

# IMPACTS OF POLITICS ON MATERIAL CULTURE: EVALUATING THE YAXUNA-COBA SACBE

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## Abstract

Over the past thirty years, Mayanists have increasingly discussed the relationships between large polities. Advances in our understanding of epigraphy have largely driven this increased focus. Yet in areas where the epigraphic record is less understood, as is the case with the northern Maya lowlands, archaeologists have turned to other data to piece together political relationships. These data often consist of architectural and ceramic styles. Models based on such data generally assume that styles of material culture will cluster among social groups that are more closely knit than others (familial or political ties) or will occur in an area after it has been subordinated by a particular polity. One case where such a model has been applied is the site of Yaxuna, which was connected to the metropolis of Coba by a 100 km-long causeway during the Late Classic period. The difference between this case and others is that not only do the two sites share some aspects of material culture during this period, but we can also physically see that the sites were integrated by an actual road. In most cases where stylistic models have been applied, the possible routes connecting sites do not preserve, making the correlation between styles and social interaction more speculative. In this paper, we reevaluate the Yaxuna-Coba case using a modal analysis of the Arena ceramic group shared by Yaxuna and Coba during that time. Our data suggest that one particularly important type (Arena Red) was produced in Yaxuna and exported in a limited range of forms down the causeway toward sites in Quintana Roo. Although several archaeologists have argued that the causeway represents the subordination of Yaxuna by an expanding Late Classic Coba polity, our data suggest that the resulting impact on material culture may be more complex than current models imply. Ceramic economies operating in a very limited fashion within or outside of spheres of political action may have been common among the Maya, although the idea that trade follows flag certainly appears to have existed in this case.

The question of how the people living in different archaeological sites interacted with one another has been a major research question among archaeologists working throughout the world. In the Maya area there has been a more intense focus on intersite interaction since the 1970s when hieroglyphic decipherment began to inform us of the wars, marriages, and ritual observations (among other activities) that took place between members of different communities (Martin and Grube 2000; Schele and Mathews 1991). Although we have learned an incredible amount of information concerning how Maya polities interacted during the Classic period (A.D. 250–900/1100), many archaeological sites in the Maya lowlands do not have sufficient hieroglyphic texts to be able to reconstruct these relationships; hieroglyphs are absent at most sites and are often found eroded or defaced at sites where they exist. Archaeological sites in the northern Maya lowlands are particularly lacking in readable glyphs that would give us insight regarding intersite interaction. There are other data, however, that can be used to investigate these types of interactions. Intersite stone causeways or *sacbeob* (*sacbe* singular) are a particular type of feature that can give insight into the relationships between the sites they connect.

In this paper, we investigate the implications of Sacbe 1, a 100 km-long causeway connecting the important Classic period sites of Yaxuna, Yucatan, and Coba, Quintana Roo. After reviewing some overarching theoretical issues concerning the study of intersite

interactions in the Maya lowlands, we discuss previous research regarding the relationship between Yaxuna and Coba specifically. Focusing on the results of a modal analysis of ceramics dating to the time Sacbe 1 was constructed and used, we review a series of potential relationships that these two sites may have had during a portion of the Late Classic (specifically the period A.D. 600–700). We conclude that it is likely that Yaxuna may have been subordinate to Coba in some ways (Shaw and Johnstone 2001; Stanton and Freidel 2005) but that the relationship was more complex than most models account for.

## TRACKING INTERSITE INTERACTION IN THE MAYA LOWLANDS

Mayanists have spent a lot of effort investigating intersite interaction throughout the lowlands. Many studies have focused on hieroglyphic inscriptions which, when present, can inform us of wars, marriages among elites, and other relationships that occurred between sites (Chase and Chase 2003; Martin and Grube 2000; Schele and Freidel 1990; Schele and Mathews 1991, 1998). The decipherment of these texts has not only been an important contribution to our understanding of the ancient Maya, but has also caused a stir among both professionals and the public with the creation of the first ancient history in the Americas. For all their importance, however, hieroglyphic texts are primarily restricted to the Classic period and are not found with frequency in the northern Maya lowlands. Thus, many sites like Yaxuna (where the few hieroglyphs that

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have been found have either been eroded beyond reading or are single glyphs found in secondary contexts) and Coba (where much, but not all, of the epigraphic record is eroded [see Graham and von Euw 1998]) have little hieroglyphic data to work with.

Given these problems, some archaeologists have turned to other forms of material culture to understand interpolity interaction and regional sociopolitical structure. The most frequently utilized forms of material culture for these analyses are ceramics and architecture, particularly in terms of stylistic similarities and differences. In the northern lowlands the distribution of ceramic styles has been used to reconstruct the boundaries of proposed Late-Terminal Classic polities for Coba (Andrews and Robles Castellanos 1985), the “Puuc” (which generally refers to the expansion of power at Uxmal, [Andrews and Robles Castellanos 1985]), and Chichen Itza (Andrews and Robles Castellanos 1985; Andrews et al. 1989; Freidel 1992; see also Robles Castellanos 2006). Architectural styles have also been used to propose polity boundaries, such as the distribution of Megalithic architecture during the Late Preclassic and Early Classic (Mathews 1998; Mathews and Maldonado Cárdenas 2006) and Puuc architecture during the Late-Terminal Classic (Freidel 1992). Additionally, some researchers have used ceramic, architectural, and iconographic styles to argue for migrations or invasions of outsiders to the northern lowlands during diverse periods spanning the Middle Formative to the Postclassic (Andrews 1990; Smyth and Rogart 2004; Thompson 1937, 1970; Tozzer 1957).

As has been argued in previous works (Loya González 2008; Stanton and Ardren 2005; Stanton and Gallareta Negrón 2001; see also Bey 2003), models of interpolity interaction that are based on the presence or absence of particular styles can be problematic—whether focused on warfare, migration, or other factors. While studies citing classic works (for example, Wobst 1977) on style that emphasize the possible relationship between style and identity show us that style at times can demonstrate cultural boundaries, there are a myriad of reasons why styles can be found in particular areas, many of which have little to do with identity or sociopolitics (see, for example, Adams 1979; Goodby 1998). In the northern Maya lowlands it is quite common to assume that the distribution of ceramic and architectural styles signifies the extension of a political territory or the arrival of a distinct group of people (Shaw and Johnstone 2006). While the use of the distribution of styles is appealing for this type of reconstruction, especially in the absence of hieroglyphs, we must be careful when relying only on stylistic data and should look to other complementary information that might shed light on the relationships among social groups in the past.

One data group that can help us understand the sociopolitical dynamics among polities in the Maya lowlands better is stone causeways. *Sacbeob* are not overly common in the Maya lowlands but do occur with higher frequency in the northern lowlands than in the south (Benavides Castillo 1976, 1981; Cobos and Winemiller 2001; Folan 1991; Shaw 2001; Stanton and Freidel 2005). The most commonly occurring form of stone causeway are the short intrasite versions, which appear to have served as ritual procession routes within ancient sites, and/or ways of connecting social groups and civic-ceremonial architecture (see Kurjack and Garza Tarazona de González 1981). Less commonly occurring are those causeways that connect distinct communities, called intersite *sacbeob*, which are present in both the southern and northern lowlands (Hansen 1998; Maldonado Cárdenas 1979; Villa Rojas 1934). While these

features have been argued to have functioned as roadways between archaeological sites (Villa Rojas 1934), we believe it is preferable to view them more as integrative devices, given that their function is not well understood.

The objective of this study is to examine the presence of a causeway that connects the sites of Yaxuna, Yucatan, and Coba, Quintana Roo (Figure 1), and to demonstrate that a close relationship existed between these two communities—at least during the Late Classic period (roughly A.D. 600–700)—when, it has been argued, the causeway had been built and was in use (Johnstone 2001; Suhler et al. 1998). Like other researchers (Andrews and Robles Castellanos 1985; Freidel 1992), we find it highly improbable that Yaxuna and Coba were at odds during this period, as it is likely that members of both communities would have had to participate in this massive construction project; one of the largest single constructions in all of the Maya lowlands. It is possible that Yaxuna could have been conquered by Coba and the construction of the causeway forced upon its people. Yet the causeway suggests a close relationship between the two sites during a portion of the Late Classic period that, once recognized, allows for the study of ceramic styles to reconstruct polity boundaries. In this case, we ask how ceramic styles pattern between two sites that had a close relationship, rather than assume that similarities in ceramics styles indicate that close relationship. With the modal analysis of a sample of sherds of the Arena Group (a group found at both sites during the period when the causeway was constructed and in use), we demonstrate that ceramic patterns can shed light on the possible ways in which the two sites interacted (see also Loya González 2008).

There is a series of caveats to consider when using causeways to reconstruct intersite interaction. First, the presence of a causeway does not indicate the type of relationship between two sites—it only suggests that one existed; the type of relationship may have been based on economic, social, political, and/or ideological factors. Second, the relationship between two communities is likely to have been dynamic. For example, in a study of community interaction in the southeast United States, Muller (1999) demonstrates that “paths” among communities could be of different types (friendly or not); that the closest communities were not necessarily friendly ones (a pattern that seems to hold true for the Maya lowlands, where some enemy sites were located between two allied sites—a pattern that could call into question some models based on central-place theory); and, that the relationships among sites could change rapidly.

While the chronology in the northern lowlands is under increased revision (Andrews et al. 2003; Glover and Stanton 2010; Stanton and Bey 2006), the period of time we are dealing with—for the construction and use of the Yaxuna-Coba causeway—is 100 years (Suhler et al. 1998). We assume that during this time the relationship between Yaxuna and Coba remained relatively stable, but we must acknowledge the possibility that it was not.

There is one ceramic group, the Arena Group, which is argued to have been in use at Yaxuna only during the time when Sacbe 1 was built and used (not taking into account possible re-use during the Late Postclassic and Historic periods). This ceramic group appears to have been popular at Coba (Robles Castellanos 1990), Coba’s possible port site of Xelha (Canché 1992), and other coastal sites such as Xcambo (Jiménez Álvarez 2002) during the Late Classic period, and was found in association with Sacbe 1 and other structures of the period at Yaxuna. Our modal analysis focuses on the differences in attributes among Arena ceramics, especially the type Arena Red, at Yaxuna and Coba.

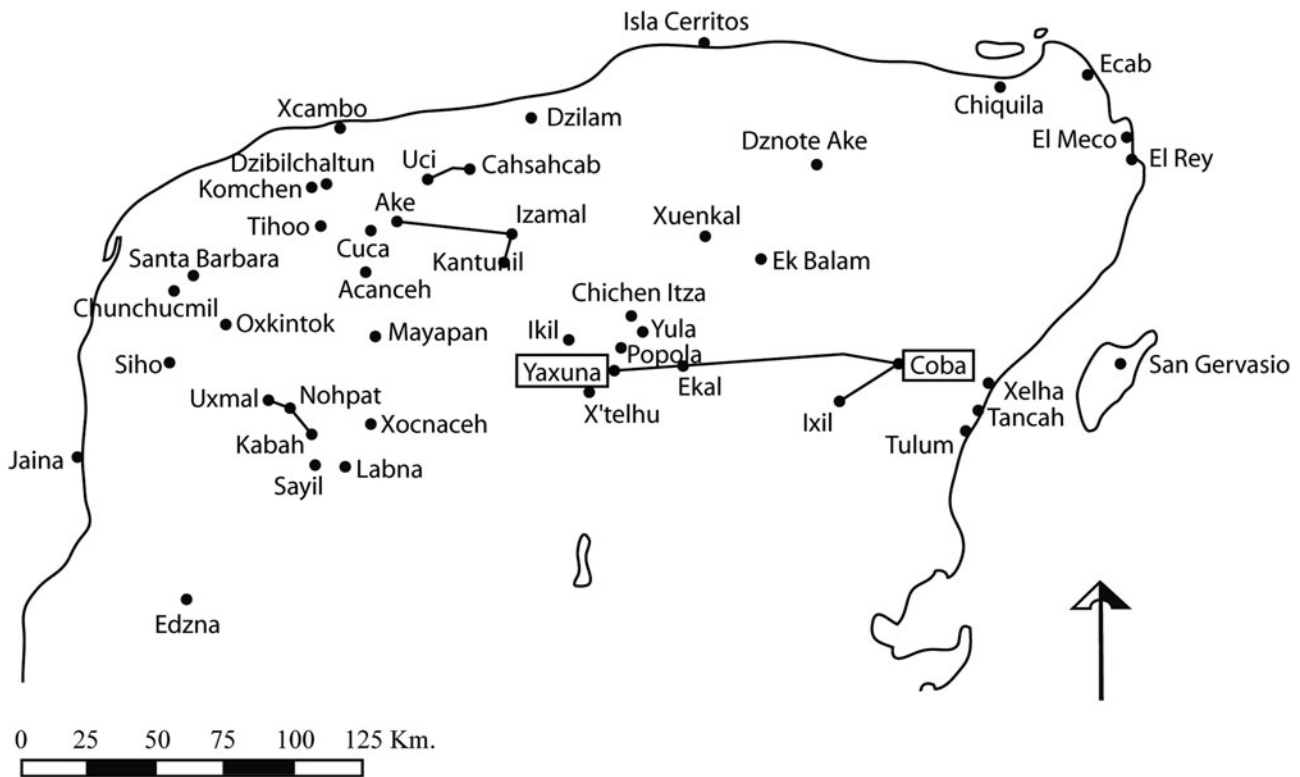


Figure 1. Map of the Northern Maya Lowlands.

PREVIOUS RESEARCH ON SACBE 1

The Yaxuna-Coba causeway, or Sacbe 1 (Figure 2), was first reported by explorers in the early decades of the twentieth century. Bennett (1930) was the first to publish on the causeway, which he followed for a limited distance. The Carnegie Institution of Washington (CIW) archaeologists working at Chichen Itza were aware of the causeway and that one end of it terminated at the important site of Coba (Thompson et al. 1932). These archaeologists had heard the legends of a road that crossed the peninsula ending near the island of Cozumel and speculated that this causeway may have inspired those stories. Yet the western terminus of the great causeway leaving Coba was unknown, assumed by many to end at Chichen Itza. It was Villa Rojas (1934), working with Redfield (1941) in the town of Chan Kom, who mapped the entire length of the causeway and discovered that its western terminus was actually the site of Yaxuna, located about 18 km to the south of Chichen Itza. It is around this same time that the CIW archaeologists became interested in Yaxuna; they spent some time there mapping the site center and excavating a series of test trenches (Brainerd 1958; O'Neill 1933). These early

researchers recognized that Coba was a Maya center with many architectural similarities to sites in the southern lowlands and that Yaxuna was a center with both Early Classic and Formative period occupations. They believed that research at both sites, due to the fact that they were connected by Sacbe 1, would eventually lead to the correlation of the late ceramic sequence at Chichen Itza with presumably earlier sequences from other sites in the southern lowlands, such as Uaxactun (Smith 1955). Subsequent projects initiated at both sites (for example, Folan et al. 1983; Freidel et al. 2002) resulted in a fairly thorough understanding of their respective culture histories.

The Culture History of Coba

The site of Coba was investigated by CIW archaeologists (Thompson et al. 1932), as well as by early explorers who had heard of massive ruins lying in the dangerous country controlled by *indios* during the latter part of the Caste War (see, for example, Maler 1932). These early investigators noted that Coba was a very large Peten-style site with numerous, albeit eroded, stelae.

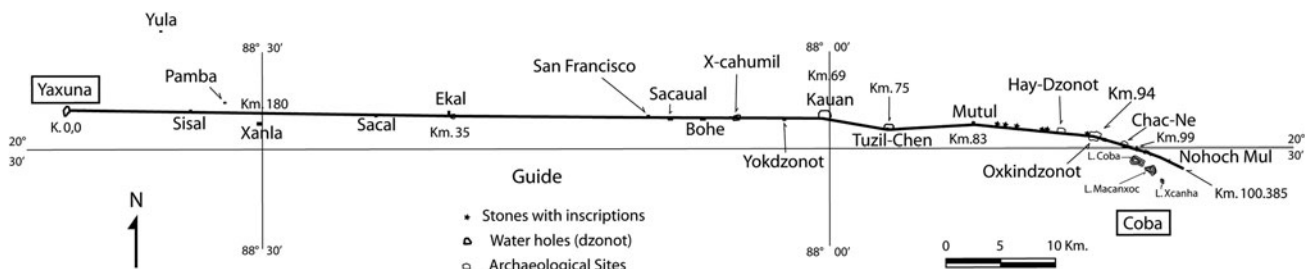


Figure 2. Sacbe 1 [modified from Villa Rojas [1934]].

Interestingly, monuments from Coba have a number of hieroglyphic dates that range from A.D. 613–780, suggesting the site was at its political apex during the Late Classic period (Navarrete et al. 1979). In fact, Guenter (2013) has identified a royal woman using the *kaloomte'* title at Coba during this period indicating that this city was one of the most important political powers in the northern lowlands during the Late Classic period. Thompson and his colleagues (1932:6; see also Folan et al. 1983:11–12) also suggested that Coba might have been mentioned in some of the ethnohistoric documents as a site called Kinchil Coba. If Coba is the site mentioned in these documents, it is said to have been destroyed toward the end of the occupation of Chichen Itza, now dated at around A.D. 1100.

One particular feature that caught the attention of these researchers was the dispersed nature of monumental groups connected by a complex series of intrasite causeways (Figure 3). This settlement system feature attracted subsequent archaeologists during the 1970s and 1980s. As a result, projects were undertaken that focused on the mapping of the monumental groups and the causeways that connected them (Benavides Castillo 1976, 1981; Folan 1977; Folan and Stuart 1974, 1977; Navarrete et al. 1979), as well as the settlement blocks located in the spaces delimited by the causeways (Cortés de Brasdefer 1984a, 1984b, 1984c; Folan et al. 1983; Folan and Stuart 1974; Gallareta Negrón 1981, 1984; Garduño Argueta 1979). Their work suggests that in the Formative period Coba was a series of distinct communities that eventually grew together as a result of population increase and urban sprawl (Benavides Castillo 1987:25). The majority of the *sacbeob* were probably constructed during the Late Classic period (Folan et al. 1983:213; but see Navarrete et al. 1979:80) to integrate these spatially distinct settlement nodes into one coherent community at roughly A.D. 600–800. While excavation data—as well as the dated stone monuments—suggest that Coba reached its greatest extent during the Late Classic period (Robles Castellanos 1990), a general understanding of the settlement chronology at Coba is unclear due to the limited nature of the excavations. We know that the site had a Formative period occupation (see Leyden et al. 1998; Robles Castellanos 1990), as well as a Late Postclassic settlement (Robles Castellanos 1990), but the extent of these occupations is not well understood from the existing literature.

Investigations of the domestic areas demonstrate that Coba was characterized by houselots surrounded by stone walls or *albarradas* (Folan et al. 1983), although the existing maps of these houselots have been criticized on several counts (see Benavides Castillo 1987:26). In any case, such *albarrada* systems surrounding domestic groups are rare in the Maya lowlands; the notable sites with such features are late Early Classic Chunchucmil (Hutson et al. 2006; Magnoni 1995; Stanton and Hutson 2013) and Late Postclassic Mayapan (Bullard 1952, 1954). What has been investigated of the Coba system appears to date to the Middle and Late facets of the Classic period (Manzanilla 1987; Manzanilla and Barba 1990). No such system is present at Yaxuna prior to the Colonial period (Shaw 1998; Stanton 2000), but has been noted at nearby Ikil during the Terminal Classic (Aline Magnoni, personal communication 2011).

### The Culture History of Yaxuna

Investigations at Yaxuna reveal that it was one of the more important sites in central Yucatan during the Formative and Early Classic periods (Stanton 2000; Suhler 1996; Suhler et al. 1998). Yaxuna has an early occupation dating to the Middle Formative period, although this settlement is not well understood due to overburden from subsequent occupation (Stanton and Ardren 2005). During the

Late Formative period, the evidence indicates that Yaxuna was one of the largest centers in the northern Maya lowlands, with architectural forms that include large triadic acropolis groups, broad causeways, and an E-Group (Figure 4). At the end of the Formative period, Yaxuna appears to have experienced a reduction in population and monumental construction that could be viewed as part of the Formative period Maya collapse seen in other locales in the lowlands (Glover and Stanton 2010). We know that several monumental groups were abandoned during the Early Classic period, but the North Acropolis continued to function as an elite mortuary monument. While the end of the Early Classic period is not well understood, it appears that Yaxuna suffered another decline (see Johnstone 2001; Suhler et al. 1998). Whether or not this decline was related to the slightly later construction of Sacbe 1 is a matter of debate.

The Late Classic period (A.D. 600–700/730) is marked by the period when Sacbe 1 was constructed and used. Excavations of the causeway, near its terminus at Structure 6E-13, revealed that the *sacbe* was burned and a rather large amount of ceramics were deposited on the final floor (see Ardren 2003; Shaw and Johnstone 2001; Stanton and Freidel 2005; Stanton et al. 2010). In conjunction with stratigraphic data recovered from Structure 6E-13, the Sacbe 1 deposits indicate that the causeway was built and used only during the time when Arena Red—a ceramic type whose presence defines the Late Classic at Yaxuna due to its restricted temporal placement (see Johnstone 2001)—was in use. Evidence suggests that, apart from Sacbe 1, very little, if any, monumental architecture was constructed at Yaxuna during this time. Given that Coba has an extensive internal causeway system connecting dispersed architectural groups (see Benavides Castillo 1976, 1981), as well as the fact that the site has evidence of an explosion of carved monuments dating to around this period, some researchers have suggested that Sacbe 1 represents an extension of the Coba causeway system, integrating Yaxuna into an expanding Cobaneco polity (Andrews and Robles Castellanos 1985; Freidel 1992; Shaw and Johnstone 2001; Stanton and Freidel 2005; see also Robles Castellanos 1976).

While the Late Classic interaction between Coba and Yaxuna is of primary interest in this paper, it is noteworthy that there is continued evidence of occupation at Yaxuna after the initial use of Sacbe 1. Although the settlement pattern and architectural changes at Yaxuna during the Terminal Classic period are not well understood due to problems dividing this period into facets (Stanton et al. 2010), we know that Puuc style architecture arrived at Yaxuna soon after the abandonment of Sacbe 1 (Ambrosino 2003, 2007). Further, population levels increased dramatically. Many previously abandoned monumental structures were renovated during this period. At some point after A.D. 900, Yaxuna appears to have been largely abandoned. Some evidence exists of Late Postclassic activity at Yaxuna, but it appears to be ritual in nature; no domestic occupation has yet been found. There are also some Late Postclassic burials (Ardren 2003) and shrines, one of which appears to be a hunting shrine (Götz and Stanton 2013). One of these shrines was located on top of Structure 6E-13 (Ardren 2003) suggesting that during the Late Postclassic, Sacbe 1 served as a pilgrimage route. This practice possibly reflects the aforementioned legends of an ancient road crossing the peninsula to Cozumel.

### Previous Research on Sacbe 1 and the Relationship between Yaxuna and Coba

Research into sociopolitical interaction in the northern Maya lowlands began with the CIW project at Chichen Itza. Using

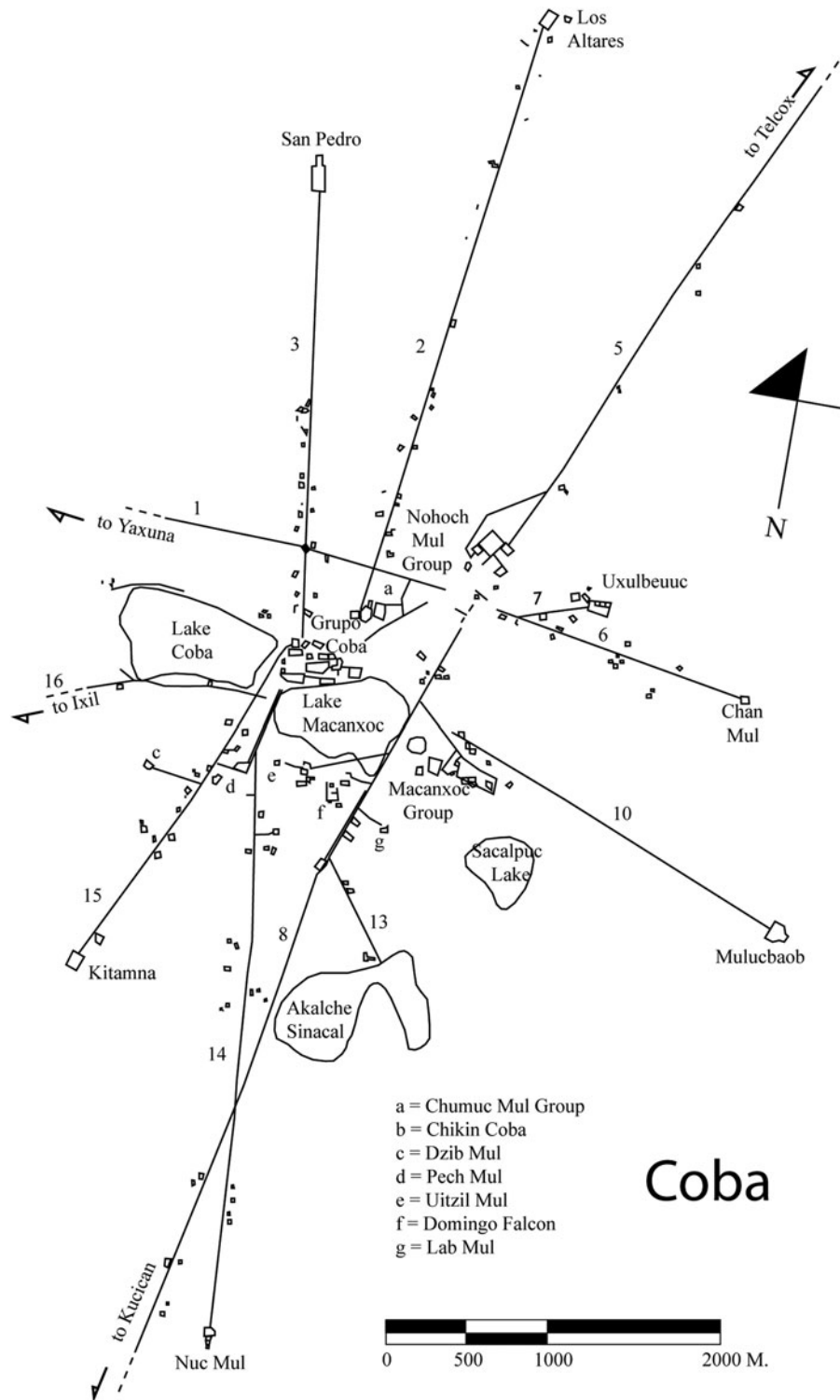


Figure 3. Map of Coba (modified from de Benavides [1987:24]).

ethnohistoric and archaeological data, researchers argued that Chichen Itza had two occupations: an earlier Maya and a later Toltec occupation, with the latter group conquering the former and imposing their rule on sites across the northern lowlands (Thompson 1937; Tozzer 1957). While this model has been rejected in more recent times (see Ringle et al. 1998), the idea that the styles

at Chichen Itza can be used to identify political influence and ethnic identity is still popular in this region and has been used to explain the relationship between Yaxuna and Coba (Freidel 1992; Shaw and Johnstone 2001).

Primarily using the distribution of slateware ceramic styles, Andrews and Robles Castellanos (1985; Robles Castellanos and

Andrews 1986) argued that the peninsula was divided into two ceramic spheres during A.D. 800–1000: the eastern Cehpech (characterized primarily by brownish-slipped wares) and the western Cehpech (dominated by grayish-slipped wares) (Figure 5). They linked these ceramic spheres to the political control of the eastern part of the peninsula by Coba and the western portion of the peninsula by the Puuc. After the supposed invasion of the peninsula by Putun Maya, Chichen Itza took hold of the western sphere from A.D. 1000–1200, which then became characterized by

Sotuta-style ceramics. During this time, Chichen Itza dominated most of the peninsula with the exception of the center and east, still under the domain of Coba. While many of our ideas concerning the distribution and chronology of slateware ceramics have changed over time (see, for example, Ringle et al. 1998; Robles Castellanos 2006), the idea that Yaxuna was the westernmost outpost of a Coba polity still remains tangible today (Freidel 1992; Shaw and Johnstone 2001). Given that the CIW ceramic studies did not report Sotuta types at Yaxuna, and coupled with the fact that there

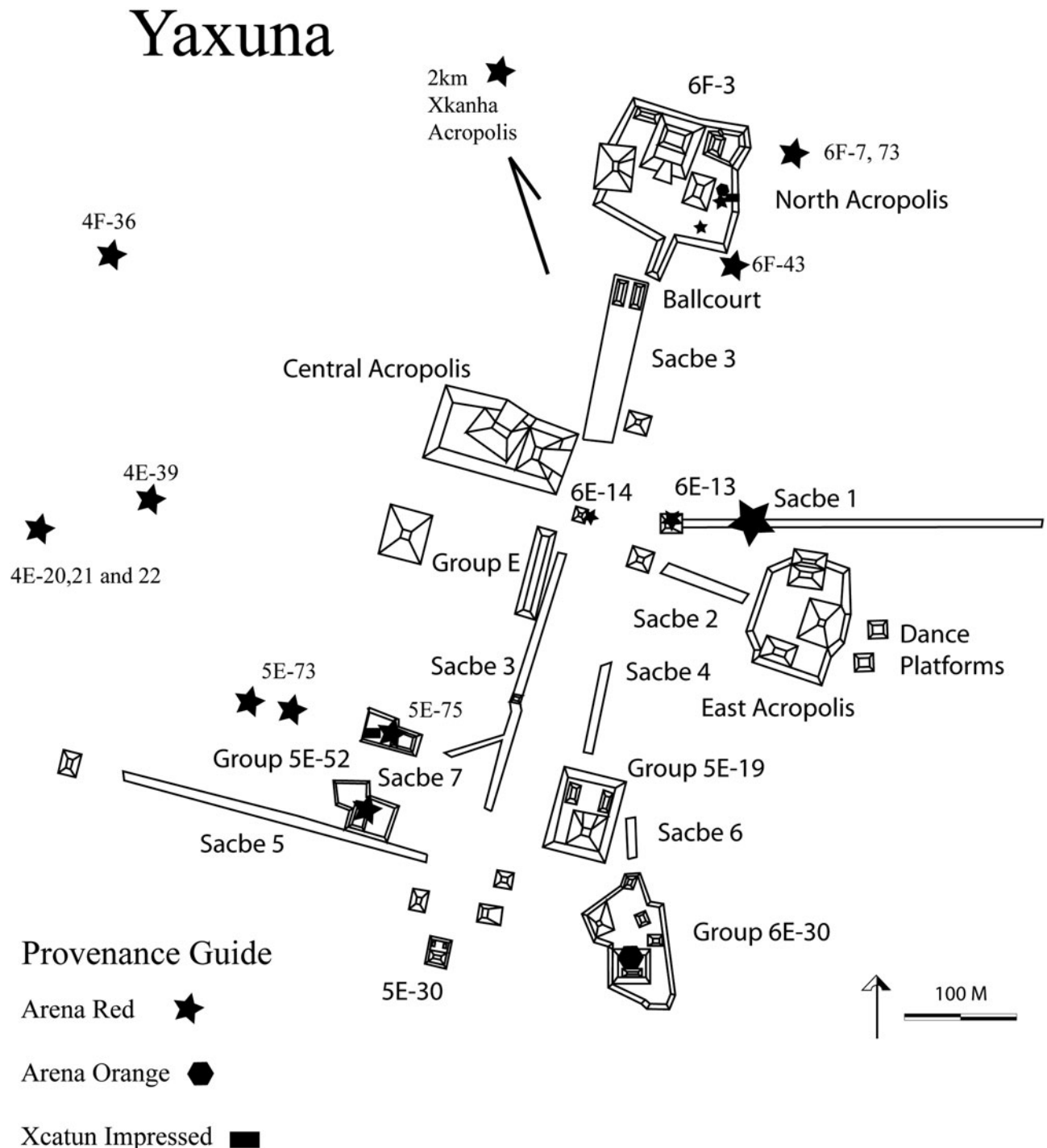


Figure 4. Map of Yaxuna with the provenance of the Arena group material used in this study.

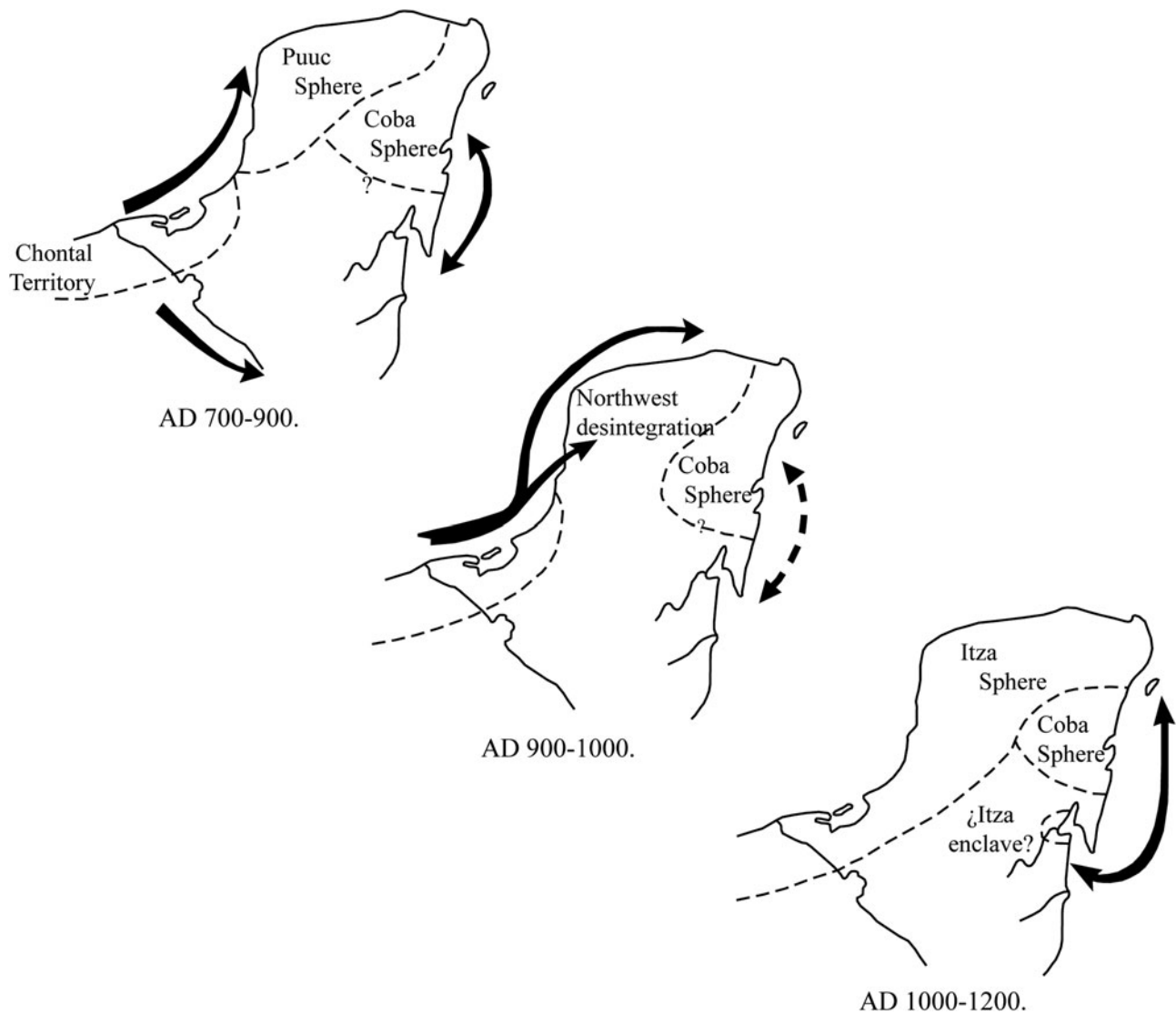


Figure 5. Interaction spheres in the Northern Maya Lowlands [modified from Andrews and Robles Castellanos [1985:68]].

is a mention of a negotiation between the Itza and Cetelac (Yaxuna) in the *Book of Chilam Balam of Chumayel*, the site was viewed as a key location for understanding the relationship between Coba and Chichen Itza (Freidel 1992; Freidel et al. 2002; Suhler et al. 1998). This led Freidel (1992) to initially propose that, in an effort to minimize Itza incursions into the region, Yaxuna was the intermediary between Coba and the Puuc cities.

Subsequent archaeological work by Freidel's team at Yaxuna, however, uncovered evidence suggesting that Sacbe 1 and the "influence" from Coba (such as the presence of Arena Group ceramics) dated to the A.D. seventh century, prior to the founding of Chichen Itza. It is now believed that Chichen Itza was founded toward the end of the eighth or beginning of the ninth century A.D. (see Ringle et al. 1998), around the same time period in which Sotuta ceramics, recently reported by several projects (Ambrosino 2007; Johnstone 2001; Suhler et al. 1998; Toscano Hernández and Ortégón Zapata 2003), appear at Yaxuna. This indicates that the relationship between Yaxuna and Coba occurred in a much different regional sociopolitical landscape than had been supposed by previous researchers. Yet ideas that Yaxuna was somehow

subordinate to Coba persist. These are primarily based on the fact that Yaxuna does not have much evidence for the construction of civic architecture during the time when much of the site core of Coba was built, the stelae at Coba were erected, and Sacbe 1 was constructed (Shaw and Johnstone 2001; Stanton and Freidel 2005).

#### ARENA CERAMICS AND MODELS OF SOCIOPOLITICAL INTERACTION

The Arena ceramic group, and its primary type Arena Red, were originally included within the Batres group by Smith (1971). It was later separated as an independent ceramic group by Robles Castellanos (1990) through his work on the Coba ceramic sequence. At the time of his analysis, Robles Castellanos suggested that the Arena Red type was a northern Quintana Roo manifestation of the Mountain Pine Red of Barton Ramie (Gifford 1976). At Coba, Robles Castellanos (1990:147, 149) only identified *cajetes* (flat-bottom bowls) in the Arena Red type and noted the presence of quartz, hematite, and calcite temper. Macroscopic observations and chemical characterizations of Arena Red at Coba by Barba

Pingarrón and Ramírez Bermúdez (1987:164) suggest that Arena Red was elaborated with illite clay, rich in quartz and feldspars, and that the paste includes very small red particles that could be hematite. It is not clear, however, if these studies determined the presence of these minerals by chemical characterizations alone.

At Yaxuna, Johnstone (2001:72) first identified Arena Red in the ceramic assemblage, linking it to the construction and use of Sacbe 1. Johnstone macroscopically identified many of the same tempering materials as the Coba projects, declaring hematite temper as a diagnostic marker of the type at Yaxuna. He also reported jars—as well as *cajetes*—as part of the assemblage. The (larger) variability of the Yaxuna material led him to believe that the group/type had a local manufacture at Yaxuna and subsequent trade to Coba. Johnstone (2001:123–124) characterized this trading situation as “unilateral” with Yaxuna being mainly a producer and Coba being principally a consumer.

Examining three Late Classic ceramic groups, Loya González (2008) conducted a modal analysis of a sample of Arena material from Yaxuna. Her results (see section below) supported Johnstone’s observations and even expanded on the assemblage’s variability reporting two new types in the Arena group. While macroscopic descriptions of the paste in her findings would seem to correspond to those reported by others working with Arena materials, petrography (Loya González 2009, 2010) showed that, in fact, the paste does not have calcite, quartz, or feldspars in it. It is indeed filled with iron-rich minerals, but these are not only restricted to hematite.

The goal of this analysis was to see in more detail how the attributes of Arena ceramics pattern (differently) at Yaxuna and compare them to those reported at Coba. A second goal was to try to understand what these differences, if any, might tell us about the relationship between the two sites during the seventh century A.D. Loya González (2008) proposed that this relationship could take three, not mutually exclusive, general forms. First, the relationship could have been based on social factors such as alliances and marriage ties between the two communities, which could have been reflected in exchange or gifting of vessels. This model does not account for whether the relationship was heterarchical or hierarchical and does not necessarily limit the exchange or gifting to the elite level of society, which is known to have occurred during the Classic period (Reents-Budet 1994). Sacbe 1, however, would probably represent alliances between the upper echelons of the Yaxuna and Coba communities in this model.

Second, the relationship could have been based on the subordination of one site to the other. Subordination could have resulted from conquest, the threat of force, or unequal alliance forming—all strategies seen executed by the Late Postclassic Aztec Empire (Berdan et al. 1996). This model would primarily view the *sacbe* as a political tool to integrate Yaxuna into the Coba polity (see Shaw and Johnstone 2001; Stanton and Freidel 2005) and could support some claims for the military use of the road (see, for example, Hassig 1992).

Finally, the relationship could have been based on more economic factors. While we do not yet have a good understanding of how Maya economies functioned during the Classic period, there has been some suggestion that something similar to the market system that appears to have been in place during the Late Postclassic period also functioned during the earlier Classic period (Dahlin et al. 2007). In this model, Sacbe 1 would primarily represent the physical manifestation of a trade route between two

important Classic period sites, facilitating the rapid transport of goods.

## Analysis

To test these models, 239 Arena Group sherds were taken from domestic contexts, Sacbe 1, and a trash pit on the North Acropolis (Figure 4). Forty-four attributes were recorded, including the shape of the vessel, macroscopic paste description, surface finish, wall thickness, and rim diameter, among others. Two new types were identified within the Arena Group. While the data were originally presented both through table comparison of the modes and in a Type-Variety-Mode description (Loya González 2008, following Gifford 1960 and Rouse 1960), only the latter will be presented here.

The analysis followed this general methodology: (1) Paste description: macroscopic characterization was achieved by the use of a lamp with a magnifying glass (petrographic analyzes were conducted in 2009 at Massachusetts Institute of Technology [MIT]; results are pending publication). The description considered type of temper, size of the inclusions, paste color, and an estimation of the proportion between matrix and temper (following Orton et al. 1993:238). (2) Surface finish: pre- or post-firing treatments of the vessel, such as slipped, unslipped, sponged, smoothed, polished, and burnished. (3) Decoration: pre- or post-firing designs on the vessel surface that are independent of the surface finish. (4) Vessel shape: shape was identified in most of the cases using the inclination of the rim and the location of the slip. Needless to say, this method is not 100% accurate, and all inferences must be taken with due consideration.

## Arena Group Type Descriptions

Type: Arena Red

Variety: Xcanha

Established by: Group and Type by Robles Castellanos (1990);

Variety by Jiménez Álvarez (2002)

Frequency: 205 sherds

Provenance: Primarily contexts associated with Sacbe 1 and Structure 6E-13; in the first level of the trash pit on the east side of Structure 6F-4 in the North Acropolis (Operation 80); Structure 5E-75; Structure 4E-22 (Burials 12 and 14), and other Late Classic contexts (Figure 4).

Description: Fine and talc-textured paste that has very small gray, white, and red inclusions that vary between .5 and 1 mm in size (there are few examples up to 5 mm). The proportion of temper in the clay is estimated at between 5 and 10%. Paste color varies between tones of cream and pink (5 YR 7/6, 6/6, 5/6 and 7/4; and 7.5 YR 6/6). The sherds are slipped on both inner and outer surfaces in different hues of red (mostly 2.5 YR 4/6, 5/6, 4/8, and 5/8). The slip is weak and frequently becomes completely separated from the clay body surface. Most of the material is polished, sometimes obtaining very well burnished surfaces. The base of spherical and composite bowls (see below for shapes) is not slipped and generally has diagonal striations. Unslipped portions present yellow and cream hues (10 YR 7/3, 7/4, and 8/3), most likely due to differential firing. In these bowls, the slip ends at the middle or immediately below the flange, when present. Some bowls have a shallow horizontal incision on the inner surface (Figure 6).

Shapes: Tripod inward curving bowls with slightly everted rims; medial or basal flange; small, solid, conical supports; and concave



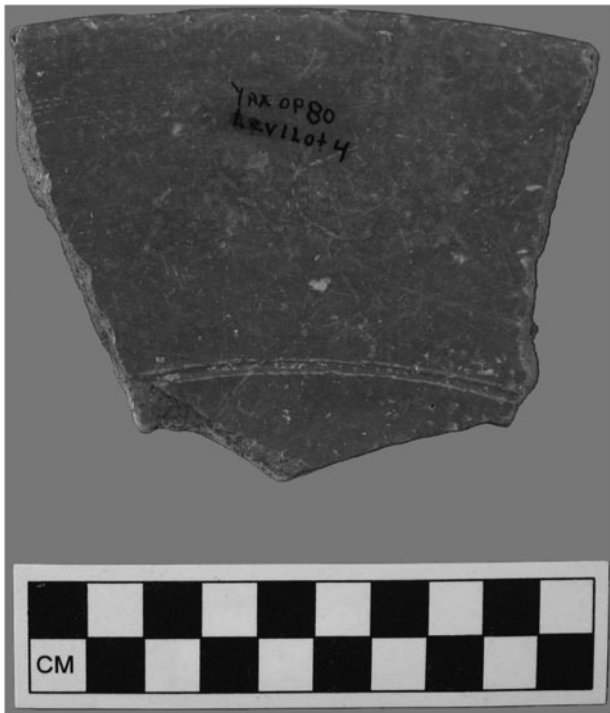


Figure 6. Incision over the interior surface of some tripod Arena Red cajetes.

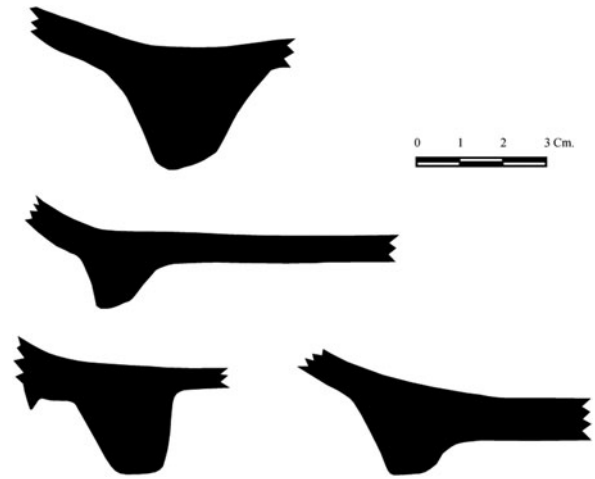


Figure 8. Arena Red, Xcanha variety supports.

or flat base. Composite bowls with straight divergent walls and slightly everted rims, medial or basal flange, concave or flat base, and solid small conical supports. Subhemispherical, hemispherical, and sub-spherical bowls with direct rims (Figures 7, 8, and 9). These last three types of bowls have the thinnest and thickest walls, varying between .4 and 1.4 cm. The rim diameter of tripod vessels varies between 12 and 37 cm (clustering between 18 and 27 cm), while the rest of the bowls vary between 11 and 47 cm with no clear clusters.

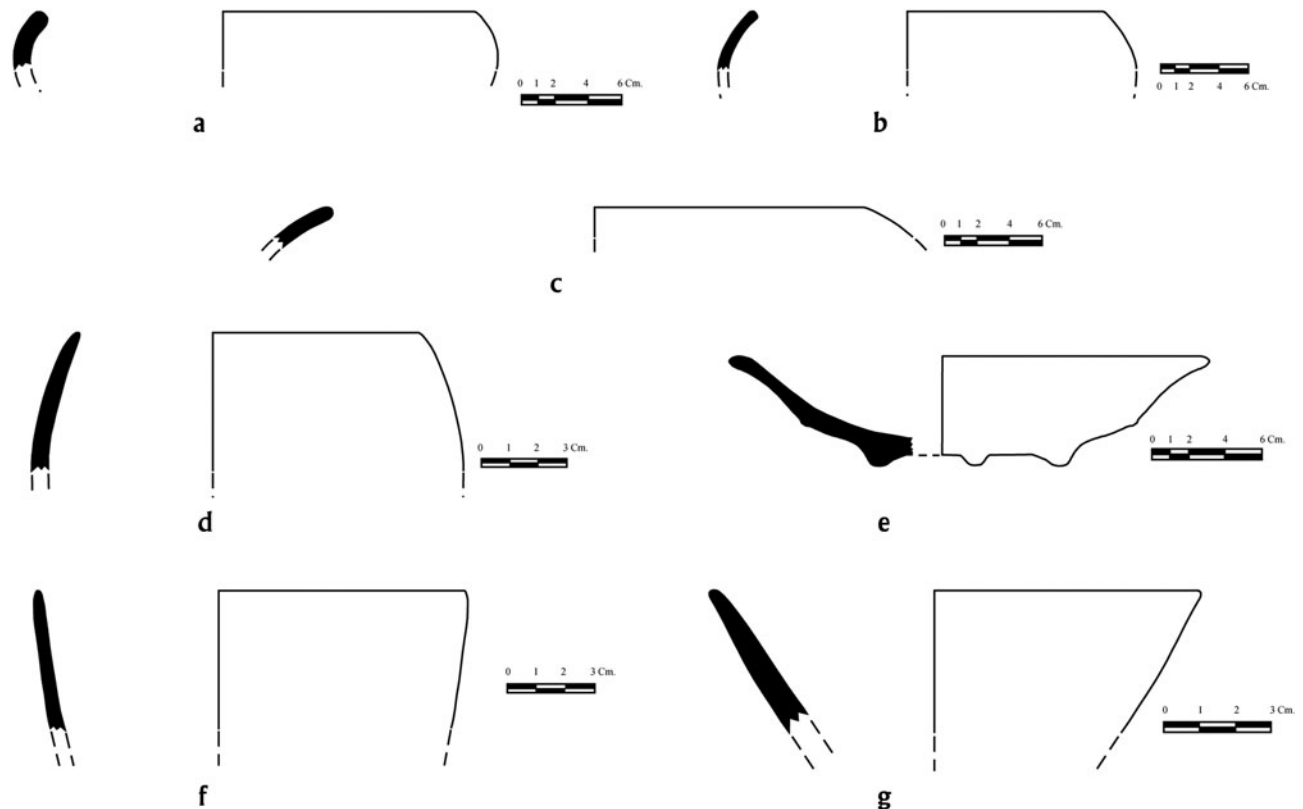


Figure 7. (a–d) Arena Red, Xcanha variety bowls. (e) Subspheric, tripod inward curving and (f, g) divergent with direct rim.

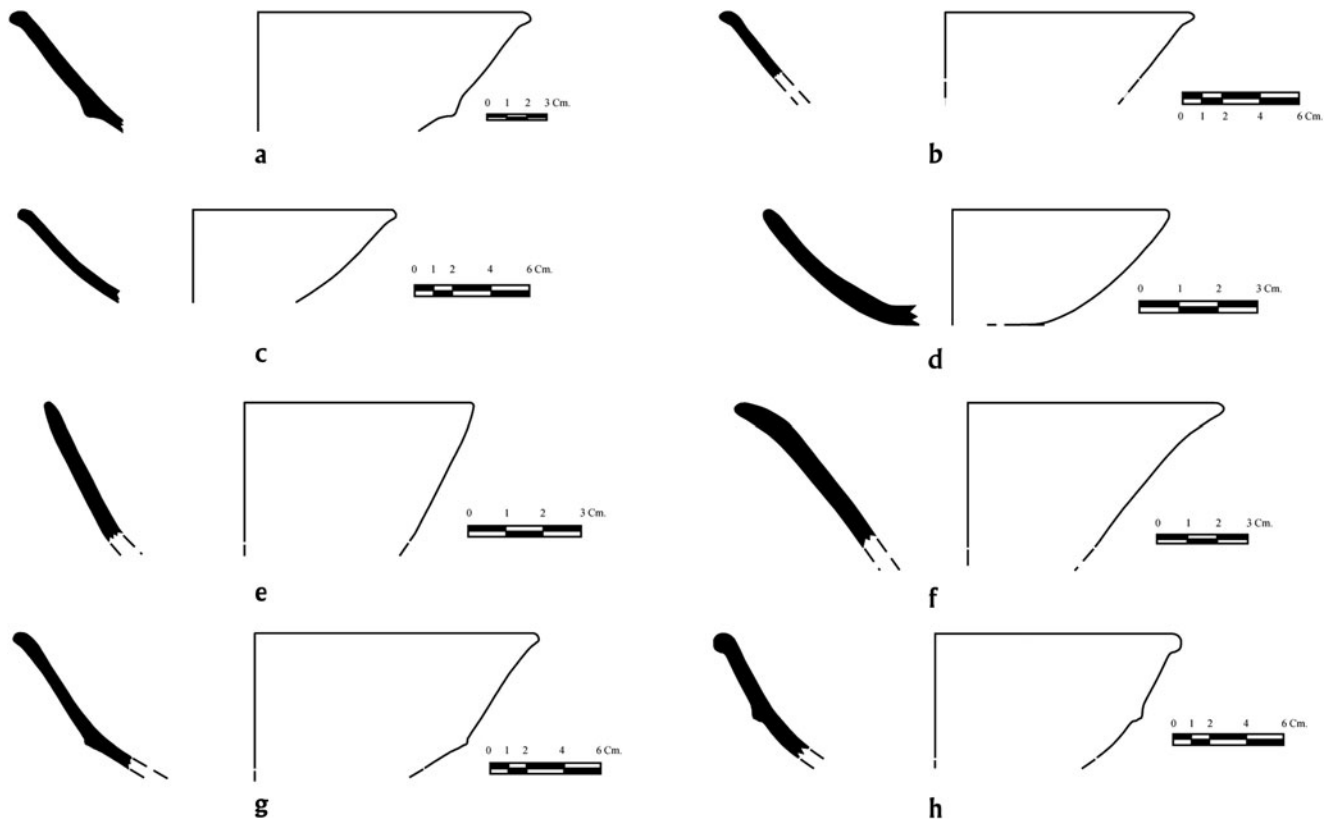


Figure 9. Arena Red, Xcanha variety bowls. (a-b) Composite, (c-d) subhemispheric, (e) hemispheric, (f) divergent with everted rim, and, (g-h) inward curving.

Jars with medium-sized straight necks with everted rims; jars with short, straight, divergent necks. Rim diameters vary between 15 and 20 cm and the wall thickness between .5 and 1 cm (Figure 10). Unidentified vessels with slightly convergent walls and straight rims (probable cylindrical vases) also occur. Wall thickness varies between 0.4 and 0.6 cm with two rim diameters at 14 and 18 cm (Figure 11).

Type: Arena Orange  
 Variety: Yaxuna  
 Established by: Loya González (2008)  
 Frequency: 30 sherds  
 Provenance: First level of Operation 80 (trash pit west of Structure 6F-4) and the 6E-30 Group (Figure 4).

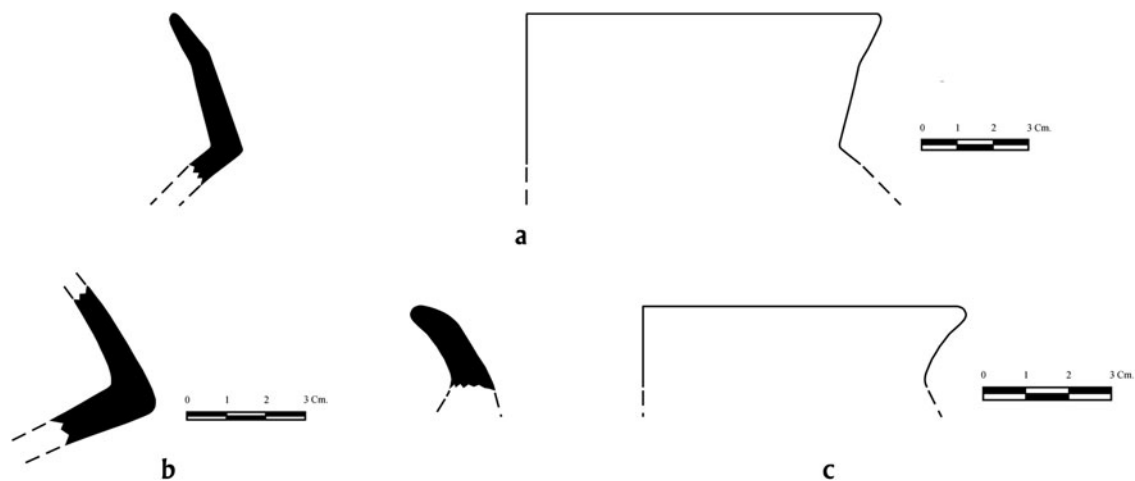


Figure 10. Arena Red, Xcanha variety jars. (a) Medium-sized, divergent neck with everted rim, (b) fragment of a neck, and, (c) a short-necked specimen.

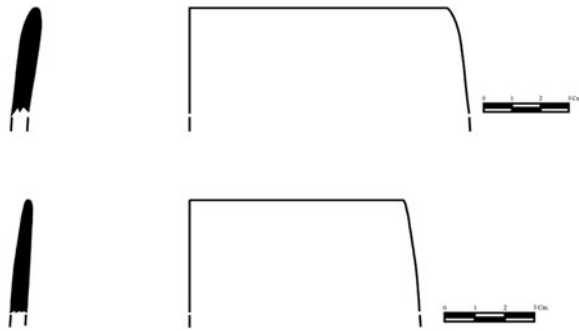


Figure 11. Vessels with slightly convergent walls, Arena Red, Xcanha variety.

Description: The main differences between Arena Red and Arena Orange are the color of the slip and the shapes. Yet, they share the paste modes described for the Arena Red by Robles Castellanos (1990). As an isolated case, one fragment had what seem to be shell fragments as temper. Inclusions vary between .5 and 1 mm with the

proportion of tempering ranging between 5 and 10%. In some sherds the texture is more “sandy” perhaps due to the addition of *saculum* (or palygorskite) as temper. Paste color is predominantly pinkish-orange (5 YR 8/4, 7/6, and 2.5 YR 6/8), but there are some cream examples as well (10 YR 8/3) (Figure 12).

Bowls have polished slip on the inner surface and, in some instances, just partially over the exterior surface (from the rim to the medial portion of the wall). The slip is generally orange (2.5 YR 6/8, 5 YR 6/6, and 7/6), and it is better adhered to the surface than the Arena Red material. The unslipped portions and the base are well smoothed and sometimes striated. The interior of jars are smoothed, and the slip begins on the inner side of the neck. Some are polished. Shapes: Bowls with straight, divergent walls and straight rims; with inward curving walls and inverted lip; and subspherical bowls with straight rims. The first has a rim diameter of 18 cm and wall thickness of .5 cm; the second 32 and 1.2 cm, respectively. The last category varies between 37 and 43 cm of rim diameter and .7 and .8 cm in wall thickness. Jars have short divergent necks, and the measurable specimen has a diameter of 14 cm. The wall thickness varies between .7 and .8 cm (Figure 13).



Figure 12. Representative sherds of Arena Orange, Yaxuna variety.

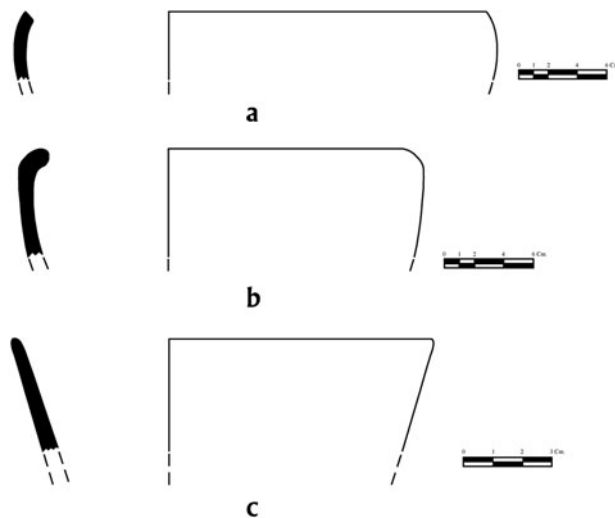


Figure 13. Arena Orange, Yaxuna Variety Bowls. (a) Subspherical, (b) inward curving with inverted lip, and, (c) divergent with direct rim.

Type: Xcatun Impressed

Variety: Xcatun

Established by: Jiménez Álvarez (personal communication 2001) after material from Yaxuna

Frequency: 4 sherds

Provenance: One sherd from Operation 80 (trash pit east of Structure 6F-4) and the rest from Operation 3d (Structure 5E-75) (Figure 4).

Description: Pinkish (5 YR 6/8 and 7.5 YR 6/4) and in one case, reddish (5 YR 7/6) paste of fine to medium texture with small gray, white, and red inclusions that vary between .05 and 1 mm. The percentage of temper varies between 5 and 20%. Sherds have a red (5 YR 7/6 and 5 YR 6/8) polished slip in the interior surface and partially on the exterior surface, where it ends over the decoration. The unslipped

portion is smoothed and, in some cases, striated. Just as with the Arena Red, differing hues on the surface of the same vessel are the result of differential firing. Vessels have finger or fingernail impressions. In two cases the decoration is in the medial portion of the vessel, whereas in the other two, impressions are executed under the lip.

Shapes: Hemispherical (inward curving) bowls with everted rims (similar to Arena Red). One has an out-flaring wall and straight rim. Another sherd had straight walls, perhaps representing the upper part of a composite bowl. Rim diameter varies between 24 and 27 cm, while thickness varies between .7 and .8 cm (Figure 14). Given the shape and diameter of the fourth specimen, it can be inferred it belongs to a jar (Figure 15), but the degree of erosion and fragmentation preclude a clear identification. It has a 12 cm diameter and .7 cm thickness.

## DISCUSSION

While a comparison at the attribute level between Arena material from Yaxuna and Coba was not possible with the ceramic reports available for Coba (Robles Castellanos 1990), some interesting patterns can be noted. It can be ascertained that the Arena ceramics in Coba (Robles Castellanos 1990), as well as at Xcambo (a coastal site located to the north of Mérida [Jiménez Álvarez 2002]), appear to be a partial inventory mainly composed of fairly homogeneous, tripod, composite *cajetes*. In Yaxuna, the type has a functionally more complete inventory. While 79.5% of the sample are *cajetes*, the shapes are diverse, and most of them are not reported at Coba or other sites. The remaining 20.5% of the sample are jars and other restricted-orifice vessels, also absent in Coba. Further, the assemblage in the group Arena from Yaxuna presents two other types in addition to Arena Red. There is no apparent pattern between shape and provenance at Yaxuna. In general, the attributes (including shape) at Yaxuna are not as homogeneous as the ones from Coba. The variability, together with petrography that suggests the Arena group was manufactured with materials local to central Yucatan (Loya González 2009,

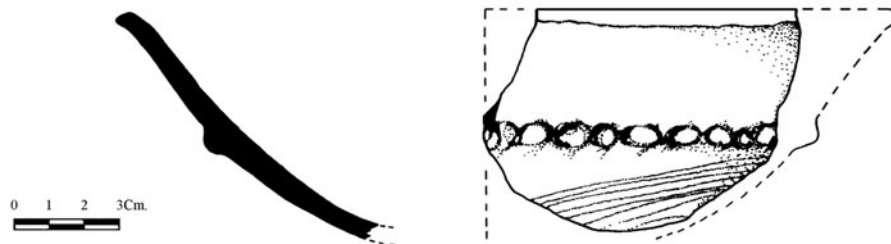


Figure 14. Inward curving *cajete*: Xcatun Impressed, Xcatun variety.

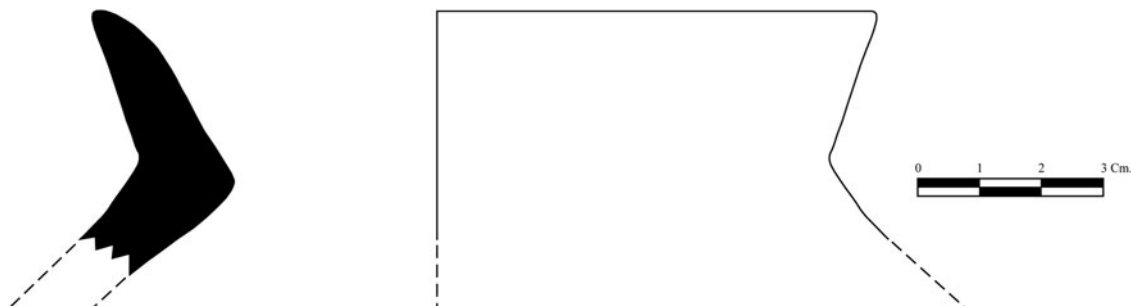


Figure 15. Short-necked jar, Arena Orange, Yaxuna variety.

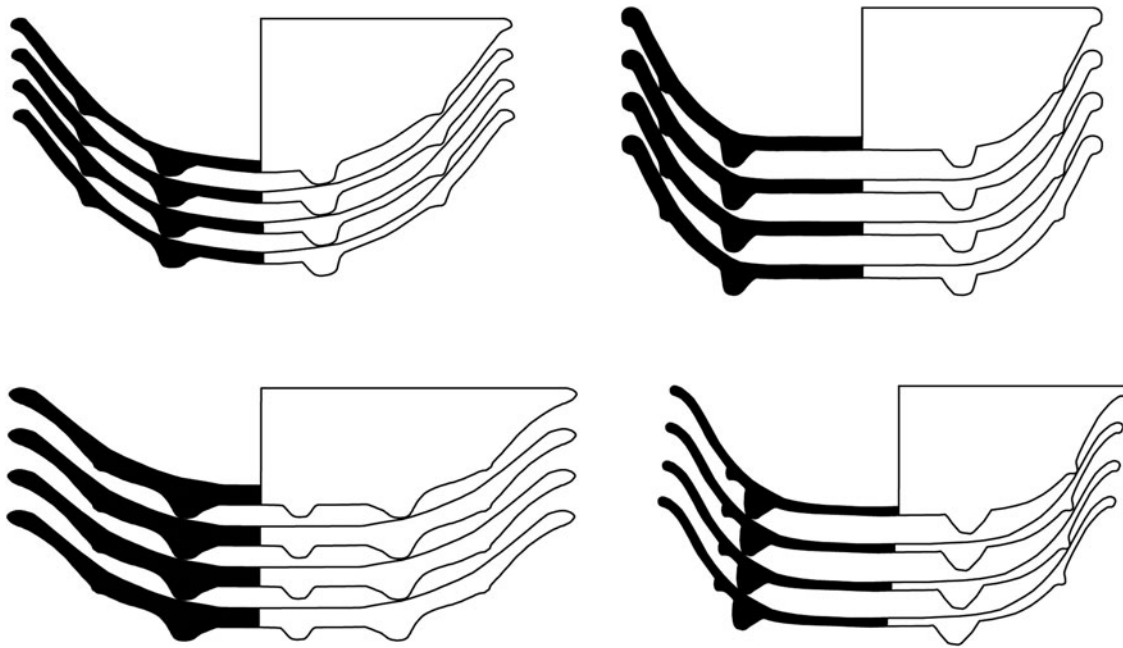


Figure 16. Hypothetical reconstruction for stacking rena Red tripod *cajetes*.

2010), hints that this ceramic group was being produced in Yaxuna or its vicinity (Johnstone 2001:123–124).

What can this tell us about the relationship between the two sites? The fact that the *cajetes* found in Coba and Xcambo are homogenous, representing only Arena Red composite bowls, seems to suggest the manufacture of this type of *cajetes* in Yaxuna. This could point to either Yaxuna paying tribute to Coba or the likelihood that there was an economic relationship between the two sites, with Arena Red being one of the products exported east along Sacbe 1, if not in other directions as well.

The *cajetes* have metric and formal attributes that would facilitate their transportation by stacking them. The base of the *cajetes* is concave in such a way to allow for another vessel to be fitted inside. The pressure between the two vessels is distributed along the flange, as well as through the supports (Figure 16). In the *cajetes* without supports, the flange is located where the vessels touch when stacked (Figure 17). In either case, the *cajetes* stack nicely with a good distribution of pressure; ideal for transport. The fact that these forms are found at other sites, and not the variety of forms found at Yaxuna, points to specialized production for tribute or export.

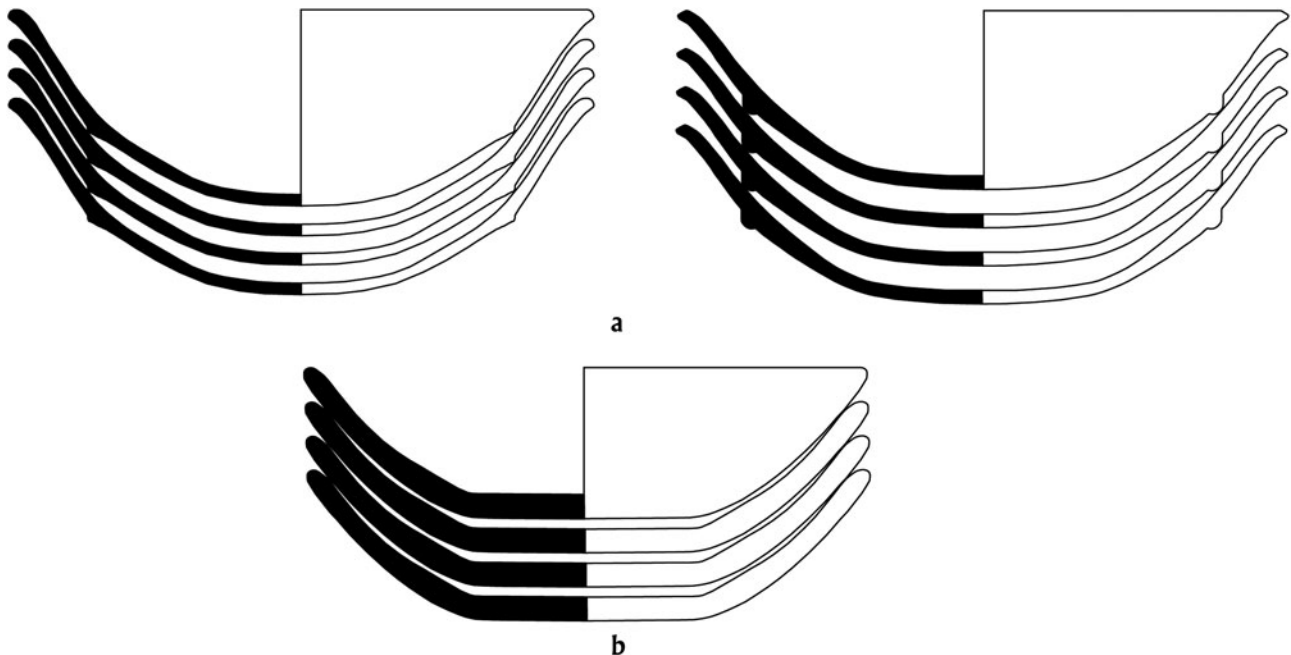


Figure 17. Hypothetical reconstruction for stacking arena red *cajetes*: (a) flanged *cajetes*; (b) sub-hemispherical *cajetes*.

We still suspect that Coba maintained Yaxuna in a subordinate relationship during the Late Classic period, with Sacbe 1 functioning as a symbol of Yaxuna's integration into the Coba polity (also suggested by the lack of monumental construction at Yaxuna during this period and the presence of the *kaloomte'* title at Coba). Sacbe 1 connects Coba with the central portion of the peninsula, probably giving it access to important trade routes. Some researchers (for example, Freidel 1992) have commented on the fact that Yaxuna, and later Chichen Itza (which had one of the largest markets on the peninsula during the latter portion of the Classic period), was located in an ideal location to control trade routes to the northern coast and to the south. If this is the case, Coba's possible inclusion of Yaxuna into its sphere of influence may have been partially motivated by a strategy to control long-distance trade.

Interestingly, Jiménez Álvarez and her colleagues (2006) have discussed Classic period trade routes along the Gulf Coast using ceramic data from coastal sites (Figure 18). They suggest that the

sites in the north and northwest coast of the peninsula belonged to the Canbalam ceramic sphere during the Late Classic (Jiménez Álvarez et al. 2006). The sphere reflects contacts with diverse regions: polychromes from the south (specifically Saxche group), slate and striated types from the northwest, Arena Red (from the center), and other types from the regions of Tabasco and Campeche.

We believe that it is through this coastal network that the Arena Red, and other types, spread over the northern lowlands, or at least the areas where the Canbalam sphere operated. The eastern portion of the peninsula (the Caribbean) appears to have had a separate coastal trade sphere (Socorro Jiménez Álvarez, personal communication 2006). Coba and its presumed port of Xelha at the time were connected to the eastern trading sphere, not to the Canbalam sphere (evidenced by a high frequency of polychromes and Tepeu ceramics at the site [Robles Castellanos 1990:131–132]). Further, the Canbalam sphere and the eastern sphere do not appear to have been connected. Evidence from the Yalahau region of northern Quintana

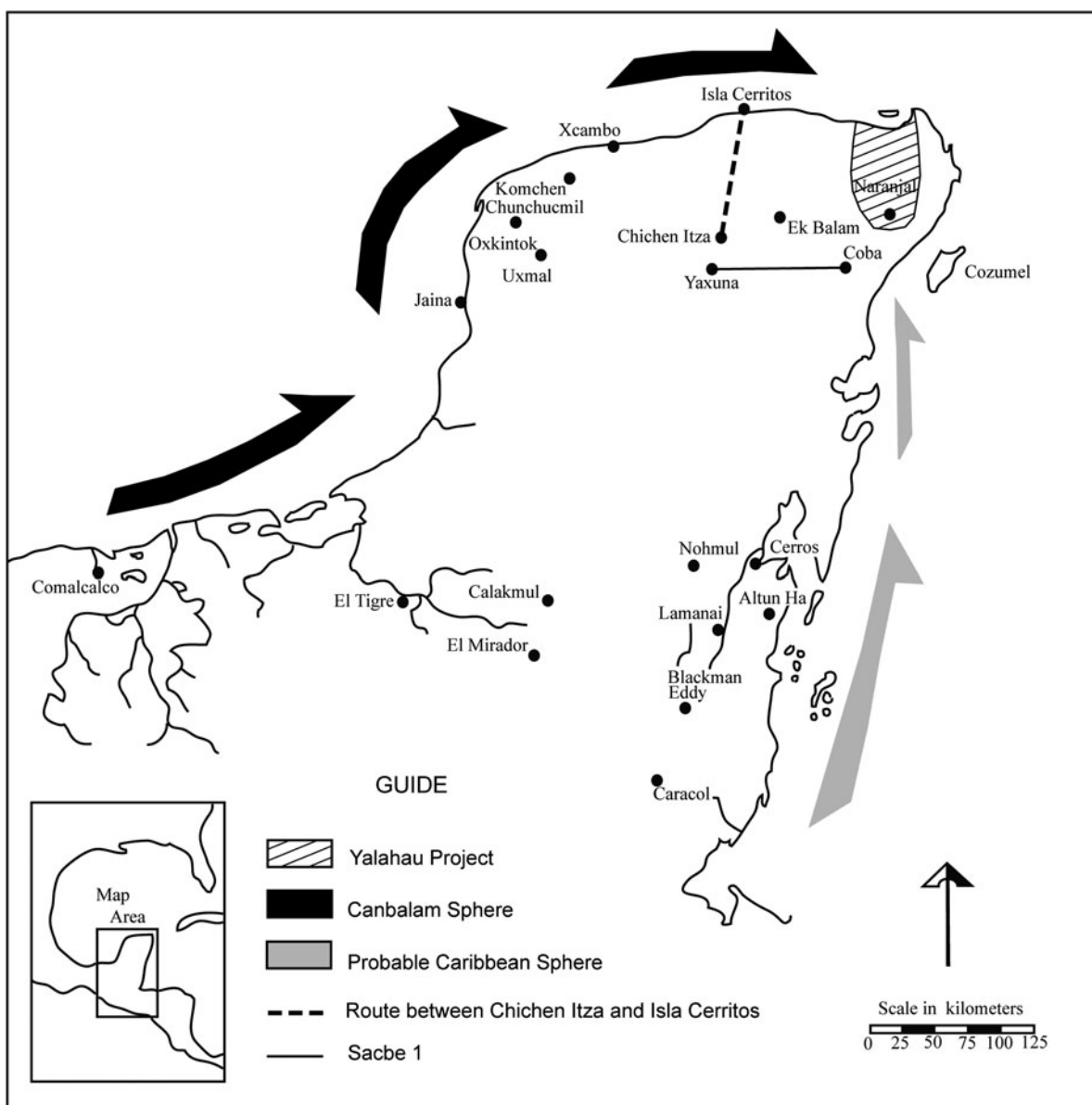


Figure 18. Commercial trade routes for the Late and Terminal Classic periods.

Roo (Figure 18) demonstrates that this area was depopulated, or at least sparsely populated, during the Late Classic period (Rissolo 2005: 348–352). This situation may suggest that it was difficult for the people of Coba to exchange along the north coast of the peninsula. Current research along this stretch of coast may clarify this issue for us in the near future. In any event, the ceramic evidence from Coba suggests that the site had access to some ceramic products that were exchanged in the Canbalam sphere. Since Canbalam sphere ceramics are not found with frequency along the Caribbean coast, we can suspect that Coba gained access to these other products during the Late Classic period by way of the Sacbe 1.

It is probable that Yaxuna had a trade route to the coast prior to the establishment of Chichen Itza (possibly dating as far back as the Formative period), although research to support this inference has yet to be completed. Yet, what we do know is that the Itza founded their city almost directly to the north of Yaxuna, which would have blocked Yaxuna's direct access to the north coast. Interestingly, the books of *Chilam Balam* describe that when the Itza arrived to the center of the peninsula, they had a conflict with the ruler of Cetelac (Yaxuna) (Roys 1933), a conflict that may be registered in the stratigraphic record of Yaxuna (Ambrosino et al. 2003).

Archaeologically, we know that the site of Isla Cerritos, an island located off the north coast of the peninsula, has many of the ceramic types that made their way to Chichen Itza (such as Tohil Plumbate and fine orange wares). Researchers have argued that this indicates that Isla Cerritos was the port of Chichen Itza, which controlled coastal trade using a corridor of friendly sites located between the

capital and Isla Cerritos (Andrews et al. 1988). This situation hints that the Itza may have constructed their city to the north of Yaxuna to take control of an existing trade route; one that Coba may have had access to, or controlled, during an earlier period.

Regarding the possible relationships that Yaxuna and Coba may have had during the time Sacbe 1 was built and used, our data suggest that the construction of Sacbe 1 likely facilitated, amongst other things, the transport of products from Yaxuna to Coba. We suspect that goods were transported in the other direction as well but currently lack the evidence to be sure. In this study we focused on a type that was produced in Yaxuna, but not on any that could have been potentially produced in Coba, although recent research by Stanton at the North Acropolis of Yaxuna has identified possible ceramics from Coba assigned to the Batres Group. We believe that Sacbe 1, in part, represents an attempt by the Coba people to connect themselves with important trade routes that were not available to them by sea. Our conclusions point to an economic motive for the construction of Sacbe 1 and that it was mainly used for commerce. This interpretation, however, does not exclude the possibility that Yaxuna was subordinate to Coba during the period in question. In fact, we believe this to be the case, given mentions of a *kaloomte'* associated with the Snake Dynasty in Stelae 1, 4, and 20 from Coba, dated to roughly the same time of construction and use of Sacbe 1 (Guenther 2013; Stuart 2010). Regardless, the ceramic data from the Arena Group suggest that the relationship between Yaxuna and Coba included an important economic component.

## RESUMEN

En los últimos treinta años los mayistas se han enfocado con creciente interés en los diferentes tipos de relaciones entre unidades políticas. Este enfoque ha sido importadamente motivado por los avances en el entendimiento de la epigrafía. Sin embargo en áreas como las tierras bajas del norte, en donde el registro epigráfico es escaso y poco comprendido, los arqueólogos se han apoyado en otros datos para entender las relaciones políticas entre los sitios. Frecuentemente dichos datos consisten en el estudio de estilos arquitectónicos y cerámicos, asociándoles con afiliaciones políticas. Los modelos basados en este tipo de datos generalmente asumen que los estilos: (1) se concentran o presentan en grupos sociales que tienen lazos entre sí (ya sean lazos familiares o políticos); o (2) que las similitudes estilísticas aparecerán en un área después de que ésta ha sido subordinada a una entidad política diferente.

Un caso concreto en donde se ha aplicado este tipo de modelos es el sitio de Yaxuna en el actual estado de Yucatán. Este sitio estuvo conectado a Coba, Quintana Roo, durante el clásico tardío mediante un camino de mampostería de 100 kilómetros de largo: el Sacbe 1. La diferencia entre este caso y otros en donde se ha asumido algún tipo de relación, es que durante este período Yaxuna y Coba no sólo compartieron algunos rasgos de la cultura material, sino que estuvieron integrados físicamente por un camino. Debido a que en muchos de los casos donde se han aplicado modelos de interacción basados en estilo, no se preservan las posibles rutas que conectaron a los sitios, únicamente se ha podido especular la

correlación entre estilos (cerámicos, arquitectónicos, etc.) e interacción política.

En el presente artículo pretendemos reevaluar el caso Yaxuna-Coba mediante el análisis modal de un grupo cerámico compartido por Yaxuna y Coba durante el clásico tardío: el Grupo Arena. Nuestros datos sugieren que un tipo particularmente importante, el Arena Rojo, se produjo en Yaxuna y posteriormente el sitio exportó un número limitado de formas (cajete trípode de silueta compuesta) hacia sitios en Quintana Roo a través del Sacbe 1. A pesar de que varios arqueólogos han expresado que el camino representa la subordinación de Yaxuna durante el clásico tardío por parte de la unidad política expansionista de Coba, nuestros datos sugieren que, sin hacer de lado esta interpretación, el impacto de la relación en la cultura material es más complejo de lo que los modelos actuales suponen.

Estamos de acuerdo en que los datos recuperados en el sitio de Coba apuntan a que durante el clásico tardío dicha urbe se encontraba en expansión. Inclusive concordamos con otros investigadores en que dicha expansión pudo haber estado relacionada con los gobernantes cobaneques posiblemente afiliados a la 'Dinastía de la Serpiente' ("Snake Dynasty") y sus poderosos *kaloomtes*. Sin embargo, consideramos que aunque la fidelidad política implica fidelidad económica, la relación entre Yaxuna y Coba muestra que esta fidelidad no es unilateral y que las motivaciones políticas, van de la mano de motivaciones económicas; en este caso el interés por parte de Coba de tener acceso a las redes marítimas de intercambio en el norte de la península.

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