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Wesley D. Stoner
University of Arkansas

Christopher A. Pool
University of Kentucky, christopher.pool@uky.edu

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The Archaeology of Disjuncture

Classic Period Disruption and Cultural Divergence in the Tuxtla Mountains of Mexico

by Wesley D. Stoner and Christopher A. Pool

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Reconstructing human interaction systems has been a major objective of archaeological research, but we have typically examined the topic in a conceptually limited manner. Most studies have—intentionally or unintentionally—focused on how trade, communication, conquest, and migration foster cultural similarities over long distances. It has largely been a positivistic endeavor that exclusively features groups linked through a single network but glosses over how alternative networks intersect with the former through common nodes. Models of long-distance interaction have largely ignored variation in how external influences are negotiated across space within the receiving region. We adapt Arjun Appadurai's concept of disjuncture to conceptualize how human groups negotiate cultural messages transmitted through multiscalar interaction networks. Disjuncture fundamentally refers to the decoupling of different facets of culture, economy, and politics where human interactions follow variable trajectories through space. The variability with which human groups reconcile foreign cultural information within local social networks leads to cultural diversity across space in the receiving region. We use the concept to detail the variability with which Teotihuacan symbols, ideology, and economic influences were adopted across the Tuxtla region of southern Veracruz, Mexico.

The central problem of today's global interactions is the tension between cultural homogenization and cultural heterogenization. (Appadurai 1990:295)

The foregoing quote introduced Appadurai's disjuncture concept to studies of modern global interactions. Anthropologists have long studied how processes that transmit goods, information, technology, and people across the landscape foster cultural similarities on a broad scale. Appadurai argues that a parallel process of cultural diversity arises simultaneously because of the variable adoption and indigenization of foreign influences within receiving regions, creating disjunctures among the distributions of culture, economy, and politics across space. Appadurai recognizes that disjuncture existed throughout human history (Appadurai 1990: 301), but archaeologists have not generally embraced how variable negotiation of foreign interactions might diversify regional populations. We apply the concept of disjuncture to

highlight neglected aspects of cultural interactions in pre-modern societies.

Over the past few millennia, human groups across the globe have become increasingly interconnected. Broad-scale similarities among the materials studied by archaeologists, often called cultural horizons, represent communication and exchange across space (Kroeber 1944; Uhle 1913; Willey 1991). In ancient Mesoamerica, for example, long-distance exchange of goods, materials, and iconography intensified in the Early Formative period (1500–1000 BCE) and then waxed and waned cyclically over the region's entire pre-Hispanic history (ending 1519 CE; e.g., Blanton et al. 1993; Willey 1991). Archaeologists have reconstructed these patterns on the basis of a few exceptional sites where inter-regional interaction is most pronounced. Neighboring places displaying little to no evidence of a foreign interaction are undertheorized elements of this multiscalar cultural process (cf. Braswell 2003; Clayton 2013; Stark 1990; Wells 2005). The articulation of interregional and regional networks is rarely examined (cf. Brumfiel 1991; Jennings 2006; Stoner 2013), which stems from an overreliance on generalized models of human interactions, such as world-systems theory and other core-periphery approaches (e.g., Frank and Gills 1993; Kardulias 1999). We develop an approach to examine how the variable negotiation of foreign impacts at local and regional scales can lead human groups to develop along divergent

Wesley D. Stoner is Assistant Professor in the Department of Anthropology of the University of Arkansas (304 Old Main, Fayetteville, Arkansas 72701, U.S.A. [stoner.wesley@gmail.com]). **Christopher A. Pool** is Professor in the Department of Anthropology of the University of Kentucky (211 Lafferty Hall, Lexington, Kentucky 40506, U.S.A.). This paper was submitted 2 X 13, accepted 17 II 14, and electronically published 5 V 15.

paths. We focus attention on these important cultural developments by examining temporal, spatial, and network disjunctures in the archaeological record.

The Tuxtla Mountains in the southern Gulf Lowlands of Mexico exemplify the use of the disjuncture concept (fig. 1). Teotihuacan in central Mexico was the most populous and influential Classic city in Mesoamerica and one of the largest cities in the contemporaneous world. The Classic period site of Maticapan in the Tuxtla Mountains exhibits material connections to Teotihuacan, beginning about 300 CE and continuing past 650 CE, after Teotihuacan's decline (Arnold and Santley 2008; Pool 1992*b*; Santley 2007; Santley et al. 1987). Consequently, researchers have explained Tuxtla Classic period culture change generally by reference to the region's position in the Mesoamerican world-system (e.g., Santley 1994; Santley and Alexander 1996). The founding of Early Classic (300–450 CE) Maticapan by people bearing Teotihuacan ceramic vessels, figurines, and architecture disrupted the regional trajectory of historical development. This suite of materials spread to other settlements in the region by the Middle Classic (450–650 CE). The much older regional center at Totocapan, however, did not adopt central Mexican material styles. On the basis of the spatial boundedness of certain material and architectural styles, we infer that the macroregion was divided culturally, politically, and socially. Goods, however, were exchanged across these boundaries to form a cooperative economic system. We conclude that political, economic, social, and religious interactions followed disjoint trajectories through time and space, which disembedded prior linkages among these regional institutions. To understand the Classic period developments in the Tuxtla and broadscale cultural processes in general, we must examine multiscale relationships.

Disjuncture, Disruption, and Divergence

Appadurai (1990, 1996) conceptualized disjuncture to explain the complexity of the modern world economy in opposition to core-periphery models that prevailed at the time. Wallerstein's (1974) world-systems theory, for example, promoted generalized perspectives on global interaction by dividing the world's territories into units (core, periphery, semiperiphery, and margin) with preconceived political and economic roles. During the 1990s, many cultural anthropologists abandoned these core-periphery models (Appadurai 1996; Gupta and Ferguson 1992; Hannerz 1989; Inda and Rosaldo 2002). Their common objection was to the essentialization of culture into territorial units in a world where politics, goods, religion, technology, and cultural identity did not perfectly correlate in their spatial distributions. Meanwhile, archaeological anthropologists accelerated their attempts to apply core-periphery models to precapitalist and prehistoric societies (e.g., Blanton et al. 1992; Frank and Gills 1993; Hall and Chase-Dunn 1993; Kardulias 1999; Kepecs et al. 1994; Peregrine 1992).

Appadurai's central argument is that ethnicity, money, goods, politics, ideologies, media, and technologies move across the globe through nonisomorphic paths, creating disjunctures among how these cultural features manifest over time and space. He posits that these flows have become deterritorialized (i.e., disassociated from space; see also Gupta and Ferguson 1992; Inda and Rosaldo 2002:10–12). Agents appropriate multiscale interactions to define their own imagined worlds. Differently situated actors, however, do so according to their own needs and dispositions, resulting in cultural variation across space (Metcalfe 2001).

Following Appadurai's original work, several commentators have further developed his conceptualization of the link between space and culture. Metcalfe (2001) suggests that the physical act of conducting fieldwork necessitates reference to sites. His approach emphasizes an outward-looking perspective on the site's position among global interaction networks (2001:168). Heyman and Campbell (2009) examine how people use global interactions to create, reproduce, and transform geographic spaces. Individuals and groups differently linked to the external world will differently apply their experiences to their local surroundings. In the archaeological record, the results of this negotiation appear through the design and form of the built environment (e.g., Smith 2004, 2007) and through the spatial distribution of material culture styles (e.g., Gosselein 2000; Stark 1998), such as the ceramic vessel forms (cylindrical tripod jars, annular-based hemispherical bowls, *candeleros*, and *floreros*) that constitute elements of Teotihuacan style in the Tuxtla. The differential distribution of these forms compared with local style materials, such as those found in Totocapan's Cipactli Cult (see below), define cultural boundaries, described by Bashkow (2004:450–451) as “conceptual structures centered on symbolic contrasts or oppositions.”

Much of the archaeological literature assumes a direct link between space and culture. On the one hand, the logistical burdens of nonmodern transportation technologies justify the persistence of territorial models of interaction in archaeology (e.g., Drennan 1984; Hassig 1985; Stein 1999). On the other hand, the analytical division of culture into coarse spatial units obscures the transformative potential of diversity at smaller scales (e.g., Jennings 2006; Wells 2005). We understand the relationship between space and culture as a negotiation at several scales of social interaction. All human interactions constitute networks through which information, objects, and people move (e.g., Barabasi 2002; Brughmans 2010; Campbell 2009; Wells 2005). Nodes—the smallest unit of interaction visible among archaeological data¹—interconnect in many ways. Any foreign-linked node is itself situated within local and regional networks, forcing a negotiation that determines whether local groups integrate or reject

1. Because the lowest common denominator considered here is coarse-grained survey, the individual settlement is considered the node of interaction.

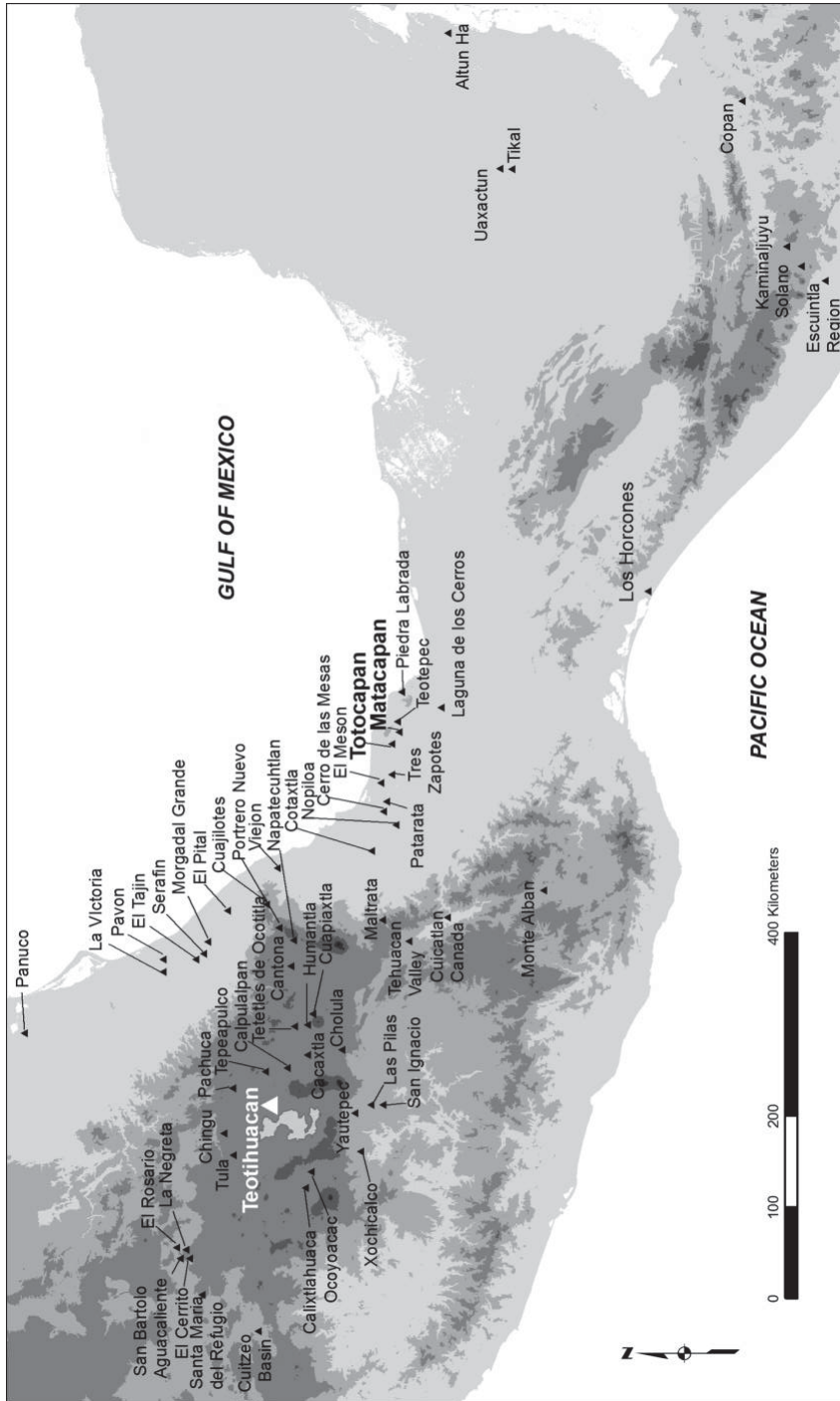


Figure 1. Map of Mesoamerica showing a sample of sites with known connections to Teotihuacan and other sites mentioned in the text.

novel information. Reconciliation of multiple social networks at each node may result in variable outcomes across space and time, creating social contrasts among people who occupy the same environment.

The outcome of multiscale interaction can enhance the interconnectivity among groups who perceive some benefit to the new cultural or economic diversity. This appears to have been one outcome of the central Mexican cultural intrusion into the Tuxtla Mountains, since the evidence shows considerable economic exchange among neighboring polities despite diverging cultural dispositions. Alternatively, the resulting cultural differences may cause tensions. Emphasizing how nodes interconnect in a multiscale network simultaneously features the outward-looking perspective of Metcalf's sites (2001) and the systemic interactions of world-systems theory (Frank and Gills 1993; Wallerstein 1974) or central place theory (Smith 1976). Further, it allows the archaeologist to identify variability in cultural interactions at the highest resolution permissible by archaeological data.

Scale and Type of Interaction Network

Four multiscale networks intersect in space and time at nodes (e.g., settlements, households, marketplaces, palaces). These networks are political, economic, symbolic, and moral webs of interaction that expand to incorporate many local realities.² The political deals with networks competing over legitimate sources of authority (e.g., Smith 2004). The economic refers to material exchange and the distribution of wealth (e.g., Polanyi 1957; Sahlins 1972). The symbolic pertains to signs, materials, and behaviors that different groups use to identify themselves and order their worlds (e.g., Gossein 2000; Hodder 1982). The moral establishes social order through religious obligations, social sanctions, or law. Human institutions structure interactions across space, but they also continuously change to incorporate new ideas from both local and extralocal sources. We are primarily concerned with how interregional inputs—such as the influence of Teotihuacan on different regions across Mesoamerica—are processed among connected nodes at the local, regional, and macroregional scales.

Face-to-face interactions occur most frequently within settlements at the local scale. Because the boundaries of towns in places like the pre-Hispanic Tuxtla Mountains were not rigid, the local settlement includes the population core and neighboring houses that may be more dispersed. Although agents often use foreign connections to gain local prestige and favor (e.g., Brumfiel and Earle 1987; Clark 1997; Helms 1993), participation in external networks may face considerable opposition from local relations and rivals. Adoption of the new requires alteration or displacement of the old. Those invested in local history, which we suggest was

2. These landscapes are discussed in depth elsewhere (Stoner 2011:23–69), but we summarize the basic points here.

the basis of authority for Totocapan leaders, may be threatened by others' promotion of foreign relationships.

At the regional scale, people in different social, economic, political, and geographic positions interact beyond the boundaries of the individual settlement. In the Tuxtlas, the regional scale is set at the limits of center-hinterland modules that conform to settlement hierarchies and possibly market territories or polity boundaries. Central agents may employ an existing power structure to encourage acceptance of foreign cultural traits among the regional population, or they may elect to use their authority to restrict access. Decentralized change, on the contrary, features disruptions at multiple peer nodes throughout a region, which may eventually challenge the established social order (i.e., a bottom-up process).

The macroregion encompasses neighboring settlement systems, market systems, and polities (Balkansky 2006). In the current case, we define the macroregion by the extent of cultural characteristics that unite parts of the south and south-central Gulf lowlands in contrast to other macroregions of Mesoamerica. This includes the Tuxtla Mountains and surrounding regions along the coastal plain, but we focus mainly on the Tuxtlas region to provide a detailed case study. Given that local agents have their own objectives and motivations, groups across the macroregion are likely to react to foreign influences in different ways, creating cultural contrasts with the potential to dramatically alter historical relationships.

At the interregional scale, interaction transmits goods, people, and information among regions with varied histories, such as that between groups in the Gulf lowlands and central Mexico. Cultural and economic exchanges at this scale—though low volume and infrequent in the ancient world—often dramatically altered local and regional cultural developments (e.g., Clark 1997; Schortman and Urban 1994). Local agents negotiate long-distance exchanges on both sides of the transaction and in intervening places. The object of trade commonly involves low-bulk prestige goods (Helms 1993; Hirth 1992; Schneider 1991), raw materials of restricted geographic availability (e.g., Cobean 2002), knowledge (e.g., technological, iconographic, ritual; Eerkens and Lipo 2007), or the migration of people (e.g., Hakenbeck 2008; Rouse 1989). Even in cases of militaristic expansion, postconquest cultural developments involve local negotiations (Lightfoot and Martinez 1995; Wells 2005).

With respect to the multiscale interactions described above, we emphasize change as an historical process of disjuncture that has measurable dimensions in time, space, and the nature of internetwork linkages.

Disruption (Temporal Disjuncture)

The temporal component of disjuncture is a disruption of established traditions in response to novel symbols, materials, and ideas. Temporal disjunctures resemble the way Beck

et al. (2007) define ruptures caused by events but with an emphasis on change resulting from multiscale interactions. Local modification of institutions can result from intergroup competition (warfare, asymmetrical trade) or cooperation (peaceful migration, communication of knowledge and technology, symmetrical exchange). Natural events and environmental conditions, such as volcanic eruptions or resource uncertainty, can greatly facilitate this process (Halstead and O'Shea 1989; Shaw 2003). In the Tuxtla Mountains, a volcanic event led to the abandonment of the upper Catemaco River valley immediately preceding its resettlement by a Teotihuacan-connected group (Pool and Britt 2000; Santley et al. 2000). This case study exemplifies how both natural and cultural events can precipitate disruptions.

Disruption following a change in multiscale patterns of interaction takes place at variable rates. Conquest rapidly alters political economies and settlement patterns (Montiel 2010; Stark 1990; Wells 2005), often reshaping the system toward a radial pattern of interactions with a powerful core (e.g., Santley and Alexander 1996; but see Jennings 2006). More subtle disruptions may take decades to cause noticeable systemic changes. Even a seemingly mundane event, like Teotihuacan's introduction of new obsidian sources into other Mesoamerican regions, comes with new social relationships and technological knowledge that may later disrupt relationships among groups.

The origin of a disruption within a regional network ranges from centralized to dispersed. In ancient states, disruption often first takes place at central nodes within the regional network. People in positions of power reach outside the local group to procure goods and alliances that enhance their prestige at home (Clark 1997; Helms 1993). In the process, they expose the general population to new ideas, behaviors, symbols, and goods.

Divergence (Spatial Disjuncture)

The notion of divergence is central to both biological models of speciation (e.g., Darwin 2010; Gould 2002) and anthropological discussions of specific cultural evolution and transmission (Eerkens and Lipo 2007; Neff 1993; Service 1968; Steward 1955). Cultural divergence here refers to a spatial differentiation of human institutions that results from variable responses to exogenous disruption.

New influences spread through space in different ways. Agents at the epicenter of disruption (Matacapán and settlements in the Catemaco Valley) and those situated peripheral to it (Totocapán and settlements in the Tepango Valley) negotiate its broader effect at the local, regional, and macroregional levels. All groups involved in this negotiation ultimately decide to accept, reject, or modify the foreign influences according to their own needs and dispositions. Variability in this decision process across space divides the receiving region into series of ingroups and outgroups (Tajfel and Turner 1986). At the boundaries of these divergences,

social differences can transform intergroup relationships (see Lightfoot and Martinez 1995; Stark 1998; Wells 2005). Not all new influences produce cultural divergences. The introduction of a unifying concept to a region may dissolve prior social differences and foster a cultural convergence. Divergence and convergence form two ends of a continuum with regard to how the regional and macroregional networks divide or unite in reaction to foreign influences.

Network (or Institutional) Disjuncture

Disruption and divergence do not cause a simultaneous and uniform shift in political, economic, symbolic, and moral facets of culture. Culture rarely travels in complete packages. While groups in a network may share a religion, that belief system intersects with different political and economic institutions at each network node. Polanyi (1957) saw these institutions as intertwined, but they combine in diverse ways to form place-specific cultural configurations. The four institutional fields overlap in their regional or macroregional distribution, but they do not always involve the same nodes. We may therefore speak of disembedded institutional linkages that result from the multiscale construction of local realities (Giddens 1991).

Summary

The transformative potential of disjuncture takes root in the division of a regional population into ingroups and outgroups and their subsequent reaction to each other. To view these relationships archaeologically, the analyst must move away from typological approaches—which generalize relationships on a grand scale—toward a more empirical particularism. Particularism and generalizing models have cycled in popularity through the history of anthropological thought. Neither approach is better, but the cycle itself is important for the discipline to advance. Scientists make generalizations by amassing new data and identifying major patterns within them. Naturally, some variation is discarded in order to emphasize overarching processes. Core-periphery analysis represents a major movement in the discipline toward data consolidation. In the process, however, it sacrifices much fine-grained variation that informs specific processes of cultural evolution. The call for a study of disjuncture refocuses our attention on that lost variation to create a nuanced understanding of regional human interaction systems.

As will be seen in the following case study, variable responses to external influences throughout the southwestern Tuxtla disrupted the macroregional evolutionary trajectory and fostered cultural divergence. We cannot understand regional processes of disruption and divergence, however, unless we break the analysis down into its component parts. For every archaeological case where a foreign connection has been firmly demonstrated, hundreds of neighboring sites that exhibit no such connection are ignored because of their posi-

tion outside the interregional network. The latter sit in a blind spot of world-systems theory, core-periphery analysis, and much of the literature on the agency of long-distance exchange. Local, regional, macroregional, and interregional networks are interconnected and mutually active in long-term processes of cultural change.

Teotihuacan and the Classic Mesoamerican World

Teotihuacan was the most populous and influential city in Classic Mesoamerica. It contains some of the largest monumental structures in the world arranged on a planned urban grid (Millon 1973). Up to 150,000 inhabitants resided in standardized apartment compounds (Cowgill 2008). Prior to its decline around 650 CE, Teotihuacan had touched most corners of Mesoamerica in some way. Willey (1991:206–208) suggested that Teotihuacan fostered the horizontal integration of Classic Mesoamerica through economic interaction, as opposed to the earlier Olmec artistic horizon or the later political/militaristic Aztec horizon (see fig. 1). He acknowledged, however, that his musings were “speculative generalizations” and that we would learn more from “situationally specific contexts where we can take a closer look at what has gone on and where we can define models of growth and change and test them” (Willey 1991:209). Willey’s call recognized the necessary balance between generalizing and particularistic research. Here we contribute a more particularistic view of the variability with which Teotihuacan affected different groups in the Tuxtla Mountains, a region commonly featured in syntheses of the Classic Mesoamerican world-system (e.g., Blanton and Feinman 1984:678–679; Blanton et al. 1992; Braswell 2003; Filini 2004; Santley and Alexander 1996).

The nature, extent, and strength of Teotihuacan influence across Mesoamerica were discontinuous over time and space. Groups that boasted the strongest relationships often held central political, economic, and ritual positions within their respective regions. Considerable research has sought to identify the hundreds of sites where Teotihuacan held sway, but fewer studies have systematically examined the relationships between those sites and their neighbors who developed alternative cultural identities.

The impact of Teotihuacan on sites throughout Mesoamerica ranged from military conquest and direct political control to mere imitation of Teotihuacan symbols (e.g., Arnold and Santley 2008; Bove and Medrano 2003; Braswell 2003; Cowgill 1997:134–135, 2003; Díaz Oyarzábal 1981; Fash and Fash 2000; Filini 2004; Hirth 1980; Spence 1996; Stark 1990; Stuart 2000).³ In some regions, like eastern Morelos, Teotihuacan affected the lives of both elites and nonelites in

both urban and rural sites (Hirth 1980; Montiel 2010; Smith and Montiel 2001). Hirth (1980) argues that the central Mexican metropolis reorganized settlement in the Amatzinac and Frio Valleys to facilitate extraction of surpluses. Los Horcones in coastal Chiapas likewise presents strong influence from Teotihuacan (García-des Lauriers 2012). The entire site displays a use of architecture and space similar to that at Teotihuacan, accompanied by Teotihuacan-style sculpture, ceramic materials, and perhaps the highest percentage of green obsidian from the Teotihuacan-controlled Pachuca source recorded outside central Mexico.

In the Maya region, inscriptions and iconography indicate that Teotihuacan may have interfered with the ruling lineages at Copán, Honduras, and Tikal, Guatemala (Fash and Fash 2000; Stuart 2000). At Kaminaljuyú, Guatemala, Teotihuacan influence was confined primarily to the tombs and architecture of a few elites (Braswell 2003; Cheek 1977; Demarest and Foias 1993). Recent interpretations suggest that elite alliances with Teotihuacan were used to legitimate local authority (Iglesias 2003). In the Escuintla region of coastal Guatemala, Teotihuacan interactions began at Balberta through low-volume symmetrical exchanges of prestige goods, but central Mexican influence later expanded with the emergence of the Montana settlement complex (Bove and Medrano 2003). In the Valley of Oaxaca, Monte Albán elites monopolized local access to Teotihuacan. Episodes of visits from Teotihuacan appear on Monte Albán stelae (Marcus 2003; cf. Urcid 2005), and ethnic Zapotecs lived in a barrio at Teotihuacan (Spence 1996). Other powerful polities rejected relationships with the metropolis entirely. Cantona, a large center in Puebla situated along a major trade route to the Gulf Lowlands, displays no substantial interaction with Teotihuacan (García Cook and Merino Carrión 1996), though Cantona may have peaked after the decline of Teotihuacan.

Mesoamerican groups also adopted different aspects of Teotihuacan culture. Within the Maya region, for example, some appropriated the Teotihuacan-influenced Tlaloc-Venus warfare (Berlo 1984:111–112; Bove and Medrano 2003; Fash and Fash 2000; Schele and Freidel 1990:162–164; Stuart 2000). In fact, Teotihuacan war images may have been more important to local politics than at Teotihuacan itself (but see Cowgill 1997:144–148; Headrick 2007:86–89). The Maya used Tlaloc-Venus warfare to enhance the prestige of individual rulers and their lineages (Fash and Fash 2000), but Teotihuacan warrior sodalities served to crosscut and deemphasize the importance of individual lineages (Headrick 2007:100–101). At Monte Albán, some of those same images, like the butterfly complex, blend with local religious styles that de-emphasize war (Berlo 1984). Still other regions, like the Gulf Lowlands and specifically the Tuxtla region, rarely displayed the militaristic images associated with Teotihuacan (Santley et al. 1987), the warrior statue described below notwithstanding. This brief discussion demonstrates disjuncture among the networks of Teotihuacan political authority, iden-

3. A more thorough discussion of the role of Teotihuacan throughout Mesoamerica can be found from Stoner (2011:69–150).

tity, symbols, ritual, and economy throughout Mesoamerica. What is less clear in the existing literature is how this variation affected intraregional cultural landscapes.

Archaeologists have typically characterized Teotihuacan's role in Classic Mesoamerica in radial fashion. Teotihuacan-style materials found outside the Basin of Mexico are interpreted as direct or indirect interaction with central Mexico, whereas settlements and regions that lack such materials do not figure into the reconstruction (cf. Stark 1990). This presence/absence treatment assumes that nodes within regions affected by Teotihuacan were not themselves interconnected (for a similar conclusion about Wari research in Peru, see Jennings 2006). It also disregards the transformative potential of the variable integration of neighboring groups into broadscale interaction networks.

Differential Experience of Foreign Influences in the Tuxtla Mountains

Models of Classic cultural development in the Tuxtlas necessarily incorporate explanations of interaction between Teotihuacan and Maticapan (Arnold and Santley 2008; Pool 1992*b*; Santley et al. 1987; Stoner 2011). Maticapan had strong symbolic and ritual connections to central Mexico. Its economic connection was somewhat less strong, and there was probably no direct political subjugation (cf. Santley 1994). In addition to having at least one *talud-tablero* temple, Maticapan has yielded one of the most diverse assemblages of Teotihuacan-style materials outside central Mexico (Santley et al. 1987). The wide variety of locally made homologues includes cylindrical tripod vessels with scutate lids and rectangular supports (hollow and solid), *tapaplato*s (plate covers) with three loop handles (which inverted serve as supports), censers with Teotihuacan-style appliqué motifs, one- and two-holed *candeleros* (small forms that may have served as incense burners), triangular-headed figurines with Teotihuacan-style headdresses, and marionette figurines with moveable limbs (fig. 2*A*). Teotihuacan style also extended to specific motifs on cylindrical tripod jar supports. Feathered serpent motifs, while not necessarily originating at Teotihuacan, are another point of connection between the two sites. Teotihuacan imports are less common but include moderate amounts of green obsidian from the Pachuca source (up to 13.1% in excavated Middle Classic contexts), and rare Thin Orange pottery with its characteristic schist temper (a total of 26 sherds split evenly between excavations at Maticapan and the outlying site of Bezuapan).⁴ A recently donated Teotihuacan-style warrior statue on display at the Museo Regional de San Andrés Tuxtla depicts the only net-jaguar

4. Recent salvage work at the site of El Garro south of the Tuxtlas presents about the same diversity of Teotihuacan symbols possibly at an earlier time (Ponciano Ortiz, personal communication, 2013).

imagery ever found outside the central Mexican city (Pasztory 1997:182–188; see fig. 2*B*).

Recent survey and excavation elsewhere demonstrates that Maticapan was one of three independent polities in the Classic southwest Tuxtla Mountains (Arnold and VanDerwarker 2009; Stoner 2012). The other two polities, headed by Totocapan and Teotepec, lacked this central Mexican connection and instead developed common Gulf Lowlands cultural forms (Arnold and VanDerwarker 2009; Santley 2007:155–163; Stoner 2011:484–501).

Disruption: A Historical Perspective on the Classic Period Development of the Tuxtlas

The Tuxtla region experienced a rich history of settlement beginning by the Early Formative (1500–1000 BCE). At this time, the upper Catemaco River valley contained settlements at La Joya and Teotepec (Arnold 2003; Arnold and VanDerwarker 2009; Santley and Arnold 1996:228–229). Totocapan had a small population, but the Maticapan area was uninhabited. During the Middle Formative (1000–400 BCE), Tres Zapotes in the lowlands to the west grew into a regional center bearing the hallmarks of Olmec culture (fig. 3, *top*). In the Tepango Valley, Totocapan developed into a large village (Stoner 2011:241). At the same time, several hamlets were established in the Maticapan area (Pool et al. 2013; cf. Santley and Arnold 1996:228–229).

In the Late Formative (400–1 BCE), Tres Zapotes reached its apogee and may have politically subjugated parts of the western Tuxtla Mountains (Pool 1997:65; Stoner 2011:248; fig. 3, *middle*). Totocapan displays material culture styles and an architectural pattern that is practically a mirror image of Mound Group 2 at Tres Zapotes (cf. figs. 7, 8). Totocapan also possesses substantial evidence for mound construction, coordinated ritual, and the development of an elite class. It likely controlled a hinterland of its own in the upper Tepango Valley. Conversely, the sparse Middle Formative habitation in the area that would later become Maticapan had disappeared by the Late Formative (Pool et al. 2013; Santley and Arnold 1996:231–232).

During the Protoclassic (1–300 CE), ashfall from a volcanic eruption caused the abandonment of the upper Catemaco Valley (Pool and Britt 2000; Santley et al. 2000; fig. 3, *bottom*). Tepango Valley settlements were largely unaffected, but out-migration of upper Catemaco Valley residents likely contributed to the rapid growth seen at the center of Tilzapote located between the Tepango and Catemaco valleys.

In the Early Classic (300–450 CE), a group using Teotihuacan-style artifacts resettled the empty lands at Maticapan (Pool and Britt 2000; Santley and Arnold 1996:232–233). Teotihuacan-related materials were most prevalent at Maticapan (Santley 2007:158). Maticapan grew rapidly into a regional center with influence in the upper Catemaco Valley (fig. 4, *top*). In the Tepango Valley, Early Classic Toto-

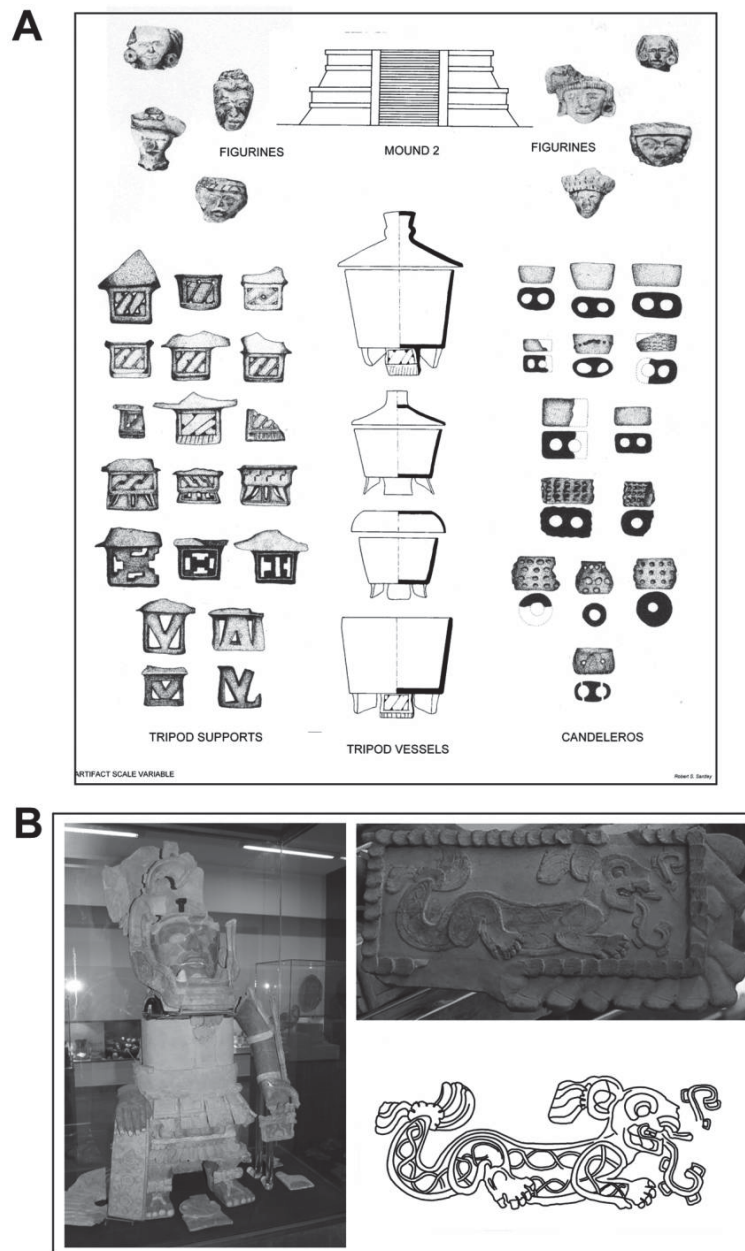


Figure 2. A, Sample of Teotihuacan-style artifacts recovered from Matacapan. B, Teotihuacan-style warrior statue from Matacapan donated to the Museo Regional de San Andrés Tuxtla. The design on the shield is of the Teotihuacan net-jaguar. A color version of this figure is available online.

capan was similar in size to Matacapan and controlled a hinterland in the upper Tepango Valley comparable to Matacapan's, but it possessed none of the Teotihuacan materials found at Matacapan.

During the Middle Classic (450–650 CE), the suite of Teotihuacan-style artifacts in Matacapan spread to eleven

settlements in the upper Catemaco Valley (Pool 1992b; Pool and Britt 2000; Santley 2007:159; fig. 4, *middle*), but it did not reach the more historically entrenched Totocapan polity. In the Late Classic (650–900 CE), Matacapan and Totocapan both began to decline in influence, while Teotepac grew slightly (fig. 4, *bottom*).

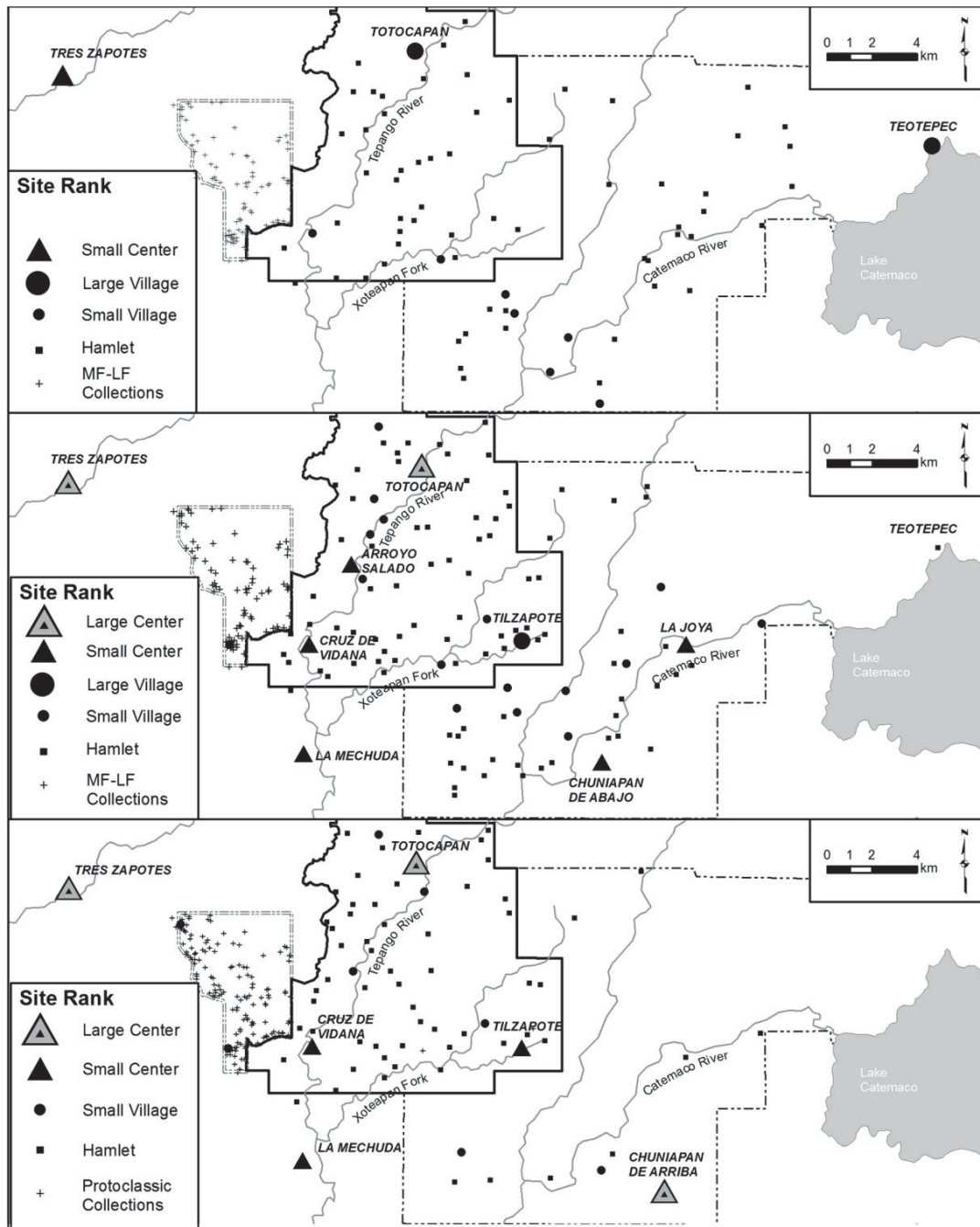


Figure 3. Settlement patterns in the study area for the Middle Formative (MF; *top*), Late Formative (LF; *middle*), and Protoclassic (*bottom*).

The history of development and decline in the southwest Tuxtlas macroregion, covering the Tepango and Catemaco drainages and the Lake Catemaco area, is a mix of autochthonous cultural evolution and external influences that never

fully integrated over space. From its founding in the Early Classic, Matacapan displayed Teotihuacan-style markers. Local-style ceramics were also present at the site, but the Matacapan artifact assemblage as a whole was not typical

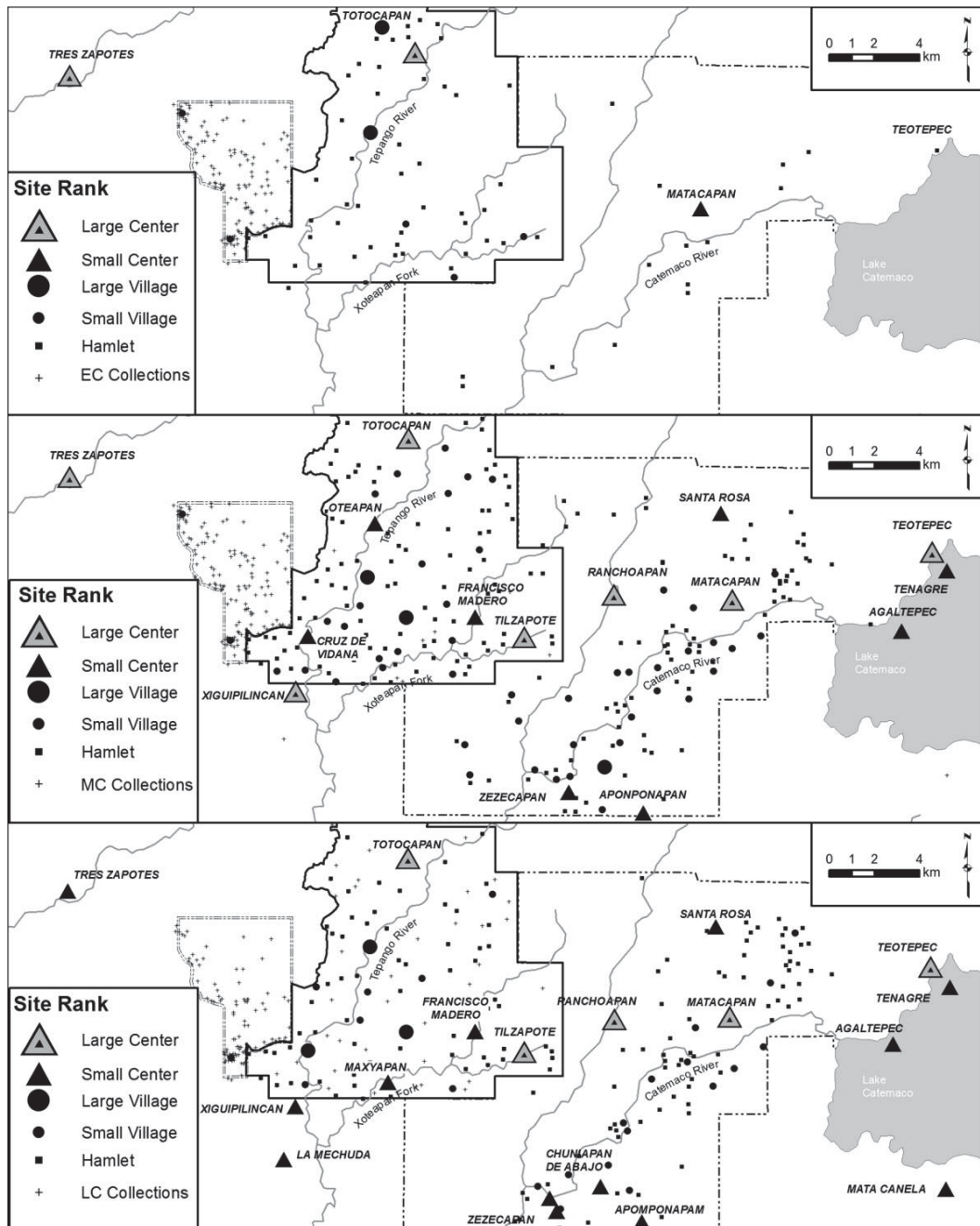


Figure 4. Settlement patterns in the study area for the Early Classic (EC; *top*), Middle Classic (MC; *middle*), and Late Classic (LC; *bottom*).

for the Early Classic Tuxtlas. Matacapán possessed ceramic types—fine buff and coarse brown with soft *rastreado*—that were rare outside its immediate area (see CA+ online supplement A; also Ortiz and Santley 1988; Pool 1992*b*; Pool and

Britt 2000). Both of these ceramic types often displayed central Mexican forms or used central Mexican decorative techniques (Ortiz and Santley 1988:99–108; Pool 1992*b*:47). These types disappeared or became restricted to use with Teotihuacan-

style materials by the end of the Early Classic, when Matcapaños adopted the more widespread ceramic traditions of fine orange and brushed coarse brown (Pool 1992b; Pool and Britt 2000). This stylistic shift from Early to Middle Classic denotes a degree of assimilation to local cultural trends (Pool 1992b). During the same time frame, however, the Teotihuacan material set persisted in public and private, elite and nonelite contexts and expanded to many other sites in the upper Catemaco Valley (Santley and Arnold 1996). Totocapan has much deeper historical roots in the region, and its people continuously rejected these foreign inputs, likely with urging from its leaders, who sought to protect their own institutionalized authority.

Divergence in Local Negotiations of Political Authority

The Totocapan regime disseminated an ideology through deified saurian images engraved through a thick white slip on red paste bowls (fig. 5; see also Valenzuela 1945b:82,86). We refer to this material set as the Cipactli Cult (see CA+ supplement A; Stoner 2011:418–425). Many of the Cipactli Cult materials were executed on bi-slipped (different parts of the vessel bear different color slips) or double-slipped (red or orange slip covering the white slip on part of the vessel) bowls. These two decorative techniques are very rare in the Tuxtlas but more common at Cerro de las Mesas in the western lower Papaloapan Valley (Stark 2001:111–112). The style of cipactli images on these bowls resembles saurian depictions on the Papaloapan (or Los Cerros) stela, a monument found along the Papaloapan River with stylistic associations with Cerro de las Mesas (Sanchez 1999). Vessel form, engraving techniques through a thick white slip, and some design elements recall Middle Formative (1000–400 BCE) white-slipped ceramics found centuries earlier across Mesoamerica. However, excavation context, surface ceramic associations, compound slipping techniques, and rattle supports date the Cipactli Cult to the Middle and Late Classic (Coe 1965:708–709). The use of prior traditions on this important ceramic type suggests that local agents were actively referencing older belief systems.

Valenzuela (1945b) identified the first two cipactli images at Totocapan. These came from excavations into an altar near a ball court in Totocapan's Pollinapan district. In the same excavation, he recovered an *hacha* (thin stone head) and a *palma* (palmate stone) carved from basalt. These are part of the *palma-hacha*-yoke complex of materials associated with the Gulf Lowlands ballgame (Ekholm 1949). The Totocapan regime therefore appears to have linked worship of cipactli to ballgame rituals.⁵

The ballgame was played throughout Mesoamerica for a variety of purposes, including sport and religious ritual (e.g., Scarborough and Wilcox 1991). In the Gulf Lowlands, the

game was very important for legitimizing authority and resolving political disputes (Daneels 2008). It was played during ascension rituals proclaiming new kings and was often accompanied by human sacrifice through decapitation or scaffolding (Koontz 2008).

Totocapan officials erected at least three ball courts, and the regime at Teotepec on the east end of the study region constructed at least two. At both of these centers, the largest ball court was built into the central ritual axis of the site's most prominent architecture (see fig. 8), a pattern also seen in the Papaloapan and Cotaxtla basins (Daneels 2008; Stark 1999). Matacapan did not feature ball game rituals as prominently as the others. It sported a single small ballcourt (fig. 8, *bottom left*), suggesting that other methods of social integration and control were more important within the Catemaco Valley. Interestingly, a ballcourt has never been identified at Teotihuacan, despite the depictions of ballgame players in murals there and the recovery of a purported ballgame marker in stone.

Matacapan's leaders seem to have employed Teotihuacan symbols as part of a strategy to establish their distinctiveness and importance. One of us (Pool 1992b) has argued that a small group of resident Teotihuacanos brought homeland symbols and practices with them in the Early Classic but that these became internalized within the identities of Catemaco Valley residents by the Middle Classic. As Matacapan grew from intraregional immigration, its residents adopted Teotihuacan-style figurines and *candeleros* in their household rituals. Matacapan's leaders likely encouraged widespread adoption of the central Mexican ideology in order to foster a shared identity and thereby secure their subjects' loyalty.

Diverging Interaction Networks as Seen through Material Culture

The distribution of Cipactli Cult materials, ball courts, and several other ceramic categories provides the means to investigate Totocapan's interactions with other groups in the Tepango Valley.⁶ Cipactli Cult bowls concentrate at Totocapan and decline in frequency with distance from the center, suggesting that they were produced there (fig. 6, *bottom*). Every primary, secondary, and (most) tertiary center in the Tepango Valley possessed both ball courts and Cipactli Cult materials. While other sites in the region could have independently developed their own versions of the ballgame, Totocapan was the oldest center in the region, with the deepest history of ritual knowledge. Totocapan also tapped into architectural and material style innovations found in the Co-

6. Presence of Cipactli Cult materials has never been the subject of intensive search among survey materials recovered in the Catemaco Valley, though neither have they stood out to researchers working in the region. We conclude that if any Cipactli Cult materials were present in the Catemaco Valley, they would have been extremely rare.

5. Saurian images have also been linked to ball courts in the *Codex Borgia*.

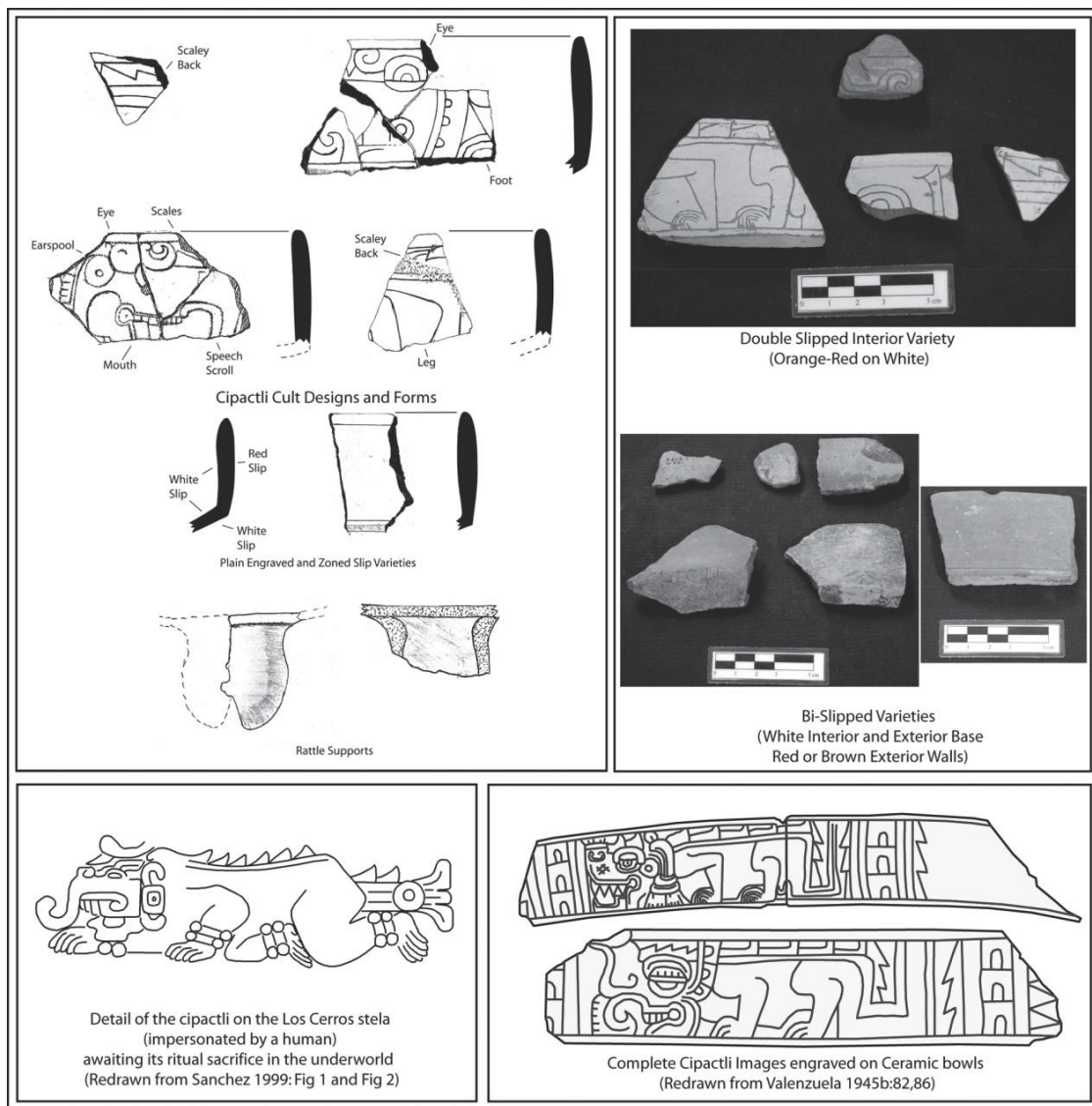


Figure 5. *Top left*, line drawings of Cipactli Cult ceramics identified during the Tepango Valley Archaeological Survey (TVAS). *Top right*, photographs of Cipactli Cult ceramics identified during the TVAS. *Bottom left*, detail on the cipactli image carved onto the Los Cerros stela (redrawn after Sanchez 1999, figs. 1, 2). *Bottom right*, two complete cipactli images incised through a white slip on ritual bowls found at Totocapan (redrawn after Valenzuela 1945b:82,86). A color version of this figure is available online.

taxtla and western lower Papaloapan Basins, where more intensive archaeological investigations have demonstrated an intimate link between the ballgame and political authority (e.g., Daneels 2008).

Another category of ceramics maps directly onto the distribution of Cipactli Cult ceramics and shares a very similar paste (see fig. 6, *bottom*). Bowls that resemble the monochrome Acula red-orange ceramic style identified at Patarata and the Mixtequilla region of the western lower Papaloapan

Basin (Stark 1989:27–34, 2001:111–112) appear principally at Totocapan but occur less frequently in other settlements in the region. Loughlin (2012:158–161) recently identified a high percentage of this type and other Mixtequilla ceramic styles around the center of El Mesón just outside the Tuxtla Massif to the west. Totocapan sits at the eastern end of a natural transportation corridor linking the lower Papaloapan Basin to the central Tuxtla Mountains (following the Tecolapan River). It is likely that these shared ceramic styles

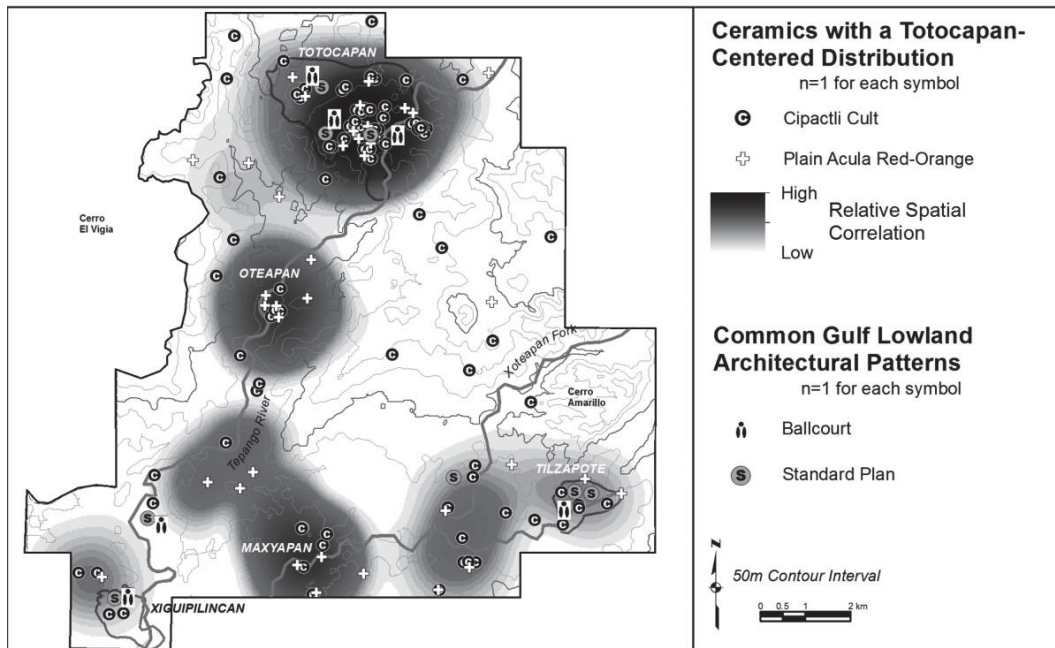
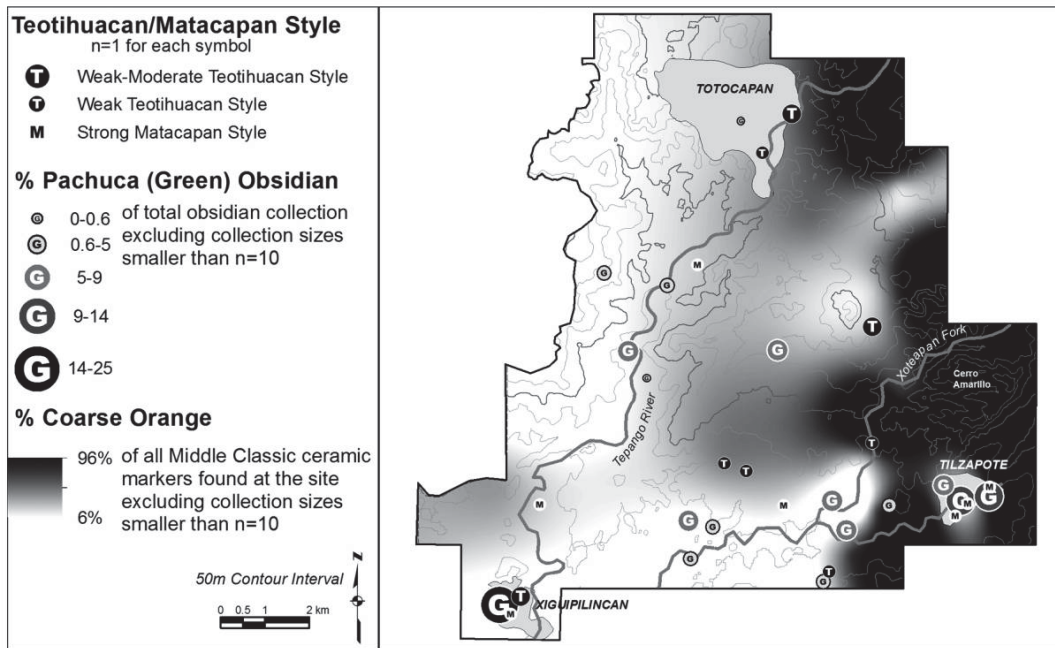


Figure 6. *Top*, distribution of ceramics and obsidian within the Tepango Valley Archaeological Survey that indicate interaction with Matacapan. Symbols for Matacapan (M) and Teotihuacan (T) style artifacts indicate individual finds. Green obsidian is graded by percentage of all obsidian found at a site (or subdivisions within sites, as with Tilzapote), but only assemblages with more than 10 pieces are depicted. Matacapan coarse orange jars are displayed as percentages of all Middle Classic diagnostic ceramics. Values were interpolated using a Gaussian krigging function with a neighborhood of 3,000 m.

indicate communication, if not economic exchange, between Totocapan and points to the west. Architectural similarities reinforce this connection.

We use Teotihuacan symbols, Matacapán-style red-on-fine-orange pottery, Matacapán-style coarse orange ceramic jars, and green obsidian to trace the Matacapán-centered network into the Tepango Valley. The few Teotihuacan-related finds in the Tepango Valley are tenuous and probably represent stylistic appropriations from Matacapán rather than directly from Teotihuacan (see Pool and Stoner 2004). All of those found in the Tepango Valley are vessel forms that emulate those made at Teotihuacan but are rare in the Tuxtla. These include cover plates with tripod loop supports, *florero* vessel forms (like flower vases with a long narrow neck and out-flaring rims), and cylindrical vase rims on fine orange or fine buff pastes but without the rectangular supports characteristic of Teotihuacan. One bowl was identified with a solar motif identical to one found at Matacapán, depicted by Santley (2007, fig. 6.7). We found no Teotihuacan-style figurines, *candeleros*, thin orange (real or imitation), or other central Mexican symbols. In short, we found no substantial evidence that the Tepango Valley population participated in central Mexican rituals.

Weak stylistic analogs appear along the Xoteapan Fork of the Tepango River, midway between Totocapan and Matacapán (fig. 6, *top*). This natural transportation corridor passes to the east and then south of Cerro Amarillo past the regional center of Tilzapote, which likely occupies the political boundary zone between Totocapan and Matacapán polities (Stoner 2012). Tilzapote's interaction with Matacapán is supported by the distribution of Matacapán-like red-on-fine-orange bowls within the Tepango Valley. These bowls are painted most often with wide lines (as if applied with a finger) in geometric designs and are very common in the Catemaco Valley. Surprisingly, they are very rare in the Tepango Valley ($n = 6$), suggesting that it might not be a pan-Tuxtla ceramic trait, as previously supposed. Half of those rare specimens were recovered at Tilzapote.

Matacapán produced coarse orange jars and distributed them over much of the macroregion, but these were not directly associated with Teotihuacan (Arnold et al. 1993; Stoner 2013). Matacapán coarse orange is a very narrowly defined pottery type that is dominated by highly standardized necked and neckless forms, geometric painted designs, and a relatively unique paste recipe (Pool 1990; Stoner et al. 2008). The percentage of Matacapán coarse orange pottery in Middle Classic ceramic assemblages of Tepango Valley settlements decreases abruptly with distance from Matacapán (see fig. 6, *top*). The highest percentages of coarse orange jars were found near (but not at) Tilzapote, sites along the Xoteapan Fork, and rural sites in the northeastern quadrant of the Tepango Valley survey area. Proximity to Matacapán, therefore, affected the adoption of this ceramic style (economic distribution explored below).

Diverging Interaction Networks as Seen through Architectural Programs

Architecture in the Classic Gulf Lowlands macroregion reached a high level of homogeneity in the Classic period. Settlements from central to southern Veracruz employed one of two related architectural programs. In the Cotaxtla and western Papaloapan basins, nearly all influential centers possessed at least one example of what we refer to as the Cotaxtla-Mixtequilla Standard Plan (CMSP; see Stark 1999; Daneels 2008; fig. 7, *top*). To the south and east of the Tuxtla Mountains, archaeologists define a similar architectural program named the Long Plaza Group (Arnold and VanDerwarker 2009; Urcid and Killion 2008) or the Villa Alta quadripartite arrangement (Borstein 2001). We refer to these as the Coatzacoalcos-Tuxtla Long Plaza (CTLP; fig. 7, *middle*).

Versions of the CMSP appear at Totocapan and several centers in the Tepango Valley. Plaza Group 1 at Totocapan resembles the Late Classic standard plans at Cerro de las Mesas that leave one plaza edge open. It also resembles—in mirror image—the Formative Tres Zapotes Plaza Group (TZPG; cf. figs. 7 [*bottom*], 8 [*lower right*]). The principal plaza group at Totocapan may have changed form over time, reflecting its shifting involvement in different political networks. The CTLP appears at Teotepec (Arnold and VanDerwarker 2009; Santley 2007, fig. 3.23) and a site south of Lake Catemaco named Matacanela (Marcie L. Venter, personal communication, 2014). Neither of these architectural programs existed at Matacapán or anywhere in the Catemaco Valley. Matacapán may be the only primary center in the entire Classic Gulf Lowlands not to possess at least one of these architectural groups, though the center does display less standardized types of Gulf Lowland architecture. More broadly speaking, the Catemaco Valley appears to mark a cultural boundary between the distribution of the CMSP and CTLP.

The CMSP, CTLP, and TZPG hold one important theme in common: they all served as the political, administrative, and ritual foci of regimes in the Gulf Lowlands. The original architectural focus of power at Matacapán was constructed during the Early Classic within what has been called the Teotihuacan Barrio (fig. 8, *bottom left*). It was here that the early rulers of Matacapán lived and held some of their most important rituals. A long rectangular plaza is enclosed on the west by twin temple mounds constructed in the *talud-tablero* style common at Teotihuacan (Valenzuela 1945a). The potentially early integration of Teotihuacan architectural styles in the most important politicoritual architecture of the site exemplifies the replacement or hybridization of institutions that pervade the Classic Gulf Lowlands.⁷ The north and south

7. The twin temple mounds were excavated in the 1930s, so we do not know precisely when they were constructed.

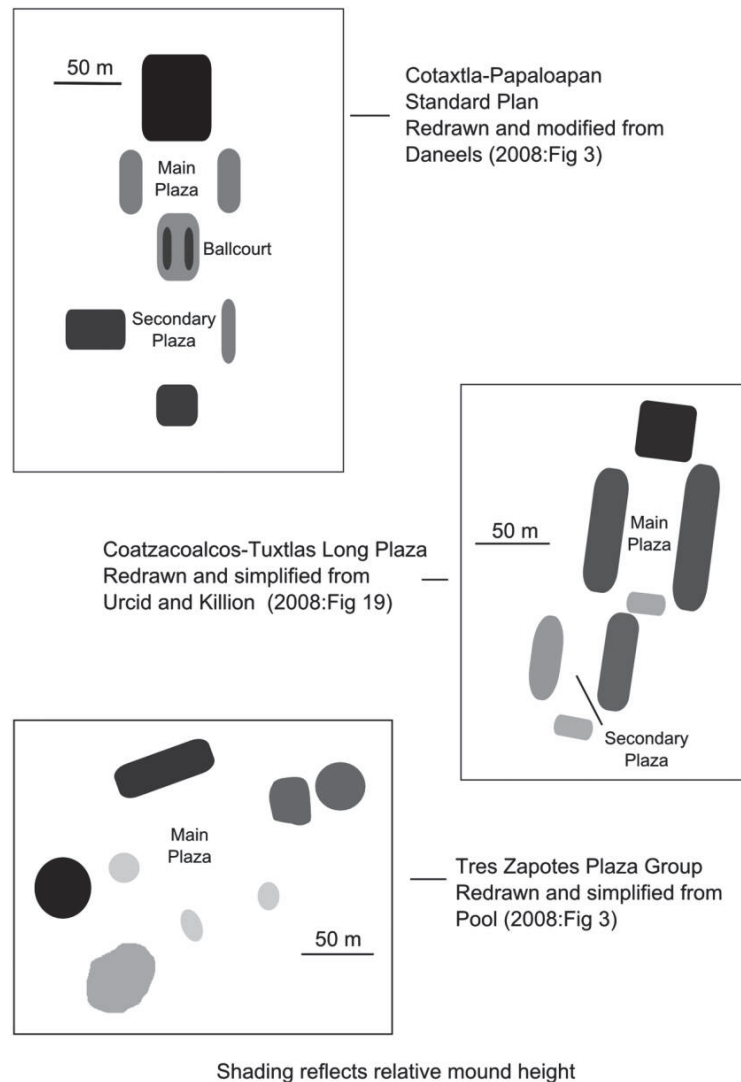


Figure 7. Example of formal architectural complexes found in the Cotaxtla and western Papaloapan Basins (*top*; redrawn after Daneels 2008, fig. 3), the lower Coatzaacoalcos Basins and the southern Tuxtlas foothills (*middle*; redrawn after Urcid and Killion 2008, fig. 19), and Tres Zapotes (mound group 2; *bottom*; redrawn after Pool 2008, fig. 3).

edges of the Teotihuacan Barrio are enclosed by parallel long mounds similar to the CTLP, but the east end was left open.

Mesoamerican plazas were the foci of civic and ritual activities for the broader community (Wagner et al. 2013). The Great Plaza at Matacapan was a massive open area clear of debris. It likely served ritual and possibly economic functions for a large segment of the population, which contrasts the small plaza areas of most other Gulf Lowland urban cores. If plaza size is directly proportional to the number of people who witness public rituals (Inomata 2006), the Great

Plaza at Matacapan may reflect an inclusionary/collective political ideology, whereas the small enclosed plazas at Totocapan and Teotepec may have intentionally excluded the common population (for a discussion of these political strategies, see Blanton 1998; Blanton et al. 1996).

Comparative Economic Organization

Matacapan was perhaps the most commercialized center in the Gulf Lowlands during the Middle Classic (measured

Examples of Tepango Valley Architectural Configurations Compared to Matacapan

all contour lines 1m

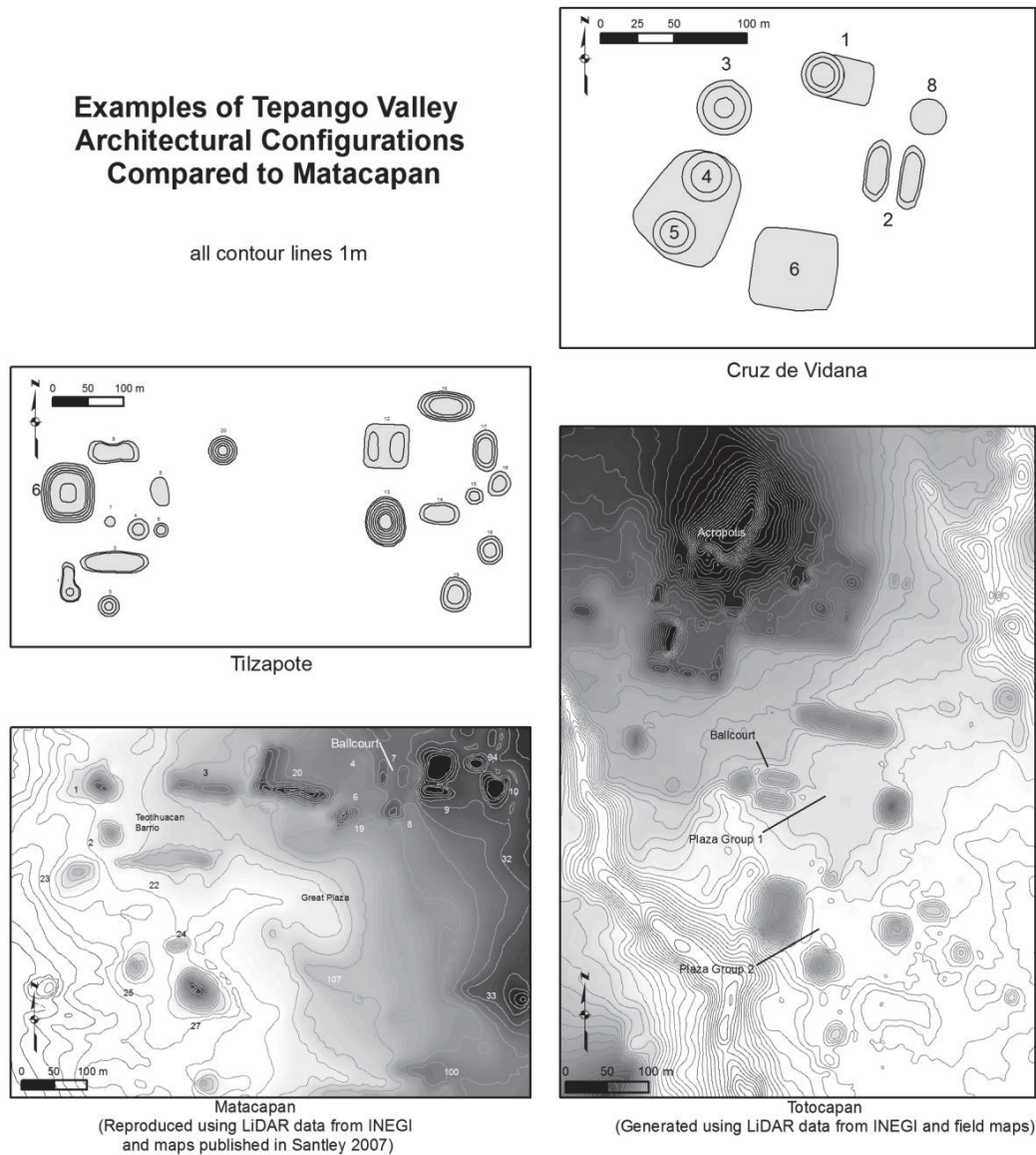


Figure 8. Formal architectural complexes identified at Tilzapote, Cruz de Vidana, Totocapan, and Matacapan.

in terms of levels of intensive craft specialization and exchange). Its residents invested heavily in ceramic production and a regional marketplace during the Middle Classic (Santley et al. 1989). Middle Classic ceramic production at Matacapan was diversified, ranging from small, residentially based industries to intensive workshop complexes, as at Comoapan and Area 199. These large workshop complexes operated as independent producers of pottery for exchange over a broad

region (Arnold et al. 1993; Pool 1990, 2003; Santley 1994; Santley et al. 1989; Stoner 2013).

Almost all economic production detected at Totocapan was small scale and attached to elite residences (Stoner 2011:439–443, 471–474).⁸ Outside this regional center, production took

8. Methods of survey may have led to an underrepresentation of household production.

place in small facilities at low to moderate intensities. No Middle Classic ceramic production workshop identified for the Tepango Valley could have provisioned consumers on a regional level like the largest workshop complexes at Maticapan.

Both valleys experienced increases in independent craft specialization and exchange during the Late Classic. This might be linked to the decreasing political control seen at Maticapan and Totocapan. At Maticapan, at least one fine gray pottery workshop increased intensity after the political regime began to lose power (Pool and Santley 1992:215). In the Tepango Valley, two specialized industries developed. Oteapan craftspeople produced obsidian blades and exchanged them around the upper Tepango Valley. El Nopal potters produced fine gray ceramics en masse. Both of these industries were positioned about 3–4 km from Totocapan, which itself displayed very low levels of craft production by the Late Classic. We suggest that Totocapan became a large consumer that did not distribute much except ideology by the Late Classic. High populations fostered high levels of consumption, which spurred intensive craft production industries in its hinterland. The movement of crafts was therefore inward directed, which may resemble a tribute system. This stands in contrast to the outward-directed patterns of independent specialized craft production and exchange centered on Maticapan. We must caution that these patterns should be tested with data gathered from an even broader scale of analysis that encompasses the regions surrounding the Tuxtla Mountains.

Converging Macroregional Economic Networks

Obsidian blades composed the overwhelming majority of all cutting tools in Classic Mesoamerica (Cobean 2002), but quality obsidian sources were restricted to the highlands of central Mexico and Guatemala. Therefore, all obsidian in the Tuxtla region was imported.

Most green obsidian from the Teotihuacan-controlled Pachuca source that entered the Tuxtlas likely came through Maticapan. In the Catemaco Valley, this green obsidian made up relatively high percentages of the total obsidian assemblage at Maticapan and Teotepec (13% and 12%, respectively, compared with about 4.5% for the entire Catemaco Valley; Santley and Arnold 2005). Maticapan was likely the central node in this distribution network, given its connections to Teotihuacan. Teotepec, however, has not revealed any other indication of central Mexican influence. We deduce that Teotepec procured green obsidian from Maticapan rather than directly from Teotihuacan. In the Tepango Valley, green obsidian is concentrated along the Xoteapan Fork (see fig. 6, *top*). Tilzapote, in general, enjoyed abundant access to obsidian from Pachuca and other sources, probably because of its proximity to Maticapan and its location on a

route of transportation.⁹ Green obsidian is much rarer elsewhere in the Tepango Valley.

Coarse orange jars produced in large-scale workshops at Maticapan were made into highly standardized forms with a distinct paste recipe (CO1A; see Stoner 2013). Compositional sourcing data suggest that these jars were exchanged into the Tepango Valley from Maticapan (Stoner 2013; fig. 9). Totocapan was the principal recipient, but the trade route also forks south along the Xoteapan drainage. While Totocapan consumed the highest percentage of Maticapan-produced coarse orange pottery in the area, only 0.4% of its obsidian assemblage was green.

Summary: Classic Mesoamerican Disjuncture in the Tuxtla Region

Our review of the data supports a number of significant conclusions that draw upon the disjuncture concept. First, Maticapan was the central node of a Teotihuacan-related disruption during the Classic period. This temporal disjuncture was aided by a volcanic eruption that evacuated the upper Catemaco Valley in the Protoclassic period. The initial resettlement of the region brought Central Mexican cultural traits suddenly and initially only at Maticapan. Within about 150 years, many settlements in the upper Catemaco Valley adopted this suite of symbols, materials, and associated behaviors. Several researchers have suggested that the founders of Maticapan were ethnically Teotihuacano who continued the values and behaviors most familiar to them (Arnold and Santley 2008; Pool 1992*b*; Santley et al. 1987). As those authors recognized, however, it is improbable that biological reproduction of central Mexican descendants can explain the rapid and widespread growth of central Mexican symbol use from the Early to Middle Classic. At the same time in the neighboring Tepango Valley, Totocapan officials could demonstrate ownership of Tuxteco history through a continuous lineage tied for centuries to a single, persistent, built environment. Rather than compete directly with Totocapan's ancestral claims, Maticapan officials actively promoted their Teotihuacan connections among their subjects as an alternative source of political legitimation.

Second, differential negotiations of foreign and local cultural information across the macroregion led cultural groups to diverge (spatial disjuncture). Some centers, like Totocapan and Teotepec, rejected symbolic, political, and religious association with Teotihuacan. Material culture associated with Totocapan and Maticapan form mostly discrete style zones along the Tepango and Catemaco rivers, respectively. These two centers represent poles of innovation that other groups

9. We note, however, that 30% of the green obsidian blades found during the Tepango Valley survey had ground platforms, a technology that was not common until after the fall of Teotihuacan.

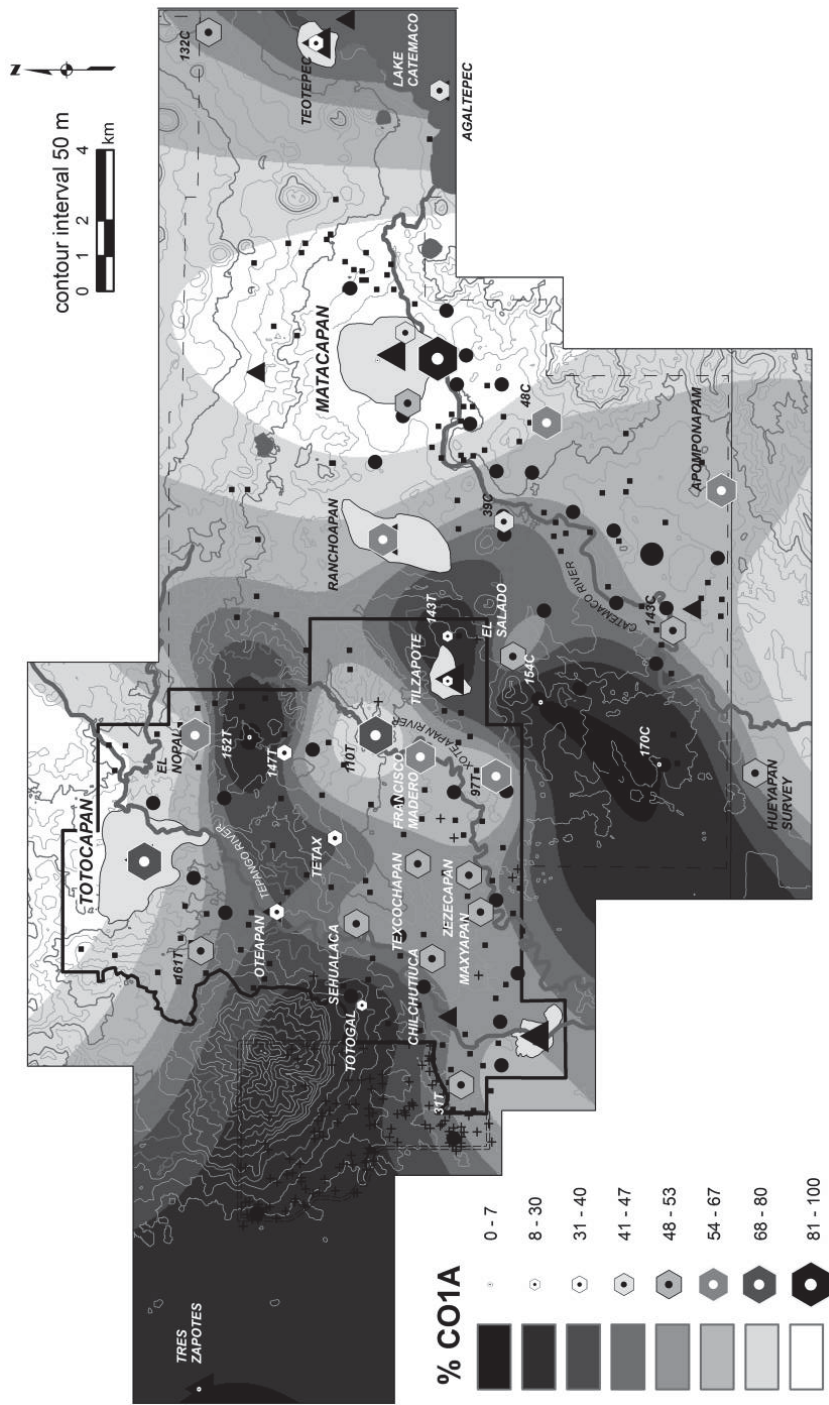


Figure 9. Distribution of the CO1A paste recipe expressed as a percentage of the entire neutron activation analysis sample for each site. Chloropleth zones are interpolated from the site sampled using a spline function. This paste recipe was produced at the Comopan production facility at Matabacan using clays available only in the Catemaco Valley. It is likely that almost all the coarse orange of this paste recipe found in the Tepango Valley was exchanged from Matabacan.

in the macroregion claimed according to their social, political, and geographic positions. Tilzapote, located between these style zones, drew upon both traditions, suggesting that the boundary between polities graded over space.

Third, the divergence of cultural groups in the Tuxtla did not inhibit—and possibly enhanced—economic interactions among the three Classic polities. Seventy-five percent of coarse orange jars consumed at Totocapan were imported from Maticapan. High percentages of Teotepéc's total obsidian assemblage were green without ground platforms, and people at the site imported Maticapan-produced coarse orange jars. The interregional and regional economic networks, therefore, articulated through Maticapan, which emphasizes the importance of multiscale economic studies (Stoner 2013). On a more symbolic level, communication among divergent groups is exemplified by a shared set of basic material styles across the macroregion by the Middle Classic.¹⁰ Evidence for exchange of both information and economic goods indicates cooperation among groups, despite the cultural contrasts discussed here.

Fourth, this regional divergence did not result from a unidimensional choice between adopting foreign or local culture as complete packages. Symbolic, economic, political, and religious networks followed different trajectories through the macroregion (network disjuncture). Teotepéc and Tilzapote consumed the Teotihuacan-controlled green obsidian but did not adopt Teotihuacan symbols. Totocapan imported coarse orange jars from Maticapan, but only 0.4% of its obsidian was green. In the Tepango Valley, there is almost no spatial correlation between the few weak Teotihuacan-style materials and green obsidian consumption (see fig. 6, *top*). All of these examples exemplify network disjunctures. People within network nodes pieced together their local institutions through disjoint interactions derived from different sources in the broader Mesoamerican world.

In summary, the founding of Maticapan initiated a process of cultural, political, religious, and economic diversification that may have allowed culturally different groups to cooperate and coexist within the same environment without systemic hostilities. The intensity of regional interactions possibly reached a level of interdependency, where the regimes of Totocapan and Maticapan were mutually supportive. Supporting this possibility is the fact that both Totocapan and Maticapan declined at a similar pace during the Late Classic, after Teotihuacan's influence throughout Mesoamerica had diminished. The Late Classic (or Epiclassic) period was a time of rapid change, as multiple regional centers (e.g., Xochicalco, Cacaxtla, Tula) arose to fill in the political void left behind Teotihuacan's collapse. We cannot directly link the fall of Maticapan to Teotihuacan's collapse, but it appears

10. The basic material set of the macroregion is not discussed here. Suffice it to say that the same ceramic typology can be successfully applied with some modification to all ceramic assemblages in the macroregion.

to be symptomatic of broad systemic breakdown that could have affected Totocapan as well by extension. At the end of the Late Classic, the lands formerly occupied by Totocapan were abandoned for the first time in more than 2 millennia.

Broader Implications of an Archaeology of Disjuncture

Maticapan was an important node in the Teotihuacan-centered network during the Early and Middle Classic. This relationship has been discussed in the literature since the 1940s. With the expanded data set into the neighboring Totocapan polity, we have advanced a model for how groups in the macroregion negotiated these nonlocal influences. The Tuxtla Mountains is best conceived as a multicultural landscape that comprised interactions from many different groups. Maticapan and Totocapan shaped the Classic Tuxtla to very different results, but the divergence of cultural dispositions did not create a series of hostile outgroups. To the contrary, the diversification of cultural attitudes, goods, ideas, and people appears to have enhanced economic cohesiveness among groups in the macroregion.

The Tuxtla region is not a unique case in Classic Mesoamerica, which leads us to posit that similar analyses would prove fruitful in other locations. Clayton (2013), for example, recently compared variation in how different settlements within the Basin of Mexico interfaced with Teotihuacan. From the perspective of Teotihuacan, areas that lacked deep settlement histories were more attractive as administrative nodes. The city did not have to contend with established lineages that had ancient claims to the land. Teotihuacan did interact economically with older settlements in its core region, but those sites rejected Teotihuacan domestic rituals. This situation is very much like the Tuxtla Mountains, where the interacting node (Maticapan) was established in an abandoned area and the older settlements (Totocapan and the Tepango Valley) largely rejected Teotihuacan symbols and rituals but engaged the former through economic exchange. Teotihuacan's role in Classic Mesoamerica can be understood through an investigation of the interplay among three categories of place: (1) where the Teotihuacan-related network overlaps with local and regional cultural landscapes, (2) where it supplants existing regional institutions, and (3) where regional networks remain discrete from central Mexican influences.

To employ the disjuncture concept for the study of ancient civilizations, researchers must expand their investigation beyond where the presence of the cultural phenomena in question turns to absence. Wells, for example, examines how Roman expansion into the Danube frontier zone created a dynamic cultural landscape that was "fundamentally new and heterogeneous in nature" (2005:72). Smith (2001) highlights interregional and intraregional variation among Aztec imperial strategies. Jennings (2006) provides an example of how Wari expansion in Middle Horizon Peru stim-

ulated regional interaction systems that operated independently from the state. These are three of the many examples of how broadscale processes simultaneously foster both cultural homogenization and diversity at different scales of interaction.

The search for disjuncture holds more potential than merely identifying cultural variability across time and space. Humans are defined through social similarities, connections, or conjunctures as well as their oppositions, disconnections, or disjunctures. Both of these relational dispositions mold the ways in which human groups cooperate or compete. Both determine whether a regional network will diverge or converge when presented with new stimuli. Both are equally influential in determining the course of human evolution. The archaeology of disjuncture brings both sides of this equation into the foreground through the simultaneous study of homogenization, diversification, and scale.

Acknowledgments

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Comments

**Philip J. Arnold III, Amber M. VanDerwarker,
and Lourdes Budar**

Department of Anthropology, Loyola University Chicago, 1032 Sheridan Road, Chicago, Illinois 60660, U.S.A. (parnold@luc.edu)
Department of Anthropology, University of California at Santa Barbara, HSSB 2001, Santa Barbara, California 93106-3210, U.S.A./
Universidad Veracruzana, Francisco Moreno S/n, Colonia Ferrer Guardia, Xalapa, Veracruz, Mexico 91020. 1 | 15

For far too long, the Classic period occupation in the Sierra de los Tuxtlas has been viewed primarily through green obsidian glasses. From the early account of Matacapán's *talud-tablero* architecture (Valenzuela 1945a) to the reptile eye glyph on the Piedra Labrada stela (Blom and LaFarge 1926; von Winning 1961), Teotihuacan influence has colored our understanding of intra- and interregional Tuxtlas interactions (e.g., Coe 1965; Parsons 1978; Santley 1989, 2007).

Stoner and Pool's discussion breaks new ground and has much to recommend it. They offer a revised prescription, one in which disjuncture is seen through the corrective lenses of divergence and disruption. We fundamentally support their effort and have proposed complementary scenarios advocating a more autochthonous, Tuxtlas-centric development

(e.g., Arnold 2014; Arnold et al., forthcoming; Budar, forthcoming; Budar and Arnold, forthcoming).

Nonetheless, if divergence and disruption are designed to improve insight, they must be more than fashionable bifocals set in the retro frames of particularism. We suggest that Stoner and Pool's research vision does not always overlap with the available archaeological information. Despite these concerns, we remain strongly supportive of their agenda; our comments seek to refine it, not refute it.

Stoner and Pool address divergence in terms of evidence for Teotihuacan involvement across different settlement nodes and at different spatial scales. Matacapán is characterized as an "epicenter of disruption" whose agents "negotiate its broader effect at the local, regional, and macroregional levels." Surprisingly, there is little discussion regarding the original motivation for founding Classic period Matacapán. This motivation is pertinent, given (1) Stoner and Pool's emphasis on agency and "empirical particularism" and (2) the lack of evidence for physical confrontation between newly founded Matacapán and the preexisting regional centers of Totocapan and Teotepec.

The arrival of a strong, permanent Teotihuacan contingent likely would have threatened Totocapan and Teotepec leaders and prompted a bellicose response, not unlike the warfare reflected across the midwestern United States following the collapse of Cahokia (e.g., Milner 2007). Stoner and Pool appear sympathetic to this scenario, suggesting that Totocapan rulers would have felt "threatened by [Matacapán's] promotion of foreign relationships."

Unfortunately, there is no evidence of aggression and/or physical confrontation between Matacapán and other Tuxtla settlements. Indeed, Arnold and Santley (2008) suggested that Matacapán was founded by marginalized political refugees, not empowered Teotihuacan emissaries. Under this latter scenario, the context of the Teotihuacan presence—and the subsequent development of that presence—may have divergence along different lines. If history matters, and if empirical particularism is the goal, then the particulars of Matacapán's founding should inform the discussion.

Disruption speaks to the temporal scale; according to Stoner and Pool, natural and/or cultural agents may rupture "established traditions" and generate change "in multiscale patterns of interaction . . . at different rates." Identifying the cause-and-effect sequence of these disruptions thus requires a sensitive chronometer. Unfortunately, it is not clear that the current Totocapan/Rio Tepango data set, generated primarily through surface survey, provides sufficient temporal resolution. For example, the green obsidian found at Tilzapote may well postdate the Classic period, as Stoner and Pool indicate in their accompanying footnote. Similarly, coarse orange (CO1A) pottery consumption possibly continued into the Postclassic, as research at Isla Agaltepec suggests (Arnold and Venter 2004; Stoner et al. 2008). Thus, the processes of both divergence and disruption may be underserved by the data currently available.

Observations regarding plaza group arrangements and ball courts also warrant a second look. We sympathize with attempts to systematize the Gulf lowlands architectural nomenclature (e.g., Coatzacoalcos-Tuxtla Long Plaza [CTLP] vs. Cotaxtla-Mixtequilla Standard Plan [CMSP]), but the current expansive terminology may well indicate significant regional variability (Lunagómez 2013). Surface architecture reflects the culmination of occupation; it can be difficult to relate specific patterns to specific periods in the absence of corroborating subsurface data (Thompson et al. 2009). In fact, Stoner and Pool make this very point for Totocapan.

Other Tuxtla examples raise additional concerns. For example, Piedra Labrada Complex 2 exhibits four large central plazas and eight associated ballcourts (Becerra 2012; Budar 2012); it does not fit readily in either an inclusionary or an exclusionary political model. Ballcourts are equally problematic; they are certainly sites of ideological and political affirmation, but they may also be loci of conflict and contestation (Taladoire and Colson 1991). Finally, palaces occur at several Tuxtla centers, and this presence merits consideration. Thus, it is unclear whether the simple CTLP and CMSP distinction successfully captures the meaningful range of settlement variation.

Stoner and Pool are certainly correct that cultural influence varies across space (divergence) and through time (disruption). Their treatment of disjuncture updates Stark (1990) and goes far toward relieving the myopia of Teotihuacan influence in the Tuxtla. Nonetheless, we are concerned that their prescription may overcorrect, producing a farsightedness that now extends beyond the reach of available data. We applaud this effort, however; such attempts to clarify our archaeological vision ultimately bring the past into sharper focus.

Geoffrey E. Braswell

Department of Anthropology, University of California, San Diego,
9500 Gilman Drive, MC 0532, La Jolla, California 92093-0532,
U.S.A. (gbraswel@ucsd.edu). 4 | 15

“The Archaeology of Disjuncture” by Stoner and Pool does two things exceptionally well. First, it describes the nature, scope, and impact of interaction with Teotihuacan on the Classic inhabitants of the Tuxtla region. Second, it demonstrates the disjuncture or lack of fit between excellent archaeological interpretation and current anthropological concepts. I do not say theory because disjuncture, as described by Appadurai, is not a theory.

The first half of the paper discusses how interaction is negotiated (a tiresome and frequently misapplied term) in networks. Networks consist of distinct objects (vertices, nodes, or hubs) linked by relations (edges). Vertices need not be the same kinds of things but are represented as structural equivalents, leading to a principle of general symmetry in actor-

network theory. Networks are not processual explanations of how or why a structure develops. Instead, they are graphic descriptions that provide us ways of seeing. Mathematical studies of networks typically consider flow or traffic among vertices, their degrees of separation, connectivity, centrality, hierarchy, and percolation (the fragility of a network as edges or vertices are removed, like pick-up sticks or Jenga blocks).

Stoner and Pool describe the components of interaction networks according to scale. They emphasize how regional networks intersect with larger-scale structures through common nodes. They do this in order to escape the positivistic approach of considering a single, large network. One problem is that if networks share common vertices, they form a single network. A second problem is the essentialist notion that there are four discrete kinds of social networks: political, economic, symbolic, and moral (how does one define or map a moral network?). Network or institutional disjuncture—the lack of a bijective mapping among these kinds of networks—is a result of the assumption that they should be disembedded. Two other forms of disjuncture, disruption and divergence, are said to represent temporal and spatial dimensions of cultural dissimilarity. It is hard to imagine a disruption lacking a spatial aspect or a divergence with no temporal component. Moreover, all forms of disjuncture require external stimulation to account for change or diversity. In this regard, disjuncture fails to move beyond the apparent agentless victimhood of world-systems theory (WST).

The disjuncture concept adds little to the understanding of ancient interaction. Rather than adopt new jargon, let us just accept this: interaction may lead to the spread of ideas and things and their reconfiguration in novel ways. Thus, interaction can create both cultural similarity and divergence. Moreover, patterns of adoption/rejection can sometimes be conceived as deliberate choices made by agents with programmatic needs. In other cases, patterns of adoption may be arbitrary. Finally, when interaction serves as a catalyst spawning cultural diversity, such diversity can be beneficial.

What Stoner and Pool do best is describe in nuanced ways the impact of interaction on the Tuxtla region. Their interpretation might be the finest I have read for interaction with Teotihuacan. Matacapán, of course, plays a central role. Nonetheless, the presence of actual Teotihuacan exports at Matacapán has often been overstated. For example, ceramic identifications of thin orange (made in Puebla) by Robert Santley have not been verified except in rare instances. Stoner and Pool correct this. What is most notable is that most Teotihuacan artifacts at Matacapán are locally produced homologues. Imitation, not importation, is the strongest argument for consequential interaction.

The authors describe the arrival at Matacapán of people who used Teotihuacan-style materials but who may not have come directly from the great city. This new community became embedded in an existing cultural matrix, with ties going back to epi-Olmec Tres Zapotes. As Matacapán grew, its material culture changed, maintaining its distinctiveness

from the Tuxtla region but also diverging from Teotihuacan. Some communities in the region also came to use Teotihuacan-style goods. But others—especially Totocapan and Teotepec—did not. According to the authors, cultural distinctions in the region did not lead to conflict. Competition between sites did not prohibit interaction and, indeed, may have stimulated it. Thus, although Totocapan rejected Teotihuacan-style symbols and ceramics, it imported most of its coarse orange from Matacapan. Increased interaction, engendered by cultural divergence and participation in distinct procurement systems, led to interdependence. The authors go so far as to hint that both the success and eventual collapse of the Tuxtlas was the result of this interdependence, which included the critical hub of Teotihuacan. I doubt this as an explanation. When large hubs are removed from networks, they tend to fragment into smaller clusters, a process called percolation. The loss of Teotihuacan should have seen the Tuxtlas continue on their own divergent path, not collapse as a passive victim of external stimuli—the precise reason the authors eschew WST. Explanations that encompass both the success and collapse of a region often go too far, and Teotihuacan cannot explain everything.

Roderick B. Campbell

Institute for the Study of the Ancient World, New York University,
15 East 84th Street, New York, New York 10028, U.S.A.
(rbc2@nyu.edu). 23 XII 14

With this ground-breaking study, Stoner and Pool have given us an excellent example of the potential of the network model for understanding early complex societies. Their inspiring synthesis of decades of archaeological work underlines the importance of investigating the specifics of political and cultural interaction and influence—concepts applied in an all too fuzzy manner in many regions of the world. My comments then are meant to compliment rather than critique this extremely useful case study.

The key contribution of this article is the construction of a multiscale narrative of specific social, political, economic, and cultural interactions built from the ground up. That is to say, the authors have detailed a complex picture of multiscale networks of institutions that more realistically describes the situation of early complex polities and their regional and superregional contexts than either monolithic models of early state expansion or archaeological adaptations of Wallerstein's modern world-system. Indeed, most critiques of those models have already pointed out the flaws in imagining either totalizing visions of a modern-type economic world-system organized around a single core, or a crypto-totalitarian state exerting homogeneous and direct control over its territory. What this article does best, then, is to provide not another critique or even a completely new

model but rather a case study showing just how various institutions operating over different scales structure the material patterns from which archaeologists reconstruct socio-political complexity.

On theoretical plane, while in broad agreement with the general approach, I feel there is a gap between Appadurai's disjuncture—which came out of a critique of the culture concept in anthropology in the 1990s, where a bounded and reified culture was replaced with an agentive and promiscuous notion of identity and practice—and the institutions that archaeologists are able to reconstruct from material culture. The recognition of difference in, say, traditions of house building is one thing, but that these differences were considered significant or directly related to self-identification are quite another matter. While the authors were able to show fascinating variability in the history, practices, and architectural regimes of Matacapan and Totocapan, there is not much further analysis of how these differences mattered in the local construction of sovereignty and identity. The division of reality into political, economic, symbolic, and moral webs likewise seems ill considered, given that the actual networks presented in the case study are flows of material culture and practices that help generate political, economic, symbolic, and moral (and other) network effects that cannot be disambiguated one from the other. So, for instance, if pots with saurian design made in Totocapan end up somewhere else, this production, distribution, and consumption of ceramics might simultaneously constitute economic, moral, political, and symbolic relations. I would argue that it would be better if the authors derived their ontological divisions closer to the empirical ground: what do the patterns in the data actually suggest about how these people parsed reality and thus organized their action in the world?

In addition, I would push the authors to further consider the nonhuman aspects of networks—the affordances, entanglements, and unintended consequences of things, materials, technologies, and practices. This then allows for a fuller consideration of temporality as an inevitable aspect of events and the realization that not every meaningful change takes place at the spatiotemporal scale of the individual and individual agency. Ironically, the case study—with its discussion of things like the Cipactli Cult and long-term regional architectural programs—already presents the seeds of a more ontologically nuanced and processually sensitive account. I would push the authors to rework their theoretical approach to better fit the richness of their narrative.

Finally, I believe that the choice of the term “disruption” as “temporal disjunction” is not felicitous and suggests a focus on external factors apparently predicated on a notion that societies have evolutionary trajectories that can be disrupted only from the outside. Contingency and, apparently, historical change then seem to be considered exogenous forces—an assumption, I suspect, that derives from earlier systems theory models and is deeply at odds with

the network approach the authors are using. What can inside and outside mean in a multiscale network? In short, I would push the authors to jettison “trajectories,” “evolution,” and “disruption” from their theoretical program and instead see change as happening on different spatiotemporal scales, networks as involving nonhumans as well as humans, and analytical categories as arising from an inter-ontic ground.

David M. Carballo

Department of Archaeology, Boston University, 675 Commonwealth Avenue, Boston, Massachusetts 02215, U.S.A. (carballo@bu.edu). 1 XII 14

Stoner and Pool provide a stimulating application of Appadurai’s concept of disjuncture to the cultural exchanges attested to in the archaeological record of Mexico’s Tuxtla region during the Classic period (ca. 300–650 CE). The framework is heuristically useful in examining the complex interplay between power, trade, style, and other cultural dynamics from a multiscale perspective, which can scale in scope from macroregional systems to the local-level decision making of communities or even households. Importantly, Stoner and Pool do not simply note that labels such as disjuncture and divergence fit their data set—acquired over decades by multiple projects—they also provide potential explanations for how such processes operated in identifying differing trajectories of the older and newer settlement histories of two adjacent areas of the Tuxtla. As the largest city and most expansionistic state of the period, Teotihuacan appears to have exerted greater influence in areas with a younger history of occupation, such as surrounding Matcapan, than in areas that had been inhabited longer, such as surrounding Totocapan. Stoner and Pool note that systems of governance, trade, and symbolism associated with a foreign city may have been more attractive to the local leaders and inhabitants of newer communities, whereas those with deeper histories of place selectively incorporated imported goods but not styles, which drew instead on traditional sources within the region. The explanation is compelling and could be evaluated with sequences from other parts of Classic period Mesoamerica or cases of long-distance interaction and early state expansion from other world regions.

Broader applicability of the framework nevertheless requires confronting some issues that Appadurai (1990, 1996) raised in his original articulations concerning the origins of globalization or social processes akin to it. As with much of the world-systems literature, Appadurai (1996:27–29) proposed that the transglobal networks forged roughly 5 centuries ago were pivotal, but he also considered the contributions of related, unifying processes in non-Western contexts, including the pre-Columbian empires created by the Aztecs

and Incas. I agree with Stoner, Pool, and others (e.g., Jennings 2011) that the premodern/modern boundary of ca. 1500 CE is porous and does more to hinder historical explanations than foster them. The differences are quantitative rather than qualitative, and archaeology has an important role to play in elucidating the deep roots of globalization through understanding the constellations of long-distance interaction that preceded frequent transoceanic travel. Yet the snowballing impacts of intensified transportation and information flows cannot be glossed over. Unlike today—where anyone with an Internet connection and relative freedom from state censorship can access all the cultural variability, styles, and memes of a globalized world—long-distance communication and culture contact of the deep past was much more restricted by geography and the happenstance of historical linkages. We must therefore envision the spatially bounded and temporally sporadic nature of contacts that generated disjuncture in Classic period Mesoamerica or other early contexts, some of which are evidenced through textual, iconographic, artifact, or bioarchaeological remains.

For instance, in the case of Classic period Mesoamerica, we must consider the periodic and uneven movements of groups, such as caravans of traders carrying goods between Teotihuacan and the Gulf of Mexico, with particular ties to specific communities and not others (Manzanilla 2011); pilgrimage circuits crossing the landscape, including those made by royal entourages from areas as distant as the southern Maya lowlands (Fash et al. 2009); diplomatic emissaries traveling between state capitals (Marcus 1983); and military engagements of various kinds (Hassig 1992:45–89; Stuart 2000). Such movements would have entangled different groups in networks of interaction but with the capriciousness of geography and history inherent to exchanges based on foot-based travel and more limited flows of information. Long-distance contacts involving Teotihuacan were likely most intense ca. 250–550 CE, with the terminus date representing the emerging consensus for the organized burning and iconoclasm in the city’s epicenter and collapse of the state (e.g., López Luján et al. 2006). As a result, the last century of contacts between individuals from Teotihuacan and individuals from the Matcapan region (ca. 550–650 CE) would have been of a different nature than during centuries prior, with a collapsed or greatly diminished polity centered at Teotihuacan. Identifying the specific nature of contacts and their historical sequences is therefore essential to understanding cases of disjuncture and the broader processes of interaction underlying them. Whether initiated through the hegemonic mosaics of control (e.g., Schreiber 1992) of expansionistic early states or the selective adoption and bidirectional exchanges by contemporaneous communities, disjuncture would have been a common phenomenon in pre-global cases of long-distance contact. In this article, Stoner and Pool have made a commendable effort at identifying and explaining it.

George L. Cowgill

School of Human Evolution and Social Change, Arizona State University, Tempe, Arizona 85287, U.S.A. (cowgill@asu.edu).
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Archaeological thought about the impacts of major centers on distant regions has tended to be simplistic. Stoner and Pool offer more sophisticated concepts and exemplify them with a fascinating and enlightening study of what went on in the surroundings of Matacapan in the southern Gulf Lowlands of Mesoamerica.

Some years ago, in an article I think is still timely, I reviewed Teotihuacan presences in many parts of Mesoamerica, especially in relation to the Maya region. I pointed out that presences were different in different places, but I posed this as an observation calling out for explanation rather than offering any explanations myself (Cowgill 2003). In contrast, Stoner and Pool offer many insights concerning the varying impacts of Teotihuacan on Matacapan and its neighbors. Their work calls attention to how little is understood or even known about Teotihuacan presences elsewhere, and it serves as a model for similar research throughout Mesoamerica.

Disjuncture was certainly present in provinces of empires such as the Roman and that of the Inka. At the same time, they also left clear hallmarks of their imperial presence, especially in the rather standardized architecture of civic buildings. Much less by way of large and standardized Teotihuacan hallmarks abroad has been recognized. This suggests a less systematic outreach to places of interest to Teotihuacanos for various reasons, perhaps carried out by different elements in Teotihuacan society, including traders and possibly even adventurers, as well as the state itself. An analogy might be the difference between the commercial English East India Company of the 1700s and the governmental British Raj of the late 1800s.

Nevertheless, there may be less conspicuous insignias of the Teotihuacan state in the southern Gulf Lowlands. An important example is the stone stela at Piedra Labrada, near the coast, not far east of Matacapan (Stoner and Pool, this issue, fig. 1; Taube 2000:46, fig. 35). This stela is unusual in showing no human or animal figures, but at the top it has a flaming bundle torch, which I believe is emblematic of Teotihuacan rulership seen both at home (Cowgill 1997:150) and abroad, as on a slate disk at Kaminaljuyú (Kidder et al. 1946, fig. 175; Cowgill 2015). Below that is the Teotihuacan *ojo de reptil* sign, surely not the eye of a reptile and more likely a Teotihuacan emblem, then the bar-and-dot number seven, then three repetitions of the enigmatic tilled earth sign, rare at Teotihuacan itself but seen elsewhere in Mesoamerica, as on a stela showing the Teotihuacan Storm God at Los Horcones in Chiapas (Taube 2000:42, fig. 33). This sign possibly represents the four quarters of the Teotihuacan realm.

I will attempt to put to rest a persistent myth about Teotihuacan. Multi-apartment residential compounds are not

standardized. Of the 2,300 identified by the Teotihuacan Mapping Project, the midspread (middle half) of their areas ranges from 900 to 3,160 m² (30 × 30 to 56 × 56 m²). No two of those excavated have the same layout, though they tend to share many features arranged differently. They do closely adhere to an orientation about 15.5° east of astronomical north.

I should also note that I have recently rethought the evidence for the likely population of Teotihuacan (Cowgill 2007:264, 2015). It was probably somewhere around 80,000 rather than often cited estimates of 150,000 and higher. Of course, even 80,000 makes it exceptionally large among early cities.

Justin Jennings

Department of World Cultures, Royal Ontario Museum, Toronto, Ontario M5S 2C6, Canada (justinj@rom.on.ca). 3 XII 14

In this article, Stoner and Pool reject oversimplistic core-periphery models and argue for the development of more complex network models for cultural horizons that would allow for divergence as well as move effectively across time and geographic scales. This is a monumental task—most network scholarship is synchronic and uniscalar—and the authors should be applauded for their nuanced interpretation of the shifting relationships in the Tuxtla region. Much more work of course still needs to be done to clearly identify the nodes, links, and structure of Classic period networks, but Stoner and Pool's approach offers considerable insights to those of us struggling to understand the spread and decline of early cultural horizons.

I nonetheless suggest that Arjun Appadurai's work on disjuncture is of only limited utility for conceptualizing evolving interaction networks. Appadurai's model (1990, 1996) was written as a polemic challenging the idea of a unified global political economy offered by dependency (Frank 1966) and world-systems approaches (Wallerstein 1974). He sees the deep-seated local moorings of nation-states, villages, and individuals as being fragmented and ultimately deterritorialized by a welter of flows that are so "complex," "overlapping," and "quirky" that they do not fit into core-periphery models (1990:296).

Appadurai's work was an important corrective, but building off of the critiques of others (e.g., Friedman 2003; Heyman and Campbell 2009), I want to raise three concerns about formulating an archaeology of disjuncture off of his globalization model. First, Appadurai sees our contemporary world as qualitatively distinct from earlier eras where long-distance exchanges were of low volume and of little impact (1990:301). This does not mean that his insights on global flows cannot be applied to the past—after all, Immanuel Wallerstein argued that his world systems approach applied only to the capitalist economies (1974:15–16)—but it does

mean that the application of Appadurai's model tends to obscure both preexisting long-distance flows and how flows can build off each other.

A second area of concern is that his -scapes neologisms (the ethnoscapas, mediascapas, technoscapas, finanscapas, and ideoscapas carved by global flows) are designed to emphasize the variation in how people subjectively perceive globalization processes (Appadurai 2014:483–484). In highlighting perception, Appadurai writes against the abstraction of the coarse grain networks imposed by the dependency and world-system approaches. He has never been particularly interested in identifying the specific nodes and links that structure global flows.

My final concern is that Appadurai mystifies the relationships between flows. In presenting globalization as a chaotic, uncontrollable slurry of global flows, he sometimes obscures significant power differentials between actors (though note that he has begun to address this concern in later work [2006, 2013]). By focusing on the fracturing of global flows, Appadurai tends to de-emphasize structural inequities that allow well-positioned groups to at least influence aspects of these flows to their advantage.

Appadurai's model is therefore useful for highlighting the divergences inherent to global systems, but a more developed archaeology of disjuncture would need to incorporate other models of contemporary globalization that are more conducive to network analysis (e.g., Hardt and Negri 2000; Robertson 1992). Archaeologists, especially those working in the Mediterranean World, have also begun to explore how globalization theory can help us understand the dynamism found within cultural horizons (e.g., Hodos 2009; Versluys 2014). Many of these studies deal with materiality and entanglements (see Hodder 2012), two theoretical streams not touched on by Stoner and Pool that would be quite useful in understanding how new ideas were incorporated into daily practices in Tuxtla. Carl Knappett (2011), however, has taken an explicitly network approach to the Minoan period and has written at length about the challenges of reconstructing the complex, diachronic, and multiscale networks that linked previously disparate groups together during this era.

This is not the place to review Knappett's book, but it may be helpful to briefly discuss two of his insights that are particularly germane to the archaeology of disjuncture that Stoner and Pool are developing. First, Knappett builds off the work of Olivier Gosselain (2000) to emphasize the importance of communities of practice in the ease or difficulty of transmitting ideas across space. Since these communities often crosscut linguistic, economic, and political boundaries, their identification would help us better understand why certain motifs and materials spread the way that they did in Tuxtla. Second, Knappett calls our attention to Mark Granovetter's work (1973, 1983) recognizing the outsized importance of external links in the resiliency of local networks, even when these links are weak and poorly maintained. For Tuxtla, Granovetter's writings make clear the need to better

understand how Teotihuacan sustained relations with Matzacapan and how its relationship differed with Totocapan, Teotepec, and other centers.

In sum, Stoner and Pool have written a wonderful beginning to a network approach to early cultural horizons. I look forward to subsequent publications.

Linda R. Manzanilla

Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Ciudad Universitaria, 04510 Mexico D.F., Mexico (lmanza@unam.mx). 13 XII 14

The article by Stoner and Pool offers relevant data that refers to Classic period polities in the Tuxtla region of Veracruz, one of which is related to Teotihuacan, Central Mexico. I will nevertheless focus on the corridors of Teotihuacan ally sites that Angel García Cook (1981) pointed out, which modeled an interaction sphere led by Teotihuacan. My comment will be supported by data from a multiethnic neighborhood center of the southeastern sector of Teotihuacan, which I have studied: Teopanazco.

Teotihuacan needed specialized labor (tailors, lapidary workers) as well as exogenous sumptuary goods (greenstone, travertine, limestone, flint, slate, mica, green quartz, galena, cinnabar, specular hematite, malachite, jarosite, cotton cloths, marine fish, and crabs, all of which were found at Teopanazco; Manzanilla 2009, 2011, 2012). Most of these were procured by each neighborhood from different sources through the caravan system sponsored by the intermediate elites that managed them; the migrant workers that came with them became embedded within each neighborhood center (Alvarado-Viñas 2013; Manzanilla 2011, 2012).

The health condition analysis of the migrant multispecialized craftsmen of Teopanazco (tailors; others who worked fibers with their teeth, threw nets, squatted for long periods of time; some even walked long distances, and some dived in cold waters to obtain marine shells; Alvarado-Viñas 2013; Manzanilla, forthcoming) that came from Tlaxcala, Hidalgo, Puebla, and Veracruz (Schaaf et al. and Morales-Puente et al. in Manzanilla 2012) to Teopanazco revealed that many of them had experienced nutritional stresses during infancy; they may have migrated to Teotihuacan to take advantage of the food-rationing system provided by the neighborhood centers for them (Manzanilla 2011) particularly *tortilla* rations and meat from domesticated animals also fed with maize (Morales-Puente et al. in Manzanilla 2012). So the "peaceful migration" option may have rather been a compulsory migration of underfed individuals.

Teopanazco, located to the south of the Ciudadela in Teotihuacan, has also provided the largest variety and quantity of marine resources, exogenous materials, and migrant people in Teotihuacan (Manzanilla 2009, 2012, forthcoming). The intermediate elite from Teopanazco sponsored caravans

toward the Nautla region in Veracruz, and from there approximately 12 varieties of marine fish as well as crabs, a crocodile, and other coastal fauna came to the site (Rodríguez-Galicia and Valadez-Azúa 2013), together with cotton.

The corridor of ally sites passed through Tlaxcala, Hidalgo, Puebla, and Veracruz. One of these sites was Xalasco, near Huamantla in Tlaxcala (Manzanilla, Aguayo, and Hernández 2011), a multiethnic station for caravans from Teotihuacan, where local, Teotihuacan, central-southern Puebla, and Veracruz elements were found. Xalasco is not far from Cantona (García Cook and Merino Carrión 1998), which eluded forming part of the Teotihuacan ally sites because of its size, urbanization, and nearness to other obsidian sources and to a lake system in Cuenca de Oriental. Cantona was a competitor for Teotihuacan as well as its opposite (nonorthogonal urban planning, acropolis-type core, asymmetrical structures).

With respect to the other regions mentioned in the manuscript, Eastern Morelos was a lime-producing area, a raw material widely used in Teotihuacan. It was also a region where flint was available, a raw material used to work hard stone into lapidary crafts. Finally, it may have been the connection sector for (1) the Morelos-Guerrero corridors, from which greenstones, slate, granular ware, and possibly pigments such as cinnabar, galena, and specular hematite came from; and (2) the central-southern Puebla corridor, connecting Atlixco and Ixcaquixtla to other ally sites. From this region, travertine, onyx, greenstone, thin orange ware, and possibly also lime, limestone, marble, and flint poured into Teotihuacan.

Monte Albán in Oaxaca seems to have been the capital of an ally state; Teotihuacan elite dignitaries were portrayed carrying gifts to the local lord, as shown in Southern Platform slabs. They went to Monte Albán to procure the mica cargo for the Teotihuacan ruling elite (Rosales-de-la-Rosa and Manzanilla 2011). Mica from Oaxaca (Rosales-de-la-Rosa and Manzanilla 2011) and jadeite from the Motagua Region in Honduras-Guatemala (Ruvalcaba-Sil et al. 2008) were two raw materials controlled by the ruling elite of Teotihuacan (more than 90% of the mica of Teotihuacan is concentrated in two compounds); the rest of the population, including the elite who administered the neighborhood centers, was adorned with a variety of other materials from different regions.

In the fourth century AD, the Pyramid of the Feathered Serpents was destroyed. A group related to the Feathered Serpent seem to have been expelled from Teotihuacan, and soon after, a group of armed *Teotihuacanos* arrived at Tikal and installed a new dynasty. Later on, we see groups of sites with Teotihuacan elements (such as theater-type censers) along the Pacific coast of Chiapas and Guatemala.

The phenomenon of local Maticapan pottery that replicates Teotihuacan forms is conversely seen at Teotihuacan in the form of imitations of foreign pottery with local wares at the Oaxaca Barrio and Teopanaczo, found together with

real imports, stressing the relations to Oaxaca and to Veracruz. At Teopanaczo, we also have an extreme form of this issue in the form of the importation of volcanic glass from Altotonga, Veracruz, to form part of the stucco floors (Barca et al. 2013).

Peter N. Peregrine

Department of Anthropology, Lawrence University, 711 East Boldt Way, Appleton, Wisconsin 54911, U.S.A./Santa Fe Institute, Santa Fe, New Mexico 87501, U.S.A. (peter.n.peregrine@lawrence.edu). 1 XII 14

Reading Stoner and Pool's interesting article took me back to a time when my colleagues and I were pushing world-systems theory as a way to understand the importance of interregional interaction among prehistoric polities. Stoner and Pool are right to charge us with promoting an oversimplistic view of interregional interaction and its impact on the societies engaged, but it is important to understand the context in which we were working almost a quarter century ago. It was a time in which the prevailing theoretical perspectives were intensely local. Ecosystem and population regulation were seen as key processes, and political authority was understood to have evolved as a way to manage those processes (e.g., Sanders and Nichols 1988). It was within that context that I, for example, urged North American archaeologists to consider "the importance of raising our collective eyes to the horizon . . . and of examining the multiple levels of integration and interaction that must have involved the people whose material remains concern us" (Peregrine 1995:261). I find it gratifying that a perspective that includes interregional interaction is now assumed by archaeologists and that scholars such as Stoner and Pool are moving us toward more nuanced understandings of how interregional interaction differentially impacted prehistoric societies.

Barbara L. Stark

School of Human Evolution and Social Change, Arizona State University, Tempe, Arizona 85287, U.S.A. (blstark@asu.edu). 16 XII 14

Stoner and Pool bring a fresh approach to the subject of far-reaching Teotihuacan contacts by embracing Appadurai's concept of disjunctures, developed to account for the complexities of modern globalization. Disjunctures provides more nuance than blanket categories such as core-periphery or developed-underdeveloped. This perspective leads them to look not only at a main point of contact (Maticapan) but also at an adjacent Tuxtla drainage that does not stand out in Teotihuacan contacts. Their approach is set against a literature about Maticapan that includes several nonnuanced claims about its structural roles (e.g., Santley 1983, 2007). Separation

of lines of evidence, such as economic (obsidian, certain vessels) and ritual (saurian images, incense burners), against a backdrop of settlement information across two valleys allows discrimination of boundaries and clines in evidence as well as differences according to the settlement hierarchy. “Same or different” is a recurrent question.

I applaud the rebalancing of our perspective. The authors remark on the productive tension between particularistic analyses and generalizations. Teasing out all the variability in relationships can be more accurate in details but obscure big patterns, although it can reveal them, too. The authors note architectural arrangements that are part of widespread Gulf culture beyond the Tuxtla Mountains as one element of local homogeneity and distinction from Teotihuacan traits. But these widespread patterns also encompass variation. For example, some Standard Plan plazas emphasize a north-south axis and others an east-west axis (Daneels 2012:109); these tendencies correlate with drainages and, in some cases, shift over time. Consistent monumental architectural arrangements implicate communications, perhaps political hierarchies or elite identities, so the patterning is potentially significant.

This larger macroregional scale also likely contains separations in ceramic symbols akin to the authors’ mention of Tepango Valley Cipactli images. Running animals (dog, coyote?) appear in the lower Papaloapan representing 97% of type 18a at Patarata 52 (Stark 1989:30–33). In contrast, in the lower Blanco River area to the west, a maximum of five sherds (two are ambiguous) show them from survey surface collections, representing 3% of type 18a; only one rim (1% in a related type 10m) displays this creature from mound 1126 excavations (Stark 2001). Instead, underworld skeletal figures, birds, serpents, or paw and footprints appear on some vessels in the lower Blanco (Stark et al. 2001:105–141).

Architecture, like pots, is functional and stylistic. As yet, we are shaky in our ability to discriminate degrees of stylistic resemblances in respect to Teotihuacan, and we have not geared our stylistic analyses to the sophistication of ancient complex societies. Selective quotation and emulation of foreign practices may occur and may be oriented not entirely to a distant influential state (like Teotihuacan) but also to neighboring polities in a “peer polity” process that influences the use of objects or symbols, especially in elite circles (Renfrew 1986). Elsewhere I have experimented with the concepts of replication, interpretation, and adaptation to discriminate degrees of stylistic resemblances in pottery (Stark 2014). Examination of variability in disjunctures and of homogeneity in practices requires a systematic approach to degrees of similarity/difference as well as differential distributions.

Overall, attention to variability draws power from inductive discoveries, but it is most effective when it responds to motivated investigations. As the authors note, one important motivation is recognition of agency among different people and groups. With this aim, we do not overlook the roles of

both the general population and powerful social strata—for example, weapons of the weak (Scott 1985)—or overlook the active absence of influence from a Teotihuacan when local polities eschew a foreign style, perhaps also resisting its political and economic power (e.g., Spencer and Redmond 2006).

The authors derive one issue from their Tuxtla comparisons: that more Teotihuacan impact is discerned in a relatively vacant region than in the long-standing polity of Totocapan, which they compare to observations by Clayton (2013) for Teotihuacan’s Basin of Mexico hinterland, in which a new settlement was more closely tied to the city than a long-standing one. A variant case is the close pairing of new secondary centers founded by the capital of Copán (Honduras) with long-standing local centers (Canuto and Bell 2013). Yet Kaminaljuyú and Tikal (Guatemala) and Monte Albán (Oaxaca) yield a more complicated picture. They were important centers in their regions, long-standing but still interacting with Teotihuacan. In those cases—as with Cerro de las Mesas, Veracruz—elite elements of society and symbolic practices were most affected.

Motivated attention to variation benefits by examining different realms of activity, as the authors emphasize, but also different elements of society, whether class based (as in the elite contexts important for some interactions with Teotihuacan), occupational, ethnic, or kin-linked corporate groups. Their case study is strong on evidence related to different realms of action, but distinction of different social groups (apart from the settlement hierarchies) remains for the future. An important implication of their argument is that adequate publication of material culture information is the rock on which comparative work can build. It is certainly essential for the consideration of stylistic replication, imitation, and adaptation to clarify “same or different.”

Peter S. Wells

Department of Anthropology, 395 HHH Center, University of Minnesota, 301 19th Avenue South, Minneapolis, Minnesota 55455, U.S.A. (wells001@umn.edu). 28 XII 14

Divergent Responses to Disjuncture: A Framework Rich in Possibilities

This stimulating paper explores a theme that applies to a wide range of contexts in time and space, and it presents a framework that can be valuable for archaeologists working in many different periods and regions of the world. The central argument—that interactions between communities of different scales and responses and reactions to those interactions are complex and diverse—is an idea of which we should always be aware as we study interactions between and within complex societies; this paper shows why.

Key is the observation that different communities respond to outside stimuli, whether they are introduced through conquest, trade, or other mechanisms, in different ways. And communities can adopt one aspect of the influence from an outside source and reject others. The authors argue, correctly I think, that we should not be emphasizing typology as much as we often do (though typology is necessary for establishing chronological sequences) but instead focus on the specific details of the archaeological evidence, “empirical particularism” in the authors’ words.

My work on complex societies is in a very different context: late prehistoric and Roman Period temperate Europe. Applying Stoner and Pool’s framework to these periods in Europe would not only illuminate the interactions and responses there but also lead to the development and refinement of their model.

I note that groups are the predominant social entity treated in this paper, with relatively little mention of individuals. Perhaps the relative lack of treatment of individuals results from the character of the available evidence. In both Late Iron Age and Roman Period archaeology, there is increasing interest in the individual as a unit of analysis. With immense databases of burials, a great deal of information can be linked directly to individuals. Thus, we can examine the issues that Stoner and Pool raise—differential adoption, transformation, or rejection of cultural traits—as they relate to not only communities but also individuals as well. Such an application would provide more detailed insight into the diversity of responses to outside influences of various kinds. Every person in a community has a set of experiences, attitudes, and aspirations unique to that individual. I illustrate these possibilities of expanding Stoner and Pool’s model to include analysis of responses by individuals with three examples.

A cemetery at Ergolding in Lower Bavaria, Germany, was comprised of 79 cremation graves, representing a community of some 25 adults who inhabited a villa complex between about AD 150 and 250 (Struck 1996; discussion in Wells 1999:210–214). Within this small (and probably typical) community, we can observe significant differences between individual graves in both space (where graves were situated) and time. Each grave was different from the other 78 with respect to grave goods. Burials near the center of the cemetery were more Roman in character with respect to grave goods, and those on the periphery showed stronger links to local pre-Roman traditions. Over time, the use of personal ornaments as grave goods declined, while pottery was included more frequently. While people do not bury themselves, those performing the funerary ceremony make decisions based on, among other factors, their understanding of that individual’s identity and, perhaps, wishes; in that sense, each grave can tell us about how each individual—or his or her representatives—participated in the consumption of the complex array of local and Roman goods available.

In addition to examining how objects were treated—adopted, rejected, altered, imitated—the burial data sometimes allow the reconstruction of cultural practices and performances. Objects can be transmitted through a variety of mechanisms, some direct and some indirect, but when we can show that specific practices were adopted by a community or by an individual from outside, we have what can be richer documentation of response to interaction. In her analysis of a complex burial site at Folly Lane, St Albans, in Britain, Rosalind Niblett (1999) was able to show how the funerary ritual was performed, with the intermingling of Roman products with those of local character. The excavators of a Late Iron Age grave at Mailleraye-sur-Seine in northern France, in which a Mediterranean glass vessel was used as an urn to hold cremated remains, could document the exact order in which objects were arranged in the grave, providing insight into how the ceremony was performed and perhaps what meanings the different objects had for the participants (Lequoy et al. 1993; discussion in Wells 2012: 162–164).

These examples suggest some of the ways in which Stoner and Pool’s framework can be applied to other instances of interaction, disruption, adoption, and transformation. It is to be hoped that the authors will expand on their paper in book format in order to include more detail of their study.

Reply

We thank the commentators for the insightful reviews of this paper. In order to build a stronger approach to ancient interactions, we focus on comments that challenge the theoretical or empirical grounds of the disjuncture concept presented here.

First, a little context. Stoner initially sought to assess the relationships between two contemporaneous centers in a region where one of them demonstrated cultural influences from an external power. Given the prevalence in the literature of centralized and foreign explanations for Classic period developments in the Tuxtlas, Stoner naturally first consulted the same world-systems approach to understand the role of Totocapan in these interactions. It quickly became apparent that world-systems theory would prove an uncomfortable fit with the data. Appadurai’s concept of disjuncture provided the analytical framework that permitted a different perspective on the data and allowed us to recognize a complexity of interactions in the region that had not been realized previously. As both Peregrine and Jennings state, Appadurai’s disjuncture was written as a polemic contrasting the top-down approaches to the modern world economy that had been employed through the 1970s and 1980s. Stoner was dealing with a very similar situation in the

Tuxtla Mountains, and the concept of disjuncture provided a framework to understand how the diverse cultural inputs intertwined at different settlement loci. We offer this case study as an example for others encountering similar analytical and interpretive difficulties.

That said, we agree with Braswell that Appadurai's writings do not provide an easy fit of theory or method with archaeological research; he certainly did not write with archaeologists who study the distant past in mind. As Carballo notes, though, Appadurai did assert that disjuncture occurred prior to the modern era and even named Aztec and Inca expansions as examples that accelerated the process (1996:28). Since Appadurai did not lay out a specific approach for archaeological use, we modified the concept of disjuncture to work with archaeological data and constructed a loose framework that others might adapt to their own research. Clearly, we see a fruitful path forward in social network analysis, but as Jennings and Campbell offer, entanglement and materiality are valuable approaches that could similarly help to identify the layering of culture and, in particular, the role that things play in that process. There are many ways one could examine disjunctures in their own research region, so we keep the discussion largely at a conceptual level.

The most consistent criticism among the commentators is that Appadurai's conception of disjuncture is not the most productive or appropriate way to address archaeological data. Braswell and Campbell note the gaps between modern anthropological concepts (including Appadurai's) and questions that archaeologists engage. Jennings and Carballo both point out the very different subject matters between the modern political economy and the interactions among societies in the distant past. Disjunctures, nevertheless, are still apparent in the archaeological record, as we hope to have shown here. We agree with Carballo that the difference in transport and communication technologies is so quantitatively different that it can become a qualitative concern, particularly in the Mesoamerican case. This led us to address space in the text, and it clearly played a large role in our discussion of scale. Appadurai does overstate the deterritorialization of interactions, even for the modern world, as Jennings suggests. All people, places, and interactions have a spatial component. Heyman and Campbell's (2009) reconceptualization of space is very useful for archaeologists who seek to understand how disjunctures form and are expressed in architecture and the distribution of artifacts. Even if information does flow through mass media to every part of the modern world, which it does not, the adaptation of those ideas by people to define their own worlds is manifested in the types or styles of objects that they possess. Archaeologists often use ceramic objects to identify these cultural borrowings. The distribution of styles across space and their recombination in local styles provide important information about the variability of how cultural exchanges intersect at

different nodes. We emphasize here that the ultimate object of study is not simple variation in artifact style across space. Archaeologists have done that for decades without the concept of disjuncture. Our focus is rather on how cultural practices, materials, and ideas from different sources come together at the places on the landscape that archaeologists study. Taking that notion one step further, we also are interested in how that diversity affects subsequent interactions in the region.

Appadurai dismantles the concept of the static institution, as Campbell notes, whereas archaeologists tend to embrace it as a primary focus of research. We see institutional configurations specific to particular nodes as deriving from the combination of four qualitatively different but intersecting facets. All human groups possess institutions with political, economic, symbolic, and moral (i.e., legal, religious, and ethical; see also moral economy) dimensions. Braswell mistakenly asserts that we conceive of these as discrete social networks, and Campbell levels a similar critique, suggesting that these different behaviors can combine in a single artifact category (e.g., trade of cipactli bowls). Far from disputing the mutual embeddedness of political, economic, symbolic, and moral processes, we recognize that they overlap and intersect with one another; indeed, we think it unlikely that ancient Mesoamericans conceived of them as separate. Nevertheless, to understand operation of complex systems of interaction, we think it useful to analytically distinguish component parts rather than consign them to an impenetrable black box (as Pool [1992a] discussed for ceramic production and distribution). Though deeply interrelated, the precise way that instituted processes connect at nodes can be highly variable. The same institutions may fit together differently at any given node. Likewise, distinctly local institutions may incorporate nonlocal inputs into variable social configurations. Our intention is to gain analytical advantage by distinguishing among cultural traits that inform qualitatively different aspects of human relationships. Jennings argues that Appadurai mystifies the relationships among his cultural flows, and this is our attempt to make the concept more applicable to archaeological data. Without analytically distinguishing among these cultural features, we cannot possibly hope to identify the variability in how they interrelate from the perspective of individual people or settlements. This is the very heart of the disjuncture concept: that people build their local realities from information and materials taken from a broad realm of possibilities and that the traditional associations of different traits found in any locality breaks down as the end consumer adapts them to their own circumstances.

The reviewers also commented on the resolution of our analysis. Arnold, VanDerwarker, and Budar agree with us that the strokes in which the region in question has been painted have been too broad but consider that our particularism is not particular enough in some cases. Stark as well as

Arnold, VanDerwarker, and Budar rightly emphasize that there is more architectural variability than we capture with our three-style architectural assessment. In fact, we could treat every architectural complex as unique and instead examine patterns of individual attributes (e.g., orientation, size, composition). This approach would identify a much finer grain of variation, but our aim was to identify broader regional patterns of similarity and difference. We agree with Stark, who points out that a balance must be reached between seeing detail and big patterns. A problem all archaeologists face is that the resolution at which patterns appear is unknown until we adjust the focus across a variety of magnifications.

We turn now to more empirical observations of how our arguments fit the available data in the Tuxtlas and elsewhere. Arnold, VanDerwarker, and Budar provide the most substantive comments on our treatment of the data, based on their extensive knowledge of and important contributions to the archaeology of the Tuxtlas. First, we agree that the motivations for founding Matacapán are important to consider. This topic has received many interesting speculations over the years. Coe (1965:704–705) remarked that Matacapán may have been a waystation on the way to the Maya regions. Santley (1994) suggested that Matacapán was founded as a colonial enclave by Teotihuacán, in part to exploit the high-quality kaolin clay sources in that location for intensive pottery production. It is also apparent that the volcanic event and abandonment of the area that preceded the founding of Matacapán provided an opportunity for a new group to move in uncontested (Pool and Britt 2000; Santley et al. 2000). The latest argument—which Arnold, VanDerwarker, and Budar restate—is that a disaffected group of ethnic Teotihuacanos fled persecution by competing groups within the city following the destruction of the Feathered Serpent pyramid at Teotihuacán. The data certainly fit this reconstruction (Arnold and Santley 2008). This suggests—as Santley et al. (1987) and Pool (1992*b*) did previously—that the first Matacapaños were immigrants rather than local elites seeking prestige from a powerful foreign polity. Arnold, VanDerwarker, and Budar, however, mistakenly interpret our point that Totocapán elites, with their investment in local history, may have felt their authority threatened by others' promotion of foreign relationships as implying that the response would have been one of aggression. In doing so, they ignore our acknowledgment that Teotihuacán warrior imagery is rare in the Gulf lowlands and erroneously infer that we would be sympathetic to the projection of a scenario of warfare similar to that following Cahokia's collapse in the midwestern United States. Should others similarly misinterpret our position, let us state unequivocally here that we do not argue for a violent conflict between Matacapán and Totocapán. We do believe that the authority of Totocapán elites could have been undermined if the foreign ideology promoted by Matacapán had been adopted in the Tepango Valley, but it was not. Totocapán and Matacapán rulers likely

competed to build their followings in the region, and Totocapán was largely successful in discouraging their constituents from adopting the new ideas circulating through the Tuxtlas. In fact, the peaceful coexistence (if we can rely on the scarcity of militaristic images in the Tuxtlas to indicate a lack of warfare) between these polities is one of the central points of our article. Perhaps the diversification of political strategies by Totocapán and Matacapán elites allowed them to avoid direct competition and instead fostered the cooperative economic interaction that we see with the exchange of coarse orange pots.

Arnold, VanDerwarker, and Budar rightly suggest that Stoner's survey data do not provide a fine-grained chronological frame of reference, any more so than previous Tuxtla surveys (e.g., Santley and Arnold 1996), as we acknowledge in the text. Even with archaeological excavation at dozens of sites in the Tuxtlas, though, we would still need to rely on survey data to expand those results to the broader region. They specifically level two exceptions that we must address. First, obsidian with ground platforms is strongly associated with the Postclassic, after Matacapán's Classic decline, although not exclusively so, since ground platforms have been documented on black Zaragoza-Oyameles obsidian from dated Protoclassic contexts at Tres Zapotes (Pool et al. 2014). As we recognize in footnote 9, 30% of green obsidian blades from survey have ground platforms. This suggests that not all of the green obsidian recovered at Tilzapote was obtained from Matacapán during the Classic period. While a decrease in the amount of green obsidian attributable to the Classic period at Tilzapote would affect our interpretation of the degree to which the site blended interactions with both Totocapán and Matacapán, it would also strengthen our larger argument that Teotihuacán-associated styles and materials do not appear in significant quantities in the Tepango Valley.

Second, Arnold, VanDerwarker, and Budar's assertion that coarse orange pottery also occurs at the Postclassic site of Agaltepec needs to be better contextualized. Arnold and Venter (2004:124) report the recovery of several sherds of coarse orange from surface collections in area C on Agaltepec. A single radiocarbon date on material recovered from fill in the cleaned profile of a looter's pit in a substructure within area C's principal pyramid (C-1) produced an early Postclassic date of 980 ± 40 BP (cal. 1σ AD 1010–1040; Arnold and Venter 2004:122, table 1). Arnold (2007:71), however, also reports of the same context, "Artifacts from this fill represented a wide array of time periods, ranging from Formative Period white-rimmed blackware to what may be imitation plumbate (Postclassic)." Whether the fill originated on the island of Agaltepec or "was brought onto Isla Agaltepec from deposits around Catemaco" on the mainland (Arnold 2007:71), we view it as a less than ideal context for dating the production (as opposed to the deposition) of coarse orange pottery. Agaltepec was a long-lived site with abundant Classic as well as Formative and Postclassic oc-

cupations. Arnold, VanDerwarker, and Budar are doing immensely valuable work at Teotepac and in the northern Tuxtlas, which undoubtedly will clarify many of the issues they raise. We look forward to reading their most recent findings in the forthcoming articles they cite.

Regarding the events of the Late Classic and early Postclassic, Braswell correctly states that the decline of Teotihuacan and its withdrawal from the region was not likely the cause of a Tuxtlas collapse. We agree—indeed, that is the main thrust of our article—and we thank him for identifying a point that requires clarification. The “percolation” Braswell describes by which networks fragment into smaller clusters with the removal of a major hub and the subsequent continuation of a region down its particular trajectory that he expects are good descriptions of Late Classic events in the Tuxtlas. We did not intend to identify the decline of Teotihuacan as the proximate cause of the Postclassic demographic and political collapse in the Tuxtlas some 3 centuries later. Recognizing, however, the historical contingency of local events, we postulate that the similar Late Classic trajectory of Totocapan and Matacapán was a consequence of the mutually supportive interdependency that derived from the cultural, political, and economic diversification that can be traced back to the founding of Matacapán with its distinctive cultural affiliation. We also acknowledge that change in the Tuxtlas did not occur in a vacuum but that the macroregional context of the Late (or Epi-) Classic period was one of rapid change in which interregional networks were reorganized across broad swaths of Mesoamerica.

Expanding beyond the Tuxtla Region, Stark highlights additional situations in neighboring regions to the west, where architectural and ceramic variation is apparent akin to what we described for the Tepango and Catemaco Valley. Her descriptions there show the importance of scale. Further exploring the stylistic and economic interactions, Stark (e.g., 1997) and others (e.g., Pool and Santley 1992) have documented a logical next step beyond the research presented here, particularly regarding how political and economic interaction relate to the social boundaries that she identifies. Stark also insightfully points out that our observation that the older centers in the Tuxtlas better resisted importation of new ideas does not always hold elsewhere. She offers Tikal, Kaminaljuyu, and Monte Alban as examples of long-standing centers that openly interacted with Teotihuacan. We observe that the Teotihuacan influence at these sites was rather restricted in its distribution to elite contexts and, more specifically, tombs. Drawing from Arnold, VanDerwarker, and Budar’s important point that motivations for interaction must be considered, we suggest that elites at Tikal, Kaminaljuyu, and Monte Alban connected with Teotihuacan for prestige or diplomacy, but these sites did not possess any ethnic Teotihuacanos who made lasting impressions on the local material styles, as has been inferred for the upper Catemaco Valley (Arnold and Santley 2008; Pool 1992a; Santley et al. 1987). The particular histories of de-

velopment prior to contact with Teotihuacan therefore is very important to consider.

Manzanilla and Cowgill write from the perspective of Teotihuacan, whose residents certainly had very different motivations for establishing long-distance interactions. Manzanilla’s perspective on the vast Teotihuacan network reinforces the variation in interaction at different nodes across Mesoamerica, including the Teotihuacan hub itself. Teotihuacan is certainly more central to Classic Mesoamerica interactions than any other settlement, as its residents made more connections to many more places over a much larger area. Motivations for interaction also provide a fruitful avenue for addressing Cowgill’s call for an explanation of why Teotihuacan influences were so different from place to place across Mesoamerica. The geographically restricted perspective presented here was necessary to consider all the different lines of data that are available. To properly address Cowgill’s request and similar calls from Manzanilla and Stark, other researchers will need to apply similar approaches to their own data. In doing so, we urge that researchers not only consider data where Teotihuacan influence is present but also seek to understand its absence elsewhere. We follow Stark in encouraging researchers to look for active or conspicuous absences of influence. Like the rests that separate notes in a musical script, they give shape to the opus of Classic Mesoamerican interaction networks. Totocapan was one of those rests that have been overlooked for a long time.

We end, appreciatively, with Wells’s effort to apply the concept of disjuncture to interpreting differences among burials in a cemetery in Ergolding, Germany. Burials offer the potential for a much finer-grained perspective than we could present with our data on the experience of individuals in contexts where different worlds collide. A person’s identity as it was constructed over his or her lifetime may often find expression through gave goods (assuming their relatives who buried them correctly understood and honored their identity). The decisions they made with regard to the many cultural influences available to them are clear to see. More importantly, we can see how neighbors contrasted or resembled each other in their dispositions to the same stimuli. This is the intent we had in writing this article: for researchers to take the basic concept and apply it to their own research situations.

—Wesley D. Stoner and Christopher A. Pool

References Cited

- Alvarado-Viñas, Luis Adrián. 2013. *Tejedores de grandezas: un análisis de la población de Teopanczaco, Teotihuacan, a través de sus actividades ocupacionales*. MSc thesis, Universidad Nacional Autónoma de México. [LRM]
- Appadurai, Arjun. 1990. Disjuncture and difference in the global cultural economy. *Theory, Culture, and Society* 30(5):295–310.
- . 1996. *Modernity at large: cultural dimensions of globalization*. Minneapolis: University of Minnesota Press.
- . 2006. *Fear of small numbers: an essay on the geography of anger*. Durham, NC: Duke University Press. [JJ]
- . 2013. *The future as cultural fact: essays on the global condition*. New York: Verso. [JJ]

- . 2014. Interview with Arjun Appadurai. *Globalizations* 11(4):481–490. [JJ]
- Arnold, Philip J., III. 2003. Early Formative pottery from the Tuxtla Mountains and implications for Gulf Olmec origins. *Latin American Antiquity* 14(1):29–46.
- . 2007. Isla Agaltepec: ocupaciones Posclásicas en la Sierra de los Tuxtlas, Veracruz, México. Reporte final del Proyecto Arqueológico de la Isla Agaltepec. Mexico City: Instituto Nacional de Antropología e Historia.
- . 2014. Of polychromes and politics in Southern Veracruz, Mexico. In *Social dynamics of ceramic analysis: new techniques and interpretations: papers in honour of Charles C. Kolb*. S. L. López Varela, ed. Pp. 64–74. Oxford: Archaeopress. [PJA/AMV/LB]
- Arnold, Philip J., III, Christopher A. Pool, Ronald R. Kneebone, and Robert S. Santley. 1993. Intensive ceramic production and Classic period political economy in the Sierra de los Tuxtlas, Veracruz, Mexico. *Ancient Mesoamerica* 4(2):175–191.
- Arnold, Philip J., III, and Robert S. Santley. 2008. Classic currents in the west-central Tuxtlas. In *Classic period cultural currents in southern and central Veracruz*. Philip J. Arnold III and Christopher A. Pool, eds. Pp. 293–322. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Arnold, Philip J., III, and Amber M. VanDerwarker. 2009. *Informe técnico del proyecto arqueológico Teotepac: la segunda temporada (2008)*. Mexico City: Instituto Nacional de Antropología e Historia.
- Arnold, Philip J., III, Amber M. VanDerwarker, and Nathan Wilson. Forthcoming. Teotepac y el paisaje geopolítico del periodo clásico en los Tuxtlas. In *Arqueología de Los Tuxtlas: antiguos paisajes, nuevas perspectivas*. Lourdes Budar and Philip J. Arnold III, eds. Xalapa, Mexico: Universidad Veracruzana. [PJA/AMV/LB]
- Arnold, Philip J., III, and Marcie L. Venter. 2004. Postclassic occupation at Isla Agaltepec, southern Veracruz, Mexico. *Mexicon* 36(6):121–126. [PJA/AMV/LB]
- Balkansky, Andrew K. 2006. Surveys and Mesoamerican archaeology: the emerging macroregional paradigm. *Journal of Archaeological Research* 14(1):53–95.
- Barabási, Albert-László. 2002. *Linked: the new science of networks*. Cambridge, MA: Perseus.
- Barca, D., D. Miriello, A. Pecci, L. Barba, A. Ortiz, L. R. Manzanilla, J. Blancas, and G. M. Crisci. 2013. Provenance of glass shards in archaeological lime plasters by LA-ICP-MS: implications for the ancient routes from the Gulf Coast of Mexico to Teotihuacan in Central Mexico. *Journal of Archaeological Science* 40:3999–4008. [LRM]
- Bashkow, Ira. 2004. A neo-Boasian conception of cultural boundaries. *American Anthropologist* 106(3):443–458.
- Becerra Álvarez, Gibrán. 2012. El patrón de asentamiento durante el periodo Clásico Tardío en el sitio arqueológico de Piedra Labrada, Veracruz. MSc Thesis, Universidad Veracruzana, Xalapa, Mexico. [PJA/AMV/LB]
- Beck, Robin A., Jr., Douglas T. Bolender, James A. Brown, and Timothy K. Earle. 2007. Eventful archaeology: the place of space in structural transformation. *Current Anthropology* 48(6):833–860.
- Berlo, Janet Catherine. 1984. *Teotihuacan art abroad: a study of metropolitan style and provincial transformation in incensario workshops*. Oxford: British Archaeological Reports.
- Blanton, Richard E. 1998. Beyond centralization: steps toward a theory of egalitarian behavior in archaic states. In *Archaic states*. G. M. Feinman and J. Marcus, eds. Pp. 135–172. Santa Fe: School of American Research.
- Blanton, Richard E., and Gary M. Feinman. 1984. The Mesoamerican world-system. *American Anthropologist* 86(3):673–682.
- Blanton, Richard E., Gary M. Feinman, Stephen A. Kowalewski, and Laura M. Finsten. 1993. *Ancient Mesoamerica: a comparison of change in three regions*. Cambridge: University of Cambridge.
- Blanton, Richard E., Gary M. Feinman, Stephen A. Kowalewski, and Peter N. Peregrine. 1996. A dual-processual theory for the evolution of Mesoamerican civilization. *Current Anthropology* 37(1):1–14.
- Blanton, Richard E., Stephen A. Kowalewski, and Gary M. Feinman. 1992. The Mesoamerican world-system. *Review (Fernand Braudel Center)* 15(3):419–426.
- Blom, Frans, and Oliver LaFarge. 1926. *Tribes and temples: a record of the expedition to Middle America, conducted by the Tulane University of Louisiana in 1925*. New Orleans: Tulane University. [PJA/AMV/LB]
- Borstein, Joshua P. 2001. Tripping over colossal heads: settlement patterns and population development in the upland Olmec heartland. PhD dissertation, Pennsylvania State University, State College.
- Bove, Frederick J., and Sonia Medrano Busto. 2003. Teotihuacan, militarism, and pacific Guatemala. In *The Maya and Teotihuacan: reinterpreting Early Classic interaction*. G. Braswell, ed. Pp. 45–80. Austin: University of Texas Press.
- Braswell, Geoffrey, ed. 2003. *The Maya and Teotihuacan: reinterpreting Early Classic interaction*. Austin: University of Texas Press.
- , ed. 2003. Understanding Early Classic interaction between Kaminaljuyu and central Mexico. In *The Maya and Teotihuacan: reinterpreting Early Classic interaction*. Austin: University of Texas Press.
- Bughmans, Tom. 2010. Connecting the dots: towards archaeological network analysis. *Oxford Journal of Archaeology* 29(3):277–303.
- Brumfiel, Elizabeth M. 1991. Tribute and commerce in imperial cities: the case of Xaltocan, Mexico. In *Early state economics*. H. J. M. Claessen and P. van de Velde, eds. Pp. 177–198. New Brunswick, NJ: Transaction.
- Brumfiel, Elizabeth M., and Timothy K. Earle, eds. 1987. Specialization, exchange, and complex societies: an introduction. In *Specialization, exchange, and complex societies*. Pp. 1–9. New York: Cambridge University Press.
- Budar, Lourdes. 2012. Los Tuxtlas, el Tlalocan terrenal. In *Culturas del Golfo*. S. Ladrón de Guevara, ed. Pp. 53–73. Mexico City: Instituto Nacional de Antropología e Historia. [PJA/AMV/LB]
- . Forthcoming. El otro lado de Los Tuxtlas, la zona costera de la Sierra de Santa Marta, Veracruz. In *Arqueología de los Tuxtlas: antiguos paisajes, nuevas perspectivas*. Lourdes Budar and Philip J. Arnold III, eds. Xalapa, Mexico: Universidad Veracruzana. [PJA/AMV/LB]
- Budar, Lourdes, and Philip J. Arnold III. Forthcoming. Los Tuxtlas y Teotihuacan: nuevas perspectivas en la retrospectiva de una relación. *Memoria del VIII Coloquio Bosch Gimpera*. Mexico City: Universidad Nacional Autónoma de México. [PJA/AMV/LB]
- Campbell, Roderick B. 2009. Toward a networks and boundaries approach to early complex polities: the late Shang case. *Current Anthropology* 50(6):821–848.
- Canuto, Marcello A., and Ellen E. Bell. 2013. Archaeological investigations in the El Paraiso Valley: the role of secondary centers in the multiethnic landscape of Classic period Copan. *Ancient Mesoamerica* 24(1):1–24. [BLS]
- Cheek, Charles Dale. 1977. Teotihuacan influence at Kaminaljuyu. In *Teotihuacan and Kaminaljuyu*. J. Michels, ed. Pp. 441–452. University Park: Pennsylvania State University Press.
- Clark, John E. 1997. The arts of government in early Mesoamerica. *Annual Review of Anthropology* 26:211–234.
- Clayton, Sarah C. 2013. Measuring the long arm of the state: Teotihuacan's relations in the Basin of Mexico. *Ancient Mesoamerica* 24(1):87–105.
- Cobean, Robert H. 2002. *Un mundo de obsidiana: minería y comercio de un vidrio volcánico en el México antiguo*. Mexico City: Instituto Nacional de Antropología e Historia.
- Coe, Michael Douglas. 1965. Archaeological synthesis of southern Veracruz and Tabasco. In *Archaeology of southern Mesoamerica*, pt. 2. G. R. Willey, ed. Pp. 679–715. Austin: University of Texas Press.
- Cowgill, George L. 1997. State and society at Teotihuacan, Mexico. *Annual Review of Anthropology* 26:129–161.
- . 2003. Teotihuacan and Early Classic interaction: a perspective from outside the Maya region. In *The Maya and Teotihuacan: reinterpreting Early Classic interaction*. G. E. Braswell, ed. Pp. 315–336. Austin: University of Texas Press.
- . 2007. The urban organization of Teotihuacan, Mexico. In *Settlement and society: essays dedicated to Robert McCormick Adams*. E. C. Stone, ed. Pp. 261–295. Los Angeles: Cotsen Institute of Archaeology, University of California. [GLC]
- . 2008. Teotihuacan as an urban place. In *El urbanismo en Mesoamerica*, vol. 2. G. A. Mastache, R. H. Cobean, A. García Cook, and K. G. Hirth, eds. Pp. 85–112. Mexico City: Instituto Nacional de Antropología e Historia.
- . 2015. *Ancient Teotihuacan: early urbanism in central Mexico*. Cambridge: Cambridge University Press. [GLC]
- Daneels, Annick. 2008. Ballcourts and politics in the lower Cotaxtla valley: a model to understand Classic central Veracruz? In *Classic period cultural currents in southern and central Veracruz*. P. J. . III and C. A. Pool, eds. Pp. 197–224. Washington, DC: Dumbarton Oaks Research Library and Collection.
- . 2012. Centro-sur de Veracruz, Zona Semiárida y Cultura Remojadas. In *Culturas del Golfo*. Sara Ladrón de Guevara, ed. Pp. 103–133. Mexico City: Instituto Nacional de Antropología e Historia. [BLS]

- Darwin, Charles. 2010. *The origin of species*. Red Wing, MN: Cricket House Books.
- Demarest, Arthur A., and Antonia E. Foias. 1993. Mesoamerican horizons and the cultural transformations of Maya civilization. *Latin American horizons: a symposium at Dumbarton Oaks*. D. S. Rice, ed. Pp. 147–191. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Díaz Oyarzábal, Clara L. 1981. Chingú y la expansión teotihuacana. *Serie Antropológica* 41:107–112.
- Drennan, Robert D. 1984. Long-distance movement of goods in the Mesoamerican Formative and Classic. *American Antiquity* 49(1):27–43.
- Eerkens, Jelmer W., and Carl P. Lipo. 2007. Cultural transmission theory and the archaeological record: providing context to understanding variation and temporal changes in material culture. *Journal of Archaeological Research* 15:239–274.
- Ekholm, Gordon Frederic. 1949. Palmate stones and thin stone heads: suggestions on their possible use. *American Antiquity* 15(1):1–9.
- Fash, William L., and Barbara W. Fash. 2000. Teotihuacan and the Maya: a classic heritage. In *Mesoamerica's classic heritage: from Teotihuacan to the Aztecs*. D. Carrasco, ed. Pp. 433–463. Boulder, CO: University of Colorado Press.
- Fash, William L., Alexandre Tokovinine, and Barbara W. Fash. 2009. The House of New Fire at Teotihuacan and its legacy in Mesoamerica. In *The art of urbanism: how Mesoamerican kingdoms represented themselves in architecture and imagery*. William L. Fash and Leonardo López Luján, eds. Pp. 201–229. Washington, DC: Dumbarton Oaks Trustees for Harvard University. [DMC]
- Filini, Agapi. 2004. *The presence of Teotihuacan in the Cuitzeo basin, Michoacan, Mexico: a world-system perspective*. Oxford: British Archaeological Reports.
- Frank, Andre Gunder. 1966. The development of underdevelopment. *Monthly Review* 18:17–31. [JJ]
- . 1999. Abuses and uses of world systems theory in archaeology. In *World systems theory in practice: leadership, production, and exchange*. P. N. Kardulias, ed. Pp. 275–296. Lanham, MD: Rowman & Littlefield.
- Frank, Andre Gunder, and Barry K. Gills. 1993. *The world system: five hundred years or five thousand?* New York: Routledge.
- Friedman, J. 2003. *Globalization, the state, and violence*. Walnut Creek, CA: AltaMira. [JJ]
- García Cook, Ángel. 1981. The historical importance of Tlaxcala in the cultural development of the Central Highlands. In *Supplement to the handbook of Middle American Indians, Archaeology I*. Jeremy A. Sabloff, ed. Pp. 244–276. Austin: University of Texas Press. [LRM]
- García Cook, Ángel, and Beatriz Leonor Merino Carrión. 1996. Situación cultural en Tlaxcala durante el apogeo de Teotihuacán. In *Arqueología mesoamericana: homenaje a William T. Sanders*. A. G. Mastache, J. R. Parsons, R. S. Santley, and M. C. Serra Puche, eds. Pp. 281–316. Mexico City: Instituto Nacional de Antropología e Historia.
- . 1998. Cantona: urbe prehispánica en el Altiplano Central de México. *Latin American Antiquity* 9(3):191–216. [LRM]
- García-des Lauriers, Claudia. 2012. Public performance and Teotihuacán identity at Los Horcones, Chiapas, Mexico. In *Power and identity in archaeological theory and practice: case studies from ancient Mesoamerica*. E. Harrison-Buck, ed. Pp. 63–81. Salt Lake City: University of Utah Press.
- Giddens, Anthony. 1991. *Modernity and self-identity: self and society in the late modern age*. Redwood City, CA: Stanford University Press.
- Gosselain, Olivier P. 2000. Materializing identities: an African perspective. *Journal of Archaeological Method and Theory* 7(3):187–217.
- Gould, Stephen J. 2002. *The structure of evolutionary theory*. Cambridge, MA: Harvard University Press.
- Granovetter, M. S. 1973. The strength of weak ties. *American Journal of Sociology* 78(6):1360–1380. [JJ]
- . 1983. The strength of weak ties: a network theory revisited. *Sociological Theory* 1:201–233. [JJ]
- Gupta, Akhil, and James Ferguson. 1992. Beyond “culture”: space, identity, and the politics of difference. *Cultural Anthropology* 7(1):6–23.
- Hakenbeck, Susanne. 2008. Migration in archaeology: are we nearly there yet? *Archaeology Review from Cambridge* 23(2):9–23.
- Hall, Thomas D., and Christopher Chase-Dunn. 1993. World-systems perspective and archaeology: forward into the past. *Journal of Archaeological Research* 1(2):121–143.
- Halstead, Paul, and John O’Shea, eds. 1989. Introduction: cultural responses to risk and uncertainty. *Bad year economics: cultural responses to risk and uncertainty*. Pp. 1–7. Cambridge: Cambridge University Press.
- Hannerz, Ulf. 1989. Notes on the global ecumene. *Public Culture* 1(2):66–75.
- Hardt, Michael, and Antonio Negri. 2000. *Empire*. Cambridge, MA: Harvard University Press. [JJ]
- Hassig, Ross. 1992. *War and society in ancient Mesoamerica*. Berkeley: University of California. [DMC]
- . 1985. *Trade, tribute, and transportation: the sixteenth century political economy of the valley of Mexico*. Norman: University of Oklahoma Press.
- Headrick, Annabeth. 2007. *The Teotihuacan trinity: the sociopolitical structures of an ancient Mesoamerican city*. Austin: University of Texas Press.
- Helms, Mary W. 1993. *Craft and the kingly ideal*. Austin: University of Texas Press.
- Heyman, Josiah, and Howard Campbell. 2009. The anthropology of global flows: a critical reading of Appadurai’s “disjuncture and difference in the global cultural economy.” *Anthropological Theory* 9(2):131–148.
- Hirth, Kenneth G. 1980. *Eastern Morelos and Teotihuacan: a settlement survey*. Nashville: Vanderbilt University.
- . 1992. Interregional exchange as elite behavior: an evolutionary perspective. In *Mesoamerican elites: an archaeological assessment*. D. A. Chase and A. F. Chase, eds. Pp. 18–29. Norman: University of Oklahoma Press.
- Hodder, Ian. 1982. *Symbols in action: ethnoarchaeological studies of material culture*. Cambridge: Cambridge University Press.
- . 2012. *Entangled: an archaeology of the relationship between humans and things*. New York: Wiley-Blackwell. [JJ]
- Hodos, T. 2009. Colonial engagements in the global Mediterranean Iron Age. *Cambridge Archaeological Journal* 19(2):221–241. [JJ]
- Iglesias Ponce de León, María Josefa. 2003. Problematical deposits and the problem of interaction: the material culture of Tikal during the Early Classic. In *The Maya and Teotihuacan: reinterpreting Early Classic interaction*. G. Braswell, ed. Pp. 167–198. Austin: University of Texas Press.
- Inda, Jonathon Xavier, and Renato Rosaldo, eds. 2002. Introduction. In *The anthropology of globalization: a reader*. Pp. 3–46. Malden, MA: Blackwell.
- Inomata, Takeshi. 2006. Plazas, performers, and spectators: political theaters of the Classic Maya. *Current Anthropology* 47:722–728.
- Jennings, Justin. 2006. Core, peripheries, and regional realities in Middle Horizon Peru. *Journal of Anthropological Archaeology* 25(3):346–370.
- . 2011. *Globalizations and the ancient world*. New York: Cambridge University Press. [DMC]
- Kardulias, P. Nick, ed. 1999. *World systems theory in practice: leadership, production, and exchange*. Lanham, MD: Rowman & Littlefield.
- Kepecs, Susan, Sylviane Boucher, and Gary Feinman. 1994. Chichen Itza and its hinterland: a world-systems perspective. *Ancient Mesoamerica* 5(2):141–158.
- Kidder, Alfred, Jesse Jennings, and Edwin Shook. 1946. *Excavations at Kaminaljuyu, Guatemala*. Washington, DC: Carnegie Institution of Washington. [GLC]
- Knappett, Carl. 2011. *An archaeology of interaction: network perspectives on material culture and society*. New York: Oxford University Press. [JJ]
- Koontz, Rex. 2008. Iconographic interaction between El Tajin and south-central Veracruz. In *Classic-period cultural currents in southern and central Veracruz*. Philip J. Arnold III and Christopher A. Pool, eds. Pp. 323–360. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Kroeber, Alfred L. 1944. *Configurations of culture growth*. Berkeley: University of California Press.
- Lequoy, M.-C. 1993. Le depot funéraire de la Mailleraye-sur-Seine. In *Celts en Normandie: les rites funéraires en Gaule (IIIème-Ier siècle)*. D. Cliquet, M. Remy-Watte, V. Guichard, and M. Vaginay, eds. Pp. 121–133. Rennes, France: Revue Archéologique de l’Ouest. [PSW]
- Lightfoot, Kent G., and Antoinette Martinez. 1995. Frontiers and boundaries in archaeological perspective. *Annual Review of Anthropology* 24:471–492.
- López Luján, Leonardo, Laura Filloy Nadal, Barbara W. Fash, William L. Fash, and Pilar Hernández. 2006. The destruction of images in Teotihuacan: anthropomorphic sculpture, elite cults, and the end of a civilization. *Res: Anthropology and Aesthetics* 49/50:13–39. [DMC]
- Loughlin, Michael D. 2012. El Mesón regional survey: settlement patterns and political economy in the eastern Papaloapan Basin, Veracruz, Mexico. PhD dissertation, University of Kentucky, Lexington.
- Lunagómez Reyes, Roberto. 2013. *Los patrones arquitectónicos prehispánicos del sur de Veracruz*. Xalapa, Mexico: Universidad Veracruzana and Museo de Antropología de Xalapa. [PJA/AMV/LB]

- Manzanilla, Linda R. 2009. Corporate life in apartment and *barrio* compounds at Teotihuacan, Central Mexico: craft specialization, hierarchy and ethnicity. In *Domestic life in prehispanic capitals: a study of specialization, hierarchy and ethnicity*. Linda R. Manzanilla and Claude Chapdelaine, eds. Pp. 21–42. Ann Arbor: University of Michigan. [LRM]
- . 2011. Sistemas de control de mano de obra y del intercambio de bienes suntuarios en el corredor teotihuacano hasta la costa del Golfo en el Clásico. *Anales de Antropología* 45:9–32. [DMC, LRM]
- . ed. 2012. *Estudios arqueométricos del centro de barrio de Teopanaczo en Teotihuacan*. Mexico City: Coordinación de la Investigación Científica-Coordinación de Humanidades, Universidad Nacional Autónoma de México. [LRM]
- . ed. Forthcoming. *Multiethnic population in neighborhood centers at Teotihuacan: a view from Teopanaczo*. Gainesville: University Press of Florida. [LRM]
- Manzanilla, Linda R., Estibaliz Aguayo, and Meztli Hernández. 2011. Informe técnico final del salvamento de un conjunto con materiales teotihuacanos en Xalasco, Atlatzayanca, Tlaxcala 2008. Technical report. Consejo de Arqueología del INAH, Mexico City. [LRM]
- Marcus, Joyce. 1983. Teotihuacán visitors on Monte Albán monuments and murals. In *The Cloud People: divergent evolution of the Zapotec and Mixtec civilizations*. Kent V. Flannery and Joyce Marcus, eds. Pp. 175–181. New York: Academic Press. [DMC]
- . 2003. The Maya and Teotihuacan. In *The Maya and Teotihuacan: reinterpreting Early Classic interaction*. G. Braswell, ed. Pp. 337–356. Austin: University of Texas Press.
- Metcalf, Peter. 2001. Global “disjuncture” and the “sites” of anthropology. *Cultural Anthropology* 16(2):165–182.
- Millon, René. 1973. *The Teotihuacan map, part one: text*, vol. 1 of *Urbanization at Teotihuacan, Mexico*. Austin: University of Texas Press.
- Milner, George. 2007. Warfare, population, and food production in prehistoric Eastern North America. In *North American indigenous warfare and ritual violence*. R. J. Chacon and R. G. Mendoza, eds. Pp. 182–201. Tucson: University of Arizona Press. [PJA/AMV/LB]
- Montiel, Lisa. 2010. Teotihuacan imperialism in the Yauatepec Valley, Morelos. PhD dissertation, University at Albany, State University of New York.
- Neff, Hector. 1993. Theory, sampling, and analytical techniques in the archaeological study of prehistoric ceramics. *American Antiquity* 58(1):23–44.
- Niblett, R. 1999. *The excavation of a ceremonial site at Folly Lane, Verulamium*. London: Society for the Promotion of Roman Studies. [PSW]
- Ortiz Ceballos, Ponciano, and Robert S. Santley. 1988. La cerámica de Maticapan. MSc thesis, University of New Mexico, Albuquerque.
- Parsons, Lee. 1978. The peripheral Coastal lowlands and the Middle Classic period. In *Middle Classic Mesoamerica: A.D. 400–700*. E. Pasztor, ed. Pp. 25–34. New York: Columbia University Press. [PJA/AMV/LB]
- Pasztor, Esther. 1997. *Teotihuacan, an experiment in living*. Norman: University of Oklahoma Press.
- Peregrine, Peter. 1992. *Mississippian evolution: a world-system perspective*. Madison, WI: Prehistory.
- . 1995. Networks of power: the Mississippian world-system. In *Native American interactions*. Michael Nassaney and Kenneth Sassaman, eds. Pp. 247–265. Knoxville: University of Tennessee Press. [PNP]
- Polanyi, Karl. 1957. Economy as an instituted process. In *Trade and markets in the early empires*. K. Polanyi, C. W. Arensburg, and H. W. Pearson, eds. Pp. 243–270. New York: Free.
- Pool, Christopher A. 1990. Ceramic production, resource procurement, and exchange at Maticapan, Veracruz, Mexico. PhD dissertation, Tulane University, New Orleans.
- . 1992a. Integrating ceramic production and distribution. In *Ceramic production and distribution: an integrated approach*. G. J. Bey III and Christopher A. Pool, eds. Pp. 275–313. Boulder, CO: Westview.
- . 1992b. Strangers in a strange land: ethnicity and ideology at an enclave community in Middle Classic Mesoamerica. In *Ancient images, ancient thought: the archeology of ideology*. A. S. Goldsmith, ed. Pp. 41–55. Calgary: University of Calgary.
- . 1997. Proyecto arqueológico Tres Zapotes. In *Memoria del coloquio de arqueología del centro y sur de Veracruz*. Pp. 169–176. Xalapa: Universidad Veracruzana.
- . ed. 2003. Ceramic production at Terminal Formative and Classic period Tres Zapotes. In *Settlement archaeology and political economy at Tres Zapotes, Veracruz, Mexico*. Pp. 56–68. Los Angeles: Cotsen Institute of Archaeology, University of California.
- . 2008. Architectural plans, factionalism, and Protoclassic-Classic period at Tres Zapotes. In *Settlement archaeology and political economy at Tres Zapotes, Veracruz, Mexico*. P. J. Arnold III and C. A. Pool, eds. Pp. 121–158. Washington, D.C.: Dumbarton Oaks Research Library and Collection.
- Pool, Christopher A., Philip J. Arnold III, and Ponciano Ortiz Ceballos. 2013. Radiocarbon and ceramic chronologies of Maticapan. Paper presented at the 78th Annual Meeting of the Society for American Archaeology, Honolulu, Hawaii, April 3–7.
- Pool, Christopher A., and Georgia Britt. 2000. A ceramic perspective on the Formative to Classic transition in southern Veracruz, Mexico. *Latin American Antiquity* 11(2):139–161.
- Pool, Christopher A., Charles L. F. Knight, and Michael Glascock. 2014. Formative obsidian procurement at Tres Zapotes, Veracruz, Mexico: implications for Olmec and Epi-Olmec political economy. *Ancient Mesoamerica* 25:271–293.
- Pool, Christopher A., Ponciano Ortiz Ceballos, María del Carmen Rodríguez, and Michael Loughlin. 2010. The Early Horizon at Tres Zapotes: implications for Olmec interaction. *Ancient Mesoamerica* 21(1):95–105.
- Pool, Christopher A., and Robert S. Santley. 1992. Middle Classic pottery economics in the Tuxtla Mountains, southern Veracruz, Mexico. In *Ceramic production and distribution: an integrated approach*. G. J. Bey and C. A. Pool, eds. Pp. 205–234. Boulder, CO: Westview.
- Pool, Christopher A., and Wesley D. Stoner. 2004. El fenómeno teotihuacano en Tres Zapotes y Maticapan: una discusión comparativa. In *La costa del Golfo en tiempos teotihuacanos: propuestas y perspectivas*. M. E. Ruiz Gallut and Arturo Pascual Soto, eds. Pp. 77–102. Mexico City: Instituto Nacional de Antropología e Historia.
- Renfrew, Colin. 1986. Introduction: peer polity interaction and socio-political change. In *Peer polity interaction and socio-political change*. Colin Renfrew and John F. Cherry, eds. Pp. 1–18. Cambridge: Cambridge University Press. [BLS]
- Robertson, Roland. 1992. *Globalization: social theory and global culture*. London: Sage Publication. [JJJ]
- Rodríguez-Galicia, Bernardo, and Raúl Valadez-Azúa. 2013. Vestigios del recurso costero en el sitio arqueológico de Teopanaczo, Teotihuacan, Estado de México. *Revista Española de Antropología Americana* 43(1):9–29. [LRM]
- Rosales-de-la-Rosa, Edgar A., and Linda R. Manzanilla. 2011. Producción, consumo y distribución de la mica en Teotihuacan: presencia de un recurso alóctono en los contextos arqueológicos de dos conjuntos arquitectónicos: Xalla y Teopanaczo. In *Producción artesanal y especializada en Mesoamérica: áreas de actividad y procesos productivos*. Linda R. Manzanilla and Kenneth Hirth, eds. Pp. 131–142. Mexico City: INAH-UNAM. [LRM]
- Rouse, Irving. 1989. *Migrations in prehistory: inferring population movement from cultural remains*. New Haven, CT: Yale University Press.
- Ruvalcaba-Sil, J. L., L. Manzanilla, E. Melgar, and R. Lozano Santa-Cruz. 2008. PIXE and ionoluminescence for Mesoamerican jadeite characterization. *X-Ray Spectrometry* 37:96–99. [LRM]
- Sahlins, Marshall. 1972. *Stone Age economics*. New York: Aldine de Gruyter.
- Sanchez Bonilla, J. 1999. Estela de los Cerros. In *Antropología e historia en Veracruz*. Xalapa, Mexico: Universidad Veracruzana.
- Sanders, William T., and Deborah L. Nichols. 1988. Ecological theory and cultural evolution in the Valley of Oaxaca. *Current Anthropology* 29(1):33–52. [PNP]
- Santley, Robert S. 1983. Obsidian trade and Teotihuacan influence in Mesoamerica. In *Highland-lowland interaction in Mesoamerica: interdisciplinary approaches*. Arthur G. Miller, ed. Pp. 69–124. Washington, DC: Dumbarton Oaks Research Library and Collection. [BLS]
- . 1989. Obsidian working, long distance exchange, and the Teotihuacan presence on the South Gulf Coast. In *Mesoamerica after the Decline of Teotihuacan: AD 700–900*. R. A. Diehl and J. C. Berlow, eds. Pp. 131–151. Washington, DC: Dumbarton Oaks Research Library and Collection. [PJA/AMV/LB]
- . 1994. The economy of ancient Maticapan. *Ancient Mesoamerica* 5(2):243–266.
- . 2007. *The prehistory of the Tuxtlas*. Albuquerque: University of New Mexico Press.
- Santley, Robert S., and Rani T. Alexander. 1996. Teotihuacan and Middle Classic Mesoamerica: a pre-Columbian world system? In *Arqueología Mesoamericana: homenaje a William T. Sanders*. A. G. Mastache, J. R. Parsons, Robert S. Santley, and M. C. Serra Puche, eds. Pp. 173–194. Mexico City: Instituto Nacional de Antropología e Historia.

- Santley, Robert S., and Philip J. Arnold III. 1996. Prehispanic settlement patterns in the Tuxtla Mountains, southern Veracruz, Mexico. *Journal of Field Archaeology* 23:225–249.
- . 2005. The obsidian trade to the Tuxtla region and its implications for the prehistory of southern Veracruz, Mexico. *Ancient Mesoamerica* 16 (2):179–94.
- Santley, Robert S., Philip J. Arnold III, and Christopher A. Pool. 1989. The ceramics production system at Matacapán, Veracruz, Mexico. *Journal of Field Archaeology* 16:107–132.
- Santley, Robert S., Stephen A. Nelson, Bently K. Reinhardt, Christopher A. Pool, and Philip J. Arnold III. 2000. When day turned to night: volcanism and the archaeological record from the Tuxtla mountains, southern Veracruz, Mexico. In *Environmental disaster and the archaeology of human response*. G. Bawden and R. M. Reyecraft, eds. Pp. 143–161. Albuquerque, NM: Maxwell Museum of Anthropology.
- Santley, Robert S., Clare Yarborough, and Barbara Hall. 1987. Enclaves, ethnicity, and the archaeological record at Matacapán. In *Ethnicity and culture*. R. Auger, M. F. Glass, S. MacEncher, and P. H. McCartney, eds. Pp. 85–100. Calgary: University of Calgary Press.
- Scarborough, Vernon L., and David Wilcox. 1991. *The Mesoamerican ballgame*. Tucson: University of Arizona Press.
- Schele, Linda, and David A. Friedel. 1990. *A forest of kings: the untold story of the ancient Maya*. New York: Morrow.
- Schneider, Jane. 1991. Was there a pre-capitalist world system? In *Core/periphery relations in pre-capitalist worlds*. C. Chase-Dunn and T. D. Hall, eds. Pp. 45–66. Boulder, CO: Westview.
- Schortman, Edward M., and Patricia A. Urban. 1994. Living on the edge: core/periphery relations in ancient southeastern Mesoamerica. *Current Anthropology* 35(4):401–430.
- . 2004. Modeling the roles of craft production in ancient political economies. *Journal of Archaeological Research* 12(2):185–226.
- Schreiber, Katharina J. 1992. *Wari imperialism in Middle Horizon Peru*. Ann Arbor: Museum of Anthropology, University of Michigan. [DMC]
- Scott, James C. 1985. *Weapons of the weak: everyday forms of peasant resistance*. New Haven, CT: Yale University Press. [BLS]
- Service, Elman Rogers. 1968. The prime-mover of cultural evolution. *Southwestern Journal of Anthropology* 24(4):396–409.
- Shaw, Justine M. 2003. Climate change and deforestation: implications for the Maya collapse. *Ancient Mesoamerica* 14(1):157–167.
- Smith, Adam T. 2004. *The political landscape: constellations of authority in early complex polities*. Berkeley: University of California Press.
- Smith, Carol Ann, ed. 1976. Regional economic systems: linking geographical models and socioeconomic problems. In *Economic systems*, vol. 1 of *Regional analysis*. Pp. 3–63. New York: Academic Press.
- Smith, Michael E. 2001. The Aztec empire and the Mesoamerican world system. In *Empires: comparative perspectives from archaeology and history*. S. E. Alcock, T. N. D'Altroy, K. D. Morrison, and C. M. Sinopoli, eds. New York: Cambridge University Press.
- . 2007. Form and meaning in the earliest cities: a new approach to ancient urban planning. *Journal of Planning History* 6(1):3–47.
- Smith, Michael E., and Lisa Montiel. 2001. The archaeological study of empires and imperialism in pre-Hispanic central Mexico. *Journal of Anthropological Archaeology* 20(3):245–284.
- Spence, Michael. 1996. A comparative analysis of ethnic enclaves. In *Arqueología mesoamericana: homenaje a William T. Sanders*. A. G. Mastache, J. R. Parsons, R. S. Santley, and M. C. Serra Pucho, eds. Pp. 333–353. Mexico City: Instituto Nacional de Antropología e Historia.
- Spencer, Charles S., and Elsa M. Redmond. 2006. Resistance strategies and early state formation in Oaxaca, Mexico. In *Intermediate elites in pre-Columbian states and empires*. Christina M. Elson and R. Alan Covey, eds. Pp. 21–43. Tucson: University of Arizona Press. [BLS]
- Stark, Barbara L. 1989. *Patarata pottery: Classic period ceramics of the south-central Gulf Coast, Veracruz, Mexico*. Tucson: University of Arizona Press.
- . 1990. Gulf coast and the central highlands of Mexico: alternative models for interaction. In *Research in economic anthropology*. B. L. Isaac, ed. Pp. 243–285. Greenwich, CT: JAI.
- . 1997. Gulf lowland ceramic styles and political geography in ancient Veracruz. In *Olmec to Aztec: settlement patterns in the ancient Gulf lowlands*. B. L. Stark and P. J. Arnold III, eds. Pp. 278–309. Tucson: University of Arizona Press.
- . 1999. Formal architectural complexes in south-central Veracruz, Mexico: a capital zone? *Journal of Field Archaeology* 26(2):197–225.
- , ed. 2001. *Classic Period Mixtequilla, Veracruz, Mexico: diachronic inferences from residential investigations*. Albany: Institute for Mesoamerican Studies, University at Albany, State University of New York. [BLS]
- . 2014. Teotihuacan y La Mixtequilla, Veracruz: comparaciones cerámicas. Paper presented at the 8th Coloquio “Pedro Bosch Gimpera” en homenaje a la doctora Evelyn Childs Rattray, Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, August 25–29. [BLS]
- Stark, Barbara L., Barbara A. Hall, Stuart Speaker, and Clare Yarborough. 2001. The pottery sequence at excavated residential mounds. In *Classic Period Mixtequilla, Veracruz, Mexico: diachronic inferences from residential investigations*. Barbara L. Stark, ed. Pp. 105–157. Albany: Institute for Mesoamerican Studies, University at Albany, State University of New York. [BLS]
- Stark, Miriam T., ed. 1998. *The archaeology of social boundaries*. Washington, DC: Smithsonian Institution Press.
- Stein, Gil J. 1999. Rethinking world-systems: power, distance, and diasporas in the dynamics of interregional interaction. In *World systems theory in practice: leadership, production, and exchange*. P. Nick Kardulias, ed. Pp. 153–178. Lanham, MD: Rowman & Littlefield.
- Steward, Julian H. 1955. *Theory of culture change: the methodology of multilineal evolution*. Urbana: University of Illinois Press.
- Stoner, Wesley D. 2011. Disjuncture among Classic period cultural landscapes in the Tuxtla mountains, southern Veracruz, Mexico. PhD dissertation, University of Kentucky, Lexington.
- . 2012. Modeling and testing polity boundaries in the Classic Tuxtla mountains, southern Veracruz, Mexico. *Journal of Anthropological Archaeology* 31:381–402.
- . 2013. Interpolity pottery exchange in the Tuxtla Mountains, southern Veracruz, Mexico. *Latin American Antiquity* 24(3):262–288.
- Stoner, Wesley D., Christopher A. Pool, Hector Neff, and Michael D. Glascock. 2008. Exchange of coarse orange pottery in the Middle Classic Tuxtla Mountains, Southern Veracruz, Mexico. *Journal of Archaeological Science* 35(5):1412–1426. [PJA/AMV/LB]
- Struck, M. 1996. *Römische Grabfunde und Siedlungen im Isartal bei Ergoldingen, Landkreis Landshut*. Kallmünz, Germany: Michael Lassleben. [PSW]
- Stuart, David. 2000. “The arrival of strangers”: Teotihuacan and Tollan in Classic Maya history. In *Mesoamerica's Classic heritage: from Teotihuacan to the great Aztec temple*. D. Carrasco, L. Jones, and S. Sessions, eds. Pp. 465–513. Boulder, CO: University of Colorado Press.
- Tajfel, H., and J. C. Turner. 1986. The social identity theory of inter-group behavior. In *Psychology of intergroup relations*. S. Worchel and L. W. Austin, eds. Chicago: Nelson-Hall.
- Taladoire, Eric, and Benoit Colsenet. 1991. “Bois ton sang, Beaumanior”: the political and conflictual aspects of the ballgame in the Northern Chiapas area. In *The Mesoamerican ballgame*. V. Scarborough and D. Wilcox, eds. Pp. 161–174. Tucson: University of Arizona Press. [PJA/AMV/LB]
- Taube, Karl. 2000. *The writing system of ancient Teotihuacan*. Barnardville, NC: Center for Ancient American Studies. [GLC]
- Thompson, Victor, Philip J. Arnold III, and Amber M. VanDerwarker. 2009. Geophysical investigations at Teotepac (1000 B.C.–1000 A.D.), Mexico. *Journal of Field Archaeology* 34:439–455. [PJA/AMV/LB]
- Uhle, Max. 1913. Zur chronologie der alten culturen von ica. *Journal de la Société de Américanistes de Paris* 10(2):341–367.
- Urcid, Javier. 2005. The Zapotec scribal tradition: knowledge, memory, tradition and society in ancient Oaxaca. Foundation for the Advancement of Mesoamerican Studies. <http://www.famsi.org/zapotecwriting>.
- Urcid, Javier, and Thomas W. Killion. 2008. Social landscapes and political dynamics in the southern gulf coast lowlands (500–1000 CE). In *Classic period cultural currents in southern and central Veracruz*. Philip J. Arnold III and Christopher A. Pool, eds. Pp. 259–292. Washington, DC: Dumbarton Oaks Research Library and Collection.
- Valenzuela, Juan H. 1945a. Las exploraciones efectuadas en los Tuxtla, Veracruz. *Museo Nacional de Arqueología, Historia y Etnografía: Anales* 5:83–107.
- . 1945b. La segunda temporada de exploraciones en la región de los Tuxtla, estado de Veracruz. *Instituto Nacional de Antropología e Historia: Anales* 6:81–94.
- Versluys, Miguel J. 2014. Understanding objects in motion: an archaeological dialogue on Romanization. *Archaeological Dialogues* 21(1):1–20. [JJ]
- Von Winning, Hasso. 1961. Teotihuacan symbols: the reptile's eye glyph. *Ethnos: Journal of Anthropology* 26(3):121–166. [PJA/AMV/LB]

- Wagner, Logan, Hal Box, and Susan Kline Morehead. 2013. *Ancient origins of the Mexican plaza: from primordial sea to public space*. Austin: University of Texas Press.
- Wallerstein, Immanuel. 1974. *The modern world-system: capitalist agriculture and the origins of the European world-economy in the sixteenth century*. New York: Academic Press.
- Wells, Peter S. 1999. *The barbarians speak: how the conquered peoples shaped Roman Europe*. Princeton, NJ: Princeton University Press. [PSW]
- . 2005. Creating an imperial frontier: archaeology of the formation of Rome's Danube borderland. *Journal of Archaeological Research* 13(1):49–88.
- . 2012. *How ancient Europeans saw the world: vision, patterns, and the shaping of the mind in prehistoric times*. Princeton, NJ: Princeton University Press. [PSW]
- Wiley, Gordon R. 1991. Horizontal integration and regional diversity: an alternating process in the rise of civilizations. *American Antiquity* 56 (2):197–215.