The Olmec Legacy: Cultural Continuity and Change in Mexico's Southern Gulf Coast Lowlands

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Archaeological research in the southern Gulf lowlands of Mexico has focused on the notable accomplishments of the Formative Period Olmec. Yet, with few exceptions, the spectacular early cultural developments in the region have not been well articulated with local patterns of cultural continuity and change during subsequent Classic and Postclassic times. Research in the Hueyapan region of Veracruz in Mexico's southern Gulf lowlands provides new data for examining the Olmec legacy in this important region and a clearer picture of issues concerning chronology, settlement patterns, economy, and political organization that must be examined in the future. The research described here builds a foundation for comparing the political and economic development of this part of the prehispanic lowlands to other regions of ancient Mesoamerica.

Introduction

The abandonment of ancient settlements by early complex societies has captured the public's imagination and generated scientific and historical inquiry since the birth of archaeology as a discipline (Wauchope 1962; Yoffee and Cowgill 1988). Environmental disasters, agricultural degradation, social conflict, and political turmoil, alone or in concert, generally lie at the center of debates concerning the causes and consequences of cultural collapse. After all, these factors generate crises and trigger sudden change observable in the world today. But our preoccupation with collapse tends to overlook deeper trends of continuity and broader recognition of gradual cultural transformations that also unfolded in the past. Perceptions of cultural failure are limited by an imperfect understanding of its timing and causes, the larger regional context of the societies involved, and unique historical factors contributing to decline. Collapse, disappearance, and abandonment—so common in the popular media—are difficult to define (Cowgill 1988), much less identify and characterize archaeologically. In fact, the perceived breakdown of society and its institutions is often more an artifact of archaeological ignorance and weaknesses of method than any sort of culture-historical reality. Settlements were abandoned but, also, cultural borders were redefined, polities reorganized, and economies renewed. Regional systems of cultural integration ceased to operate but their underlying social and economic structures were reintegrated according to new principles emphasizing different localities within the same region. Broadening the geographical and temporal focus under consideration blurs the finality of collapse at one location and emphasizes continuity of cultural traditions within regions. Inevitably, more and better information tempers the impression of apocalypse and replaces it with a firmer foundation in process, history, and place.

Existing accounts of Olmec civilization, one of Mesoamerica's first complex societies, tell us that this culture developed in Mexico's southern Gulf lowlands by the end of the 2nd millennium B.C., persisted for some 800 years and vanished, it would seem, by about 400 B.C. (Coe and Diehl 1980a; Grove 1997). Once known as Mesoamerica's "mother culture" because of its perceived influence on later groups across much of Mesoamerica, the Gulf Coast Olmec are now regarded as one of several early complex societies that developed simultaneously during the Early Formative, between 1500 and 900 B.C. (Sharer

and Grove 1989). Among their contemporaries, however, the Olmec were the undisputed masters of early stone carving. They produced sculptures in several forms: in the round; large bas-reliefs; monumental architectural elements; large-scale funerary features; and many other forms—more than 200 massive pieces have been documented to date in the low-lying river valleys of southern Veracruz and Tabasco (FIG. 1; Lowe 1989). Most of these Olmec masterworks were carved from enormous basalt boulders transported from the volcanic uplands of the near-by Tuxtlas Mountains (Fernandez and Coe 1980; Williams and Heizer 1965). These monuments distinguish the Olmec from other early complex societies of the Formative period and establish them as one of the founding cultures of early Mesoamerican civilization. The cessation of this distinctive sculptural tradition, however, has contributed to the conventional notion of Olmec collapse. More recent archaeological research suggests we temper the disappearance of this spectacular stone carving tradition with a perspective that emphasizes long-term cultural development, a distinctive lowland tradition of agrarian settlement, and episodes of socio-political integration that persisted in different forms on Mexico's Gulf Coast until the catastrophic arrival of Europeans at the end of the 15th century. We present the results of a recent archaeological survey on the SW side of the Tuxtlas Mountains as a basis for reexamining the Olmec legacy and long-term patterns of cultural continuity and change in this critical region of prehispanic Mesoamerica.

The Hueyapan Archaeological Project

In 1998 we began the Hueyapan Archaeological Project along the SW foothills of the Tuxtlas Mountains and the middle course of the San Juan River (FIG. 2). Our survey area includes low, seasonally inundated alluvial lands, a slightly higher rolling piedmont underlain by sedimentary formations, and the volcanic mountain slopes of the Tuxtlas range SW of Laguna Catemaco.[1] This ecologically diverse cross section of Mesoamerica's tropical lowlands provides an opportunity to document settlement variation across interdigitating upland and low-lying environments.

The volcanic uplands of the Hueyapan study area are studded with basalt outcrops and boulder deposits that provided ready sources of hard stone for utilitarian grinding implements as well as monumental sculpture. We were initially intrigued by the potential for research in the uplands because they represented the poorly understood source area of raw materials for most Olmec monuments (Fernandez and Coe 1980; Williams and Heizer 1965). Following on the pioneering work of Medellín Zenil (1960a) and Gillespie (1994) at the Olmec monument workshop of Llano del Jícaro, one of our primary research objectives was to explore Formative settlement patterns and evidence for stone working along the SW margin of the Tuxtlas basalt zone. Were early sites located near the basalt deposits? Did they represent seats of early elite power founded on the control of the hard stone for grinding and sculpting? Did Formative-period centers provide the nuclei for later site hierarchies? Was continuity a central feature in the evolution of cultural traditions in the Hueyapan area?

The Hueyapan fieldwork involved a regional survey carried out by teams systematically walking across the landscape with observers spaced regularly 10–20 m apart. The survey progressed field by field, between roads and streams, in and around towns and isolated residential areas, and across the more marginal and unused parts of today's landscape. Surface conditions varied considerably but most of the Hueyapan region today is made up of cattle pasture and sugar cane fields, with few areas of dense forest regrowth. Secondary tropical vegetation is a challenge to survey but forest clearance for cane and cattle over the last several decades, as well as extensive field clearance for cropping throughout the year, provide a reasonably good window on the archaeological landscape of Hueyapan. The limits of areas that were not possible to survey owing to the vegetation were carefully recorded and will be examined as land clearance progresses in the future. Prehispanic mounds, the remnants of earthen platforms and their collapsed superstructures, are ubiquitous and readily visible on the surface throughout most of the region. Archaeological features and their physical surroundings were recorded across large contiguous blocks in each of the three different physiographic zones already mentioned.

The documented features included the earthen mounds, ranging from less than a meter to 15 m in height, stone alignments and terraces, stone working localities, monolithic monuments, petroglyphs, and scatters of broken pottery and stone tools exposed on the surface. To map these features, we used portable Global-Positioning-System equipment manufactured by the Trimble Corporation and rated for sub-meter horizontal accuracy. Using the satellite positioning receivers, hand-held data collectors, and enhanced, real-time data processing we mapped 1244 mounds. We also made 467 artifact collections (at 37% of the mound localities mapped). The size of the artifact col-

1. The Hueyapan area corresponds, roughly, to the *Municipio de Hueyapan* centered on the town of Hueyapan de Ocampo. It does not include, and should be distinguished from, the area of Olmec/epi-Olmec Tres Zapotes, which is due west of the Tuxtlas on the Arroyo de Hueyapan. The Tres Zapotes zone is located in the *Municipio de Santiago Tuxtla* situated some 50 km to the NW of Hueyapan de Ocampo and the survey area discussed here.

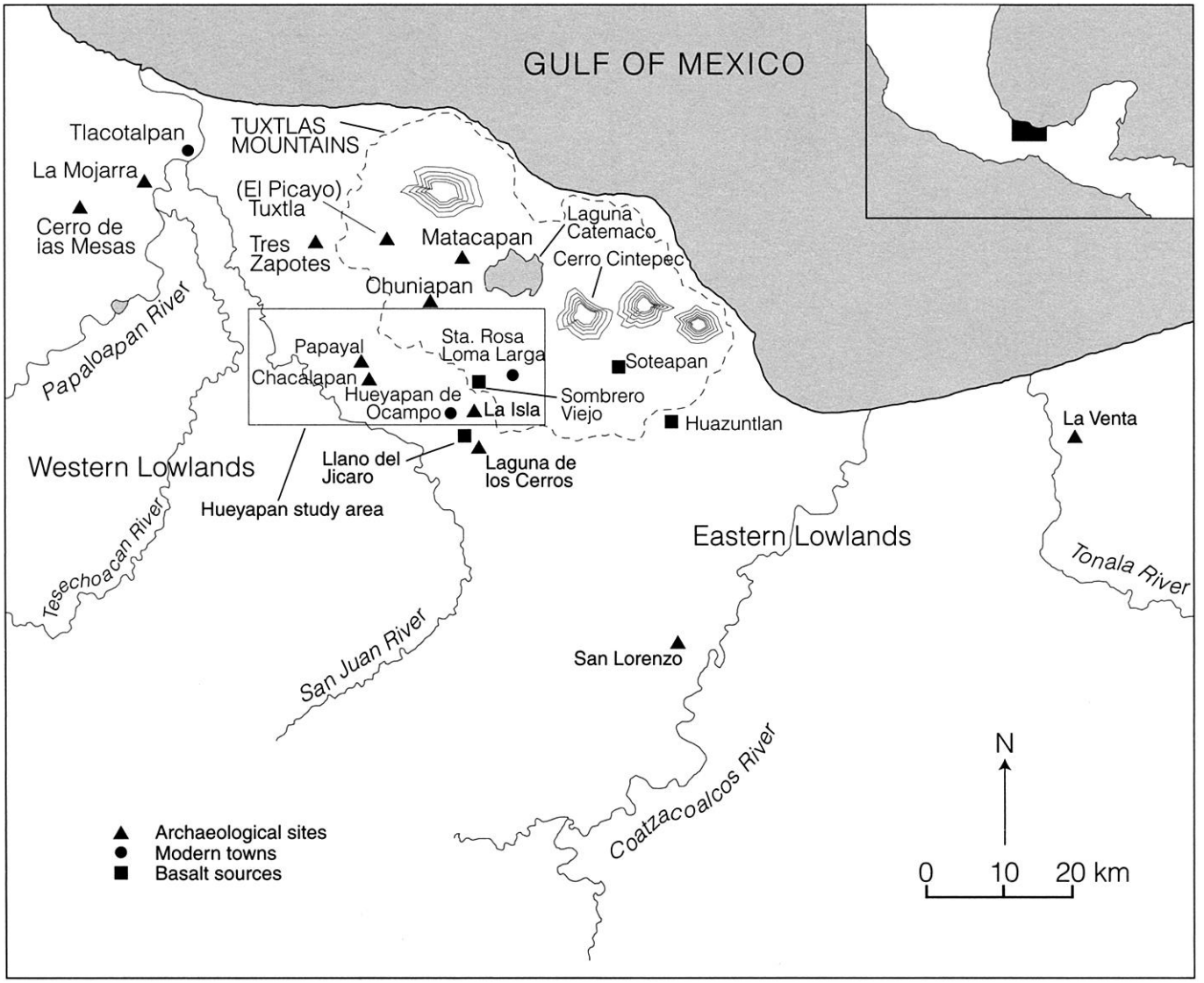


Figure 1. Map of the Southern Gulf Coast with regions and sites mentioned in the text.

lection areas varied as a function of the extent needed to collect a judgmental sample of at least 30 chronologically diagnostic sherds (mostly vessel rims) at each locality. At the end of each day we downloaded the coordinate data and produced contour maps of all the documented features and artifact collections using Trimble's Pathfinder software and the Surfer program by Golden Software Inc. The maps included isolated and aggregated mounds, the area of each collection, the provenience of stone monuments, and key features of the surrounding landscape like prehispanic terraces, walls, and stone quarries, as well as nearby stream courses, roads, and fence lines. The resulting maps were regularly crosschecked and registered against the Mexican government's (INEGI 1983) topographic sheets for southern Veracruz and the aerial photography of the Tuxtlas and adjacent areas. These methods allowed eight archaeologists divided into two teams to systematically search, map, and surface collect within 180 sq km in some 60 field days.

Ceramics from surface collections provide, at best, only a rough measure of population levels. Using the relative percentages of ceramic types defined in the Tuxtlas (Ortíz Ceballos 1975) and elsewhere in the Gulf lowlands (e.g., Coe and Diehl 1980a) as a preliminary index, our artifact collections demonstrate that the density of settlement in the Hueyapan region rose more than once between 1500 B.C. and A.C. 1500. We suspect that the observed declines during the Early Classic and Postclassic are artifacts of the

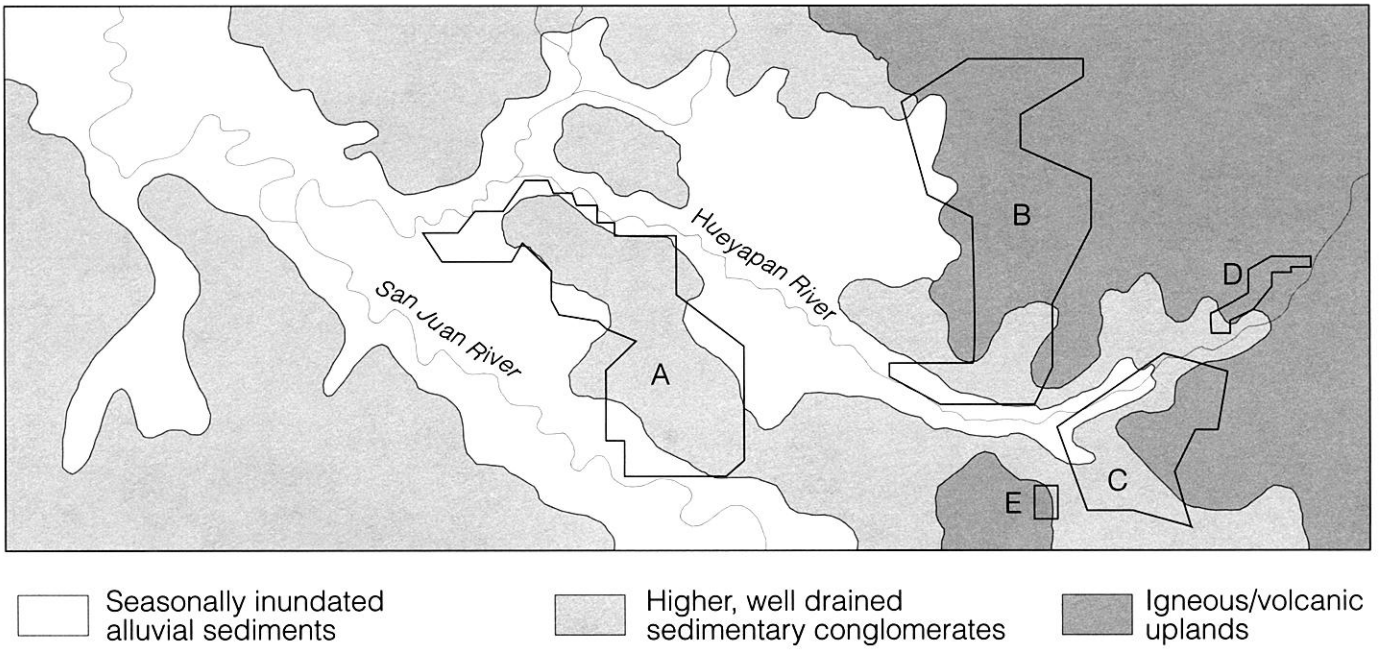


Figure 2. The survey area with rivers, physiographic zones, and the survey blocks completed in 1998.

ceramic typology that we employ, which needs a great deal of chronological refinement. In spite of this limitation, these data appear to indicate a record of overall settlement growth throughout most periods of Mesoamerican history (FIG. 3).

The small but steady increase in evidence for settlement during the Formative period (1500 B.C.–A.C. 200) might first be related to the area's importance as a locus of Olmec monument production and later as a zone of agricultural expansion. The subsequent Early Classic period in the Hueyapan area, on the basis of the existing ceramic chronology, remains problematical and is discussed in more detail below. Between about A.C. 400 and 1000, evidence of farming settlements and associated centers with monumental architecture suggest that the Hueyapan area reached its prehispanic maximum of settlement. Because of the inability to identify Postclassic ceramics in this area, we still do not understand the demographic trajectory in the long period between the Late Classic and the Spanish conquest. Curiously, ethnohistorical sources suggest that the Gulf lowlands had fair population levels just prior to the Spanish conquest[2] (de Cangas y Quiñones 1984; González de Cosio 1952; Gerhard 1986; González Jácome 1988; del Paso y Troncoso 1905; Scholes and Roys 1968; Scholes and Warren 1965; West, Psuty, and Thom 1969). Native American populations, from central Veracruz to Tabasco, were drastically reduced by disease and other causes in the 16th century during European contact (Siemens 1998).

Basic questions about resource distribution, the organization of production, and development of political and economic power in this area during the prehispanic era still remain to be answered. Yet the existence of impressive lahars—remnants of mud floods associated with volcanic eruptions that rapidly transport massive blocks of basalt (Francis 1981: 180–184)—strongly suggests that the area's early Olmec stone carvers did not need to quarry the large boulders at any single location but simply hauled their material from stony fields. The ubiquity of boulders across much of the piedmont and mountain landscapes, in association with settlement from all time periods, also suggests that basalt resources were continually exploited. The basalt that originally drew us to this area was but one of the attractions Hueyapan held through much of prehispanic times. To highlight what now appears to be the rich cultural legacy of the Olmec, we elaborate on the results of the survey thus far and indicate how these data are beginning to change our thinking about this area during most periods of Mesoamerican history.

Formative Hueyapan: From Basalt Sources to the Olmec Prestige Economy

The earliest evidence of human occupation in the Hueyapan area detected thus far dates to the Early Forma-

2. With many reservations, Scholes and Warren (1965: 779) tentatively suggested a population estimate of 150,000 to 200,000 inhabitants in the region from the lower Papaloapan drainage, the Tuxtlas, and the lower Coatzacoalcos drainage.

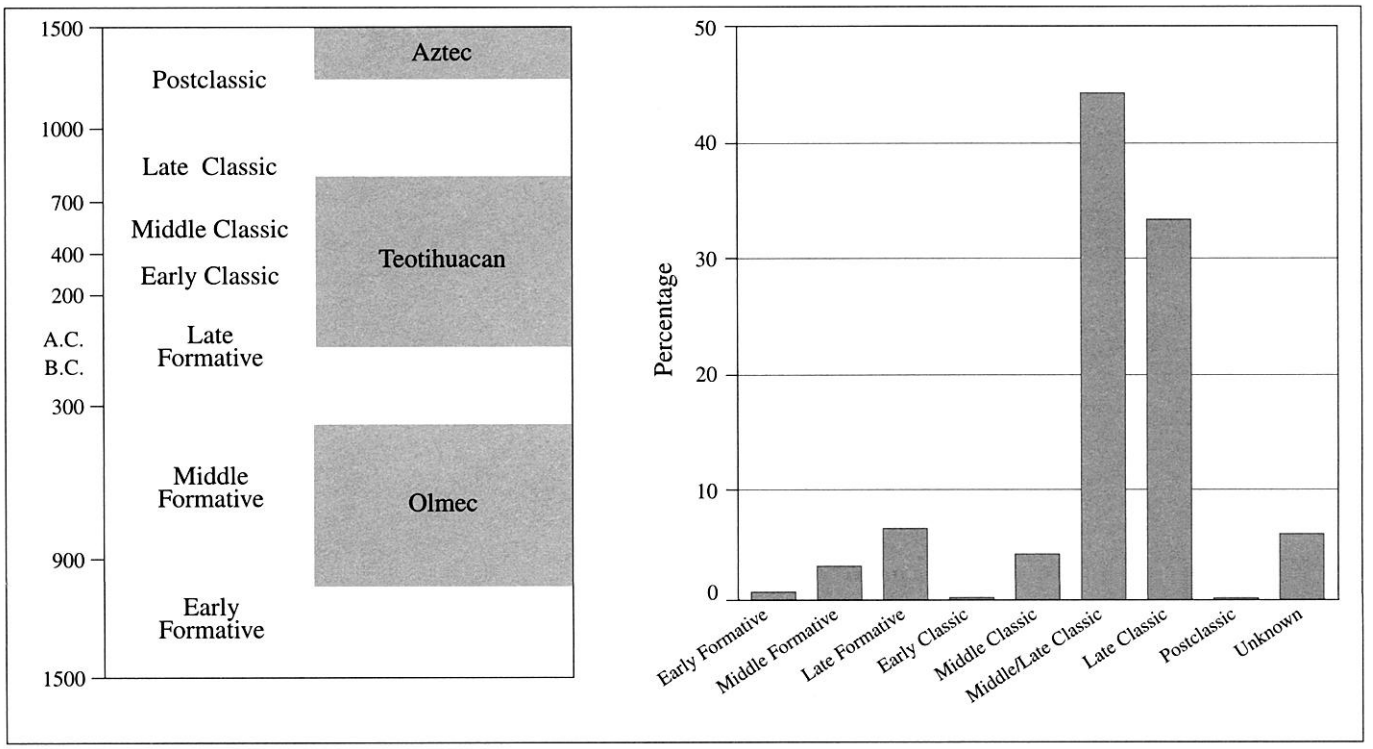


Figure 3. Provisional Hueyapan temporal framework and ceramic percentages from the 1998 survey collection (the number of collections with material from each time period is indicated as a percentage of the total number of collections in the 1998 survey).

tive (1500–900 B.C.) (FIG. 4A). Scattered along the elevated banks or levees of the area's largest streams we collected sherds of thin and finely made zone-decorated *tecomates,* a pumpkin-shaped vessel characteristic of the Early and Middle Formative throughout much of lowland Mesoamerica. These and other finds are reminiscent of ceramic types of the Barra and Lacona phases of the Pacific coast of Chiapas and Guatemala, as well as some zoned-incised types of the slightly later Ojochi and Bajio phases (e.g., Ciruelo Red-rimmed, Embarcadero Zoned) at San Lorenzo, which date to 1250 B.C. or earlier in those areas (Clark 1994: 33; Coe and Diehl 1980a: 137–159; Lee 1989: 204–205). At present, we can only guess at the economic orientation of these people, but they were clearly tied to the river courses and to areas that for part of the year were largely flooded. Perhaps an early dynamic of lowland settlement was river-borne communication and transportation, as Cyphers (1997) has suggested for the Olmec of San Lorenzo and La Venta. The river courses and inundated areas of the southern Gulf lowlands also clearly provided high concentrations of wild resources to complement garden production by lowland horticulturalists.

Sometime during later Early and Middle Formative times (1250–400 B.C.) the Hueyapan area had filled in with much more settlement (FIG. 4B). We found numerous locations where stylistically Olmec and more general types of Formative pottery were deposited much further away from the river courses and major tributary junctures than in previous times. These types correspond closely with materials in the Olmec ceramic complex defined by Coe and Diehl (1980a: 159–187) at San Lorenzo and are the most common types we use to date our collections. These types include thicker, brushed tecomates (similar to Camaño Coarse, Macaya Scored, and Tatagapa Red), a large variety of bowls with carved and incised motifs (similar to Calzadas Carved and Limon Carved-Incised), differentially fired vessels (similar to Perdida and Tular Black and White), and polished/incised black wares (similar to Mojonera Black).

The presence of these types in slightly upland contexts, well away from the high contour of seasonal inundation, may be due to different processes of colonization. The observed Middle Formative settlement shift in the Tuxtlas, attributed by Santley (1992) to population relocation following volcanic eruptions, may be one of them. Another could have been the establishment of settlement in the piedmont of the Tuxtlas Mountains and the spatial expansion of early maize farming away from riverbank levees.

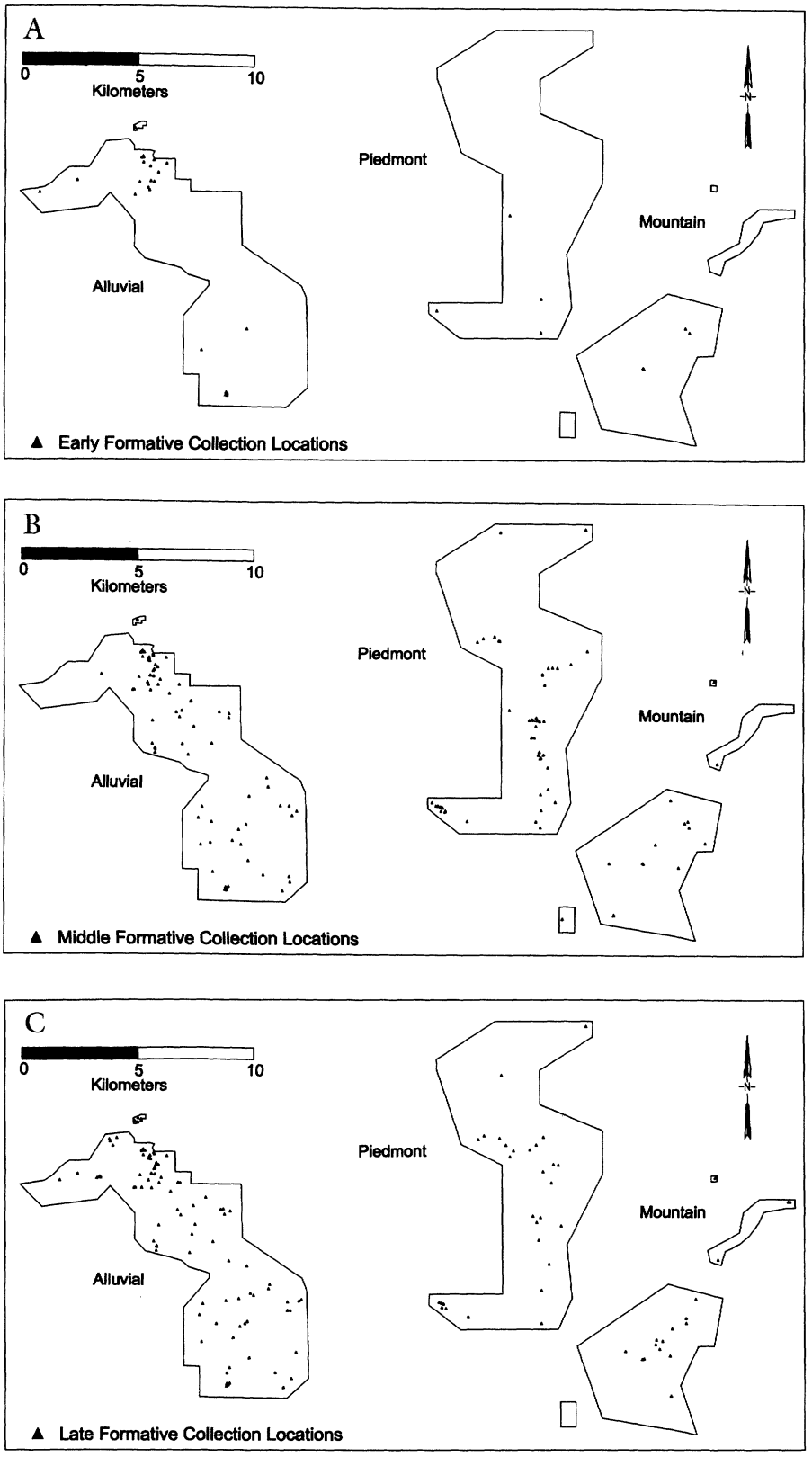


Figure 4. Distribution map of the 1998 Hueyapan survey collections with ceramics dating to A) Early, B) Middle, and C) Late Formative periods.

These new locations may also indicate reliance on the Hueyapan lahars for stone destined for transport to basalt-poor centers along river courses some 50–90 km to the south and east. We have located a number of workshops for the production of both domestic tools (manos, metates, and other grinding implements) and monumental works of stone (FIG. 5). Since stone carving may have been ubiquitous across much of this landscape at most periods in the past, additional investigations of these localities are needed to date them more accurately. It may then be feasible to conclusively relate increased settlement in the Hueyapan piedmont to stone working at Llano del Jícaro or to the setting of Olmec monuments at the nearby center of Laguna de los Cerros and its immediate hinterland (Gillespie 1994; Grove 1994; Grove et al. 1993; Medellín Zenil 1960a).

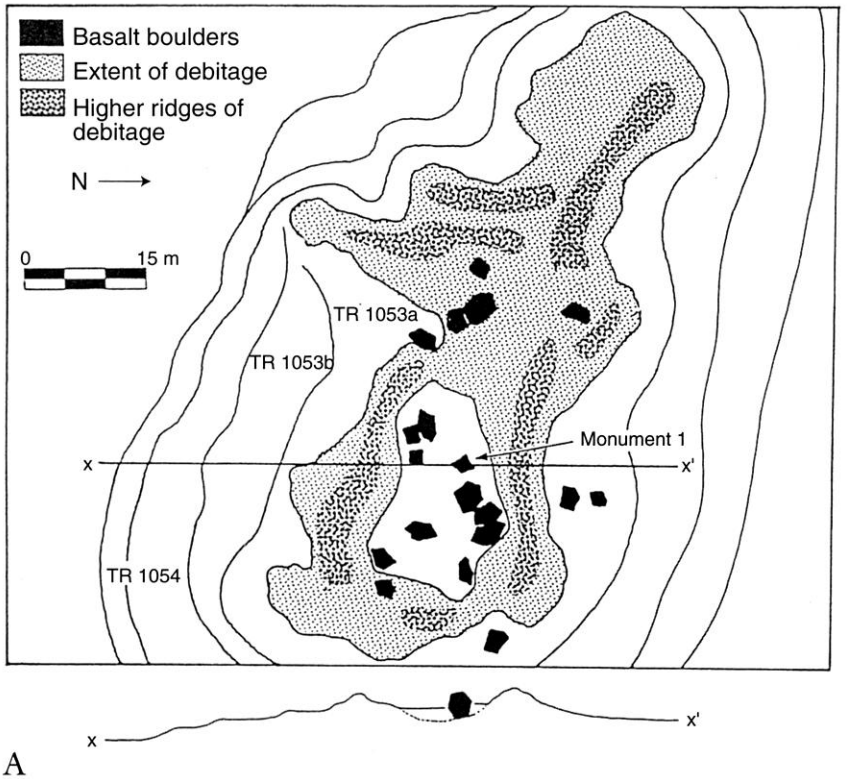
Surveyed portions of the study area show a two-fold increase in the frequency of material during Late Formative times (300 B.C.– A.C. 200) over collections with Middle Formative materials (FIGS. 3, 4B, C). Local inhabitants may have increased their numbers on higher ground at this time, breaking with the earlier focus on riverine settlement, as evinced by ceramic collections recovered from all parts of the Hueyapan landscape. Ceramic diagnostics for the Late Formative resemble several types known from Matacapan, including Polished Black, Polished Orange, Incised Brown, Bichrome Red, Burnished Black, and White on Orange. Also at this time there may have been at least three larger-sized settlements in the survey area. At one, a locality known as Papayal-Chacalapan (FIG. 1), we found possible evidence for large-scale pottery production. The site, a complex of mounds and dense pottery scatters in and around the contemporary community of Chacalapan, has an area of several hectares with an unusually high density of sherds. Within it, and spreading through a small mound and its adjacent area, there is another scatter limited almost exclusively to a couple of Late Formative vessel forms and wares. It looks as if the site of Papayal, within the larger Late Formative settlement area of Chacalapan, may have been producing standardized ceramics for local if not regional distribution. As such, Papayal may be one of the earliest examples of specialized pottery manufacture identified thus far in lowland Mesoamerica. Alternatively, the site may represent a context where other behaviors related to the two vessel forms were carried out at a high level of intensity.[3]

3. Doctoral research being carried out at this location by Tammy Szatkowski, from the University of Pittsburgh, should help to clarify the nature of Late Formative activities at Papayal.

Classic Period Hueyapan: Increasing the Scale of Economic and Political Integration

The Early Classic part of Hueyapan's settlement history and ceramic chronology is both striking and unexpected (FIG. 6A). On the surface, at least, it would appear that the area was largely abandoned from about A.C. 200–400 (diagnostic ceramics decreased from the Late Formative level [8%] to less than 1%). Early Classic ceramic types, well known from collections at nearby Tres Zapotes and Cerro de las Mesas, as well as other sites in central Veracruz (Diehl 1997; Pool 2000; Stark 1989; Stark and Curet 1994), are virtually unknown in the Hueyapan area. A similar pattern has been observed in the nearby Tuxtlas region and attributed there to volcanic disturbances and subsequent depopulation (Santley and Arnold 1996). This explanation seems unlikely in the Hueyapan area because the effects of both Formative and Classic period volcanism were localized to the central Tuxtlas west of Laguna Catemaco. In fact, the eastern Tuxtlas uplands, adjacent to Hueyapan, have not been volcanically active for more than 60 million years (Nelson and Gonzalez-Caver 1992). Two factors may account for the observed drop. Hueyapan's Early Classic ceramics may be indistinguishable from either Late Formative or Middle Classic period types, creating a false impression of a settlement gap. Pool and Britt (2000) have suggested that the Late Formative lasted longer than proposed by Santley and Arnold (1996), perhaps as late as A.C. 300, which might account for the perceived hiatus. Subsequent Early Classic developments, in the Tuxtlas region at least, may also have included distinct but contemporaneous (local and foreign) ceramic traditions related to the arrival of Teotihuacan emigrants at Matacapan (Pool and Britt 2000: 142–143). The implications for the Hueyapan area, lying some 20 km south of Matacapan, are unclear. It is still possible that that area may have been temporarily abandoned for reasons unknown at present. Subsequent dramatic growth in Middle and Late Classic settlement, however, makes abandonment at the end of the Formative unlikely. Stratigraphic testing and radiocarbon dating of appropriate contexts are necessary before the Early Classic chronology and settlement hiatus can be related to the epi-Olmec and Early Classic occupations at Cerro de las Mesas, La Mojarra, Matacapan, and Tres Zapotes.

The 1998 survey identified a spectacular increase in Hueyapan settlement density beginning in the Middle Classic (A.C. 400–700) and persisting through the Late Classic period (A.C. 700–1000) (FIG. 6B, C). Diagnostic ceramics for the Middle Classic account for some 5% of the surface assemblage, materials corresponding to either the Middle or Late Classic total 45%, and those falling exclusively within the Late Classic represent 33% of our ceram-



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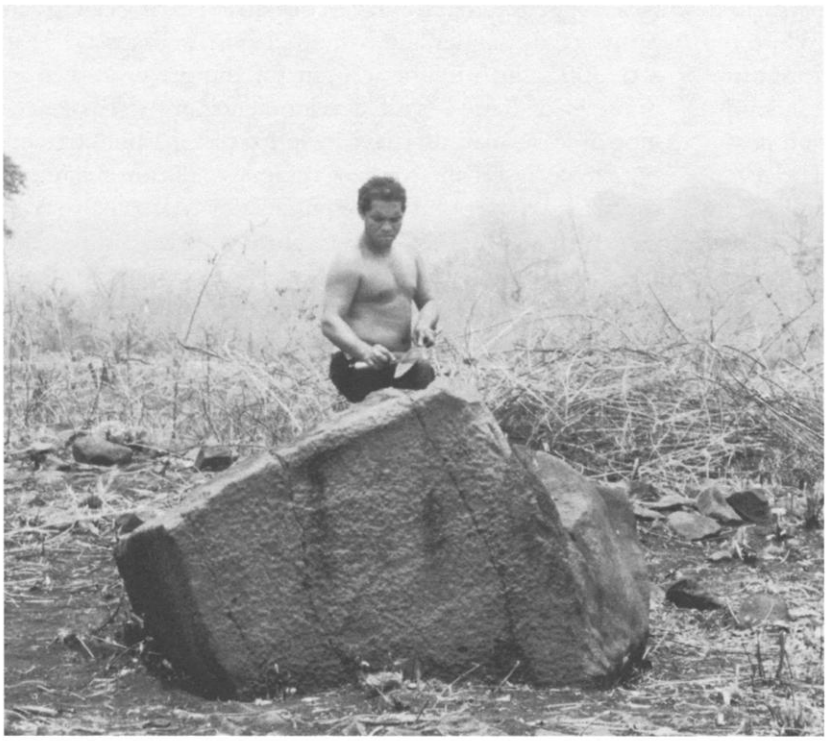


B

Figure 5. A) Plan and profile of the basalt workshop for monumental blocks at Sombrero Viejo, and B) photograph of Monument 1.

ics (FIG. 3). More than 85% of the mound locations collected yielded Middle and/or Late Classic ceramics. The distribution of all mounds is dispersed, yet approaches a density of one platform mound every few hundred meters across much of the area surveyed (1244 individual mounds in an area of 178 sq km or 7 mounds per sq km). This pattern resembles the observed density (although absolutely lighter) and distribution of occupational mounds in Stark's (1999) 40 sq km survey area or "capital zone" around Cerro de las Mesas. Settlement dispersal in the Hueyapan region conforms, very roughly, to the distribution of settlement observed around Middle and Late Classic Matacapan and at other locations in the Tuxtlas, although the pattern of settlement in the Tuxtlas appears more nucleated than either the Hueyapan region or the area around Cerro de las Mesas (Santley and Arnold 1996). As elaborated below, Hueyapan's spike in Middle to Late Classic period settlement contrasts sharply with the dramatic drop in occupation on the alluvial plains of the Coatzacoalcos and Tonala drainages to the east and south of Hueyapan for the Late Formative and most of the Classic (Coe and Diehl 1980a; Gómez Rueda 1996; von Nagy 1997; Rust and Sharer 1988; Sisson 1983; Symonds and Lunagómez 1997).

As already indicated, Classic period settlement in the Hueyapan area is relatively continuous and not particularly site-centered. The overall density of settlement (frequency of mounds per sq km), however, suggests relatively high levels of population for lowland Mesoamerica and implies an intensively farmed and thickly settled agrarian landscape which, to date, remains largely undocumented in the southern Gulf lowlands. The configuration of some of the larger mound groups also implies growth and greater integration of Hueyapan's economy and political organization.

Some clustering of Hueyapan settlement is observable in the formally configured mound groups. These groups probably provided administrative nodes in the political organization of the region and a residential locus for the local elite. Large, formally configured mound groups, one of the most common features of the Classic period cultural landscape, appear to have been spaced, on average, less than three km apart across much of the study area. Twenty-six monumental groups, most with different site orientations and varying in the density of surrounding habitational mounds, have been identified in the survey area (FIG. 7). All but eight are remarkably similar in appearance though not in size or construction volume. Two parallel long mounds, a tall pyramid at one end and a small mound closing the opposite side, define the long open plaza which is the principal architectural feature at each group (FIG. 8). In several instances we found plain basalt stelae in the center of the long plaza and/or in front of the structures along the long axis.[4] While there has been a tendency to interpret all paired elongated mounds in the region as ballcourts (Medellín Zenil 1960b; Valenzuela 1945), the presence of plain monuments and other features of the plaza groups suggests otherwise. A third, shorter long mound generally flanks the exterior of the long plaza. This shorter mound and the corresponding part of one of the principal elongated mounds of the plaza group constitute a more likely candidate for a ballcourt. A large quadrilateral mound, probably an elite residence, is often situated near the long plaza or may even abut one of the long side mounds as at nearby Laguna de los Cerros (Bove 1978: 49; Stuart 1993: 88–107), featuring a particularly large example of the pattern just south of the Hueyapan study area.

This "normative" long-plaza building complex is repeated, varying in scale and complexity, in alluvial, piedmont, and mountain contexts throughout the Hueyapan area. Differences in size and construction volume in the plaza groups suggest at least a three-tiered hierarchy in the survey area (Domínguez Covarrubias 2001: 104–122). Variation that crosscuts this hierarchy includes double and triple plaza groups of decreasing size that are either dispersed or linearly arranged within the settlement nuclei. With the current data we have no means of accounting for such variability. One possibility is that it reflects different strategies of construction accretion. While some of the plaza groups might have been built vertically, covering earlier and smaller versions with later larger structures, others probably expanded horizontally.

In fact, this formal architectural pattern has been widely documented in the southern Gulf lowlands (Blom and LaFarge 1926; Cobean 1996; Coe and Diehl 1980a; Ceja Tenorio 1997; Gómez Rueda 1996; Valenzuela 1945; Weyerstall 1932), along the Papaloapan drainage (Medellín Zenil 1960a; Stark 1999), and further west toward central Veracruz (Daneels 1997). Some researchers have provided excavated evidence or implied that the "long-plaza complex," as defined here, has ancestral links to the Middle Formative Olmec (Coe and Diehl 1980a; Heizer, Drucker, and Graham 1968; Symonds and Lunagómez 1997), although Stark (1999) and Daneels (1997), among others (Ceja Tenorio 1997; Gómez Rueda 1996), believe it to be characteristic of the Classic. The long mounds of Hueyapan appear to constitute a largely Classic Period phenomenon although its inception may well have Formative roots.

4. The plain stela cult in southern Veracruz has been documented as early as the Terminal Formative at Tres Zapotes (Pool, personal communication 2000), but its context at that site is not a plaza group like the one defined here.

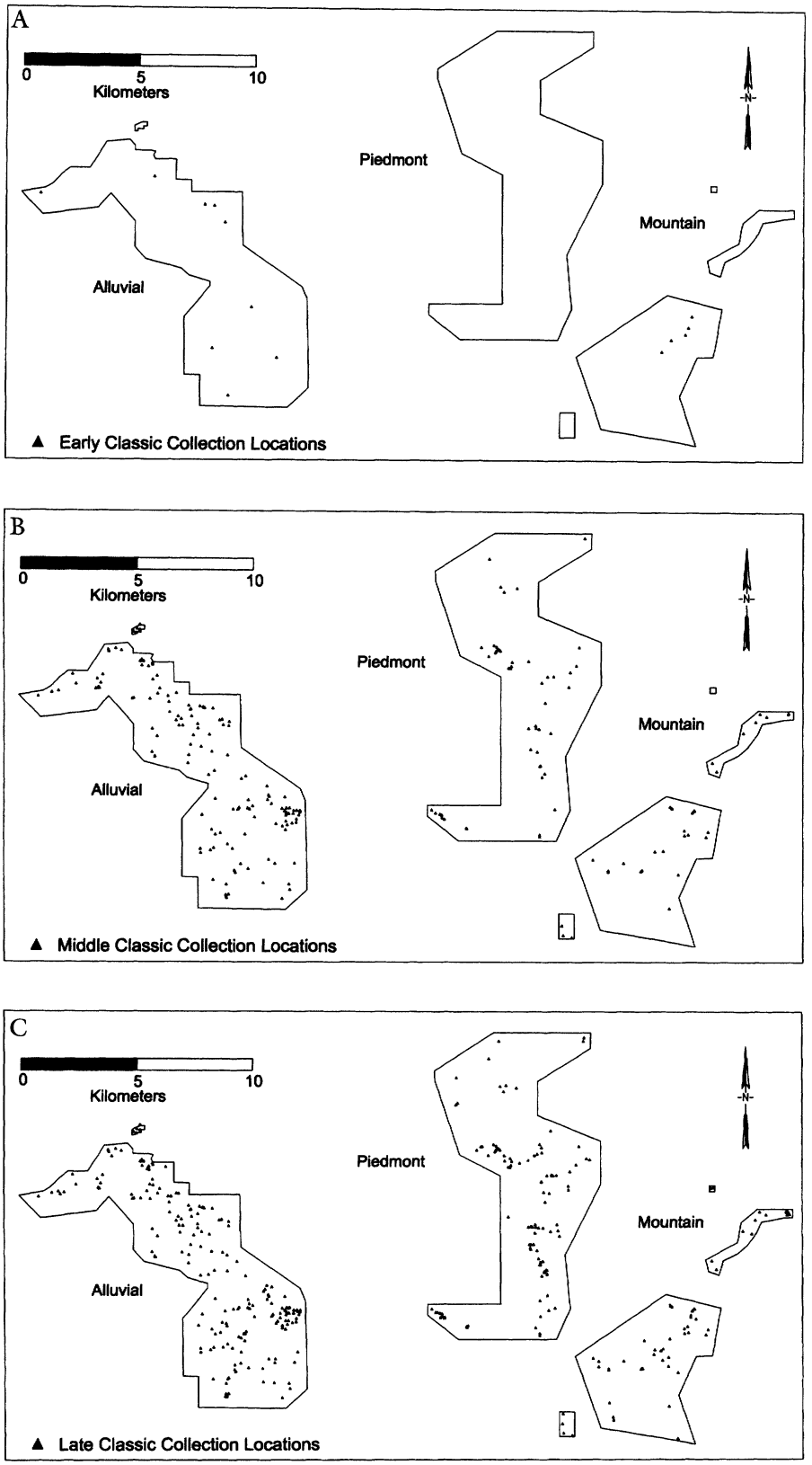
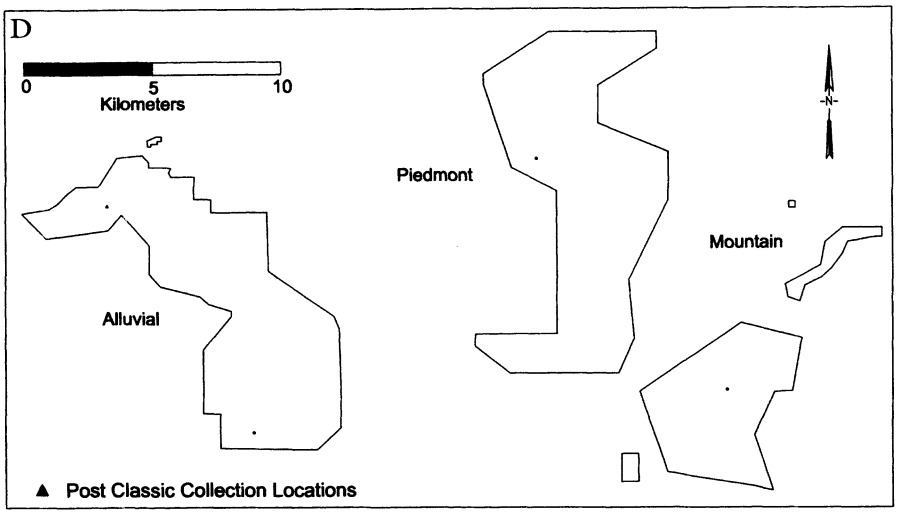


Figure 6. Distribution map of the 1998 Hueyapan survey collections with ceramics dating to A) Early, B) Middle, C) Late Classic, and (facing page) D) Postclassic periods.



Because of their variable orientation, it seems that the long-plaza complexes in the study area, unlike the standard northerly orientations of Formative Period San Lorenzo and La Venta, were aligned toward landmarks on the horizon (the peaks of the Tuxtlas rise visibly to the north and east of the survey area) or perhaps to other sites in the local system of settlement.

This architectural configuration may represent the nodes in a local network of elite estates integrated by hereditary, ceremonial, and political relations. These units, sharing a mixture of residential, administrative, and ceremonial functions, could have been linked by a shared ideology of rulership made manifest in a redundant pattern of monumental architecture. The Hueyapan long-plaza complexes also could have been part of a much larger system of settlements exhibiting the pattern in the San Juan River valley and much of southern Veracruz in a still unnamed polity during Middle and Late Classic times. The possibility that this repetitive architectural layout represents the ceremonial, administrative, and residential signature of a Classic Period regional state in the southern Gulf lowlands, however, requires a great deal more critical evaluation. Existing models of southern Gulf lowlands political and economic organization assume that Classic period growth was stimulated either by exogenous influences (e.g., the Teotihuacan enclave model for Matacapan [Santley 1989, 1994]) or largely local factors (the independent or autonomous scenario for Cerro de las Mesas [Stark and Curet 1994]). In addition, Classic Period polity size has been especially difficult to determine in the southern Gulf lowlands (Gómez Rueda 1989, 1991; Stark 1997, 1999). Some assessments have invoked environmental determinism, following a lowland Maya model, and envisioned a highly segmented political landscape made up of numerous small units competing for agricultural land and other resources (Palerm and Wolf 1957: 21–22; Sanders 1971: 550). To date, not enough information has been collected to evaluate either a small-scale, peer-polity model (cf. Renfrew 1986) or the large-scale regional state alternative for this region. Further stratigraphic testing and dating of a sample of Hueyapan long-plaza groups is necessary before their temporality and function can be further evaluated.

Hueyapan's local political economy may have continued to diversify throughout the Classic Period building on the stone working and pottery production traditions established during the Formative. The dispersed but dense distribution of Hueyapan's Middle and Late Classic settlement system suggests an agriculturally oriented economy. During these times a striking settlement feature emerged on the stony uplands of Hueyapan's piedmont and mountain sectors. Surrounding the plaza complexes or adjacent to solitary mound features and smaller architectural groups are large areas containing relic stone foundations of varying size (FIG. 7). Interspersed among the jumble of rectangular "room blocks," walls, and terraces are many hundreds of stone circles ranging from 1 to 5 m in diameter. Similar features have been observed by de Montmollin (1988) in Chiapas where he postulates they represent ancient maguey roasting facilities.

Our stone circles may have been used for agricultural purposes. Filled with gravel and soil, as many of the features remain today, they would have provided a planting medium close to settlements where moisture, soil texture, and other planting conditions could be controlled more efficiently. Specialized crops such as cotton, cacao, or even tobacco might have been grown in these circles, handy to residences, where a shade and moisture regime was more easily managed by pot irrigation than in more distant rain-

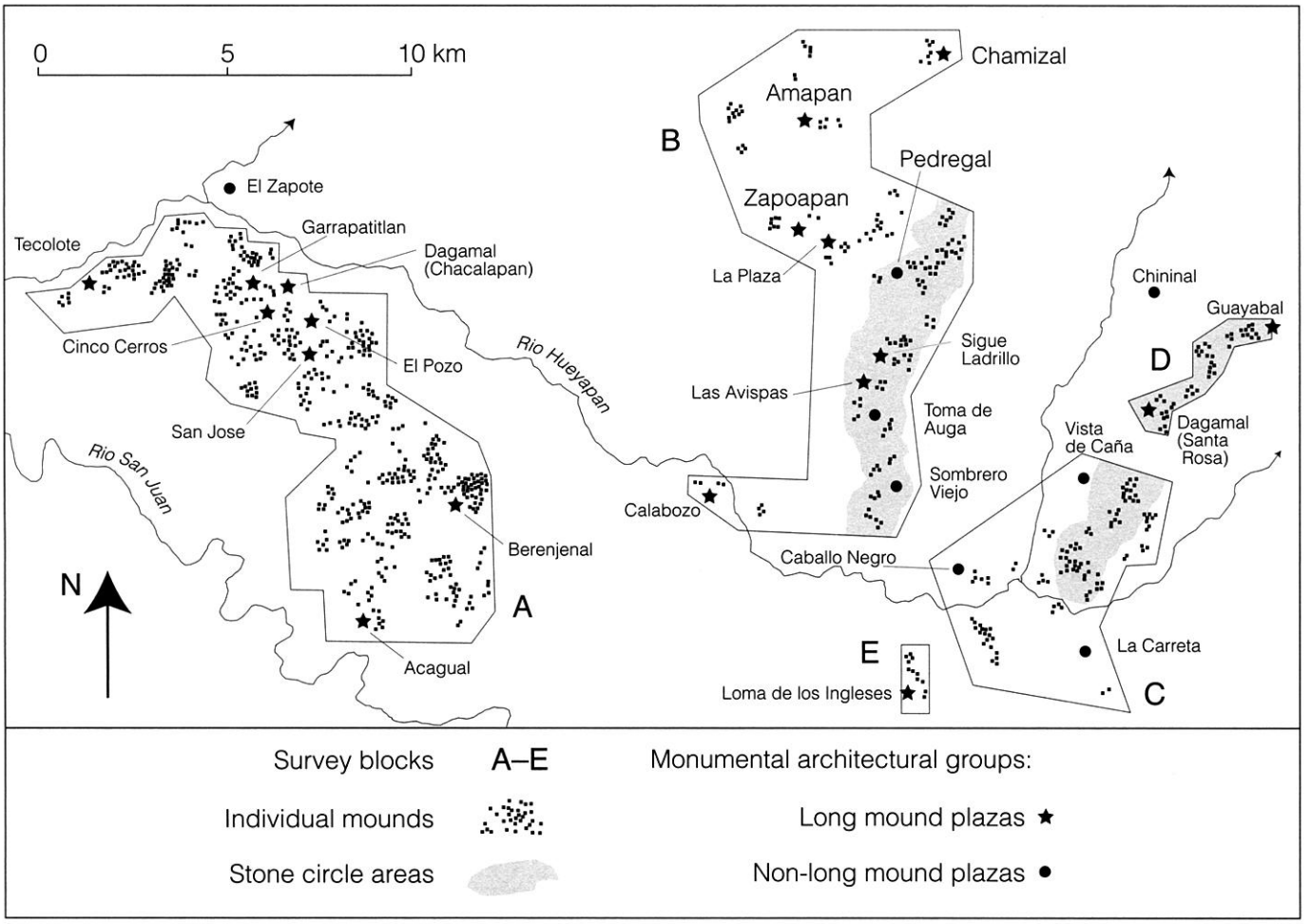


Figure 7. Distribution of the settlement, nuclei of monumental architecture, and areas with stone circles documented during the 1998 Hueyapan Survey.

fed outfields vulnerable to weeds and pests. Specialized agricultural products may have been exported from the region or collected as local tribute. Intensive agricultural production on well-drained upland soils in proximity to residences could have provided the necessary surpluses to stimulate the growth of the Hueyapan political economy and funded increased investments in both local and more far-flung economic and political enterprises. Agricultural specialization for tribute and/or export, focusing on the settlement and stone circle features located in the piedmont/mountain sector, is clearly an important topic for future research in the Hueyapan area. If these features are not agricultural but represent funerary facilities, foundations of storage structures, or stone-working localities, unraveling their function may still provide a demographic index or measure of economic specialization. The stone circle zones of the Hueyapan uplands, unknown elsewhere in the southern Gulf lowlands, must be mapped, excavated, and dated before their significance to the Hueyapan political economy can be determined.

Hueyapan during the Late Postclassic: Integration into a Far-flung Imperial Economy?

The Postclassic part of the Hueyapan ceramic chronology suffers from much the same dilemma that plagues the Early Classic segment of the sequence already discussed. So far we have found only two Early Postclassic ceramic diagnostics (Tres Picos Esgrafiado and False Plumbate). According to these ceramic criteria, the study area would have been almost completely abandoned by A.C. 1000. Data from the Mixtequilla region indicates an Early Postclassic hiatus, but there is ample evidence of later ceramic assemblages (Curet, Stark, and Vásquez 1994). For the Tuxtlas region, Pool (1995) and Santley and Arnold (1996) have argued that the lack of identified ceramic diagnostics might have to do with conservatism in Late Classic ceramics or re-

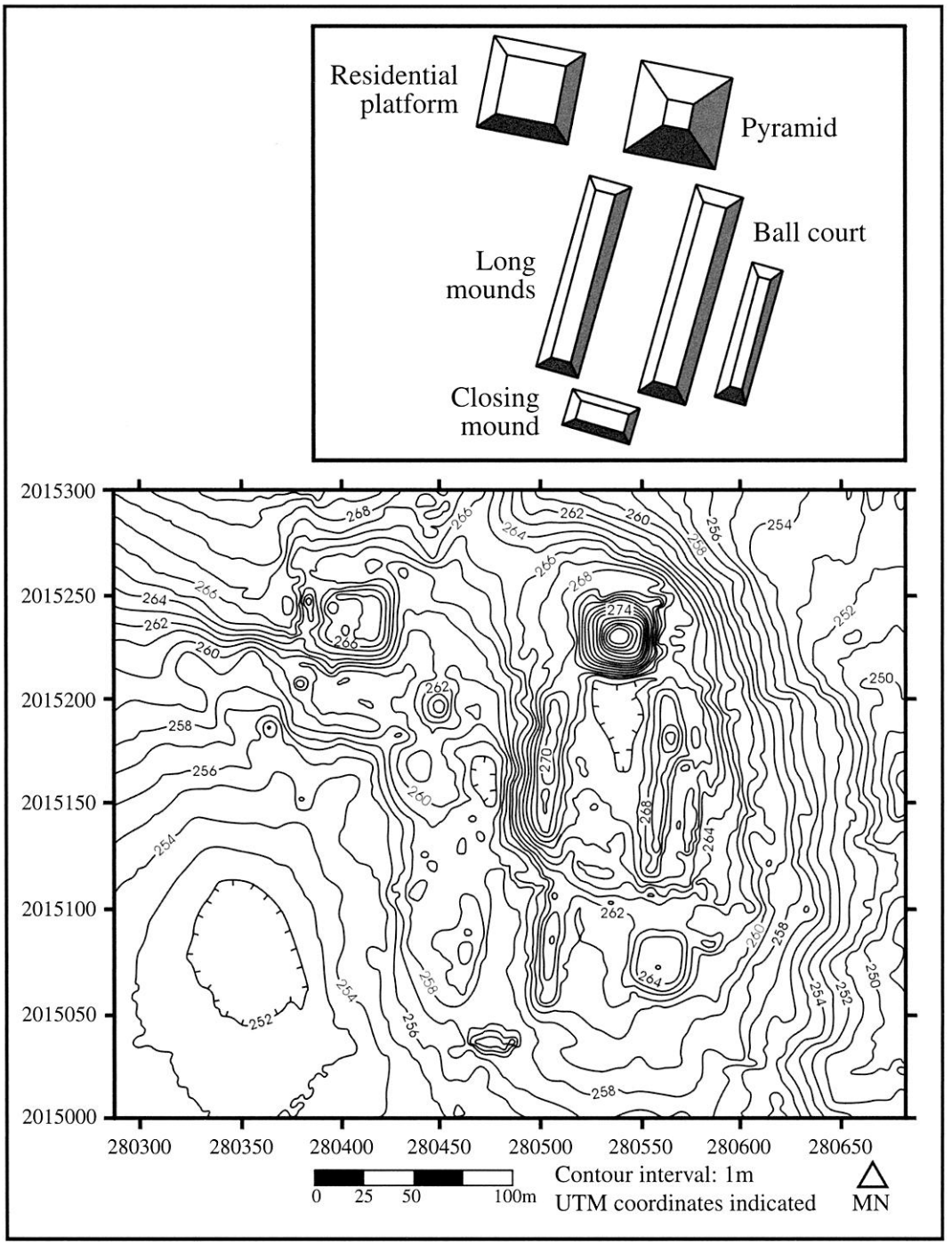


Figure 8. Idealized rendition of the long plaza (above), and contour map of an actual long plaza, surrounding mounds, and monuments at Guayabal (northernmost plaza group in survey block D on FIG. 7).

sult from a paucity of assemblages dated to the Postclassic. Detailed excavations to anchor the Hueyapan ceramic chronology with a suite of radiometric dates are necessary before any Postclassic ceramic "gap" can be further addressed. In the meantime, we have adopted the strategy of working back in time from available ethnohistorical sources to provide a provisional framework for beginning to understand the last part of Hueyapan's prehispanic sequence.

By the 15th century the empire of the Triple Alliance,

formed in the Basin of Mexico, had begun a process of expansion that integrated distant regions in several parts of Mesoamerica. One of these, the province of Tochtepec (now Tuxtepec), was centered on the middle drainage of the Papaloapan River immediately west of Hueyapan. Carrasco's (1999) study of the empire, based on the Codex Mendoza and additional sources from Tetzcoco and Tlacopan (the other two partners of the Triple Alliance), produced a list of 48 tributary towns for the province of Tochtepec and identified the location of 33 (FIG. 9). Carrasco notes a great deal of variability in the empire's relations with incorporated and unincorporated polities as exemplified by the mosaic of imperial strategies along its NE frontier. For instance, Tochtepec shared boundaries some 50 km to the south with the autonomous kingdom of Coatlicamac; there was also an apparent military agreement between the Triple Alliance and the Zapotec kingdom of Xaltepec just east of Coatlicamac; Tenochca tribute collectors were established in Tochtepec, Tlacotalpan, and Toztlan (also written as Tustla in other sources); primary and secondary Tenochca garrisons (Berdan and Anawalt 1997: 29–30, 120) were stationed at Analco and Atzaccan; and special arrangements were made allowing imperial merchants and envoys to travel across independent polities along the route to Xicallanco at Laguna de los Términos.

Of relevance to the Hueyapan study area is the information contained in the 1580 *Relación Geográfica de Tlacotalpan* (RG) (del Paso y Troncoso 1905: 5), which states that the last prehispanic lord of Tustla (now Santiago Tuxtla[5] some 15 km west of Laguna Catemaco), extracted tribute from his local subjects before being incorporated into the imperial economy and having a Tenochca tribute collector in residence. The document also mentions that Tustla shared boundaries with a town called Chacalapan and that the latter belonged to the province of Guazaqualco (Coatzacoalcos), a region controlled in Postclassic times by an independent kingdom not subject to the Triple Alliance (Coe and Diehl 1980b: 11–12). This statement could mean that during the Late Postclassic Chacalapan was not under imperial tributary demands. Today, there is a town named Chacalapan ("Chacalacacan" in Coe and Diehl 1980b: 15, fig. 1) east of the Tuxtlas and close to Coatzacoalcos (INEGI, Carta Geológica 1983) (FIG. 9). Colonial and modern sources, however, indicate that Late Postclassic Chacalapan was, in fact, located along the middle course of the San Juan River, roughly in the center of our study area. This Chacalapan, identified in the sources as Iztac Chacalapan (Chantal Esquivias, personal communication 1999), is a thriving community of the same name today and overlies the Formative period settlement of Papayal-Chacalapan.

Such identification has important implications concerning the potential incorporation of the local Hueyapan economy into the imperial tributary system at the end of the prehispanic sequence. According to the Codex Mendoza (Berdan and Anawalt 1992), the bulk of tribute pooled at Tochtepec was decorated and undecorated cotton blankets. The specified quantities, paid on a yearly basis, included 1600 loads of rich mantles (those used by the ruling elites across the settlement hierarchy), 800 loads of mantles decorated with red and white stripes, and 400 loads of female garments (*naguas* and *huipiles*) (Barlow 1949: 95). The study area, which includes Iztac Chacalapan and its hinterland, encompasses environmental zones where annual rainfall, temperature, and altitude are highly suitable to cotton production (Gómez-Pompa 1973; Berdan 1987; Stark 1978; Stark, Heller, and Ohnersorgen 1998). A Postclassic Hueyapan specialization in the production of cotton may be possible to address in the archaeological record by examining the relative frequency of spindle whorls through time as an index of production output. A dramatic increase in such production during the Late Postclassic could signal the tributary demands implied by the Codex Mendoza; they could, however, just as easily reflect tributary demands by the neighboring and autonomous polity of Coatzacoalco. In fact, Hueyapan cotton production for tribute and/or export may have already been intensified on the stone circle zones sometime in the Classic Period. Since only 35 spindle whorls were recovered in the 1998 survey, a comparison of relative frequencies of spindle whorls through time will require substantial additional research.

At present, we are limited by the problems with the Postclassic ceramic chronology and the eroded condition of ceramic materials collected on the surface. The materials recovered from the study area in 1998 did not yield Aztec ceramic types. If our understanding is correct regarding the tribute claims of the Triple Alliance on what was an environmentally diverse and seemingly wealthy part of the Tochtepec province, one would expect fair population levels and economic surpluses in the region during the Late Postclassic. As already mentioned, however, the current archaeological data from Hueyapan and the Tuxtlas are at odds with ethnohistorical documents that also hint at reasonable population levels in the southern Gulf lowlands at the eve of the Spanish conquest.

If ceramic evidence for interaction with central Mexico

5. A large civic-ceremonial complex in the Tuxtlas region lies 2 km north of Santiago Tuxtla (Santley, personal communication 2000). Known today as El Picayo (or Los Chaneques), this site may have been during Postclassic times the settlement referred to in the RG as Tustla.

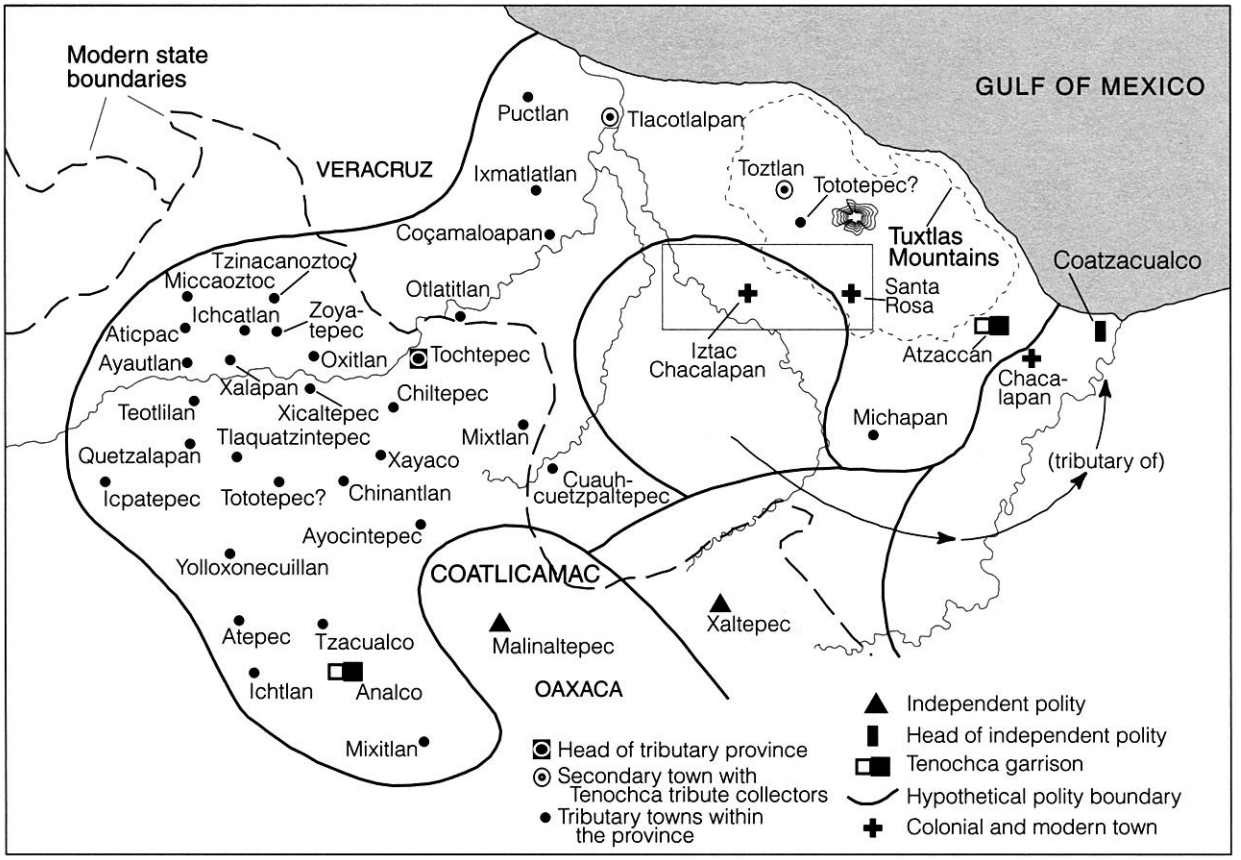


Figure 9. Map of the province of Tochtepec following Carrasco (1999), with additional sites mentioned in text.

has been elusive thus far, other kinds of material culture still provide some tantalizing leads. In the mountain sector of the study area, south of Laguna Catemaco, we documented two stone sculptures in the collections of the museum at Santa Rosa Loma Larga (FIG. 10). While these items lack specific provenience, they come from within the municipal boundaries of this contemporary Popoluca-speaking community. One of the sculptures renders a toad with the glyph 2 Flint carved on its back (FIG. 10A). If the glyph was intended as an annual date, it would be significant from the point of view of Tenochca historiography. Several documentary sources from Central Mexico give 2 Flint as the year of Motecuzoma Ilhuicamina's death and of his son Axayacatl's enthronement [A.C. 1468] (Boone 1992). In fact, these two Tenochca rulers are credited for the conquests within the Tochtepec province (Alvarado Tezozomoc 1975 for Motecuzoma I; Codex Mendoza for Axayacatl). A stone sculpture with a carved glyph seemingly significant from the point of view of Tenochca history (6 Flint, the year Axayacatl crushed a native rebellion) has also been found at Cotaxtla, a Mexica provincial capital and garrison in central Veracruz (Medellín Zenil 1983: 33).

The other sculpture from Santa Rosa is the incomplete statue of a Xipe Totec (FIG. 10B). Much effort recently has been devoted to define archaeological signatures for Mexica imperialism, including the use of symbols embedded in material culture (Smith 1992, 1997; Stark 1990). Sculptural conventions have also been used to assess imperial presence in outlying provinces (Umberger 1996; Umberger and Klein 1993), but representations of Xipe Totec have not been considered thus far. The war cult centered around the skinning of sacrificial victims, and the wearing of the flayed skin has Classic if not Formative roots in the Gulf lowlands (Coe 1968: 111–114; Joralemon 1971: 79–81; Nicholson 1971: 15), but the statue from Santa Rosa is notably distinct from other Xipe Totec representations from neighboring coastal regions, like those from Palmas Cuatas in the Mixtequilla (Aveleyra 1964), or Aparicio in Vega de Alatorre (Vizcaíno 1988: fig. 51). The Xipe Totec in Santa Rosa, in fact, closely resembles in size and posture the imperial sculptural style from the metropolitan area and distant outposts like Castillo de Teayo, in northern Veracruz, where the Tenochca presence has been amply confirmed (Umberger 1996; Umberger and Klein

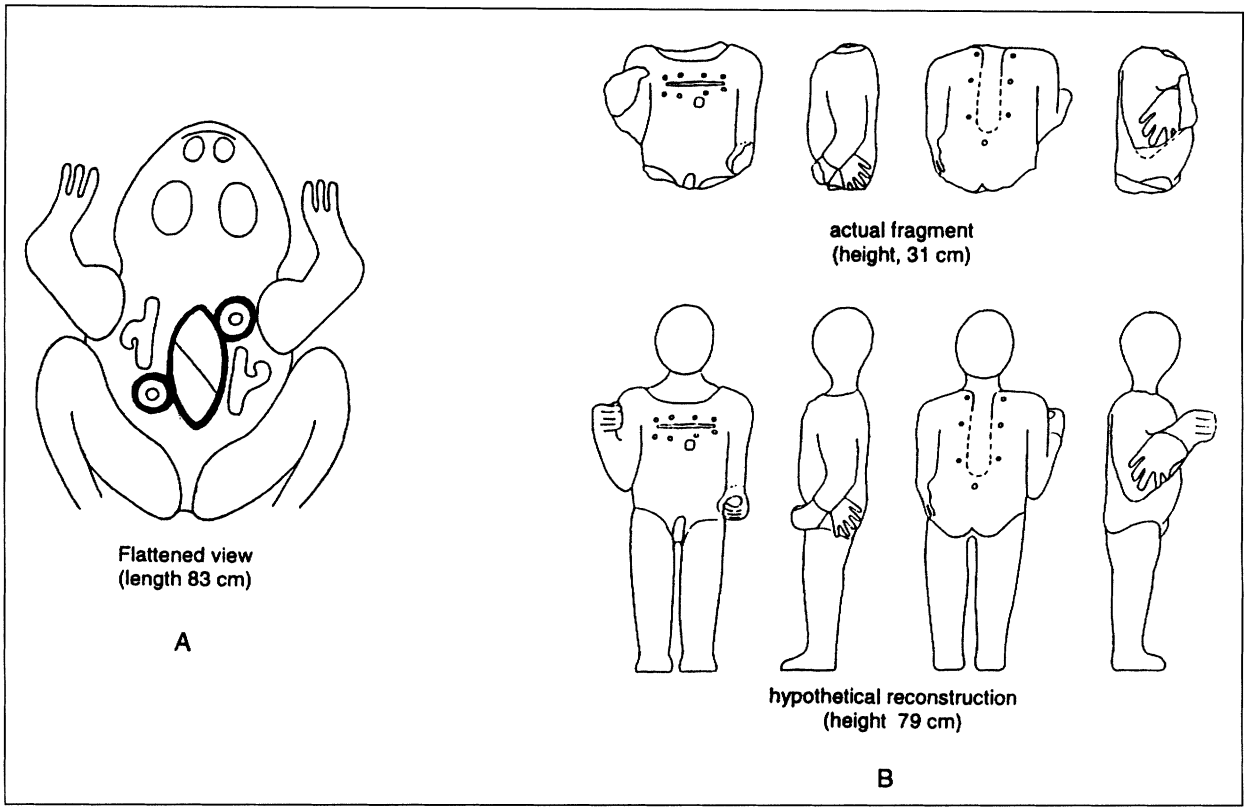


Figure 10. Stone sculptures in the community museum at Santa Rosa Loma Larga. A) Toad with glyph 2 Flint carved on its back, and B) views of fragments of statue of Xipe Totec, including its hypothetical reconstruction.

1993; also Seler 1993: 225). The stone sculptures of Santa Rosa open the possibility that the Mexica commissioned local artists to sculpt items that were later exchanged as gifts with native lords. Such a strategy could have been a first step in their seeking control of the alluvial plains of the San Juan River to gain access, among other commodities, to cotton or woven blankets.

Discussion

Research conducted in the Hueyapan area, viewed in concert with data from nearby areas, provides the foundation for a number of provisional comments on cultural development and the long history of Mesoamerican civilization in the southern Gulf lowlands. The archaeological Olmec were preceded in lowland Mesoamerica by some closely related cultures occupying the Pacific coast of the Isthmus of Tehuantepec (Blake et al. 1992; Clark 1994) as well as by earlier village societies in the Gulf lowlands themselves (Coe and Diehl 1980a; Wilkerson 1981). Between about 1200 and 400 B.C. the seasonally inundated river valleys of southern Veracruz and Tabasco became one of the most important foci of population growth and complex societal development anywhere in the lowlands, leading to the establishment of large centers along the Coatzacoalcos and Tonala drainages (Coe and Diehl 1980a; Cyphers 1994a, 1994b; González Lauck 1995, 1996).

These early settlements soon acquired the marks of town planning with regular site orientations and large-scale constructions. Olmec towns exhibited extensive earthworks and other monumental architecture that housed a nascent nobility, provided the stage for elite ceremonialism, channeled commerce and communications, and boasted significant populations ranging into the thousands. These towns were supported by large areas of settlement (Kruger 1996; Rust and Sharer 1988; Symonds and Lunagómez 1997). Massive constructions, imported objects executed in exotic materials (e.g. jade, magnetite), and basalt for colossal stone sculptures procured from the Tuxtlas Mountains provide evidence of an early political economy that integrated local and far distant Formative populations (Clark 1995; Coe 1989; Flannery 1968; Flannery and Marcus 1994: 389; Pires-Ferreira 1976).

Internally, this system tied together societies at varying levels of scale and complexity between the eastern and

western margins of the southern Gulf lowlands. In the Tuxtlas Mountains, for example, Early and Middle Formative settlement was relatively modest, densities were lower, and the largest sites substantially smaller than the large low-lying towns of San Lorenzo and La Venta (Santley and Arnold 1996; Santley, Arnold, and Barrett 1997). Although Early Formative occupations have been also identified at Tres Zapotes (Drucker 1943, 1952; Pool 1997, 2000), the substantial focus of early population and political power was in the east. Available data suggest that the locus of cultural developments may have shifted dramatically between the Formative and Classic periods, with a changing mosaic of settlements that centered earlier on the coastal and riverine environments of the eastern lowlands and later on the low-lying river valleys and uplands to the west.

Such a realignment of population and settlement is apparent when regional data from the area around San Lorenzo (Symonds and Lunagómez 1997) in the eastern lowlands is compared to the results of the Hueyapan Archaeological Survey in the west (FIG. 11). Several recent settlement surveys in the eastern lowlands demonstrate that occupation dwindled to a fraction of its former level by the end of the Formative (Kruger 1996; Rust and Leyden 1994; Rust and Sharer 1988; Sisson 1976, 1983; Symonds and Lunagómez 1997; von Nagy 1997). Throughout the Early and Middle Classic the evidence of settlement in the east continues to be negligible. Population does not seem to recover until Late Classic and Postclassic times—practically a millennium of abandonment relative to other parts of lowland Mesoamerica! Evidence for continued growth in the west, however, can be seen in the Tuxtlas Mountains (Santley and Arnold 1996), around Tres Zapotes (Pool 1997, 2000), in the Mixtequilla area (Stark 1999), in the Hueyapan area as discussed here, and still further to the west (Daneels 1997). This temporal pattern, though not widely recognized, appears to signal the close of an earlier Olmec florescence in the low-lying lands of the east and herald a sustained economic and political reintegration of societies up-slope and westward. Any differential emphasis in cotton production from Formative to Classic times between southern and south-central Veracruz (Stark, Heller, and Ohnersorgen 1998; Stark 1999) may perhaps be related, among other factors, to the shift in regional settlement pattern we present.

The overall shift in population provides background and counterpoint to the patterns of settlement now coming to light in the Hueyapan region, where the diachronic pattern of settlement contrasts strongly with those observed around the large early Olmec centers to the SE. Hueyapan may have been first an area of modest riverine settlement accessed for hard stone resources by the more populous Olmec living in the eastern lowlands. During the subsequent Classic period, Hueyapan blossomed in its own right as a center for sustained agrarian development and dense settlement. The underlying Formative population of the southern Gulf lowlands may have simply shifted venues and reorganized economically and politically on higher ground surrounding the Tuxtlas and elsewhere.

The Classic period Olmec legacy on the river valleys and uplands of the western Tuxtlas may have featured a landscape knit together by a network of elite estates centered on formal monumental architectural groups that we call the long plaza complex. Further study of this architectural form both within the Hueyapan study area and beyond should help to better define the scale and configuration of settlement in the region, and will be critical for understanding Classic period political and economic organization in the southern Gulf lowlands. Local specialization in basalt stone-working and pottery manufacture established during the Formative may have been augmented by agricultural specialization for local exchange, tribute, or export by Late Classic period times. The extensive areas with stone-circle features detected by the Hueyapan Archaeological Project might constitute one component of a system of lowland intensive agriculture akin to the recognized mosaic of agricultural techniques (e.g., house-lot gardens, raised fields, and terraces) employed by Classic Period farmers all over urban lowland Mesoamerica (Fedick 1996; Killion 1992).

Agricultural specialization and intensification also may provide a link of continuity to late prehispanic developments in this area. By the eve of the European conquest the southern Gulf lowlands may have witnessed growth and development in tandem with another pan-Mesoamerican sphere of interaction—the empire of the Triple Alliance. Tribute items listed in the Codex Mendoza and other historical documents from central Mexico indicate that a wide range of local resources were of prime interest to the Tenochca. The bulk of that tribute, however, was manufactured cotton goods. Since the alluvial plains, the piedmont, and upland sectors of the western Tuxtlas are propitious for cotton production, the Hueyapan area may have provided an attraction to an expanding Mexica imperial frontier. The identification of Michapan (just south of the study area) as being under imperial control, and of Iztac Chacalapan (within the study area) as being subject to the polity of Coatzacoalco, however, suggests that the middle drainage of the San Juan River was an enclave still unincorporated into the imperial economy. The presence in Santa Rosa Loma Larga of stone sculptures in imperial style may signal an initial step in the Tenochca's long-term

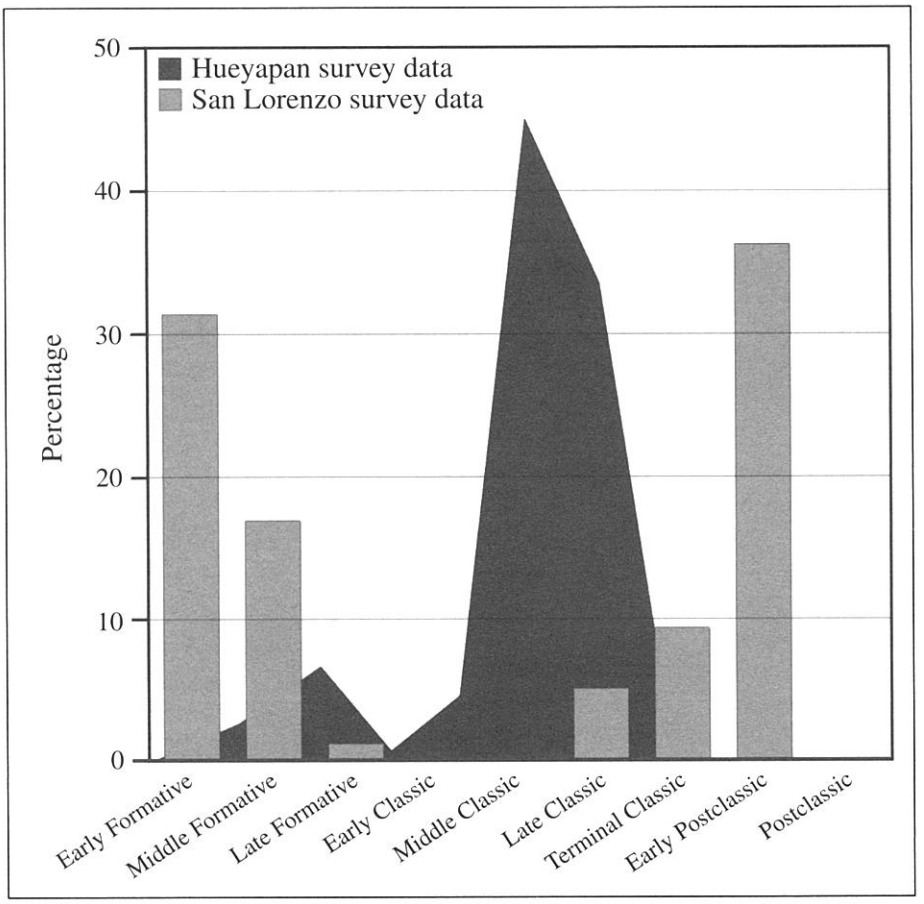


Figure 11. Comparison of two different survey databases from the southern Gulf Lowlands (the number of San Lorenzo Survey sites identified for each time period is indicated as a percentage of the total sites identified in the Survey [from Symonds and Lunagómez 1997]); Hueyapan percentages as in FIG. 3).

strategies of incorporation. The poorly understood Postclassic chronology of the Hueyapan area requires further investigation before questions concerning Mexica imperialism and Early Spanish Colonial history of the southern Gulf lowlands can be adequately addressed.

Conclusion

Local chronologies and regional settlement patterns, the main preoccupations of current archaeological endeavors elsewhere in Mesoamerica, have been slow to be implemented in the southern Gulf lowlands. With a few exceptions (Santley 1989, 1994; Santley and Arnold 1996) the decline and disappearance of "Olmec" material culture at the earlier part of the sequence has not been well articulated with the many poorly defined cultural patterns that followed in subsequent periods. The Gulf Coast Olmec, superb stone carvers, town builders, and traders in exotic materials from all over Mesoamerica, seem largely disassociated from later cultures of the region. This perspective derives primarily from previous emphases on the notable accomplishments of the Early and Middle Formative people living at or near San Lorenzo and La Venta. Sometime after 500 B.C. river towns in the Coatzacoalcos and Tonala river drainages, with their satellite villages and surrounding hamlets were largely abandoned and the massive basalt sculptures ceased to be made.

With the exception of an "epi-Olmec tradition" at Tres Zapotes (Pool 2000), it is only with the appearance of Teotihuacan "influences" in the central Tuxtlas (Santley 1983, 1989), some 1000 years after the "fall" of La Venta, that scholars recombine the threads of southern Gulf Coast history into a relatively coherent fabric. The Postclassic period remains a conspicuous gap altogether. While these widely recognized Olmec and Teotihuacan horizons have been of primary importance to Mesoamerican history, local developments and cultural continuities are often concealed under their considerable shadow. In our zeal to distinguish Central Mexican or some other influence in the

perceived cultural void left by the Olmec we seem to have been overlooking some critical elements in the regional organization of the area during the Classic and Postclassic. But local and regional patterns are coming into focus now with more research in the Gulf lowlands themselves.

Hueyapan history, as we are now beginning to understand it, is composed of contrasting tides of continuity and discontinuity. One potential current of continuity may be evoked by the Popoluca language which, as the proposed distant relative of the language once used by the archaeological Olmec (Justeson and Kaufman 1993), is still spoken in numerous communities in Hueyapan and surrounding areas. As such, the stream of continuity may be more of a factor in southern Gulf Coast history than generally imagined.

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