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CERAMIC INDICES OF AZTEC ELITENESS

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Abstract

This article explores the complex, multidimensional nature of Aztec social organization and, specifically, the concept of "eliteness," as it applies to the Aztecs. I discuss both *why* we can speak of Aztec "elites" and *how* we can monitor them using ceramic data. I argue it is possible to distinguish elites archaeologically by identifying the ceramic attributes and variables that best reflect feasting behavior, one of the primary practices the Aztecs used to socially construct and reproduce unequal relations of power, wealth, and estate. Ceramics thus served as one of the primary media through which politically and socially charged "communication" occurred among the Aztecs. I define and evaluate six ceramic indices of eliteness using Late Aztec ceramic data (ca. A.D. 1350–1520) from Teotihuacan, an Aztec period *altepetl* (city-state) located in the northeastern Basin of Mexico. I use the most effective eliteness indices to interpret the intrasite spatial patterning of elite residences at Late Aztec Teotihuacan and infer some observations about the social and political organization of the *altepetl*.

Aztec social organization was complex and multidimensional. Vague, global concepts, such as class, status, and stratification, do not accurately convey the many bases of social inequality—socioeconomic, political, or otherwise—that existed in the Aztec domain (see, e.g., Carrasco 1982; Hicks 1986; Rounds 1979:75). Although most privileges and eminent positions were established by birthright, a limited amount of social mobility was attained through achievement (Berdan 1982:45–66; Hicks 1999). Even among non-noble populations significant variations of wealth and influence existed and were obtained through success in the marketplace or on the battlefield. As a result, rigid and comprehensive social distinctions based on wealth, power, and status are elusive and dubious among the Aztecs (Lockhart 1992:94–95). Despite these blurred distinctions, however, I believe we can speak of an Aztec "elite" population: This requires that we breakdown the concept of eliteness into separate social dimensions (Lenski 1966; Weber 1946).

I also propose we can identify Aztec "elites" archaeologically. Aztec elites expressed their exalted status, wealth, and power through overt consumption and display, especially during feast occasions (Brumfiel 1987). Ceramics, in particular, provide an effective means of monitoring domestic consumption because they are a durable, ubiquitous component of the archaeological record and are amenable to analyses of intrinsic value and interhousehold variability (Dietler 1996:89; Smith 1987). Aztec ceramics are neither entirely ornate nor utilitarian but range from finely crafted accessories to everyday cooking and storage wares. As a result, variability in patterns of domestic ceramic consumption reflects social differences in wealth, power, and status. The relationship between ceramic consumption and eliteness, however, remains complex. Ceramics do not simply mirror *socioeconomic* processes, such as market value and marketplace access, they also reflect *political-economic* processes, including methods of aggrandizement and other forms of politically motivated conspicuous display (see Clark and Blake 1994).

In this article I discuss both *why* we can speak of Aztec "elites" and *how* we can monitor them archaeologically using ceramic data. First, I discuss the concept and validity of eliteness as it applies to the Aztecs. Second, I evaluate six indices of eliteness using Late Aztec-period ceramics (ca. A.D. 1350–1520) from the Basin of Mexico. These indices encompass many earlier approaches to identifying Mesoamerican elites, such as the methods discussed by Smith (1987, 1992:301), Charlton and Nichols (1992), Brumfiel (1987), Hirth (1993), Lind (1987), and Stark and Hall (1993). I also present a few new suggestions. Finally, I use these indices to interpret the social and political organization of the Aztec *altepetl* (or city-state) of Teotihuacan. The Aztec ceramic data used for this analysis come from the surface collections of the Teotihuacan Mapping Project (TMP), directed by René Millon in the 1960s (Millon 1973, Millon et al. 1973).

THE SOCIAL DIMENSIONS OF AZTEC ELITENESS

For many years social scientists have debated the meaning of the term "elite" (e.g., Bottomore 1964; Mills 1956). Indeed, the concept is vague and inappropriate as a general, cross-cultural description of complex social relations (G. Marcus 1983, 1992). Eliteness requires a more flexible and contingent definition that should be tailored to the specific historical and cultural contexts to which it is applied. In this section I provide a definition of eliteness for Aztec Central Mexico and discuss the implications for identifying Aztec elites in the archaeological record.

The articles compiled by Diane and Arlen Chase (eds. 1992) question traditional conceptions of elites in complex societies, from both theoretical and methodological perspectives. The Chases (1992; see also Lind 1987:90) argued the two-fold division between elites and commoners presented in many Mesoamerican ethnohistoric sources is oversimplified and disregards the existence of more complex social hierarchies. They argued for the presence of a middle social stratum throughout pre-Hispanic Mesoamerica

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comprising craft producers, artisans, priests, and various other service personnel. The Chases (1992) aptly observed the greater fluidity in the distributions of wealth, power, and status throughout pre-Hispanic Mesoamerica, but their characterization retained the idea of a stratified system of ranked, nested social groups. I maintain social organization cannot be accurately characterized using a stratification metaphor that depicts social relations in "pansocietal, horizontal layers" (Fallers 1973:5). The social "dimensions" of wealth, power, authority, prestige, mobility, status, etc. may not always be distributed along the same hierarchical dimensions.

Rather than depicting social relations as nested, hierarchical strata, I adopt a multidimensional view of social organization. The multidimensional view stems from the sociology of Max Weber (1946) and was later resurrected by Gerhard Lenski (1966) and Lloyd Fallers (1973). This perspective emphasizes the importance of multiple, different "distributive systems" (of resources, of power, etc.) within a population (Lenski 1966; similar ideas are expressed in the archaeological literature: see Cowgill [1992], Hastorf [1990], Nelson [1995], Yoffee [1993]). Lenski (1966:74) stated:

> stratification is a multi-dimensional phenomenon. Human populations are stratified in various ways, and each of these alternative modes of stratification provides a basis for a different conception of class. Thus, although one may legitimately analyze the population of a given community in terms of prestige classes, this does not exhaust the subject of stratification. The same populations can also be analyzed in terms of power classes or privilege classes. . . . [For example] An individual may have large property holdings without occupying a correspondingly important and powerful office and vice versa.

Fallers (1973) took this idea further and rejected the stratification metaphor. Stratification, he argued, "oversimplifies by attempting to capture with a single graphic image the multiple bases of differentiation and inequality" (Fallers 1973:29) that exist in any given population.

The concept of eliteness is thus best understood if broken down into its dimensional components. Eliteness in the Aztec realm involves at least three social dimensions: political *power* (in the Weberian sense: the control or influence over human action, including labor), *estate* (hereditary positions of social status [Carrasco 1982:28; Hicks 1986, 1999]) and material *wealth* (the control of material resources). In Aztec Central Mexico, none of these were entirely correlated along the same hierarchical dimensions (Hicks 1999:410–411; Lockhart 1992:94–95); material wealth, for example, did not necessarily translate into political power. An individual may be a member of a hereditary noble estate but still possess less wealth than many affluent non-nobles, for example, prosperous merchants. Moreover, in some cases, commoners were able to achieve administrative positions of greater political power than many individuals born into noble estates (like the *cuauhpipiltin*, commoners who attained political positions through achievement in battle). In these cases a single individual or group may possess a different rank according to the three separate social dimensions.

Despite the multidimensionality of eliteness, however, we can still speak of Aztec elites by referring to the *practices* used to establish and socially reproduce the unequal "distributive systems" of wealth, power, and estate (see Paynter 1989). We are not simply asking the question "Who were Aztec elites?" but also "What were the practices of eliteness in Aztec society?" How do certain agents use and exploit the various dimensions of eliteness in setting themselves apart from others? And how can we monitor these practices archaeologically? Among the Aztecs, feasts, rituals, gift-giving ceremonies, and other forms of "commensal hospitality" (Dietler 1996:91) were some of the primary practices used to attain and validate positions of eliteness (Brumfiel 1987; Rounds 1979:80): wealth, power, and estate all correlate strongly with feasting and ceremonialism among the Aztecs. Fortunately, we can monitor feasting practices archaeologically using ceramic data.

FEASTING, ELITENESS, AND CERAMIC CONSUMPTION

Aztec households of all socioeconomic status held feasts for various reasons, including birth ceremonies, marriages, and other important life events. The *pochteca* (professional merchants), for example, were famous for holding grandiose feasts to gain or reward clients (Sahagún 1950–1982:Book 9). Feasts require an elaborate ceramic assemblage, including elegant serving vessels and an adequate inventory of cooking and storage wares (Dietler 1996).

> An important setting for the symbolic use of serving ware as a marker of wealth and status is the *household consumption ritual*, a social gathering within the context of the household that includes the consumption of food, drink, and other goods. . . . [W]ithin any given cultural setting, wealth and status are closely related to the frequency, scale, and nature of household consumption rituals. Wealthier households tend to (1) host more frequent rituals; (2) host more elaborate rituals with more guests and more food and drink; and (3) use serving ware that is more prestigious (i.e., more valuable and symbolically significant) for both periodic consumption rituals and everyday meals [Smith 1987:313].

Feasting is a quintessential component of political action in many social contexts (see Clark and Blake 1994; DeMarrais et al. 1996; Dietler 1996; Potter 2000). It provides a means of garnering political support and promoting rulers' agendas. The *Florentine Codex* (Sahagún 1950–1982:Book 2) mentions many occasions during the Aztec calendar cycle when feasts were held, and most of these were sponsored by political leaders or other members of the Aztec nobility (Carrasco 1966). Aztec rulers' feasts were apparently very elaborate events, rife with sumptuous display and spectacle:

> Then he bade to a feast those from every city . . . And when all the invited lords had assembled—[both] friendly and unfriendly lords—he provided them food. He gave them drink and food; costly goods he gave them all: capes without price, and valuable breech clouts, and devices, and costly shields. There was dancing; there was a procession; there was singing, night and day, as the ruler provided them solace.
>
> And at that time he also gave gifts to all the noblemen, brave warriors, and lords, and judges, and rulers of the youth, and all the singers, and all the keepers of the goods, fire priests, and [other] priests [Sahagún 1950–1982:Book 8:64–65].

Sahagún's description of a Mexica ruler's feast provides a vivid account of the sheer grandeur and ostentation involved in politically motivated feasting. Political feasts were overt ideological

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expressions of state power, intended to inspire awe and terror in the eyes of those who observed them, often aided by human sacrifice (Clendinnen 1991:68–73; Wolf 1999:166–178). In addition to sponsoring public feasts, rulers were responsible for providing food and drink for their political cadre during meetings and assemblies in their palaces, which were held almost every day (Zorita 1994:110). This provided another opportunity for rulers to indulge in ostentatious display and further validate their exalted positions of prestige and power.[1]

Ceramics can be also used to monitor household wealth (Smith 1987). An extensive and regionally integrated market system existed in the Basin of Mexico in Aztec times (Blanton 1996; Hicks 1987; Hodge 1992; Hodge and Minc 1990; Minc 1994) that was based on barter exchange and a complex system of currency (e.g., cloth, cacao beans, and copper axes). Most elites could afford to purchase more expensive and prestigious ceramic wares from the marketplace than most non-elites. Ceramics thus attest to the differential buying power of individuals of different socioeconomic status within a well-developed, regionally integrated market economy. Hence, high proportions and/or counts of imported vessels or finely decorated wares likely reflect high levels of consumer wealth. The difference, however, is a matter of degree: as Michael Smith (1994:153, 1996; Smith and Heath-Smith 1994:361; see also Hirth 1998) observed, most non-elites had adequate resources to purchase fine and imported goods but in lower proportions than elites. Wealth differences thus should be archaeologically observable in the ceramic inventories of different residential contexts.

In sum, ceramics are one of the many media through which politically and socially charged "communication" occurs (Wobst 1977). Studies of Aztec ceramic consumption can monitor feasting practices and wealth and, therefore, help identify Aztec elites in the archaeological record. Aztec elites probably possessed finer and more abundant ceramic inventories than most non-elites. In the remainder of this paper I discuss some of the key ceramic indices of Aztec eliteness and evaluate the most effective means of quantifying them.

AZTEC CERAMICS FROM THE TEOTIHUACAN MAPPING PROJECT (TMP)

For this analysis I analyzed approximately 16,000 Aztec sherds from the TMP collections, approximately 15% of the entire TMP Aztec collections, of which 80–85% date to the Late Aztec period.[2] The Aztec *altepetl* of Teotihuacan is located in the Teotihuacan valley in the northeastern Basin of Mexico. The goal of the TMP was to create a detailed map of the Preclassic- and Classic-period city (ca. 150 B.C.–A.D. 700), and thus the TMP survey boundary encompasses only a portion of the territory of the Aztec-period *altepetl*. The TMP survey area of 36 km^2, however, covers a relatively sizable portion of the approximate 100 km^2 of the territorial domain of the *altepetl* (Hodge 1984; Sanders 1965). Also, the survey area contains the Colonial town-center, or *cabecera*, of the region, San Juan Teotihuacan, and part of its hinterland (Munch 1976; Nuttall 1926) (Figure 1). San Juan Teotihuacan was probably also a place of importance in pre-Hispanic times, since the Spanish typically co-opted existing central places when they designated regional *cabeceras* (Gibson 1964:33–67).

René Millon and his associates arbitrarily divided the TMP survey area into 147 500- × 500-m squares (Millon 1973; Millon et al. 1973). Within each square any distinct cluster of artifacts and/or architectural remains was designated as a "site" or "locality" (Spence 1985). Many sites contained low house mounds, but in other cases mounds may have never existed or were leveled by plowing, erosion, or other postdepositional processes. Each of the TMP sites used in this analysis probably contained one, or maybe a few, Aztec domestic units, along with their associated middens, storage facilities, gardens, ritual areas, and other domestic structures (Spence 1985). Domestic units usually include one or more closely related nuclear families (see Carrasco 1964, 1976b; Kellogg 1986) residing either in separate, but contiguous, structures (patio groups) or in single, multifamily compounds (see, e.g., Sanders et al. 1979:54). The Aztecs usually deposited broken pot sherds and other refuse in the areas surrounding the house or patio complex.[3] We, therefore, can reasonably correlate the Aztec ceramic assemblages with the individual residential loci where they were collected. More importantly, we can test interresidence variability in wealth, power, and status by comparing different site assemblages of adequate sample size.

Survey data are an important component of the archaeological record and are suitable for making large-scale, interresidence comparisons (Hirth 1993). Although excavation produces high-resolution data sets, including artifactual, architectural, and skeletal data (Chase and Chase 1992:4–7), ideal for assessing household wealth and status, it may not always provide adequate spatial coverage for making interresidence comparisons that encompass entire site populations, especially in urban contexts (see Morris 1975). Archaeologists typically rely on surveys to obtain these sorts of large, comparative data sets, and thus it is imperative we make valid assessments of residential status and wealth using the types of data typically obtained from surveys, primarily ceramic sherds. Ceramic data are suitable for making these assessments because they are a ubiquitous component of most surface assemblages in Mesoamerica, and the high sherd counts that can be obtained from surface collections provide robust sample sizes for interresidence comparisons.

THE ELITENESS INDICES, PART 1: HYPOTHESES AND RATIONALE

In order to compare the ceramic assemblages from different residential contexts, I focus on six ceramic indices that are potentially indicative of eliteness. These are the following: (1) overall ce-

[1] Sponsorship of political feasts, however, does not always require individual wealth financing. John Monaghan (1990, 1996), for example, has shown that feasts in a village in modern Oaxaca are financed through reciprocal exchange and debt repayment. In addition, feasting in many early Colonial Mexican cargo systems was financed through communal capital (Chance and Taylor 1985). Thus, feasting may not always reflect individual wealth, status, or power.

[2] The 15% sample may seem small to some. For this analysis, however, I included nearly all of the Aztec sherd collections of adequate size (>35 sherds). The vast majority of TMP sherd collections include fewer Aztec sherds and, therefore, are not adequate for the site-by-site statistical analyses used here.

[3] The *Florentine Codex* (Sahagún 1950–1982 cited in Smith 1997) stated Aztec children playing in house yards "spend their time piling up earth and potsherds, those on the ground," indicating the disposal of domestic refuse, and ceramics in particular, in the vicinity of the house or house complex.

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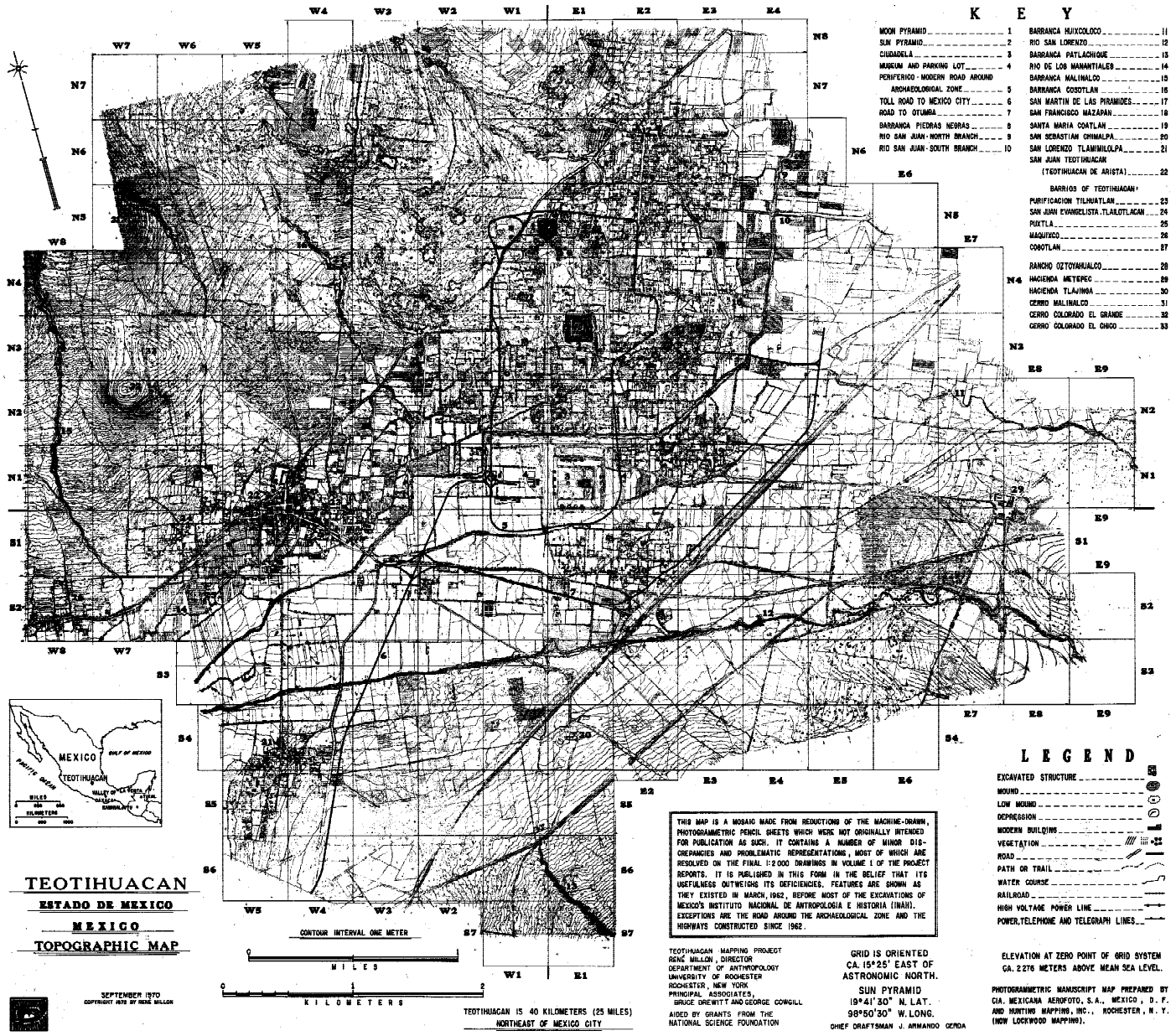


Figure 1. Topographic map of the Teotihuacan Mapping Project survey area. The Colonial and modern-day *cabecera* settlement of San Juan Teotihuacan is located west of the massive Classic-period remains. Copyright 1972 by René Millon, reprinted with permission.

ramic counts per domestic assemblage; (2) the proportion of decorated sherds per domestic assemblage; (3) the proportion of bowls and other serving vessels per domestic assemblage; (4) the number of different steps needed to produce a given decorated type—thereby approximating intrinsic value (Feinman et al. 1981; Hagstrum 1988); (5) the diversity of plainware forms per domestic assemblage; and (6) the diversity of decorative motifs represented in a domestic assemblage. I experimented with different ways of calculating and weighting some of the different, but related, indices to determine which are the best indicators of eliteness. My goal is to ascertain which of these indices show the highest levels of correlation and, hence, measure the same phenomenon or "converge." Also, since many of these variables can be quantified in various ways, I intend to discern the most useful way to express them. In this section I discuss the rationale and "middle-range" hypotheses for each index and in the following section evaluate the relationships between them in order to determine the most effective indices.

Index 1: The Count Index

One possible index of elite residence is the ceramic count per residential unit (Hirth 1993).[4] Elite residences probably generated greater sherd abundances compared to non-elite residences. For example, the large, stone-masonry structure excavated by Susan Evans (1988:38) at Cihuatecpan, which she interpreted as a noble residence (Evans 1993, 1996), shows a much higher ceramic count than any other domestic structure she excavated at the site.

Various evidence supports this assumption. First, as described above, elites tend to sponsor larger, more frequent, and more elaborate feasts (Dietler 1996; Smith 1987). Large quantities of ceramic materials (cooking, serving, and storage vessels), therefore, are necessary to accommodate the myriad guests. Second, Aztec nobles practiced polygyny, thereby increasing household size and, therefore, the rate of ceramic consumption and deposition. This pattern of large noble families has been observed in both archaeological and documentary contexts by Pedro Carrasco (1964, 1976b) and by Evans (1991, 1993). Third, many Aztec nobles and wealthy individuals employed slaves or live-in servants, further increasing the number of ceramic consumers in residence (Evans 1985, 1991). Finally, and perhaps most importantly, as administrative headquarters, rulers' residences accommodated a vast array of administrative activities and other "official" institutions, including courts, council chambers, storehouses, armories, guest accommodations, ritual structures, and a marketplace (Elson 1999:153; Hicks 1986:41). *Altepetl* leaders', or *tlahtoqueh's* (singular, *tlahtoani*), palaces housed most of these functions and, therefore, required even greater ceramic inventories. For these reasons, elite (especially noble-estate) residences are expected to have included more ceramic consumers and, as a result, generated greater overall ceramic abundances.

Several cultural and natural formation processes, however, may hinder the effectiveness of this index, especially when using surface collections. Variation in ceramic counts between residential contexts may sometimes indicate variable lengths of occupation rather than sociopolitical or socioeconomic status (Nelson 1981). This may be problematic, given the greater than 200-year period over which Late Aztec ceramics were produced and used in the basin (see Charlton 1968, 1972). Also, the dynamics of Aztec kin-residence practices (Carrasco 1964; Evans 1993) may affect household size, thus influencing the rate of deposition of ceramic vessels and, ultimately, ceramic counts in residential contexts (see Varien and Potter 1997). In addition, natural formation processes, such as soil erosion, sedimentation, or thick surface vegetation, as well as modern disturbances, like plowing and construction, may impede artifact visibility and cause "artificial" variation in assemblage size.

Given these problems, many archaeologists are rightly suspicious of count data as grounds for interpreting social processes (e.g., Schiffer 1989:47). Nevertheless, I consider using count data for this analysis for two reasons. First, as stated above, elite residences probably generated enormous ceramic abundances compared to non-elite residences; elite assemblages would therefore likely appear far in the upper tail of the count distribution. Although *minor* variations in collection size should not be taken seriously as indicators of social process, exceptionally large collections might be indicative of elite presence. Second, it is likely each site used for this analysis represents the activities of a single domestic group, although some collection areas were enlarged by erosion, plowing, or other postdepositional processes (Spence 1985:82). Accordingly, even though the collection areas are somewhat variable in size, they can be viewed as "standardized" to the extent that most site assemblages were probably generated by a single household. These points suggest we should consider both the behavioral and nonbehavioral determinants of sample-size variation rather than dismiss count data altogether (Plog and Hegmon 1993).

The count index can be calculated in several different ways (see Table 1). One method is to simply calculate the total number of Late Aztec-period sherds per site assemblage (Index 1a).[5] An alternative way to quantify this index is to use the total counts of Late Aztec *decorated* sherds (Index 1b). This latter calculation mitigates, to some degree, the problem of inconsistent collection practices among the TMP surveyors. Although some surveyors collected plainwares more intensively than others, they presumably collected decorated sherds in a more consistent fashion; that is, they probably collected all (or nearly all) decorated sherds encountered in a defined site context.

[4] It is important to make a distinction between ceramic count and ceramic density. Hirth (1993:138) has pointed out although elite households usually contain higher ceramic counts they do not necessarily contain higher ceramic densities. In fact, he found the opposite is true in many cases. This makes sense if we realize elites generally have larger house-lots and proximal land holdings, and artifacts associated with elite households would therefore be spread over a larger area than those associated with commoner households.

[5] Although some sherds (especially plainwares) cannot be defined as Early Aztec or Late Aztec with certainty (Parsons 1966), one can approximate the total sherd count dating to a particular period by multiplying the proportion of phase-assignable sherds by the total sherd count. For example, if a given collection includes 75% phase-assignable Late Aztec-period sherds, I multiplied the collection total by .75 to estimate the count of Late Aztec-period sherds in the entire collection. I should also note that, although it is frequently difficult to distinguish Early Aztec from Late Aztec sherds, I am confidant the sherds used for this analysis date to the Aztec period in general (ca. A.D. 1150–1520) and not to earlier, pre-Aztec periods, that is, I accept the ceramic identifications made by Pedro Baños and Ceferino Ortega, who expertly defined the Aztec and pre-Aztec assemblages for the TMP.

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Table 1. Elite Indices 1–4 with subindices

Index 1
- a. Total count index (n = 115 sites): total Late Aztec sherd count per collection
- b. Decorated count index (n = 76 sites): Black/Orange + Black/Red + Black-and-White/Red + low-frequency decorated

Index 2
- a. Percentage decorated index (n = 76 sites): total late Aztec decorated sherd count/total sherd count
- b. Weighted index (n = 76 sites): 2(% low-frequency decorated) + 2(%Black-and-White/Red) + 1.5(%Black/Red) + %Black/Orange[a]
- c. Decorated red-ware index (n = 56 sites): total decorated red-ware sherds/total decorated count

Index 3
- a. bowl-*copa* index (n = 76 sites): %total bowls + %total *copas*.[a]
- b. Smith's index (n = 76 sites): %total bowls + %total Black/Orange bowls + %total red-ware bowls + %total low-frequency decorated bowls + %censers (based on Smith 1992:301)[a]

Index 4
- a. PS index (n = 45 sites): (cumulative PS score per collection/number of sherds analyzed) − quality score (for Black/Orange sherds only)

[a]Percentages are based on the total Late Aztec sherd counts per collection

Index 2: The Decorated Index

A second viable indicator of elite residence is the proportion of decorated sherds per residential unit. Since feasts often provided the means for political or social validation, elite residences likely contain higher proportions of decorated wares and other ceramics used for serving and processing foods (see Brumfiel 1987; Charlton and Nichols 1992; Evans 1985; Lind 1987; Smith 1987, 1992). Figure 2 depicts some common Late Aztec decorated ceramic types. Evans (1988, 1991), however, argued against the proportion of decorated to nondecorated sherds per collection as a valid indicator of elite residence (Index 2a). Her survey and excavation data from Cihuatecpan indicated a relatively even spatial distribution of decorated ceramics throughout the site, despite evidence for variable degrees of access to other resources (Evans 1988:35). This seems reasonable *prima facie* since, just as elites may possess a greater number of decorated serving vessels to accommodate large gatherings during feast occasions, they may also possess a greater number of cooking and storage vessels. This might effectively nullify variation in the relative proportions of decorated wares to plainwares in elite contexts, at least in part.

A more effective way to use proportions of decorated ceramics to assess elite residence is to create an equation using differently weighted decorated types, emphasizing those that are more prestigious or costly. Decorated red wares (Black/Red and Black-and-White/Red) seem to indicate higher prestige and higher market value than Black/Orange wares. There are several reasons for this assumption. First, most red wares appear to have been more skillfully and carefully decorated than Black/Orange wares. Second, the skill of decoration is *consistently* high for red wares and suggests very little variability in the quality of vessel production (Parsons 1966:237). Third, red-ware vessels are decorated with two or more colors of paint, which indicates more labor input, since the raw pigment materials used to produce the paints were separately procured and processed. Finally, most red wares, especially Black-and-White/Red vessels, have more complex decorative schemes than Black/Orange wares. Black/Orange vessels, in contrast, show inconsistency in the quality of decoration, and their decoration typically includes sparse black paint, often sloppily applied, on a natural (orange) clay surface (Parsons 1966:134). A production step measure (Feinman et al. 1981) of decorated red wares and Black/Orange wares more formally corroborates this observation (see below). In addition, a cursory examination of Brumfiel's (1987:Table 2) data from Huexotla revealed greater percentages of red wares relative to Black/Orange wares in the area she designated as the "elite core" relative to the "rural periphery" of the site.

These data suggest the decorated index might work best if the proportions of decorated red-ware sherds are weighted more heavily than Black/Orange sherds. Also, it is reasonable to weight the low-frequency decorated types more heavily, since these may indicate imported vessels or locally made, but finely crafted, vessels. The weighted equation (Index 2b) is the following:

$$2 * (\%\ \text{Late Aztec low-frequency decorated}) + 2 * (\%\ \text{Black-and-White/Red}) + 1.5 * (\%\ \text{Late Aztec Black/Red}) + 1 * \%\ \text{Late Aztec Black/Orange}$$

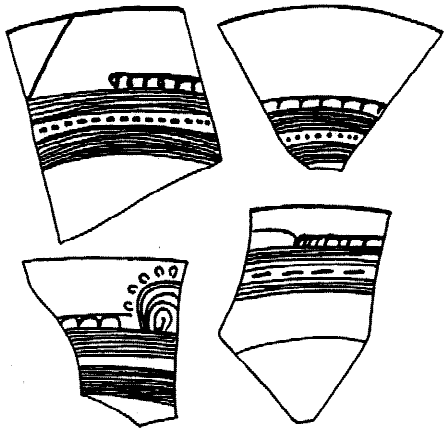
with percentages calculated relative to the adjusted Late Aztec collection totals.[6] An alternative way to quantify this index is to use only the proportions of decorated red wares relative to the overall decorated counts per site, rather than the overall sherd count (Index 2c; see Table 1).

Index 3: The Bowl-*Copa* Index

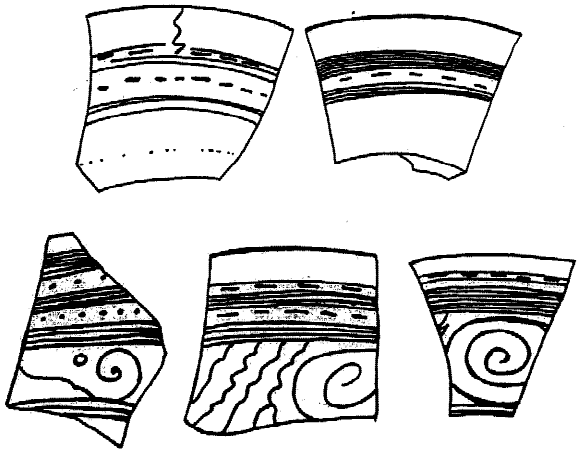
Another possible indicator of elite presence is the proportion of bowls and other ceramic forms per residential unit (Smith 1987). Smith's (1992) data from rural Morelos indicated bowls are very effective indicators of elite residence, probably due to their frequent use at feasts for serving food. *Copas* (or goblets) represent another ceramic form that were probably used frequently during feasts, presumably to serve beverages. Quantifying the bowl-*copa* index (Index 3a) is rather straightforward: the percentage of bowls plus the percentage of *copas*, calculated relative to the total Late Aztec sherd count. A second variant of this index is a slightly revised version of one developed by Smith (1992:301): the sum of the percentages of total bowls, Black/Orange bowls, decorated red bowls, low-frequency bowls, and censers (Index 3b). In addition to bowls, Smith (1992) showed that elite residences tend to contain higher proportions of censers than non-elite residences. Be-

[6] The weightings are based on a cursory assessment of the differences between the PS scores for different ceramic types. The Black-and-White/Red scores are approximately twice the Black/Orange scores, and the Black/Red scores fall roughly between the two. It is significant, therefore, the scores were not "tailored" to correlate with the other indices; the weightings were assessed independently of the correlation results.

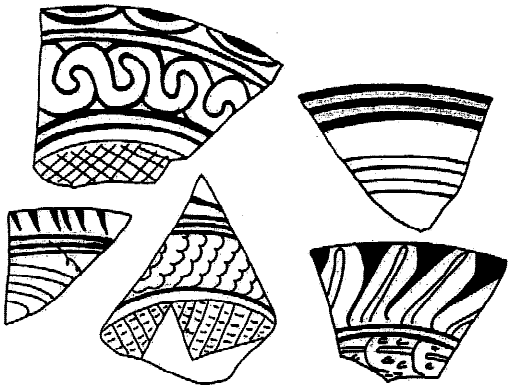
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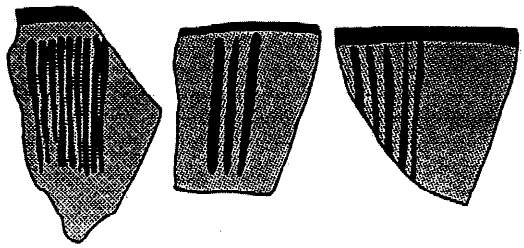
Aztec III Black/Orange, Variant D
(Hodge and Minc 1991: Figure 3.5)



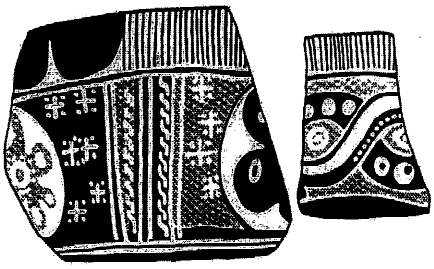
Aztec III Black/Orange, Variant E
(Hodge and Minc 1991: Figures 3.7 and 3.8)



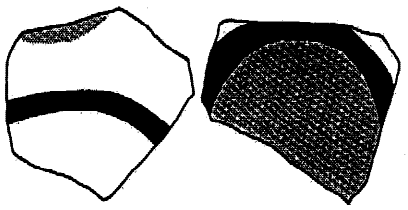
Aztec IV Black/Orange
(Hodge and Minc 1991: Figures 3.9 and 3.16)



Late Aztec Black/Red, Variant C (with "comb" motif)
(Minc 1994: Figure III.4)



Late Aztec Black-and-White/Red
(Minc 1994: Figure III.37)



Black-and Red/Tan
(Minc 1994: Figure III.43)

Figure 2. Common Late Aztec decorated ceramic types. Reprinted with permission from Leah Minc.

cause Smith's index (Index 3b) also emphasized bowls, I group it here with the bowl-*copa* index. Both variants of this index partially overlap with the decorated index, since many decorated sherds are bowl forms; although most bowls are plainwares, this overlap must be considered when assessing the correlation between this index and the decorated index.

Index 4: The Production-Step (PS) Index

Decorated ceramics from elite contexts should, on average, indicate higher labor investment per vessel. Gary Feinman et al. (1981) and Melissa Hagstrum (1988) outlined methods of measuring labor investment in ceramic vessels by evaluating the total number

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Table 2. Production-step index scoring chart

Variable	Score[a]
paint	
one color (Black/Orange)	1
two colors (Black/Red)	2
three colors (Black-and-White/Red; Black-and-Red/Tan)	3
decoration	
simple to complex	.5–5[b]
supports (Black/Orange dishes and *molcajetes*)	
undecorated	.5
decorated	1
interior and exterior decoration (some Black/Red types)	1.5
interior and exterior slip/paint (all decorated red wares)	.5
incising (Black/Orange *molcajetes* only)	.5
quality of execution (Black/Orange only):	
sloppy	−.5
Fine	+.5

[a]Maximum possible score = 8.5; minimum possible score = 1.5.
[b]Including all points in between.

of steps (e.g., painting, smoothing) required to produce them. This heuristic index assumed the more steps involved in the production of a ceramic vessel, the higher its potential market value. As such, this index might be considered a more direct measure of household wealth than political power or estate.

Table 2 lists the variables and scores used in this analysis. The variables used for assessing production steps only include decoration (e.g., painting, design execution) and applique procedures (e.g., adding supports). I assume no significant labor-input differences were involved in vessel formation; the manufacture of each of the decorated vessel forms in question—bowls, plates, dishes, and *molcajetes* (chili grinders)—probably involved roughly the same amount of labor input, especially since they do not vary significantly in size. I therefore exclude this production step from the score assessments. A more detailed analysis of product value should consider labor investments associated with the procurement of raw materials (e.g., clays, pigments for paints), the transportation of finished products, and the overhead costs involved in marketing and storing the finished goods, but little or no data exist for making these assessments.

All Late Aztec Black/Orange, Black/Red, Black-and-White/Red, and one low-frequency decorated type (Black-and-Red/Tan) were used to calculate the PS scores for each assemblage. All site assemblages containing five or more definable Late Aztec decorated sherds were included in the analysis (n = 45). Each Late Aztec decorated type-variant was assigned a PS score according to the variables listed in Table 2. For Black/Orange sherds I recorded information regarding the quality of execution, that is, whether decoration was executed sloppily or finely (see Table 2). I calculated mean PS scores per site based on the total number of sherds of a given decorated type-variant in each assemblage. Overall, Black/Orange wares scored lower than decorated red wares. Among the red wares, Black-and-White/Red wares scored the highest, due to their display of three colors of paint and highly complex decorative schemes. Black/Red variants scored lower than Black-and-White/Red, but higher than Black/Orange. Black-and-Red/Tan wares also scored very high.

Index 5: The Plainware Diversity Index

This index is based entirely on plainware data (rim sherds only).[7] Wealthy, elite households generally consume a greater *variety* of foods and beverages than non-elite households (see Smith 1987:310–312). This is another example of the ostentatious behavior associated with feasting and conspicuous display, but it also implicates other issues, namely market access and product value. Elites are probably more able to access various exotic, imported foods and more costly foods; the *Florentine Codex* (Sahagún 1950–1982), for instance, described various types of "lordly" foods (see also Clendinnen 1991:66). A functional diversity of plainware cooking and storage wares might therefore reflect a diversity of food types, assuming different foods required different cooking and storage implements (Charlton and Nichols 1992:245). In addition, poorer households may have satisfied their various cooking and storage needs with relatively fewer specialized vessel forms.

In order to more easily assess functional variability among vessel forms, the rim diameter data were summarized into the six size classes listed below (Braun 1980; Simon 1994:670).

Size Class 1 (4–6 cm): miniature vessels.
Size Class 2 (7–12 cm): small vessels.
Size Class 3 (13–25 cm): medium vessel.
Size Class 4 (26–31 cm): large vessels.
Size Class 5 (32–38 cm): extra-large vessels.
Size Class 6 (39 cm +): massive vessels.

The vast majority of vessels fall into Size Classes 3 and 4, while many fewer are categorized into Size Classes 1, 2, 5, and 6. I made further distinctions in the plainware data based on wall thickness, which provides an arbitrary means for distinguishing between bowls (thinner than .8 cm) and basins (thicker than .8 cm) and between regular-sized jars (thinner than .8 cm) and large ollas (thicker than .8 cm).

I assessed diversity for all TMP assemblages in which 80% or more phase-assignable sherds are Late Aztec types (n = 76) using the 18 plainware categories listed in Table 3. I evaluated assemblage diversity using a richness program created by Keith Kintigh (1989, 1999), which employs a Monte Carlo simulation approach to mitigate the effects of sample size differences (cf. Plog and Hegmon 1993). Richness refers to the number of categories (Y axis) expected to occur for a particular sample size (X axis). The Monte Carlo simulation generates a large number of randomly simulated assemblages that, when compared with the observed data, provides a viable means of assessing statistical significance (Kintigh 1989:27). Kintigh's richness program (1999) randomly generates 500 simulated assemblages and calculates mean richness scores for the range of sample sizes represented in the sample of collections. It also calculates a 90% confidence interval, which illustrates the *range* of randomized means that occur for each sample size. Using the confidence interval, we can assign statistical "significance" to those cases in which the observed score lies outside of the 90% confidence range. The "expected" results (i.e., the mean

[7] Since most plainware sherds cannot be accurately dated to either the Early Aztec or Late Aztec periods, I only use the plainware data from sites that have 80% or greater phase-assignable decorated sherds (based on the relative proportions of Early Aztec and Late Aztec Black/Orange and Black/Red in an Aztec collection) (n = 76).

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Table 3. Plainware categories used to calculate the Plainware Diversity Index

bowls	
	1. bowls, Size Class 2
	2. bowls, Size Class 3
	3. bowls, Size Class 4
	4. bowls, Size Class 5
	5. small bowls (Size Classes 1 and 2)[a]
basins	
	6. small basins (19–21 cm rim diameter)[b]
	7. large basins (31–36 cm rim diameter)[b]
	8. extra-large basins (Size Class 6)
	9. salt containers (fabric-marked wares)[c]
regular-sized jars	
	10. jars, Size Class 2
	11. jars, Size Class 3
	12. jars, Size Class 4
	13. jars, Size Class 5
	14. small jars (Size Classes 1 and 2)[a]
large ollas	
	15. small ollas (19–21 cm rim diameter)[b]
	16. large ollas (31–36 cm rim diameter)[b]
	17. extra-large ollas (Size Class 6)
	18. tecomates[d]

[a]These correspond to Parsons' (1966:193, 197) miniature bowls and miniature jars and are distinctive due to their very thin walls and small rim diameters.
[b]Rim-diameter categories for basins and ollas are based on observations made by Whalen and Parsons (1982:438).
[c]These vessels include fabric-impressed exterior surfaces and are presumably used for transporting and storing salt (see Parsons 1966:247–249, 1994).
[d]Tecomates are essentially jar forms without neck attachments (see Parsons 1966:197).

scores and confidence interval range) are graphed on a curve along with the observed data (point data); this allows the observed data to be evaluated directly against the expected results. If this index is valid, then elite residences, due to their diverse ceramic assemblages, should occur as outliers *above* the upper range of the 90% confidence interval.

Index 6: The Motif Diversity Index

Aztec elites presumably had greater access than most non-elites to ceramics and other products from distant marketplaces, since they could more easily afford exotic and imported commodities. Within the basin many marketplaces were associated with one or more specialized products (see Blanton 1996; Hassig 1985:111–113; Hicks 1987): dogs at Acolman; fine ceramics at Texcoco; or birds at Otumba. These exotic and specialized commodities were disseminated into other market systems through various means. In some cases elites (or their emissaries) may have traveled to more distant marketplaces in order to purchase specialized commodities (Hicks 1987:102). In other cases, itinerant merchants traveled between marketplaces in order to "tap the demand of a larger area" (Smith 1979:111; see also Hassig 1985:74), thereby disseminating commodities into different market zones. In addition, some elites may have received foreign vessels as gifts (or as containers for gifts) from visiting dignitaries. Presumably, most non-elites had less incentive and financial capability to purchase exotic or specialized goods from distant marketplaces.

Using Late Aztec ceramics, Mary Hodge and Leah Minc (Hodge 1992, 1993; Hodge and Minc 1990, 1991; Hodge et al. 1993; Minc 1994:282) demonstrate that certain motif configurations indicate specific production loci in the basin. These motif groups generally cleaved along political boundaries at the confederation level. For example, ceramic producers in the Acolhua region used a different corpus of decorative motifs than those in the Mexica or Tepanec regions. Therefore, if elites frequented distant marketplaces more often than non-elites, or if they purchased a greater number of imported vessels, then elite residences should show a greater diversity of decorative motifs.

This analysis, ideally, requires a detailed examination of each sherd and its specific motif configuration. But such high-intensity analyses were not possible for me, given time restraints, and many decorated sherds were too small or eroded to accurately assess motif configurations. I therefore base this index on the diversity of decorated type-variants per assemblage (see Hodge and Minc 1991; Minc 1994; Parsons 1966). Late Aztec decorated type-variants are defined according to their motif configurations, which may be indicative of regional production loci in the basin (Hodge 1993; Hodge et al. 1993; Minc 1994). In all, 33 categories were used for this analysis, based on Late Aztec Black/Orange, Black/Red, Black-and-White/Red, and low-frequency decorated types. Using Kintigh's (1999) richness program, elite assemblages should occur as outliers above the upper range of the 90% confidence interval.

THE ELITENESS INDICES, PART 2: EVALUATIONS

In this section I evaluate the indices listed above as indicators of elite residence using linear correlation coefficients (Pearson's r).[8] I eliminated outliers where necessary in order to avoid biased or false results. I assume the indices that show the highest overall correlations with one another are the most effective indicators of elite residence. The plausibility of these indices hinges on the significance of the correlations. I assume the indices that show high *and* significant levels of correlations are measuring on the same phenomenon or "converging." Table 1 summarizes Indices 1 through 4 and their subindices; Indices 5 and 6 are assessed separately, since they are measured differently than the other indices. Table 4 lists the correlation coefficient scores for Indices 1–4.

Among the count indices (Indices 1a and 1b), Index 1b shows much higher correlation with the other viable indices than Index 1a. Unsurprisingly, correlation does not occur between total Late

[8] Ideally, a principal-components analysis (PCA) would be used to determine which indices (or index) most effectively "explain" the variation among the TMP collections. For instance, one or two indices may show higher loadings than the less effective indices, and it might yield a linear function of the original variables that serves as a better index than any one variable alone. PCA, however, is not optimal for this study since the different indices use unequal numbers of site collections for calculating their scores. In all, there are only 33 collections on which I can calculate a score for *all* of the indices. The information that can be gleaned from such a small subset of the total TMP Aztec ceramic sample might be dubious or biased. In addition, since most of the 33 usable collections have high ceramic counts, the results may be biased toward wealthier or more powerful residents (Stark and Hall 1993); a representative cross-sample of the Aztec period residences would thus not be available for PCA.

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Table 4. Correlation matrix for Indices 1–4 (Pearson's r)

	Index 1a	Index 1b	Index 2a	Index 2b	Index 2c	Index 3a	Index 3b	Index 4
Index 1a	1							
Index 1b	—	1						
Index 2a	−.08	.556[a]	1					
Index 2b	−.089	.560[a]	—	1				
Index 2c	−.015	.167	—	—	1			
Index 3a	.166	.165	.433[a]	.499[a]	.439[a]	1		
Index 3b	.146	.295[b]	.555[a]	.581[a]	.39[a]	—	1	
Index 4	.112	.072	−.003	.186	.574[a]	.226	.132	1

[a]Significant at the .01 level.
[b]Significant at the .05 level.

Aztec sherd counts per assemblage (Index 1a) and the other indices, even when controlling for outliers. As expected, however, the sites with exceptionally high Late Aztec sherd counts—in this case, those with counts greater than 300 (n = 3)—correlate relatively strongly with the other viable elite indices. Apparently, the count index best indicates elite residence when the counts are exceptionally high. The weak result for sites with counts less than 300 sherds may reflect any of the taphonomic factors mentioned above. The decorated count index (Index 1b) is the better of the two proposed count indices, indicating high, significant correlation with Index 2 but somewhat less correlation with Index 3. The count and the proportion indices (Indices 2 and 3) are probably relatively independent of one another, since the proportion data are less sensitive to differences in collection intensity. The effectiveness of this index is surprising to me, given the various taphonomic processes that can influence count data. This result partially vindicates the behavioral implications of sample-size variation; nonetheless, one must always be attentive to the many nonbehavioral determinants of collection size and make sure to use count data with discretion (see Plog and Hegmon 1993). In all, the count index is not as effective as the two proposed proportion-based measures, Indices 2 and 3.

The decorated indices are very effective. The weighted index (Index 2b) is the strongest indicator of elite residence overall, with high and significant correlation with Indices 3a, 3b, and 1b. Index 2c and Index 2a also show relatively high correlation scores, but are not as strong as the scores for Index 2b. The problem with Index 2c is the number of sherds per collection amenable to this index is usually rather small because the percentages rely on total decorated sherd counts per collection. Index 2a is probably not as effective as Index 2b for the reasons mentioned by Evans (1988:35, 1991), but these results suggest that Index 2a is not as equivocal as Evans suggested.

Both bowl-*copa* indices (Index 3) correlate well with the decorated indices. Index 3b, however, is slightly more effective than the more straightforward Index 3a, vindicating the importance of censers as elite indicators (see Table 4). Again, we must be cautious about the possibility of inherent correlation between Indices 2 and 3, since a fairly large proportion of decorated wares are also bowls or *copas*. It is notable, however, of the two subindices, Index 3b shows a higher relative correlation with the decorated indices because, since it includes censers, it is comparatively more "independent" of the decorated indices than Index 3a and, therefore, entails less inherent correlation.

The PS index is not effective when calculated on a site-by-site basis, as evidenced by the low correlation scores with each of the other viable indices. The one exception is Index 2c, the decorated red-ware index. This index, however, probably correlates with the PS index because both indices heavily emphasize decorated red wares relative to the overall number of decorated wares. The PS index assigns higher scores to red-ware sherds and, hence, also emphasizes collections with greater numbers of decorated red wares relative to all decorated wares. I suspect the PS index did not work for this analysis primarily because the only sherds that can be assigned a PS score are the few sherds that can be securely identified as a particular decorated variant. The number of sherds that could be used for the PS analysis was very small in most cases because so few sherds could be defined in such definitive terms (due to small sherd sizes or eroded surfaces—both of which are endemic to surface collections). This greatly reduced the accuracy of the PS index as I have tabulated it. Perhaps a PS analysis of this sort could work if one were to use larger units of analysis.

The plainware diversity index (Index 5) is not effective in distinguishing between elite and commoner residences. Figure 3 shows that virtually all of the sites included in the analysis fall within the 90% confidence interval, and few outliers are salient. The few cases

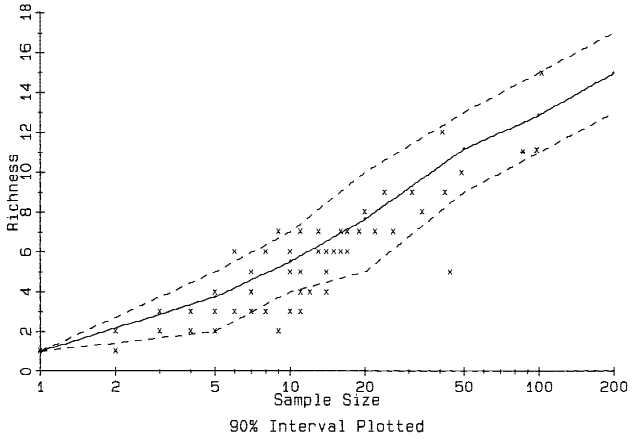


Figure 3. Richness plot for plainware diversity index. Each "x" represents one observed case. The center line illustrates the mean number of categories that occur for each sample size, based on the 500 random runs, and the dotted lines show the 90% confidence interval for the means.

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that do lie above of the upper range of the confidence interval have very small sample sizes and, therefore, are not valid indicators of eliteness. There are several potential reasons why this index was ineffective. First, we do not know how closely different ceramic forms reflect differential food consumption between elites and non-elites. A clearer understanding of the foods the Aztecs consumed and their cooking and storage procedures is necessary. Second, in most cases, a single vessel form (or, morphologically similar forms) could have been used to cook or store a variety of different foods. Third, it is often very difficult, if not impossible, to discriminate between formal traits that are functionally significant and those that convey other sorts of information (Rice 1989). For example, it is unclear whether variation in rim morphology is sensitive to functional needs, stylistic prerogative, or temporal changes in the plainware industries. The formal categories used for this analysis, based on vessel form, rim diameter, and wall thickness, may not entirely reflect functional variability.

Finally, the motif diversity index (Index 6) also does not effectively distinguish between elite and commoner residences (Figure 4). Again, only cases with very small sample sizes occur above the 90% confidence interval. This result may demonstrate the relatively high living standards of Aztec commoners, as evidenced by the presence of fine and imported commodities in non-elite residences (Smith 1994, 1996). In fact, however, many assemblages occur as outliers *below* the 90% confidence interval. The low-scoring sites may represent nondomestic or specialist contexts, very poor households, or they may be attributable to sampling error. More likely, however, the problem stems from the rather broad-stroke ("lumping") coding practices used to categorize the decorated assemblages. Perhaps a more detailed, sherd-by-sherd method of coding the decorated ceramic data is necessary in order to ascertain the full diversity of motif configurations inherent in the data set.

To conclude, I rank the five best indices as follows, from most to least effective. These rankings are based on my assessment of the correlation results.

1. Index 2b: the decorated proportion index (weighted)
2. Index 3b: Smith's (1992:301) index (bowl, *copa*, and censer proportions)
3. Index 3a: the bowl-*copa* index
4. Index 1b: the decorated count index
5. Index 2a: the decorated proportion index (unweighted)

Some indices are more effective than others, but in some cases the ineffectiveness of an index can be attributed to limitations of sample size, incompatible coding practices, or other methodological constraints. Nonetheless, this analysis underscores the persistent effectiveness of the "old standards," simple proportions of decorated and functional ceramic types, rather than the more quantitatively sophisticated indices (e.g., the diversity indices). I encourage other Aztec ceramicists to further test these and other methods of identifying elites using ceramic data from other contexts.

DISCUSSION: ELITES AT LATE AZTEC TEOTIHUACAN

In this section I apply the most effective ceramic indices to interpret intrasite spatial patterning in order to infer the social and political organization of Late Aztec Teotihuacan. I used Indices 1b, 2b, and 3b (the highest ranking indices from each viable index category) to interpret the presence of elite residences. I converted the values for each index into Z-scores and summed them together to calculate a single, composite index score for each site; Table 5 lists the site rankings based on the composite index scores.

The distribution of composite scores (Figure 5) is mostly continuous, and no significant modality is evident; it may be significant that greater gaps occur among the eight highest-ranking sites than among the remaining, lower-ranking sites, however. The continuous distribution of index scores accords with Smith's (1992, 1994; Smith and Heath-Smith 1994:361–362) analyses of rural Aztec households in Morelos. These analyses revealed a continuous nonmodal distribution of household wealth, and Smith (1994) observed a significant amount of overlap in the wealth levels of noble and commoner residences. The results reported here, along with Smith's (1994) observations in Morelos, illustrate the fluidity of wealth and privilege beyond the simple noble-commoner distinc-

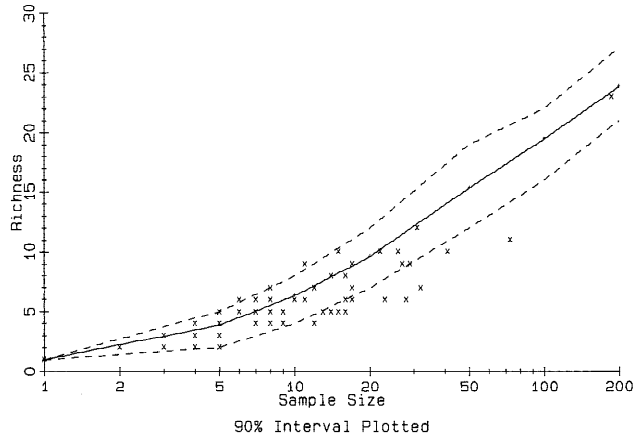


Figure 4. Richness plot for motif diversity index (see Figure 3 caption for explanation).

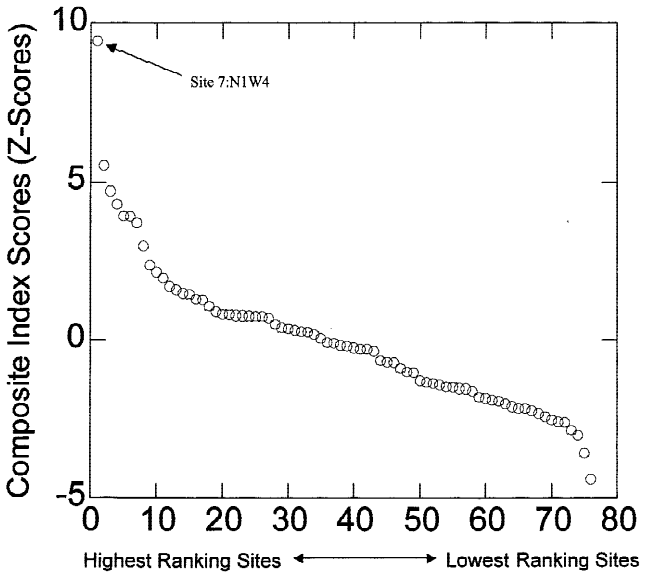


Figure 5. Distribution of composite index scores. Site 7:N1W4, the proposed *tlahtoani's* residence, is labeled.

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Table 5. Compsite index scores and site rankings (n = 76 sites)

		Z Scores					Z Scores				
Rank	Site	Index 1b	Index 2b	Index 3b	Composite Index Score	Rank	Site	Index 1b	Index 2b	Index 3b	Composite Index Score
1	7:N1W4	7.47	1.5	.47	9.44	39	11:N1W6	.68	−.32	−.55	−.19
2	L1:N3W4	.19	3.24	2.11	5.53	40	21:S1W6	−.39	−.31	.45	−.25
3	L17:N7W1	.6	2.16	1.96	4.72	41	70:N4W3	−.43	−.35	.49	−.29
4	8:N7W1	.54	1.22	2.55	4.3	42	31:N1E3	−.28	.19	−.19	−.29
5	7:N1E7	−.33	1.63	2.62	3.93	43	38:N6W3	−.18	.09	−.26	−.35
6	27:N1E3	−.24	2.43	1.74	3.92	44	9:N7W3	.02	−.56	−.11	−.65
7	1:N1E5	2.65	.38	.69	3.72	45	18:N5W2	−.2	−.42	−.07	−.7
8	47:N6W3	1.36	.55	1.07	2.98	46	41:N4E2	−.39	.13	−.46	−.71
9	37:S3E6	−.3	1.05	1.63	2.37	47	15:S1E2	−.3	.45	−1.04	−.9
10	L3:N7E1	.41	.67	1.07	2.16	48	8:N1W5	−.43	−.77	.18	−1.01
11	15:N5W4	−.28	1.28	.98	1.97	49	2:S2E1	−.43	−.71	.1	−1.03
12	9:N1W4	1.42	.2	.08	1.7	50	5:S4E1	−.24	−.39	−.66	−1.29
13	29:S6W1	.02	1.03	.54	1.6	51	61:N5W2	−.26	−.14	−.94	−1.34
14	63:N6W2	.31	.4	.78	1.49	52	22:S2E6	−.33	−.15	−.9	−1.37
15	8:N3W4	.02	1.16	.26	1.45	53	82:N6W3	−.45	−1.19	.23	−1.41
16	L18:N7W1	.33	−.18	1.15	1.3	54	17:S3E1	−.39	−.68	−.41	−1.47
17	14:N1E5	−.35	1.9	−.27	1.28	55	16:N2W6	−.3	−.23	−.95	−1.48
18	6:S6E1	−.04	.91	.2	1.07	56	50:N3W3	−.45	−1.12	.04	−1.53
19	15:S7E1	.04	1.12	−.26	.91	57	6:N1W4	−.12	−1.11	−.31	−1.54
20	23:N7W3	−.24	.22	.85	.83	58	67:N5W2	−.28	−.48	−.87	−1.63
21	L12:N7W1	.43	−.59	.97	.82	59	7:S4E1	−.3	−.36	−1.14	−1.81
22	38:S1E2	−.12	1.84	−.94	.78	60	24:S4E1	−.37	−.71	−.79	−1.86
23	L4:N7E1	−.28	.18	.88	.77	61	15:N2W6	−.45	−.57	−.89	−1.91
24	6:N1W3	.11	.78	−.13	.76	62	L2:N4W6	−.47	−1.22	−.26	−1.94
25	17:N7W1	−.22	.92	.05	.74	63	15:N2E5	−.45	−.57	−1	−2.02
26	7:S6E1	0.02	1.01	−.3	.74	64	4:N1W5	−.47	−.7	−.93	−2.11
27	4:N1W6	0	−.23	.91	.69	65	68:N6W3	−.39	−.84	−.94	−2.17
28	64:N1E5	−.14	.09	.56	.51	66	1:N6W2	−.26	−.97	−.94	−2.17
29	19:N1E5	−.33	.58	.14	.39	67	12:N1W4	−.18	−.83	−1.23	−2.24
30	L1:N4E3	−.18	−.01	.55	.36	68	1:N1W5	−.12	−1.35	−.86	−2.33
31	8:N7W2	.56	−.26	.02	.31	69	47:N7W3	−.45	−.87	−1.11	−2.42
32	38:N7W2	−.28	−.04	.59	.27	70	5:N1W4	−.35	−1.26	−.92	−2.53
33	L9:N7W2	−.37	−1	1.62	.26	71	11:N7W3	−.41	−1.12	−1.07	−2.59
34	12:N2W3	.02	.36	−.19	.19	72	9:N4E3	−.35	−.53	−1.73	−2.61
35	32:N7W2	−.39	−.86	1.29	.05	73	25:N3E3	−.43	−1.08	−1.35	−2.86
36	2:S1E6	.06	−.31	.18	−.07	74	14:N1W4	−.49	−1.24	−1.29	−3.01
37	26:N2E2	−.35	−.12	.37	−.09	75	13:N1W3	−.45	−1.64	−1.49	−3.58
38	83:N6W2	−.06	.42	−.53	−.16	76	30:N2W3	−.55	−1.75	−2.09	−4.39

tions described by many Colonial chroniclers in Mesoamerica (Chase and Chase 1992; Chase 1992; Hicks 1999:409; Lockhart 1992:94) and underscore the multidimensional nature of Aztec eliteness.

Figure 5 illustrates the eight highest-ranking sites stand out from the remaining sites; these sites appear to represent the "most elite" Late Aztec residences in the TMP survey area. I plotted these eight sites onto the TMP map (Millon et al. 1973) using a MapInfo database created by Ian Robertson, with the assistance of George Cowgill (Figure 6). The intrasite patterning of elite residences reveals several significant aspects of social organization in Late Aztec Teotihuacan. Most notably, the highest-ranking sites do not cluster in the vicinity of the probable pre-Hispanic town center (San Juan Teotihuacan) but, rather, are dispersed throughout the TMP survey area. The dispersed spatial patterning of elite residences do not support a "concentric" model of settlement and polity organization; the concentric model suggests elites reside predominantly in the urban portions of a polity, along with the civic-ceremonial district, while non-elites (predominantly peasants) reside mainly in the agrarian periphery of the polity (Chase 1992:123; J. Marcus 1983; see also Smith 1994).[9]

The dispersed intrasite patterning of elite residences at Late Aztec Teotihuacan emphasizes recent evidence from other Aztec sites for nonconcentric settlement and polity organization. Smith (1992,

[9] One caveat to this observation, however, is modern-day construction in San Juan Teotihuacan rendered many surface remains inaccessible to the TMP survey team, especially in the downtown *zocalo* region. Indeed, in many places the Colonial Spaniards constructed *zocalos*, the civic–ceremonial centers of Colonial Mexican cities and towns, atop Aztec political structures, as in Tenochtitlan-Mexico City. It is thus possible that evidence exists for a centralized political center in the vicinity of the *cabecera*, comprising mainly elite residences, but was inaccessible to the TMP survey team.

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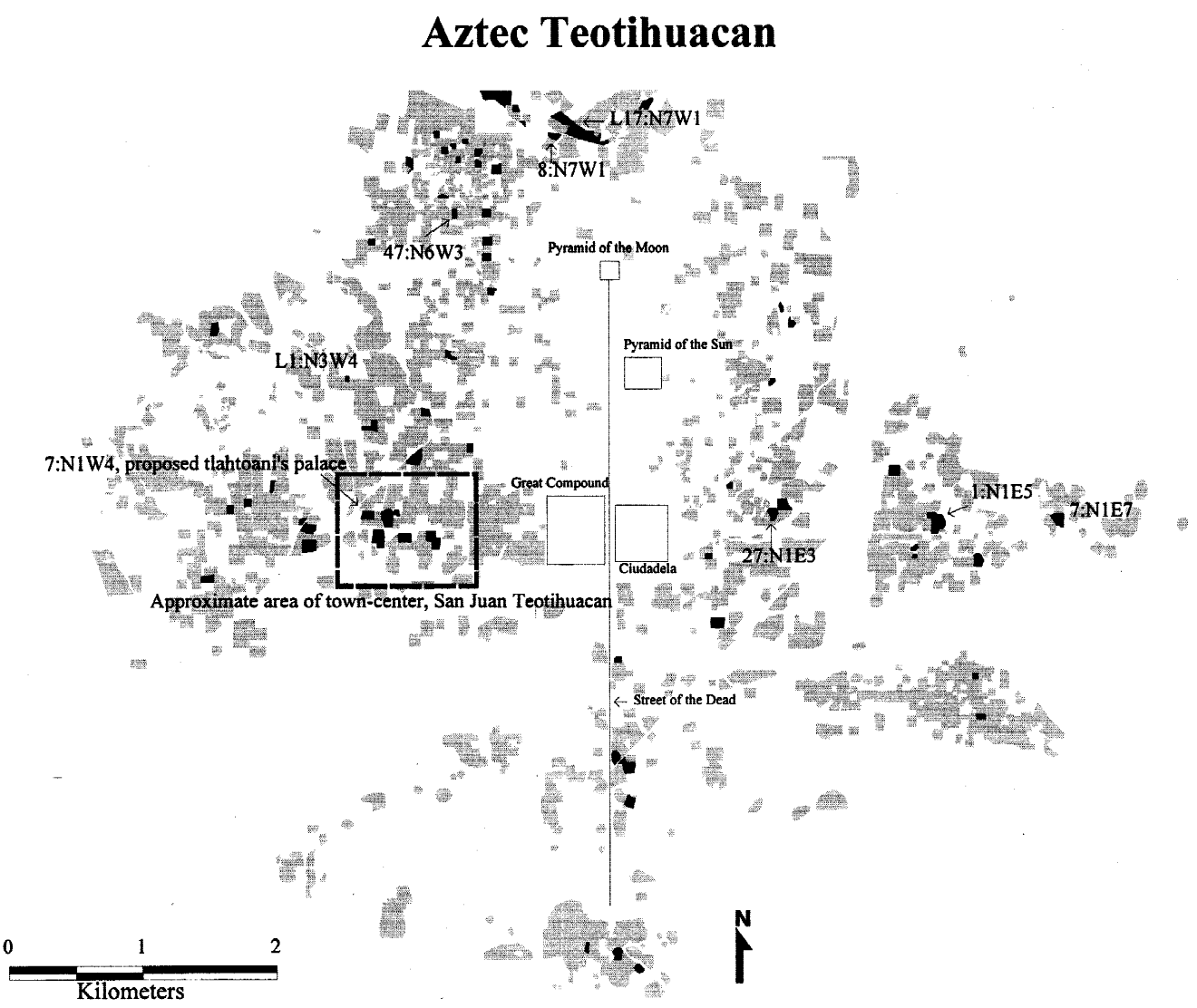


Figure 6. Spatial distribution of proposed elite residences and composite index scores in the TMP survey area. The eight proposed "most elite" sites are labeled. All sites used for this analysis are shaded in black (n = 76). Background includes all site collections with 15 or more total Aztec-period sherds (light gray). Figure based on a MapInfo file created by Ian Robertson, with the assistance of George Cowgill, using a map compiled by Millon et al. (1973); reprinted with permission.

1993, 1994, 1996), for example, identified noble-estate residences, civil-ceremonial architecture, and other evidence for social complexity in rural Morelos, thus demonstrating the presence of elites outside of the major Aztec centers. Also, Evans' (1993, 1996) excavations at Cihuatecpan, a rural Aztec settlement in the Teotihuacan valley, uncovered at least one noble-estate residence. Finally, Frederic Hicks (1982), using documentary evidence, argued against a concentric model of settlement at Texcoco, citing the presence of noble residences and a complex division of labor outside of the "downtown" region of the *altepetl*. In light of these data, he referred to the entire 80-km^2 area of Texcoco as one massive city with no agrarian periphery *per se* (Hicks 1982:244). The same statement could be made about the area encompassed by the TMP survey.

I interpret the highest-ranking assemblage, site 7:N1W4, as the *tlahtoani's* palace (*tecpan*) (Figures 5 and 6). The composite index score (9.44) for this site is far greater than any other TMP site included in this analysis. In addition to having the highest eliteness score, this site contains the highest overall Late Aztec sherd count (n = 1030), nearly twice the second largest collection (1:N1E5; n = 579). Each *tlahtoani* probably hosted dozens of feasts each year, and their palaces normally accommodated myriad functions and institutions within them (see above); therefore, one would expect exceptionally high sherd counts. Furthermore, this site is located in the Colonial and modern-day town-center of the *altepetl* and corroborates the importance of this area in pre-Hispanic times as well. Further evidence supporting this area as the *tlahtoani's* residence is the distribution of Late Aztec obsidian production loci identified by Michael Spence (1985) (Figure 7). The obsidian-producing residences Spence (1985) identified mostly cluster in the vicinity of the town center, and these households probably manufactured obsidian items for sale in the *altepetl* marketplace. Significantly, Aztec marketplaces were typically located within, or adjacent to, *tlahtoqueh's* palace compounds (Elson 1999:153; Hicks 1986).

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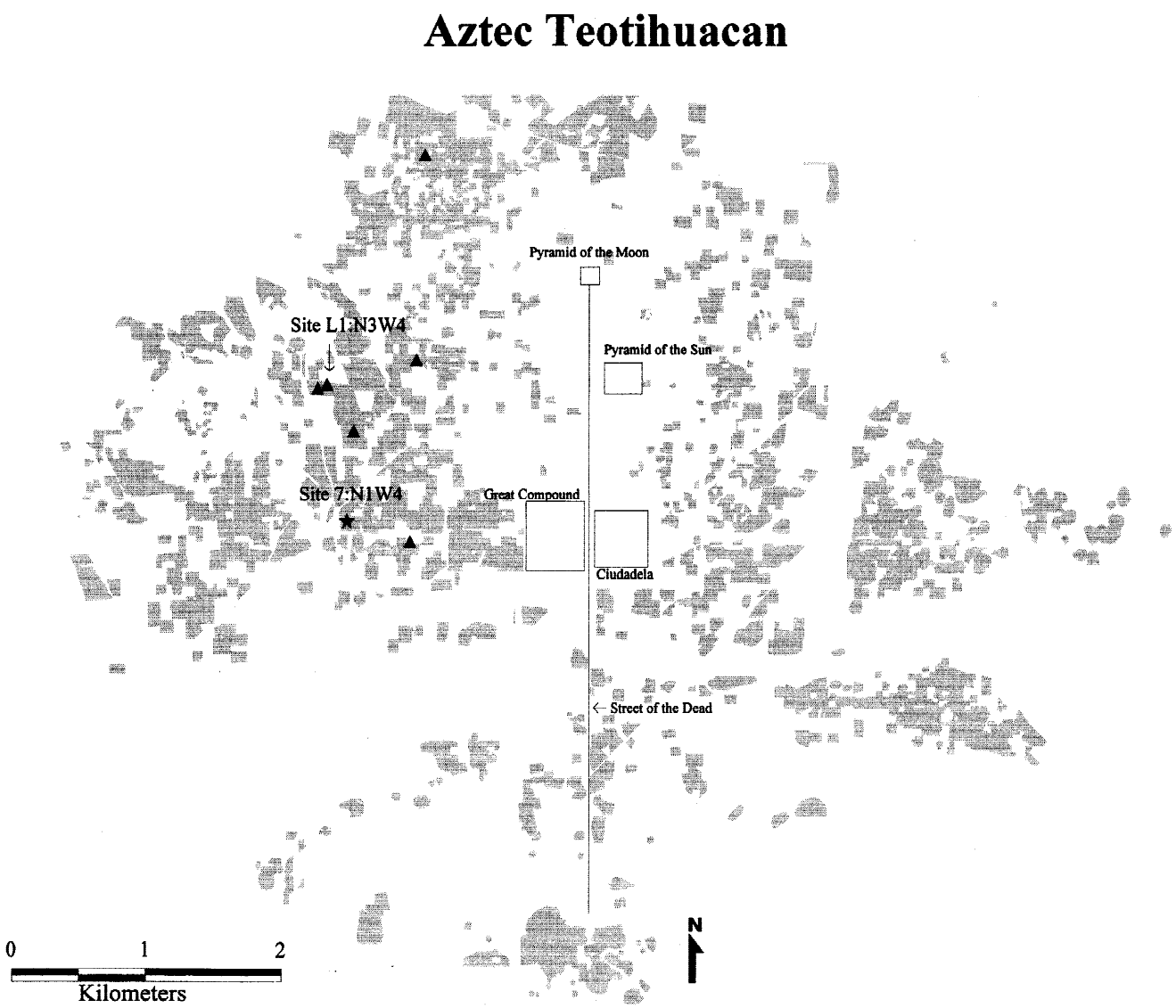


Figure 7. Spatial distribution of the Late Aztec obsidian production loci identified by Spence (1985). Site 7:N1W4 is the proposed *tlahtoani's* palace, and the *altepetl* market was probably located within or adjacent to that site. Background includes all site collections with 15 or more total Aztec-period sherds (light gray). Figure based on a MapInfo file created by Ian Robertson, with the assistance of George Cowgill, using a map compiled by Millon et al. (1973); reprinted with permission.

Four others among the eight highest-ranking sites can also be interpreted as noble-estate, and possibly rulers', residences: 1:N1E5, L17:N7W1, 8:N7W1, and 47:N6W3 (Table 5 and Figure 6). In addition to their very high composite index scores (Table 5), each of these sites possesses very high sherd counts, which would be expected at noble-estate residences where grandiose feasts would have been held frequently (Brumfiel 1987; Smith 1987). The presence of noble-estate residences in different regions of the survey area, separated by up to approximately 6 km, suggests the possibility of separate political loci or "centers" outside of the *altepetl's* primary town center, where the *tlahtoani* likely resided.

This observation conforms to historian James Lockhart's (1992) "modular" or "cellular" model of Aztec political organization. Lockhart (1992:14–28), using documentary data, posited most Aztec *altepetl* were politically decentralized and typically governed by a number of separate sub-*altepetl* leaders (from different noble lineages) who jointly comprised the *altepetl's* ruling establishment. Each sub-*altepetl* leader controlled his own constituency of lower-level nobles and tribute-paying commoners (see Carrasco 1976a; Hicks 1982, 1986, 1991; Hoekstra 1990; Lockhart 1992:96–102). The *tlahtoani*, according to Lockhart (1992:18), was merely the highest-ranking member of the *altepetl's* noble ruling establishment, and his *direct* jurisdiction did not extend beyond his own immediate constituency. Lockhart thus concluded "no governmental corporation really existed other than the sum total of the subunit heads, who represented primarily their own units" (Lockhart 1992:438; see also Hoekstra 1990).

The evidence from Aztec Teotihuacan for several spatially distinct noble-estate residences, located several kilometers outside of the main town-center, may indicate the presence of "modular," sub-*altepetl* political loci, each housing its own separate noble ruling establishment. Inferring political structure from intrasite spatial patterning is a difficult task (de Montmollin 1989; Stark 1999), however, especially given the low-resolution data set available for this

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analysis. For instance, it is difficult to distinguish archaeologically a series of separate administrative "centers" forming a modular political structure (Lockhart 1992) from a single, powerful center controlling various peripheral, lower-level administrative nodes. In the case of Aztec Teotihuacan, however, the relatively close distances between the proposed administrative loci (no more than 6 km apart) suggest a modular political structure since, if the loci were subcenters of a centralized polity, we would expect the lower nodes of the centralized system to be located at greater distances from the main center in order to more efficiently facilitate the enforcement of political policy dictated by the center (Stark 1999:219).

The second-highest ranking assemblage, site L1:N3W4, is one of the Late Aztec obsidian-production loci identified by Spence (1985). As a production facility with a high composite index score (5.53), one could interpret this site as either a wealthy merchant's residence or as a noble estate that housed a team of attached obsidian producers (Brumfiel and Earle 1987). Spence (1985:114), however, found no evidence for elite control over obsidian production; rather, he posited this site was one of several independent obsidian production loci that emerged to exploit the "augmented role of the market in local exchange" during Late Aztec times (Figure 7). In addition, he observed the modest amount of lithic debris at the site suggests part-time rather than full-time specialization (Spence 1985:92); attached specialization would more likely involve higher levels of production intensity (Clark and Parry 1990). Hence, I interpret this site as a wealthy merchant's residence rather than as a noble estate. The close proximity of the site to the *altepetl* marketplace, presumably located in the vicinity of the *tlahtoani's* palace, further supports this interpretation.

In sum, the application of the eliteness indices reveals several notable observations about the social and political organization of Late Aztec Teotihuacan. First, the continuous distribution of eliteness index scores indicates fluid "distributive systems" of wealth and status (Lenski 1966), which reflects the complex and multidimensional nature of Aztec eliteness (Hicks 1999; Lockhart 1992:94–95; Smith 1994). Second, the intrasite patterning of elite residences suggests a noncentralized, "modular" political organization rather than a centralized regime; this observation corroborates recent ethnohistorical research on the modular nature of Aztec political structure (Hoekstra 1990; Lockhart 1992). Finally, this analysis demonstrates it is indeed possible to use ceramic data to make reasonable assessments of elite presence or, at least, to generate hypotheses for further testing. More research, however, is necessary to better understand the various dimensions of Aztec eliteness; the practices through which Aztec elites socially constructed and reproduced distinctions in wealth, power, and estate; and how we can better decipher these practices archaeologically.

RESUMEN

En este artículo exploro la naturaleza compleja y multidimensional de la organización social Azteca y, específicamente, el concepto de "elitismo," ya que éste se aplica a los Aztecas. Discuto *porque* podemos hablar de las "élites" Aztecas y *como* podemos detectarlas usando datos de la cerámica. Argumento que el elitismo Azteca involucra por lo menos tres "dimensiones" sociales: el *poder* político (control sobre las acciones humanas), la *riqueza* material (control sobre los recursos materiales), y el *estamento* (refiriéndose a las posiciones de estatuas heredadas [Carrasco 1982:28; Hicks 1986]). A pesar de la naturaleza multidimensional del elitismo, es posible distinguir arqueológicamente élites Aztecas definiendo los atributos y las variables cerámicas que reflejan de mejor manera las prácticas de dar festines, una de las prácticas primordiales que usaron los Aztecas para construir y reproducir socialmente relaciones desiguales de poder, riqueza, y estamento. Por lo tanto la cerámica sirve como uno de los medios principales através del cual se dieron "comunicaciones" cargadas política y socialmente entre los Aztecas.

Defino y evalúo seis índices cerámicos de elitismo usando datos cerámicos del postclásico tardío (cerca de 1350–1520 d.C.) de Teotihuacán, un *altepetl* (ciudad-estado) Azteca localizado hacia el noreste de la Cuenca de México. Los datos cerámicos provienen de las colecciones de superficie del Teotihuacan Mapping Project (TMP), dirigido por René Millon en la década de los 60 s (Millon 1973; Millon et al. 1973). Los seis índices son: 1) conteo de cerámica por unidad residencial; 2) proporciones de tiesto decorados por unidad residencial; 3) proporciones de tazones y otras vasijas de servicio por unidad residencial; 4) el número de pasos requeridos para producir un tipo cerámico decorado dado; 5) la diversidad de las formas de losa común; y 6) la diversidad de los motivos decorativos. Evalúo estos índices cuantitativamente para determinar los indicadores de elitismo Azteca más efectivos. Concluyo que los tres indicadores mejores son: 1) la proporción de tiestos decorados, evaluados de acuerdo a la relativa finura de su decoración; 2) la suma de las proporciones de los tazones y los incensarios (basado en Smith 1992:301); y 3) el total de la cuenta de tiestos decorados por contexto residencial.

Utilizo los índices de elitismo más efectivos para interpretar patrones espaciales dentro de las residencias de la élite en el postclásico tardío de Teotihuacán. Calculo los parámetros del elitismo de cada colección de cerámica del TMP (la cual representa una de varias de las unidades domésticas Aztecas) y los organizo por rangos. La distribución de los parámetros de elitismo proporciona varias observaciones importantes acerca del *altepetl*. Primero, la distribución continua de las colecciones arregladas de acuerdo a su rango sugiere una organización fuida y compleja, sin distinciones marcadas entre las residencias de la élite y de los grupos que no pertenecen a este grupo social. Segundo, la distribución espacial interna de las residencias de la élite dentro del área en la que el TMP llevo a cabo su prospección sugiere una organización política descentralizada o "modular," en vez de un régimen político centralizado (Lockhart 1992). Finalmente, este análisis demuestra que es posible hacer aseveraciones razonables de la presencia de la élite en el registro arqueológico usando datos cerámicos, un componente común en la mayoría de las colecciones arqueológicas mesoamericanas.

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