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Aztec craft production and specialization: archaeological evidence from the city-state of Otumba, Mexico

Thomas H. Charlton, Deborah L. Nichols and
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'I must now speak of the skilled workmen whom Montezuma employed in all the crafts they practised' (Díaz del Castillo 1963: 230).

Introduction

Aztec craft products are known both from contemporary sixteenth-century descriptions (Cortés 1962; Díaz del Castillo 1963; Sahagún 1979), and from discoveries of archaeological materials during the almost five centuries since the conquest (Boone 1987; Marquina 1960; Matos Moctezuma 1979; 1982; Reygada Vértiz 1935). The physical characteristics and, to some extent, the processes of production, for such common and luxury items as ceramics, fabrics, figurines, grinding stones, lapidary work and obsidian tools are known. Until recently, however, *lacunae*, real or perceived, existed in our knowledge about the technical details of production and, more importantly, about the loci and organization of production as well as the distribution of the products.

As a result there has been significant debate about the location, degree of specialization, and contribution of craft production and distribution to political development in the Basin of Mexico during the period AD 1150–1519. Two general models have been advanced to account for the development and functioning of city-states in the Basin of Mexico during this period after the demise of Tula.

One of these argues that initial developments (AD 1150–c. 1350) were based upon the role of the city-state in co-ordinating the production and distribution of both agricultural and non-agricultural goods within a local area in association with a rapidly expanding population (Sanders 1956; 1965; Sanders et al. 1979: 156; Evans 1980a). Subsequently (c. AD 1350–1430), through warfare and alliances, these units became integrated into increasingly larger state systems that culminated in the macro-state system of the Triple Alliance. However, the city-state centres retained their functions as local centres of production and distribution (Blanton et al. 1981: 168; Smith 1979).

The second model, based upon Brumfiel's surface surveys and collections at Huexotla (1976; 1980; 1983) and Xico (1986; 1987; Parsons et al. 1982), and Berdan's ethnohistoric studies (Berdan 1975; 1982; 1987) raised questions about the degree of initial economic differentiation within these centres and the significance of economic symbiosis with regard to

both their development and their roles within the Triple Alliance. This model suggests that craft production was either non-specialized or a part-time activity at Huexotla and Xico, 'an established pattern that the political integration of central Mexico during the Aztec period did little to alter' (Brumfiel 1987: 109). Full-time craft specialists resided in urban areas such as Tenochtitlan and Texcoco (Berdan 1982: 26). After AD 1430 additional city-state centres developed within the Triple Alliance as a result of decisions from the top down to create local administrative units necessary to direct complex trade and redistribution networks (Sanders et al. 1979: 156). In this model neither the initial development of autonomous city-states nor their subsequent incorporation into larger political units, including the Triple Alliance, was associated with local symbiosis involving full-time craft specialists.

Our recent research (1987–9) within the Aztec city-state of Otumba and some of its dependencies in the northeastern Basin of Mexico (Fig. 1) was designed to obtain data relevant to an evaluation of these alternative models of the role of craft specialization in Aztec city-state development. The results substantiate and elaborate upon the earlier findings that there is significant archaeological evidence of intensive and specialized craft production within the city-state centre of Otumba (Fig. 2).

The goods produced include obsidian cores, prismatic blades, and bifaces, ornaments of obsidian and rare stones, figurines, ceramic censers, spindle whorls (and their moulds), fibres, and groundstone implements. All production was household-based. Workshops occur in households widely separated from each other (obsidian cores and blades, groundstone tool production), and in households loosely (lapidary workshops) or tightly (fibre spinning and figurine production) congregated into extensive wards or *barrios*. Significant spatial overlap occurs between the craft wards identified. Some production also occurred in non-workshop household contexts scattered throughout the site area (cotton fibre spinning), or restricted to a defined zone (censer manufacture). The only evidence of specialized production of non-comestibles in outlying dependent sites consists of debris from the manufacture of obsidian bifaces in several sites (Evans 1988; Parry 1990), and maguey fibre spinning and lapidary production in one immediately adjacent site (TA-39). Workshop and non-workshop products were distributed for local, regional, and extra-regional consumption through the market system, the tribute system, and the *pochteca*, a guild of professional merchants.

In this paper we detail the findings of our recent research in the Otumba city-state and discuss the implications of our results for Aztec political and economic development in the Basin of Mexico.

Physical setting

The Otumba city-state is located in the eastern end of the Teotihuacan Valley, a sub-valley within the Basin of Mexico (Fig. 1). The archaeological site of the city-state centre (TA-80, Otumba), covering approximately 220ha, is located on the edge of a gently sloping piedmont just above the middle Teotihuacan Valley alluvial plain, 12km east of the Early Classic period city of Teotihuacan. Dependent tributary settlements are found on the piedmonts north, east, south, and southwest of Otumba. Interspersed with them were *calpixqui* districts under the control of Texcoco (Evans 1980b: 284). The region lacks permanent rivers and springs. All

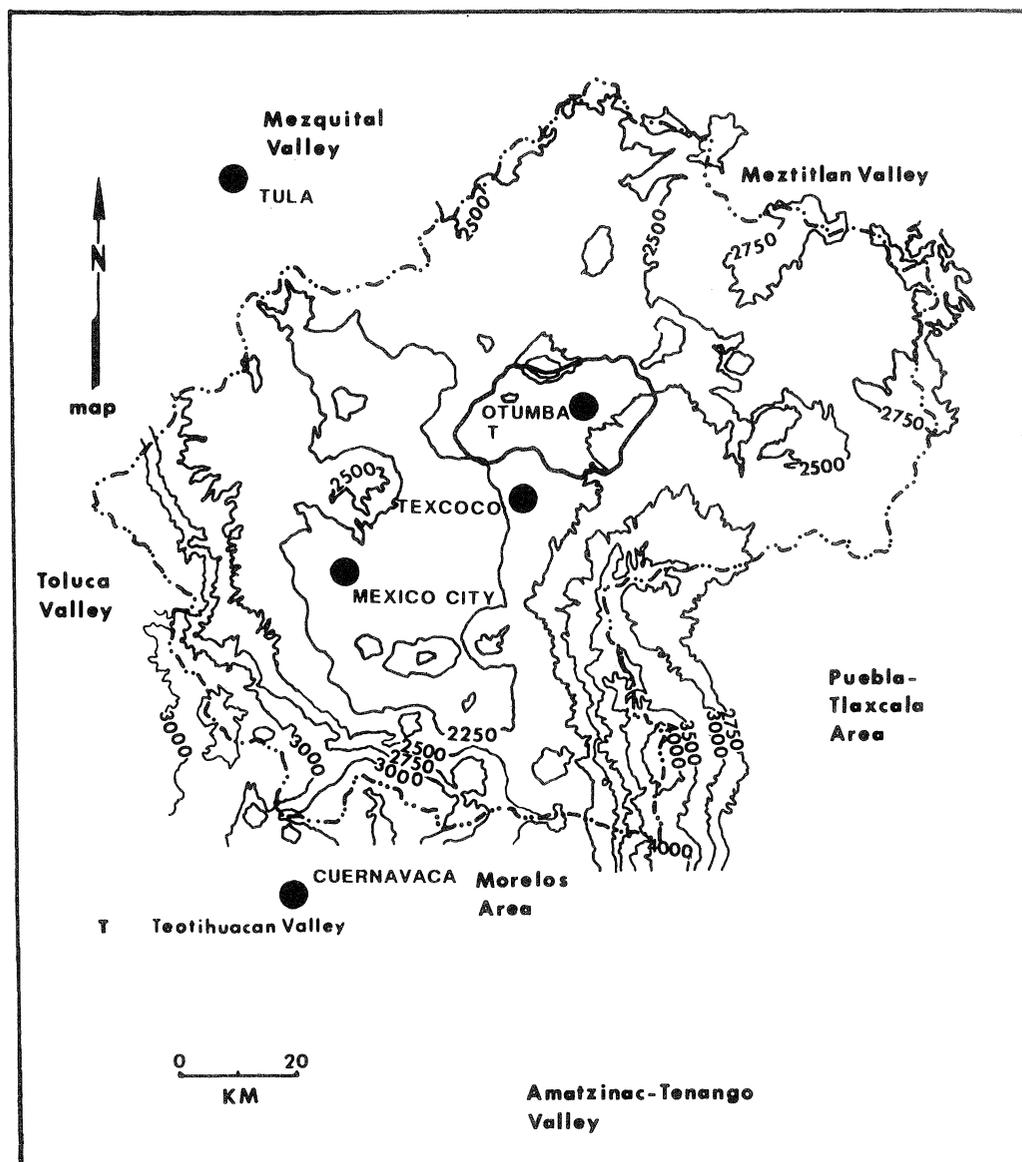


Figure 1 The Basin of Mexico and adjacent areas of the central highlands. (Base map after Lorenzo 1968: 54, Fig. 1.)

cultivation depended upon the relatively low annual rainfall in the region (Lorenzo 1968), some of which was diverted from the seasonal drainages into canals for floodwater irrigation (Charlton 1990). The city-state area encompassed the Otumba obsidian source area, one of the major sources of obsidian in central Mexico (Charlton and Spence 1983: 39–50).

Ethnohistory

Documentary sources make only brief mention of Otumba and nearby communities. After Xaltocan's defeat by Azcapotzalco in 1395, Techotlalatzin of Texcoco (AD 1357–1409) (Offner 1979) relocated Otomi refugees at Otumba (Otompan) (Gibson 1964: 10; Ixtlilxochitl 1965, II: 78). By the early 1400s Otumba was a substantial settlement and the scene of continuing warfare and unrest where at least two battles took place (c. AD 1415 and 1418) prior to the formation of the Triple Alliance (Davies 1973: 57; Hassig 1988: 136–9; Ixtlilxochitl 1965, I: 167–8, II: 82–3). Since documents written in the fifteenth and sixteenth centuries usually present the viewpoint of the major Triple Alliance centres (Nicholson 1978), it is not surprising that they omit details of the history of small city-states such as Otumba (cf. Offner 1983). Consequently, many of the questions posed about the development of city-states and their roles within the Triple Alliance can only be answered with archaeological data.

Background

We conducted research at sites within the Otumba city-state during three field seasons: January, 1987; July to December 1988; and February to June 1989 (Charlton 1987; 1988; Charlton and Nichols 1989; 1990). Laboratory analyses of the recovered materials began during the field seasons and are continuing. Our studies are based on research directed by William T. Sanders in his Teotihuacan Valley Project (Sanders 1965) that included surveys and collections at the city-state centre of Otumba and at numerous rural sites.

Although Tolstoy visited the southwest area of TA-80 and made one collection there and another from outside the site area to the west (1958: 72), Mather's survey of the city-state centre of Otumba (TA-80) in 1963 was the first to report craft specialization at an Aztec city-state centre (Mather 1968; Sanders 1965). He located and defined two obsidian core-blade workshops and one area of figurine moulding during his mapping of the residential and civic-ceremonial areas of the site (1968: 163).

Between 1968 and 1978 T. H. Charlton directed two projects which fell in part or entirely within the Otumba city-state area. Both yielded additional information on the locus, scale, variability, and extensiveness of craft production in the Otumba city-state (Brodkey 1978; Charlton 1971; 1972; 1975; 1977; 1980; 1981; Wiltfang 1975). By 1981 it was obvious that the data from Otumba indicated substantial Aztec craft production at a level of intensity greater than the non-specialized or part-time activities described by Brumfiel for Huexotla and Xico (1987: 109). Our recent project supports and expands these conclusions.

Research methodology: 1987–9

In 1987 we began a multi-staged research project in the Otumba city-state area in order to determine: (1) the intensity and sequence of craft activities, and any economic symbiosis represented in the archaeological record at Otumba and at some dependent sites; (2) the dimensions, importance and sequence of floodwater irrigation at Otumba; (3) the size and

sequence of development of the nucleated core at Otumba; and (4) changes in these through time with reference to demographic, political, and economic events from AD 1150–1620.

We resurveyed and mapped the site of Otumba (TA-80) and, when possible, some of the dependent sites. At Otumba we divided the site map into 972 50m x 50m sampling strata and, using a table of random numbers, selected one 5m x 5m square from each stratum to collect. Of the 972 strata selected we were able to make collections at 794. Thus we sampled 1.985km² of the site area. We collected an additional 4 per cent random sample (294 collections) from strata where craft activities appeared to be intense. When random sampling missed mounds or unusual artifact concentrations we made sixty-two non-random collections. Otumba is one of the most intensively sampled sites in the Basin of Mexico.

After examining the condition of Otumba's tributary settlements we selected sites within three areas of the city-state at varying distances and directions from Otumba. Our collections focused on undisturbed areas where we collected at least one 5m x 5m square from each mound and artifact concentration for a total of 206 collections. We did not choose the squares to be collected on a random basis due to factors of preservation and access. However, since the Aztec occupation of these sites is typically dispersed, with mounds or mound remnants separated by areas of sparse artifact densities, relatively little additional information would have been gained by sampling intervening zones (Charlton and Nichols 1989; 1990).

Although our limited resources precluded the use of a sampling fraction greater than 1.4 per cent, which we knew was inadequate for discovery mode sampling, our goal was to obtain a representative sample of artifacts, not to discover small localized concentrations. Survey intensity is of equal importance in the identification of such concentrations (Nance 1981; 1983; Plog et al. 1978; Schiffer and Wells 1982). Previous systematic surveys had already identified most of the workshops and mounds at Otumba. These were supplemented by our walking over the site area once more while making collections. Few Aztec sites of this size have been subjected to observation by so many pairs of archaeologically trained eyes.

Within TA-80, Otumba, we excavated, or made intensive surface collections at four areas of craft production (core-blades, fibres, figurines, lapidary). Excavation techniques included both test pits and broad horizontal exposures. We also excavated two areas within the nucleated core of the site to determine the stratigraphy and sequence of construction, and one area where we had located irrigation features (Charlton and Nichols 1989; 1990).

Craft specialization at Otumba

We have defined craft activities on the basis of the raw materials worked, the tools used, the debris left behind, and the final products. The weighting assigned to each of these in craft definition is industry specific. In this discussion we identify the industries on the basis of the raw materials worked and then present a description of the tools, debris, and final products characteristic of each industry. The level of production, full-time specialized workshops as opposed to part-time craft production, is based on the volume of tools and manufacturing debris encountered (cf. Clark 1986; 1988; Clark and Parry 1990).

The obsidian industries

Craft industries using obsidian primarily from the Pachuca source area but also from the Otumba source area (Charlton and Spence 1983) are represented at Otumba by core-blade workshops and lapidary workshops. Outside of Otumba biface production using Otumba source area obsidian occurs at several sites (Charlton and Nichols 1990; Parry 1990), while lapidary production is present in one site immediately adjacent to Otumba. In the production of prismatic blades and lapidary items a high degree of skill and expertise based on a long learning period is required.

Core-blade and biface workshops

The production of core-blades at Otumba and bifaces at dependent sites is defined by anomalous dense concentrations of obsidian debris from their manufacture in excess of those consumed at the locus of production. Diagnostic tools such as hammer-stones have not been identified. Concentrations indicative of core-blade manufacture occur in the core of Otumba, immediately north of the core, in the southeastern periphery of the site, and south of the site (Fig. 2). Obsidian concentrations from biface production are absent from Otumba but occur in several dependent sites. Parry (1990) has defined workshops on the basis of the absolute densities of obsidian in the collections, the proportion of obsidian to the total ceramics, and the proportion of tool manufacturing debris to tools within the collections. Although it is possible that these represent not loci of production, but rather areas where unwanted debris was dumped, our excavations suggest that debitage was not transported any great distance from the locus of production.

Excavations in one concentration of green obsidian debitage in the core (Fig. 2) revealed a household-based prismatic blade workshop. The debitage was dumped, with other household debris, in an area between two residences. Blades and exhausted cores were associated with post moulds, an altar base, and primary deposits of domestic refuse (Healan et al. 1990). Analyses by Parry (1990) indicate blade production in excess of household use.

The primary finished products in Otumba were obsidian prismatic blades, and in the outlying sites, bifaces. These tools were consumed by households in Otumba and other sites within the city-state area, as well as by communities outside the Otumba city-state (Parry 1990). Within Otumba workshops producing and spinning maguey fibres made heavy use of obsidian blades, while the lapidary workshops consumed recycled cores as raw materials for tools and for jewelry. The close association of all but three of these core-blade workshops with the nucleated core of the site suggests a significant component of elite involvement in the industry, through procurement of raw materials and in the distribution of the finished products.

Lapidary workshops

Although the primary raw material in the lapidary workshops is obsidian, other materials such as chert or chalcedony, turquoise, and rock crystal were also utilized. Lapidary workshops are identified primarily on the basis of a unique complex of tools, blanks, and partially completed



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|--|--|--|-------------------------------|
| | Site Boundary | | Lapidary Workshops |
| | Barranca Drainages | | Figurine Workshops |
| | Nucleated Core (Elite Residential Area) | | Maguey Fibre Workshops |
| | Core-blade Workshop (Pachuca Obsidian-Green) | | Isolated Spindle Whorl Moulds |
| | Core-blade Workshop (Otumba Obsidian-Gray) | | Censer Moulds |
| | Groundstone Workshop (Basalt) | | |

Figure 2 The Otumba city-state centre (TA-80) with areas of craft production and elite residence marked.

products such as ear spools and labrets. The primary tools are perforators, made from exhausted obsidian prismatic blade cores or chert, and polishers, made from flat sections of basalt with at least one convex edge. The perforators served to peck holes in ear spool blanks and then to grind and polish the interior of the holes. The basalt polishers were used to polish the exterior of ear spools, labrets, beads, and sequins. The discarded broken and partially finished products include partially perforated obsidian ear spool blanks made from exhausted prismatic blade cores, lip plugs, beads, and sequins broken during chipping, polishing, or drilling. The lapidary workshops exhibit densities of obsidian debris much lower than those encountered in core-blade and biface workshops (Otis Charlton 1990a; 1990b).

Excavations in one concentration of lapidary tools and debitage revealed traces of a residence associated with trash pits into which domestic and lapidary production refuse had been thrown. In addition there was a high density of fine ground obsidian in the deposits. It is reasonable to suggest that lapidary production was household-based and that the concentrations of tools and debris are found close to the production loci.

Lapidary workshop activity was directed primarily to the production of obsidian ear spools, labrets, and flat beads. Some chert and obsidian projectile points were also made but on a minor scale. Green obsidian (Pachuca) was preferred, although some grey obsidian (Otumba) also occurs, especially in the manufacture of labrets and beads. These items were produced for consumption by local, regional and extra-regional elites. Very few labrets and ear spools have been found at Otumba, either on the surface or in excavations, suggesting that most were exported. At Otumba the craft may have been under the direct control of elite patrons who provided raw materials and who controlled the final disposition of the products. Distribution may have been through tribute to local and regional elites, and through the *pochteca* to more distant elites (Sahagún 1979).

Unlike the isolated core-blade workshops, lapidary workshops occur in loose contiguous concentrations of household-based workshops forming a ward or *barrio* (Fig. 2), suggesting a possible *calpulli* basis to the craft activities. There is some overlap with similar zones of maguey fibre spinning workshops and figurine workshops. Households in the overlap zone may have participated in multiple occupations depending upon demand, or may have shifted the focus of their productive activities through time. In addition to the *barrio*-like concentration of lapidary workshops there is also evidence of five household-based workshops short distances from the larger concentration (Fig. 2).

The basalt industries

Basalt, available in numerous local outcrops, was worked in three widely separated areas of the Otumba city-state centre (Fig. 2). Workshop identifications are based on anomalous concentrations of basalt percussion flakes, the presence of partially finished domestic grinding tools such as *manos* and *metates*, and some tools, such as picks and abraders, used to make them (Biskowski 1990a; 1990b). In addition, tools for two other craft industries at Otumba were apparently made at one of the groundstone workshops (Fig. 2). Both are based on thin (5–15mm) flat slabs of basalt. One, used to remove fibres from the maguey (Parsons and Parsons, in press), has a sharpened edge; the other, used to polish lapidary products, has at least one convex edge (Otis Charlton 1990b).

Although we did not excavate a workshop producing groundstone basalt tools, the surface

distributions and associated domestic ceramics suggest that this industry was household-based and organized. The pattern of distribution of the three workshops is similar to that of the obsidian core-blade production but the number of workshops is much lower. This is directly related to the small number of specialists necessary to fulfil the demand for groundstone products (Biskowski 1990a). These products were probably distributed through the local market system to households at Otumba and dependent sites, as well as to the relevant industries using the tools.

The ceramic industries

We identified ceramic industries through the presence of moulds and, in some cases, manufacturing errors and finished products. Occasionally clay, the raw material used, may be encountered in excavations in an unmodified form, but never on the surface. Figurine moulds occur in dense concentrations, while those used to make spindle whorls and censers are usually found in reduced numbers. Manufacturing debris from all types of moulded clay production has been found; however, no kilns have been located. All of these industries are united through a relatively uncomplicated technology. Although a certain degree of skill is necessary during the various stages of production, the technical skill required does not equal in complexity that needed in the core-blade or lapidary industries.

Most of the work is time consuming rather than technical. Basic to production is the excavation and preparation of locally available clay prior to forming the various artifacts in open moulds. Once removed from the moulds and trimmed, retouched, or incised as necessary, the artifacts must be protected against differential or overly rapid drying which would result in the cracking of the clay body. When thoroughly dry the artifacts are fired. Some cracking in spindle whorls and figurines from Otumba has been noted, although it appears to have been very uncommon. Firing temperatures for all of these artifacts were quite low and could have been achieved without permanent kilns. The figurines and censers were painted after firing.

Censer manufacture

The moulds used to make the bowls of two styles of long-handled censers are found in low densities within a restricted region of the core area of the Otumba site (Fig. 2). These are simple bowl-shaped moulds, with incised or impressed interior designs, which create a raised decoration on the exterior surface of the censer bowl once pressed into the mould. No manufacturing errors have been noted from the surface collections. However a dense concentration of apparent censer rejects, without moulds, was encountered in an excavation within the figurine workshop area. Similarly, some evidence from the excavated figurine household-workshop suggests the manufacture of the serpent-headed censer handles.

The moulds occur in low frequencies in the western section of the core and in adjacent areas. Censer production was a household-based part-time craft activity, possibly associated with religious specialists. The excavated materials from the figurine workshop zone might indicate a more specialized production of at least some parts of the censers, such as the elaborate serpent heads. This would be consistent with the mixed production strategy

apparent in the lapidary workshops. The low level of firing and poor finish of the censers is consistent with part-time non-specialist production. Distribution was probably through the local market system to all city-state households. Censers regularly form part of the domestic ceramic complex.

Spindle whorl manufacture

Moulds used to produce both the large Type I spindle whorls to spin maguey fibre and the small Type III spindle whorls to spin cotton (Parsons 1972; 1975) also occur at Otumba (Fig. 2). The moulds are the primary artifact used to define this production, although some spindle whorl manufacturing errors have been found (Nichols 1990; Nichols et al. 1990). The moulds are small, concave forms with a centre hole, and occasionally exterior incised designs (Type I moulds). The clay used to form the spindle whorl was pressed into the concavity and a stick centred through the hole in the mould into the clay to create a hole for the spindle. It is possible that the design on the exterior of the mould was used as a guide for the design incised into the exterior surface of the whorl after moulding and before being dried for firing.

The spindle whorl moulds occur primarily in the southeast section of the site, within the figurine manufacturing zone, the fibre spinning zone, or immediately adjacent to them. The manufacture of Type III spindle whorls may have been part of the manufacturing repertory of the figurine zone. The Type I whorls were manufactured within the maguey fibre spinning zone (Fig. 2), as evidenced by the large numbers of moulds found there associated with some deformed Type I spindle whorls. This production was at a low level of intensity, but sufficient to fulfil the needs of Otumba and the dependent tributary sites for such tools. The production was probably distributed through the local market system. Spindle whorl production within spinning workshops also occurs at Huexotla.

Figurine workshops

We have defined these on the basis of the co-occurrence of unusually high concentrations of figurine fragments and mould fragments. Some, but not many, of the figurine fragments are rejects or manufacturing errors. These are not common because most would fail when being removed from the mould, a point in the production process when the clay body is still very plastic and can be easily reworked and reused. Additional criteria for the definition of figurine workshops include exact duplicates of figurines, small quantities of fired and unfired clay lumps, and some possible smoothing or burnishing tools of fired clay or stone found in the excavations.

Excavations within the figurine manufacturing zone clearly established the household context of figurine production (Otis Charlton 1990a; 1990c). Moulds, figurine fragments, some finishing tools, and pigments were located within a domestic residential structure. Although figurines made from open-backed moulds were the major product of the workshops other ceramic artifacts were also produced. These include marbles, clay balls, rattle balls, rattles, stamps, Type III spindle whorls, and possibly serpent-handled censers.

Although some figurine moulds occur widely scattered south of the barranca most figurine production took place within household-based workshops concentrated into a single *barrio* or ward in the southeast section of TA-80 (Fig. 2). This concentration of figurine workshops

overlaps similar concentrations of spinning and lapidary workshops, all of which may have been *calpulli*-based. Production of figurines was enough to supply both Otumba and the dependent sites. It is probable, given the ubiquitous nature of figurines in the archaeological record, that there was a high enough demand to keep full-time craftsmen occupied. Unlike the core-blade and lapidary workshops these workshops were probably independent producers, working in a public context for payment through a public currency. The figurines would have been distributed through the local city-state market system.

The fibre industries

We have identified these industries primarily on the basis of the spindle whorls, the clay weights used in spinning cotton and maguey fibres (Parsons and Parsons, in press; Parsons 1972; 1975). Other criteria include the presence of ground basalt tools used in removing fibres from maguey, and unusual concentrations of notched prismatic obsidian blades whose precise role in maguey fibre production we have not yet determined. Cotton was not grown in the Basin of Mexico but acquired from Morelos through trade and tribute (Smith and Hirth 1988). Maguey are ubiquitous in the Otumba region and were grown and processed locally. Given the different sources of raw materials and the organization of the spinning of the two fibres (see below) it is possible that there was elite involvement in more aspects of cotton spinning than in maguey fibre processing and spinning.

Cotton fibre spinning

The distribution of small (Type III) spindle whorls throughout the site area with no concentrations indicates that the spinning of cotton, and perhaps the weaving of cloth, took place in most households. Excavated data confirm the pattern described by the random surface collections. This would be a household-based non-specialist production of cotton thread, and possibly cloth. This pattern is consistent with the ethnohistoric data (Berdan 1987). The raw materials were acquired through the tribute and regional market systems and the finished products were similarly distributed, both within and outside the city-state.

Maguey fibre workshops

The distribution of Type I spindle whorls in Otumba and an adjacent site, TA-39 (Wiltfang 1975), contrasts with that of the Type III spindle whorls. It suggests that the production of maguey fibre, thread, and possibly cloth, took place in household-based workshops with full-time specialists. These workshops were located in four or five contiguous clusters forming a *barrio* or ward in the southeastern section of Otumba (Fig. 2). Although we did not excavate any of these workshops, the association of domestic pottery supports their being household-based (Sulica 1989). The concentration of workshops suggests that these specialists were probably organized as a *calpulli*, similar to those engaged in figurine and lapidary production. A few scattered Type I spindle whorls do occur outside this zone, but only one additional small cluster may be present in the southwestern portion of the site.

Although the major product of these workshops was maguey thread, and possibly cloth,

there is some evidence for the manufacture of figurines, and lapidary items, possibly as secondary activities. The materials produced were distributed through the city-state market system and through the tribute system.

Conclusions

The development of intensive workshop and extensive non-workshop craft activities at Otumba correlates with the definitive appearance of an elite in the core area of the site, beginning in the late fourteenth century and continuing through the fifteenth century to the arrival of the Spaniards. The intensification of full-time specialized craft production at this time contrasts with the previously described situation at Huexotla (Brumfiel 1976; 1980; 1983) and Xico (Brumfiel 1986; 1987; Parsons et al. 1982). The variety and number of Late Aztec craft workshops at Otumba exceeds those of any other city-state centre studied in the Basin of Mexico to date. The complexity is also evident in the variety of organizations present for raw material procurement, productive activities, and product distribution. What are the implications of these findings for the two models of city-state development discussed at the beginning of this paper?

We suggest that the two models are not mutually exclusive but describe different aspects of exceedingly complex developments (Hassig 1985; Nichols and Charlton 1988; Sanders et al. 1979: 180). In the Early Aztec period each city-state located in a core area, within a radius of about 30–5km from the approximate centre of Lake Texcoco, would have had a solar market system into which non-local products entered horizontally. In the periphery to the north and the northeast, the more widely spaced city-states had similar economic systems but with a heavier emphasis on non-subsistence craft production.

Following the formation of the Triple Alliance all communities within a 30–5km radius of Tenochtitlan intensified agricultural production, possibly to the exclusion of all specialized craft activities except salt production. Craft production of utilitarian and elite goods within this core became centered at Tenochtitlan. Their production elsewhere declined as at Huexotla. Outside this core, production of items such as obsidian blades and bifaces, lapidary work, groundstone, figurines, and thread became accentuated at those city-states previously in existence, such as Otumba. The local solar marketing system was maintained and the regionally specialized products were integrated into the Tenochtitlan-centred market and tribute system or into the pochteca long-distance trading system.

Thus, neither the economic patterns evident at Otumba, nor those at Huexotla and Xico, are mirrors of the whole. Each is but a fragment of a complicated Basin-wide pattern of post-Tula city-state political and economic evolution.

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Abstract

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Aztec craft production and specialization: archaeological evidence from the city-state of Otumba, Mexico

Recent (1987–9) archaeological research within the Aztec city-state of Otumba located in the northeastern Basin of Mexico has provided data relevant to a consideration of the role of craft specialization in the evolution of city-states between the fall of Tula (c. AD 1150) and the arrival of the Spaniards (AD 1519). Designed to evaluate alternative models of such evolution the investigations have confirmed the presence of extensive archaeological evidence for craft specialization in the city-state centre of Otumba. Items manufactured at the site include obsidian cores, prismatic blades, and bifaces, ornaments of obsidian and rare stones, figurines, ceramic censers, spindle whorls (and their moulds), fibres, and groundstone implements. Craft specialization at rural dependencies was more restricted. The results of the project shed important light on the intricacies of the Aztec economic system.