CERAMICS OF
POSTCLASSIC
CHOLULA, MEXICO

Typology and Seriation of Pottery from the
UA-1 Domestic Compound

Geoffrey G. McCafferty

As the center for the religious cult of Quetzalcoatl, Cholula played a prominent role in shaping events of central Mexico's Postclassic period. Yet confusion over historical events in Cholula itself have limited its place in recent archaeological considerations of Mesoamerica. Since ceramic sequences are the backbone of archaeological chronologies, this confusion ultimately relates to problems in previous attempts to order archaeological time with ceramics.

This book provides an innovative new classification of Cholula ceramics, based on artifact assemblages from primary depositional contexts recovered from the UA-1 excavations. A detailed and well-illustrated description of ceramic types is provided to construct a new classification system. These types are then seriated using collections from house floors and trash middens to suggest a new sequence spanning the Tlachihualtepetl (700-1200 CE) and Cholollan (1200-1550 CE) periods.

The polychrome ceramics of Cholula have been described as among the most beautiful of Mesoamerica, employing vibrant colors to represent complex religious iconography of the Mixteca-Puebla stylistic tradition. By defining type and subtype variations in the polychrome ceramics, a foundation is created for a refined chronology as well as for recognizing intra-societal variability.

Geoffrey G. McCafferty's interest in the archaeology of Cholula stems from undergraduate and graduate experience at the Universidad de las Américas campus on the edge of the site. He completed his graduate education with an M.A. and Ph.D. in Anthropology at SUNY Binghamton, writing his dissertation on an analysis of Postclassic Cholula domestic contexts. This ceramic analysis was a preliminary component to that larger study. He is Associate Professor in the Department of Archaeology at the University of Calgary. While maintaining research interests in Cholula, he is currently conducting investigations in Rivas, Nicaragua, where ethnohistorical accounts and ceramic evidence indicate that migrants from central Mexico, and specifically Cholula, settled in the final centuries before the Spanish Conquest.

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4.42, which were taken by Michael Lind.   •

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Preface

One of the more glamorous aspects of archaeology is the promise of discovery, that the next pass with the trowel might expose some new tidbit of the past that will enhance our understanding or at least provide a nice illustration for the final report. In contrast, the long hours that turn into months of analysis are characterized by cramped and dusty lab work and tedium. Unfortunately, far more sites are excavated than analyzed; consequently, many important discoveries remain tucked away in cloth bags on forgotten shelves. A variety of factors conspire to prevent analysis: funding agencies tend to support glitzy research projects; research budgets get slashed in order to be competitive, often at the expense of analysis; the inevitable "big find" at the end of the field season forces additional excavation, again at the expense of lab time and/or funds; the students who were drafted to conduct analysis as thesis topics move on to other things; the field observations do not relate to the research questions of the principal investigator, who also moves on to other things; other projects become more pressing; or, simply, the grass is greener and the sites richer in the next valley over. Whatever the reasons, hundreds if not thousands of excavated contexts exist unanalyzed in museums, universities, and storage facilities throughout Mexico and the United States.

This monograph reports on the problems and potentials of analyzing a curated collection long after its initial excavation. The UA-1 excavation was conducted in 1968 as an archaeological field school on the University of the Americas campus at the eastern edge of Cholula, a major pre-Columbian religious center in the central highlands of Mexico. The class was taught by Daniel Wolfman, a doctoral candidate who eventually completed his dissertation on archaeomagnetic dating in Mesoamerica. Wolfman was assisted by two graduate students and eighteen undergraduate students from a number of US universities. After four weeks of excavation, an additional four weeks were devoted to washing, labeling, and preliminary sorting and quantification of the artifacts. Wolfman produced a preliminary report for the Departamento de Monumentos Prehispanicos in Mexico (Wolfman 1968) and requested additional funding from the Universidad de las Américas (UDLA) for continued analysis and some additional excavation. When this was not granted, Wolfman returned to his own dissertation work and the UA-1 analysis was eventually abandoned.

The UA-1 field school was exemplary for a number of reasons. The field methods were state-of-the-art for 1968: 1.5 x 1.5 m excavation units were separated by 50-cm balks that were maintained until the units were complete and then excavated as needed; units were excavated at arbitrary 25-cm levels unless stratigraphic changes were noted (this was particularly true for the balk excavations); and all matrix was screened through wire mesh. All sherds, even the tiniest fragments, were collected in sherd bags by unit and level, with a sherd bag card filled out with pertinent data. Objects (for example, lithics, figurines, spindle whorls, and bone) were often plotted in three dimensions and were each given object numbers and recorded on individual object cards (lithics and bone were treated collectively, so that each level within a unit had a lithic bag and bone bag that received an object number). Unit forms recorded general information on each excavation unit, such as soil conditions, level depths, sherd bags and objects from each level, features encountered, and initial observations and interpretations. Additional documentation recorded each feature, including floors, walls, burials, and so on.

Each student maintained a field notebook for observations about the day's progress. Unit plans and wall profiles were drawn, soil and charcoal samples were collected, and hundreds of photos were shot to record each level of each unit and many of the objects in situ. All in all, this excavation was outstanding, and the level of documentation preserved the archaeological context to such a degree that it could still be analyzed fifteen years later.

Nevertheless, fifteen years is a long time. During that period the UA-1 materials were transported to the Anthropology Department at the old Mexico City College campus and then back to Cholula when the University of the Americas was relocated in 1970. The collection was broken up, with the skeletal remains (and perhaps the faunal remains) taken to the Instituto Nacional de Antropología e Historia (INAH) physical anthropology lab for analysis. Some of the documentation was taken to the Frissell Museum in Mitla, Oaxaca, perhaps along with some of the objects (oral tradition [rumor] maintained that the complete vessels were stored there at one point). When the roof of the UDLA Archaeology Lab collapsed, the UA-1 materials were transported across campus and piled in another building during repairs to the lab and then moved back in wheelbarrows (my first exposure to the collection!) to be piled again on the floor. Throughout these changes, elements of the collection were dispersed and lost—some of the nicer objects may have even been stolen during a prolonged strike by students in the mid-1970s. Fortunately, the detailed object cards provide information on some missing materials, such as lithic objects (projectile points, for example) and reconstructable vessels. Other materials, such as the soil and charcoal samples and the plan and profile sketches, may still be hidden in some corner of the university; I was very fortunate when Zee Green (UDLA archaeology lab director at the time of my analysis) uncovered the original negatives and unit forms.

The prospect of undertaking an analysis of the UA-1 materials was daunting, and even now I shudder at the thought of the enormous pile of jumbled sherd bags, many still filled with unwashed potsherds, and the frustrations of piecing together an excavation using fragmentary data. Why bother with such a collection? Should existing data be analyzed before collecting more, since excavation is fundamentally the controlled destruction of the archaeological record? The answer is certainly yes, but from my lonely stool in the UDLA Archaeology Lab I was not driven by such lofty ideals.

No, it was the pottery that made me do it. While transporting the one thousand-odd bags of potsherds across campus in a crusted old wheelbarrow, I noticed that the polychrome sherds were distinctively different from the UA-79 excavation we were studying in Mickey Lind's ceramics seminar. UA-79 had sampled a variety of features relating to the Late Postclassic period, and Lind and his students were in the process of creating a revised typology that included Apolo, Aquiahuac, Coapan, and Torre polychromes (Caskey and Lind ND). The bags of UA-1 sherds were almost completely lacking in these decorated types. Two things were immediately obvious: the UA-1 materials represented a very different temporal context than UA-79—Early Postclassic if the other was Late Postclassic; and if this was so, then there was something very wrong with the accepted ceramic sequence for Postclassic Cholula in general and UA-1 in particular.

Florencia Müller's (1978) ceramic sequence placed all Cholula polychromes as contemporary, postdating 1325 CE; this did not jibe with such completely distinct assemblages as those of UA-79 and UA-1. Wolfman, basing his preliminary interpretation on Noguera's (1954) ceramic sequence, had placed the UA-1 compounds at the Terminal Postclassic/Early Colonial period because of the high frequency of *policroma firme* (Torre Polychrome) that Noguera had used as a diagnostic of his Cholulteca III and the presence of glazed-ware sherds above the floors. Yet, the UA-79 assemblages disputed the importance of *firme* in the Late Postclassic, and, as it turned out, Colonial artifacts were very rare beneath the plow zone at UA-1.

The more I learned about the UA-1 context, the more potential I saw. The importance of household archaeology is by now well established (Wilk and Rathje 1982; Wilk and Ashmore 1988; MacEachern, Archer, and Garvin 1989; Santley and Hirth 1993), but during the early 1980s the focus on domestic contexts was still novel in Mesoamerican studies (Winter 1976; Flannery and Winter 1976). UA-1 included the only two houses ever excavated in Cholula. Furthermore, the apparent depositional context of materials in the floor contact levels suggested that at least some objects represented de facto refuse, abandoned where they had been used (Schiffer 1987). The 133 spindle whorls represented one of the largest collections from a controlled context anywhere in Mesoamerica and became the portal to investigations of pre-Columbian gender relations and textile production (McCafferty and McCafferty 1991, 2000).

And still there was the pottery. I quickly discovered that the typology being created for the UA-79 assemblage

was inadequate to account for the new variations from UA-1. Through the process of integrating the new with the old, however, I found it necessary to make structural modifications to the classificatory system developed by Caskey and Lind and that, in turn, has created additional complexity.

One of the practical pitfalls of the hypothetico-deductive method is the impossibility of maintaining a theory-neutral stance throughout the analytical process; the systems flowchart that calls for analysis followed by hypothesis testing does not account for the months of daydreaming/pattern recognition that takes place at the lab table. Countless ideas were formulated and then reformulated at the La Lunita bar across from the Great Pyramid.

In the end, I still think that the great contribution of the UA-1 project was the ceramic assemblage. Virtually every ceramic type from the twenty-five hundred years of Cholula's pre-Columbian history was present. In a recent discovery, Müller's extensive type collections were found in a tunnel within the Great Pyramid, where they had been lost in storage for the past twenty years; after inspecting hundreds of reconstructable polychrome vessels, I found no types or subtypes that were different from ones found at UA-1. The variety of depositional contexts found at UA-1 spans the Postclassic period, providing a basis for at least four phase divisions. This has radically changed the interpretation of Postclassic Cholula chronology, and while further refinements will certainly occur, I'm confident that the general framework is now in place.

A second contribution of this project, however, was the salvaging of information from UA-1 that was locked away in the unopened bags in the UDLA Archaeology Lab. This was, in a sense, the archaeology of the dig itself, with new discoveries each time a bag was dumped onto the lab table or a new entry read from a field notebook. The most surprising discovery, and a further example of the confused nature of the collection, was a bag that contained part of a type collection for Oaxaca that Caso, Bernal, and Acosta had used to illustrate their *La Ceramica de Monte Albán* book (1967); apparently several collections of Oaxacan ceramics had been re-bagged using bags with UA-1 labels. By recognizing the postexcavation history of a collection, a clearer perspective can be gained for the importance of complete and even redundant documentation. Struggling with the many half-answered questions has made me more careful in the field and especially more attentive in the lab. Analysis of a curated collection is a valuable learning experience as well as an important means of resurrecting previously excavated contexts.
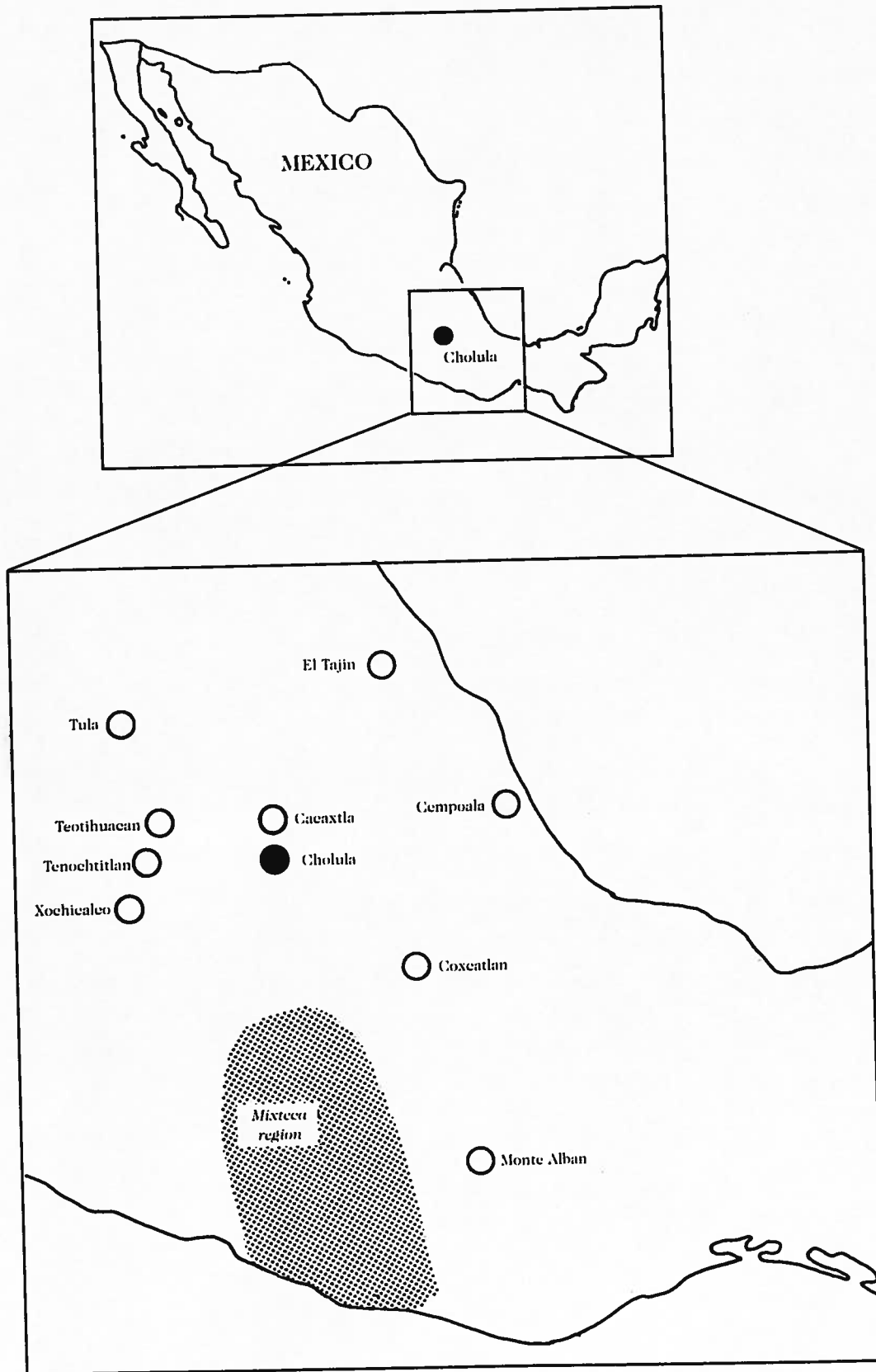
ACKNOWLEDGMENTS

1.1 Map of Cholula region

UA-1

The pre-Columbian center of Cholula, Puebla, Mexico, is famous for the production of finely decorated, highly symbolic polychrome pottery during the Postclassic period, circa 900–1520 CE. Cholula polychrome was often traded and emulated, forming the basis for what is widely identified as the Mixteca-Puebla horizon (Vaillant 1938, 1941; Nicholson 1960, 1982; Nicholson and Quiñones Keber 1994; McCafferty 1994). Despite the renown of Cholula polychrome ceramics, contradictory interpretations of their production history have added to the general confusion surrounding this important yet enigmatic site. This monograph presents details of a recent ceramic analysis using excavated materials from two Postclassic household compounds on the outskirts of Cholula (McCafferty 1992a). It includes an alternative ceramic typology and a revised ceramic sequence based on a seriation of primary and secondary depositional contexts. In part because of the revised ceramic chronology, this research provides the basis for a reevaluation of Postclassic Cholula culture history, particularly in relation to its role in the development of the Mixteca-Puebla stylistic tradition (McCafferty 1994, 1996a).

CHOLULA IN ITS PHYSICAL AND HISTORICAL CONTEXTS

Modern Cholula is a city of about forty thousand inhabitants located on the outskirts of the state capital of Puebla, in the Puebla/Tlaxcala valley of central Mexico (figure 1.1). Beneath the modern town are the archaeological remains of the pre-Columbian city, continuously occupied since at least the Middle Formative period, circa 1000 BCE (McCafferty 1996a). As the result of long-term cultural processes such as construction and an extensive brick-making industry, the archaeological site has suffered considerable destruction, and cultural resources are in constant danger.

Postclassic Cholula was famous as a religious and economic center for central Mexico. It was the principal center for the cult of Quetzalcoatl (Carrasco 1982); nobles from throughout the region came to the temple for confirmation of their lineage titles (Rojas 1927 [1581]), while commoners came on pilgrimage for the elaborate religious festivals that celebrated fertility and ritual renewal (McCafferty and McCafferty 1995). In addition to his role as god of wind, of the planet Venus, and of sacred knowledge, Quetzalcoatl was also patron of the *pochteca* (merchants) who brought rare and valuable goods to the marketplace. Tied to its role as a marketplace, Cholula was a center of craft production, including elaborately decorated pottery, textiles, feather work, and jewelry (Durán 1971 [1576–1579]:278; Rojas 1927 [1581]; McCafferty and McCafferty 2000). This connection with exotic crafts was integrated into the religious aspect of the city, with the patron deities Quetzalcoatl and Xochiquetzal both worshiped by artisans. Xochiquetzal was patroness of "all those whose profession it was to imitate nature" (Durán 1971 [1576–1579]:239), including weavers, painters, embroiderers, silversmiths, and sculptors (Sullivan 1982:17).

The *tepetate* (subsoil) has historically been exploited by Cholula's ceramic industry and more recently for commercial brick production (Bonfil Batalla 1973:80–82). Decorated Cholula pottery was a valued serving ware in the Postclassic period. The Spanish conquistador Bernal

Díaz del Castillo (1963 [1580]:226) noted that the Aztec lord Moctezuma was served on "Cholula ware," and López de Gómara (1964 [1552]:131) described the "thousand different designs and colors" in the native pottery market. The Colonial *corregidor* (overseer) of the city, Gabriel de Rojas (in Bonfil Batalla 1973:74–75), discussed the importance of the ceramics industry in the early Colonial period. Pottery was still produced into the twentieth century (Bonfil Batalla 1973:80), although at a reduced scale. The *talavera* pottery industry of the nearby city of Puebla, on the other hand, has grown to great importance, drawing on the same source of raw material and, at least during the Colonial period, from the expertise of Cholula craftsmen (Kaplan 1980; Lister and Lister 1978, 1982).

The polychrome pottery of Postclassic Cholula is one of the most famous ceramic styles found in Mesoamerica not only for its high quality and aesthetic beauty (Noguera 1954:85–87) but also for the glyph-like representations that were often incorporated into the designs. Codex-style motifs became a cornerstone of the Mixteca-Puebla style as originally proposed by George Vaillant (1938, 1941), and "Cholula polychrome" and its imitations were identified throughout Mesoamerica as evidence of the diffusion of that style (Nicholson 1960, 1982; McCafferty 1994; but see Smith and Heath-Smith 1980).

As originally proposed, "Mixteca-Puebla" defined a cultural synthesis of the Mixteca region of Oaxaca with the Puebla/Tlaxcala valley (Vaillant 1938, 1941; Nicholson 1960, 1982). Cholula was identified as the center of the "culture complex," and Cholula-style polychrome pottery was considered a diagnostic of Mixteca-Puebla influence. However, because of problems in dating Cholula polychrome (for example, Müller 1970, 1978) and the recognition of distinct polychrome traditions in other regions, the significance of Cholula to the Mixteca-Puebla concept has sometimes been questioned (Smith and Heath-Smith 1980; but see McCafferty 1994).

Archaeological investigations at Cholula have been conducted since the eighteenth century and almost continuously since the 1930s (Merlo J. 1989; McCafferty 1992a:51–69, 1996a; Suárez C. and Martínez A. 1993). Two major projects have explored the Great Pyramid, both inside and out (Marquina 1951, 1970b, 1975; Noguera 1954; Messmacher 1967, ed.; McCafferty 1996b). Recent investigations have moved away from the pyramid to study other aspects of the site (Mountjoy and Peterson 1973; Suárez C. 1985, 1989; McCafferty 1996a).

The most notable archaeological feature of Cholula is the Great Pyramid, known ethnohistorically as Tlachihualtepetl, or "man-made mountain" (Durán 1971 [1576–1579]; Rojas 1927[1581]). The Great Pyramid has been the focus of archaeological investigations for more than one hundred years (Bandelier 1976[1884]; Marquina 1951, 1970, 1975; Peterson 1987; McCafferty 1996b). The pyramid was built in a series of four major construction stages over a period of 1700 years (circa 500 BCE to 1200 CE). Extensive excavations concentrated on exposing architectural remains of the Great Pyramid and the associated ceremonial precinct. Although the excavated and partially reconstructed pyramid façades create a popular tourist attraction, these investigations were largely unsuccessful at resolving many fundamental questions concerning Cholula's culture history. For example, the standard ceramic chronology used (Müller 1970, 1978) was highly problematic, especially for the Postclassic period. Consequently, interpretations of the settlement history are confused and even contradictory, with the accepted archaeological synthesis in conflict with ethnohistorical accounts (McCafferty 1996a). Thus while the ethnohistorical record indicates that Cholula was continuously occupied by a succession of ethnic groups from the Classic through the Postclassic period (Jiménez Moreno 1942, 1966; Olivera and Reyes 1969; Chadwick 1971b), archaeological evidence from the Great Pyramid has been interpreted as indicating a break in the sequence following the end of the Classic period (Dumond 1972; Dumond and Müller 1972; Mountjoy 1987; García Cook 1981; García Cook and Merino Carrión 1990; Suárez C. and Martínez A. 1993; but see McCafferty 1996a).

In 1930 and then in the mid-1960s, two research projects concentrated excavations in and around the Great Pyramid. Initial explorations sought to identify the different construction phases of the pyramid itself (Noguera 1937; Marquina 1951), with a secondary emphasis on describing the ceramic sequence for the site (Noguera 1954). During the second phase of investigations (Messmacher 1967; Marquina 1970), the Proyecto Cholula excavated on the south and west sides of the pyramid, where complex architectural remains were exposed. Additional ceramic analysis was directed by Florencia Müller (1970, 1978).

Preliminary indications suggested that the Great Pyramid was built in successive stages that completely covered previous construction. Because of the immense size
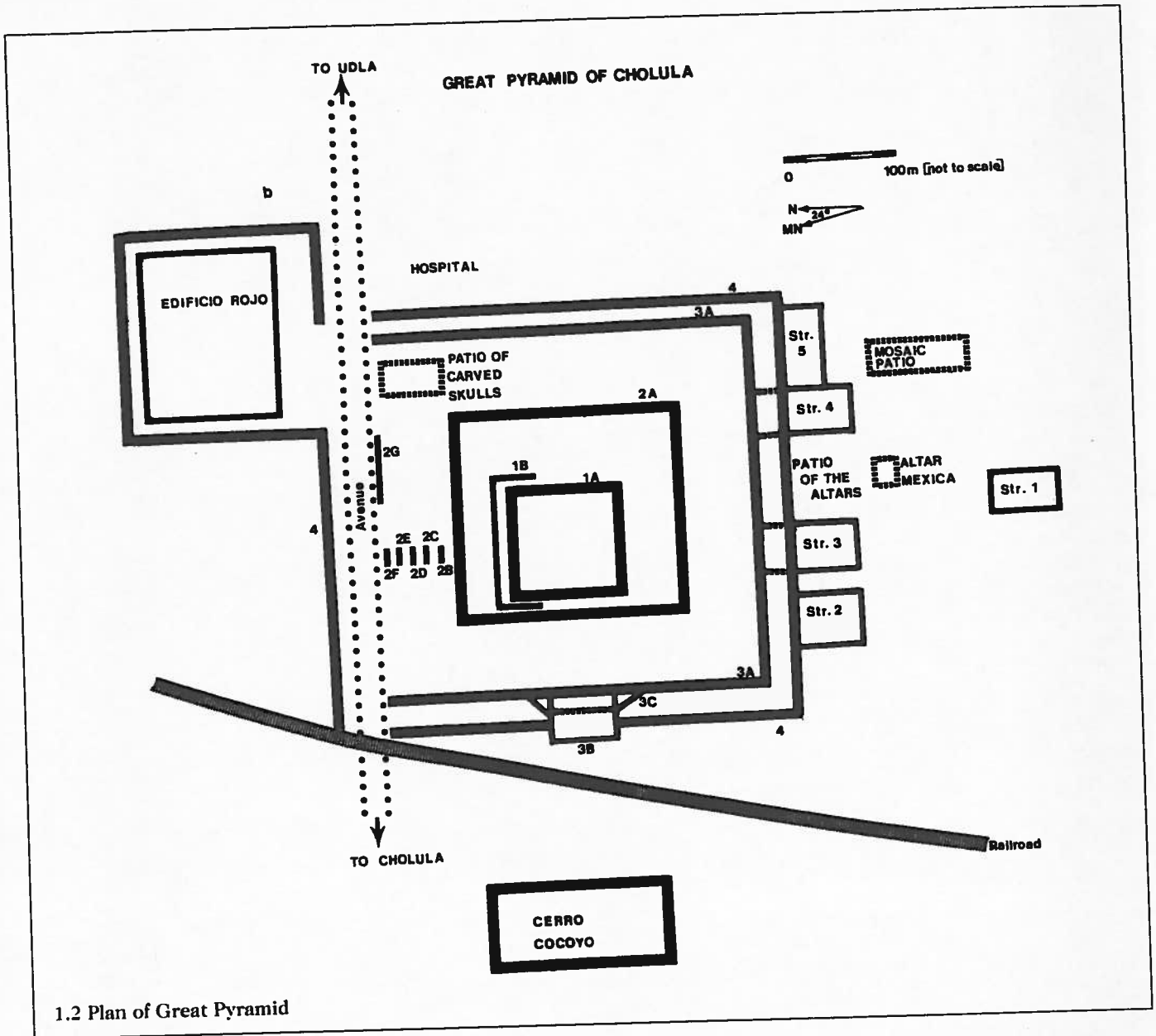
1.2 Plan of Great Pyramid

of the mound, explorations were conducted using a series of tunnels, ultimately totaling 8 km in length (Marquina 1970a:33). The earliest levels of the ceremonial precinct were built directly over the natural surface, sealing Formative-period ceramics beneath the construction fill (Noguera 1954:199–200). Four major construction stages plus at least nine minor modifications changed the form and symbolic significance of the Great Pyramid (figure 1.2; McCafferty 1996b, 2001). Based on stylistic attributes, ceramic frequencies, and especially the stratigraphic location of the Early Postclassic Altar Mexica beneath the Patio of the Altars (Acosta 1970:52), the final construction dated to the Early Postclassic period (Mc-

Cafferty 1996b). This is further supported by recent investigations at an Epiclassic palace associated with the Patio of the Carved Skulls on the northeast platform of the Great Pyramid (McCafferty 1996a, 2000; McCafferty and Suárez C. 1995).

Following the arrival of the Tolteca-Chichimeca ethnic group at the end of the Early Postclassic period, the Great Pyramid was abandoned and the ceremonial center was shifted to the present town *zócalo* (square) of San Pedro Cholula. While the Great Pyramid remained a shrine to the rain deity Chiconauquiahuitl, the religious center of the city became the Pyramid of Quetzalcoatl on the east side of the square (Durán 1971 [1576–1579];

1.3 Map of Cholula showing locations of important archaeological loci
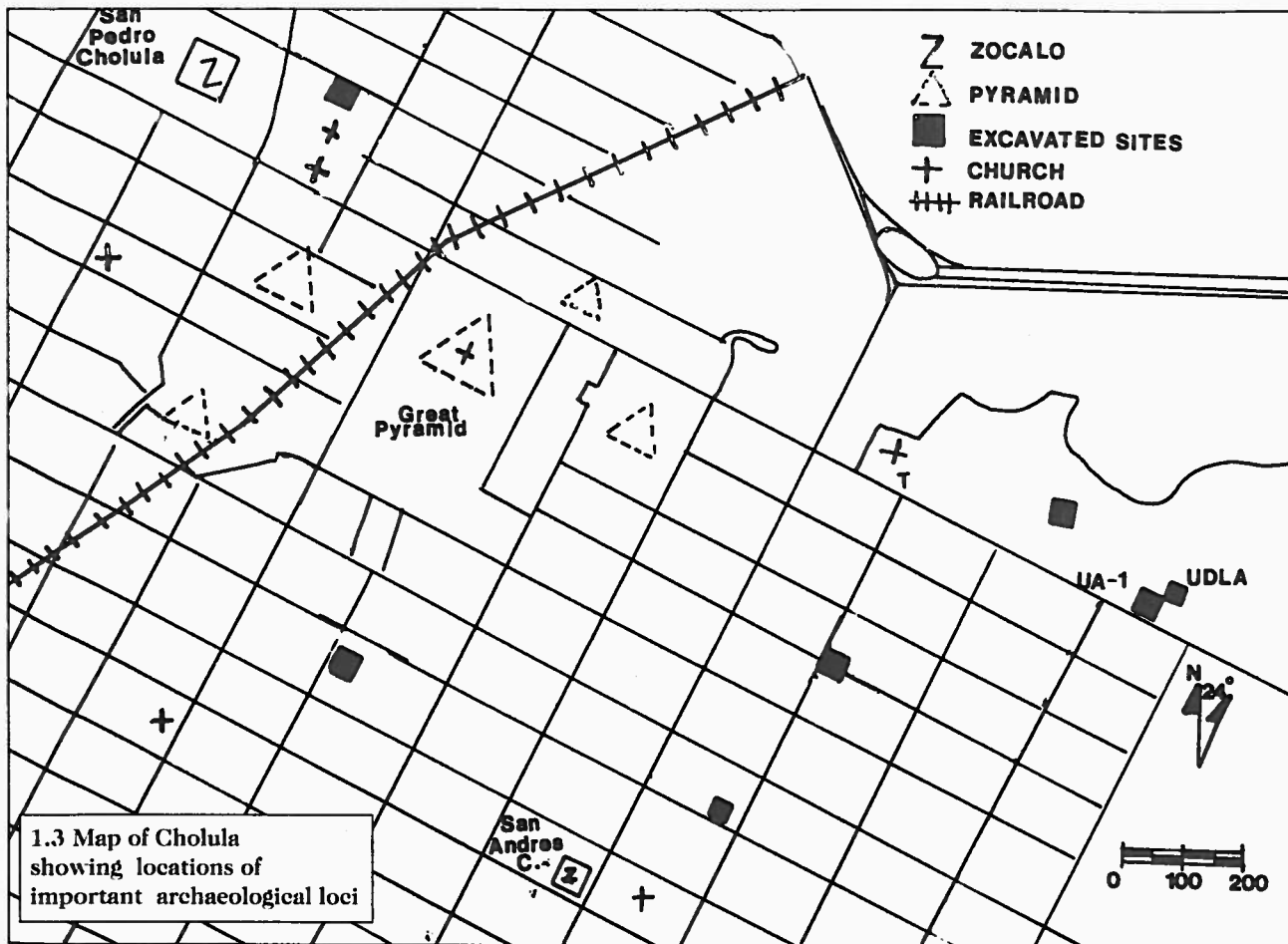
Rojas 1927 [1581]). Late Postclassic Cholula was a multi-ethnic community divided into six barrios (Olivera and Reyes 1969; Carrasco 1970; Lind 1990) ruled by two priest/lords, the Aquiach and the Tlalchiach. Cholula remained an independent kingdom throughout the Post-classic period, a center of religious administration and international commerce. Although it participated in shifting political alliances with the Huexotzincas, Tlax-caltecas, and, perhaps, the Mexica, Cholula was never incorporated into the tribute system of the Aztec Triple Alliance (Berdan 1985).

Relatively little is known archaeologically of the Post-classic period, primarily because of the dominant research focus on the Great Pyramid (but see Hernández Reyes 1970). Several domestic contexts have been studied from the campus of the Universidad de las Américas (UDLA)(Wolfman 1968; Mountjoy and Peterson 1973; Lind 1979; McCafferty 1992a). Burial patterns from Post-classic Cholula are relatively well known as a result of the analysis of more than four hundred skeletons from the Great Pyramid (López A., Lagunas R., and Serrano 1976) and a mass burial from San Andrés Cholula

(Suárez C. 1989). Another important burial context from the Capilla Real adjacent to the San Pedro Cholula zócalo included nearly seven hundred skeletons, possibly relating to the Cholula massacre of 1519 (Castro and García Moll 1972; Peterson and Green 1987).

Following the intensive investigations at the Great Pyramid, archaeological research has continued on a more modest scale but with a broader focus (figure 1.3). Projects have been organized by the Centro Regional de Puebla of the Instituto Nacional de Antropología e Historia (INAH) and UDLA. Excavations by the Centro Regional have generally concentrated on small-scale *rescates*, or salvage excavations, prior to residential construction and have been conducted throughout the town. A few more extensive excavations have been conducted, for example, at the Hotel Villas Arqueológicas south of the Great Pyramid (Caskey 1988; also Suárez C. 1985, 1989) and at the Transito site (McCafferty, Suárez C., and Edelstein N.D.). Excavations by archaeologists from the UDLA have usually been conducted on the university campus located about 2 km east of the Great Pyramid and have included excavations of Formative, Classic, and

Postclassic period loci (Wolfman 1968; Baravalle and Wheaton 1974; Mountjoy and Peterson 1973; Lind 1979; McCafferty 1992a).

As part of the extensive archaeological investigations at Cholula, two major descriptive studies have been made of the ceramic complex. The first, by Eduardo Noguera (1954), was a lavishly illustrated volume that quickly became a standard of excellence for pottery description in Mesoamerica. A second study (Müller 1970, 1978) was based on excavated materials from the Proyecto Cholula. Unfortunately, problems with the archaeological contexts of the excavated samples, contradictions between these two studies, and ambiguities in the defined types have resulted in general confusion about the Postclassic ceramic complex.

One significant cause for confusion about the archaeological data has been the lack of attention to depositional contexts and formation processes at and around the Great Pyramid. As a "man-made mountain," the pyramid and its surroundings have undergone enormous episodes of earth-moving and tumultuous redeposition. The results are thick layers of construction fill, probably mined from the immediate vicinity. A more productive research strategy—at least for the purpose of obtaining contextually meaningful evidence—is to focus excavation away from the Great Pyramid. Excavations on the campus of the UDLA have produced a variety of archaeological features dating to all phases of occupation. One of the most intensive of these excavations, designated UA-1, recovered remains of two Postclassic domestic compounds and related features. Ceramic assemblages from these contexts provided an opportunity to create an alternative typology and construct an independent ceramic sequence through the seriation of assemblages.

UA-1 EXCAVATION

UA-1 was excavated in 1968 as an archaeological field school under the direction of Daniel Wolfman. Over a period of four weeks, Wolfman and his students excavated an area of 202 m², including portions of two "habitation compounds" dating to the Postclassic period and part of a low platform structure probably dating to the Terminal Formative/Early Classic period (figure 1.4). Preliminary analysis was conducted on a sample of the ceramic remains and on the other artifact classes during a four-week lab component of the class but analysis was discontinued when additional funding was not granted. Wolfman submitted a preliminary report on the excavation

and analysis to the Departamento de Monumentos Prehispánicos (Wolfman 1968).

The domestic compound designated structure 1 was the most completely exposed. It contained four rooms, an oval temazcal (sweat bath), associated porch areas, and a patio with an extensive midden deposit (figures 1.5, 1.6, 1.7). Artifacts found in situ on the stucco floor and the presence of ash and charcoal on the floor suggest that the structure may have been destroyed by fire, with at least some of the objects in the floor contact levels representing de facto refuse (Schiffer 1987:89–90). Room 3 featured a low platform altar and beside it was a small niche that contained remains of three anthropomorphic braseros (incense burners) similar to the xantil braseros, incense burners with anthropomorphic appliqué on exterior, discovered at Coxcatlán in association with household altars (Sisson 1992). Room 2 was interpreted as a storage area on the basis of the quantity and variety of objects found, including several manos and metates, a spinning kit, projectile points, and several reconstructable vessels.

The midden deposit located in the patio southeast of structure 1 contained numerous partially reconstructable vessels and an estimated forty thousand sherds as well as a wide range of other objects (such as spindle whorls and figurines). Based on contextual evidence, the midden is tentatively interpreted as contemporary with the final occupation of the house and may have been systemically linked to its abandonment.

Structure 2 was a second multiroom structure located to the east of structure 1 that was only partially excavated because of lack of time. Structure 3 was a solid platform located to the south of structure 1, which was later excavated as UA-69 and UA-70 (Mountjoy and Peterson 1973). Isolated features included three wells and several sherd concentrations, plus several burials representing a total of nineteen individuals.

Because of the traditional focus on the ceremonial architecture at Cholula, the UA-1 locus remains the most completely excavated domestic area from the pre-Columbian center and despite the problems inherent to the analysis of curated collections, it is considered a valuable window to Early Postclassic Cholula. My analysis of the UA-1 materials began in 1982 while I was a graduate student at UDLA and continued while I finished my Ph.D. at the State University of New York at Binghamton. My dissertation topic was the evaluation of the UA-1 material culture as it related to an ethnohistorical model for

STRUCTURE 1
Well 1
Intrusive Midden
Well 2
STRUCTURE 2
Temazcal
Well 3
Trash Midden

MN
15°
0   2   4m

UA - 1 SITE PLAN
San Andres Cholula, Pue.

= Adobe Wall
= Stone Wall
= Stucco Surface
= Midden Deposit
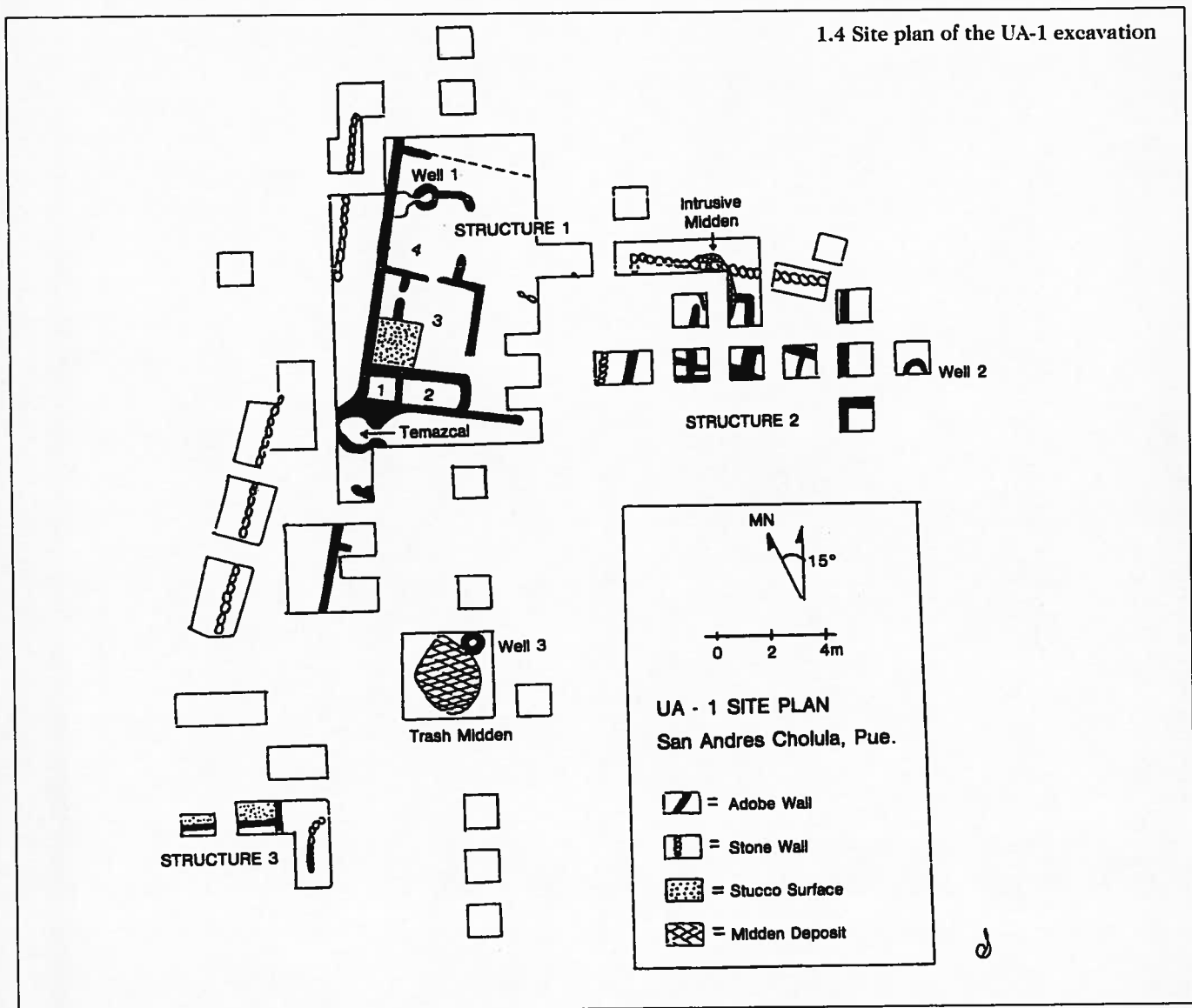
STRUCTURE 3

pre-Columbian household organization (McCafferty 1992a). Specifically, I argued that the combination of architectural features from structure 1 with the social composition of the residential group (including adult males and females and children) and the presence of such domestic activities as food preparation and consumption supported the interpretation that this was a household unit. Several analytical steps were prerequisites to the larger study, including

- development and description of a revised ceramic typology for Postclassic Cholula;
- construction of a revised ceramic chronology for the site using seriation analysis of discrete depositional contexts, and

- analysis of vessel forms to identify evidence for domestic foodways.

The typology presented in this study is based on a classification developed at the UDLA for the UA-79 Late Postclassic ceramics (Caskey and Lind N.D.). It is modified to include distinctive types found at UA-1 and to create a more dynamic system of classification. The typology emphasizes attributes of surface treatment and decoration to distinguish basic types, with variation identified through subtypes defined by additional decorative techniques. This system recognizes overarching similarities as well as lower level differences to provide a sensitive framework for distinguishing temporal as well as social variation in ceramic assemblages. Ceramic collections

Above left, 1.5 UA-1 Structure 1, rooms 1 to 3
Left, 1.6 UA-1 Structure 1, room 4
Above right, 1.7 UA-1 Structure 1, temazcal

from a variety of depositional contexts are analyzed using the revised ceramic typology. Thirteen of these assemblages are seriated for the Postclassic and early Colonial periods using Gelfand's system of arranging the Brainerd-Robinson Indices of Agreement (Gelfand 1971; Marquardt 1982[1978]:419–421). This ordering contrasts with previous ceramic chronologies for Cholula developed by Noguera and Müller and subdivides the Postclassic into five periods of relatively short duration.

The final research objective of the ceramic analysis is the detailed definition of vessel forms, with subsequent grouping of morphological forms into functional "vessel types" and more general "vessel classes." The purpose of this analysis is to identify and interpret functional differences based on the patterned deposition of vessel types. These differences may be related to variations in either spatial or temporal patterning. Since the cultural model for household activities indicates the importance of food preparation and consumption, the functional interpretation of vessel form provides one of the best criteria for inferring domestic behavior.

The ceramics of Postclassic Cholula have the legacy of being among the most beautiful ever made in Mesoamerica but also the daunting reputation of being incredibly complex. The reinterpretation presented here is an attempt to organize the ceramic classification in such a way that it will be more useful as a tool for reconstructing Postclassic society.

Historical Context and Research Objectives

In book 6, "**Rhetoric and Moral Philosophy**," of the *Florentine Codex*, Bernardino de Sahagún characterized the Nahua conception of simple-mindedness in this way: "*yn aia qujmomachitia in tlalli, in tapalcatl cololoa*" (they are those who know nothing, those who pile up earth [and] potsherds) (1950-1982 [1547–1585], Book 6:2).e

In this chapter, I present the research objectives for the UA-1 ceramic analysis, as well as theoretical and background information to distinguish this study from an exercise in "piling up potsherds." I discuss the development of a revised typology for Postclassic Cholula, the basis for redefining the Postclassic ceramic sequence, and the relationship of vessel form to function and its significance for interpreting the UA-1 structural compounds.

TYPOLOGY OF POSTCLASSIC CHOLULA CERAMICS

Cholula ceramics have previously been the subject of numerous studies (Acosta 1975; Barrientos 1980; Caskey 1982a,b, 1988; Fajardo 1985; Joy N.D.; Lind 1994; López V. 1967; McCafferty 1992a, 1994, 1996a; Müller 1970, 1978, 1981; Noguera 1941, 1954; Peterson 1972; Suárez C. 1994, 1995). Yet, ambiguities and even contradictions in these studies have resulted in fundamental problems for the interpretation of Postclassic assemblages. These difficulties are caused in part by the tremendous diversity and complexity of the Cholula ceramic complex.

The first systematic study of Cholula ceramics was carried out by Eduardo Noguera (1941, 1954), who analyzed pottery recovered during the initial phase of explorations at the Great Pyramid. Samples came from stratigraphic pits, tunnel excavations, and block excavations at the Patio of the Carved Skulls. He published the final results in *La Cerámica Arqueológica de Cholula* (1954), which featured numerous illustrations including photographs and true-color plates. The book became a standard for ceramic description in Mesoamerica, and its wide impact undoubtedly increased the fame of Cholula polychrome pottery.

Noguera based his ceramic analysis on attributes of paste, surface treatment, decoration, and vessel form (1954:59). He recognized that the relative homogeneity of ceramic paste used at Cholula minimized its utility as a trait for distinguishing types. After an initial division into plain (*lisa*) and decorated wares, he defined types based on such attributes as color and decorative techniques. Five major polychrome types were defined (Noguera 1954:85–142):

- *policroma laca* (a polished, lacquer-like surface poorly bonded to a white base coat);
- *policroma mate* (a dull matte surface usually of white/light grey with black and orange painted decoration)
- *policroma firme* (polished surface with firmly bonded painted decoration);
- *decoración roja o negra sobre fondo anaranjado* (red and/or black painted decoration over streaky orange base); and
- *decoración sencilla* (simple decoration over streaky orange base).

Other Postclassic diagnostics included *decoración negra*

sobre el color natural del barro (black over the natural orange color of the clay), and an incised type, *esgrafiado*.

Although the types were clearly described and illustrated, ambiguities existed because of the great diversity of Cholula polychrome decoration, particularly since Noguera's system lumped together several potential distinctions. Contradictions were even present in Noguera's illustrations. For example, on page 127 sherds of *firme*, *mate*, and *laca* all appear in a single figure identified as *policroma firme*. But Noguera intended that *La Cerámica Arqueológica de Cholula* should simply lay the groundwork for further revision of the typology (Lind 1982), and to some extent this goal was realized (for example, Lind 1967). The preliminary analysis of the UA-1 ceramics employed Noguera's classification, and Wolfman (1968:5) intended to use the UA-1 artifacts to eventually refine the initial categories.

The second major ceramic study was directed by Florencia Müller (1970, 1978; Acosta 1975) as part of the Proyecto Cholula. The analysis was based on more than 2.5 million sherds from twenty-six stratigraphic pits, as well as from features such as burials, wells, and middens (Müller 1978:13). Müller's classification considered general classes of surface treatment, for example, *sin engobe* (without slip), or *pulido* (polished), followed by types defined on the basis of vessel form. These categories collapsed the polychrome types created by Noguera so that even fewer distinctions were available in the ceramic assemblage. The final results of this analysis were published in *La Alfarería de Cholula* (Müller 1978). Despite the problems that were created by Müller's typology, it has been the standard used on the majority of recent INAH projects in Cholula (a modification of this system was recently developed by Fajardo 1985).

Alternative ceramic classifications have been developed by archaeologists at the University of the Americas. David Peterson (1972) analyzed ceramics from a large midden deposit in the faculty housing complex and developed a typology in his Master's thesis. Results of ceramic analyses using the same system but with different type names were reported in *Man and Land in Prehispanic Cholula* (Mountjoy and Peterson 1973). In the late 1970s, Michael Joy (N.D.) employed yet another typology for Late Postclassic ceramics in an unfinished thesis based on excavations at the barrio of Jesús Tlatempa.

The most extensive revision of the Postclassic ceramic typology was developed by Michael Lind and his students using pottery from the UA-79 excavation. This classification synthesized the previous UDLA studies into a typology that recognized fifteen distinct polychrome types (Caskey and Lind N.D.). The classification emphasized the characteristics of surface treatment and decorative elements, including the use of specific colors. Vessel form was considered as an independent variable for decorated types, while it was given greater weight for undecorated utilitarian types. The most complete application of this typology was by Catalina Barrientos (1980) in an analysis of more than three thousand ceramic artifacts from a single midden deposit (feature f-10). The typology was further developed by Charles Caskey (1982a,b) in his analysis of a large ceramic collection from the Cholula Fonatur excavations at the Hotel Villas Arqueológicas.

Several problems exist with the UDLA classification as it was originally developed. Foremost, a concise, well-illustrated presentation was never published, so that only a few analysts had access to the system. Consequently, its interpretation became subjective, with individual interpretations of the type definitions. In addition, the UDLA classification was based purely on Late Postclassic ceramics, at least in its initial stages. As more components of the Cholula ceramic sequence were incorporated, inconsistent criteria were used to designate types.

In an attempt to alleviate the confusion about the UDLA classification, Lind (1994) has recently proposed an alternative set of type names, again based on ceramic data from excavations on the UDLA campus. This classification includes eight polychrome types representing the Postclassic sequence.

In this study, I have chosen to modify the original UA-79 classification rather than adopt Lind's new typology (table 2.1). This decision is based in part on a desire to maintain a degree of consistency, since I have previously presented segments of the UA-1 analysis using the modified UDLA classification (McCafferty 1986, 1992a, 1994, 1996a). Furthermore, because the laboratory analysis was based on that system, type collections in storage in Cholula are already labeled with these original type names.

The goal of my modified ceramic classification is to develop a typology that accommodates the diversity of the Cholula assemblage, while at the same time it recognizes similarities that may link meaningful clusters of attributes. The dual emphasis on differentiation and similarity is accomplished using a type/subtype system that recognizes types based on shared patterns of surface

Table 2.1 Correlation of Cholula polychrome ceramic typologies

NOGUERA (1954)	MCCAFFERTY (1992a)	LIND (1994)
Decoración negra sobre el color natural del barro	Cocoyotla Black on Natural, Sencillo subtype Cocoyotla Black on Natural, Banded subtype Cocoyotla Black on Natural, Chalco subtype	Xicotenco Black on Orange
Policroma mate	Cuaxiloa Matte Polychrome Cocoyotla Black on Natural, Elegante subtype Ocotlán Red Rim, Cristina Matte subtype	Cristina Polychrome
Policroma firme	Torre Red and Orange on White Polychrome Aquiahuac Burnt Orange Polychrome. Santa Catarina subtype Ocotlán Red Rim, Elegante subtype	Albina Polychrome Estela Polychrome
Policroma laca	Coapan Laca Polychrome San Pedro Polished Red, Elegante subtype Apolo Black and Red on Orange Polychrome, Elegante subtype	Catalina Polychrome
Decoración roja o negra sobre fondo anaranjado	Apolo Polychrome, Geométrico subtype Aquiahuac Polychrome, Zócalo subtype	Diana Polychrome
Decoración sencilla	Apolo Polychrome, Sencillo subtype Aquiahuac Polychrome, Sencillo subtype Ocotlán Red Rim, Sencillo subtype Ocotlán Red Rim, Banded subtype	Nila Polychrome Silvia Polychrome Marta Polychrome

treatment and subtypes defined primarily on the basis of elaboration of decorative techniques. An additional element for ceramic identification—vessel form—is treated as an important but independent variable.

The overarching objective of this classification is to identify both functional and stylistic characteristics in the pottery that permit interpretations of cultural variability that may relate to temporal and/or social factors. This approach emphasizes the role of ceramic consumption as a series of choices made in relation to a range of cultural variables (Spencer-Wood 1986), and it also incorporates what Lind (1987) has termed "consumer-oriented" criteria. Thus, ceramic consumption refers not only to the social context of pottery vessels—including their functions as storage containers, cooking pots, or serving bowls—but also to their potential for the transmission of symbolic information regarding status or ethnic affiliation. This approach is in contrast to the more traditional "producer-oriented" analysis characterized by the type/variety system of classification (Gifford 1960; Smith,

Willey, and Gifford 1960), which has tended to emphasize variables of how and where pottery was made. While this information is undeniably important, it is more appropriate to a different set of research questions, such as regional economic exchange.

In summary, my objective in modifying the UDLA classification is to create a more sensitive alternative to the existing typologies of Postclassic Cholula ceramics. By providing an expanded system for quantifying the variability of the ceramic complex, potential differences between ceramic assemblages can be detected that may relate to temporal and/or social variation.

CERAMIC SERIATION AND POSTCLASSIC CHRONOLOGY

In 1856, Edward B. Tylor visited Cholula and observed that "though there was plenty of coloured pottery to be found in the neighborhood of the [Great P]yramid, the pyramid itself had only fragments of uncoloured ware imbedded in its structure; which seems to prove that it was built before the art of colouring pottery was invented" (1970 [1861]:275).

Despite the numerous archaeological investigations that have since been conducted at the site, understanding of the Cholula ceramic sequence has progressed remarkably little since Tylor's visit. An important consequence of the creation of an alternative ceramic typology is the potential for critical evaluation of the existing ceramic chronologies for Postclassic Cholula. Conflicting sequences proposed by Noguera (1954) and Müller (1970, 1978) were based primarily on stratigraphic excavations into and around the Great Pyramid. Confusion about the Postclassic chronology has had wide-reaching impact on the culture history of Cholula and, as a consequence, for all of central Mexico (Nicholson 1982:243–244; Smith and Heath-Smith 1980:36-37; Sanders, Parsons, and Santley 1979:133; McCafferty 1996a). Seriation analysis of pottery from UA-1 provides the opportunity to revise and refine the Postclassic sequence.

In previous investigations at Cholula, deep test pits were the standard technique used for obtaining stratified ceramic samples. The pits were excavated into and around the Great Pyramid and its surrounding ceremonial precinct, largely consisting of platforms built of adobe and earthen fill. The depositional contexts of these units are distorted by the monumental construction activities. Examples of the degree of disturbance can be found in

the original reports; for example, Noguera (1954:46–49) described and illustrated a unit where the Classic and Postclassic deposits were inverted. The utility of stratigraphic test pits has been demonstrated in innumerable test cases, but problems may appear when pits are used without regard for site formation processes, particularly in situations where construction activities involve the extensive use of earthen fill (Schiffer 1987:137-139). Under such conditions artifacts relate to the deposits from which the fill was taken and only indirectly provide a temporal context for the structure.

Despite these problems, Noguera (1954) made a significant attempt to relate Postclassic ceramics to the Cholula cultural sequence, particularly in terms of the polychrome types. Polychromes were found in virtually all the stratigraphic units, especially in the upper levels, but often throughout the deposit. Polychromes were also found on the surface of the Great Pyramid, though rarely in tunnels into its interior (Noguera 1954:229–232).

On the basis of decorated ceramic types, Noguera divided the Postclassic into three phases, termed Cholulteca I, II, and III (1954:268–282, 296–297). These phases were loosely correlated with the Valley of Mexico sequence of Aztec I, II, and III, but no absolute dates were assigned to define the periods. Cholulteca I was identified by the presence of *policroma laca* and *decoración negra sobre el color natural del barro*. Cholulteca II was poorly represented, with *policroma mate* as its only diagnostic. Cholulteca III was defined by the presence of *policroma firme*, *decoración sencilla*, and *decoración roja o negra sobre fondo anaranjado*.

While these types were used to define the general ceramic sequence, this was intended to be a preliminary classification, and inconsistencies were also described. For example, Noguera (1954:106) noted one context where *policroma firme* was found in association with Aztec II ceramics.

More problematic was Noguera's observation (1954:271) that *policroma laca* remained in use throughout the Postclassic period. Problems with Noguera's own identification of *laca* undoubtedly added to this ambiguity. Consequently, the isolated presence of *laca* could not be used reliably as a diagnostic of the Cholulteca I phase, and stratigraphy alone cannot explain why it became so closely associated with the initial phase of the Postclassic period. Instead, Noguera inferred a close evolutionary relationship between this type and the Classic

period "fresco ware" found at Teotihuacan :

> [E]ste mismo procedimiento [laca] se observa en la cerámica de cultura teotihuacana denominada de cloisonné . . . todo lo cual induce a pensar que tal vez el antecessor de esa técnica tan peculiar al primer período cholulteca, bien puede encontrarse en el aludido período de la cultura teotihuacana.
>
> This same technique [laca] is found in the ceramics of the Teotihuacan culture known as *cloisonné* [fresco ware] . . . all of which leads us to believe that perhaps the predecessor of this type so diagnostic of the Cholulteca I phase could well be found in the above-mentioned period of the Teotihuacan culture. (1954:142; my translation)

The evolutionary relationship between *laca* and Teotihuacan fresco ware fits with an ethnohistorically based notion that Cholula was the major culture center which continued after the collapse of Teotihuacan (Noguera 1954:302–303; Covarrubias 1957; Jimenez Moreno 1966; Weaver 1972; see Davies 1977:113–114). According to ethnohistoric accounts, different groups dispersed following the Classic period with some, such as the Pipiltin, traveling as far as Central America (Jiménez Moreno 1966; Fowler 1989). The most important of these groups were the Nonoalca, "par excellence the *Kulturvolk*, the bearers of the most prized arts and skills of Mesoamerica and the guardians of the ancient lore" (Davies 1977:167). The Nonoalca and especially the closely related Olmeca-Xicallanca were linked to Epiclassic Cholula, and this historical connection prejudiced Noguera's archaeological interpretation of the Postclassic ceramic sequence.

Noguera's investigations were important for identifying stylistic differences in the polychrome complex and suggesting a sequence for these types. His *La Cerámica Arqueológica de Cholula* (1954) set a high standard for ceramic description and illustration, while at the same time spreading the fame of Cholula polychromes. A critical evaluation of Noguera's inherent culture historical biases, however, reveals some of the inconsistencies in his scheme.

The enormous effort of the Proyecto Cholula revised the ceramic sequence for the Postclassic period (Müller 1970, 1978; Acosta 1975). Unfortunately, the new sequence retained Noguera's original phase names of Cholulteca I, II, and III, while adding IV. Furthermore, Müller collapsed Noguera's entire polychrome sequence into a single phase (Cholulteca III), thus introducing a major contradiction since Noguera had defined his different phases on the basis of specific polychrome types.

Müller assigned dates to the phases, but the criteria for the chronology were not made explicit; few absolute dates were available at the time and Müller was apparently unaware of those that did exist (Peterson 1972; Mountjoy and Peterson 1973). From Müller's discussion it is likely that her dates were adopted directly from historical events in the Valley of Mexico (see Smith 1987a). For example, Cholulteca II (900–1325 CE) began with the founding of Tula and lasted until the traditional date for the foundation of Tenochtitlan by the Aztecs (see Davies [1973:37] for discussion of this date). Cholulteca III (1325–1500 CE) was identified with the Mixteca-Puebla horizon. The final phase, Cholulteca IV, spanned the period of Contact and ended in 1600 CE.

The reliance on historical events rather than absolute chronology committed Müller to preconceptions that were then used to organize the archaeological data. For example, by identifying Cholulteca II with Toltec material culture (such as Coyotlatelco and Mazapan ceramics), bichrome ceramics could occur during this phase but not polychromes. Under Müller's sequence, polychrome pottery was not introduced until after 1325 CE. The methodology used by Müller is questionable because it assumes a direct correlation between regional stylistic similarities, ethnohistorical events, and cultural processes. In contrast, archaeological studies should use material remains to inform about the relationship between historical and cultural processes (see also M.E. Smith 1987a).

The Proyecto Cholula ceramic analysis radically changed the Postclassic ceramic sequence while retaining Noguera's original phase terminology. By lumping all polychrome pottery into the Late Postclassic and by virtually ignoring the type distinctions proposed by Noguera, the potential for refining the Postclassic sequence was lost. Furthermore, by considering all assemblages with polychrome as Late Postclassic, earlier Postclassic assemblages became relatively rare. As a consequence, Dumond and Müller (1972; Dumond 1972; also Mountjoy 1987; García Cook and Merino C. 1990) were led to conclude that Cholula was abandoned following the Classic period and only regained its status as an urban center toward the end of the Postclassic period. This interpretation has caused considerable confusion in the archaeological literature (Davies 1977; Weaver 1981, 1993; but see Sanders 1989; McCafferty 1996a), adding to the enigmatic status of Cholula in Mesoamerican culture history.

A second dilemma was that by lumping all polychromes

after 1325 CE, Cholula became one of the last areas in Mesoamerica to use "Cholula polychrome." This gap has caused difficulties in interpreting the development of the Mixteca-Puebla stylistic tradition (Nicholson 1960, 1982; Smith and Heath-Smith 1980; Nicholson and Quiñones Keber 1994; McCafferty 1994).

Even as Müller was developing her revised Postclassic ceramic chronology, UDLA archaeologists were acquiring information to challenge it. Excavations at the campus faculty housing complex produced a radiocarbon date of 1250 CE ± 95 (GX-1815) from a trash pit containing a high concentration (20% in the dated stratum) of polychrome pottery (Mountjoy and Peterson 1973:30). Although this lone date does overlap slightly with Müller's Cholulteca III phase at the 1-sigma range (1155–1345 CE), it also illustrates a diverse assemblage of polychrome types at this relatively early period. In other excavated contexts from the campus, differences in polychrome frequencies demonstrated a lack of contemporaneity between distinct types (Peterson 1972:200–201, Table 18; Mountjoy and Peterson 1973:81, Table 8), thus challenging Müller's assertion that all polychromes were in use at the same time.

The UDLA focus on primary contexts as units of analysis was continued with Lind's UA-79 excavation (Lind 1979). Analysis of the f-10 Late Postclassic midden (Barrientos 1980) indicated that in contrast to Noguera's predicted association of *policroma firme* (Torre Polychrome), *decoración sencilla* (Apolo Sencillo and Aquiahuac Sencillo), and *decoración roja o negra sobre anaranjado* (Apolo Geometrico), there was relatively little *firme* (Torre), while *policroma laca* (Coapan Laca and Apolo Elegante) was present in low to moderate frequencies.

The UA-79 analysis laid the groundwork for the present analysis of the UA-1 ceramics, because it raised important questions about Noguera's Postclassic sequence. Specifically, preliminary inspection of the UA-1 materials indicated that there were fairly high concentrations of ceramic types that were not well represented in the UA-79 collections, including *policroma firme* (Torre Polychrome), *policroma mate* (Cuaxiloa Matte Polychrome), and *decoración negra sobre color natural del barro* (Cocoyotla Black on Natural). In addition, Ocotlán Red Rim, which was not defined in the UA-79 assemblage, was identified as a major component of the UA-1 collection.

The UA-1 excavation produced numerous deposi-

tional contexts suitable for seriation analysis, including materials from two sealed floors, an extensive midden deposit, ceramic concentrations found in three wells, and several other sherd concentrations. These assemblages, especially when combined with the other analyzed features from the UDLA campus and other recent excavations, provide a sufficiently varied assortment of contexts with which to evaluate the proposed chronological sequence. Establishing these associations using the detailed typology developed in chapter 4 offers the potential for further refinement of the Postclassic sequence.

Several ceramic assemblages that have been analyzed since the UA-1 analysis supplement the UDLA assemblages and provide additional chronometric calibration for the sequence. A well from San Pedro Cholula contained Ocotlán Red Rim and Cocoyotla Black on Natural ceramics in association with charcoal samples that were radiocarbon dated (calibrated 1-sigma range) at 897 to 1018 CE (1065 ± 55 BP; INAH-1102) and 905 to 1220 CE (960 ± 140 BP; INAH-1103) (McCafferty 1996a, Suárez Cruz 1994). Another well from the UDLA campus contained an assemblage similar to that from UA-79 f-10, including Apolo Black and Red on Orange Polychrome, with a C14 date of 1333 to 1448 CE (500 ± 50 BP; I-14, 614) (Uruñuela and Alvarez-Méndez 1989:70; in Lind 1994:81, n.4). A Classic period house from San Pedro Cholula, designated R-106, produced four C14 dates ranging between 400 and 650 CE (McCafferty, Suárez C., and Edelstein N.D.; McCafferty 1996a); an intrusive Postclassic midden included Torre and Cuaxiloa polychromes. Finally, excavations on the northeast platform of the Great Pyramid exposed the construction sequence of the Patio of the Carved Skulls (where Noguera [1937] had previously excavated an elite altar/tomb), with a ceramic assemblage that featured Tepontla Burnished Grey/Brown and Cocoyotla Black on Natural (McCafferty and Suárez C. 1995; McCafferty 1996a). The framework for the Postclassic sequence has been constructed based on these dated assemblages (McCafferty 1992a, 1994, 1996a; but see Lind 1994):

Early Tlachihualtepetl	700–900 CE
Middle Tlachihualtepetl	900–1050 CE
Late Tlachihualtepetl	1050–1200 CE
Early Cholollan	1200–1400 CE
Late Cholollan	1400–1520 CE

CERAMIC FORM AND FUNCTION

The final component of this ceramic analysis involves the analysis of vessel form and the interpretation of vessel function. Within the "consumer-oriented" analysis suggested by Lind (1987), vessel form is considered an important variable in the decision-making process for ceramic consumption. Vessel-form analysis provides a means for interpreting functional attributes including cooking, storage, food consumption, and ceremonial activities. Ethnohistorical sources indicate that these activities all took place in domestic contexts. Consequently, the presence of specific functional types may be used as one line of evidence to interpret patterns of site utilization.

An additional research potential of vessel-form analysis relates to cultural foodways, combining food preparation, patterns of consumption, and aspects of food symbolism. Through the development of a model for archaeological foodways, comparisons between temporally or spatially distinct assemblages may be used to infer possible ethnic or status differences, thus providing potential insight into these aspects of social identity.

The use of vessel form to interpret vessel function is often implicit in ceramic analysis. These assumptions, however, can be criticized as incorporating the analyst's own ethnocentric biases regarding cultural foodways. In a study designed to identify the range of emic variability within a relatively homogeneous community in the Puebla/Tlaxcala area, Willett Kempton used cognitive theory to identify "folk classifications" of contemporary ceramic forms (1981). He concluded that "prototypical" form classes included a "fuzzy set" of morphological variations that diverged from the ideal (1981). The definition of each form category was culturally defined, however, with even minor societal subgroups (based on such factors as age, status, level of education, and gender) using distinctive systems of ceramic classification.

In an ethnoarchaeological analysis of pottery vessels from central India, Daniel Miller concluded that pots play a fundamental part in "framing" cultural behavior in addition to their functional roles as containers (1985). Ceramics help to create a variety of contexts recognizable to actors fluent in a "grammar" of cultural patterns. This communication does not necessarily occur on a conscious level but is created by patterned assemblages of different types of vessels. For example, a kitchen assemblage would evoke a certain set of cultural concepts, while a ritual assemblage would evoke others. Miller suggests that since these contexts are constructed using material culture, the patterns are potentially recoverable archaeologically as well as ethnographically.

In the absence of ethnographic data, emic categories for vessel function are less assured but not necessarily irretrievable. In a cross-cultural survey of vessel form and function, Henrickson and McDonald (1983) found a series of morphological regularities. For example, large globular vessels with constricted orifices are more often used to store liquids, while shallow vessels with open orifices are more often used for food consumption. Other studies (such as Robertson 1983; Halley 1986) have also looked at the relationship of ceramic form and function using ethnohistorical evidence for past foodways to interpret vessel function.

Pottery vessels are still produced and used in central Mexico, so that ethnographic analogies provide a potentially useful means of interpreting vessel function. Much of the explicit information on ceramics has focused on ceramic production (for example, Krotser 1974; Kaplan 1980; Lackey 1981), with information on function presented only incidentally. Other studies have considered vessel use life (Foster 1960), decoration (Friedrich 1970; Hardin 1984), and cognitive meanings (Kaplan and Levine 1981). Information on vessel function, perhaps because of the implicit, semi-conscious level at which pots operate within society (Miller 1985), is seldom given more than cursory attention. Vessels are depicted photographically, however, in contexts of use that provide information at least on primary functions.

Ethnohistorical data from Colonial and pre-Columbian Mexico also provide valuable information on past vessel functions. The *Florentine Codex* (Sahagún 1950–1982 [1547–1585]) provides detailed descriptions of daily activities in which ceramic vessels were depicted. It also illustrates aspects of ceramic use in food preparation and consumption (figure 2.1). Ceramics were also described in ceremonial contexts as special vessels for offerings or ritual feasting (figure 2.2).

Comparing ethnographic data with ethnohistoric information on vessel function indicates a high degree of consistency in the primary functions of different vessel forms. For example, wide, shallow vessels (*comales*) are now and were in the Contact period used for heating tortillas over a fire. Globular vessels with a constricted neck (*ollas*) are now and were used for cooking and for storing liquid foods. Large vessels with an unconstricted opening

a

b

2.1 Vessel function in pre-Columbian central Mexico: *a,* man drinking from biconical bowl and tripod serving bowl. *After Sahagún 1950-82, Book 2:Ill.43; b,* men eating from tripod bowls and hemispherical bowls. *After Sahagún 1950-82, Book 2:Ill. 26*

(*cazuelas*) are and were used for cooking stew-like foods. Liquids are still consumed from small, subhemispherical vessels with open orifices (*cajetes*) as they were depicted in pre-Columbian codices. These vessel types form the basis of the kitchen "tool kit," that is, those vessels that would typically be necessary for domestic food preparation and consumption. Using these and other analogous relations of form to function, archaeological ceramics can be used to reconstruct the composition of kitchen tool kits.

Kitchen tool kits in the archaeological record can be used to infer past foodways using ethnographic and ethnohistoric analogies to known methods of food preparation. Variations in cooking assemblages over time or across space could indicate differences in food use relating to technological or cultural differences. For example, the tremendous increase in the frequency of comales during the Early Postclassic period provides a dramatic example of change in the kitchen tool kit of central Mexico that must have had wide-reaching cultural impact. Blanton et al. (1981:71–72, 195) discuss the importance of comales in Preclassic Oaxaca, and the significance of their absence among the Classic Maya (also Feinman 1986; Isaac 1986). Comales were rare in Classic period contexts from Cholula (McCafferty, Suárez C., and Edelstein N.D.) and Teotihuacan (Sejourne 1966:98). Following
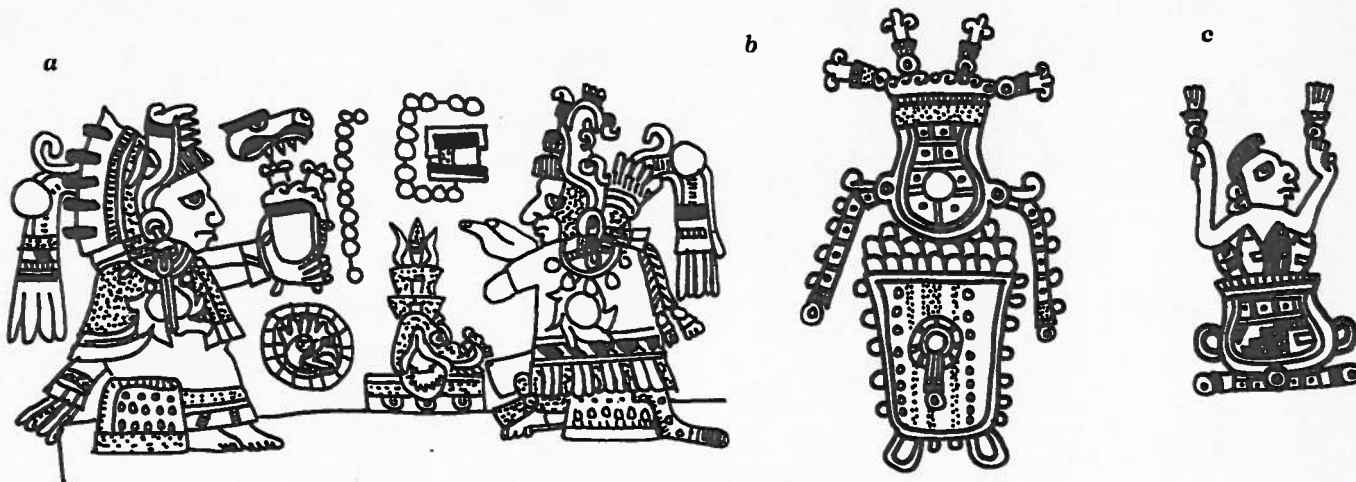
the changes precipitated by the collapse of the Classic Teotihuacan empire, however, comales appeared in abundance, suggesting a significant change in foodways.

The preparation of maize for making tortillas is a labor-intensive process that would have required a considerable reapportionment of domestic labor beginning in the Postclassic period (Isaac 1986; Brumfiel 1991). The causes for this radical change are unknown, but may relate to social transformations that occurred during the Classic/Postclassic transition. Detailed analyses of the strategic adoption of comales could yield insights into not only food technology and diet, but also ethnic migrations and changes in the gender-based division of labor.

Foodways encompass more than simply which foods are prepared and how. They can also include rituals of consumption, such as how meals are organized, and the ideological significance of particular foods. Recent anthropological studies of the symbolism of food practices have emphasized its role as a fundamental structuring principle for society (Douglas 1979; Johnsson 1986). For example, foodways are one of the most resilient attributes of ethnic identity, comprising a subjective sense of identity at the same time that they construct a set of contrasts for boundary maintenance (McCafferty 1989:85).

The investigation of archaeological foodways is a developing field involving both improved methods for recovering evidence (for example, chemical residues from inside cooking vessels) and more detailed analyses of subsistence remains (that is, faunal and botanical materials). Ceramic vessel-form analysis has the potential to complement this study through interpretation of the cultural dimension of food preparation and consumption.

2.2 Ritual use of vessels from pre-Columbian central Mexico: *a*, woman offering chocolate in tripod *copa*. *After Codex Nuttall 1975:21-II*; *b*, olla of chocolate heating on tripod brasero filled with coal. *After Codex Borgia 1963:63*; *c*, ears of maize and human cooking in decorated olla. *After Codex Borgia1963:57*

In addition to subsistence data, archaeological residues of food, especially faunal remains, have been used to interpret status under the assumption that higher-status households would have had greater access to food resources. A similar measure is available through variation in the quantity and quality of associated material remains, including ceramic vessels (Smith 1987b). An explicit method for quantifying relative value has been applied to Mesoamerican ceramics using the amount of invested labor as defined by the number of production steps (Feinman, Upham, and Lightfoot 1981; Blanton et al. 1981). This represents a particularly rigorous method for quantifying what is heuristically practiced with interpretations of "fine wares" versus "crud wares."

An alternative measure of status using ceramic assemblages involves ratios of different vessel forms. Drennan (1976) suggested the ratio of bowls to jars as a measure for comparing relative status. This assumes that higher-status households would tend to possess relatively more serving than utilitarian vessels in contrast to lower-status households. For the Postclassic Valley of Mexico, Brumfiel (1991) has used vessel-form ratios of jars to griddles as a means of comparing domestic strategies of food preparation involving wet versus dry foods, especially as they related to domestic decision-making processes.

The preceding discussion samples the range of interpretive information that is potentially available from vessel-form analyses involving archaeological ceramics. The purpose is not to critique these analytical strategies but simply to demonstrate that ceramic analysis has more to offer than "piles of earth and potsherds" on a lab table. Relating vessel forms to their functional context provides potential insights into a range of cultural interpretations, including specific activity areas, foodways, social organization, ethnic identity, status, and gender relations. In this respect, functional interpretations of ceramics are an important component of a consumer-oriented analysis (Lind 1987).

3 Methodology

This chapter describes the laboratory and analytical procedures used in the UA-1 pottery analysis. The first section describes the ceramic assemblage as it existed when the analysis began and the steps taken to organize the materials. Because of the large number of potsherds recovered, a sampling strategy was developed for selecting a representative subset that could provide the maximum amount of information. The attributes are then defined for the type descriptions and vessel-form analysis and the methodology is described for how these attributes were manipulated to interpret the assemblage. Finally, the specific depositional contexts used in the seriation analysis are identified, with discussion of stratigraphy and possible sources of contamination.

UA-1 CERAMIC ASSEMBLAGE

When the present analysis of the UA-1 ceramics began in 1982, the collection consisted of a large, unorganized mound of sherd bags that had been hastily removed from the UDLA Archaeology Lab when the roof collapsed. The majority of the bags contained unwashed artifacts exactly as they had come out of the field in 1968. The present project began with an inventory of the collection, and selected proveniences were identified for analysis. As the washing and labeling of the sherds progressed, the field school students' notes were reviewed for information on stratigraphy and excavation conditions. Other important documentation from the project included forms from the individual excavation units, inventory cards for the sherd bags and objects, and the original photos; all documentation is on file at the Archaeology Lab of the UDLA,

Cholula, Puebla. Some information was missing from the lab archives and could not be consulted: the field notes of Wolfman and his graduate assistants, sketches of unit plans and profiles, and the results of the preliminary artifact analysis. Furthermore, some artifact classes (for example, skeletal and faunal remains, lithic objects, and most of the complete vessels) were missing at the time of my analysis, although some data on these materials were available on the individual object cards.

The UA-1 excavations recovered approximately one thousand bags of potsherds from 671 proveniences defined by unit, level, and feature. On the basis of preliminary sorting, Wolfman (1968:5) estimated the total assemblage at more than one hundred thousand sherds, but subsequent analysis indicates that the total is at least double that amount. One of the first objectives in the analysis, therefore, was to devise a sampling strategy to organize the ceramic assemblage.

Collection units selected for study included primary and secondary contexts suitable for seriation. Thus, analysis focused on excavated levels associated with midden deposits, wells, burials, and floor contact of structures 1 and 2. Plow-zone and collapsed adobe-wall deposits were generally eliminated from the analysis.

A second sampling criterion was the selection of rim sherds for detailed analysis and quantification. Rims are particularly useful for identifying vessel form (Whallon 1968; M.F. Smith 1985). Information on form frequencies is important for interpretations of functional variation in ceramic assemblages. Body sherds can also provide information on form, but it is less detailed and more susceptible to bias based on vessel size. In the UA-1 analysis,

body sherds were rebagged for possible reconstruction of whole pots or for future stylistic analysis; unfortunately, the sherds from UA-1 were later buried on the UDLA grounds to conserve lab space.

With only rims selected, it is estimated that the analysis retained approximately 15% of the pottery from the selected contexts, eliminating the 85% that were body sherds (also including bases, supports, and handles). This estimate is based on a sample of total counts made during the initial sorting of rims from body sherds and is consistent with sherd counts from the Valley of Mexico that were tabulated by Parsons and colleagues (Parsons et al. 1982:Tables 39–55).

Rim sherds were subjected to one final sampling step. During sorting, very small rim sherds were found to be difficult to classify as to form. Even for type designations it was suspected that decorated types, by virtue of having more identifiable characteristics, would be overrepresented in relation to undecorated types. To control for this potential bias, rim sherds that measured less than 2 cm on a side (roughly the size of a quarter) were set aside. These were counted as "Unidentifiable/too small" in the classification. Approximately 25 to 30% of the rim sherds analyzed fell into the "Unidentifiable/too small" category.

Quantification of the ceramics was based on sherd counts, but an additional measure was employed for rim sherds from the large trash midden located south of structure 1. The measurement of degrees of arc (see Plog 1985) provided an alternative value that was useful for determining the minimum number of individual vessels for each type and form and is therefore a more accurate means for estimating the kitchen tool kit. Comparisons between the sherd count and degree-of-arc values provide an opportunity to correct for overrepresentation of large rim forms as opposed to small rim forms (for example, *comales* [griddles] that break into many pieces in contrast to small-mouth *ollas* [jars] that produce only a few rim sherds from a large vessel).

Another potential of the degree-of-arc measurement is that it allows an estimate of average sherd size for vessels of similar rim diameter. Assuming that sherd size is affected by the amount of disturbance in a deposit (Bradley and Fulford 1980; Schiffer 1987:267–269), the degree-of-arc value can provide a means for interpreting the formation processes for particular deposits. Consequently, rim sherds from an area that has been exposed to exten-

sive disturbance (through erosion, trampling, or construction) should have a smaller average degree-of-arc value than rims from a deposit that was covered quickly and with less disturbance.

A complementary means for measuring depositional disturbance is the percentage of Unidentifiable/too small sherds from each provenience, where relatively more small rims would be expected in more disturbed levels or in areas of traffic and regular sweeping. Midden deposits often contain a high frequency of large vessel fragments, while plow-zone levels have a higher frequency of small fragments. For example, the plow-zone deposit (level 1) of unit N3/W1 east balk contained 73% (n = 83) sherds in the Unidentifiable/too small category. Considering that very small sherds are often discarded during analysis (Schiffer 1987:269), this artifact category is put to a positive use as a measure of disturbance and/or site function.

A total of 16,396 rim sherds were analyzed from primary and secondary contexts, usually associated with the two Postclassic structures and related features. Assuming that rims make up about 15% of a typical assemblage, approximately 110,000 potsherds were processed. This total represents only a portion of the sherds from the UA-1 site, however, since the unanalyzed plow-zone layers usually contained large quantities of small sherds.

In addition, eighty-one complete or reconstructable vessels were recovered at UA-1 (McCafferty 1992a:489–493). Because most of these were missing from the UDLA Archaeology Lab at the time of the analysis, they were not included in ceramic tabulations. More than half of the complete or reconstructable vessels (n = 47) were found in the large trash midden associated with structure 1, and an additional thirteen vessels were discovered beneath the floor of room 3, structure 1, perhaps as ritual interments because they were placed near the raised platform altar. Several other complete vessels were found in association with burials.

Ceramic data were coded, entered into a computerized data base, and processed using the SAS statistical program. This information is used to produce frequency tables for the types and subtypes, and for vessel form (see chapter 5).

UA-1 CERAMIC TYPOLOGY

The definition of pottery types was based on surface treatment and decorative techniques, with vessel form treated as an independent variable that was considered

separately. The diversity of polychrome styles from Postclassic Cholula provides an exceptional basis for defining types that are potentially sensitive to temporal as well as social variability. Surface treatment, decoration, and vessel form are meaningful criteria associated with consumer choice (Spencer-Wood 1986; Lind 1987).

Classification of the UA-1 ceramic assemblage identified thirteen major pottery types, with an additional twenty-three minor types that were either foreign imports or anachronistic, that is, from a time period other than the Postclassic (table 3.1). In the UA-1 analysis the definition of a "major" type was based on the arbitrary figure of 2% of the total assemblage, with types that appeared as less than 2% designated as "minor" types. In practice, this generalization worked quite well, with the exception of Coapan Laca Polychrome, a highly decorated type that is the prototypical "Cholula Polychrome" in most previous studies. The type was rare in the UA-1 assemblage, however, probably because of temporal and/or social factors. It is included among the major types because it is so well known.

Many of the types exhibited variation in decorative treatment that could be subdivided as distinct subtypes deriving from the basic type. For example, the type Ocotlán Red Rim is defined by its polished orange slip and a red painted band on the rim. When it occurs with only these decorative elements, it is classified as the subtype Sencillo (simple). This basic subtype, however, is often elaborated using such techniques as incising (usually in a horizontal panel that is painted brown/black) or different degrees of painted decoration (ranging from simple horizontal bands to complex polychrome motifs). Yet regardless of the degree of elaboration, the fundamental attributes of the type are maintained. Subtype variation can thereby be discriminated without losing the underlying consistency of the type identity.

Minor types are those that can be identified as imported or are most common at Cholula during other time periods. These were grouped by the time period for which they are diagnostic: Colonial/Historic period, Late Postclassic period, Early Postclassic period, Classic period, and Preclassic period.

Two categories were created for rim sherds that were classified as Unidentifiable, either because they were too eroded or burnt or because they were too small to give consistently accurate information. An additional nineteen categories of Unidentified types were created for

unique sherds that could not be assigned to any established type. Unidentified types are assumed to be either spatially or temporally foreign to Postclassic Cholula, but they could not be identified securely as to where or when they were used.

The ceramic types and subtypes are defined in chapter 4. For the thirteen major types, each description includes five categories:

- Paste and firing effects
- Surface treatment
- Decoration
- Vessel forms
- Discussion

The first category, paste and firing effects, considers such attributes as paste color, temper, compactness, hardness, firing core, and firing clouds. Noguera (1954:60–64) identified minor differences in the fineness of the paste relating to utilitarian as opposed to decorated serving wares and also noted that the paste color tended to be slightly darker brown in the thicker utilitarian wares, probably as a result of firing technique.

The most detailed discussion of Cholula paste appears in Mountjoy and Peterson (1973:33–34), who report on a total of forty-six sherds (representing each of their type categories) that were subjected to thin-section analysis. Temper was uniform in all samples, with plagioclase feldspar and mica as the two most common materials. Minor differences did occur in paste color, packing of the paste, and the amount of temper, but these differences could not be correlated with specific types and were considered idiosyncratic variations in the production process. The general homogeneity of Postclassic paste was recently confirmed by an independent paste analysis conducted by INAH (Suárez C. 1994:50).

In a recent study designed to distinguish Cholula polychromes from other Mixteca-Puebla style laca polychromes (Neff et al. 1994), three compositional "fingerprints" were identified from the Puebla/Tlaxcala valley relating to Cholula, Huejotzingo, and Tlaxcala. The values used to define these different regional types were very similar with considerable overlap, however, suggesting a general similarity in raw materials used in ceramic production.

Discussion of surface treatment includes the quality of the surface appearance, considering such factors as

Table 3.1 Ceramic types and subtypes

MAJOR POSTCLASSIC DECORATED TYPES	MINOR TYPES–FOREIGN/ANACHRONISTIC

MAJOR POSTCLASSIC DECORATED TYPES

APOLO BLACK AND RED ON ORANGE POLYCHROME
- Sencillo
- Geometrico
- Elegante
- Carmen Grey on Orange

AQUIAHUAC BURNT ORANGE POLYCHROME
- Sencillo
- Santa Catarina Black and Red on Orange
- Zocalo Black on Orange

COAPAN LACA POLYCHROME

COCOYOTLA BLACK ON NATURAL
- Sencillo
- Incised
- Banded
- Banded Elegante
- Chalco Black on Orange

CUAXILOA MATTE POLYCHROME
- Polished Cream
- Fugitive Paint
- Xicotenco Black and Red on Orange

OCOTLAN RED RIM
- Sencillo
- Incised
- Banded
- Elegante
- Banded Elegante
- Cristina Matte

SAN PEDRO POLISHED RED
- Sencillo
- Incised
- Black on Red Incised
- Graphite on Red
- Graphite on Red Incised
- Graphite on Red Banded
- Graphite on Red Elegante
- Shallow Grooved
- Modeled

TORRE RED AND ORANGE ON WHITE POLYCHROME
- Unburnished Matte
- Polished Cream

MAJOR POSTCLASSIC UNDECORATED TYPES

CERRO ZAPOTECAS SANDY PLAIN

MOMOXPAN METALLIC ORANGE

SAN ANDRES RED
- Dark Red

TEPONTLA BURNISHED
- Incised
- Red Rim

XICALLI PLAIN

MINOR TYPES–FOREIGN/ANACHRONISTIC

Colonial/Historic period

COLONIAL SALT GLAZE

POBLANO GLAZE WARE
- White Glaze
- Brown Glaze
- Green Glaze
- Yellow and Black on White Glaze

POBLANO WHITEWARE
- White Glaze
- Green and Black on White Glaze
- Blue and Black on White

PUEBLA BLUE ON WHITE MAYOLICA

Late Postclassic period

AZTEC III BLACK ON ORANGE

COXCATLAN GRAY

MIXTECA BAJA BLACK ON ORANGE

TECALI BLACK ON ORANGE

Early Postclassic period

ISLA DE SACRIFICIOS WHITE ON CREAM

IMITATION WHITE ON CREAM

GULF COAST FINE ORANGE
- Incised

IMITATION FINE ORANGE
- Sencillo
- Incised

COMAC BUFF
- Sencillo
- Incised
- Red Rim

Classic period

TEOTIHUACAN THIN ORANGE

IMITATION THIN ORANGE
- Thin Tan
- Micaceous Orange

TECOLA POLISHED
- Groove Incised

LOS TETELES GRAY/BROWN
- Pinched Exterior

MANZANILLA ORANGE

ACOZOC TAN/ORANGE

Preclassic period

CHOLULA CREAM
- Incised

TOTIMEHUACAN BROWN
- Incised

AMALUCAN POLISHED BLACK

COAPA ORANGE

streaking, pockmarks, and symmetry. It also describes the treatment; for example, wiped (defined by parallel ridges of clay left from the wiping implement) as opposed to burnished surfaces. Finally, an attribute that overlaps with decoration is the use of a slip, often with a thin undercoat. Subtypes were occasionally defined on the basis of variations in surface treatment; for example, Cuaxiloa Matte Polychrome is usually lightly burnished, but some examples were burnished to a high luster, and were tentatively classified as subtype Polished Cream.

The description of decoration includes a more detailed discussion of slip, as well as other decorative techniques. Painted decoration was the most common technique used in Postclassic Cholula, usually involving the colors orange, white, red, and black. Incising also occurred, but was most common in the Early Postclassic period. Since most of the subtypes were discriminated on the basis of decorative elaboration, this is the section where subtype definitions usually appear.

The section on vessel forms identifies and describes the most common forms found in each type and subtype. This usually applied to those forms that appeared as more than 10% of the total type assemblage. Ceremonial forms are also described when they occurred in significant quantities.

The discussion section summarizes details of each type and relates it to other pottery types found in Cholula and surrounding regions. Comparisons of type frequencies from related excavations with those from UA-1 provide an initial basis for interpreting the chronological placement of the types.

Each of the major type descriptions presented in chapter 4 includes a frequency table of subtypes and forms, relating to the four primary depositional contexts (that is, wells 1, 2, and 3, and the trash midden) and to the total assemblage. These indicate an initial range of variation for the different types and also provide a preliminary pattern of change that is further developed in the seriation analysis in chapter 5.

VESSEL-FORM ANALYSIS

The identification of the UA-1 vessel forms is based on ethnographic analogy with pottery in use in contemporary Mexico, and is consistent with ethnohistoric evidence for pottery in use at the time of the Conquest. Three functional classes of vessels are recognized: utilitarian wares, serving wares, and ceremonial wares (table

Table 3.2 Vessel Forms and Rim Forms

UTILITARIAN WARES

COMAL
    Comal
    Vertical rim *comal*
OLLA
    Long neck *olla*
        Everted L-lip
    Small mouth *olla*
    Large mouth *olla*
CAZUELA
    Hemispherical cazuela
        Flared rim
    Conical cazuela
        Flared rim
        Everted lip
        Bolstered lip
MACETA
    Conical maceta
    Cylindrical maceta
TECOMATE
    Tecomate
        Inverted rim
        Vertical rim

SERVING WARES

PLATO
    Plate/lid
    Outleaned wall dish
        Flared rim
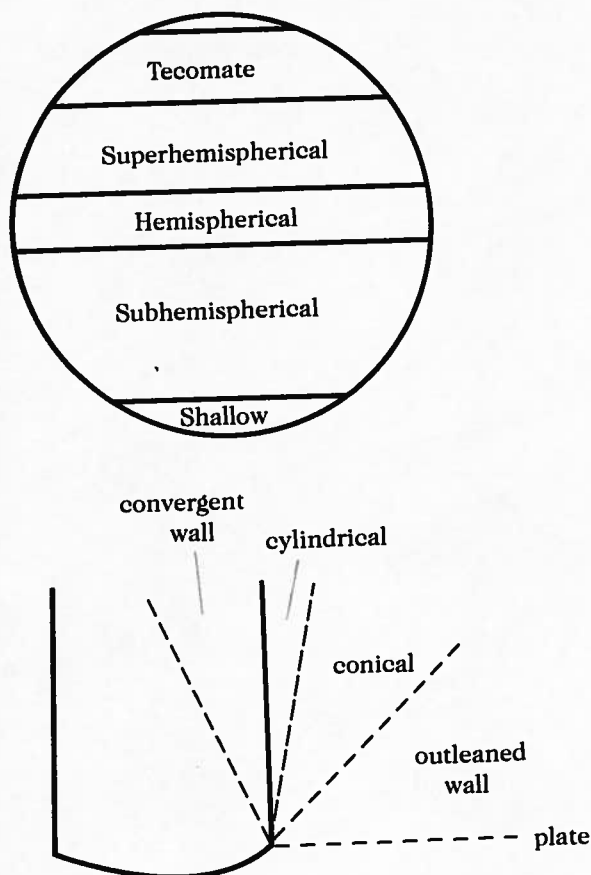   Subhemispherical dish
CAJETE
    Outleaned wall bowl
        Everted lip
    Subhemispherical bowl
        Everted L-lip
    Hemispherical bowl
        Flared rim
    Conical bowl
        Impressed rim
        Flared rim
        Everted lip
    Cylindrical bowl
        Flared rim
        Everted lip
    Superhemispherical bowl
COPA
    Biconical *copa*

CEREMONIAL WARES

BRASERO
TRIPOD CENSER
SAHUMADOR
LANTERN CENSER
MINIATURE VESSEL

3.1 Schematized vessel-form classification

3.2). Within each of these classes there occur several functional types of vessels; for example, serving wares consist of *platos* (plates), *cajetes* (bowls), and *copas* (cups). Specific vessel forms relate to these functional types and are subdivided based on such attributes as standardized morphology, size, or rim dimension. Vessel forms are often described in relation to idealized geometric shapes (figure 3.1). A total of twenty-four separate vessel forms are distinguished, with nine possible variations in rim or lip form.

Utilitarian ware vessels were generally used in food preparation and storage. Five vessel types are recognized: *comales* (griddles), *ollas* (jars), *cazuelas* (cooking pots), *macetas* (basins), and *tecomates* (constricted-mouth jars) (figure 3.2).

Comales are wide, low vessels that were used to heat tortillas and other dry foods over a hearth fire. The inte-

rior surface is usually burnished, but the exterior surface is very coarse, probably intentionally roughened to enhance the transfer of heat and prevent slippage on the hearth stones. Rims are generally bolstered, sometimes with an exterior flange that looks like a base. Although there is considerable variation in rim forms, the only consistent pattern found was in vertical rims that project 1 to 3 cm above the body of the vessel. These rims are probably a temporal variant dating to the Epiclassic period. Other than the bolstered rims, vessel walls range from very thin to medium thickness depending on the ceramic type.

Ollas are large, globular vessels with a constricted orifice and flaring neck. They were used for storing and heating liquid foods. While the exterior is usually at least smoothed, the interior is unfinished or simply wiped. The exterior base is often blackened from exposure to heating fires, and interiors occasionally have sediments relating to the substances stored or processed in the containers. Bases are rounded, requiring a ring stand for support on the ground. Handles are often located on the vessel neck and/or shoulder, indicating that they may also have been suspended above the ground. Three vessel forms were identified on the basis of the orifice dimensions: long-neck ollas, small-mouth ollas, and wide-mouth ollas.

Cazuelas are large, open vessels that were used for cooking foods of stew-like consistency (such as *mole*). Surface treatment consists of smoothing on both the interior and exterior, with the interior usually more carefully finished. Examples have fairly thick vessel walls, and handles are found at the rim. No rim-to-base sherds were recovered at UA-1, but ethnographic examples and those illustrated in the codices have flat bottoms. Vessel forms include hemispherical cazuelas and conical cazuelas.

Macetas are large, thick-walled vessels that may have been used for storage. They are open vessels that can be distinguished from cazuelas by the thickness of the vessel walls and by the presence of a roughened bottom similar to that on comales. Vessel forms include conical macetas and cylindrical macetas.

Tecomates are large, superhemispherical vessels with a relatively small orifice. The exterior surface generally has a better finish than the interior, which is simply wiped. These are usually fairly tall vessels that tend not to have handles and were probably used for storage.
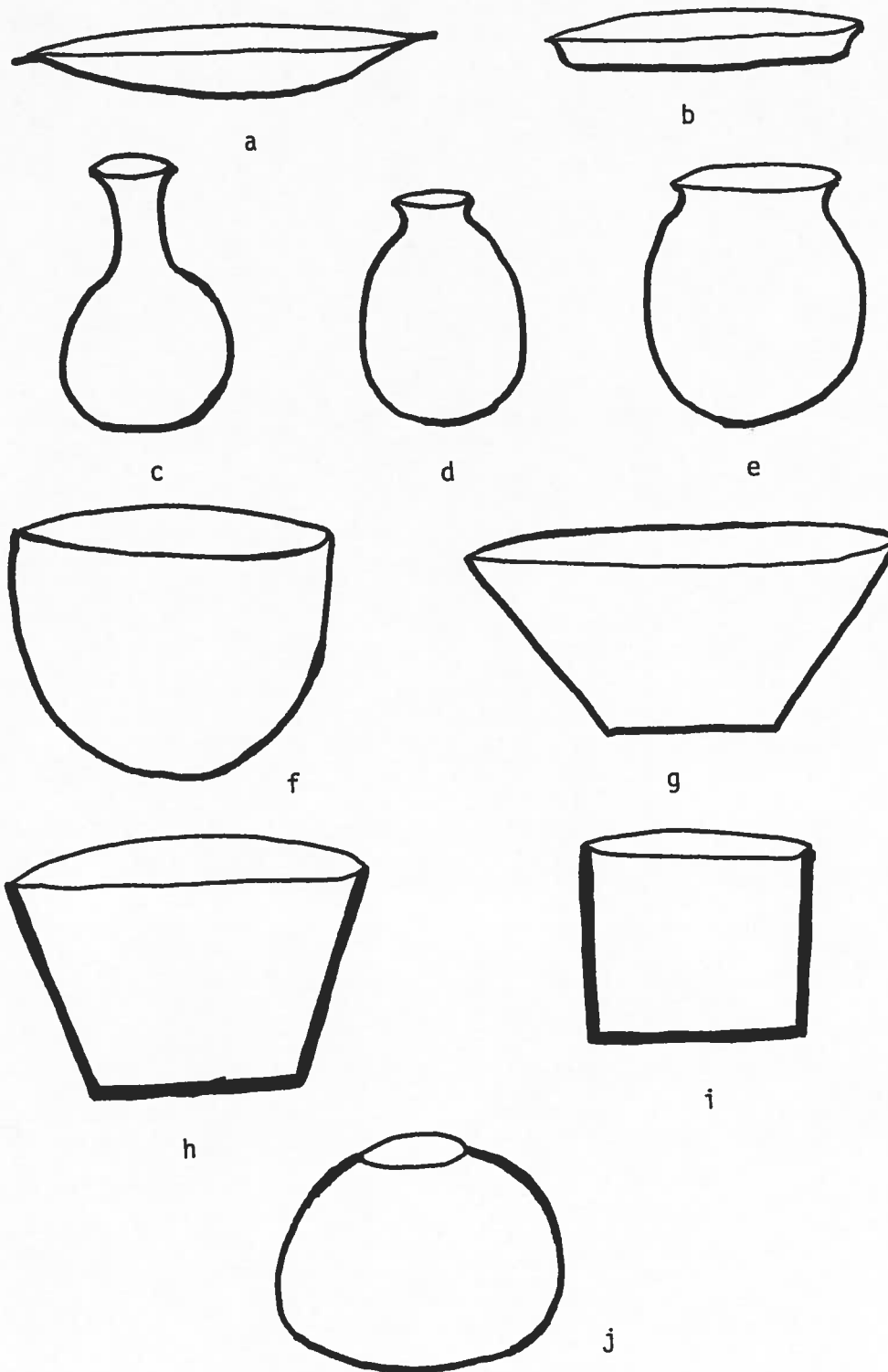
3.2 Utilitarian ware vessel types and forms: *a,b,* comales;
c–e, ollas; *f,g,* cazuelas; *h,i,* macetas; j. tecomate
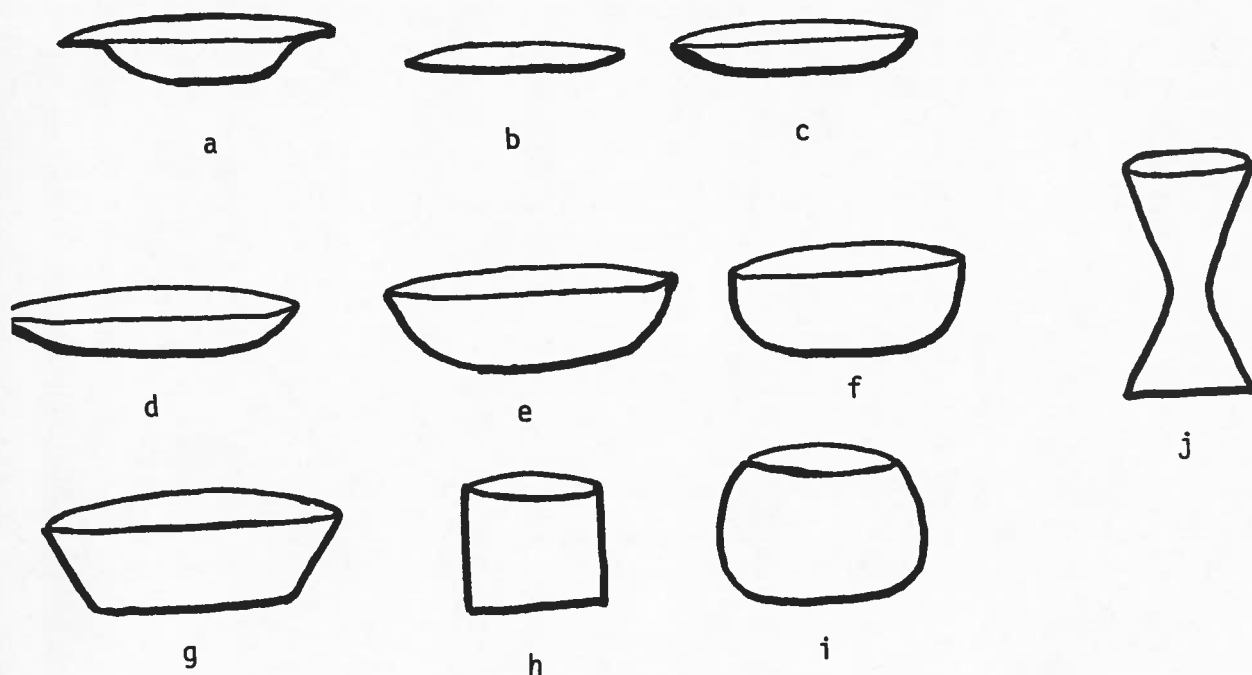
3.3 Vessel types and forms for serving ware: *a-c*, platos;
d-i, cajetes; *j*, copa

Serving wares were generally used for food consump-
tion, although some exceptions will be discussed. Three
vessel types are recognized: platos, cajetes, and copas
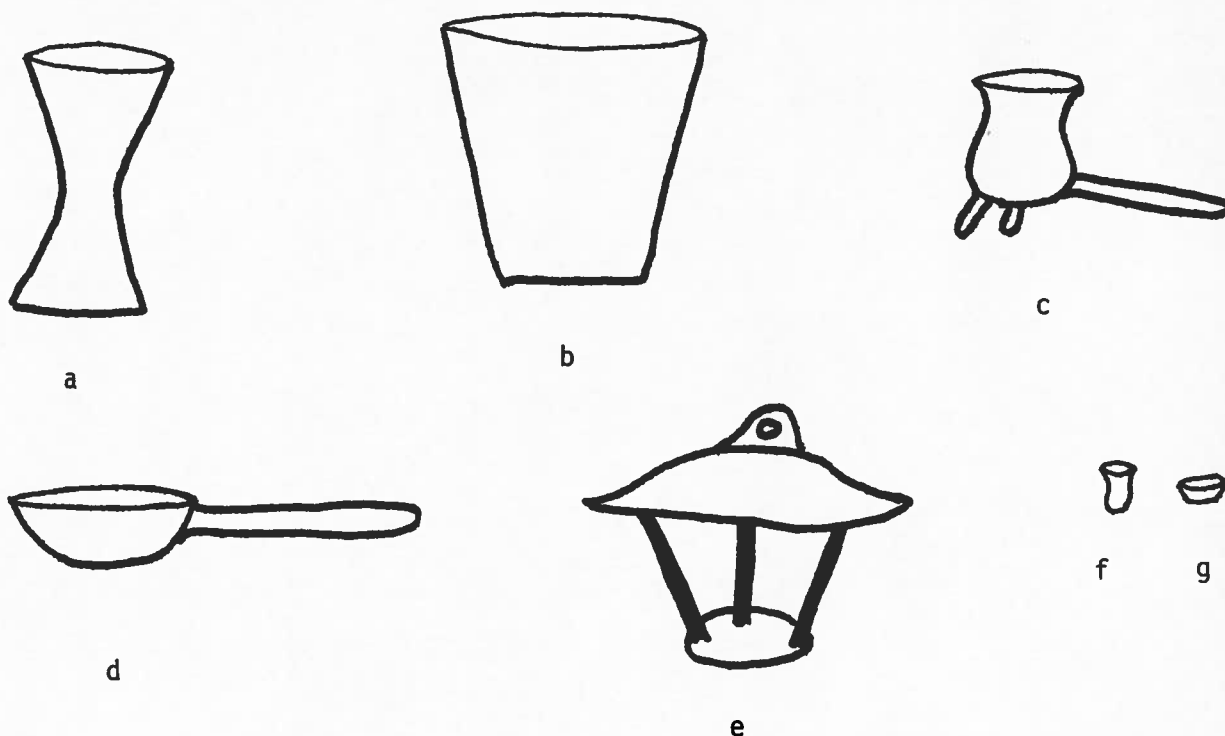(figure 3.3).

Platos are defined as wide, low vessels that were prob-
ably used for the consumption of dry foods. They have
either flat bases or slightly raised centers, and the most
common vessel form (flared rim, outleaned wall dish)
has a low wall that includes a wide, horizontal rim. Some
examples include tripod supports, but this was rare in
the UA-1 assemblage. They were often elaborately deco-
rated and well-burnished on the interior surface, but
with minimal decoration on the exterior. Other vessel
forms include plates/lids and subhemispherical dishes.

Cajetes are relatively deep vessels that were probably
used for the consumption of liquid foods. They usually
have flat or flattened bases, and tripod supports are com-
mon. Very elaborate polychrome bowls occasionally have
a tall ring base, giving the vessel an hourglass appear-
ance. Cajetes are often decorated on the interior and/or
exterior depending on the specific vessel form. This was
the most abundant vessel type found at UA-1, and vessel
forms include outleaned wall bowls, subhemispherical
bowls, hemispherical bowls, conical bowls, cylindrical

bowls, and superhemispherical bowls.

In addition to their primary function in food con-
sumption, several varieties of cajetes had alternative
uses. *Molcajetes* (grinding bowls), for example, had a
stamp-impressed interior base that created an abrasive
surface used for grating chiles (McCafferty and Suárez C.
2001). Ethnohistoric evidence indicates that small bowls
were used for supported spinning (see Smith and Hirth
1988), and bowls with heavily worn interior bases were
found at UA-1 that might indicate such a function. A
number of very small Momoxpan Metallic Orange bowls
were found as grave goods in a mass burial in San Andrés
Cholula (Suárez C. 1989), and their association with
spindle whorls suggests the possibility that they may
have functioned as spinning bowls (McCafferty 1992b).
Finally, some of the superhemispherical bowls showed
evidence of firing discoloration, suggesting that they may
have been used over a fire, perhaps to heat food. Since
evidence for alternative uses for cajetes usually re-
quires a relatively complete vessel fragment, no attempt
is made to separate these from the serving ware class. It
should be noted, however, that there is some ambiguity
in this category.

Copas are defined as tall vessels with a relatively small
rim diameter. They were probably used for the consump-
tion of beverages, possibly *pulque* (fermented maguey
juice) or chocolate. The most common vessel form was

3.4 Ceremonial ware vessel types and forms: *a,b*, braseros; *c*, tripod censer; *d*, sahumador; *e*, lantern censer; *f,g*, miniature vessels

the biconical copa, with a tall ring base that gives the vessel an hourglass shape. Decoration appears on the exterior surface, which is usually well-burnished. The interior of the upper section is more carefully finished than the interior of the base, which is usually just smoothed.

Ceremonial wares were used for ritual practice, especially for burning incense. Ethnohistoric sources describe a range of contexts in which ceremonial wares might be used, including domestic rituals. Ceremonial wares included braseros, tripod censers, *sahumadores*, lantern censers, and miniature vessels (figure 3.4).

Braseros, including xantiles, are large vessels that were probably used for burning incense. They may have played a special role in domestic ritual associated with a household altar (Sisson 1991/92). They are usually thick-walled and were often coarsely constructed. Three nearly complete braseros recovered from the brasero niche in room 3 of structure 1 were biconical vessels, measuring about 30 cm in height (figure 3.5). Two had anthropomorphic figures appliquéd onto the exterior. Other braseros are decorated with stucco and then painted in colors that include blue and black. Some braseros have appliqué braiding on the exterior, and others have pinched cones that protrude from the exterior vessel walls.

Tripod censers are small globular vessels that resemble miniature ollas. They are supported on two short legs, with a third, longer support that probably also

served as a handle. These censers are usually highly burnished on the exterior, but plain and fire-blackened on the interior. A common decorative form is a lattice-work pattern created by carving away sections of the vessel wall to allow the smoke to escape through the sides.

Sahumadores resemble frying pans in that they have a shallow dish that is connected at the rim to a long handle. They were used for burning incense, especially during processions. The exterior of the vessel and handle are usually well-burnished, but the interior of the bowl is plain and fire-blackened. The handles are hollow, and complete examples occasionally have zoomorphic figures attached at the end (Müller 1978:166–167, Pl. 22).

Lantern censers are constructed of a flat, circular base; a domed roof; and three cylindrical supports that attach the roof to the base. Fire-blackening on the interior surface of the roof indicates that incense was probably burned on the base, with the smoke rising to coat the inside of the roof. A loop handle on top of the roof provided a means for suspending the censer. These censers were generally undecorated other than occasional incised crosshatching on the outer surface of the roof, giving it the appearance of a thatched roof.

Another censer type that was not found in the UA-1

3.5 Cerro Zapotecas Sandy Plain xantiles from the brasero niche at UA-1 structure 1: (a) UA-1 object 10896, (b) UA-1 object 9327

assemblage but that occurred in the UA-79 Late Postclassic assemblage is a conical bowl with two solid handles projecting out from either side of the vessel. These handles are often pierced by a round hole that passes from top to bottom, providing a means to suspend the censer. These vessels are usually highly decorated with elaborate polychrome motifs on the exterior, but are plain and fire-blackened on the interior.

Miniature vessels are a final type of ceremonial ware found on rare occasions at Cholula. They are usually less than 10 cm in height and 5 cm in diameter and often resemble ollas. It is unclear how they were used within a domestic context, but they do appear in mortuary assemblages at the ceremonial center of Cholula (López A., Lagunas R., and Serrano S. 1976). Miniature vessels are relatively abundant in Postclassic contexts from the Mixteca Alta (Spores 1972; Lind 1987).

A comparative analysis of vessel-form frequencies in chapter 5 is used to identify potentially different activity areas and/or patterns of disposal. When factored into the diachronic sequence produced by the ceramic seriation, variations in vessel form may be used to interpret changes in cultural foodways. Finally, the ratios of vessel class and vessel type provide a basis for comparison with other assemblages.

DEPOSITIONAL CONTEXTS AND UNITS OF ANALYSIS

One of the most significant sampling steps in the UA-1 ceramic analysis was the selection of primary and secondary depositional contexts. In addition to limiting the scope of analysis, this step isolated units of analysis with a higher level of archaeological integrity that were suitable for seriation analysis. In this section, the different depositional contexts are defined, and each is discussed in terms of its particular research potentials.

Collection units were eliminated that contained deposits that had been mixed by plowing or that were related to "melted" adobe from collapsed walls. In general, level 1 (0 to 25 cm) was eliminated as plow-zone.

Level II (25 to 50 cm) usually included some plow-zone, but also included mixed deposits from collapsed adobe walls in those units associated with the structural remains. Level III (50 to 75 cm) also contained collapsed wall material, but included materials that may have been deposited above the floor following abandonment of the structures. The floor contact deposit was usually located at the bottom of level III and in most cases was collected separately.

Four primary depositional contexts are considered superior from the perspective of their archaeological integrity. These are the trash midden located south of structure 1 and the three wells. Midden deposits are valuable archaeologically because they generally contain material refuse from a fairly brief period of time and often from a limited and interrelated segment of population. Wells were often used as convenient trash disposal areas, presumably after they were abandoned, in much the same way that privies were used in historic periods. Since these were fairly distinctive features, they were generally collected as discrete units and were relatively unmixed at the time of excavation.

The trash midden was the largest concentration of material remains found at UA-1, consisting of abundant pottery fragments and other artifact classes, mixed with layers of ash and charcoal. The deposit encompassed most of units S7/E1, S7/W1, S8/E1, S8/W1, and their connecting balks. It was first recognized in level II (25 to 50 cm below surface) and continued to a depth of 125 cm. Unfortunately, the midden was not excavated as a feature, and unit levels were maintained at 25 cm intervals (some of the balks followed natural levels), so there is the possibility of some mixing. The most notable example is bag 8153 (S8/E1, level III), where a high concentration of Classic period pottery indicates that another feature was intersected by the excavation unit (see chapter 5).

Well 1 was located on the north side of room 4, structure 1. In Wolfman's preliminary excavation report (1968:11), the well was interpreted as part of the compound and was used to tentatively infer a kitchen function for the room. The excavators described a low wall that surrounded the well, extending about 55 cm above the floor level. As described in chapter 5, ceramics from well 1 included a high concentration of the Late Cholollan Apolo Polychrome and were dis-

tinctively different from those of structure 1. A more plausible interpretation, therefore, is that the well relates to an occupation level above the floor that post-dated structure 1, the low wall being the well structure itself.

Well 2 was located to the east of structure 2, in unit S2/E9 on the opposite side of the possible compound wall. The top of the well was only 30 cm below the ground surface. The walls of the well were constructed of cement and brick, at least in the uppermost section. Wolfman (1968:13–14) and his students interpreted this as a Colonial well on the basis of its elevation, construction technique, and materials found within it (including glazed-ware ceramics and faunal remains of European domesticates).

Well 3 was discovered at the bottom of the trash midden south of structure 1, although the original site map suggests that it may not have been covered by the deposit. At a depth of 125 cm below the surface, an oval stain (85 x 70 cm in area) was recognized in unit S7/E1 (Wolfman 1968:7–8). It extended to a total depth of 277 cm below the surface. Narrow ramps were identified leading into the well, and shallow "borrow" pits were located around the mouth of the well.

Other contexts that were analyzed do not have the same degree of integrity, either because of the excavation strategy employed (that is, arbitrary levels that mixed depositional contexts) or because of ambiguities in the recorded information. With caution, however, I feel that these also provide valuable information that can be used to interpret the spatial patterning of activities and supplement the seriation analysis. Additional depositional contexts relate to the two structural compounds, with materials not only from floor contact but also from below and immediately above the floor surface. Based on recent findings from pre-Columbian structures preserved by volcanic ash fall at Cerén, El Salvador (Sheets 1991), numerous artifact classes were stored in elevated contexts that would probably become part of the above floor assemblage if the structure were burned.

Proveniences from structure 1 included floor contact of interior rooms (rooms 1–4) and exterior porch areas (areas A–C), deposits sealed beneath the floor and porch, materials from within the oval temazcal structure, and mixed deposits from immediately above the floor but beneath the collapsed adobe walls.

Other analytical units include floor contact from structure 2 and mixed deposits from immediately above the floor; an intrusive midden that passed through the floor of structure 2 but was sealed beneath the stone wall to the north of the compound; two sherd concentrations located between structures 1 and 2; three separate burials; and two stratigraphic units where there was little construction disturbance.

The analysis of the depositional contexts employs both the ceramic typology and vessel form categories developed in the next chapter. The objectives of the analysis are twofold. First, seriation of type frequencies is used to define the sequence of Postclassic occupation at UA-1 so that further functional interpretations can be based on contemporaneous deposits. Second, since pottery vessels are important indicators of domestic production, analysis of the spatial distribution of vessel-form frequencies in the different depositional contexts provides useful information for initial functional interpretations.