longer than a few generations and the continuous reinvention and rebuilding of political capitals across the region would have taken a economic as well as political toll on Soconuscan society. Such fluctuating political control would also have diminished the legitimacy of any single chiefdom or faction. Unlike the Valley of Oaxaca, where San Jose Mogote was the political center of the valley since time immemorial, Soconuscan political factions in the Early and Middle Formative could have harkened back to past centers of power, of which there were many.

SUMMARY & CONCLUSION

The Early and Middle Formative societies of Oaxaca and the Soconusco are different in their evolutionary trajectories not due to their "level of complexity" but as a result of political systems that employed different integrative strategies. As I have argued, the Oaxacan polity centered at San Jose Mogote may have been more internally cohesive and thus externally focused than were the various Soconuscan polities. The latter exhibited more political factionalism, were more internally focused and as a result directed relatively less energy to extra-regional activity.

Table 5 provides a chronologically ordered summary of the data presented in this paper. In the Soconusco settlement hierarchy emerged earlier, the population was more evenly distributed across the landscape and shifted often as political fortunes waxed and waned and political power cycled through time. In the Soconusco, large houses were built on raised platforms at political centers from Locona times on and these elite residences required hundreds of person/days to construct and may have functioned as the symbolic focus of political competition which accentuated status differences between factions. In contrast, the power of San Jose Mogote was uncontested and the elite did not build large or elaborate residences, in fact, they seemed to de-emphasize economic differentiation and integrate lineage differences. If the lack of elite factionalism was the cause or the result of San Jose Mogote's power is not clear, but either way, the two emerged together and were interrelated. Elite and ceremonial architecture (as well as burials with high diversity scores) were concentrated at the centers of power in the Soconusco whereas they were distributed

across the Valley of Oaxaca at sites of all sizes. In the Valley of Oaxaca, such a distribution at strategic secondary sites may have integrated a cohesive heterogeneous polity. Economic evidence reinforces this pattern as Early Formative Soconuscan polities distributed obsidian within a few kilometers in small political units and such a pattern was dramatically disrupted in Cuadros times when new media of status expression, possibly employing a symbolic Olmec *ligua franca,* was adopted in the region (Clark 1990). In the Valley of Oaxaca, obsidian distribution demonstrates economic ties (possibly mirroring kinship affiliation) that linked San Jose Mogote with distant parts of the valley beginning in the San Jose phase when this site emerged as the dominant center in the valley.

In both regions, evidence of burial hierarchy is ambiguous during the initial emergence of complexity and does not show stratified levels of elaboration despite political and economic evidence of hierarchy. While there are certain individuals in both regions who may have had salient badges of authority, clear social stratification had not emerged (or at least is not archaeologically evident with mortuary remains) until late in the evolutionary sequence. This pattern raises an important evolutionary questions for the emergence of inequality. Why was burial differentiation not emphasized in either Early Formative society when other classes of data indicate hierarchy? This pattern of settlement and architectural hierarchy (political?) preceding burial differentiation (social?) is also reported by Renfrew (1973, 1974) in Neolithic Wessex and by Creamer and Haas (1985) in Central America. This suggests that in the process of emergent inequality personalized status takes longer for a culture to accept than faction-based status. A similar observation was made in reference to Egyptian architecture and Abrams (1989:60) suggests: "...that social inequality was very high relative to social differentiation". Such a cross-cultural evolutionary pattern (documented in at least Europe, Africa, Central and Mesoamerica) is based on archaeological observation and merits further investigation.

Examining evolutionary processes such as the degree of internal/external focus encourages the exploration of alternative hypotheses. The degree to which the Soconusco was internally focused and Oaxaca was externally focused undoubtedly changed over time, however the basic evolutionary trajectories continued into the following centuries. In the Late Formative, the center of power changed again in the Soconusco and Izapa emerged as the new political capital of the region (Lowe et al. 1982). In Oaxaca, the late Formative

center of political power moved to Monte Alban but this capital was apparently founded as a negotiated strategy to provide more internal cohesion in the valley (Blanton et al. 1993:69-72; Marcus and Flannery 1996:139-143) and allowed more effective external campaigns to reach further afield (e.g. Spencer 1982). Such a unifying and organized move of the center of political power may have actually been in response to increasing levels of internal discord evident in the Rosario phase (Marcus and Flannery 1996: 121-9). In fact, the increase in Rosario period factional competition may be responsible for the first truly monumental investment in public architecture in the valley (Flannery and Marcus 1983:75-7).

A comparison of Oaxacan and Soconuscan Early and Middle Formative evolutionary trajectories highlights the fact that a polity's organizational strategy may provide more insight into explaining its operation than an evolutionary classification or a measure of its degree of complexity. As Drennan (1991b: 284) notes: "...there are a number of important ways that chiefdoms differ from each other, aside from being more or less developed." After all, each of the cultures and phases examined in this study would be classified as intermediate by Feinman and Neitzel (1984) and all but the very first would be called chiefdoms by others (e.g. Service 1975).

The interpretive advantage of examining culture in terms of the internal or external focus is that these are evolutionary structuring principles that can be used to compare societies at the "same stage of evolution" or between "different stages of evolution". Evolutionary stage models divide cultures along a vertical axis through time (or at least a sequence) whereas evolutionary process models divide them horizontally in terms of regional trajectories (*sensu* Drennan 1996:27-8). The level of complexity is a quantitative way of comparing different cultures whereas structuring principles such as their internal/external focus incorporates a qualitative aspect to cultural evolution. The evolution of society can thus be approached from different angles, each providing complementary insights. Furthermore, structuring principles of cultural evolution explores the possibility that human society may be organized by strategies that are not limited to particular stages of development, places or times.

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	INTERNAL FOCUS	EXTERNAL FOCUS
Renfrew (1974)/ Drennan (1991b)	Individual-Oriented	Group-Oriented
Blanton et al. (1996)	Network Strategy	Corporate Strategy
Spencer (1982)	Intra-regional	Inter-regional
Expectations:	-independent resource bases	-coordinated interests and objectives
	- "visible" factions	-polity-wide symbols of integration
	-conspicuous consumption of labour	-public works less grand
	-volatile internal political organization	-stable internal political organization
	-centripetal expression of status	-distributed expressions of status

Table 1. Internal and external tendencies of political process, with similar models and some expectations.

Periods	Radiocarbon Years B.C.E.	SOCONUSCO	OAXACA
	650		
Middle Formative	750	Conchas	Guadalupe
	850	Jocotal	
late Early Formative	900	Cuadros	San Jose
	1000	Cherla	
	1100	Ocos	
early Early Formative	1250	Locona	Tierras Largas
	1400	Barra	
	1550		Espiridion

Table 2. Early and Middle Formative ceramic phases in the Soconusco (Blake et al. 1995) and the Valley of Oaxaca (Blanton et al. 1993).

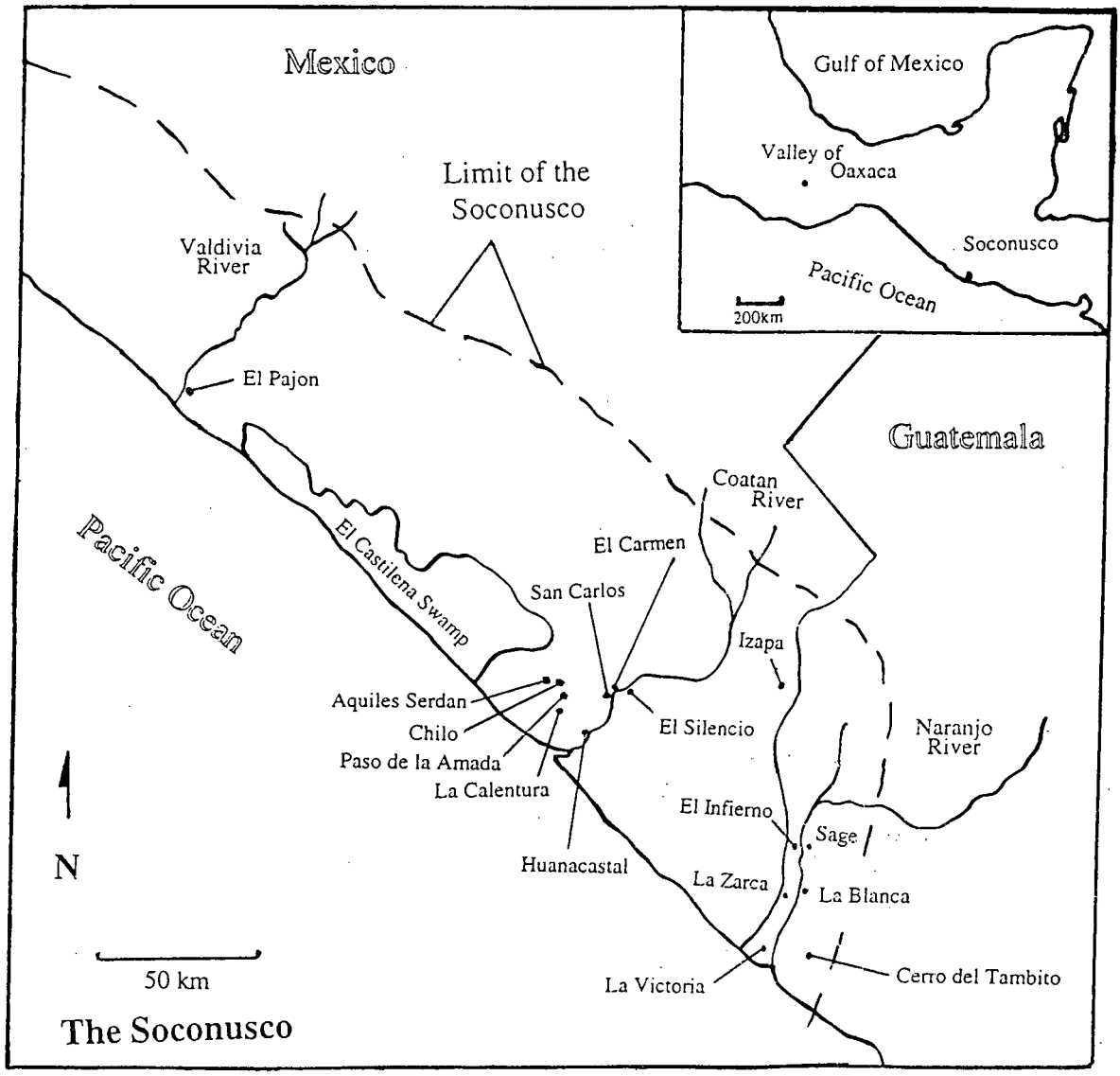


Figure 1. Map of the Soconusco showing sites mentioned in text (after Clark 1994:45).

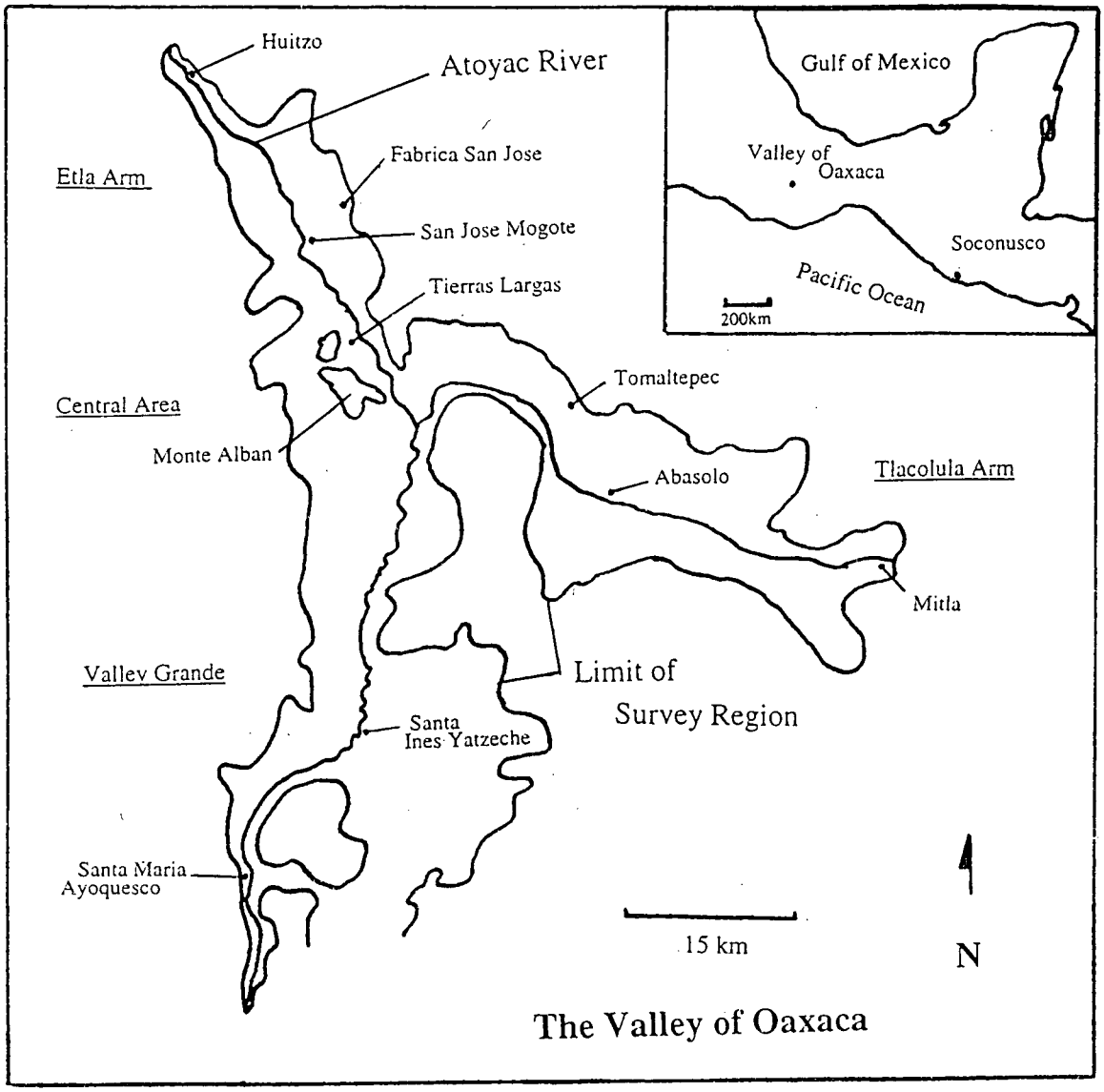


Figure 2. Map of the Valley of Oaxaca survey area showing sites mentioned in text (after Blanton et al. 1993:51).

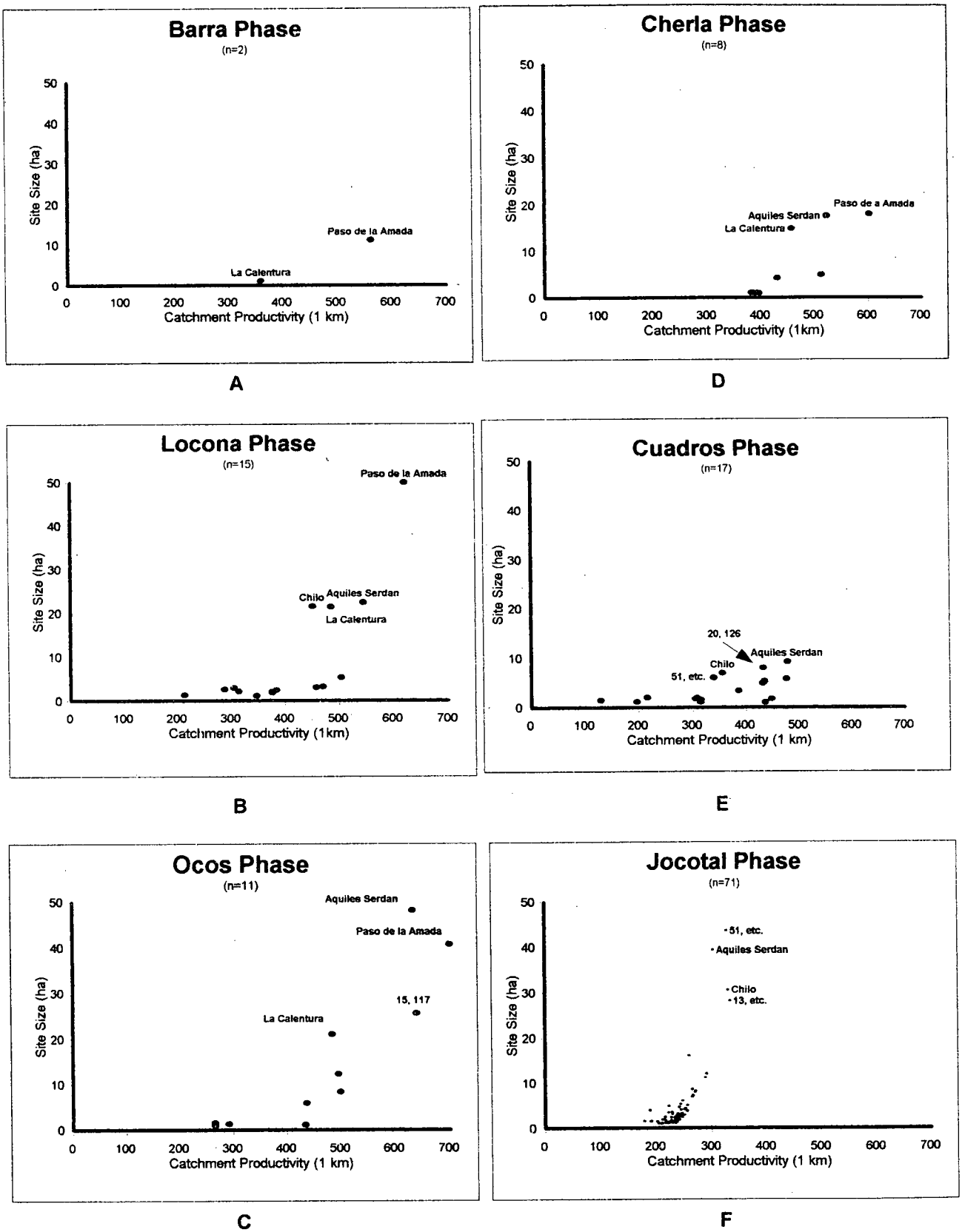
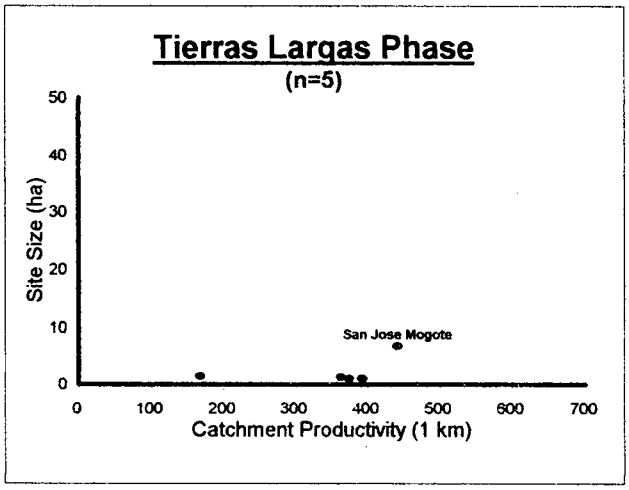
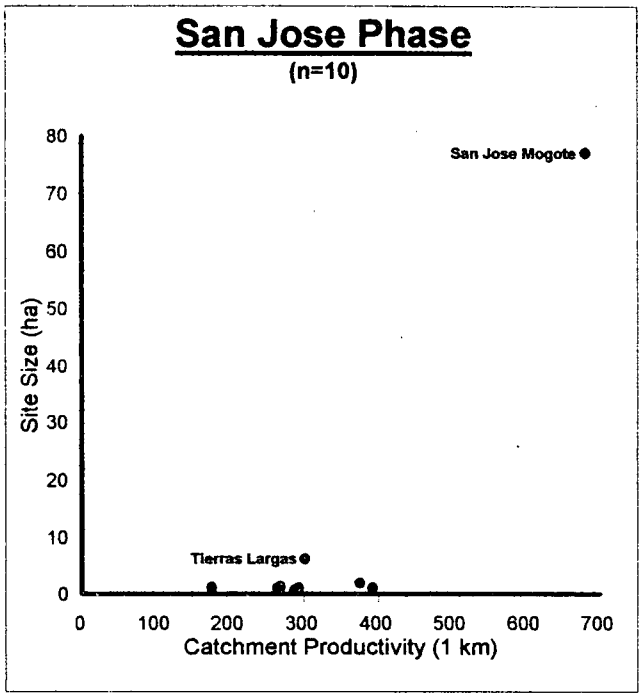


Figure 3. Early Formative settlement patterns from the Mazatan zone of the Soconusco. Sites from the second tier and those referred to in the text are named.

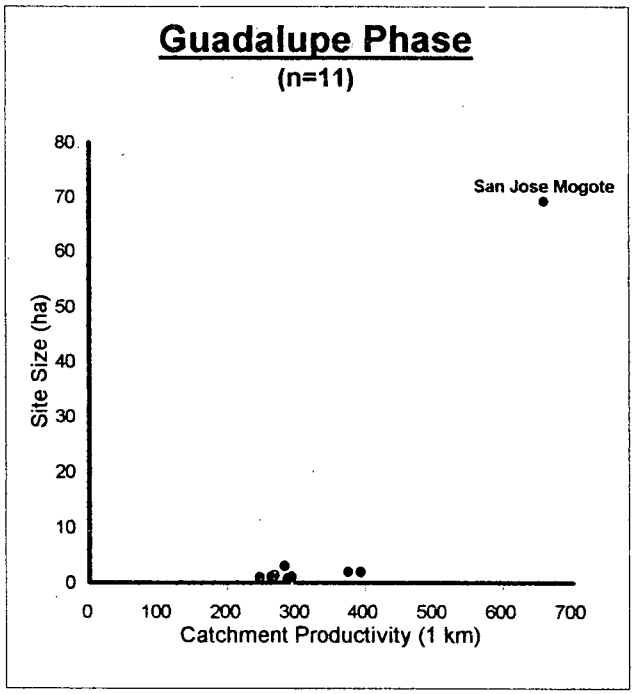
Figure 3. (cont.) Early and Middle Formative settlement patterns from the Valley of Oaxaca.



G



H



I

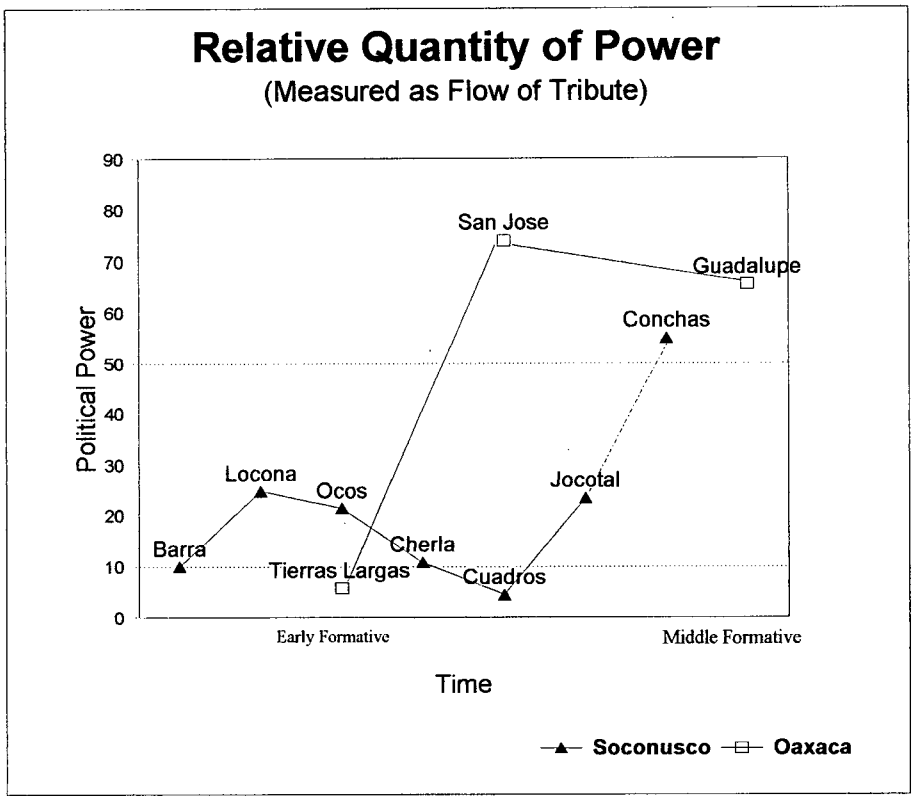
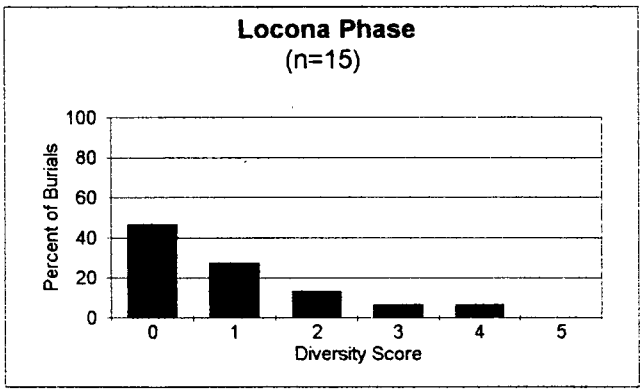


Figure 4. Political power measured as tribute control plotted through time from the Soconusco and Valley of Oaxaca. The Conchas phase tribute level is an estimate of where the site of La Blanca would be if the appropriate data existed and is added for its comparative, heuristic value.

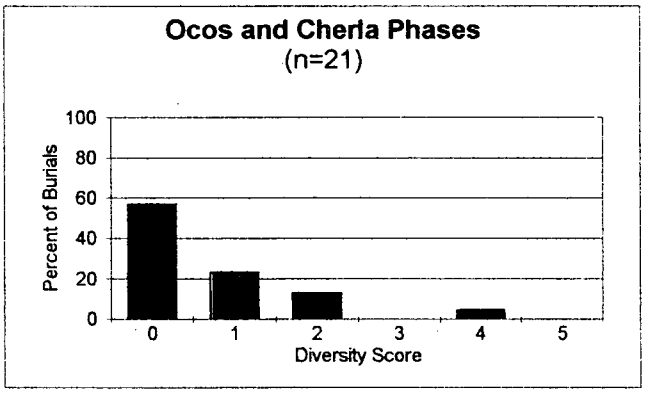
Region and Phase	Average of Centers' Tribute	Largest Centers' Tribute	Slope of Villages	Y-Intercept of Villages' Slopes
Soconusco				
Barra	**10**	10	0	1.3
Locona	**24.82**	45.04	0.0092	-0.7
Ocos	**21.48**	35.14	0.0341	-8.5
Cherla	**10.84**	11.75	0.0333	-11.6
Cuadros	**4.45**	5.45	0.0091	-0.5
Jocotal	**23.42**	31.17	0.0951	-19.1
Valley of Oaxaca				
Tierras Largas	**5.79**	5.79	-0.0018	1.8
San Jose	**74.12**	74.12	0.0029	0.9
Guadalupe	**65.57**	65.57	0.0063	-0.4

Table 3. Quantity of tribute at local centers as well as the slope and Y-intercept of villages by phase in the Soconusco and Valley of Oaxaca.

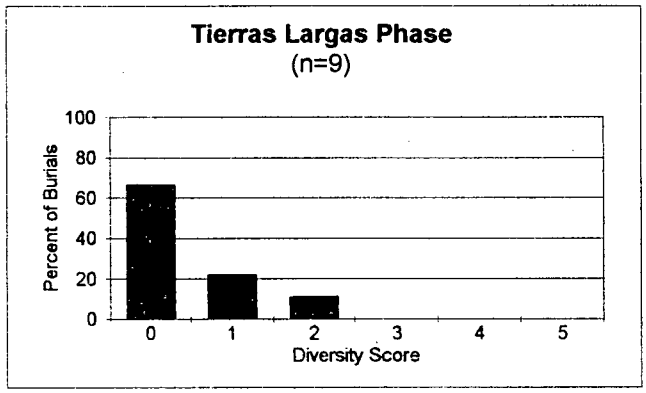


A

Figure 5. Relative percent of diversity scores for Early and Middle Formative burials from the Soconusco (A-D) and the Valley of Oaxaca (E-G).



B



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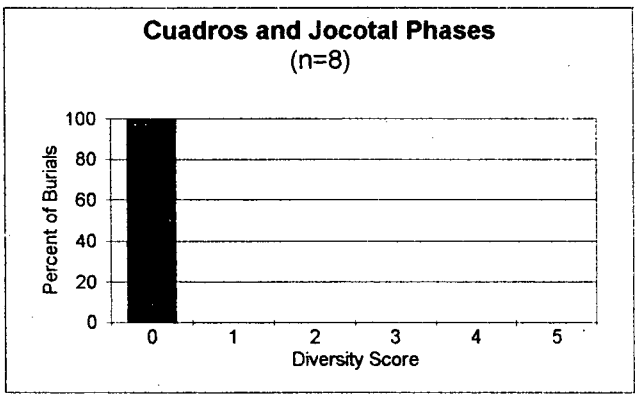

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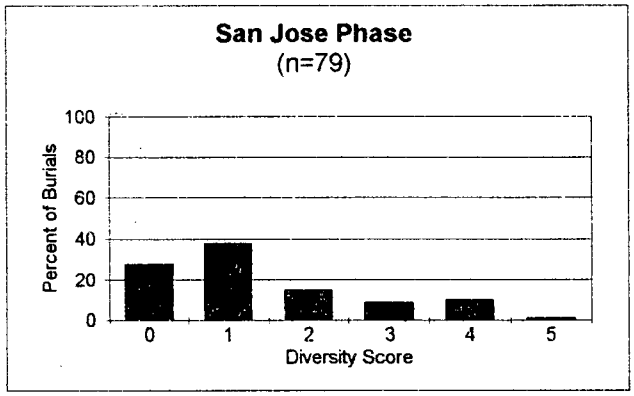
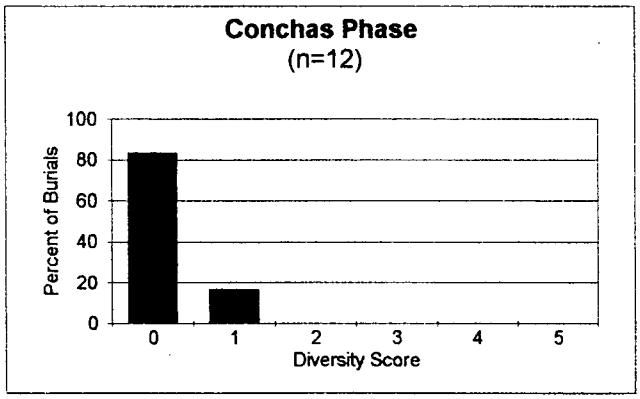
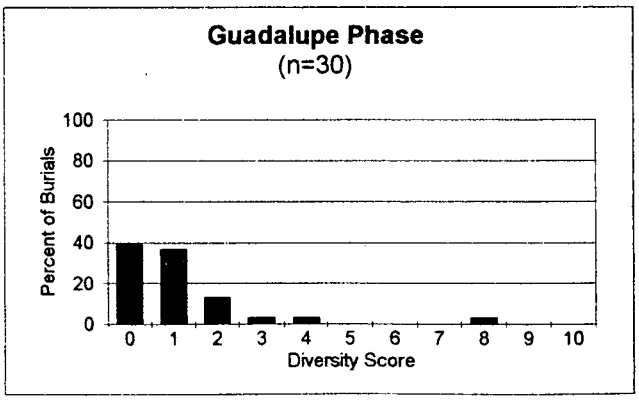


F



D



G

Site	Structure	Phase	Total Volume of Fill	Person/days of Work	Days of Work for 20 People	Weeks of Work for 20 People
Paso de la Amada	Md. 7	Locona	2333	897	44.9	6.4
Paso de la Amada	Md. 6	max. Locona	1167	1147	22.5	3.2
Paso de la Amada	Md. 6	Max. Ocos	2434	2579	46.8	6.7
San Carlos	Md. 1	max. Locona	2983	449	57.4	8.2
San Carlos	Md. 1	max. Ocos	6705	936	129	18.4
La Blanca	Md. 1	Conchas	140 000	53 846	2692.3	384.6
La Zarca		Conchas	10 667	4103	205.2	29.3
El Infierno		Conchas	14 400	5538	276.9	39.6
San Jose Mogote	Str. 6 platform	Tierras Largas	26	10	0.5	0.07
San Jose Mogote	Str. 1	San Jose	450	173	8.65	1.2
San Jose Mogote	Str. 2	San Jose	180	69	3.45	0.5
Tomaltepec	Str. 11	San Jose	32	12	0,6	0.09
Tomaltepec	Str. 12	Guadalupe	120	46	2.3	0.3
Huitzo	Platform 4	Guadalupe	450	173	8.6	1.2
Huitzo	Str. 3	Guadalupe	172	66	3.3	0.5

Table 4. Calculation of person days of labour needed to build various structures in the Soconusc and Valley of Oaxaca based on data from Appendix 5 and Abrams' (1989:70) estimate of 2.6 person days of labour for the procurement of earth for construction fill.

Time Period	Data Class	THE SOCONUSCO	VALLEY OF OAXACA
Middle Formative		Conchas	Guadalupe
	Settlement	Center of power shifts again, 3-tiers and public architecture at top two tiers	2-tiers, large site of San Jose Mogote and all other sites in the valley
	Mortuary	Absence of grave goods continues, appearance of cranial deformation	First hint of stratified diversity scores at Fabrica San Jose
	Domestic Architecture	Differentiation with multiple large platforms and many small residences	Minimal differentiation, Tomaltepec elite residence replaced by public building
	Public Architecture	Monumental, La Blanca 25m high, and 120x140m at base	Multiple forms, modest size, similar building technique across the valley
late Early Formative		Cuadros, Jocotal	San Jose
	Settlement	Center of power shifts to river sites, 3-tier settlement emerges in Jocotal	2-tiers, large site of San Jose Mogote versus all other sites
	Mortuary	Change in pattern, all interments recovered with no grave goods	Continuum of diversity score, appearance of cranial deformation
	Domestic Architecture	Lack of work, presumable the same as before and after	Minimal differentiation, only clear example at Tomaltepec
	Public Architecture	Large, low mounds representing major labour investment	New forms all involve modest labour expenditure
	Obsidian	20% of previous distribution level	Distribution networks integrate San Jose Mogote will other sites
early Early Formative		Barra, Locona, Ocos, Cherla	Espiridion, Tierras Largas
	Settlement	2-tiers clearly emerge in Locona phase	Minimal differentiation compared to later times, San Jose Mogote larger
	Mortuary	Continuous diversity scores up to 5	Minimal, up to diversity score of 2
	Domestic Architecture	Differentiation beginning in Locona phase with multiple large platforms and many small residences	No evidence of differentiation
	Public Architecture	Ballcourt in Locona phase	Small shrine in Tierras Largas phase
	Obsidian	Distribution networks at local scale, used for political competition	

Table 5. Summary of data from the Soconusco and Valley of Oaxaca examined in this paper.

APPENDIX 1. Soconusco Settlement data

Barra Phase	n=2			Land Type Percents			
Site	Site Area	Overlap Adjustment	Catchment Area	Type I	Type II	Type III	Adjusted Catchment
Paso: 7, 160, 250	**11.3**	0	433.1	90	10	0	**561.7**
La Calentura: 77 +35%	**1.3**	0	353.6	50	20	30	**358.9**

Locona Phase	n=15			Land Type Percents			
Site	Site Area	Overlap Adjustment	Catchment Area	Type I	Type II	Type III	Adjusted Catchment
Paso: 7, 13, 51, 160, 165, 169, 250	**50**	85.3	479.2	90	10	0	**621.5**
Chilo: 16-7, 19, 56, 89, 118, 155, 225, 245-6	**21.6**	131	347.7	90	10	0	**450.9**
Aquiles Serdan: 6, 50, 158 +20%	**22.5**	0	482.1	70	10	20	**545.2**
La Calentura: 77 +35%	**21.5**	0	478.3	50	20	30	**485.5**
10, 234	**2.7**	132.8	239.4	60	40	0	**286.8**
47	**2.2**	81	285.6	60	20	20	**313.5**
68, 187	**5.4**	8	388.3	90	10	0	**503.7**
110	**3.1**	32.5	343.9	100	0	0	**457.4**
126	**2.5**	31	339.0	40	60	0	**383.8**
136	**3**	106	269.4	40	60	0	**304.9**
166	**1.4**	173.6	182.3	50	50	0	**212.4**
177	**1.9**	39.5	323.3	50	50	0	**376.7**
181	**2.1**	68.5	296.8	80	20	0	**375.2**
200	**1.2**	85.5	267.3	90	10	0	**346.7**
251-2	**3.3**	16.5	361.9	90	10	0	**469.3**

Ocos Phase	n=11			Land Type Percents			
Site	Site Area	Overlap Adjustment	Catchment Area	Type I	Type II	Type III	Adjusted Catchment
Paso: 7, 13, 51, 160, 169, 250	**40.7**	0	540.02	90	10	0	**700.4**
Chilo: 16-7, 19, 59, 89, 155, 225, 245-6	**12.4**	57	381.76	90	10	0	**495.1**
Aquiles Serdan: 5, 50, 152, 158 +20%	**48.2**	0	559.96	70	10	20	**633.3**
La Calentura: 77 +35%	**21.1**	0	476.74	50	20	30	**483.9**
15, 117	**25.6**	0	493.26	90	10	0	**639.8**
20, 126	**5.9**	15	385.06	40	60	0	**435.9**
23	**1**	92.5	256.93	10	90	0	**265.4**
73	**1.2**	0	352.81	70	30	0	**434.3**
81	**1.3**	96.5	257.90	40	60	0	**291.9**
110	**8.5**	42	375.29	100	0	0	**499.1**
136	**1.6**	124	234.82	40	60	0	**265.8**

Cherla Phase	n=8			Land Type Percents			
Site	Site Area	Overlap Adjustment	Catchment Area	Type I	Type II	Type III	Adjusted Catchment
Paso: 7	**18**	0	464.31	90	10	0	**602.2**
Chilo: 17, 19	**1.1**	56	295.16	90	10	0	**382.8**

Aquiles Serdan: 6, 50, 152, 158 +20%	**17.6**	0	462.63	70	10	20	**523.2**
La Calentura: 77 +35%	**14.9**	0	450.76	50	20	30	**457.5**
15	**5**	8	385.22	100	0	0	**512.3**
20	**4.3**	8	379.47	40	60	0	**429.6**
81	**1**	0	349.43	40	60	0	**395.6**
110	**1**	56	293.43	100	0	0	**390.3**

Cuadros Phase n=17

Site	Site Area	Overlap Adjustment	Catchment Area	Land Type Percents Type I	Type II	Type III	Adjusted Catchment
51, 165, 169, 7	**6.1**	118.5	283.01	60	40	0	**339.0**
Chilo: 17, 19, 22, 59, 155, 245-6	**7**	133.5	274.24	90	10	0	**355.7**
Aquiles Serdan: 6, 50, 151-2, 158 +20%	**9.3**	0	422.05	70	10	20	**477.3**
20, 126	**8**	33	381.21	40	60	0	**431.5**
23	**1.1**	47.5	303.66	10	90	0	**313.7**
47	**5.3**	0	395.57	60	20	20	**434.3**
54	**1.8**	16.5	345.03	90	10	0	**447.5**
69, 187	**3.4**	81.5	297.83	90	10	0	**386.3**
81	**1.5**	243.5	113.89	40	60	0	**128.9**
84	**2.1**	180	185.34	50	50	0	**215.9**
108, 110	**5.8**	42	357.33	100	0	0	**475.2**
117	**1**	13.5	335.93	90	10	0	**435.7**
144	**1.2**	184	168.81	50	50	0	**196.7**
183	**1.8**	120.5	241.03	80	20	0	**304.7**
200	**2**	127	237.11	90	10	0	**307.5**
222	**4.9**	60.3	332.13	90	10	0	**430.8**
253	**1.6**	116.3	242.52	90	10	0	**314.5**

Jocotal Phase n=71

Site	Site Area	Overlap Adjustment	Catchment Area	Land Type Percents Type I	Type II	Type III	Adjusted Catchment
51, 165, 169, 7	**43.6**	50%	273.97	60	40	0	**328.2**
13, 139, 160, 250	**28.2**	50%	251.07	100	0	0	**333.9**
Chilo: 16-7, 22, 59, 89, 118, 155, 225, 245-6	**30.6**	50%	254.99	90	10	0	**330.7**
Aquiles Serdan: 6, 50, 150-2, 158 +20%	**39.4**	50%	268.19	70	10	20	**303.3**
172	**3.2**	50%	188.69	80	10	10	**229.1**
10	**3.6**	50%	190.61	60	40	0	**228.4**
20, 126	**16.2**	50%	228.30	40	60	0	**258.4**
54	**1.8**	50%	180.77	90	10	0	**234.5**
57, 251	**4.4**	50%	194.16	90	10	0	**251.8**
60	**2.5**	50%	185.01	80	20	0	**233.9**
63	**4.7**	50%	195.41	70	30	0	**240.5**
65	**1.2**	50%	176.41	70	30	0	**217.2**
66, 242	**11.3**	50%	216.55	100	0	0	**288.0**
67	**2.4**	50%	184.44	90	10	0	**239.2**
69	**5.1**	50%	197.01	90	10	0	**255.5**
72	**1.5**	50%	178.70	90	10	0	**231.8**
73, 105	**6.1**	50%	200.75	70	30	0	**247.1**
79	**1.3**	50%	177.20	80	20	0	**224.0**

81	**1.5**	50%	178.70	40	60	0	**202.3**
82	**1.6**	50%	179.41	0	100	0	**179.4**
84	**3.5**	50%	190.14	50	50	0	**221.5**
94	**3.3**	50%	189.18	90	10	0	**245.4**
98	**1.3**	50%	177.20	90	10	0	**229.8**
103	**1.7**	50%	180.10	80	20	0	**227.6**
108, 110	**12.1**	50%	218.62	100	0	0	**290.8**
109	**1.4**	50%	177.96	100	0	0	**236.7**
113	**2.6**	50%	185.56	90	10	0	**240.7**
114	**2.5**	50%	185.01	100	0	0	**246.1**
118	**1.6**	50%	179.41	90	10	0	**232.7**
119	**1**	50%	174.72	60	40	0	**209.3**
131	**2.5**	50%	185.01	90	10	0	**240.0**
132	**8.1**	50%	207.42	90	10	0	**269.0**
133	**1.1**	50%	175.58	80	20	0	**221.9**
136	**4.9**	50%	196.21	40	60	0	**222.1**
137	**1.6**	50%	179.41	20	80	0	**191.2**
138	**2.4**	50%	184.44	70	30	0	**227.1**
140	**3**	50%	187.68	100	0	0	**249.6**
144	**1.1**	50%	175.58	50	50	0	**204.6**
157	**1.9**	50%	181.42	100	0	0	**241.3**
164	**1.3**	50%	177.20	80	20	0	**224.0**
176	**4**	50%	192.43	40	30	30	**189.0**
177	**2.5**	50%	185.01	50	50	0	**215.5**
178	**1.5**	50%	178.70	20	80	0	**190.5**
181	**8.7**	50%	209.25	80	20	0	**264.5**
182	**1.6**	50%	179.41	80	20	0	**226.8**
183	**3.2**	50%	188.69	80	20	0	**238.5**
184	**1.7**	50%	180.10	80	20	0	**227.6**
185	**4.1**	50%	192.87	80	20	0	**243.8**
186	**1.5**	50%	178.70	80	20	0	**225.9**
187	**7.3**	50%	204.86	90	10	0	**265.7**
194	**1.9**	50%	181.42	50	50	0	**211.4**
196	**5.3**	50%	197.78	70	30	0	**243.5**
197	**1.4**	50%	177.96	70	30	0	**219.1**
200	**4.2**	50%	193.30	90	10	0	**250.7**
211	**1.8**	50%	180.77	60	40	0	**216.6**
217	**2.9**	50%	187.17	80	20	0	**236.6**
221	**3.9**	50%	191.98	100	0	0	**255.3**
222	**7**	50%	203.87	90	10	0	**264.4**
224	**1.2**	50%	176.41	90	10	0	**228.8**
227	**2.3**	50%	183.87	80	20	0	**232.4**
228	**1.1**	50%	175.58	80	20	0	**221.9**
229	**2**	50%	182.05	90	10	0	**236.1**
230	**1.1**	50%	175.58	60	40	0	**210.3**
239	**4.3**	50%	193.73	90	10	0	**251.3**
241	**1.2**	50%	176.41	100	0	0	**234.6**
243	**1.2**	50%	176.41	100	0	0	**234.6**
252	**8.3**	50%	208.04	90	10	0	**269.8**
253	**3.1**	50%	188.19	90	10	0	**244.1**

Note: The catchment areas of La Calentura and Aquiles Serdan extend beyond the survey limits and so, both site areas were adjusted (35% for the former and 20% for the latter) accordingly.

APPENDIX 2. Oaxaca Settlement Data

Tierras Largas Phase			n=5	Land Type Percents			
Site	Site Area	Overlap Adjustment	Cachment Area	Type I	Type II	Type III	Adjusted Catchment
1-1-4	**1**	0	352	80	0	20	**374.9**
1-1-5-13	**6.8**	0	408.2	70	0	30	**441.3**
2-1-2	**1.5**	0	375.5	0	50	50	**168**
3-1-1	**1.1**	0	351.9	50	10	40	**392.5**
3-1-6	**1.3**	0	351.7	40	40	20	**363**

San Jose Phase	n=10			Land Type Percents			
Site	Site Area	Overlap Adjustment	Cachment Area	Type I	Type II	Type III	Adjusted Catchment
1-2-1	**0.8**	0	345.2	40	0	60	**287.3**
1-2-2	**1.1**	0	351.9	40	0	60	**292.9**
1-2-3	**1.4**	0	357.6	30	0	70	**267.9**
1-2-11	**1.1**	0	351.9	30	0	70	**263.6**
1-2-12-14	**77**	0	630	70	0	30	**681**
1-2-17	**1**	0	352	40	0	60	**292.9**
2-2-4	**6.3**	0	401.7	0	50	50	**301.3**
3-2-1	**1.1**	0	351.9	50	10	40	**392.4**
3-2-7	**2**	0	364	40	40	20	**375.6**
5-2-2	**1.2**	0	351.8	0	0	100	**175.9**

Guadalupe Phase	n=11			Land Type Percents			
Site	Site Area	Overlap Adjustment	Cachment Area	Type I	Type II	Type III	Adjusted Catchment
1-3-1	**0.8**	0	345.2	40	0	60	**287.3**
1-3-2	**1.1**	0	351.9	40	0	60	**292.9**
1-3-3	**1.4**	0	357.6	30	0	70	**267.9**
1-3-12	**1.1**	0	351.9	30	0	70	**263.6**
1-3-13-17	**69.3**	0	609.7	70	0	30	**659.1**
1-3-21	**2**	0	364	40	50	10	**392.2**
1-3-22	**1**	0	352	40	0	60	**292.9**
2-3-2	**1**	0	352	0	40	60	**246.4**
2-3-5	**1**	0	352	0	50	50	**264**
2-3-6	**3**	0	377	0	50	50	**282.8**
3-3-8	**2**	0	364	40	40	20	**375.6**

Appendix 3. Soconusco Burial Data

Site	Burial #	Phase	Diversity	Sex	Age	Reference
Paso de la Amada	1	Locona	0	m	a	Clark1994:402
Paso de la Amada	4	Locona	1	f	a	Clark 1994:402
Paso de la Amada	Md.6 #3	Locona	1	?	I	Clark 1994:402
Chilo	1	Locona	1	f	a	Clark1994:402
Chilo	2	Locona	4	m	a	Clark1994:402
Chilo	3	Locona	0	m	a	Clark 1994:403
Chilo	4	Locona	0	?	a	Clark 1994:403
Chilo	5	Locona	2	?	a	Clark1994:403
Chilo	6	Locona	0	?	c	Clark 1994: 403
Vivero	1	Locona	3	f	c	Clark 1994:403
Paso de la Amada	5	Locona	2	?	a	Clark et al. 1994:71
Paso de la Amada	6	Locona	1	?	a	Clark et al. 1994:72
Paso de la Amada	7	Locona	0	?	a	Clark et al.1994:73
Paso de la Amada	9	Locona	0	?	c	Clark et al. 1994:75
Paso de la Amada	Pz. G #1	Locona	0	f	a	excavated in 1995
Aquiles Serdan	Pit 3, l.3	Ocos	0	?	a	Clark et al.1987
Paso de la Amada	Md.6#1	Ocos	2	f	a	Blake et al. 1993:13
Paso de la Amada	Md.6#2	Ocos	0	?	I	Blake et al. 1993:14
Paso de la Amada	3	Ocos	0	?	?	Ceja 1985: 26
Paso de la Amada	11a	Ocos	0	?	a	Lesure 1995:103
Paso de la Amada	11b	Ocos	0	?	a	Lesure 1995:103
Paso de la Amada	12	Ocos	0	?	I	Lesure 1995:103
Paso de la Amada	Pz.B #3	Ocos	0	f	?	excavated in 1995
Paso de la Amada	Pz.C #1	Ocos	1	m	a	excavated in 1995
Paso de la Amada	Pz.A #1	Ocos/Cherla	1	m	a	excavated in 1995
Paso de la Amada	Pz. O #1	Ocos/Cherla	0	?	?	excavated in 1995
Paso de la Amada	Pz.R #1	Ocos/Cherla	0	?	?	excavated in 1995
Paso de la Amada	Pz.T #1	Ocos/Cherla	0	?	?	excavated in 1995
Paso de la Amada	Pz.X #1	Ocos/Cherla	0	m	a	excavated in 1995
Paso de la Amada	Pz.B #1	Cherla	4	f	a	excavated in 1995
Paso de la Amada	Pz.B #2	Cherla	2	?	?	excavated in 1995
Paso de la Amada	Pz.C #2	Cherla	2	f	a	excavated in 1995
Paso de la Amada	Pz.C#3	Cherla	0	?	I	excavated in 1995
Paso de la Amada	Pz.D #1	Cherla	1	m	a	excavated in 1995
Aquiles Serdan	Tr.1K, l. 18	Cherla	1	f	a	Blake et al.1992:87
Paso de la Amada	8	Cherla	1	?	a	Clark et al. 1994:74
Sandoval	1	early Formative	0	?	I	Clark et al. 1987:61
Paso de la Amada	2	early Formative	0	?	?	Ceja 1985: 26, 29
Villo	1	Cuadros	0	?	?	Clark et al. 1987:54
Salinas la Blanca	;ut 1,level22	Cuadros	0	?	I	Coe and Flannery 1967:74
Salinas la Blanca	;ut1,level24	Cuadros	0	?	a	Coe and Flannery 1967:74
Aquiles Serdan	pit1a l. 5	Cuadros	0	?	?	Blake et al.1992:87
El Veral	4	Cuadros/Jocotal	0	?	c	Clark et al. 1994:78
El Veral	1	Jocotal	0	?	a	Clark et al. 1994:76
El Veral	2	Jocotal	?	?	?	Clark et al. 1994:77
El Veral	3	Jocotal	0	?	a	Clark et al. 1994:77
Huanacastal	1	Conchas	1	m	a	Clark et al. 1987:23-4
Pajon	1	Conchas	1	m	c	Pailles 1980:24,92-106
La Victoria	1	Conchas	0	?	a	Coe 1961:25,145
La Victoria	2	Conchas	0	?	a	Coe 1961:25,145
La Victoria	3	Conchas	0	f	a	Coe 1961:25-26,145

La Victoria	5	Conchas	0	?	a	Coe 1961:146
La Victoria	6	Conchas	0	m	a	Coe 1961:146
Naranjo	op.26	Conchas	0	?	?	Love 1989
Naranjo	op.26	Conchas	0	?	?	Love 1989
Naranjo	op.26	Conchas	0	?	?	Love 1989
Naranjo	op.27	Conchas	0	?	?	Love 1989
Naranjo	op.27	Conchas	0	?	?	Love 1989

Locona **n=15**

Diversity Score	Number	Percent
0	7	46.7
1	4	26.7
2	2	13.3
3	1	6.7
4	1	6.7
5	0	0
	15	100.1

Ocos/Cherla **n=21**

Diversity Score	Number	Percent
0	12	57.1
1	5	23.8
2	3	13.3
3	0	0
4	1	4.8
5	0	0
	21	99

Cuadros/Jocotal **n=8**

Diversity Score	Number	Percent
0	8	100
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
	8	100

Conchas **n=12**

Diversity Score	Number	Percent
0	10	83.3
1	2	16.7
2	0	0
3	0	0
4	0	0
5	0	0
	12	100

Appendix 4. Oaxaca Burial Data

Site	Burial #	Phase	Diversity Score	Sex	Age	Reference
Tierras Largas	TL-34	TL	0	m	a	Winter 1972:325
San Jose Mogote	SMJ-8	TL	0	f?	c	Winter 1972:322
Tierras Largas	TL-38	TL	0	f	a	Winter 1972:326
Tierras Largas	TL-35	TL	0	f	a	Winter 1972:326
Tierras Largas	TL-19	TL	2	f	a	Winter 1972:325
Tierras Largas	TL-13	TL	0	f	a	Winter 1972:325
Tierras Largas	TL-29	TL	0	m	a	Winter 1972:325
Tierras Largas	TL-37	TL	1	f	a	Winter 1972:325
San Jose Mogote	29	TL	1	m	a	Marcus+Flannery 1996:85
Tomaltepec	58	SJ	?	m	a	Whalen 1981:149
Tomaltepec	57	SJ	1	f	a	Whalen 1981:149
Tomaltepec	44-4	SJ	?	m	a	Whalen 1981:149
Tomaltepec	45	SJ	3	m?	a	Whalen 1981:149
Tomaltepec	49	SJ	1	m	a	Whalen 1981:149
Tomaltepec	52	SJ	0	?	a	Whalen 1981:149
Tomaltepec	51	SJ	1	m?	a	Whalen 1981:149
Tomaltepec	50	SJ	0	?	a	Whalen 1981:149
Tomaltepec	55	SJ	1	?	c	Whalen 1981:149
Tomaltepec	54	SJ	1	f?	a	Whalen 1981:149
Tomaltepec	53	SJ	1	?	c	Whalen 1981:149
Tomaltepec	44-3	SJ	0	f	a	Whalen 1981:149
Tomaltepec	33	SJ	0	f	a	Whalen 1981:148
Tomaltepec	32	SJ	?	?	c	Whalen 1981:148
Tomaltepec	35	SJ	3	f	a	Whalen 1981:148
Tomaltepec	34	SJ	0	m	a	Whalen 1981:148
Tomaltepec	31	SJ	?	f	a	Whalen 1981:148
Tomaltepec	24-2	SJ	2	m	a	Whalen 1981:147
Tomaltepec	24-1	SJ	2	f	a	Whalen 1981:147
Tomaltepec	30	SJ	?	f?	a	Whalen 1981:148
Tomaltepec	29	SJ	?	m?	a	Whalen 1981:147
Tomaltepec	43	SJ	1	?	c	Whalen 1981:149
Tomaltepec	42	SJ	4	f?	a	Whalen 1981:148
Tomaltepec	44-2	SJ	0	m	a	Whalen 1981:149
Tomaltepec	44-1	SJ	?	m	a	Whalen 1981:149
Tomaltepec	41	SJ	1	f	a	Whalen 1981:148
Tomaltepec	38	SJ	1	?	a	Whalen 1981:148
Tomaltepec	37	SJ	2	?	c	Whalen 1981:148
Tomaltepec	40	SJ	2	m	a	Whalen 1981:148
Tomaltepec	39	SJ	2	m?	a	Whalen 1981:148
Tomaltepec	60	SJ	1	f	a	Whalen 1981:149
Tomaltepec	80-1	SJ	4	f	a	Whalen 1981:151
Tomaltepec	82	SJ	1	?	a	Whalen 1981:151
Tomaltepec	84	SJ	1	f?	a	Whalen 1981:151
Tomaltepec	79-5	SJ	1	?	a	Whalen 1981:151
Tomaltepec	79-1	SJ	4	m	a	Whalen 1981:150
Tomaltepec	79-3	SJ	?	?	c	Whalen 1981:151
Tomaltepec	79-4	SJ	1	m?	a	Whalen 1981:151
Tomaltepec	85	SJ	2	?	c	Whalen 1981:151
Tomaltepec	90	SJ	1	?	a	Whalen 1981:151
Tomaltepec	91	SJ	1	?	a	Whalen 1981:152
Tomaltepec	92	SJ	?	?	a	Whalen 1981:152

Tomaltepec	89	SJ	1	?	a	Whalen 1981:151
Tomaltepec	86	SJ	1	?	a	Whalen 1981:151
Tomaltepec	87	SJ	1	?	a	Whalen 1981:151
Tomaltepec	88	SJ	0	m	a	Whalen 1981:151
Tomaltepec	65	SJ	0	f?	a	Whalen 1981:150
Tomaltepec	66	SJ	?	?	a	Whalen 1981:150
Tomaltepec	67	SJ	?	?	a	Whalen 1981:150
Tomaltepec	64	SJ	1	f	a	Whalen 1981:150
Tomaltepec	61	SJ	0	f	a	Whalen 1981:150
Tomaltepec	62	SJ	0	m	a	Whalen 1981:150
Tomaltepec	63	SJ	1	?	a	Whalen 1981:150
Tomaltepec	69	SJ	1	?	a	Whalen 1981:150
Tomaltepec	76	SJ	3	m	a	Whalen 1981:150
Tomaltepec	77	SJ	0	?	i	Whalen 1981:150
Tomaltepec	78	SJ	0	f?	a	Whalen 1981:150
Tomaltepec	75	SJ	0	m?	a	Whalen 1981:150
Tomaltepec	70-1	SJ	?	f	a	Whalen 1981:150
Tomaltepec	70-2	SJ	?	?	c	Whalen 1981:150
Tomaltepec	74	SJ	1	f	a	Whalen 1981:150
Tomaltepec	21	SJ	2	f	a	Whalen 1981:147
San Jose Mogote	SJM-4	SJ	0	?	c	Winter 1972:323
San Jose Mogote	SJM-5	SJ	1	m	a	Winter 1972:323
San Jose Mogote	SJM-7	SJ	1	m	a	Winter 1972:324
San Jose Mogote	SJM-6	SJ	3	?	c	Winter 1972:323
San Jose Mogote	SJM-11	SJ	3	?	i	Winter 1972:323
Abasolo	A-3	SJ	0	m	a	Winter 1972:321
Abasolo	A-2	SJ	2	?	i	Winter 1972:321
San Jose Mogote	SJM-10	SJ	4	?	i	Winter 1972:323
Abasolo	A-4	SJ	2	?	i	Winter 1972:321
San Jose Mogote	SJM-9	SJ	1	?	i	Winter 1972:324
Tierras Largas	TL-42	SJ	0	m	a	Winter 1972:326
Tierras Largas	TL-20	SJ	2	m	a	Winter 1972:326
San Jose Mogote	SJM-2	SJ	0	?	c	Winter 1972:324
Tierras Largas	TL-4	SJ	2	f	a	Winter 1972:326
Tierras Largas	TL-11	SJ	2	m	a	Winter 1972:327
San Jose Mogote	SJM-tomb3	SJ	4	m	a	Winter 1972:324
San Jose Mogote	SJM-12	SJ	1	?	i	Winter 1972:324
Tierras Largas	TL-40	SJ	0	f?	a	Winter 1972:327
San Jose Mogote	SJM-11	SJ	0	f	c	Winter 1972:324
Tomaltepec	12	SJ	?	m?	a	Whalen 1981:147
Tomaltepec	16	SJ	?	m?	a	Whalen 1981:147
Tomaltepec	17	SJ	?	f?	a	Whalen 1981:147
Tomaltepec	11-1	SJ	5	m	a	Whalen 1981:147
Tomaltepec	9	SJ	0	f	a	Whalen 1981:147
Tomaltepec	8	SJ	0	m	a	Whalen 1981:147
Tomaltepec	6	SJ	0	m	a	Whalen 1981:147
San Jose Mogote	17	SJ	4	f	a	Maucus+Flannery 1996:98
San Jose Mogote	18	SJ	4	f	a	Maucus+Flannery 1996:104
San Jose Mogote	1	SJ	1	f	c	Maucus+Flannery 1996:106
Abasolo	A-1	SJ	3	?	i	Winter 1972:320
Tomaltepec	20-1	SJ	4	m	a	Whalen 1981:147
Tomaltepec	18	SJ	1	f	a	Whalen 1981:147
Tomaltepec	47	G	2	f	c	Whalen 1981:152
Huitzo	H-2	G	0	f	a	Winter 1972:322
Huitzo	H-1	G	0	m	a	Winter 1972:322

Tomaltepec	68	G	4	f	a	Whalen 1981:152
Tomaltepec	59	G	2	f	a	Whalen 1981:152
Tomaltepec	56	G	2	m	a	Whalen 1981:152
Fabrica San Jose	20I	G	1	?	c	Drennan 1976:247
Fabrica San Jose	20II	G	1	?	c	Drennan 1976:247
Fabrica San Jose	22I	G	3	?	c	Drennan 1976:248
Fabrica San Jose	6	G	0	?	a	Drennan 1976:247
Fabrica San Jose	8	G	1	?	a	Drennan 1976:247
Fabrica San Jose	9	G	0	?	i	Drennan 1976:247
Fabrica San Jose	28	G	?	?	a	Drennan 1976:248
Fabrica San Jose	39	G	8	f	a	Drennan 1976:248
Fabrica San Jose	42	G	0	m	a	Drennan 1976:248
Fabrica San Jose	22II	G	1	?	c	Drennan 1976:248
Fabrica San Jose	24	G	2	?	c	Drennan 1976:248
Fabrica San Jose	25	G	1	f	a	Drennan 1976:248
Fabrica San Jose	3II	G	1	m	a	Drennan 1976:247
Tierras Largas	TL-24	G	1	f	a	Winter 1972:327
Tierras Largas	TL-36I	G	0	m	a	Winter 1972:328
Tierras Largas	TL-36II	G	0	f	a	Winter 1972:328
Tierras Largas	TL-18I	G	1	f	a	Winter 1972:327
Tierras Largas	TL-18II	G	0	m	a	Winter 1972:327
Tierras Largas	TL-22	G	0	f?	a	Winter 1972:327
Tierras Largas	TI-46III	G	1	?	i	Winter 1972:328
Fabrica San Jose	1	G	0	f?	a	Drennan 1976:247
Fabrica San Jose	3I	G	0	m	a	Drennan 1976:247
Tierras Largas	TL-36III	G	0	?	c	Winter 1972:328
Tierras Largas	TL-46I	G	1	m	a	Winter 1972:328
Tierras Largas	TL-46II	G	1	f	a	Winter 1972:328

Tierras Largas **n=9**

Diversity Score	Number	Percent
0	6	66.7
1	2	22.2
2	1	11.1
3	0	0
4	0	0
5	0	0
	9	100

San Jose **n=79**

Diversity Score	Number	Percent
0	22	27.8
1	29	37.7
2	12	15.2
3	7	8.9
4	8	10.1
5	1	1.3
	79	101

Guadalupe **n=30**

Diversity Score	Number	Percent
0	12	40
1	11	36.7
2	4	13.3
3	1	3.3
4	1	3.3
5	0	0
6	0	0
7	0	0
8	0	3.3
9	1	0
10	0	0
	30	99.9

Appendix 5. Summary of Formative Architectural Data Discussed in the Text.

Site	Mound or Area	Structure Number	Phase	Dimensions (m)	Floor Area (m2)	Thickness of Fill per construction (m)	Total Cumulative Height (m)	Total Volume (m3)	Type of Structure	Reference
SOCONUSCO										
Tlacuachero			Chantuto	8x4	32					Voorhies et al. 1991: fig.8
San Carlos	TP12/14		Barra	>4x3	>12				res.	Clark 1994: 314
Paso de la Amada	Md. 5		Barra	6x4	24				res.	Clark 1994: 313
Paso de la Amada	Md. 1	Str. 3	Locona	3x(5)	15				non-elite	Lesure 1995: 99
Paso de la Amada	Md. 6	Str. 6	Locona	18x10	180	0	0		elite	Blake et al. 1993: 8
Paso de la Amada	Md. 6	Str. 5	Locona	19.5x10	195	0.2	0.2		elite	Blake et al. 1993: 5
Paso de la Amada	Md. 6	Str. 4	Locona	22x10	220	0.7	0.9		elite	Blake et al. n.d.: 5
Paso de la Amada	Md. 6	Str. 3a	Locona	12.6x6.3	79	0	2.4		elite	Blake 1991: 36
Paso de la Amada	Md. 6	Str. 3b	Locona	14.1x6.8	96	0	2.4		elite	Blake 1991: 36
Paso de la Amada	Md. 6	Str. 3c	Locona	14.1x7.8	110	1.5	2.4		elite	Blake 1991: 36
Paso de la Amada	Md. 6	Str. 2	Locona	17.5x9	158	0.15	2.55		elite	Blake 1991: 34
Paso de la Amada	Md. 6	Str. 1	Locona	>11x5	>55	0.25	2.8		elite	Blake 1991: 34
Paso de la Amada	Md. 7		Locona	78x5.5, 74x4.5		1.45		2333	non-res.	Hill 1996:2-3
Paso de la Amada	Md. 32		Locona	<16x16	<256	0.7	0.9		elite	Clark 1994: 336
La Calentura			Locona			1			elite	Clark 1994: 343
San Carlos	Md. 1		max Locona	20x10	200	4.2		2983**	elite	Clark 1994: 336,346
San Carlos	Md. 1		max Ocos	20x10	200	1.8	6	6705**	elite	Clark 1994: 336,346
Paso de la Amada	Md. 6		max Locona			2.8		1167**	elite	Clark 1994: 346
Paso de la Amada	Md. 6		max Ocos			1.5	4.3	2434**	elite	Clark 1994: 346
Paso de la Amada	Md. 12	Str. 1	Cherla	21x(20)**		1	1.3		elite	Lesure 1997: 223
Paso de la Amada	Md. 1	Str. 1	Cherla	20x19**		1	1.4		elite	Lesure 1997: 223
Huanacastal			Conchas				20		non-res.	Clake et al. 19987:23-5
La Blanca	Md. 1		Conchas	140x120			25	140 000*	non-res.	Love 1991: 57
La Blanca	Subop 25	Feature 5	Conchas	>15x7	>105		1.5		elite	Love 1989: 117-123
La Zarca			Conchas	40x40			20	10 667*	non-res.	Love 1991: 57
El Infierno			Conchas	60x40			18	14 400*	non-res.	Love 1991: 59

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San Jose Mogote	Area C	House 20	Espiridion	>4x?					non-elite	Flannery+Marcus 1994:fig.9.3
San Jose Mogote	Area C	Str. 6	Tierras L.	5.4x4.4	24				non-res.	Flannery+Marcus 1994:128-9
"	"	Str. 6 platform		8x8	64	0.4		26	non-res.	Flannery+Marcus 1994:128-9
Tierras Largas	Area B	Hs. LTL-1	Tierras L.	6x4	24				non-elite	Wnter 1972:31, dig. 2.8
San Jose Mogote	Area A	House 13	San Jose	5x3	15				non-elite	Flannery+Marcus 1983:55
San Jose Mogote	Area A	Str. 16	San Jose	2.85x?		1			non-res.	Flannery+Marcus 1994:362-3
San Jose Mogote	Area A	Str. 2	San Jose	18x(10)	(180)	1		(180)	non-res.	Flannery+Marcus 1994:367
San Jose Mogote	Area A	Str. 1	San Jose	18x(10)	(180)	2.5		(450)	non-res.	Flannery+Marcus 1994:367
San Jose Mogote	Area B	Str. 16/17	San Jose						elite	Flannery+Marcus 1994:333
San Jose Mogote	Area C	House 4	San Jose	5.8x4	23				non-elite	Flannery+Marcus 1994:fig.14.9
San Jose Mogote	Area C	Str. 7	San Jose	>4x3	>12				non-res.	Flannery+Marcus 1994:fig.18.1
San Jose Mogote	Area C	House 2	San Jose	5x3	15				elite	Flannery+Marcus 1983:55
Tierras Largas	Area A	House 1	San Jose	7x3.5	25				non-elite	Flannery+Marcus 1976:44
Abasolo	Op A	House 1	San Jose	>3.5x?					res.	Flannery+Marcus 1994:fig.17.1
Tomaltapec	ESJ-2	House 4	San Jose	4.9x2.2	11				non-elite	Whalen 1981: 43-5
Tomaltapec	Mound 1	Str. 11	San Jose	8x4	32	1		32	elite	Flannery+Marcus 1983:63
Tomaltapec	Mound 1	Str. 12	Guadalupe	10x6***		2	3	120***	non-res.	Whalen 1981: 64
San Jose Mogote		Str. 8	SJ/G			0.7			non-res.	Flannery+Marcus 1976:212
Huitzo		Platform 4	Guadalupe	15x?	[225]	2		[450]	non-res.	Flannery+Marcus 1976:212
Huitzo		Platform 3	Guadalupe	11.5x?	[132]	1.3		[172]	non-res.	Flannery+Marcus 1976:213
Fabrica San Jose	LG-1	H14	Guadalupe	>5x4	>20				elite	Drennan 1976: 90

? = measurement not available
( ) = measurement is based on an estimate made by the author cited
[ ] = estimate if dimensions are symmetric
* = calculated as (length x width x height) / 3
** = total mound not particular floors
*** = calculated as 2meters bigger then Str. 11 in both dimensions based on Whalen (1981: 64)