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## The Ceramics of Tikal

T. Patrick Culbert

More than 40 years of archaeological research at Tikal have produced an enormous quantity of ceramics that have been studied by a variety of investigators (Coggins 1975; Culbert 1963, 1973, 1977, 1979, 1993; Fry 1969, 1979; Fry and Cox 1974; Hermes 1984a; Iglesias 1987, 1988; Laporte and Fialko 1987, 1993; Laporte et al. 1992; Laporte and Iglesias 1992; Laporte, this volume). It could be argued that the ceramics of Tikal are better known than those from any other Maya site. The contexts represented by the ceramic collections are extremely varied, as are the formation processes to which they were subjected both in Maya times and since the site was abandoned.

This chapter will report primarily on the ceramics recovered by the University of Pennsylvania Tikal Project between 1956 and 1970. The information available from this analysis has been significantly clarified and expanded by later research, especially that of the Proyecto Nacional Tikal (Hermes 1984a; Iglesias 1987, 1988; Laporte and Fialko 1987, 1993; Laporte et al. 1992; Laporte and Iglesias 1992; Laporte, this volume). I will make reference to some of the results of these later studies but will not attempt an overall synthesis—something that must await

a full-scale conference involving all of those who have worked with Tikal ceramics.

Primary goals of my analysis of Tikal ceramics were to develop a ceramic sequence and to provide chronological information for researchers. Although a ceramic sequence was already available from the neighboring site of Uaxactun (R. E. Smith 1955), the importance of Tikal and the scale of the project there dictated that the Tikal sequence should be developed independently, without reliance on the Uaxactun material. The results of this independence were to demonstrate that the sequences at the two sites were nearly identical and to provide confidence in the accuracy of both analyses.

This chapter will begin with a consideration of the methods used in the Tikal analyses and an outline of the resulting sequence. I will then examine the information that ceramics provide about the economic system, social status, and ritual practices of the ancient Maya.

## KINDS OF DEPOSITS

Meaningful archaeological analysis is impossible without a careful consideration of a set of factors that provide or limit possibilities for various types of analyses. (See Moholy-Nagy 1997 for a separate but parallel consideration of these same issues.) Such considerations are especially true for a lengthy project at a very large site, where a huge variety of different situations will be encountered. Far too often, archaeologists tend to consider only certain deposits useful for analysis. This is particularly true for the claim that only “primary” deposits are useful, which frequently ignores the formation processes to which deposits have been subjected.

Several factors are important in determining the utility of deposits for providing specific kinds of information: the nature (for example, size, preservation, quantity) of the artifactual material; the amount of time represented by the deposit; the stratigraphic situation involved; and the formation processes, both cultural and natural, that have affected the material. Taking these factors into account, I classify deposits into several types.

1. “*Mixed grab bag.*” This is a term I use for the typical deposit encountered at Tikal, especially in association with small structures. A mixed grab bag includes a mixture of artifacts from all periods during

which people engaged in activity at a location. There is no stratigraphic order to the deposits. Why such randomness should be typical becomes clear if one considers the cultural and natural processes to which refuse deposits were subjected after discard. The Maya were accustomed to use refuse as fill for new structures. In the process they moved material from one location to another and disturbed things that might have been left in place. For centuries after abandonment, the deposits were subjected to such natural processes as erosion, animal burrowing, and, especially, tree falls. When a dead tree is blown over in the forest, its roots remove soil and artifacts and strip an area clear down to bedrock. Eventually, the roots decay, and the soil and artifacts are released, slowly washing back into the hole in random order. The effect is like that of a giant mixing machine. Information contained in such mixed deposits is mostly chronological. The excavator may be able to make sense of the relative amounts of material from different periods of occupation. Most of the demographic history of Tikal (Culbert et al. 1990), in fact, was derived from such deposits.

2. *Middens*. If one defines a midden as an archaeological deposit left untouched by cultural or natural processes after being discarded by the ancient inhabitants of a site, such deposits are rare at Tikal or any other major Maya site. Stratified middens—deposits in which middens accumulate stratigraphically over long intervals of time—are almost unknown. The closest thing to true middens at Tikal were the often large accumulations of material left within rooms by the Terminal Classic inhabitants of range structures. In addition, some deposits found in chultuns seem to represent rapid dumping episodes that approach true midden status. Some deposits found outside small structures also represent relatively short periods of deposit, although it can be presumed that they have been somewhat mixed by the processes noted above.

3. *Fill deposits*. Often disdained by archaeologists, fill deposits were among the most useful in the Tikal ceramic analysis. Deposits from structure fill are critical for excavators to date construction. When fill is sealed, it is obvious that the structure can have been built no earlier than the latest sherd it contains. Large fill samples provide some security that the construction date is actually represented by the latest sherd; small samples may be problematic. For information in

addition to date of construction, other data become important factors to consider. These include the size of the structure involved, the group to which it pertains, and the number of reconstructions at the location.

Fill from Small Structure Groups provides an excellent source of information. Sherd fits between structure fill and refuse materials from outside other structures in the same group make it clear that the Maya moved accumulated refuse into platforms that were being constructed or remodeled. Such fill often represents a relatively unmixed sample from a short time interval, probably because contemporary refuse deposits within the group were readily available and provided enough material for filling operations.

Fill from large structures is another matter. Large construction usually involved dismantling of earlier structures at the same location, resulting in a constant “upwelling” of early material into later constructions that makes unmixed samples rare. Sealed fill from large structures, however, can provide important opportunities. Preservation of sherd surfaces is usually much better than it is in small structures, allowing description and analysis of decorated types. In addition, sequences of construction involving large quantities of sealed fill related to architectural stratigraphy can provide exceedingly precise information about the points at which ceramic features were introduced. The Preclassic levels in the North Acropolis (W. R. Coe 1990) are an outstanding example of this phenomenon. Level upon level of construction there provided huge samples of ceramics in an excellent state of preservation. The exact point in the sequence when a new ceramic element made its appearance can be documented. After being introduced, most elements showed a trend of increase followed by a decline in typical battleship-curve fashion. The curves, however, are not as well defined as in less mixed deposits, and once they are introduced, elements continue to appear in the deposits for centuries with no clear indication as to when they ceased to be produced.

4. *Special deposits.* The utility of burial and cache artifacts (including ceramics) for providing information about chronology, social status, and ritual practices is well known. These data, including a significant amount of published Tikal data, have been used by Krejci and Culbert (1995) for a consideration of social status and change over

time during the Preclassic and Early Classic periods in the Maya Lowlands. In addition, the Early Classic burials 10, 22, and 48 provide an excellent source of information about the impact of Teotihuacan on the Maya elite of Tikal and Kaminaljuyu (Reents and Culbert n.d.). Problematical deposits at Tikal, however, represent such a mixed group of situations and contents (as they were appropriately designed to do) that they cannot be considered a single category for analysis. Some types of problematical deposits are rich and varied in their ceramic contents and provide important collections for ceramic analysis.

### CONSTRUCTION OF THE TIKAL CERAMIC SEQUENCE

Not all types of deposits were equally available for all time periods at Tikal. Consequently, different methods had to be used in the construction of the ceramic sequence. The two earliest complexes, Eb and Tzec, were defined on the basis of limited numbers of large, well-preserved collections with only enough stratigraphic evidence to indicate their relative placements in time. For the remainder of the Preclassic (the Chuen, Cauac, and Cimi complexes), the superb North Acropolis stratigraphy made possible the subdivision of what had been an undifferentiated Chicanel complex at Uaxactun (R. E. Smith 1955).

The Early Classic Manik-complex collections, although abundant and from a variety of locations throughout the site, lacked stratigraphy and quantity comparable to that of the North Acropolis and failed to seriate in a well-defined fashion. Consequently, no subdivisions of the complex were attempted. The research of the Proyecto Nacional Tikal (Iglesias 1987; Laporte and Fialko 1987; Laporte et al. 1992; Laporte and Iglesias 1992), however, provided detailed information that clarified this section of the Tikal sequence.

For the Late Classic (Ik and Imix complexes), the excellent architectural stratigraphy of the central core of the site did not include large enough samples to define ceramic change. As a result, the change between Ik and Imix was based upon a seriation of a large number of relatively unmixed samples that were mostly not in stratigraphic association with each other, supported by data from burials. The Terminal Classic Eznab complex was defined on the basis of very large collections left by Eznab occupation of range-structure groups.

## CLASSIFICATION

Three different and independent systems of classification were used in the analysis of Tikal ceramics. The first was a traditional type/variety analysis (R. E. Smith, Willey, and Gifford 1960), the second was a classification of vessel shapes, and the last was a classification of pastes. In many type/variety analyses, a hierarchical sorting has been used, with vessel shapes and pastes treated under each type. This fails to give proper attention to the fact that surface treatment, paste, and shape are independent variables that may or may not correlate. The degree to which they correlate or fail to do so is a matter for investigation and an important source of information.

The type/variety analysis at Tikal was quite traditional, using names already established in the literature wherever possible. In the many collections where surface preservation was nonexistent, type/variety analysis proved impossible.

In general, the analysis of vessel shapes was more useful than that of types. Not only was shape classification possible for collections in which surface preservation was minimal, but also shapes usually provided greater diversity than types and changed more rapidly through time. In the classification of shapes, I developed an analytical system of two levels: shape classes and shapes. *Shape classes* are major divisions based on size, body proportions, and nature of orifice. They are likely to have been strongly correlated with vessel use. *Shapes* are subdivisions of shape classes, based on differences in wall or neck shape, modifications such as flanges and ridges, and so forth. Shapes changed more rapidly through time than shape classes and were often useful in establishing the distinctions between different ceramic complexes. In addition, shapes were probably less tied to the uses of vessels than were shape classes. As an example, the *shape class* "Medium Plates" occurs throughout the Late and Terminal Classic complexes. The basic dimensions remained consistent, as probably did the uses of the vessels. But the *shapes* of medium plates are one of the best diagnostics for distinguishing the Ik, Imix, and Eznab complexes. In the Ik complex, medium plates have lateral flanges or ridges. In the Imix complex, no flanges or ridges occur, but a characteristic beveled lip marks the Imix member of the shape class (the Tripod Plate with Beveled Lip). In the Eznab complex, the Tripod Plate with Beveled Lip continues to occur,

but a flangelike modification appears again in the Notched Z-angle Tripod Plate.

Finally, as a device for quantification, I used a breakdown into four major “shape categories”: wide-mouth jars, narrow-mouth jars, large-capacity bowls, and serving vessels. The first three categories are each single-shape classes, while the serving vessel category includes a number of shape classes. This unruly system simplifies quantification. Many lots were so small that if one were to quantify by shape classes, the serving vessels would be so split among their multiple shape classes that the results would be dubious. Also, I would argue that the jar and large bowl categories would almost always have had everyday domestic uses, while serving vessels were probably used for serving food, but also for ritual purposes and a variety of other uses.

The analysis of pastes at Tikal was based entirely upon visual inspection, with no attempts to deal with the chemistry or petrography of the inclusions noted except for a limited trial of x-ray florescence, which I will describe below. Such identifications as “shiny black particles” are technically unsophisticated but sometimes correlated with either types or shapes and, in a few cases, were temporally diagnostic. It is clear that far more information could be gained by technical analyses of Tikal pastes, but such analyses exceeded both the time available and my technical expertise.

## THE CERAMIC SEQUENCE: THE PRECLASSIC

The ceramic sequence at Uaxactun (R. E. Smith 1955), the previous standard for central Petén ceramics, managed to achieve only the two-part division of Mamom and Chicanel for the Preclassic. The much more voluminous collections and superb stratigraphy at Tikal, especially in the North Acropolis, made possible the separation of five sequent complexes: Eb, Tzec, Chuen, Cauac, and Cimi (table 2.1).

### The Eb Complex

Two temporal facets were defined for the Eb complex. Early Eb was the first pre-Mamom horizon material recognized in the central Petén. Since the definition of Early Eb at Tikal, significant quantities were also recovered by Prudence Rice (1979a) at Yaxha, the Proyecto Nacional Tikal in the Mundo Perdido complex (Hermes 1984a;

TABLE 2.1

*Tikal Ceramic Complexes*

<i>Period</i>	<i>Ceramic Complex</i>	<i>Approximate Date</i>
Postclassic	Caban	A.D. 950–1200(?)
Terminal Classic	Eznab	A.D. 850–950
Late Classic	Imix	A.D. 700–850
Intermediate Classic	Ik	A.D. 550–700
Early Classic	Manik	A.D. 200–550
Terminal Preclassic	Cimi	A.D. 150–200
Late Preclassic	Cauac	A.D. 1–150
Late Preclassic	Chuen	350 B.C.–A.D. 1
Middle Preclassic	Tzec	600–350 B.C.
Middle Preclassic	Eb	800–600 B.C.

Laporte and Fialko 1993), and David Cheetham (1998) in Belize. In the Pennsylvania collections, Early Eb ceramics occurred in quantity in only two locations, a pit in bedrock underlying the North Acropolis and Chultun 5G-15, 1.5 km. east of the site center. The deposit underneath the North Acropolis establishes the temporal priority of Early Eb.

Early Eb ceramics include a number of types and shapes that distinguish them from later Mamom horizon material. Although there are contemporary ceramic complexes known from both the Pasion River (Adams 1971; Sabloff 1975) and Belize (Gifford 1976; Hammond 1980, 1986; Kosakowsky 1987), as well as from neighboring areas outside the Maya Lowlands, these other complexes show relatively little relationship to Early Eb or to each other. The great diversity of the earliest ceramics from different regions of the Maya Lowlands has long been recognized (Culbert 1977) as suggesting that the initial populations moved into the Lowlands from several different directions, but no collections from surrounding areas seem similar enough to Early Eb to suggest a specific area of origin.

Late Eb ceramics came mostly from the tunnel excavated by the University of Pennsylvania Project into Str. 5C–54, the great pyramid in the Mundo Perdido complex. Many of the unique characteristics of



Early Eb continue to appear, but with a greater percentage of ceramics that characterize the Mamom horizon. In a sense, then, Late Eb is transitional between Early Eb and Mamom. Because the sample on which Late Eb is based was fill from a large structure, it is also possible that it represents at least some mixture between what might have been purer Eb and Tzec assemblages.

### **The Tzec Complex**

The Tzec complex also shows a transitional character, this time between the Mamom and Chicanel ceramic horizons. The complex was sparsely represented in the Tikal collections. Only one location (a quarry pit underlying structures 5F-17 and 5F-18 about 1 km. east of site center) provided an unmixed Tzec sample that could be analyzed quantitatively. The collections from this location, however, were large and the deposits deep enough to demonstrate ceramic change within the Tzec complex and a gradual transition to the succeeding Chuen complex that overlay it. Like the Mamom complex at Uaxactun (R. E. Smith 1955), a principal defining characteristic of Tzec was a huge abundance of plates. This characteristic, also shared with the Mamom-equivalent San Felix complex at Altar de Sacrificios (Adams 1971), is difficult to explain in a functional sense. Whatever activity was represented by the use of plates, it was shared across the southern Maya Lowlands.

### **The Chuen Complex**

The Chuen complex represents the beginning of the Late Preclassic (Chicanel horizon) complexes at Tikal. The archaeological evidence for the complex is much more complete than that for the Eb and Tzec complexes. The Chuen samples represent increased contextual variety, a greater number of locations, more samples per location, and an increased total quantity of sherds. It is also the point at which the North Acropolis floor sequence that seals large quantities of ceramics begins.

Typologically, Tzec and Chuen ceramics are relatively easy to distinguish, but with the beginning of the Chuen complex, Tikal ceramics entered a long period of typological stability during which the types that composed the bulk of the collections changed very little for a period of 600 years. During the time of the Chicanel horizon

there was a strong similarity in ceramics across the Maya Lowlands, and even outside, to such areas as the Central Depression of Chiapas (Willey et al. 1967).

### **The Cauac Complex**

The Cauac complex is the best defined of the Late Preclassic complexes at Tikal, both because more diagnostic shapes mark the complex and because the ceramic collections are more abundant. Typologically, there was little change between the Chuen and Cauac complexes in either the types represented or the frequency of these types. The only change worthy of mention is the appearance of the first types with Usulután decoration. That such decoration had its home to the south of the Maya Lowlands in El Salvador (Demarest and Sharer 1982) seems clear, its introduction representing cultural contact. I consider it important, however, to make a distinction between what I term “Usulután Style” and “Usulután Ware.” Usulután *Style* consists of a multiple parallel wavy-lines decoration, usually made with a multipronged instrument. Usulután *Ware* was made by a resist technique in which sections of the first slip were covered with something like wax before a second slip was added. Although resist techniques were used at Tikal in other types in the Tzuc and Chuen complexes, resist pieces in Usulután style were rare at the site, and most were probably trade items. Usulután Style vessels in the entire Petén and Belize were usually decorated using a “wipe-off” technique, in which a second slip was added over the first and then removed, while still wet, with a multipronged instrument to reveal sections of the underlying first slip. There are also some pieces in which a second slip is positively painted with a multipronged instrument. In effect, then, the Maya of the Lowlands copied the stylistic approach of Usulután, but they produced it with their own techniques.

Despite the small amount of typological change between Chuen and Cauac, the separation of collections of the two complexes is made relatively easy by the fact that quite distinctive changes in shapes occur in vessels that are common in the collections. Of these, the appearance of medial-flange dishes is the most obvious.

### **The Cimi Complex**

The last of the Preclassic ceramic complexes of the Tikal sequence

is the Cimi complex. The Cimi complex is both controversial (Laporte, this volume) and the most difficult to recognize of the Tikal complexes. Therefore, it is necessary to consider in some detail the basis on which it was defined, its content, and its position in relation to the Tikal sequence and to other sequences in the Maya area.

The Cimi complex was based primarily on the North Acropolis stratigraphy and associated ceramics that showed minor but significant additions to the preceding Cauac complex. Collections included all lots sealed by the seventh, eighth, and ninth floors from the top of the Acropolis (W. R. Coe 1990). This was an important interval of time in the Acropolis. A massive raising of the overall North Acropolis platform took place at some time, probably close to the beginning of the Cimi time span. The rebuilding associated with the new platform set a basic pattern of structures that would persist for centuries. The only chamber burial (Bu. 125) that occurred in this interval involved a very large chamber that was empty except for the remains of an elderly man. At the end of the Cimi complex but clearly before the start of the Manik complex, the entire approach to the Acropolis from the Great Plaza was changed by completion of a single frontal stairway that replaced what had previously been two separate stairways. Probably more than a century later and well into Manik times, a pit was dug through the fifth floor of the Acropolis sequence and filled with PD 87, a collection of Cimi ceramics and human bones that Coe (1990:831) suggests may have been a redeposited Cimi burial. If so (the ceramics seem appropriate for a burial), it would indicate that major chamber burials were still being made in the North Acropolis in Cimi times.

The Cimi ceramic samples were large and included 8,026 sherds counted for types and 1,548 rims counted for shapes. The differentiation between Cauac and Cimi is minimal, consisting mostly of the addition of new Usulután varieties produced using a very liquid black slip that is easily given to jagged patterns and of tetrapodal vessels with mammiform feet. A few types and shapes that are more characteristic of the Manik complex also occurred in sealed Cimi levels. The Cimi markers never occur in frequencies greater than 5 percent. Consequently, their absence in small collections is not significant.

The Usulután varieties that identify Cimi also appear at sites in Belize (Willey et al. 1965; Gifford 1976) and on the Pasión River

(Adams 1971; Sabloff 1975) in ceramic complexes that have traditionally been termed "Protoclassic." Like Laporte (this volume), I refuse to use the term "Protoclassic" and call the time of the Cimi complex "Terminal Preclassic." "Protoclassic" has been used in such a variety of ways that almost every recent use results in generating endless verbiage about the ways in which it has been used previously, usually followed by a new definition (Brady et al. 1998). The continued use of the term seems to me to simply compound the confusion.

It is also important to stress that the Cimi complex is clearly Preclassic, although it includes a low frequency of types and shapes that mark the Early Classic. Aguila Orange, the characteristic monochrome type of the Early Classic, appeared in low frequencies well back in Cimi levels in the North Acropolis sequence and increased gradually over time. It was accompanied by a few sharp z-angle bowls and annular bases, shapes that are more characteristic of Manik 1 and 2. In decoration, however, not a single polychrome sherd occurred in the huge sealed lots of Cimi complex date. Instead, the decorative message was carried by Usulután types and a few dichrome decorations with simple designs. In addition, there was not a single example of either a basal flange bowl or a scutate lid, shapes that were strongly associated with polychromes in Manik.

It is no surprise that a transition between complexes might occur gradually, with different elements appearing at different times. A ceramic complex is a heuristic device that summarizes the major characteristics of ceramics during a given time interval; it is not a closed box that replaces the box of a previous complex overnight. Often, however, our collections are not adequate to demonstrate the details of changes, as will be apparent when I discuss the transition between the Early and Late Classic, as reflected in the Pennsylvania data.

The fact that the Cimi complex has been considered to date between a.d. 150 and 250 (Culbert 1993) does not constitute a problem. When the decision was made (I believe at the ceramic conference in Guatemala City [Willey et al. 1967]) to change the date for the start of the Early Classic from A.D. 300 to A.D. 250, there was little reason for choosing 250 except to allow the recently discovered Stela 29 of Tikal to fall within the Classic. Laporte (this volume) begins the Early Classic at 200 A.D. I would have no problem adjusting the Cimi dates to fit his

chronology. Absolute dates were a question that unfortunately was not considered during the Santa Fe seminar.

## THE EARLY CLASSIC

### The Manik Complex

Although University of Pennsylvania Project collections for the Early Classic Manik complex at Tikal were abundant, they did not give sufficient information for subdividing the complex. A major problem was that the large collections of ceramics from sequent architectural levels that were so critical in defining the Preclassic sequence did not occur in the Classic architectural levels. I was unwilling, based on the hints of temporal differentiation that could not be treated quantitatively, to propose facets for Manik, but Coggins (1975), focusing on decorated vessels, achieved a three-part sequence (Manik 1, 2, and 3) that was successful as a preliminary effort.

The situation has been greatly clarified by the detailed analysis of Manik materials made possible by the excavations of the Proyecto Nacional Tikal, especially in the Mundo Perdido complex (Laporte and Fialko 1987, 1990, 1995). In the Proyecto Nacional material, an excellent sequence of Manik 1, 2, 3a, and 3b has been defined. The combination of that material with the North Acropolis data through the time of Cimi provides us with a superb understanding of the ceramic transition between the Late Preclassic and Early Classic. The changes are profound, representing a replacement of all types and shapes, both utilitarian and decorated. The replacement occurred gradually, however, with the addition of many "Early Classic" characteristics in the Preclassic.

The elaborate burials discovered in the Mundo Perdido Group by the Proyecto Nacional Tikal (Laporte and Fialko 1987) provide a rich picture of Manik 2. In those burials, polychromes were abundant, mostly on sharp z-angle bowls, although a few basal flange bowls occurred. Scutate lids were added to the repertoire, often with elaborate polychrome decoration and modeled handles. None of the Usulután types occurred. Large mammiform feet, which characterized Cimi, continued to appear in the Manik 1-2 burials.

A sharp transition in serving vessels took place at the beginning of

Manik 3 (Coggins 1975; Krejci and Culbert 1995). Sharp z-angle bowls and scutate lids disappeared, the polychrome tradition continued but became less important in burial offerings, and the cylindrical tripod—often of decorated-incised and gouged-incised types—became a key feature, especially in chamber burials. The influences from Teotihuacan that mark Bus. 10 and 48 typify the transition. Krejci and Culbert (1995) note that in addition to ceramics, other very significant changes occur in burials and caches, which they relate to the dynastic change from Jaguar Paw (Chak Tok Ich'aak I) to Curl Nose (Nuun Yax Ayiin I). In the Tikal sherd collections the cylindrical tripod is not confined to ceremonial-elite contexts at the site center but occurs as a significant component of refuse in small mound groups. The ceramics of Yaxha, which are otherwise very similar to those of Tikal, offer a striking contrast in this regard. In Yaxha, cylindrical tripod vessels are almost totally lacking in the collections (Hermes, pers. comm.), although it must be stressed that no elaborate Early Classic burials have been discovered at the site.

### **THE INTERMEDIATE AND LATE CLASSIC**

The appearance of Late Classic ceramics represents another drastic change in which all types and shapes were replaced, with the single exception of unslipped and striated large-mouth jars. How abrupt was this change? Unlike the Preclassic/Early Classic transition, in which the North Acropolis sequence showed the early introduction of some Early Classic markers, there was no key to the pace of change at this boundary in the Pennsylvania data. In the research of the Proyecto Nacional Tikal and the Proyecto Templo V (Laporte, this volume), however, several special deposits indicate a transitional period between a.d. 550 and 600 in which the majority of the ceramics were still Early Classic but Late Classic types and shapes had begun to appear. It would seem, then, that the Early Classic/Late Classic transition was also a gradual one.

For the Late Classic, the derivation of the ceramic sequence was based primarily on a seriation of lots, most of which came from the abundant collections provided by excavation of Small Structure Groups. Because these collections were poorly preserved, most of the information available concerned vessel shapes. A description of decorated types was possible, however, because of a few large and well-

preserved collections from the fills of large structures (such as Str. 5D-33, 1st). Burials, of course, provided critical information on changes in decorated vessels (Coggins 1975).

Within the Late Classic there was great continuity in all categories except serving vessels. Unslipped and monochrome types are undifferentiable between Late Classic complexes. So are basic shapes of jars and large bowls, although quantitative changes in such minor modes as lip shapes provide clues differentiating complexes. But the shapes of serving vessels, which were almost entirely polychrome until the Terminal Classic Eznab complex, changed sharply, serving as an unmistakable key to the separation of the Ik, Imix, and Eznab complexes.

### **The Ik Complex**

The Ik complex marked the appearance of almost all the types and shapes that distinguish the Late Classic from the Early Classic. Unslipped types and the wide-mouth jars produced from them changed very little from the Early Classic, but Tinaja Red became the dominant monochrome type, and the shapes of small-mouth jars and large-capacity bowls were quite different from those of the Early Classic. Decorated material was almost entirely of the Saxche Polychrome Group, with medial-flange or -ridge plates, barrels, and round- and straight-side dishes the most characteristic shapes.

### **The Imix Complex**

Only minor changes in such modes as lip shape and the decoration of large-capacity bowls (for example, incised lines, fingernail punctations) separate Imix-complex utilitarian vessels from those of the Ik complex. The Palmar Polychrome Group replaced the Saxche Group as the primary decorated ceramic. The two groups are easy to distinguish because types of the Palmar Group were produced by starting with an initial coat of white pigment that underlay all further painting. In addition, there are differences between the two groups in shades of color and in pastes. To make the differences between Ik and Imix decorated serving vessels even more distinctive, beveled-lip plates replaced the medial-flange or medial-ridge plates of Ik, and barrels became much less common, while cylinders increased in frequency. The changes in serving-vessel shapes are so striking and the shapes are so

common even in small structures that the two complexes can hardly be confused.

## THE TERMINAL CLASSIC

### **The Eznab Complex**

The definition of the Eznab complex was made easy by the abundant surface debris found in palace groups, especially in the Central Acropolis. Made in the last phase of occupation, these deposits remained largely undisturbed thereafter. With the beginning of the Terminal Classic Eznab complex, a set of changes even more obvious than those that separated the Ik and Imix complexes took place. An Eznab sample of even modest size can hardly fail to be identified. Typologically, unslipped and monochrome types remained the same as they had been earlier, except that the use of black slip became considerably more common for some types of serving vessels. Polychromes diminished greatly in frequency. Polychromes represented 30–40 percent of vessels in Imix and rarely more than 1–3 percent in Eznab. In addition, many of the polychromes that continued to be produced were off-color and poorly painted in comparison with those of Imix. A few Fine Orange vessels and local imitations of Fine Orange were added to the typological inventory. Among vessel shapes, such characteristic Imix shapes as beveled-lip plates and cylinders continued to be common but were now almost invariably red-slipped, which would never have been the case in Imix times. In addition, a whole series of new serving-vessel shapes were added to the inventory, including insloping-side and composite-silhouette tripod dishes, barrels with a pedestal base, and notched, z-angle tripod plates. It must be stressed, however, that the tradition of ceramic production was continuous from that of earlier complexes. There is absolutely no indication that the Eznab inhabitants of the site were anything other than descendants of earlier Tikaleños.

## THE EARLY POSTCLASSIC

### **The Caban Complex**

A final Early Postclassic occupation in a very few locations at Tikal



is represented by the Caban complex. Collections are sparse, and the complex cannot be completely described. It seems quite certain, however, that the complex represents reoccupation by a few settlers with totally new ceramics closely related to the Early Postclassic complexes encountered along the lakes of the central zone of the Petén (P. Rice 1979b).

### CULTURAL IMPLICATIONS OF TIKAL CERAMICS

I will next examine the information that ceramic analysis provides regarding the cultural system of the ancient Maya. First, I will examine data about the production and distribution systems for ceramics at Tikal. In the next section I will consider differential use of ceramics by various social groups. Finally, I will turn to the patterns of ceramics in caches and burials and consider what those patterns may tell us about social and ritual systems of the ancient Tikaleños.

### PRODUCTION AND DISTRIBUTION SYSTEMS

Almost all Mayanists will agree that, at least throughout the Classic, pottery was produced in specialized centers. Because very few actual production centers have been located, this conclusion is based on the degree of standardization of vessels and indications that paste formulae differed slightly from one area to another (Fry 1980, 1981; Culbert and Schwalbe 1987). I believe that pottery production at Tikal was specialized at least from the Late Preclassic through the Terminal Classic. If one accepts that there was specialization in ceramic production, there are important questions to be asked. How many production centers were there? Did each center make all the various classes of pottery, or was there subspecialization? Was distribution of ceramics centralized—perhaps even under state control, was a market system in operation, or were most ceramics distributed locally through neighborhood barter?

Locating pottery-production centers in the Maya Lowlands on the basis of direct archaeological evidence is extremely difficult. The Maya did not use kilns or discard large quantities of sherd wasters. Only a few probable production centers have been identified in Tikal and its peripheries. The most certain is a center discovered by Becker (1973a; 1999) in Group 4H-1. At this location there were large quantities of such rarely used items as wall inserts, figurines and figurine molds, and

whistles, as well as large quantities of more common ceramics.

Fry (1981; Fry and Cox 1974) suggests the presence of two possible production centers at and beyond the earthworks north of site center. One consisted of large quantities of a limited number of serving-vessel shapes of the Ik complex in a carbon-rich soil within the ditch of the northern earthworks adjacent to a causeway. As an alternative to the possibility that the remains imply a production center nearby, he also suggests that the deposit might have resulted from the breakage of several loads of ceramics being transported across the earthworks. Fry also suggests a production center using a highly micaceous paste 7 to 9 km. north of site center. In addition to these centers, Culbert and Schwalbe (1987) have identified the existence of a production center for a variant of the Late Classic type Tinaja Red. The location of the center is unknown but was probably outside Tikal.

In the mid-1980s Larry A. Schwalbe of the Los Alamos National Laboratories and I used x-ray fluorescence to analyze a set of elements in a sample of 362 Tikal sherds from the Manik, Ik, Imix, and Eznab complexes (Culbert and Schwalbe 1987). A sample of polychrome sherds was available from all complexes; red/orange and unslipped were available from the Manik, Imix, and Eznab complexes; and black sherds were available only from the Manik complex. The hope was that the analysis might separate groups that would indicate different centers of production. With the exceptions noted below, that hope was disappointed, not an unanticipated result, considering the geological uniformity of the Tikal area.

Based on our analysis, it was immediately obvious that there was a strong difference between sherds that included calcite and those that did not. For all except the Manik complex, this separated unslipped large-mouth jars with heavy calcite tempering from slipped vessels, a distinction that has long been obvious. The fact that large jars are uniformly calcite tempered suggests that the tempering may relate to properties desirable for their use.

Comparison of red/orange, polychrome, and (for Manik) black noncalcite sherds shows that there are far less obvious, but still statistically significant, distinctions between the pastes used with different color classes. That is, "it would appear that paste compositions of the various non-calcite groups of pottery followed slightly different tradi-

tions" (Culbert and Schwalbe 1987:642). By themselves, these results tell us nothing about centers of production or means of ceramic distribution. The differences are probably due to intentionally added temper that might be as likely to indicate traditions for different color classes shared by all potters as production of different colors in different workshops.

Inspection of clusters appearing in the plots of canonical variables, however, suggested that the tightness of clusters might provide other useful information. To approach this statistically, Schwalbe (Schwalbe and Culbert 1988) devised a set of statistical measures of degree of variability of different groups of sherds. We tested samples from several different proveniences within Tikal for degree of variability, in hopes that the results might provide a hint of production centers. These hopes were disappointed except in two cases.

One case was the ceramic production center in Group 4H-1 (Becker 1973a, 1999). When a sample of 19 polychrome sherds from this location was compared to a sample of 19 polychromes from a variety of other locations in Tikal, it was concluded that

The group centroid of the 4H-1 is displaced a slight but significant amount from that of the other set. More importantly, the analysis of intra-group variation for the two samples shows the sherds from Group 4H-1 to be strikingly less variable than the composite sample from other locations. This clearly suggests that the paste formula for pottery from a specific production centre was quite tightly standardized. (Culbert and Schwalbe 1987:648-50)

These results confirm that the potters in Group 4H-1 produced polychrome pottery as well as specialty items. In addition, inspection of the clusters shows that some sherds from other locations fall within the tight 4H-1 cluster and were probably made at the 4H-1 center. That such a wide range of locations turned to Group 4H-1 for pottery implies some broader method of distribution than neighborhood barter. Other sherds are widely scattered in the plots, suggesting that they were produced at more than one other center.

The second case involves a production center whose chemical signature has been identified but whose location remains unknown.

During the Tikal ceramic analysis, a paste variant of the Late Classic monochrome type Tinaja Red had been identified that has a pinkish paste rather than the orange paste that characterizes most examples of the type. This “tinaja pink” variant, which was confined to the Imix complex, was relatively rare but was not localized and occurred throughout Tikal, as well as in Fialko’s intersite survey between Yaxha and Nakum. Because of its distinctive appearance and relative scarcity, the conclusion had been reached well before the x-ray fluorescence analysis that “Tinaja pink” represents the production of a single center. When “Tinaja pink” sherds were compared by x-ray fluorescence with other Tinaja Red and polychrome sherds of the Imix complex, the “Tinaja pink” sample proved to have a strikingly different chemical composition. Furthermore, the sample showed the typically low degree of variation that marked the sherds from the 4H-1 production center: “Again, there is a clear demonstration that when the products of a single manufacturing centre can be separated they prove to have a very low degree of variability” (Culbert and Schwalbe 1987:648–50).

There is considerable potential for future studies of Tikal ceramics that might clarify questions of production and distribution. The study of considerably larger samples of sherds by x-ray fluorescence or neutron activation might define additional production centers. The same study would also indicate the distribution of vessels produced by the known center in Group 4H-1 or any other center discovered. A quantitative study of polychrome sherds focusing on such features as the motifs used, the ways in which they are combined, the location of designs in different design fields, and so forth, might well provide information that would make the identification of workshops (or even individual painters) possible. Once the patterns were identified, distributions would provide information on mechanisms of pottery distribution. Masses of data on designs have already been gathered and only await the lengthy analyses that are necessary.

In summary, what can we say about production and distribution of ceramics in the Tikal region during the Classic Period (the only period in which there is sufficient evidence to reach even tentative conclusions)? Both technological and stylistic evidence support the conclusion that ceramic production was, indeed, specialized. Fry’s (1980, 1981) analyses suggest that both polychrome and monochrome pottery

was produced at the same centers. Unslipped pottery may have been produced at a greater number of centers, some or all of which may have produced no other kind of pottery.

Fry's distributional studies of peripheral Tikal pottery show that frequencies of monochrome and polychrome vessels began to fall off sharply at 8 to 10 km. from a production center. Unslipped pottery, on the other hand, was rarely distributed more than 4–5 km. from its sources. Even within the "core area" of a center, however, significant quantities of vessels (greater than half the serving vessels and 40 percent of slipped jars and basins) were brought in from other centers. The data from the polychrome production in Group 4H-1 in central Tikal suggest a similar pattern. Group 4H-1 was only one of several production centers whose products were intermixed in consumer locations.

These patterns suggest both to Fry and to me that pottery was likely distributed through a system of local markets, although it is possible that the unslipped jars were procured directly from the production centers themselves.

### **DIFFERENTIAL USE OF CERAMICS**

Differential uses of ceramics by various segments of a population can provide information about social organization. Among the Maya of Tikal, such differences tended to be quantitative rather than qualitative. Only a few kinds of ceramics were restricted to particular types of activities or to specific social classes. The most obvious kind of limited-use ceramics are the cache vessels of the Classic period. The cylindrical cache vessels of the Manik complex and flanged cache cylinders and rectangular cache vessels of the Ik and Imix complexes never occurred in general ceramic collections, and only the Manik cache cylinders also occurred in burials. Because all these vessels were poorly shaped and finished, it seems unlikely that they were too expensive for other uses. Perhaps the opposite was true—that they were regarded as cheap disposables for once-only use, simply to provide a container for offerings. The only kind of ceramic that seems to have been restricted to elite use is the type of Imix-complex figural polychromes that show humans or gods. These polychromes almost never occurred in contexts outside the site center and, even there, were mostly confined to burials. Interestingly, occasional figural polychromes occurred in the refuse

**TABLE 2.2***Vessel Category Frequencies in Ops. 20 and 22Q*

<i>Op.</i>	<i>% Serving Vessels</i>	<i>% Small-Mouth Jars</i>	<i>% Large Bowls</i>	<i>% Wide-Mouth Jars</i>
20	25–45%	10–25%	15–25%	15–25%
22Q	60–75%	15–20%	5–15%	3–9%

from small sites in the Bajo la Justa where I am currently working (Culbert et al. 1999). We do not have burials from these sites, so we have no information as to whether such polychromes were used in burials there.

Several analyses were done comparing sherd collections from structure groups of varying sizes. There is a quantitative difference between groups of different size in the use of the four major categories of shapes: wide-mouth jars, narrow-mouth jars, large-capacity bowls, and serving vessels. The first three categories were almost surely for domestic use. The serving-vessel category includes a variety of shapes, many of which were probably multifunctional and served both for household uses such as food serving and containers and for ritual purposes. The percentage of serving vessels correlated directly with the size of group: the larger the group, the greater the frequency of serving vessels.

Table 2.2 illustrates the quantitative differences by comparing samples from two locations. Operation 20 was the excavation of small mound groups 4F-1 and 4F-2 (Haviland 1985). Operation 22Q (C. Jones 1996) was from a large refuse deposit just north of the East Plaza, which may have been debris from the nearby market but might equally well have been from anywhere within the site core. Each location provided several quantified lots, so table 2.2 indicates the range of percentages for each location.

Operation 22Q had a far greater number of serving vessels, considerably fewer large bowls and wide-mouth jars, and about the same number of small-mouth jars as the small mound groups excavated in Operation 20. One could think of a variety of explanations for the equivalent percentages of small-mouth jars, but none of them stands out clearly as the best.

Fry's (1969, this volume) comparison of the same vessel categories

between mound groups ranked by size in the peripheral area shows very similar results. None of his groups have as high a percentage of serving vessels as Operation 22Q, but the large-mound groups in the peripheries rank closest to those figures, while those in Small Structure Groups compare closely to those in Operation 20. The key point in Fry's study is that occupants in the peripheries of Tikal did not differ significantly from occupants of small-mound groups in the site center in their access to the fancier vessels.

In the late 1960s Joseph Lischka and David Adam (Lischka 1968, 1970) conducted a factor analysis of ceramic distributions that was quantitatively more sophisticated (for its time) than the simple comparison of frequencies between Operations 20 and 22Q. Their study used a large sample of Ik and Imix locations and included as variables the four major shape categories, as well as a subdivision of the serving vessel category. The results are similar to those from the simple comparison of Operations 20 and 22Q described above. The first two factors contrasted serving vessel sets and the various utilitarian categories in different ways, demonstrating a strong association of elite/ceremonial locations with serving vessels and of utilitarian vessels with Small Structure Groups. In addition, the large number of samples from small structures was completely consistent in showing vessel frequencies within the standard range for small-mound groups. A few of the samples from construction fill in large groups, however, showed frequencies typical of those for small groups. These results support the conclusion that fill samples from small groups were obtained locally but that sometimes samples needed in large construction efforts were imported from more distant locations.

The conclusion one reaches from all the analyses of vessel distributions is that elite Maya used more fancy pottery. This is hardly a striking revelation, but it is at least a quantitative demonstration of the expectable.

It should be noted, however, that even the occupants of small-mound groups in Late Classic Tikal and its peripheries had numbers of polychrome vessels that accounted for one-quarter to one-third or more of their total vessel assemblage. It seems clear that—at least in the sense of access to specialist-produced painted pottery—even the lower-class inhabitants of Tikal had a high standard of living.

## VESSELS FROM SPECIAL DEPOSITS

It must be noted at the outset that although consideration of ceramics from special deposits supplies important information, considerably more sophisticated results could be derived from a complete study of all the contents of such deposits. This analysis, however, should involve all those who have participated in both excavation and the analysis of different kinds of artifactual material.

## CACHES

### **Preclassic**

Few Preclassic caches were located at Tikal, and all were relatively impoverished in terms of ceramics. Large bowls were a favorite among the vessels, and no jars were included. All the vessels that occurred are of types and shapes common in general collections.

### **Manik**

In the Early Classic, caches changed dramatically at a time that Krejci and Culbert (1995) believe corresponded with the change from the rule of Jaguar Paw (Chak Tok Ich'aak I) to that of Curl Nose (Nuun Yax Ayiin I). Vessels became abundant in caches, but the great majority were either cylindrical cache vessels with covers or outflaring-side cache vessels, usually placed in pairs, lip to lip. The cylindrical cache vessels (as distinguished from cylindrical tripods) were largely confined to caches (and some very elite burials) and rarely occurred in other contexts. The outflaring-side vessels occurred more broadly in general collections. A few jars were placed in caches, but there were no examples of such common shapes as basal-flange or sharp z-angle bowls or cylindrical tripods. Aside from the carved cache cylinder in Cache 198 (Jones and Satherthwaite 1982:126; Culbert 1993:fig.108; Harrison, this volume) that names Jaguar Paw (Chak Tok Ich'aak I), no decorated vessel occurred. The vessel assemblage that was found with Manik caches was very specialized and quite distinct from either burial or general collections of the complex.

### **Late Classic**

The vessels that marked caches of the Manik complex were no



longer used in the Late Classic. The cylindrical cache vessel of Manik was replaced by the flanged cache cylinder of the same general size and proportions. But unlike the Manik cache cylinder, which almost invariably had a cover, only one of the flanged cache cylinders of the Late Classic had a cover, even though the flange distinctly gives the impression of having been designed to support one. The rectangular cache vessel also appeared for the first time in the Late Classic. Both this vessel and the flanged cache cylinder occurred only in caches. The assemblage in caches in the Late Classic was broader than that of the Early Classic, containing some vessels such as cylinders and outcurving-side bowls that were important in general collections. Some of these were polychromes, but none were sufficiently preserved to show designs. On the other hand, jars, large bowls, and tripod plates were completely absent from Late Classic caches.

## BURIALS

### Preclassic

The three Tzec and Chuen burials contained the standard serving vessels and decorated types typical of their complexes. Chuen Bu. 164 also included two slipped jars.

Of the five Cauac-complex burials, three were the important Bus. 85, 166, and 167 (W. R. Coe 1990) from the North Acropolis, which included fine ceramics. Two shapes, the urn jar and urn bowl, were confined to burial collections. Otherwise, a full range of serving-vessel shapes and slipped jars was included, and even unslipped jars occurred in Bus. 85 and 167. Decoration focused on Usulután-style types plus black incised vessels that were probably imports from the Guatemalan Highlands.

### Manik Complex

A total of 24 Tikal burials contained ceramics of the Manik complex. The extremely complex and elegant ceramics included in Bus. 10, 22, and 48 (W. R. Coe 1990) are the centerpiece of the material, both for variety and the cultural information provided (Coggins 1975; Reents and Culbert n.d.). Bu. 22 is transitional, falling between Manik 2 and 3. It maintained the focus on polychrome decoration to be found

on basal-flange bowls and scutate lids that appeared in the Manik 2 burials in Mundo Perdido but also included a set of cylindrical tripods, one of which was stuccoed and painted with a hieroglyphic inscription. Bu. 10, that of Curl Nose (Nuun Yax Ayiin I), shows the deemphasis on polychromes and the focus on cylindrical tripods that marks Manik 3. It also demonstrates the peak of Teotihuacan influence and other external contact. Some of the round-side bowls with annular base are almost certainly Thin Orange pieces imported from Central Mexico, but all those who have considered the very overt Teotihuacan symbolism with which they were painted are convinced that the stucco and painting were almost surely done after the vessels had reached the Maya area (Coggins 1975; Reents and Culbert n.d.). Stormy Sky's (Siyaj Chan K'awiil II's) Bu. 48 shows less overt Mexican symbolism but also contained several elegant gouged-incised vessels that may have been imported.

In comparison to these impressive burials, the rest of the Manik-complex burials are ceramically disappointing. Bu. 177, from the edge of the Great Plaza in front of the Central Acropolis, had a nicely decorated cylindrical tripod that may have been a trade vessel and two polychrome basal-flange dishes among its five vessels. Bu. 160 from Group 7F-1, which Haviland (1981) suggests is that of a possible deposed ruler, had a collection of ceramics that might best be described as drab, although other contents were rich. The two cylindrical tripods from the burial were undecorated and without covers. In addition, the burial, produced two polychromes and several small monochrome vessels, including two unusual small jars with lids.

There seems to be little pattern in other burials except that unslipped jars and large-capacity bowls were absent. Unusual urns with appliquéd designs occurred in Bu. 162 from Group 7F-1 and Bu. 31 from Group 4F-1. Single cylindrical tripods without covers were found in two Small Structure Groups (Bus. 169 and 197). In other burials, polychrome basal-flange bowls and monochrome jars were common offerings, as were a variety of small bowls and dishes.

### **Ik Complex**

The decorated vessels from Late Classic burials are described in such splendid detail by Coggins (1975) that they need only brief con-

sideration here. Twenty-one Ik-complex burials were discovered at Tikal, although four of these were of less than certain temporal assignment. Ceramics from the most elite Ik-complex burials in the North Acropolis (Bu. 23, 24, and 195), although they contain some exquisite pieces, lack the quantity and variety of ceramics from comparable burials of the Manik and Imix complexes. In other burials, however, decorated ceramics, even from some small structures, were splendid. The range of vessel shapes included was quite narrow. In the entire Ik sample, there is only one jar (Bu. 195) and one large-capacity bowl. The great majority of vessels belong to only four shapes: those of cylinders, barrels, round-side bowls (which overlap with barrels in general shape), and lateral-flange or lateral-ridge tripod plates. These vessels were almost invariably polychrome.

Bu. 23 had the largest number of vessels (12), including nine cylinders, eight of them fluted, and three tripod plates with Ahau glyphs that may well be indicative of influence from Caracol. Bu. 24 had six vessels: two tripod plates, a cylinder, a barrel, and two round-side bowls. Bu. 195, that of the ruler Animal Skull, had only six vessels: two tripod plates, one with an inscription painted on stucco naming Animal Skull, the second also stuccoed and painted with an inscription; two round-side bowls; a cylinder; and the only jar in the Ik burial assemblage. Vessels from two burials in small structures are of unusual merit. Bu. 72 from the small Str. 5G-8 contained a barrel with an inscription that mentions the ruler of Naranjo. Bu. 81 from Str. 4G-9 provided a splendid incised pot showing a scene of herons and a plate with a dancing figure on the interior base.

The frequency of vessels with hieroglyphic inscriptions is worth noting. In the three major chamber burials, only the stuccoed vessels from Bu. 195 had what seem to be meaningful inscriptions. On the other hand, inscriptions occurred in four burials that seem to have been of lesser status. The same pattern of a wide distribution of inscriptions from groups of all sizes was mirrored in the sherd collections.

In sum, the Ik-complex burial vessels suggest a society in which there was a less profound gulf between social classes than in other Classic complexes. The burials from the most honored locations in the North Acropolis, including one that was surely that of a ruler, were ceramically less elaborate than those of the Manik and Imix complexes.

Burials in smaller groups, however, included a larger number of vessels of great artistic merit and frequently included meaningful hieroglyphic inscriptions. This mirrors the suggestion of Moholy-Nagy (this volume) that a similarly decreased social spread characterized artifact assemblages at the time of the Ik complex.

### **Imix Complex**

There were more burials with vessels (71) for the Imix complex than for any other complex in the Tikal sequence. Large burial samples were located in Groups 4F-1 and 4F-2 (Haviland 1985), in Haviland's excavations of small-mound groups without shrines (n.d.a), and in Becker's (1999) investigation of groups with shrines.

The two richest burials (Bus. 116 and 196) contained the huge quantity and variety of ceramics found in the most elite chamber burials of the Manik complex. Other burials showed the same limitation in range of types and shapes that characterized Ik burials. No unslipped jars or large-capacity bowls occurred in the large sample of vessels, and the only slipped jar (represented by just the neck) may have been an accidental inclusion. The overwhelming majority of vessels were cylinders, beveled-lip tripod plates, and slightly outcurving-side bowls and dishes. Although preservation in many burials was too poor to permit determination of type, the examples that are preserved and evidence from sherd collections indicate that all of these vessels belonged to dichrome or polychrome types.

In discussing Imix burials, it is necessary to reemphasize the distinction between figural and "everyday" polychromes. Figural polychromes show human or deity figures usually accompanied by hieroglyphic inscriptions that often refer to historic persons or events. Paintings on figural polychromes were the products of highly trained and specialized artists who sometimes even signed their work. Figural polychromes were almost entirely confined to upper-level elite burials and are rare in sherd collections—even collections that come from the site center. "Everyday" polychromes were widely available and composed 30–40 percent of Imix vessels even in small mound groups. Although glyphic signs were among the repertoire of motifs used in decoration, they never appeared as full inscriptions.

Cylinders predominate in the two major chamber burials of the

Imix complex (Bus. 116 and 196). The ceramic centerpiece in the burial of Ruler A (Jasaw Chan K'awiil) (Bu. 116) is a set of ten painted cylinders that show scenes of individuals seated on thrones. Attendants, usually kneeling before the throne, appear on five of these cylinders; on the remainder, the person on the throne appears alone. The striking thing about these cylinders is the poor quality of much of the work. None of the scenes could be called great masterpieces, and some are amateurish. It seems clear that the painting was not done by highly skilled artisans. Coggins (1975) and I independently came to the conclusion that the vessels may have been painted by other rulers or their emissaries as a special mark of respect for Ruler A (Jasaw Chan K'awiil). Also in Bu. 116 was an additional cylinder on which a throne scene was painted after the vessel had been stuccoed (an exceedingly rare process for Imix). This scene is, indeed, a splendid piece of art. In addition, there was a carved cylinder portraying the head of a long-nosed god—a theme that reappeared in Bu. 196. The rest of the decorated vessels in Bu. 116 are nonfigural: an unusual tripod plate in the shape of a half conch shell, which may have served for holding paints and has a glyph in its central base relating to the act of painting (Simon Martin, pers. comm. 2000); three tripod plates; a straight-side bowl decorated with Muwaan Bird feathers, a symbol of death (Coggins 1975); a slightly outcurving-side bowl decorated with Mexican year signs and Ahau glyphs; and a simple, banded black-on-red cylinder.

Bu. 196 was considerably richer in ceramics, both in quantity and variety, than Bu. 116. Of the 48 vessels in the burial, 25 are cylinders. Three superb painted cylinders show a ruler on a throne accompanied by attendants. One, the "Hummingbird Pot," mentions the name of Ruler B (Yik'in' Chan K'awiil). Thirteen carved cylinders featuring the head of a long-nosed god show the same huge range in execution and talent as the throne scenes in Bu. 116 and can also be posited as the work of nonartists. A set of nine cylinders, seven fluted, completes the list of cylinders. There are ten tripod plates that feature Muwaan Bird feathers as a theme but differ considerably in other details. Ten small bowls and dishes of considerable variety, two unslipped bowls, and an unusual jar complete the inventory. One of the unslipped bowls and the jar are almost surely imports.

The paucity of meaningful inscriptions in Imix burials is striking.

The stuccoed vessel from Bu. 116 has an important, although largely illegible, text. Most of the seeming texts on the throne-scene vessels in the burial, however, are glyphoid rather than meaningful (Simon Martin, pers. comm. 2000). In Bu. 196, the Hummingbird pot has a text, and the throne scene with the dancing figure has captions that probably identify the individuals involved. Otherwise, only two additional burials (Bus. 78 and 190) have texts. It seems quite clear to me that the many looted cylinders with Primary Standard Sequence texts that have appeared in collections in recent years did not come from Tikal.

### **Eznab Complex**

Six Eznab-complex burials were located in Tikal. Four contained only a single vessel; two contained two vessels. Two of the burials with a single vessel contained Zacatel Cream Polychrome tripod plates, both decorated with the Muwaan Bird Feather motif, the dominant motif in Eznab polychromes. Two burials with single vessels included Achote Black tripod bowl/dishes, a characteristic Eznab type and shape. The two burials with two vessels each included one Achote Black tripod vessel. One combined this with a red round-side tripod bowl; the other included a Pabellon Modeled carved barrel. All vessels fit in the serving vessel category and are typical of the complex.

### **Caban Complex**

The single Caban-complex burial contained two tripod plates typical of Early Postclassic ceramics of the Petén Lakes region in shape and type (P. M. Rice 1979b).

## **SPECIAL BURIAL STUDIES**

Several studies of burial ceramics show that considerable information remains to be derived from investigating still unexplored facets of the mortuary patterns of ceramics. It would be even more revealing, of course, to do full burial analyses that include the context of burials and all the material within them.

### **Vessel Locations in Early Classic Elite Burials**

In an important study, Kerry Sagebiel (2000) has analyzed the location of vessels in the major Early Classic elite Bus. 10, 22, and 48

**TABLE 2.3***Numbers of Vessels in Ik and Imix Complex Burials at Tikal*

<i>Number of Vessels</i>	<i>Ik Number</i>	<i>Ik Percent</i>	<i>Imix Number</i>	<i>Imix Percent</i>
1	3	18%	15	23%
2	3	18%	6	9%
3	1	6%	32	49%
4	7	41%	8	12%
5			1	2%
6	2	12%	2	3%
6+	1	6%	2	3%
Total	17		66	

from Tikal and comparable Early Classic elite Burials A22, A29, and A31 from Uaxactun. Her results show that vessel location was very strongly patterned. A category of special ritual vessels including cache vessels, *candeleros*, effigies, and *incensarios* occurred between 74 and 82 percent of the time toward the head and left side of the principal body and to the east. Cylindrical tripods showed the same locational preference in frequencies between 74 and 86 percent. Jars (although only eight examples were located in the burials) showed an equally strong tendency in the opposite direction, with 88 percent at the feet, 75 percent to the west, but still 63 percent to the left of the principal body. Serving vessels (plates, small bowls and dishes, but excluding cylindrical tripods) distributed about equally between alternatives. These data, which as far as I know have never been examined before, open endless possibilities for expansion into other materials, times, and sites.

#### **Numbers of Vessels in Late Classic Burials**

An analysis of the number of vessels in Late Classic burials at Tikal also demonstrated that mortuary customs were by no means random (see table 2.3).

The data from the Imix complex are the most striking because of the size of the burial sample. Even a brief inspection of the data makes it obvious that choices about the number of vessels to include as burial offerings were strongly patterned in Imix. There was a strong

**TABLE 2.4***Number of Vessels in Imix Burials by Tikal Report Number*

<i>Number of Vessels</i>	<i>TR 19</i>	<i>TR20</i>	<i>TR21</i>	<i>TR22</i>
1	4	2	8	
2	2	1	2	1
3	6	7	16	1
4		1	6	1
5				1
6			1	
Total	12	11	33	4

preference for three vessels, and there was an obvious avoidance of offering two.

The sample of Imix burials was large enough to compare figures from several excavation sets reported in different Tikal Reports. Tikal Report 19 (Haviland 1985) covers excavations in Small Structure Groups 4F-1 and 4F-2; Tikal Report 20 (Haviland n.d.a.) includes investigations of other Small Structure Groups without shrines; Tikal Report 21 (Becker 1999) is the study of structure groups with shrines on the east; Tikal Report 22 (Haviland n.d.b) consists of research in the medium-size Group 7F-1. Raw numbers of burials from these four sets are included in table 2.4.

The data in table 2.4 show that the general pattern of number of vessels included in Imix burials is sitewide. Only Group 7F-1 proves an exception, but the small number of burials encountered in the group makes it uncertain whether Imix mortuary customs there actually represent an anomaly.

Although the sample of burials from the Ik complex (table 2.3 above) is considerably smaller than that for Imix, it is clear that the patterns were quite different. In Ik, four vessels were preferred and three vessels strongly avoided. What occasioned these differences in mortuary choices is unknown, as is the question of whether they were accompanied by differences in other parts of the mortuary ritual.

At Uaxactun (R. E. Smith 1955), the number of vessels in burials in Tepeu 1 and Tepeu 2 does not fit the Tikal pattern. In Tepeu 1, the number of vessels in the nine burials was about equally divided between one,



two, three, and four (three burials had three vessels, while one, two, and four vessels were present in two burials each). In Tepeu 2, five of the nine burials had two vessels, the number avoided in Imix at Tikal. Although the sample size is small at Uaxactun, there is a strong suggestion that the Tikal patterns were not shared with its neighbor site.

## CONCLUSION

The ceramic collections from Tikal are superb. Given the significance of the site, the length of time during which the University of Pennsylvania and the various projects of the Instituto de Antropología e Historia de Guatemala have worked at the site, the scale of research, and the care exercised in archaeological recording and analysis, it is hardly surprising that the collections have few counterparts in Maya archaeology. The analyses that have been done with Tikal ceramics have produced a ceramic sequence that has already replaced the Uaxactun sequence as the standard point of comparison for the central Petén. It is already obvious that the combination of ceramic data from the University of Pennsylvania project and that of the Proyecto Nacional Tikal provide a sequence of exquisite sensitivity and detail. When the final effort necessary to integrate the work of the various analysts has been done and published, the results will be a landmark and the standard reference for generations to come.

What do ceramics tell us about the economic, social, and ritual structure of the ancient Maya? It is clear that ceramics bear most directly upon the economic system. Yet it is obvious that understanding the production and distribution systems of ceramics at Tikal and other Maya sites has been a particularly intractable problem. Although Fry and I are agreed that ceramics were produced by specialists, we have located only one specific center of production and have identified the products of a few other centers that remain unlocated. In addition, although we agree that ceramics were mostly distributed through a market system, we have no real information about the operation of this system. There is a potential for more information to be gained by both technical and stylistic analysis, but the task would be very large and would lack a guarantee that the results would be successful.

Analyses indicate that the separation between social classes in the use of ceramics was quantitative: essentially, architectural groups whose

size indicates higher status used more of the decorated serving vessels. Refuse-disposal patterns and the constant movement of materials in the process of construction make the assignment of collections to specific structures impossible. For small groups or clusters of groups that are isolated from others, one can presume with some security that material found within the group represents activities that took place locally. For material associated with large groups, the situation is even more difficult. Refuse found near the central groups of major structures at Tikal could have originated anywhere within an area of many hectares that included structures of many kinds and a variety of activities.

There are two points in the Tikal sequence at which the ceramic assemblage of Tikal changed profoundly: the boundary between Preclassic and Early Classic and that between Early and Late Classic. At these points the change involved the domestic monochrome types and shapes, as well as decorated serving vessels. The evidence indicates that the changes were gradual, with the introduction of some new types and shapes, at times, well before the transitions were complete. These changes, of course, occurred not only at Tikal but also throughout the southern Maya Lowlands. The first period correlated to some degree with the still little-understood changes at the end of the Late Preclassic, marked by the fall of El Mirador and transformations at other sites, while the second correlated roughly with the political events associated with the start of the monument hiatus at Tikal and some other sites. I would be very loath, however, to associate the ceramic change with these political events because I doubt that such events would have had impact on domestic ceramics.

Changes in decorated ceramics, especially those associated with the upper-level elite, may be more susceptible to interpretation as political indicators. The first instance of such changes is the ceramic transformation between Manik 2 and 3. At this point domestic ceramics remained unaffected, but elite burials, especially those of the North Acropolis, show the deemphasis of polychromes and the rise of black and gouged-incised elite decorated ceramics and cylindrical tripods. As has been suggested (Coggins 1975; Krejci and Culbert 1995), these changes were closely tied to the complex and fascinating dynastic affairs that in some way involved Teotihuacan (Laporte and Fialko 1990; Culbert 1994).

The beginning of the Ik complex correlates with the defeat of Tikal by Caracol and the beginning of the long monument hiatus. As Coggins (1975) has pointed out, some influences from the general direction of Caracol, such as the Ahau plates in Bu. 23 and the melon-style vessels and monkey depictions in PD 34 (looted Bu. 200), occur in elite Ik ceramics. In addition, the lesser quality of ceramics in Ik chamber burials and the wider spread of inscriptions and elegant vessels in other burials probably do suggest something about a changed social-class structure, as Moholy-Nagy (this volume) suggests on other grounds.

The beginning of the Imix complex correlates with the inauguration of Ruler A (Jasaw Chan K'awiil), the end of the monument hiatus, and the resurgence of Tikal's political power. Again, there was a striking change in decorated ceramics, with the increase in figural polychromes in the most elite burials and changes in polychrome types and vessel shapes that affected all social classes.

Finally, the appearance of the Terminal Classic Eznab complex occurs after the cessation of major aspects of elite leadership. By that time the major decline in population had already occurred, and range structures were occupied by the nonelite. The ceramics of Eznab were still well made—almost surely produced by specialists—and most types and shapes continued with little change. The near disappearance of polychromes, however, was a major change in tradition. It seems likely that the extra cost involved in polychrome decoration was simply beyond the budgets of Terminal Classic inhabitants of the site.

Those of us who have worked with Tikal ceramics have come a long way since the Pennsylvania project opened in 1956. But recent research on special patterns in Classic burials such as the nonrandom location of vessels in elite Early Classic burials and nonrandom choices in the number of vessels placed in Late Classic burials offers hints of many more possibilities for studies that have not yet been done.