

CHAPTER FOUR

The Local Village Community and the Larger Political Economy

Formative and Classic Interaction Patterns in the Tehuacán Valley Compared to the Valley of Oaxaca and the Basin of Mexico

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The general trajectory of social change in Mesoamerica through the Formative and Classic was toward larger scale sociopolitical organization, greater centralization, increasing complexity, and stronger hierarchy. The change culminated in the states and even empires of the Classic period that lie at the heart of the definition of Mesoamerica as a culture area. This general Mesoamerican growth pattern is formed by broad parallels between the developmental trajectories of a number of smaller regions—trajectories that, when examined close-up, show considerable variability in scale, nature, and pacing. Explicit comparison of what happened in different regions has long been seen as enlightening, and such comparisons have quite naturally focused on those regions experiencing the most spectacular or precocious development (e.g., Blanton et al. 1993; Sanders and Santley 1983; Sanders and Webster 1978). Regions not showing such development, or showing it in only very attenuated form, do not typically

receive much attention in these comparative contexts. The Tehuacán Valley, for example, as famous as it is for its evidence relating to the establishment of sedentary agricultural living, has played little role in studies of Mesoamerican state development because by the Late Formative it was vastly overshadowed by the social development of neighbors in practically every direction. While the Tehuacán trajectory does show the general trend of increasing scale and organizational complexity, the region clearly did not finish in the money in the Mesoamerican Classic state sweepstakes. Our aim here is to look at some aspects of the archaeological evidence for social change in Tehuacán during the Formative and Classic, seeking to understand better to what extent the Tehuacán trajectory parallels those of its more developed neighbors, including when and how it diverges from them. We will focus in particular on patterns of community interaction as these relate to the emergence of increasingly centralized sociopolitical formations.

Late Formative Regional Centralization and Community Structure in the Tehuacán Valley

The establishment of settled village life occurred in the Tehuacán Valley at about the same time and in roughly the same way as in neighboring highland regions. The Abejas phase settlement pattern, going back to ca. 3400 BC, has been described as one of “waterway hamlets” (MacNeish et al. 1972:378–80), but the principal evidence is a fragment of a single pithouse in an area where very little else in the way of features could be located despite considerable effort to find them (155–60). The architectural and artifactual evidence from the Early Formative Ajalpan phase (1500–850 BC) marks the fairly abrupt beginning of sedentary village life in Tehuacán and coincides with a surge in the proportion of maize in preserved plant remains. In this regard, the Tehuacán Valley fits the same general pattern as the Basin of Mexico, the Valley of Oaxaca, and other regions in the southern highlands of Mexico where sedentary villages with substantial reliance on maize agriculture appear quickly within a century or two of 1500 BC (Flannery 1983b, 1986; Sanders et al. 1979). These villages were not numerous—in Tehuacán only three are known for the Ajalpan phase (MacNeish et al. 1972:387). They appear similar to the roughly contemporaneous local communities of Oaxaca and the Basin of Mexico; they are made up of a dozen or more households involved in face-to-face interaction on a daily basis. These local community interactions were evidently of sufficient importance in all these regions to draw the inhabitants together into compact villages. That is, households chose to locate their residences close to those of their neighbors, as opposed, for example, to locating them on plots of land where they were apparently investing increasing amounts of labor in cultivation. One aspect, at least, of the story of emerging larger-scale, regionally centralized organization can be read in the changing patterns of this community interaction. We do that here by applying distance-interaction principles to settlement pattern information as suggested by Christian Peterson and Robert Drennan (2005).

All three known Ajalpan phase villages in Tehuacán were located in a broad expanse of level valley floor and in or adjacent to the active, modestly incised floodplain of the Río Salado. Even though the stream only flows intermittently, soil moisture in these “humid river bottoms” helps make cultivation possible in this extremely dry region (MacNeish et al. 1972:345, 387). As the Ajalpan phase gave

way to the Middle Formative Early Santa María phase about 850 BC, population grew and spread into new and different locales, and regionally centralized organization put down its first roots. What was to become a substantial Late Formative center or “town” was founded at the site of Quachilco (Ts218), reported by MacNeish and colleagues (1972:205–18). (The correct spelling is “Cuachilco,” but “Quachilco” is firmly set in the English archaeological literature.) Systematic, full-coverage survey carried out in 1979 across an area of some 56 km² surrounding the Quachilco site adds detail not provided by the 1961–62 reconnaissance of the Tehuacán Valley (MacNeish et al. 1972:341–495). Ajalpan phase materials were recovered in this later survey only at the Coatepec site where MacNeish and others (1972:175–99) had already excavated Ajalpan deposits, but an Early Santa María occupation (850–500 BC; see figure 4.1) consisted fundamentally of two concentrations of settlement. One of these, in the humid river bottoms in the extreme eastern corner of the survey area, was at the Coatepec site (Ts368, one of the eight Early Santa María hamlets or villages MacNeish and others [1972:392] report for the valley as a whole). The other, roughly in the center of the survey area, was at the site of Quachilco, located well away from the Salado and Zapotitlán rivers, in a zone today regarded as entirely unsuitable for nonirrigated agriculture. Irrigation water is readily available, however, from either of these two rivers or from springs within a few kilometers to the north and west (Woodbury and Neely 1972:126). Water from any of these sources could be brought to the area around Quachilco with a canal system of very modest scope. Each of these two occupation concentrations is small (only a few hundred meters across) and could easily represent a local community of people in daily face-to-face contact. Aside from these two communities, there were only a few very small occupations (isolated farmsteads, or groups of two or possibly three households).

During the Late Santa María phase (500–150 BC), population in this 56 km² survey area soared (increasing from perhaps 500 to 10,000 inhabitants). The zone of higher soil moisture along the Río Salado was heavily occupied, and settlements of varied size were spread through the much drier area in the center of the survey zone. It is easy to look at the map of Early Santa María occupation (see figure 4.1) and identify likely ancient human communities. For Late Santa María (see figure 4.1), it is difficult to decide just where one community might end and the next begin. Peterson and Drennan (2005) have used surfaces representing occupational

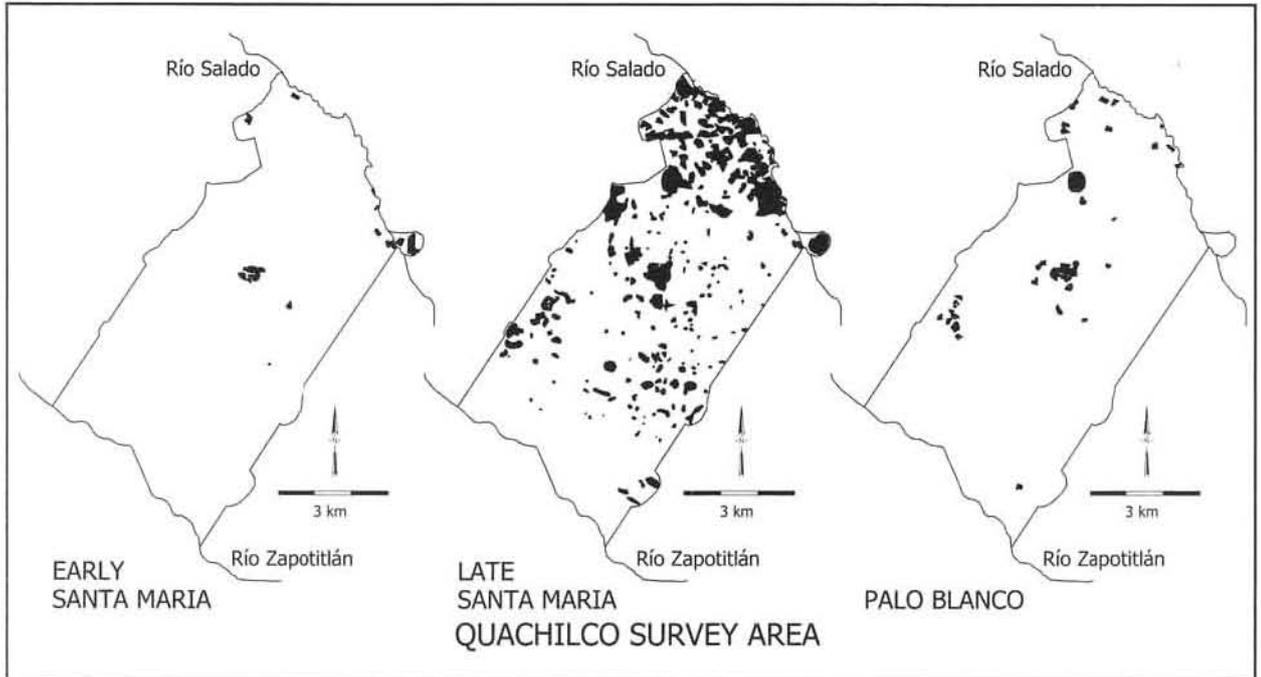
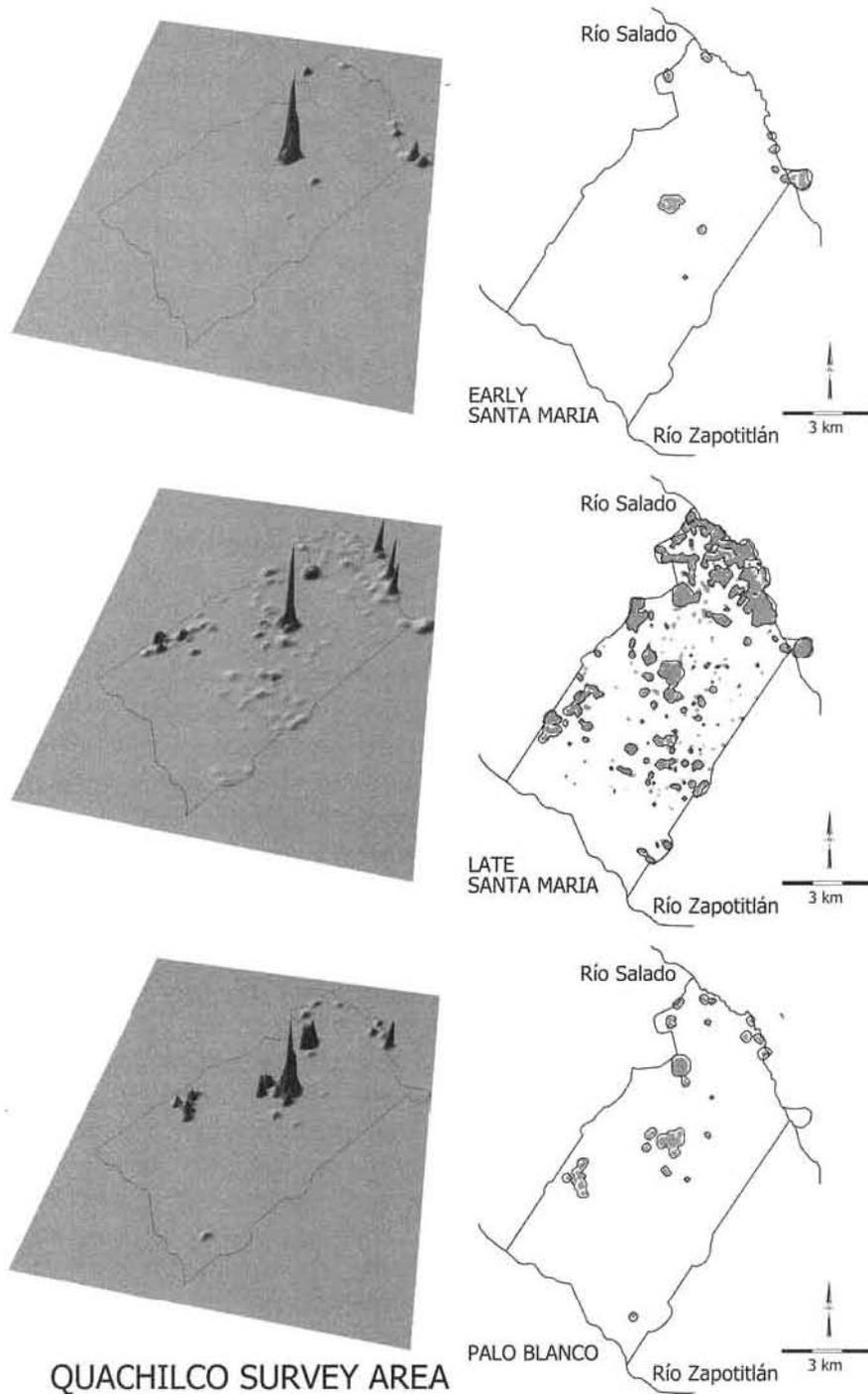


FIGURE 4.1. Occupied areas in the Quachilco survey area during Early Santa María, Late Santa María, and Palo Blanco phases.

distributions for clustering closely spaced but not necessarily contiguous areas of occupation in order to delineate different communities of human interaction in such situations. Representing Early Santa María in this way (see figure 4.2) shows the two communities of our subjective interpretation as two clearly separate occupational peaks, and it provides us with a systematic way of grouping collection units for analysis, whether or not they were called a single site in the field or are actually spatially contiguous. The peak corresponding to Quachilco is by far the tallest, representing the very high densities of occupational debris there, but the one representing Coatepec also stands out from the rest. Each of these peaks has two parts, but in each case the bases of the two parts run together, as can be seen in the Early Santa María contour map in figure 4.2. Peterson and Drennan (2005) argue for interpreting this kind of distributional patterning in human interaction terms as local communities. The other, much smaller, separate peaks represent the isolated farmsteads or groups of two or three households referred to above.

Looking at a similar treatment of Late Santa María phase settlement (see figure 4.2), however, reveals a more complicated situation: a jumble of small peaks and bumps

covers the northeastern part of the survey zone. Seeking a cutoff contour to delineate the bases of the peaks and separate communities does not produce any satisfying result. Numerous small peaks run together into zones of occupation of variable density that run on continuously, in one case for more than 4 km. Forcing these zones to break into separate parts by setting a higher cutoff contour eliminates smaller peaks from the picture entirely because their highest points are below such a higher cutoff. This can be interpreted as an interaction structure for the Late Santa María population that does not revolve around small local communities (Peterson and Drennan 2005). Quachilco is still clearly visible as the tallest peak, and a cutoff contour provides a reasonable delineation of it as a community—a large one, with a population estimated between 1,700 and 3,300 inhabitants, that MacNeish and others (1972:398) called a “town.” Most, if not all, of Quachilco’s public and ceremonial architecture dates to this period and is centered on a plaza 160 by 140 m, defined by platform mounds that stand today up to 8 m high (Drennan 1978). Central-place functions of various kinds are implied by this large resident population and public architecture, and the inhabitants



QUACHILCO SURVEY AREA

FIGURE 4.2.

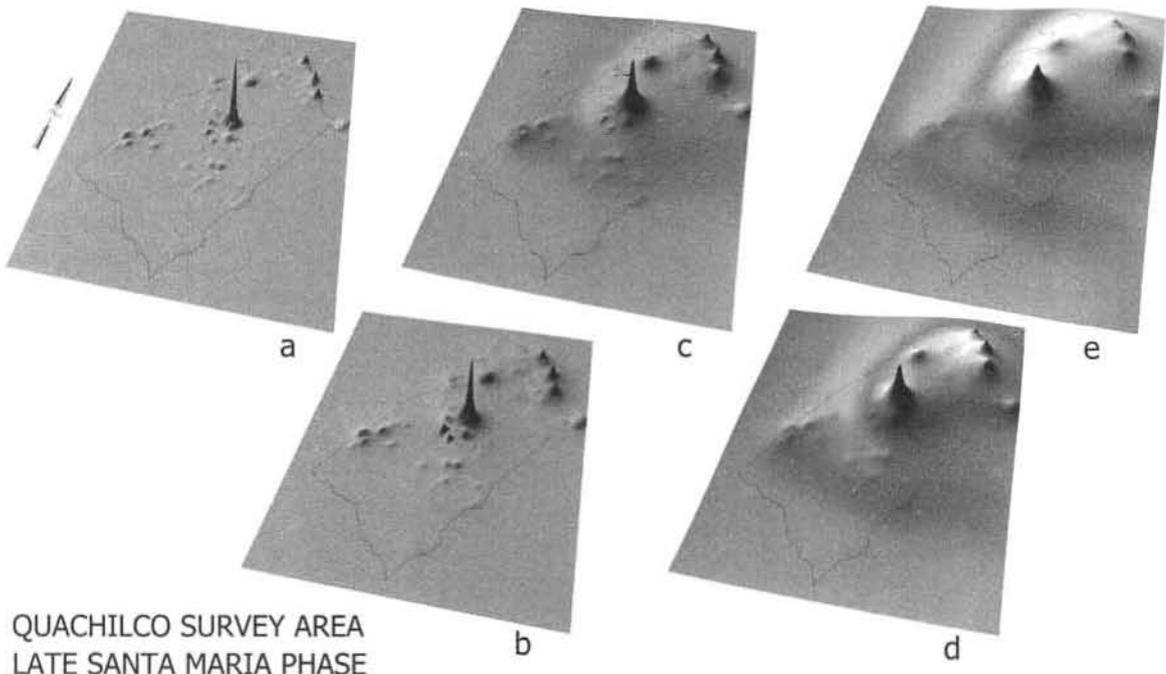
Occupied areas in the Quachilco survey area for each phase, represented as unsmoothed occupational density surfaces. The surfaces are shown in perspective view on the left. On the right are contour maps of the same surfaces, reduced to a single contour line at a very low level that outlines the bases of the peaks where they rise up from the flat plane around them (chosen as suggested by Peterson and Drennan 2005). Actual occupied areas from figure 4.1 (gray) are grouped into local communities by the single low cutoff contour.

of Quachilco, together with a number of residents of the surrounding area, clearly formed a larger, higher-order interaction community. It is not quite accurate, however, to describe Quachilco as the head of a settlement hierarchy. This is because so much of the apparent dependent population simply appears not to have been organized in a structure of smaller local communities that would have formed the lower levels of a settlement hierarchy. While some such communities are identifiable in the central and southern portions of the survey zone, the distribution of occupation in the river bottoms to the northeast does not reflect this kind of structure. Regionally centralized organization has often been thought of as a structure of small local communities that serve as building blocks in the construction of higher-order communities (e.g., Johnson and Earle 2000). The settlement pattern evidence, however, does not suggest that the Late Santa María phase higher-order community centered on Quachilco was formed in this way. Instead, small local community structure seems to weaken as a larger and more centralized entity emerges.

The 56 km² survey area around Quachilco is, of course, only a small part of the Tehuacán Valley. If Quachilco served as a central town for the inhabitants of a surrounding hinterland, one wonders how extensive that hinterland was. Quachilco is the only “town” MacNeish and colleagues (1972:398) identify in the entire valley for the Late Santa María phase, but it seems unlikely that it dominated the entire valley. Peterson and Drennan (2005) have suggested that surfaces representing occupation, like those we have already looked at, can be used to analyze larger-scale interaction patterning as well. One can investigate what additional territory and population a possible center like Quachilco “captures” as mathematical smoothing of the surface produces a broader and broader base for its peak. As can be seen in figure 4.3, progressively more smoothed surfaces show the Quachilco peak expanding to surround and subsume lower occupational peaks. This effect is strongest toward the northeast, where dense rural occupation causes general uplift of the occupational surface, and it seems likely that this fairly high density of occupation continues beyond the area surveyed toward the northeast, northwest, and southeast. Toward the southwest, however, a very sparsely occupied zone limits the expansion of the peak and may well represent the full extent of Quachilco’s hinterland in this direction. The most distant occupation captured by the Quachilco peak toward the southwest is about 5 km from Quachilco.

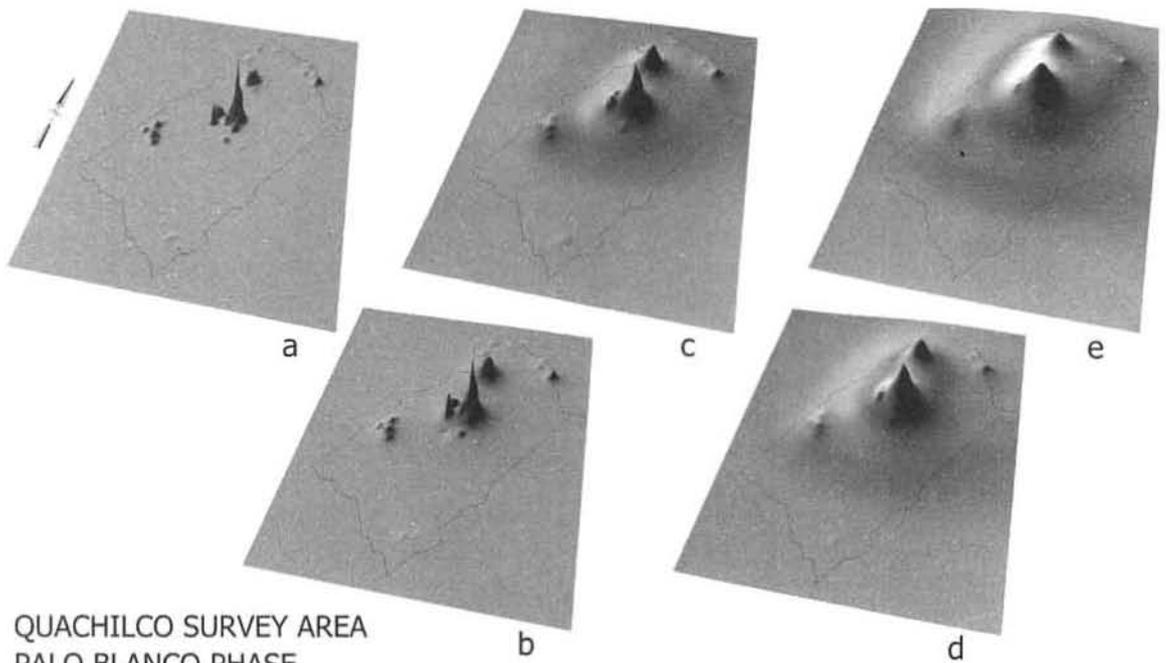
Occupation clearly captured by almost any degree of smoothing toward the northeast is also about 5 km from Quachilco. As an approximation, then, we might imagine the Quachilco hinterland as about 10 km across, at a minimum. An area this size fits comfortably in the especially wide expanse of level cultivable valley floor formed by the roughly parallel courses of the Zapotitlán and Salado rivers. If the spatial distribution of occupation reflects interaction patterns, as Peterson and Drennan (2005) argue may often be the case, then this hinterland, so defined, reflects interaction with Quachilco and thus a higher-order interaction community—one of larger than local scale. The nature of the interaction remains unspecified since economic, political, social, ideological, or any other kind of interaction could be expected to produce such patterns. The maximum size of this interaction hinterland also remains to be determined, since it appears to extend beyond the area surveyed in 1979, and the 1961–62 reconnaissance does not provide sufficient detail for such analysis.

Figures 4.1 and 4.2 also illustrate effectively what happened in the Quachilco survey area by the beginning of the Terminal Formative/Classic Palo Blanco phase (150 BC–700 AD). Population declined (to around 3,000 inhabitants) as many earlier occupation zones were abandoned. Quachilco still stood out as the highest population peak, but its population had shrunk to perhaps 1,000, and there was little further construction or remodeling of its public architecture. A ceremonial complex of smaller scale was built at Ts243 (MacNeish et al. 1972:405–7), where population grew to some 800 inhabitants, rivaling the size of Quachilco. The surface representing Palo Blanco occupation suggests the reemergence of strong local community structure; a low-level cutoff contour delineates the bases of a series of peaks of reasonable geographic and demographic scale for small local communities. There are no extensive zones of variable density occupation within which spatial evidence of local communities cannot be discerned, as there were for Late Santa María. Palo Blanco phase centralization, then, seems in some sense more “natural” in that it is formed up from the building blocks of small local communities. The smoothed surfaces of figure 4.4 give the impression that Ts243 and Quachilco could be rival centers of similar size, but this may be a palimpsest reflecting continued importance for Quachilco early in the Palo Blanco phase with a shift to Ts243 before the end of the phase. In any event, the higher-order interaction community suggested by the smoothed surfaces is geographically



QUACHILCO SURVEY AREA
LATE SANTA MARIA PHASE

FIGURE 4.3. Occupational density surfaces for the Quachilco survey area in Late Santa Maria times, ranging from only slightly smoothed (a) through very smoothed (e), as discussed by Peterson and Drennan (2005).



QUACHILCO SURVEY AREA
PALO BLANCO PHASE

FIGURE 4.4. Occupational density surfaces for the Quachilco survey area in Palo Blanco times, ranging from only slightly smoothed (a) through very smoothed (e), as discussed by Peterson and Drennan (2005).

considerably smaller than that suggested for Late Santa María, and most of the population of the surrounding area had by now shifted elsewhere.

Classic Period Centralization and Community Structure in the Tehuacán Valley

Unlike the Late Santa María phase, during the Palo Blanco phase Tehuacán shows evidence of a dozen or more “towns,” not all of them contemporaneous during the phase. Ts243 was one of these, but by no means the largest. One with a larger population and a more monumental complex of public architecture was at Cuayucatepec (Ts281; Drennan 1979; MacNeish et al. 1972:416), farther up the valley (see figure 4.5). Complete-coverage, systematic survey of 59 km² surrounding Cuayucatepec, carried out in 1979, enables us to monitor its growth and development. No Ajalpan phase materials were encountered in the survey area. The Early Santa María phase population amounted to only about 100 people, settled in very favorable locales for simple cultivation. Although conditions in this zone differ somewhat from those around Quachilco, both zones do have large amounts of relatively fertile, level agricultural land. Availability of water is the critical variable in both zones. There are no river bottoms in the Cuayucatepec zone, however, since it is so near the head of the Río Salado drainage that there is no substantial stream in the center of the valley. The rainfall shadow effect produced by the deeper valley around Quachilco, however, is less severe at Cuayucatepec, so there is somewhat more precipitation. Cuayucatepec is approximately 600 m higher in elevation, so temperatures and consequently evapotranspiration are lower, resulting in more available moisture. The prime locations for simple cultivation are where small, intermittent streams emerge from the hills along the northeastern margin of the valley, and this is precisely the situation in which the Early Santa María occupation is found (see figure 4.6).

Population grew rapidly in the Late Santa María phase, although not quite as rapidly as in the area around Quachilco. What was to become the Palo Blanco town of Cuayucatepec had a population that rose to at least 1,500 by the end of the phase, although there is not much evidence of public architecture dating to this time. Within the Quachilco survey area, population began to drop in the Palo Blanco phase. In contrast, demographic growth continued vigorously in the Cuayucatepec area, to

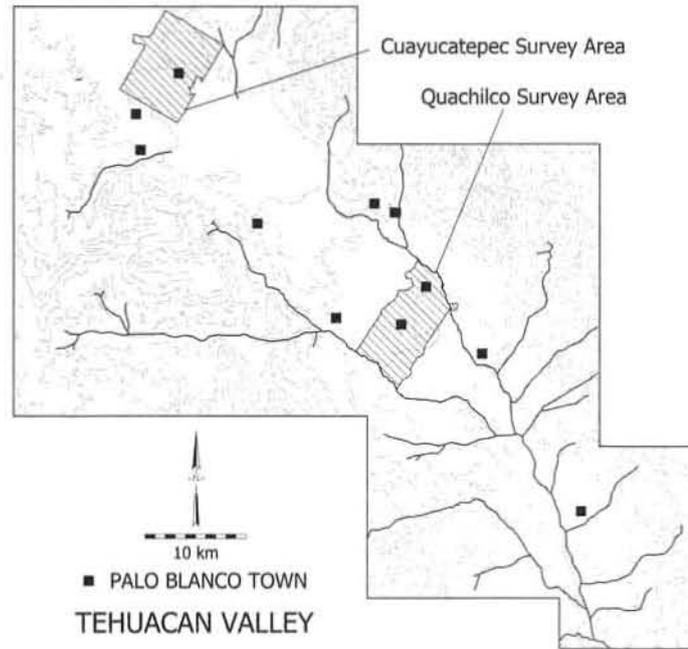


FIGURE 4.5.

The Tehuacán Valley, showing the locations of Palo Blanco towns and the two survey areas discussed in the text.

a peak population between 11,000 and 22,000 inhabitants for the 59 km². Some of this population growth around Cuayucatepec may well have been fueled by immigration from the Quachilco zone, less than 40 km away. By this time the population of the ridge-top Cuayucatepec town itself had grown to around 6,000. The architectural focus of the town was a 2 ha complex of plazas and platform mounds on the highest peak of the ridge, complemented by another 3 ha of public buildings, including a ballcourt, on the lower slopes (Drennan 1979). In the surfaces representing the distribution of occupation, the peak representing Cuayucatepec gradually rises to an increasingly dominant position (see figure 4.6). Very strongly smoothed surfaces for Late Santa María and Palo Blanco (see figure 4.7) suggest a higher-order interaction community about 10 km across—not too different from the size suggested for Quachilco. Once again, substantial occupation close to, but outside, the boundaries of the survey area might change this. However, at Cuayucatepec the pattern of drop-off to very low occupational densities is clearly seen in all directions within the

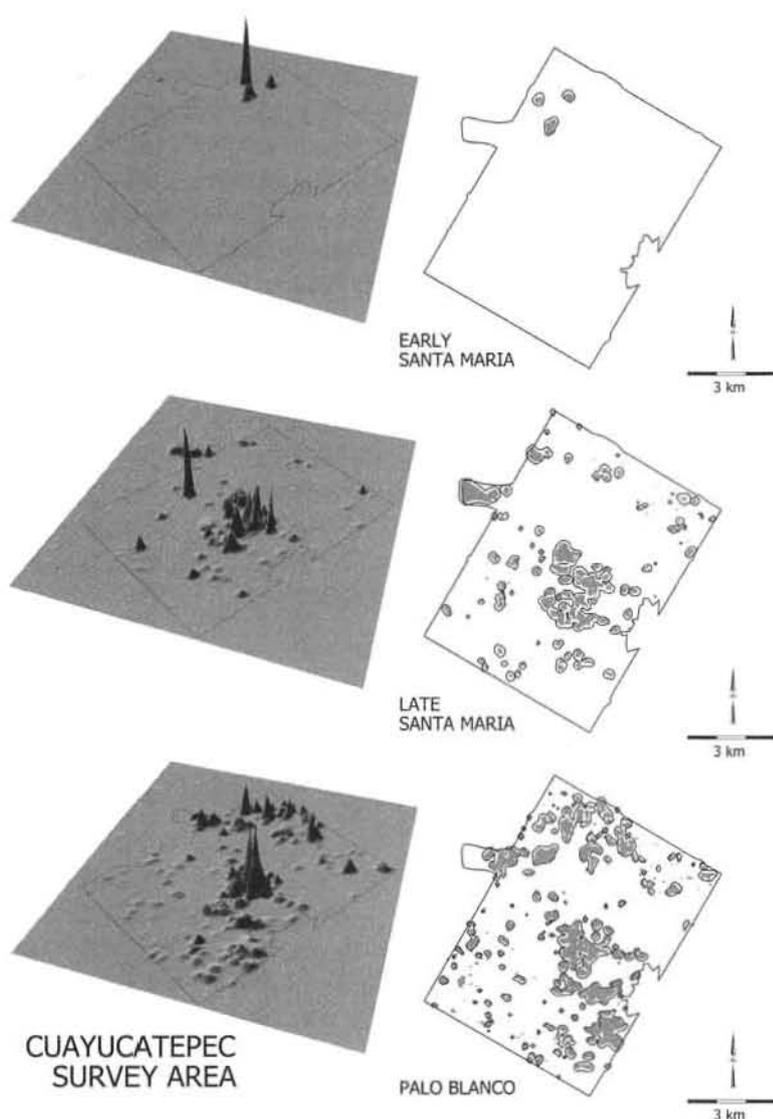


FIGURE 4.6.

Occupied areas in the Cuayucatepec survey area for each phase, represented as unsmoothed occupational density surfaces. The surfaces are shown in perspective view on the left. On the right are contour maps of the same surfaces, reduced to a single contour line at a very low level that outlines the bases of the peaks where they rise up from the flat plane around them (chosen as suggested by Peterson and Drennan 2005). Actual occupied areas (gray) are grouped into local communities by the single low cutoff contour.

survey area. Neither the Late Santa María nor Palo Blanco unsmoothed occupational surface for the Cuayucatepec zone (see figure 4.7) reveals much in the way of spatial clustering to indicate local community structure. As with the Late Santa María occupation around Quachilco, there are large zones of continuous occupation at variable density that extend for distances considerably beyond the scale of small local communities.

In both these sections of the Tehuacán Valley, then, for which detailed settlement information is available, the spatial evidence for local community structure follows an unexpected pattern. Such small local communities

seem well established, if few in number, in Tehuacán in Ajalpan and Early Santa María times. In each survey area, beginning in Late Santa María, a larger community emerges—one that might constitute a higher rank in a regional settlement hierarchy—and a higher-order interaction community some 10 km across develops around it. This process of centralization, though, far from building up by joining sets of small local communities into larger entities, appears instead to involve the collapse of the local community interaction structure, the sphere that many have tended to simply assume as the immutable basis of both simple and complex social

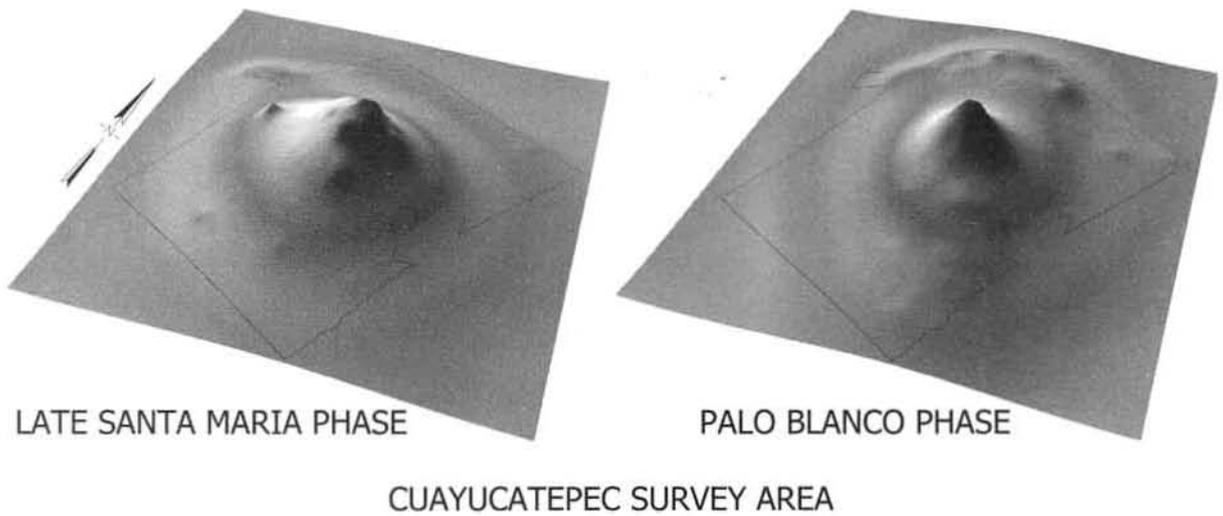


FIGURE 4.7. Strongly smoothed occupational density surfaces for the Cuayucatepec survey area in Late Santa Maria and Palo Blanco times.

organization. In the Cuayucatepec zone, this dearth of small-scale community interaction structure continues into the Palo Blanco phase as the main center continues to grow; in the Quachilco area, the clear spatial signs of interaction patterns centered around small local communities reemerge as population drops and centralization decreases in the Palo Blanco phase. Formative and Classic social change in Tehuacán's highland neighbors, such as the Basin of Mexico and the Valley of Oaxaca, is generally described in terms very different from this pattern—terms that involve settlement hierarchies and the construction of larger-scale and more centralized sociopolitical organization on a stable local community base. Thus, it is of considerable interest to see whether the evidence really suggests this kind of fundamental difference, or whether the difference lies largely in the way similar evidence from all these regions is analyzed and interpreted.

Centralization and Community Structure in the Valley of Oaxaca

Early regional centralization in the Valley of Oaxaca is similar to that in the Tehuacán Valley in that a single settlement grew to a size well beyond that of any other settlement in the region and has produced architectural and other evidence of public and elite activities unique to the region (Blanton et al. 1982; Kowalewski et al. 1989;

Marcus and Flannery 1996). This well-known center, San José Mogote, grew to its preeminent position much more quickly after the establishment of sedentary agricultural life than did Quachilco in Tehuacán, but the strongly smoothed occupational surface for Rosario phase (700–500 BC) Oaxaca in figure 4.8 shows the same single-peaked shape seen for the Quachilco survey area. The spatial scale is larger for the San José Mogote higher-order community (some 15 by 25 km, compared to at least 10 km across for Quachilco), but the demographic scale is smaller (perhaps 1,000 inhabitants altogether in the San José Mogote higher-order community compared to some 2,500 for Quachilco). In both Tehuacán and Oaxaca, the higher-order community appears to have incorporated only a portion of the region; settlement did exist in other parts of each valley that was not included in the interaction structure focused on San José Mogote or Quachilco. For Oaxaca, these communities in the two other arms of the valley have been described as hostile competitors to San José Mogote (Blanton et al. 1999:42–44; Marcus and Flannery 1996:123–26, 139–44; Spencer and Redmond 2001:203, 2003:32–34), although the smoothed surface in figure 4.8 probably draws an accurate picture of the unevenness of this competition, with none of the possible competing communities having a population much more than a tenth that of the San José Mogote higher-order community.

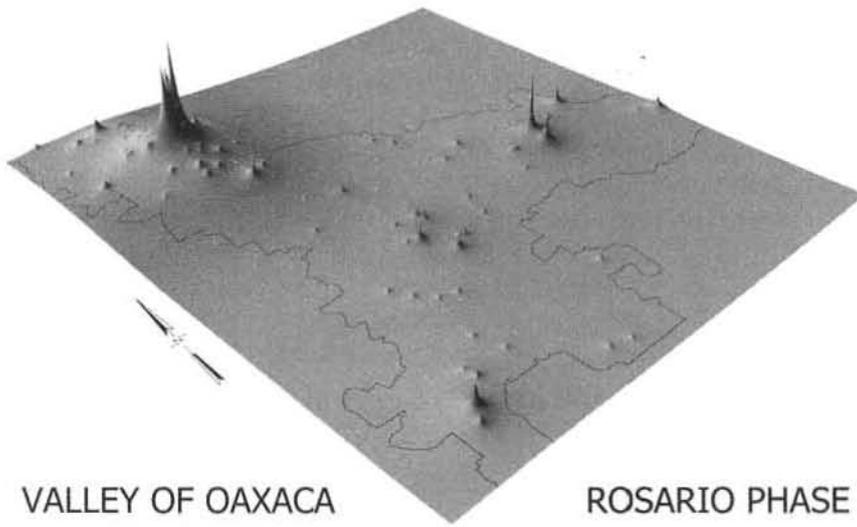


FIGURE 4.8.
Moderately strongly smoothed occupational density surface for the Valley of Oaxaca during the Rosario phase.

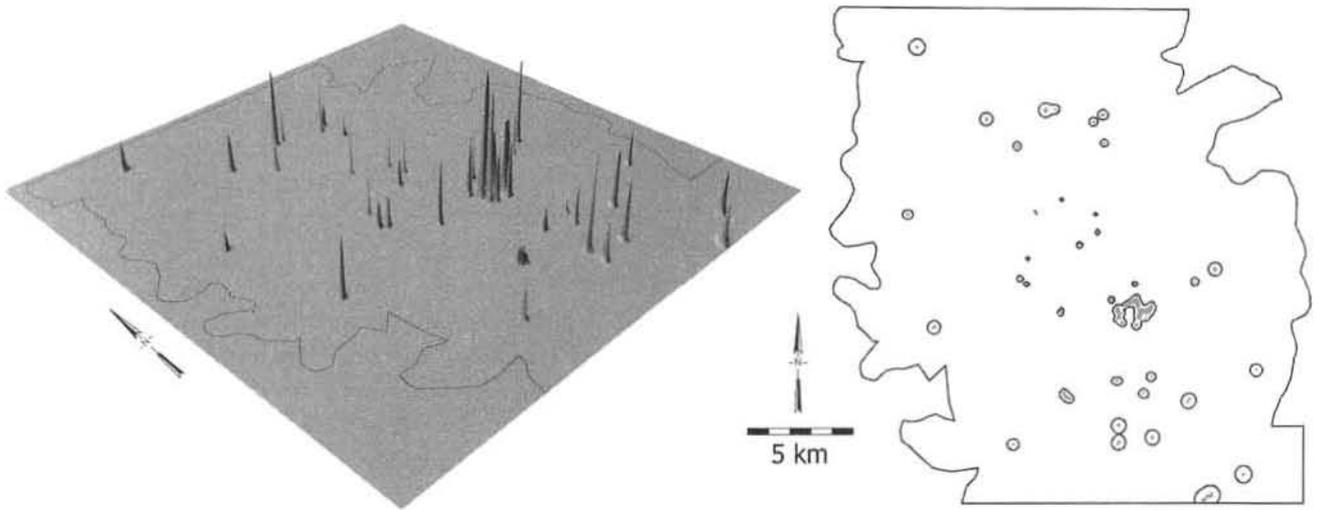


FIGURE 4.9.
Unsmoothed Rosario phase occupational density surface for the San José Mogote community only (the northernmost part of the Valley of Oaxaca survey area). The contour map on the right shows a single low cutoff contour outlining the bases of the peaks for grouping actual occupied areas (gray) into local communities (cf. Peterson and Drennan 2005).

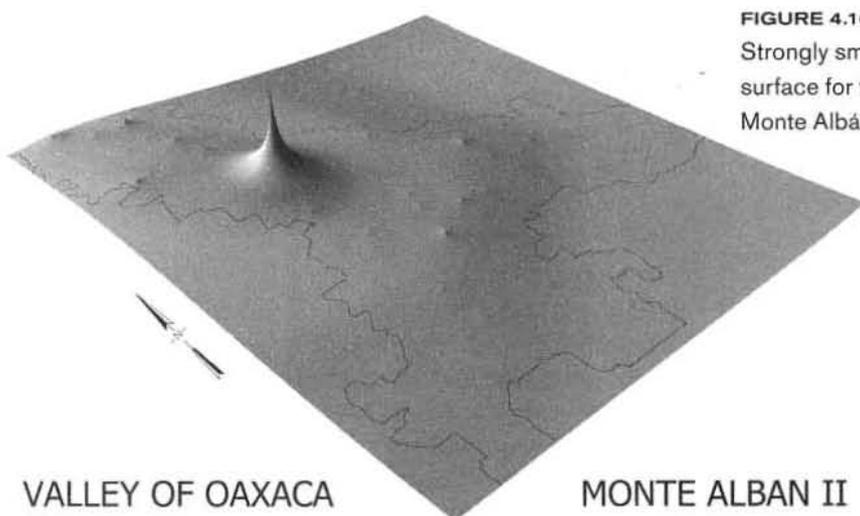


FIGURE 4.10.
Strongly smoothed occupational density surface for the Valley of Oaxaca during Monte Albán II times.

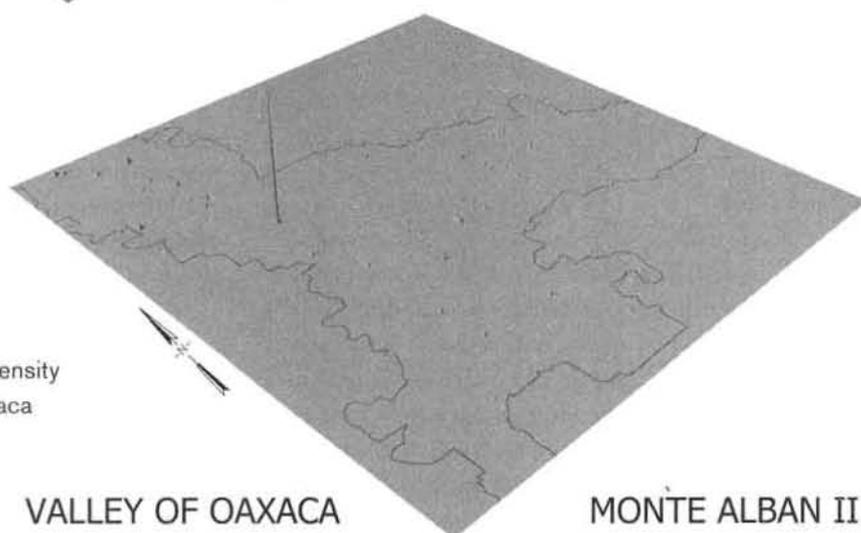


FIGURE 4.11.
Unsmoothed occupational density surface for the Valley of Oaxaca during Monte Albán II times.

The San José Mogote higher-order community, unlike Quachilco or Cuayucatepec in Tehuacán, does not follow the conventional idea of local-community building blocks. The unsmoothed surface for the San José Mogote higher-order community shows local community occupation peaks, which are clearly separated from each other by unoccupied space and unequivocally delineated with a cutoff contour identifying the bases of the peaks (see figure 4.9). Sometimes this cutoff contour groups two or more spatially noncontiguous occupation areas together into a single community, especially in the case of San José Mogote itself, but clusters of a reasonable spatial scale for local interaction communities are consistently defined. This is precisely the pattern that characterized the two Tehuacán survey zones when

there was no central town, but disappeared as higher-order communities developed, and then reappeared in at least one case with the decline of such a higher-order community. In contrast, the local community interaction structure remained strong throughout the Formative in Oaxaca, and the development of the San José Mogote higher-order community appears to build on it, rather than coinciding with its collapse. By the Monte Albán II phase (100 BC–AD 300), the location of Oaxaca's principal center had shifted from San José Mogote to Monte Albán, but the occupation landscape was still dramatically dominated by a single center heading a single, and now even larger, higher-order community (see figure 4.10). The local community structure remained as strong and clear as ever (see figure 4.11).

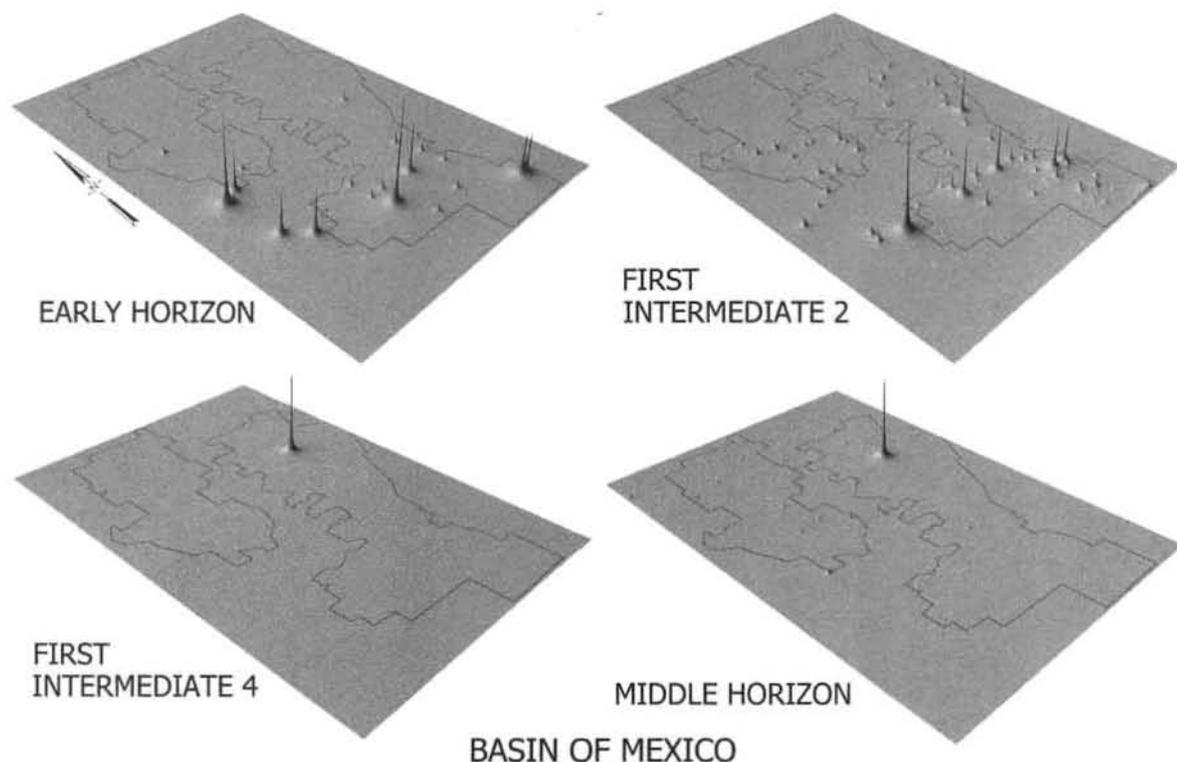


FIGURE 4.12. Slightly smoothed occupational density surfaces for the Basin of Mexico in four periods.

Centralization and Community Structure in the Basin of Mexico

The earliest sedentary villages in the Basin of Mexico appeared perhaps a century or two later than those of other regions in Mexico's southern highlands, and they were especially scarce for a region of this size and productivity (Sanders et al. 1979). There were 20 Early Horizon settlements in 3,300 km² for the Basin of Mexico, compared to 39 San José phase settlements (in some 2,100 km²) for the Valley of Oaxaca. On the other hand, they were quite large: eight of them probably had populations of over 250 inhabitants, compared to only one in the Valley of Oaxaca. Smoothed occupational surfaces show no sign of smaller communities clustering together with larger ones into higher-order communities (see figure 4.12). The smaller communities are rare and widely scattered, and their locations do not favor closeness to a larger community. Interaction structure, then, for the Early Horizon (1500–1150 BC) seems fiercely local:

the local community shows strongly in the distribution of occupation, and, while some of these local communities were as large as higher-order (supralocal) communities in other regions, interaction structure on this demographic scale was very compact spatially, being contained within a local community that was small spatially, if large demographically. By the First Intermediate Two (650–300 BC), population had grown, largely through the founding of more local communities—ones that remained at the low end of the local community population scale for the Basin of Mexico. Even in the smoothed surface for this period (see figure 4.12), the local communities are clearly delineated, and there is no discernable tendency for them to group into supralocal entities of any sort around larger local communities (which by this time are known to have public architecture in the form of mounds and plazas). Most of the possible centers (larger local communities) were in the southern basin, along with a few smaller communities, while many relatively

small local communities were farther north, a considerable distance from the nearest large settlement. By First Intermediate Four (100 BC–AD 100), Teotihuacan in the northeast corner of the region had undergone explosive growth, most settlements in other parts of the basin had been abandoned, and the pattern that would characterize the Classic period, or Middle Horizon (AD 300–750) in only slightly less extreme form was set (see figure 4.12) (see Angulo, chapter 5).

Before we carry discussion of especially strong local community interaction patterning in the Basin of Mexico too far, however, one issue about the database for the analysis must be addressed. Survey methods in the field were quite similar for all three regions discussed here. The Basin of Mexico survey established the procedure in the early 1960s, of course, and in Oaxaca in the 1970s the principal variation on the method was probably surface collecting larger quantities of artifacts so that periodization of the occupations relied less on quick characterizations in the field. In Tehuacán, this general trend was continued by making systematic (as opposed to haphazard) surface collections so that the resulting data could better sustain quantitative analysis and surface densities could be assessed more rigorously. Some of these modifications of the original methodology might increase precision so as to bring patterns into sharper focus, but they would not create the kinds of differences between the regions we have noted here. The way in which the data have been made available, however, does give cause for concern. For Tehuacán and Oaxaca, the occupational surfaces were based on data that include actual spatial boundaries of each occupied area individually, connected to specific and individual population estimates or surface ceramics densities for each occupied area. For the Basin of Mexico, however, settlement pattern data have been published only as point locations of settlements, classified into the several categories of a settlement typology—hamlet, small village, large dispersed village, large compact village, small regional center, etc. (Sanders et al. 1979:52–60). It is not difficult to imagine that the impression that the local community was such a strong and pervasive structure in the Basin of Mexico derives from the form in which the data have been made available, which tends to incorporate this conclusion as an initial assumption. Fortunately, more detailed data have been published for the southern portion of the Basin of Mexico (Blanton 1972; Parsons 1971; Parsons et al. 1982; Parsons et al. 1983). Here the individual spatial boundaries for

occupied areas are available, together with individual population estimates for each occupied area. Even when somewhat smoothed, the surfaces produced from these data (see figure 4.13), representing only a portion of the Basin of Mexico, show the same strength of local community patterning seen before. Occupational peaks are clearly separated, even for the Late Formative, when population levels are highest and settlement spacing is closest. When the bases of peaks do run together, the combined occupied areas are sometimes two large settlements with no smaller ones, rather than a large settlement with smaller subsidiaries. It seems not to be the case, then, that the apparent importance of local community structure in the Basin of Mexico derives simply from the extent to which the original analysis incorporated the assumption that separate individual local communities exist as basic units of social interaction.

Communities, Interaction, and Political Centralization

The process of political centralization can be thought of as the emergence of centrally focused patterns of interaction on a supralocal scale—patterns that create higher-order interaction communities which encompass larger populations and larger areas than those that existed before. The Late Formative and Early Classic periods saw considerable increases in political centralization in all three regions examined here. In each region, higher-order communities gave a central focus to the interaction of larger populations than earlier communities had included. The pacing of this development differed: it was under way by 1000 BC in the Valley of Oaxaca and the Basin of Mexico but not until around 500 BC in the Tehuacán Valley. The extent of the development also differed: the Teotihuacan state in the Basin of Mexico was undoubtedly the most strongly centralized, demographically largest, and politically most powerful; the Monte Albán state in the Valley of Oaxaca was also highly centralized and projected political and military power through a substantial region of the southern highlands; while centralized communities emerged in the Tehuacán Valley during the Late Formative and Classic, they were spatially and demographically quite small, apparently not even achieving political unification of the Tehuacán Valley. Most interesting, and altogether apart from the differences in pacing and extent, each trajectory of change had its own particular characteristics of community organization in a qualitative sense.

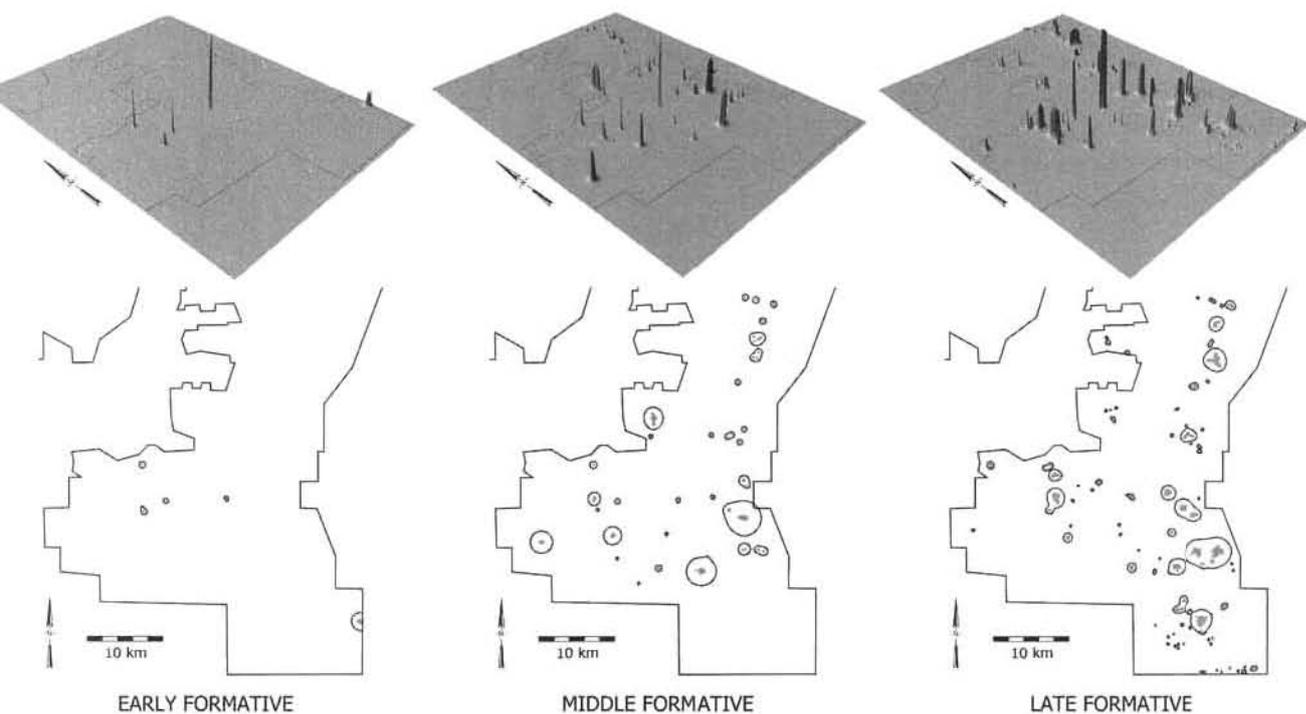


FIGURE 4.13.

Slightly smoothed occupational density surfaces for the southeastern Basin of Mexico in three periods (above) with maps of occupational distribution as recorded before conversion into site typology (below), showing how a low cutoff contour groups actual occupied areas (gray) into local communities (cf. Peterson and Drennan 2005).

In all three of these regions, the establishment of sedentary agricultural life involved the formation of local village communities whose archaeological signatures are quite clear as strongly separate clusters of occupation in regional-scale settlement patterns. This village pattern has sometimes simply been taken as the norm, at least for Mesoamerica, since it occurs in so many periods and regions (e.g., Flannery 1976). It is, of course, a pattern that facilitates interaction and focuses it strongly within a local community. This does not imply that interaction with the inhabitants of other villages did not exist, or would be prohibitively difficult, it is just that interacting with others in the same village would be so extremely easy because of their proximity. Whether the presence of such local communities encourages stronger patterns of interaction within them or the perceived importance of such interaction produces the local community structure can, for present purposes at least, be left alongside the issue of whether chicken or egg came first. As long as resources are fairly abundant with respect to population

size (which they clearly were for the earliest sedentary agriculturists in all three regions at about 1500 BC), there is little cost to the local village community pattern. The benefits it provides, then, would not have to be great to outweigh the costs. The sheer social pleasure of regular interaction with neighbors could well be sufficient to cause households to locate themselves together within villages in preference to the obvious alternative of locating themselves on the plots of land that they farmed, so as to minimize travel time to the principal locus of productive labor for the vast majority of Early Formative inhabitants of these three regions.

From this perspective, then, it does seem natural to consider the local village community pattern “normal” and to require explanations more for departures from this pattern than for adherence to it. It certainly is an extremely common pattern around the world, although it is not ubiquitous (Drennan and Peterson 2005; Peterson and Drennan 2005). Local village communities are the common settlement pattern in all three of these regions

today, at least to the extent that anything but urban sprawl remains in the Basin of Mexico. Although Stephen Kowalewski (2003b) has argued that the autonomous village is a modern development in Oaxaca, it is clear that villages, whether they were autonomous or not, existed as interaction communities even before the Rosario phase.

There are, then, diverse factors, operating singly or together, that would affect the perceived cost/benefit ratio of the local village community interaction pattern and thus encourage (or discourage) its formation or persistence. A first set of factors has to do with the organization of agricultural production. Land tenure may be vested in some corporate entity, perhaps the village community itself, although there are many possibilities, including extended kin groups. This is largely the case in modern Oaxaca, Tehuacán, and rural regions of the Basin of Mexico. As Kowalewski (2003b:6–15) has noted, this strengthens the coresidential village community because it involves interaction with other households for the management of agricultural production. Inheritance patterns in modern Mexico have, in addition, resulted in single households cultivating fragmented and widely scattered small plots—a situation that does not encourage residence by each household on the plot it farms. In modern times agriculture in all three regions relies heavily on irrigation systems that, although mostly of modest scale, require a very high degree of interaction in the form of coordinated management at the village level. The collective labor involved in constructing, maintaining, and using these systems is spread across a sizeable area, not concentrated for each household in the plots it farms. In two ways, then, the reliance on canal irrigation systems of modest scale emphasizes local community interaction and strengthens the village residence pattern. In contrast, if there are high labor requirements on individual plots of land, whose cultivation is organized independently by individual households, the village residence pattern should be weakened. This is not especially the case in any of these three regions today, although it has been cited (Drennan 1988) as a reason for the large number of isolated farmsteads recorded by archaeological survey for the Late Postclassic in both the Basin of Mexico and the Valley of Oaxaca.

A second set of factors, also economic, has to do with the organization of both agricultural and nonagricultural production. The emergence of productive specialization implies increasing interaction, because the interchange of the products of the specialists, by whatever mechanism,

becomes an important component of interaction. In modern highland Mexico, villages are the loci of a fair amount of interchange of agricultural and nonagricultural products—whether produced and consumed locally, coming from other villages or farther for local consumption, or produced locally for consumption elsewhere. The development of specialized production, then, would also strongly encourage the local village community pattern.

Third, the modern village's function as the point of articulation with a national political system also places considerable weight on the interaction that takes place there. The local village community is today the smallest of the nested building blocks of the Mexican nation-state. It is this political function that accounts for the early Spanish colonial practice of *congregación* in all three regions, intended to concentrate dispersed Postclassic populations into local village communities for easier political control.

The Three Trajectories Compared

The above is by no means a comprehensive list of relevant factors, but all three of these sets of factors are potentially applicable to the prehispanic situation in the Tehuacán Valley, the Valley of Oaxaca, and the Basin of Mexico. The stage was set at 1500 BC for interaction to focus heavily on the local village community in all three regions. Patterns of corporate land tenure might or might not have been involved, but there is little reason to suspect much development initially of systems of production, such as canal irrigation, that would foster heightened local community interaction. In the Valley of Oaxaca, there is evidence of at least some specialization in both subsistence and craft production from the San José phase onward, involving both intra- and intercommunity interchange of products (e.g., Flannery and Winter 1976). This may be the principal factor that encouraged the persistence of the local village community pattern and set the Valley of Oaxaca on a course of centralization built strongly upon this pattern. The advantages of a political strategy built on such nested blocks may have helped San José Mogote become the focus of interaction for communities across distances of 25 km or so and laid the political-economic foundation for the continued development of increasingly large-scale political centralization on into the Classic period once the center had shifted to Monte Albán.

We know less about the possibility of productive specialization in the Basin of Mexico in Early Formative

times, but it is at least possible that it developed soon after sedentary agricultural life and enhanced the vitality of the local village community pattern there as well. Canal irrigation, and especially the spring-fed canal system near Teotihuacan, has received considerable attention for the Basin of Mexico (Sanders 1972, 1976), but the especially strong local village community pattern was well established before settlement had expanded into the northern basin where this issue is relevant (see Angulo, chapter 5). Indeed, the remarkable degree of centralization of the Teotihuacan system in the Classic period is clearly foreshadowed by the local communities of the Early Formative. Some of these rapidly took on the character of higher-order communities, but they did so primarily by growing themselves rather than by incorporating nearby small local communities as nested building blocks—just as Teotihuacan did on an entirely different scale a millennium later. One might hypothesize that this could result from a very strong early development of productive specialization and patterns of local community interaction. If such a pattern existed, it could well be further augmented later on by the interaction patterns involved in irrigation management in the northern basin. Some of the particular flavor of Teotihuacan urban centralization, however, was emerging in the Basin of Mexico in much earlier times.

Higher-order, more centralized communities did not develop until the Late Formative in the Tehuacán Valley. This lag might be because attaining the level of regional population density required for even minimal higher-order communities was not possible with simple rainfall agriculture, but depended on the development of irrigation technology. Tehuacán's higher-order communities did not follow either the Valley of Oaxaca pattern of local village communities as nested building blocks or the Basin of Mexico pattern of extreme concentration of residence and interaction patterns. Local village communities persisted to only a limited extent within higher-order communities; the preexisting village pattern broke down into much more dispersed rural residence in large parts of the areas surrounding both Quachilco and Cuayucatepec. Around Quachilco, the local community structure persisted most strongly in the southwestern part of the survey area where canal irrigation systems may have fostered local community interaction patterns. The structure dispersed most noticeably in the river bottom zone toward the northeast, where increased agricultural production may have been required to support a larger regional population, but where

the manner of cultivation did not involve canal systems or any other technology encouraging local community interaction patterns. The shift in residence patterns that we have observed here could have weakened preexisting patterns of local community interaction and discouraged further development of whatever productive specialization already existed. At the same time, the weakening of interaction pathways structured in local communities would have impeded efforts by political elites at Quachilco to use a set of building blocks that might have served them well in developing the political economy to fund their ambitions. Much the same description could be applied to the Cuayucatepec zone, where local community structure tended to persist toward the southwest, where canal systems of some size were important, and broke down toward the northeast where very, very small-scale irrigation from numerous tiny streams called for very little interaction.

Let us caution in conclusion that we do not here advance community interaction structure as a "cause" of the divergent trajectories of developing political centralization in three regions and that much of the reconstruction of local community structure offered here remains very hypothetical. There are without question, however, intriguing differences in the way people distributed themselves across the landscape in the three regions. These patterns also change in interesting ways from one period to the next, especially in Tehuacán. These distributional differences seem to reflect different patterns of prehistoric interaction, among other things. While regional-scale settlement data make it possible to suggest these differences in the relative importance of small, local community interaction patterns, they tell us little about the actual nature or content of these interactions. This issue would seem an extremely fruitful focus for future research at the scale of the local community. Studies of activities and statuses of households for a large sample of households within a local community can tell us about the roles in local community interaction of the organization of agricultural production, of productive specialization and interchange, and of political authority, as well as of other potentially important factors scarcely touched on above, such as religious beliefs and performance of ritual. The different patterns of local community interaction that developed in the Tehuacán Valley, the Valley of Oaxaca, and the Basin of Mexico very early on may have been the foundation for differences in political economy that only become truly conspicuous in Classic times.

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