

CODEX-STYLE CERAMICS:
NEW DATA CONCERNING PATTERNS OF PRODUCTION AND DISTRIBUTION

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Codex-style pottery has been the focus of art historical, epigraphic, and archaeological inquiry for more than three decades (Figure 1) (Bishop 1984; Coe 1973, 1978; Cohodas 1989; Crocker 1977; Kerr and Kerr 1988; Matheny et al. 1980; Forsyth 1989; Hansen and Gurr 1980; Nielson 1980; Reents-Budet and Bishop 1987; Robicsek and Hales 1981). The large number of vessels and their distinctive artistic variability indicate the importance of this pottery within the Late Classic Maya tradition of painted ceramics (A.D. 550-850). Yet its apparent restricted distribution among sites in the Mirador Basin of northern Guatemala is incongruous with its other features that suggest codex-style pottery played the typical roles of food service and gifting wares during socio-politically charged feasts (Reents-Budet 2000). Recent archaeological, art historical and epigraphic data provide a new perspective on codex-style pottery that offers supplementary information concerning its function and the nuances of social politics in the region during the 7-8th centuries in the Maya lowlands.



Fig. 1. Codex Style Vessel. MS1835.
Photograph by Dorie Reents-Budet.
below: Rollout photograph ©
Justin Kerr File no. K1457.



“Codex-style” was first defined by Michael Coe, so-named because of its formal similarities to the Post-classic Maya books or codices (Coe 1978:16). Its stylistic characteristics include fine-line painting using a monochrome black-brown slip (a clay-based paint pigmented with black iron oxide, manganese and/or plant-based compounds) applied on a light cream-colored background, variations in line tone achieved by degrees of dilution of the paint, red-painted rim and basal bands delimiting the pictorial field or ‘page,’ and pictorial narratives featuring supernatural beings and classic myths. Coe connected these scenes with the sixteenth-century K’iché Maya epic, the Popol Vuh, which similarly deals with ancient Maya religion and mythology (Coe 1973:13; also see Blom 1950, Dieseldorff 1904, Robicsek and Hales 1981:xx-xxi).

Codex-style pottery is assigned to the Zacatal archaeological ceramic group (Ball, in Reents-Budet et al. 1994:362-365; Forsyth 1989, 1993). And it was made primarily during the first half of the Tepeu II ceramic period (Gifford 1976), that is, between 9.12.0.0.0-9.16.0.0.0 (A.D. 672-751). However, more recently Forsyth (2002:673) has suggested that codex-style pottery constitutes “....a distinct type, with many varieties, that is different from Zacatal Cream Polychrome, beyond simply that of style. He argues that, for reasons of aesthetics and thematic narratives, codex-style is sufficiently distinct from the Zacatal ceramic type to merit a new typological designation, the present authors in agreement with Forsyth’s position (Boucher and Palomo, in press:P6). In spite of the large number of widely published vessels, hypotheses of their specific places of manufacture and socio-political roles

remain ill-defined and, occasionally, contradictory to other datasets.

Archaeological excavations by Ray Matheny (Matheny et al. 1980; Nielson 1980:29; also see Forsyth 1989) and Richard Hansen (Hansen 1991, 1992, 1996) at sites throughout the Mirador Basin discovered large amounts of codex-style potsherds and the occasional whole vessel at El Mirador, Nakbé, La Muerta, La Muralla, Porvenir, Guiro, Pacaya, and El Tintal (Forsyth 2003, Boucher and Polomo in press:10-13). Often, the pottery was found at the entrance to looters' tunnels which had decimated many tombs and entire buildings, especially at Nakbé (Hansen 1996; Hansen et al. 1991; Hansen et al. 1992; López 1992a, 1992b; López and Fahsen 1994). Yet the archaeological excavations were not able to determine which site (or sites) was the location of codex-style production nor if certain painting modes or artists could be associated with specific locales.

To address these questions, hundreds of examples of codex-style pottery were sampled using instrumental neutron activation analysis (NAA), carried out by the Maya Ceramics Project, National Museum of Natural History, Smithsonian Institution (Bishop, Harbottle, and Sayre 1982; Bishop, Rands, and Holley 1982; Blackman and Bishop 2002, 2007; Glascock 1992:11-26; Harbottle and Bishop 1992:27-30). NAA yields a listing of the constituent trace elements (the transitional elements and rare earths) of the vessel's ceramic paste. These function as the unique 'chemical fingerprint' of the specific mixture of clay resources and tempering materials that characterize the ceramic products of particular areas, workshops and even individual ceramists. Paste compositional patterns can be compared to those of ceramic samples excavated from known sites, and a match between them is indicative of the location where the vessel was made. In this way, a pottery style may be attributed to a specific region and even to an archaeological site.

Similarity among the samples is assessed using multi-dimensional statistical analyses. These reveal that codex-style ceramics tend to be distinct from all other sampled Classic Maya polychrome pottery in the project's database of more than 36,000 specimens (Bishop 1994). When examined alone, however, the corpus of codex-style pottery exhibits notable chemical and stylistic variability. Such diversity likely stems from the exploitation of different local clays and potters' paste recipe modifications in response to local resource variability. Such modifications also include the use of different tempering materials and relative quantities thereof. The chemical characterization of pottery pastes, in essence, provides a window into the specific potting behavior by an area's ceramists.

Our compositional data indicate that codex-style pottery was produced from a variety of paste recipes that likely represent the products of a number of potters and "workshops". The Mirador Basin is isolated as the general location of manufacture, the Basin being home to myriad archaeological sites. Archaeological data combined with the chemical compositional profiles of codex-style and other pottery types indicate that many sites in the basin were manufacturing codex-style pottery, including El Mirador, Nakbé, Porvenir, La Florida, Ramonal, El Tintal, Zacatal, Wakná and Pacaya (Reents-Budet and Bishop 1987).

The codex-style corpus represents two broad paste compositions, one being tempered with appreciable amounts of calcium carbonate (20-35%) and the other being a volcanic ash-tempered ware. The carbonate-tempered samples, comprising the majority of the corpus in our database, fall into two chemically-defined subgroups.

Their paste compositions point to El Mirador and Nakbé as two primary locales of production. The El Mirador subgroup is differentiated from the Nakbé products by higher abundances of the rare earth elements. Compositional differences, however, extend beyond simple distinctions in the nature of their tempering materials. By a process of elimination, that is, by noting what sampled sites are not chemically similar, the data point to the heavily carbonate-tempered (ie., >38% Ca), codex-style examples having been made in workshops located to the south of El Mirador and Nakbé. We tentatively suggest locales of manufacture in the area circumscribed by the sites of Nascimiento, Zacatal, El Tintal and La Florida. Further sampling of pottery found at these sites will be necessary for site-specific production attributions.

An important topic, which cannot be adequately addressed in this short paper, is the fact that very little is known about Classic Maya painted pottery workshops; their internal structure, physical locations and socio-political relationships remain obscure at best. Even the term “workshop” is elusive and obfuscating. Based on previous research, we use the term “workshop” to mean a spatially and socially discrete work area wherein artisans exercised specialized skills to produce distinctive, non-utilitarian ceramic artifacts imbued with patterned aesthetic characteristics (see Helms 1993:6, Rice 2009). The workshops maintained a formal personnel structure involving more than one individual, with investments in the relatively permanent, work-place facilities that were physically discrete from daily living areas (see Costin 1991; Peacock 1981; Rice 1987, 2009). Whether or not the artisans worked full- or part-time is not germane to the issues at hand, although the level of artifice, including technical skill, specialized knowledge and personal talent, indicates focused training and practice of some duration.

Calakmul and Codex-style Pottery

Codex-style pottery was rarely distributed outside the Mirador Basin, with only a few sherds being found elsewhere (e.g. at Uaxactun [Smith 1955:Figure 58b-1] and El Zotz [MSG257; this sample’s paste chemistry matches that of ceramic production at Nakbé]). The paucity of codex-style pottery outside the Mirador Basin implies limited exchange in this elite ware, a curious state contrary to the pattern of use noted for other elite pottery styles (Reents-Budet, Ball, et al. 1994:164-233; Reents-Budet, Ball et al. 2000). Seemingly codex-style pottery did not play a major role in the feasting socio-political system of Late Classic Maya society (Reents-Budet 2000).

Such a scenario, however, runs counter to the pattern of production and use of painted ceramics during Late Classic times. The elite-sponsored feast was a seminal socio-political practice for the ancient Maya, and painted ceramics were an important component as food service vessels and gifts to the participants. Finely made pottery, distinguished by painting style and high quality artistry, was integral to the over-all feasting goals that included underscoring the host’s social prestige and political power (Reents-Budet 1998:72-74, 2000:1022, 2003). The finding of a “foreign” pottery style, often represented by high status vessels, in a site’s ceramics implies that its populace was participating, to some degree, in this socio-political process. Codex-style pottery likely was a primary high-status ware for sites in the Mirador Basin. Archaeological evidence points to El Mirador, Nakbé and El Tintal alternately having been key players on the Basin’s socio-political stage from Preclassic to Terminal Classic times (Boucher and Rojas Durán 1995:5-6; Boucher, Dzul Gongora, and Palomo Carrillo, in Carrasco V. 1997; Clark and Hansen 2001; Demarest 1984; Folan, Marcus, and Miller 1994; Hansen 1992, 1996, 2001; Marcus 1973, 1976; Martin and Grube 1995, 2000; Matheny, et al. 1980). Therefore, the lack of extra-Basin distribution of

codex-style pottery is a curious anomaly. Rather than being the exception to a cultural pattern of ceramic use and function, it is more likely that there is missing data concerning the socio-historical patterns of production and distribution of the pottery. A better understanding thereof could shed light on the region's Late Classic social politics.

Recent excavations at Calakmul, Mexico have provided such evidence (Boucher and Dzul G. 1996, 1997; Boucher and Palomo in press; Carrasco 1997, 1998; Carrasco et al. 1999; Domínguez C. 1994; Domínguez C. et al. 1998). Located thirty-eight kilometers northeast of El Mirador, Calakmul was one of the most powerful political forces of the Classic Period (Martin and Grube 1995). Calakmul may have replaced El Mirador as the dominant power in the region at the end of the Preclassic Period, adopting its religio-mythic ideology as the foundation of political authority (Folan 1994; Reents-Budet, Martin, and Bishop 1997). At Calakmul, codex-style pottery has been found in elite feasting and high status residential contexts as well as in royal tombs (Boucher and Palomo in press:22, 27-28; Delvendahl 2003, 2008:122-128; Domínguez C. 1994:321; Folan and López 1996:18-21; García Barrios and Carrasco 2006), the pottery dating to the K'u ceramic phase (A.D. 600-800) (Boucher and Rojas Durán 1996; Domínguez C. 1994:321). Analysis of these samples' paste composition, in concert with art historical investigations and the new archaeological data, revealed some surprising results.

The chemical compositions of most codex-style examples excavated at Calakmul indicate they were made at Nakbé (Table 1). A few may have been made at El Mirador, although codex-style production at the site apparently was not as robust as it was at Nakbé, which is consistent with its lesser socio-political role during the Late Classic Period (Hansen 1996, Reents-Budet and Bishop 1987, Reents-Budet et al. 1997). The majority of Nakbé/El Mirador-produced codex-style samples at Calakmul were excavated from Plaza G to the west and south of Structure XX within the massive complex known as Grupo Gran Acrópolis, the largest palace complex at the site (including its Plazas H, Q and L, and the contained residential compound Utsiaal Can).

Some of the codex-style pottery excavated from these same contexts at Calakmul have paste compositions consistent with a southern Mirador Basin origin (Table 2). These samples were found in Tomb 1 and Burial 14, both in Structure II-H, as well as in the west façade of Structure IV-B of the Great Plaza. Other southern Basin-produced examples were found in the North Structure of the residential compound Chan Chi'ich and Burial 1 in Plaza G of Structure XX of the Grupo Gran Acrópolis.

The southern Basin corpus includes vases with dynastic texts (MS0063, MS1835; Figure 1a (also see Table 3), vessels painted by distinctive artists (MS0347, MS1835 and MS1845; MS1772 and MS1841; Figures 1a, b and



2a), bold brushwork (MS0593 [this vase has been extensively repainted in modern times], MS0650, MS0672, MS1131, MS1608), exceptionally fine and thin-lined brushwork (MS0039, MS0280, MS0359, MS0631, MS1611; Figure 2b), and unusually tall cylinder

Figs. 1a, 1b and 2a. MS1835, MS1845, MS1772

vases such as MS0633 and MS0257. The latter example actually is a polychrome type but one which uses another characteristic trait of southern Basin production—a light brown wash embellishing figures and hieroglyphs (MS0039, MS0363, MS0366, MS0672, MS1434, and Calakmul samples MSK155 [from Tomb 2 in Structure II-H {Folan and López 1996:18-21}] and MSK327) (Figure 3a,b). The southern Basin group also is distinguished by a subset of codex-style vessels with a slightly yellowish background color rather than the style’s typically cream-white ground (MS0061, MS0363, MS0366,



Figs. 3a, 3b. MSK155, MSK327

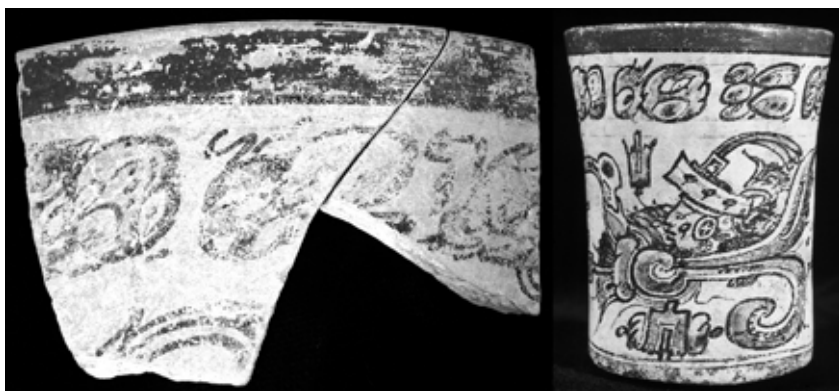
MS1663, MS1772 and Calakmul samples MSK155 and MSK327).



Fig. 2b. MS0039

MSK147, a finely painted codex-style vase excavated from Tomb 1 of Structure II-H (Folan and López 1996:18-21, Folan et al. 1995), shares the yellowish background color and general paste composition of the pottery we believe was made in the southern Mirador Basin (Figure 4). Interestingly, its painting style so closely resembles that of XSK005 and MS1434 that all three may be attributed to the same

artist (Figure 5a,b). This assessment is reinforced by their paste compositions which are so similar as to suggest they were made from the same clay preparation, their respective chemical concentrations being within the range of analytical error for elemental determination.



Figs. 5a, 5b. MS1434, XSK005

the vase’s paste chemistry indicates its membership in the southern Basin ceramic system. Yoaat B’ahlam also is named on five other vessels painted by different artists (MS1683, MS2117, RPN186, K3248, K3433) (Figure 6b,c,d). Although MS2117 apparently was made somewhere in the southern Basin, the other two vases are members of a volcanic ash-tempered subgroup associated with Nakbé production. The data indicate that codex-style vessels whose texts name the same elite patron/owner need not be made in only one workshop or area. Perhaps a royal patron could command the work of different artists and production locales,

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Fig. 4. MSK147

The same accomplished artist also painted the vase MS1821 (Figure 6a). The rim text names its owner/patron as Yoaat B’ahlam, a Late Classic ruler of the yet-to-be-identified site/polity cha-TAN-(na)-WINIK-(ki), or “Chatahr” (Simon Martin 2009: personal communication). The



Fig. 6a. MS1821



Figs. 6b, 6d, 6c. MS1683, MS2117, RPN186

or, alternatively, an elite patron could sponsor the creation of vessels whose texts name other members of the aristocracy.

The chemical composition of the Tomb 1 vase MSK147 is particularly similar to MS2115, an unusually tall and narrow cylinder vase with fluted walls (Figure 7). This type of modeled wall is a relatively rare element for Late Classic painted ceramics, although the feature is seen on a few other codex-style and polychrome vases which, too, were made in the southern Basin (e.g. MS0613; also see Robicsek and Hales 1981:208a-c, 214g).



Fig. 7. MS2115

These two style elements—fluted walls and yellowish background color—bring to mind an exceptional codex-style vase MSK855 excavated from Tomb 4 in Structure II-B, the tomb of the renowned Calakmul ruler Yuknoom Yich'aak K'ahk' (Carrasco Vargas et al. 1999:55, Martin and Grube 2000:108; also see Boucher and Palomo 2000, Martin 2000:42, Reents-Budet 2000:294-295) (Figure 8a). Although MSK855's general artistic format recalls codex-style pottery, its yellowish ground color, slightly bulbous lower section and twisted, fluted walls are not typical of the style. Surprisingly, its paste composition does not point to the southern Mirador Basin as its place of manufacture. Instead, it is the product of a workshop at Calakmul that also produced many of the other monochrome and polychrome vessels found in Tomb 4 (Boucher and Palomo 2000; Carrasco Vargas, et al. 1999:55-57, figs. 8, 9). The paste compositions of the tomb's nine vessels are remarkably close to each other, the data supporting our hypothesis that they were made from the same paste preparation and at the same time. The nine vessels may be considered a "royal commission" from one workshop, and the specifics of painting style point to the presence of no more than two artists. The aggregate chemical profile of the nine tomb vessels, in turn, recalls that of many other pottery samples excavated from a variety of contexts at Calakmul, thereby confirming the site as the location of the workshop that made the Tomb 4 vessels (Reents-Budet and Bishop 1998, in press [2010]).



Fig. 8a. MSK855



Fig. 8b. MSK844

The “pseudo-codex-style” (that is, not Mirador-Basin-produced codex-style) vase MSK855 is chemically very similar to the tomb’s large polychrome plate MSK844 (Boucher and Palomo 2000: 52, 63, fig. 3; Carrasco Vargas, et al. 1999:fig. 9) (Figure 8b). And the conspicuous similarities of artistic hand suggest they were painted by the same master artist in spite of their representing two archaeological ceramic types and painting modes (Palmar Orange polychrome and Zacatal Cream polychrome). Similarly, the two vessels’ chemical compositions are so similar as to imply they were made from the same paste preparation and at the same time. Interestingly, although the plate’s hieroglyphic text names its owner/patron as Yuknoom Yich’aak K’ak’, the likely occupant of the tomb, the name on the “not-Mirador-Basin codex-style” vase is that of the previous ruler Yuknoom Ch’een II. These successive governors are presumed to be father and son (Martin and Grube 2000:110-111). The close similarity in paste composition and painting artistry of the two vessels leads to the hypothesis that the same master painter was making pottery for two successive rulers. Our data do not allow us to determine definitively if the vase were an heirloom passed from father to son, and thus implying extraordinary continuity in potting behavior in one workshop over time (the unusually similar paste chemistry making this hypothesis unlikely), or if the vase were painted under the patronage of Tomb IV’s occupant Yuknoom Yich’aak K’ak’ to commemorate his deceased father.

Regardless of the “true” production history of these two vessels, vase MSK855 clearly establishes the occasional production of “pseudo-codex-style”, that is, non-Basin-codex-style, pottery at Calakmul (Table 4). Interestingly, rather than choosing to imitate the ‘classical’ cream-white pottery of the northern Mirador Basin, the Calakmul painters adopted instead the yellowish background color and a vessel form associated with codex-style production in the southern regions of the Basin.

The yellowish background color of codex-style pottery associated with ceramic production in the southern Mirador Basin and at Calakmul prompts an additional note. This stylistic trait alone should not be used to suggest a codex-style vessel’s location of manufacture. For example, MS1448 and MS1449 are a vase and its matching dish possibly made from the same clay preparation and almost certainly painted by the same artist (Figure 9a,b). The text on MS1448 (K1387) names its patron/owner as Janaab Ti’ O’, a lord of Hix Witz (identified as the site Zapote Bopal; Tunesi 2007:17-18) (Figure 9c). We cannot assume, however, that Hix Witz was the location of manufacture of this vase based on the patron’s name and political affiliation. The vessels’ paste composition is unique within the limits of our NAA database, not matching any samples from Calakmul or the Mirador Basin, nor sites in the corridor defined by Naachtún-La Corona-El Perú-La Joyanca-Piedras Negras where Hix Witz (Zapote Bopal) is located.



Figs. 9a, 9b. MS1448, MS1449



Fig.9c. MS1448

As such, MS1448 and MS1449 represent highly distinctive works whose style suggests a general location of manufacture somewhere in the Mirador Basin-Calakmul region. There are many sites between Calakmul and the Mirador Basin from which we have no chemical data, and they likely were active members of the Classic period socio-political milieu of the Calakmul sphere (Folan 2002). The lack of chemical similarity leads to one of two hypotheses: these two vessels were made at a site in the region for which we have no chemical data or they were created from a distinctive paste recipe for which we have no comparative material.

Conclusions

Our chemical and art historical analyses identify Nakbé and El Mirador as two loci of production of codex-style pottery in the northern sector of the Mirador Basin, with Nakbé being a primary producer. Smaller sites in the northern sector also were producing codex-style ceramics, these northern Basin products being characterized by the use of either volcanic ash or calcium carbonate tempers. A third locus of production recently has been identified, its products distinguished by different chemical compositions, which indicate the exploitation of different clay resources than those of the northern area, as well as paste recipes that favored high abundances of calcium carbonate temper. The paste compositional data point to sites in the southern region of the Mirador Basin as the likely locations of production. It may be that the unidentified “Chatahn” place, which frequently is mentioned in the nominal phrases on codex-style vessels, was located here. The large southern site of El Tintal is a reasonable contender for the Chatahn place. But whether its potters were producing codex-style pottery cannot be addressed with the data at hand.

Connections between Calakmul and the Mirador Basin are indicated by the presence of codex-style pottery in elite contexts at Calakmul. Their paste compositions are similar to pottery made at Nakbé as well as in with the southern sector of the Basin. Such a high-level association is supported by the presence of other Late Classic polychrome ceramic types (and painting styles) found at Calakmul that were made in the Basin. Interestingly, however, the reverse has not been identified. That is, some socio-political mechanism existed that brought Mirador Basin-produced, high-status pottery to Calakmul, and, within the limits of our sampling, there is little evidence of reciprocity in the form of Calakmul-produced pottery going to the Mirador Basin.

Calakmul certainly was producing high-status pottery that circulated outside the immediate area as well as receiving pottery from sites throughout the lowlands. Notable examples include MSKY02, MSKY08 and MSKY09, which were made in the western Belize-eastern Guatemala area, MSKY03, made at Motul de San José, MSKY06, made at La Corona, and MSKY07, made in the vicinity of Río Azul. These elite ceramic vessels reveal the widespread nature of the socio-political networks in which Calakmul was a player during Late Classic times.

Yet the ceramic and epigraphic data imply a special socio-political and perhaps ideological relationship between the dominant Late Classic site of Calakmul and the seemingly lesser power centers in the Mirador Basin. Codex-style pottery represents the specific ceramic expression of sites in the Basin, especially Nakbé. The pottery was used almost exclusively at a number of Basin sites and was not distributed to any large extent outside the region, the exception being Calakmul. Highlighting the special relationship between the two entities is the production of imitation codex-style vessels by Calakmul’s pottery artists under the patronage of its rulers. Perhaps

the pottery style makes reference to the Basin' ideological positioning as a place of sacred origin, the power and prestige of the massive Preclassic center of El Mirador remaining in the collective memory of the region's Classic Period descendants. Following this line of inquiry, codex-style pottery emerges as a signifier of the ancient political and ideological claim to power that underlay the authority of Calakmul's ruling dynasty.

Table 1

Codex-style pottery excavated at Calakmul but made in the Nakbé-El Mirador area

MSKY04

MSKY10

MSKY12

MSKY13

MSKY14

MSKY16

MSKY17

MSKY18

MSKY19

XSK001

XSK002

XSK004

XSK016

XSK018

XSK019

XSK020

XSK022

Table 2

Codex-style pottery excavated at Calakmul but made in the southern Mirador Basin

MSK147

MSK155

MSK326

MSK327

XSK003

XSK005

XSK017

XSK021

Table 3

Concordance of Maya Survey numbers (MS + number) with the Maya Vase Database by Justin Kerr (K + number) mentioned in this manuscript.

MS0039 K1300
MS0061 K1301
MS0063 K1302 (see Robicsek and Hales 1981:Vessel 123)
MS0257
MS0280 (see Robicsek and Hales 1981:Vessel 91)
MS0347 K1185
MS0359 (see Robicsek and Hales 1981:Vessel 24)
MS0366 (see Robicsek and Hales 1981:Table 5A)
MS0593
MS0613
MS0631 (see Robicsek and Hales 1981:Vessel 14)
MS0633 K1561
MS0650 K5920
MS0672 K6708
MS1131 K5347
MS1434 K1647
MS1448 K1387
MS1449 K1388
MS1608 K5628
MS1611 (similar to Robicsek and Hales 1981:Vessel 161 [MS0351 / K1347])
MS1683 K5721
MS1722 K5164
MS1772 K6754
MS1821 K5424
MS1840 K1892
MS1841 K1226
MS1835 K1457
MS1845 K1340
MS2115 K8497
MS2117 K7185

Table 4

“Codex-style” pottery excavated at Calakmul and made at Calakmul

MSK325
MSK855

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Figure Captions

Figure 1a

MS1385 / K1457; Museum of Fine Arts Boston. Gift of Landon T. Clay, 1988.1272.

Figure 1b

MS1845 / K1340; Museum of Fine Arts Boston. Gift of Landon T. Clay, 1988.1284.

Figure 2a

MS1722 / K5164.

Figure 2b

MS0039 / K1300.

Figure 3a

MS0366.

Figure 3b

MSK155; vessel fragment from Calakmul, Campeche, Mexico.

Figure 4

MSK147; vessel from Tomb 1, Structure II-H, Calakmul, Mexico.

Figure 5a

MS1434 / K1647. The Mint Museum, Charlotte, NC. Gift of Dr. and Mrs. Francis Robicsek, 1984.214.10.

Figure 5b

XSK005. Sherd of codex-style vessel excavated at Calakmul, Mexico.

Figure 6a

MS1821 / K5424. Los Angeles County Museum of Art, L.2008.8.11. Photograph © Justin Kerr.

Figure 6b

MS1683 / K5724.

Figure 6c

RPN186; vessel fragment excavated at Nakbé, Guatemala.

Figure 7

MS2115 / K8497; Los Angeles County Museum of Art, M.2005.133. Photograph © Justin Kerr.

Figure 8a

MSK855; vase from Tomb IV (of the ruler Yuknoom Yich'aak K'ahk'), Structure II-H, Calakmul, Mexico.

Figure 8b

MSK844; plate from Tomb IV (of the ruler Yuknoom Yich'aak K'ahk'), Structure II-H, Calakmul, Mexico.

Figure 9a

MS1448 / K1387.

Figure 9b

MS1449 / K1399; a codex-style dish painted by the same artista as he/she who created MS1448 / K1387.

Figure 9c

MS1448; detail of the name of the vase MS1448/K1387 patron/owner Janaab Ti' O', a lord of HiIx Witz (likely identified with the modern-day site of Zapote Bopal, Guatemala).