

# ALTERNATIVE PATHWAYS TO COMPLEXITY

A COLLECTION OF ESSAYS ON  
ARCHITECTURE, ECONOMICS,  
POWER, AND CROSS-CULTURAL  
ANALYSIS IN HONOR OF  
RICHARD E. BLANTON

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Mounting evidence indicates that large, Classic Maya Peten capitals such as Tikal and Calakmul supported permanent marketplaces (Carrasco Vargas, Vázquez López, and Martin 2009; Jones 1996; Masson and Freidel 2012) and smaller provincial centers in the upper Belize River valley (Cap 2011; Keller 2006) may have sustained periodic markets as well. Nonetheless, archaeological signatures for marketplaces and commodity exchanges continue to be difficult to find across the lowlands (Shaw 2012). To understand why this might be the case, I used Richard Blanton's ideas that link the relationships between interest groups to organizational aspects of states. Like Blanton, I suggest that rulers promoted the development of marketplaces as a means of consolidating authority, generating taxes, and stimulating craft production. In the Classic Maya case, embedded sociopolitical interactions between market participants led to underdeveloped commercial market systems, especially in provincial centers where polities were small in scale and politically bounded. The small size of market zones and volatile relations between Maya kingdoms resulted in fluctuating supply and demand of commodities, dampening investments in permanent market infrastructure and allowing interest groups to manipulate exchange values.

A key assumption here is that the degree to which ancient market economies conform to archaeological expectations for marketplace development and market exchanges is conditioned not only by the primary

## *Classic Maya Marketplaces and Exchanges*

### *Examining Market Competition as a Factor for Understanding Commodity Distributions*

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economic forces of supply and demand, but also by the nature of sociopolitical interactions among interest groups who have a stake in markets. Combined, economic and sociopolitical forces affect the scale of competition within market systems and govern the outcome of market exchanges and commodity distributions.

This perspective is informed by Blanton and Fargher's recent research into the role of collective action in state formation and market development (Blanton and Fargher 2008, 2010). They suggest that organizational aspects of states can be understood based on "outcomes of bargains struck between those in power and non-ruling groups" (Blanton and Fargher 2010:211). In situations where interest groups maintain considerable resources and authority, rulers or other key decision-makers negotiate equitably with them on matters of public goods and services; in contrast, when interest groups are endowed with few resources, leaders hold the upper hand in political decision-making. These negotiations directly affect rulers' decisions to invest in infrastructure and administrative institutions to guard them, as well as to conform to social contracts, moral codes, and norms concerning personal accessibility and reciprocal obligations, including redistribution of goods provided to the state by taxpayers.

In their comparative study of 30 states, Blanton and Fargher (2008, 2010) found support for the theoretical expectations of collective action theory, but more to the point of this chapter, they present positive statistical correlations between market development and three societal factors: degree of collective action, scale of agricultural intensification, and size of population and urbanization. They postulate that markets provide alternative sources of incomes that allow commoners to specialize in the production or sale of goods and break away from patrimonial control over land and resources, while rulers benefit by leveling taxes on marketplace exchanges. Households located in prime agricultural areas tend to specialize in the production of staples, a pattern that may explain the correlation between agricultural intensification and markets. Markets also are positively correlated with the polity size and urbanization. Population growth and aggregation into centers may increase the potential consumer base, especially among non-food-producing urbanites, making specialist production in craft goods and food more feasible.

Based on these studies, it can be predicted that many large ancient polities with dense urban centers were more likely than smaller polities to have supported market economies, unless small-polity leaders encouraged market exchange and the consumer base was relatively large. Part of the problem for the development of markets in smaller polities is generating sufficient supply, demand, and price information for transactions to become predictable (Garraty 2010:7). These requirements can be met in open geopolitical

landscapes that accommodate the movement of market participants including merchants and local sellers and buyers. In politically fragmented landscapes, markets may develop but transactions are limited to people embedded in existing social relationships. Blanton (2013:25) calls these types of markets "restricted" because they replicate existing social structures and exchange relations within the polity. As such, market transactions resemble reciprocal gift exchanges more so than commodity transactions, and elites are prone to meddle in market development. In more open geopolitical environments, buyers and sellers are free to engage in atomized economic transactions, especially between merchants strangers (Granovetter 1985). Geopolitical and societal factors therefore shape market forces and must be taken into account when modeling ancient market systems and marketplace exchanges.

Four approaches—configurational, contextual, spatial, and distributional—provide independent and complementary lines of evidence for identifying marketplaces and market exchange in ancient societies (table 7.1).

A configurational approach focuses on identifying marketplaces directly from infrastructural features, while contextual, spatial, and distributional approaches focus on the indirect effects of marketplace exchanges. Kenneth Hirth's (1998) distributional approach is particularly useful because it provides archaeological correlates for identifying exchange modes from the perspective of household and settlement provisioning (table 7.2).

The major tenet of Hirth's model is that, in markets, individuals may buy and sell basic commodities regardless of their social rank because provisioning networks operate independently of sociopolitical relationships. One line of evidence that supports unfettered exchange in Mesoamerican markets is ethnohistoric accounts that document the fact that the majority of individual sellers were producer-sellers unregulated by authorities (Hirth 1998:455). These kinds of highly competitive marketplace exchanges can be identified archaeologically as homogeneous household artifact assemblages in terms of sources and quantities of commodities. Once commodities enter competitive marketplaces, their exchange values are determined by the forces of supply and demand, which conventionally refers to the behavior of buyers and sellers who engage in strictly commercial transactions. Where there are many buyers and sellers, none of them, on their own, can affect market prices. This self-regulating behavior, commonly referred to by economists as the "invisible hand of the marketplace," keeps the value of commodities competitively priced once a product or service has been on the market for a long time and there are many substitutes or sources for the product. Although purchasing power should affect, at least to some extent, the distribution of high-value

TABLE 7.1. Archaeological correlates for approaches to market systems (after Hirth 1998)

CONFIGURATIONAL	Indices of spatial and architectural features of market behavior include presence of centrally located plazas, market infrastructure, transportation arteries, administrative precincts, and large walled compounds.
CONTEXTUAL	Indices of cultural features required for large-scale provisioning of commodities including urbanization and full-time specialists.
SPATIAL	Indices of regional distribution of commodities or marketplaces including fall-off curves of commodities reflecting distance from production source to market centers and the arrangement of sites predicted by central-place theory.
DISTRIBUTIONAL	Indices of commodity provisioning based on the differential distribution of commodities across households, especially long-distance commodities of obsidian goods and imported ceramics.

TABLE 7.2. Outcomes for Hirth's distributional model of exchange modes

RECIPROCITY	Dyadic exchanges result in low volume, small spheres of exchange, and heterogeneity in household consumption that reflect different social networks and procurement patterns. Household production results in less-standardized commodities.
REDISTRIBUTION	Centralized circulation of commodities results in significant differences in commodities across statuses and multiple, parallel circuits of exchange.
MARKET	Nonhierarchical provisioning results in homogeneous assemblages across households and statuses in a community. Specializations increase scale, segmentation, and efficiencies of production, including standardization.

goods in low-status households, the disparity between elite and common household assemblages should be negligible in comparison to the outcome of other exchanges modes (Hirth 1998:456).

Late Postclassic Mesoamerican markets were highly competitive, but I contend that most ancient marketplaces were not, due to the limitations of transportation, communication, and influence of sociopolitical forces on participants (also see Garraty 2010:7). Interest groups can easily manipulate the consumption of goods, especially if goods communicate information concerning social affiliations or political position (Appadurai 1986:31). Sumptuary laws limit use of symbols of royal office, but more common symbols of ethnic, clan, or other sociopolitical affiliations are also subject to regulation through more informal social mechanisms. Further, market participants can engage in formal price setting to encourage consumption by artificially holding down exchange values or control consumption by limiting supply and inflating exchange

values (Block and Evans 2005:509). Trade goods are especially prone to price fixing, fluctuations in supply, and monopolization because middlemen are few in number and travel across polities is perilous without political connections.

Locally made items are not exempt from manipulation of exchange values because their supply and demand are affected by embedded social relations between producers and sellers. When producers and consumers negotiate directly for commodities, pricing includes consideration of personal social relationships and notions of fairness, especially in economies typified by numerous small-scale producers, sellers, and buyers operating with limited means (Mintz 1961). In small-scale markets, people who buy and sell are often on friendly terms and attempt to sustain regular business dealings by establishing long-term reciprocal relationships (Mintz 1961:55). In offering and accepting concessions on commodity prices, sellers acquire a group of steady customers and good customers get lower prices. In marketplaces where middlemen vend wares, rather than the artisans who make them, sellers have more autonomy in setting the exchange value of the commodity (Dilley 2005). Nonetheless, price concessions develop when sellers have relatively large stocks of goods (Mintz 1961:58).

Market competition therefore should be considered as a scale that ranges from strong to weak based on the number and social embeddedness of buyers and sellers. The scale of competition directly affects exchange values, which ultimately conditions the distribution of commodities in households. Blanton's comments on the varied nature of ancient market economies are salient here.

Hirth's finding that imported pottery and obsidian were available to households of varying socioeconomic status, evidently through market purchase, is an important one, but I am worried that other researchers not finding the same patterns in their distributional data will infer from it an absence of markets. The particular circumstances found at Epiclassic Xochilcalco may make it unusually well suited to the kinds of analysis Hirth emphasizes; other market situations maybe more complex and less easy to decipher. (Blanton 1998b:464, comment on Hirth 1998)

In order to understand why Classic Maya market economies are not easy to decipher, I investigate marketplaces and commodities to explore the forces that shaped them. I start with an application of Blanton and Fargher's collective action theory to the Classic Maya lowlands to examine the predicted degree of state involvement in marketplaces and then compare this model to the actual evidence for marketplaces, including that from the upper Belize River valley at the sites of Xunantunich, Actuncan, and Buenavista del Cayo

(referenced simply as Buenavista below). For data concerning commodities, I present the distribution of local pottery types across Late Classic households at Xunantunich and diachronic shifts in access to obsidian through time at Actuncan. The uneven distribution of obsidian and some, but not all, types of local pottery documents manipulation of exchange values within a moderately competitive but restricted market system.

## CLASSIC MAYA POLITIES, MARKETS, AND COMMODITIES

### CLASSIC MAYA POLITIES AND COLLECTIVE ACTIONS

Xunantunich, Actuncan, and Buenavista sit on the Mopan River only a few kilometers from each other near the western border of Belize (figure 7.1). At times, these sites were volatile members of a larger multipolity network centered at Naranjo, an expansionistic Peten capital located less than 20 km to the west. The degree to which Mopan River centers differed economically and politically from larger lowland Maya capitals, therefore, had more to do with scale and setting than cultural practices.

One of the most pervasive characteristics of Maya politics is the cyclical nature of political power (Marcus 1993). These cycles occurred at regional scales when strong capitals incorporated provinces into a multipolity state and at local scales when provincial capitals subsumed hinterlands into their political sphere of influence. As the power of capitals waned, previously subordinate groups regained their independence forming more decentralized polities or autonomous centers. While marriage alliances and war were the two most common strategies for incorporating centers into political networks, wars between Tikal and Calakmul and their allies (including Naranjo) escalated in the Late Classic period (Martin and Grube 2008), as did raiding. In this political milieu, polity boundaries and loyalties were never settled and almost always contested.

These dynamic cycles can be seen within Mopan River centers at the regional and local scale. Actuncan was the political center of the upper Belize River valley in the Terminal Formative (or Preclassic) period (100 BC–AD 250) as evidenced by many hallmarks of early civic construction, including a triadic pyramid group, an E-Group, and a ballcourt (Mixter et al. 2013). Buenavista and Xunantunich overshadowed Actuncan during the Late Classic period (AD 600–780), when leaders at both sites initiated new civic construction projects and competed for influence over minor centers located between them in the countryside (LeCount and Yaeger 2010). By the early eighth century, Xunantunich, with the aid of its Naranjo overlords, became the provincial capital of the valley, surpassing Buenavista in the scale and elaboration of

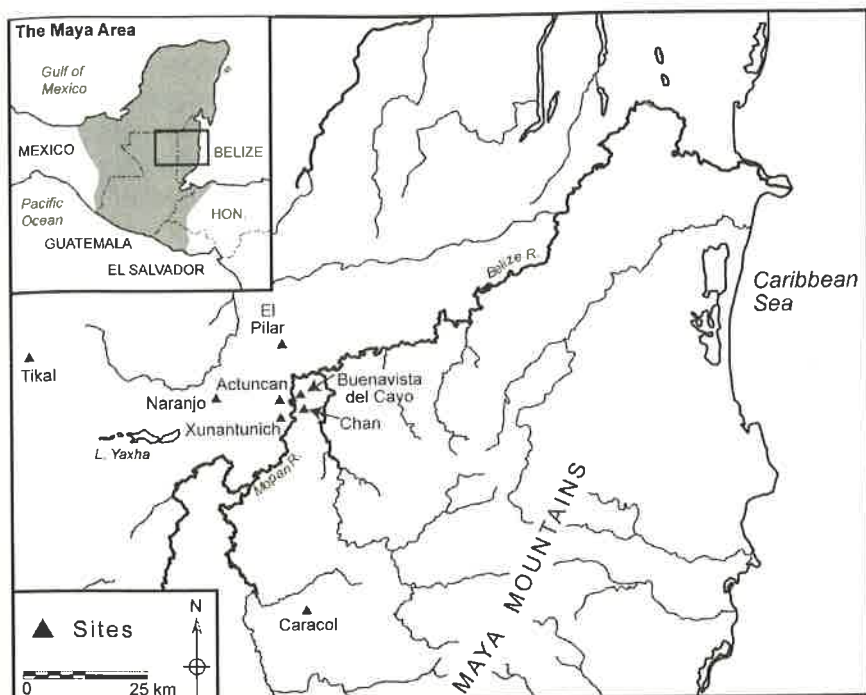


FIGURE 7.1. Location of select archaeological sites in the eastern periphery of the Maya lowlands.

its monumental architecture (LeCount and Yaeger 2010). During this time, Actuncan, and possibly Buenavista, were subsumed within the Xunantunich polity. At Actuncan, an ancient palace was remodeled befitting a vassal noble (Mixer et al. 2013), while at Buenavista settlement clusters appear to have become increasingly complex with the addition of administrative buildings that may represent the imposition of a new level of bureaucracy (Yaeger et al. 2010:165–167). However, Xunantunich's control over sites in the upper Belize River valley lasted only a short time. In the eighth century, textual references on Xunantunich Panel 2 refer to “flint and shield” events undertaken by the site's ruler and allies at an undisclosed location within the Mopan region (Helmke et al. 2010: 103). These skirmishes appear to be harbingers of events that led to the desecratory termination of Xunantunich's palace in the Late Classic period (Yaeger 2010). By the Terminal Classic period (AD 780–1000), claims of authority were increasingly made by neighboring centers. None of these sites, however, regained lasting authority.

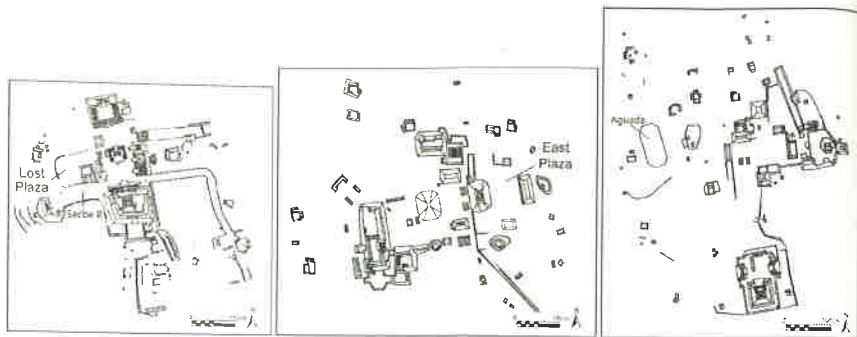


FIGURE 7.2. The civic centers of (left) Xunantunich, (middle) Actuncan, and (right) Buenavista del Cayo, Belize.

At the apogee of their political power, Xunantunich, Actuncan, and Buenavista were relatively mid-sized centers in comparison to Tikal and Calakmul, the two largest superpowers in the Maya lowlands (figure 7.2). Arlen and Diane Chase suggest large Classic Maya polities were approximately 8,000 km<sup>2</sup> in size with hierarchically ordered centers, the largest of which contained upwards of 150,000 people (Chase and Chase 1996:805). In contrast, Jason Yaeger (2003:131) estimates that fewer than 1,600 people lived within 1 km of Xunantunich in the Late Classic period, a number that is slightly smaller than that estimated for Actuncan and Buenavista populations. During their reigns as paramount capitals, each may have controlled a fairly small hinterland, no larger than 20 km in diameter. Site hierarchies in the region contain three kinds of sites—paramount center, major center, and minor centers—indicative of their classification as city-states (Webster 1997) or secondary states (Marcus 2003).

It is not surprising to find that Classic Maya states are rather low on the collective action scale. Based on Blanton and Fargher's (2008:tables 7-1, 8-1, 9-1) measurable variables for states without extensive ethnohistoric texts, small states consistently rank lower than large empires in the degree to which they engage in (1) building public goods such as transportation infrastructure and water control, (2) bureaucratization, or more specifically the nature of officeholder recruitment, and (3) moral responsibility, or more specifically the nature of ideological resources and standards of living. Classic Maya states built a moderate amount of state-supported infrastructure within centers, but their investment in public works outside them is more limited. For example, elaborate road systems (*sacbeob*) at Caracol, Calakmul, and Coba link large

civic plazas with residential groups at the peripheries of centers (Shaw 2001); however, in a survey of Maya roads, Justine Shaw (2001) found that only 9 out of 190 road segments connect separate sites together. A similar pattern can be seen in water-control features. Almost all Classic cities maintained centralized reservoir systems near the largest civic architecture, and in some cities, such as Tikal, centralized water systems recharged residential tanks (Scarborough 2003). But it is difficult to assess the degree to which the state sponsored the construction of waterholes, raised fields, and other water systems found throughout the hinterland. These features could have been built by commoners alone or during the Formative period when large-scale state project directed toward the public good appear to have been more common. The nature of officeholder recruitment also indicates that Classic Maya "bureaucratic" institutions were mechanisms that protected the interests of royal dynasties more than public interests. Epigraphic studies document that Maya polities were governed by a line of rulers who bore the title of "divine lord," or *k'uhul ajaw* in Classic Mayan (Martin and Grube 2008:17). The rule of kings in Maya society was absolute, combining control over symbolic systems, such as writing and religious rites, with their regulation of economic resources (McAnany 2004). Their position at the top of the sociopolitical pyramid is evidenced by their splendid, elevated lifestyles in palace acropoli. As the Late Classic period progressed, kings increasingly privatized and segregated their lives from the rest of Maya society (LeCount 2001; Robin 2003b).

Provincial polities may not have engaged in exclusionary and hierarchical relations to the same degree as large Classic Peten polities, but it is difficult to assign them higher ranks on the collective action scale. At Xunantunich, Panel 2 contains a full emblem glyph including phonetic complements and a main sign toponym translated as "divine mountainous place lord" (Helmke et al. 2010:106). This title, as well as the construction of a Peten-style royal compound, indicates that Xunantunich's Late Classic ruler participated in the same sociopolitical kingship system as that found in larger lowland sites (Yaeger 2010). Evidence of state-funded public works designed to provide access to critical resources outside political centers is present but limited. Although a short segment of road runs between Xunantunich and Actuncan (Keller 2006), many of the agricultural terraces and *aguadas* were likely built by local communities without state intervention (Wyatt 2008).

Given the nature of Maya collective action, market participation is predicted to be limited in scale and scope. Volatile relations between provincial centers in the upper Belize River valley and large Peten states may have prevented safe passage of market participants across political boundaries. If so,

the size of the consumer base was relatively small, especially in provincial polities, dampening supply and demand for local goods and restricting the influx of regional and long-distance trade goods, especially obsidian, jade, and marine shell. During times of greater regional consolidation such constraints would have been lifted, and markets would have flourished. During the mid-eighth century, when Xunantunich was briefly incorporated into the Naranjo state, the larger site's influence over the region would have opened up travel across previously contested ground. Nonetheless, given shifting politics, long-distance traders would have found traveling across political boundaries within the lowlands unpredictable, making the flow of imported goods from highland Guatemala and Mexico reliant on negotiations with a series of Maya kings or other principals. Maya kings, therefore, had greater access to imported items than intermediary buyers or lithic specialists; they could have made those items available in administered solar markets or through redistribution. Under these circumstances, exchange values of imports were susceptible to price fixing to expand commercial activities or to restrict the imports for political purposes.

#### CLASSIC MAYA MARKETS

Physical evidence of Maya marketplaces has been found at 10 ancient Maya capitals, including the Classic sites of Tikal, Yaxha, Calakmul, Coba, and Chunchucmil (Masson and Freidel 2012; Shaw 2012). In these large sites, marketplaces were located in nodal plazas that contained stall-like alignments or arcades. The configurational indices for these Classic Maya marketplaces compare favorably with other Mesoamerican markets.

At Teotihuacan, the Great Compound marketplace, located at the junction of axial causeways near the Ciudadela, was a large rectangular compound surrounded by raised platforms that could have supported workshops (Millon 1973). Likewise, the centrally located Tlatelolco marketplace in Aztec Tenochtitlan featured a square plaza surrounded by long arcade-like structures with portals and limited entryways (Feldman 1978). Inside, sectors of the plaza were devoted to the selling of particular commodities and administrators oversaw market activities from small ancillary platforms. At the Maya capital of Tikal, Grant Jones (1996:86–87) suggests that the East Plaza displays similar marketplace characteristics, including the plaza's location in the principal ceremonial area near the junction of *sacbeob* and the presence of a large double-gallery compound that contains arcade-like structures, stalls, and ancillary platforms. Calakmul (Carrasco Vargas, Vázquez López, and Martín

2009) and sites in southeastern Peten (Houston and Inomata 2009:252) have similar architectural arrangements near the junctions of *sacbeob*. Calamkul's Chiik Nahb complex is particularly noteworthy, not only because of its linear arrangements of low, long structures within a large rectangular compound, but for the murals painted on the exterior walls of Structure 1 near the center of the complex. The murals depict groups of ordinary people, some of whom are engaged in preparing and dispensing foodstuffs and other commodities. Hieroglyphs that accompany the scenes describe individuals using an agentive term, *aj*, followed by the name of a particular commodity, for instance maize-gruel person, salt person, or clay-vessel person (Carrasco Vargas, Vázquez López, and Martin 2009:19248). While these commodities may have been exchanged at festivals or public feasts, Kerry Hull (2010:251) notes that vendors at modern highland marketplaces are similarly referred to in Ch'orti' Mayan by the type of item they sold.

Ancient Mesoamerican markets also were located in multiuse plazas and vendors sold from temporary stalls, similar to modern Mesoamerican periodic markets today. To test for the presence of ancient open-air market activities at Chunchumil in Yucatan, Bruce Dahlin and colleagues (2007) systematically sampled soils from the modern Antigua, Guatemala, marketplace to establish chemical signatures for ancient marketplace activities. At Antigua, they found that the spatial distribution of extractable phosphorus (P) and zinc (Zn) mapped onto areas of vegetable and fruit vendors, food service, and food-preparation areas. Highly elevated levels of extractable P and Zn also were found in the central portion of Chunchumil's plaza parallel to a *sacbe* and rows of small rock alignments suspected to be market stalls, supporting their interpretation of an ancient open air marketplace in a multiuse plaza. Chase and Chase (1987:52) also suggest that unrestricted, centrally located plazas at Caracol were the locations of marketplaces based on low rubble features suspected to have been vendor stalls.

In the upper Belize River valley, Xunantunich and Buenavista provide architectural, artifactual, and chemical data consistent with open marketplaces located in multiuse plazas. At Xunantunich, Angela Keller (2006:388) suggests that the Lost Plaza, located north of Sacbe II and east of Ballcourt 1, may have been a Late Classic marketplace bounded on the west side by low linear features. Here, excavations revealed higher than expected frequencies of chert debris and tools, obsidian debitage and blades, and spindle whorls that Keller (2006:389, 615) infers are the remains of point-of-sale finishing of craft goods by artisan-vendors. Similar patterns have been found at Buenavista's East Plaza, a large plaza flanked by pyramids at the endpoint of two *sacbeob*

(Cap 2011). There, Bernadette Cap found evidence of wattle-and-daub structures and two low platforms built atop the Late Classic plaza. Like Keller's discoveries at Xunantunich, Cap's (2011:248) plaza excavations revealed *in situ* lithic production associated with the final stages of chert biface shaping and resharpening and obsidian blade production. Strong spatial correlations in ceramic sherd and soil phosphorous concentrations indicated that food, likely held in pots, was sold in specific marketplace locales.

Given the stark contrasts in investments in permanent marketplace infrastructure between large capitals and smaller centers, market systems and the kinds of exchanges that took place within them varied greatly across the Maya lowlands. As Leah Minc (2006:83) points out, "different market systems create very different contexts for production, exchange, and consumption according to the structure and scale of their regional organization." The scale of exchange interactions, the amount of commodity flows between market centers of the same size and those at different levels of the settlement hierarchy, and the political geography of the landscape all factor into the organization of market systems (Minc 2006; Smith 1976a:314–5). Minc (2006) characterizes Carol Smith's (1976b) four different market system models—administered solar, noncentralized network, dendritic, and complex interlocking—using the dimensions of scale, networking, hierarchy, and political congruence. For the ancient Maya, solar markets are considered a good fit for Classic Maya market systems in provincial polities, although more complex hierarchical systems may have existed in large Maya capitals. Local markets where commoners exchanged basic goods and pilgrimage market fairs tied to calendrical events also may have operated periodically within the larger system (Masson and Freidel 2012:461; Scarborough and Valdez 2009).

Solar market systems consist of a market center serviced by small subsidiary markets located within a single political entity. Each solar market system is self-sufficient and independent of the other because they "appear to be the result of the dominance of political forces over economic forces" (Smith 1974:177). The administrative capitals of political kingdoms are the economic hub of the greater community and exert strong controls over the movement of producers and consumers (Smith 1974:176–177). Local goods move from production sources outside the center to the central marketplace where they are exchanged, with little or no goods flow across political boundaries. Therefore, households sharing a market zone have similar distributions of basic craft goods, whereas households belonging to a different polity have functionally similar yet stylistically distinct items (Minc 2006:84).

These markets were more likely administered by elites because they were closed and bounded systems (Smith 1976a, 1976b), in which market exchange is restricted, in Blanton's terms, to buyers and sellers who are socially embedded in hierarchical relationships. Long-distance imports were prone to control by elites because leaders provided safe entry into politically contested territory to traders. If interpolity commerce rests in the hands of elites, then elites are free to use long-distance commodities as "network capital" and commoners are constrained in their access to them (Blanton 2013:25–26). Although commoners may negotiate locally made items for fair market value because buyers and sellers are not strangers, they are at risk to challenge the price of long-distance goods when market adjudication is in the hands of powerful interest groups. These sociopolitical factors condition the exchange value of goods and result in uneven distributions of high-value commodities that diverge from expectations for highly competitive market economies. Data to support this idea are presented below.

#### CLASSIC MAYA MARKETPLACE EXCHANGES AND COMMODITIES

Marketplace exchange may best be understood by examining basic commodities likely exchanged in large quantities in marketplaces. The interchangeability of some high-value commodities, such as jade, cloth, and marine shells, to satisfy reciprocal exchanges and tribute obligations, as well as function as market currencies, presents problems for models that presuppose dominant exchange modes (Masson and Freidel 2012:460). Given the scope of this essay, I concentrate on two high-demand commodities—local ceramics and imported obsidian—to explore their exchange values and, ultimately, their household distributions in upper Belize River valley sites.

At large Maya lowland capitals, there is good evidence to suggest that ceramics were made available through marketplace exchanges in the Late Classic period. At Tikal, access to simply decorated polychrome serving vessels and plainly finished utilitarian vessels appear to have similar distributions across households (Fry 1980), a pattern also found at Copan (Beaudry 1984), Palenque (Rands and Bishop 1980), and centers in the Petexbatun region (Foias and Bishop 1997). Compositional studies of locally made ceramics indicate that, although Maya capitals may not have been the loci of production of most paste groups, capitals were the hubs of regional exchange systems that regulated periodic markets in rural communities. In the Palenque region, distance-decay curves of four paste groups indicate that the center had the most diverse paste groups, while sites further afield had fewer groups (Rands

and Bishop 1980). Nonetheless, hinterland sites have similar proportions of those paste groups found at the center indicating that hinterland sites participated in intraregional exchange of ceramics. Further, the distribution of the local paste groups coincides with that of the site's emblem glyph suggesting a politically bounded exchange system. In a more recent compositional study, Antonia Foias and Ronald Bishop found similar patterns at sites in the Petexbatun region (Foias and Bishop 2007). Hinterland sites exhibited relatively homogeneous clusters of compositional groups, indicative of local production of monochrome and polychrome pots, but they also contained high frequencies of compositional groups from other sites in the regions, indicative of interregional exchange. Like the exchange system at Tikal, the Petexbatun capitals of Aguateca and Dos Pilas had the most diverse assemblages, indicating that exchange was centered on larger centers rather than smaller ones.

Of the three study sites in the upper Belize River valley, the most systematic ceramic data come from the site of Xunantunich. There, plain and monochrome pottery make up slightly more than 75 percent of the total assemblage and are found in relatively equivalent frequencies within elite and commoner household assemblages as expected if they had been sold in a marketplace (LeCount 1999; LeCount et al. 2002). Krista Garcia's (2008) petrographic study of the two most common types and forms (Cayo Unslipped jars and Mount Maloney Black bowls) from Xunantunich, Actuncan, and the nearby community of San Lorenzo found that these types were made in four paste recipes during all phases of the Late and Terminal Classic period, lending evidence to suggest that they were fabricated in the same, highly stable household- or community-scale workshops. Her analysis of stylistic and formal attributes also found a high degree of standardization in formal attributes, including rim diameter and vessel wall thickness, another pattern expected of pottery made by specialists in quantities for sale in a market. Monochrome slipped types, such as Mount Maloney Black, Garbutt Creek Red, and Rubber Camp Brown, are also found concentrated in regionally discreet areas that correlate with provincial capitals (LeCount 2010). These data indicate that utilitarian pottery was widely exchanged but politically bounded, as predicted by a solar marketplace model.

These patterns, however, are not borne out in the distribution of high-value polychrome volcanic ash ware types. There are two groups of ash ware: the Chunhuitz Orange Group, which contains polychrome types, and Belize Red Group, which contains monochrome slipped types. Both were made predominantly as serving vessels, and both make up about 11 percent of the total Late Classic Xunantunich ceramic assemblage (LeCount et al. 2002). Xunantunich

elite contexts have significantly higher statistical frequencies of Chunhuitz Orange types than commoner contexts at nearby communities such as San Lorenzo (LeCount 1999) and Chan (Kosakowsky 2012), where these types make up between four and two percent of the total assemblage. Interestingly, Belize Red Group frequencies are roughly similar across elite and commoner household assemblages. Previously, I have suggested that cost was a factor in the distribution of ash ware polychrome ceramics (LeCount 1999). In general, pottery made from volcanic ash would have been more costly for families in the upper Belize River valley than similar calcite tempered wares, given the scarcity of volcanic ash temper versus more widely available calcite tempers. Detailed stylistic analyses also indicate costly differences in production techniques of the two groups. Chunhuitz Orange types are far less standardized, more stylistically diverse, and required more production steps than the standardized forms and styles seen in the Belize Red Group (Chase and Chase 2012; LeCount 1996). Higher production costs may have translated into higher exchange values for Chunhuitz Orange types compared to Belize Red types, thereby limiting access to certain ash ware types for those at the lower rungs of the socioeconomic ladder. Although decorated types may have been redistributed or exchanged reciprocally through kin relations, their presence in even the most humble homes indicates that they were widely available in markets. In marketplaces, sellers could have negotiated a range of exchange values on pottery vessels based on production costs, resulting in the differential distribution of types by socioeconomic status.

Obsidian, imported from highland Guatemala and Mexico, was in high demand as fine cutting tools, projectile points, and esoteric cache objects by lowland Maya populations. The sources of obsidian available to Maya centers depended on trade relations, politics, and exchange modes that shifted over time. According to Geoffrey Braswell (2010:135; Braswell and Glascock 2011), Tikal controlled interregional trade in the lowlands, preventing rivals such as Calakmul from receiving large quantities of obsidian during the Classic period. Within the Tikal polity, the abundant nature and widespread distribution of obsidian supports either a network or administered solar market system (Braswell 2010; Moholy-Nagy 2003, 2008). At Copan, Braswell (2010:136) suggests obsidian was both redistributed by elites and exchanged in solar markets. There, urban elites obtained higher frequencies of black Guatemalan and Honduran obsidian than rural households, and royalty received rare and highly prized green Mexican obsidian, which they redistributed to lesser members of the nobility (Aoyama 1999). Evidence of production, in the form of cores, is only found in elite contexts, indicating that they controlled the

production and distribution of blades. However, Ixtepeque obsidian, which comes from a source 80 km away from the center, is ubiquitous in households, lending evidence to suggest that this kind of obsidian was more widely available within the Copan polity, possibly through a market system (Braswell 2010:136). Yet rulers residing in the Copan Principal Group had far greater amounts of Ixtepeque obsidian than elite and common households (Aoyama 2011:42). Given the differential access to different sources of obsidian, Braswell (2010:136) suggests that "elites rather than the forces of supply and demand monitored the value of and access to obsidian." The value of each kind of obsidian was based on procurement costs, use, and esthetic qualities, much like ash ware pottery types within the Xunantunich polity.

In the upper Belize River valley, access to obsidian was orders of magnitude smaller than that found in Copan or Tikal. At Actuncan, Sara Shults (2012) reports on the distribution of 594 obsidian pieces, an amount similar to that found at Xunantunich (Keller 2006:530), but far below the tens of thousands of pieces found at Copan (Aoyama 1999, 2011) or millions found at Tikal (Moholy-Nagy 2003, 2008). Shults utilizes a diachronic approach to understanding consumption of obsidian because, based on Hirth's model, the historical development of markets should homogenize the distribution of obsidian across households through time. By charting the obsidian-to-sherd weight ratios within elite and nonelite households over Formative (or Preclassic) and Classic periods (figure 7.3), she found that before the Late Classic period, elites and commoners appear to have had relatively equal access to obsidian, but by the Terminal Classic period elite households had as much as three times more obsidian by weight than did common households. But similar to patterns at Copan, obsidian is found in all Actuncan contexts, albeit in varying quantities, indicating that households had relatively open access to the amounts of obsidian they required for daily activities and, possibly, craft specialties (Masson and Freidel 2012:468–471).

At Actuncan, obsidian is overwhelmingly recovered as small processed bladelets. The mean cutting edge to mass ratio for blades is 7.84, with a mean width of 10.58 mm and mean thickness of 2.74 mm, indicating that blades were being consumed highly efficiently (Shults 2012:72). Prismatic blades from which these bladelets derive do not appear to have been produced in workshops at Actuncan. Besides the impromptu production loci in the plazas of Xunantunich and Buenavista, only one obsidian workshop has been found in the region (Hintzman 2000). Therefore, both the consumption and production data indicate that obsidian arrived in the upper Belize River valley in relatively limited quantities through interregional exchanges.

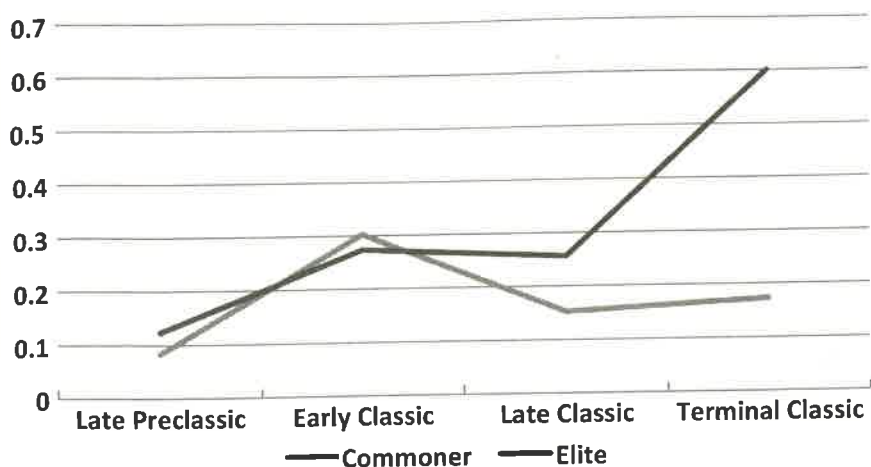


FIGURE 7.3. *Obsidian-to-sherd ratio over time in elite and commoner contexts. (Graph from Sara C. Shults 2012:table 5.4.)*

Obsidian from the highlands reached the upper Belize River valley either from Caribbean or overland trade routes. El Chayal obsidian arriving from overland trade would have flowed through Tikal, whose kings negotiated access to obsidian with subordinates at low-level centers or permitted merchants to travel and exchange obsidian across its borders. Ixtepeque and possibly some El Chayal obsidian would have made its way up the Belize River from the Caribbean coast through exchange relations between trade partners or long-distance traders. Mexican green obsidian is very rare at Actuncan, and although it too is found in both elite and commoner households, elites had more than commoners. The percentages of these sources vary over time, with Ixtepeque becoming more common in the Terminal Classic period, but access to each source by elite and common households remained similar over time (Shults 2012:91).

These data indicate that long-distance exchange of obsidian was likely overseen by elites throughout the Formative (or Preclassic) and Classic sequence in the upper Belize River valley. At Actuncan, blades were likely available in local markets at least by the Late Classic period, if not much earlier, but rulers likely reserved some obsidian for redistribution to loyal supporters. The great disparity in the distribution of obsidian by household status in the Terminal Classic period may have as much to do with changing consumption patterns as exchange relationships. Struggles between Xunantunich's paramount rulers

and Actuncan's nonroyal elites for power may have concentrated obsidian in nonroyal elite households where it was used for termination rituals, veneration practices, or production of items requiring fine cutting, such as featherwork (Berdan, chapter 6, this volume).

## CONCLUSIONS

Multiple lines of evidence indicate the existence of Classic Maya market systems. Based on Blanton and Fargher's collective action scales, the cultural conditions required for large-scale markets were rather weakly developed during the Classic period. Although a survey of the configurational evidence for marketplaces supports their existence in some large Maya capitals including Tikal, Calakmul, and Chunchucmil, as well as provincial centers such as Xunantunich and Buenavista in the upper Belize River valley, the distributional data for high-value goods indicates that marketplace exchanges were not highly competitive except at Tikal. Based on these data, it is unlikely that the forces of supply and demand were the sole mechanisms operating in Classic Maya markets. Like Blanton and Fargher's (2010) conclusions that the development of markets was the result of multiple factors, the evidence presented here illustrates how indices for marketplace exchange also must account for the scale of competition and the embedded sociopolitical relationships between interest groups. This is especially critical in politically fragmented regions, where market transactions are "plagued with uncertainty and opportunism" (Blanton 2013:25–26). For example, in restricted markets, commoditization of goods is restricted to locally made items, while long-distance items are used as network capital by elites.

In the upper Belize River valley, polities were relatively small, regionally bounded, and fiercely independent except during a short interval in the Late Classic period when they were incorporated into the Naranjo state. At that time, markets flourished at Xunantunich and Buenavista, where vendors sold goods out of temporary stalls situated in multiuse plazas. However, the distributional evidence for fully commercialized goods is mixed. Locally made plain and monochrome pottery types are found evenly distributed across households indicating that they were sold in marketplaces, but ash ware types, although present in nearly all households, are more variable in quantity. This pattern indicates that ash ware vessels were also sold in markets, but their exchange value was fixed using a sliding scale based on production and, possibly, transportation costs. On the other hand, the distribution of obsidian, while ubiquitous, is more than three times more common in elite households

than commoner households. This pattern indicates that obsidian blades were made available through both elite-administered solar marketplaces, where their exchange value was fixed at a high rate, and centralized redistribution, in which elites received more blades than commoners.

The obsidian data from the upper Belize River valley do not support the dual-economy model in which luxury items circulated in a separate exchange sphere from ordinary goods; rather, it lends evidence to suggest that long-distance trade goods were available in markets, at a price, and through redistribution. Classic Maya commodities, such as obsidian, cloth, and decorated pottery, circulated within articulated, not separate exchange modes—reciprocity, tribute, and markets—where they were assessed along a continuum of value (Masson and Freidel 2012:458). Future research on investigating how exchange values were established for commodities will greatly enhance our understanding of market economies in Classic Maya society.

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