

CONVERGENCE ZONE POLITICS AT THE ARCHAEOLOGICAL SITE OF UCANAL, PETEN, GUATEMALA

Christina T. Halperin ^a, Jose Luis Garrido Lopez,^b Miriam Salas,^b and Jean-Baptiste LeMoine^a

^aDepartment of Anthropology, Université de Montréal, 3150 Jean-Brillant, Montréal, QC H3T 1N8, Canada

^bProyecto Arqueológico Ucanal, Callejon Rosario, Flores, Peten, Guatemala

Abstract

The Maya archaeological site of Ucanal is located in Peten, Guatemala, close to the contemporary border with Belize. In pre-Columbian times, the site also sat at the frontiers of some of the largest political centers, Naranjo in Peten, Guatemala, and Caracol, in Belize. Entangled between these dominant centers and with ties to peoples in the Upper Belize Valley, the Petexbatun region in Guatemala, northern Yucatan, and elsewhere, Ucanal was a critical convergence zone of political and cultural interaction. This paper synthesizes archaeological research by the Proyecto Arqueológico Ucanal to underscore the ways in which this provincial polity, identified epigraphically as K'anwitznal, maneuvered within and between different cultural affiliations and political networks. We find that the site's role as a political frontier during the Late Classic period was more of a bridge than an edge. During the later Terminal Classic period, the K'anwitznal kingdom gained independence, but continued to serve as a critical convergence of influences and interaction spheres from throughout the Maya area and beyond.

INTRODUCTION

The site of Ucanal is located in Peten, Guatemala, close to the contemporary border with Belize. In pre-Columbian times, the site was situated at the frontiers of two larger polities, Caracol and Naranjo, that were fierce enemies during much of the Late Classic period (ca. A.D. 600–830). Official histories inscribed in stone and displayed in public spaces reveal that the K'anwitznal polity, centered at the site of Ucanal, alternated political affiliations between these two larger political powers and as such served as a shifting frontier in their respective assertions for political authority and regional dominance. Political frontiers, however, were not necessarily manifestations of disjunctions, divisions, or differences between peoples, but also as places of articulation, interaction, and hybridity (Alvarez 1995; Bhabha 1994; Iannone 2010; Tenzin 2017). Despite Ucanal's status as a political frontier during the Late Classic period, recent archaeological research at the site by the Proyecto Arqueológico Ucanal reveals that Ucanal's boundary status was just as much a bridge as an edge. We find that Ucanal was a convergence zone of interaction spheres and expressions of political, economic, and social affiliation. Such affiliations, however, were not static. Later in the Terminal Classic period (ca. A.D. 830–9510/1000), Ucanal shed itself of its subordinate political status, but continued to sit at a crossroads of diverse spheres of interaction. As such, our research contributes to a dynamic understanding of political frontiers whereby marginal entities take advantage of their in-between status to both persevere and recreate themselves anew.

BORDERS: EDGES AND BRIDGES

Borders, frontiers, and boundaries are generally characterized as areas between major political, economic, and cultural entities—the edges, limits, or ends of such entities. They are often highly contested, as states and political powers fight to gain authority or maintain control over these peripheral regions. In the Maya area during the pre-Columbian period, borders—physical manifestations of territorial division—were sometimes created through the construction of and symbolism surrounding defensive walls (Golden 2010; Golden and Scherer 2013) and earthworks (Puleston and Callender 1967; Webster et al. 2007). Natural or sacred features, such as caves, cenotes, mountain tops, and shrine sites, also marked borders and boundaries of political territories, city limits, and community places and were forged through repeated visits and ritual circulations during key moments in the ceremonial calendar (Garcia-Zambrano 1994; Halperin and Hruby 2019; Hill 1996; McAnany 1995:87). In contrast, frontiers, are the interstitial points between political, administrative, and cultural entities, what Kopytoff (1987:1–9) calls “internal frontiers”: ambiguous, anomalous, societies on the fringes of the metropolises. Our focus here is on the latter of these processes: the ways in which smaller political centers served as the critical sites of contestation and negotiations between larger political powers (Fois 2013; Hammond 1991; Iannone 2002; Marcus 1993, 1998; Martin and Grube 2000).

Rather than focus solely on the edges, limits, or ends of political powers, however, much recent research has underscored the creative, hybrid, and bridging roles of boundaries and border relationships in both ancient and contemporary political, economic, and cultural formations (Alvarez 1995; Bhabha 1994; Iannone 2010; LeCount 2017; Lightfoot and Martinez 1995; Schortman and

E-mail correspondence to: christina.halperin@umontreal.ca

Urban 1994). For example, Tenzin's (2017) "convergence zone" concept highlights the ways in which frontiers were corridors of people and goods, places of cultural coexistence, heterogeneity, and hybridity, regions of overlapping and fragmented sovereignties, and important sites of innovations as documented with the Sino-Tibetan borderlands between the Chinese and Tibetan state. While central-place and world systems theories often focus on the dominating role the metropolis has on the periphery, those situated in-between power centers often engage in forms of "strategic marginality," in which frontier and borderland peoples selectively and creatively affiliate themselves for political advantage. Likewise, Ogundiran's (2014) study of Early Osogbo in Nigeria reveals that the political frontier between the metropolises of Old Oyo and Ife in Yorubaland was one of innovation and diversity. Rather than emulating a single dominant center, Early Osogbo possessed a more diverse ceramic assemblage than either metropolis as it comprised not only local ceramics but ceramic types from both of these larger centers. It was also an area of innovation as it initiated new practices, such as tobacco smoking and the monetization of the domestic economy, before the metropolises. In this sense, frontiers and borders exhibit bridging qualities that promote connections between different social, ethnic, and political groups and wherein diversity and innovation may flourish.

The social network analysis concept of "bridge," a node that has weak ties (lacking in centrality) in relation to other nodes but is vital for connecting two or more clusters of nodes, is helpful for thinking about such frontier dynamics by highlighting the linking roles more peripheral entities may play (Musiał and Juszczyszyn 2009). Unlike the use of the term "edge" to represent a border, boundary, or limit of political authority as used here, social network analysis uses the term to describe a vertex or vertices between nodes. Nonetheless, the application of social network analysis terms may be limiting for trying to draw out the tensions between multiple, nested, or overlapping boundaries. Parker (2006), for example, has suggested that borders be conceived not in singular terms, but as boundary sets: that is, their multiscalar and dynamic dimensions. Such a focus on multiple practices of affiliation at different scales highlights the ways in which politics, cultural groups, market spheres, local communities, and geopolitical territories come into tension with one another and dialectically produce new senses of self.

Furthermore, it is necessary to recognize the different degrees of engagement between dominant and peripheral centers (Foiás 2013). For example, Piedras Negras and especially Yaxchilan tightly controlled their peripheral polities and settlements during the Late Classic period. These peripheral sites expressed their allegiance to their respective capitals through the emulation of and adherence to the dominant centers' architecture, mortuary patterns, and ceramic types (Golden 2010; Golden and Scherer 2013; Golden et al. 2008). In turn, the boundaries between Piedras Negras and Yaxchilan were produced not only through their distinctive practices of affiliation expressed in ceramic production, funeral practices, and buildings, but in the construction of defensive features between the two geopolitical regions. In contrast, other provincial polities in the Maya area may have been "semi-autonomous buffer states" (Braswell et al. 2004:200; Iannone 2010) or autonomous polities relatively free to engage with more powerful political centers and actors (Scarborough et al. 2003). Thus, our investigations examine multiple lines of material evidence and multiple scales of interaction to underscore

the different ways in which the site of Ucanal participated in the dynamics of political frontiers.

BETWEEN SUPERPOWERS: LATE CLASSIC NARANJO & CARACOL

During much of Ucanal's political history, it was drawn in-between the power struggles of larger political powers (Figure 1). During the Early Classic period (ca. A.D. 300–600), Tikal ruler Siyaj Chan K'awiil II (A.D. 411–456) of the Kanu'l dynasty served as an overlord to a K'anwitznal ruler (Martin and Grube 2000:34). Later during the Late Classic period (ca. A.D. 600–830), Ucanal fell to the kingdom of Naranjo between A.D. 698–744. Hieroglyphic texts on Naranjo Stela 22 detail that in A.D. 698, Naranjo attacked the K'anwitznal polity (Houston 1983). In A.D. 702, Naranjo's ruler K'ahk' Tiliw Chan Chak took Itzamnaaj B'ahlam I of K'anwitznal captive (Figure 2a). As detailed on Naranjo Stela 2, K'ahk' Tiliw Chan Chak then oversaw the accession of Itzamnaaj B'ahlam II in A.D. 712 (Carter 2016:244; Schele and Freidel 1990:189–192). Naranjo's ties with Ucanal are further underscored by an unprovenanced polychrome vessel produced in Naranjo style and chemically sourced to the Naranjo region (MS1684, Cabrito Cream polychrome, Cabrito Variety; Helmke et al. 2017:11; Reents-Budet 1994:360–361), but dedicated to Itzamnaaj B'ahlam of K'anwitznal, suggesting that a Naranjo king patronized the production of a drinking vessel that was gifted to either Itzamnaaj B'ahlam I, or more likely Itzamnaaj B'ahlam II, a probable son and successor. Naranjo's grip on Ucanal, however, may have loosened in A.D. 744, when Tikal invaded Naranjo (Martin 1996).

Throughout the Late Classic period, Naranjo was a staunch enemy of Caracol (from at least A.D. 626 onward; Helmke and Awe 2016; Martin 2017; Martin and Grube 2000). Thus, Ucanal, located almost equidistant between the two sites, was situated within a precarious position between these two larger polities (Figure 1). This precarious position was likely heightened by Ucanal's influential role over several small polities in southeast Peten, a region in which Caracol had political networks and may have increasingly sought to control (Carter 2016). For example, Itzamnaaj B'ahlam II of K'anwitznal gave a feathered palanquin to the ruler of Sacul in A.D. 760. He is also mentioned on Stelae 4 and 5 of El Chal (Carter 2016:245). Ucanal's ties to some of the southeastern Peten sites, however, may have faltered in A.D. 779 when K'iyel Janab of Sacul attacked or "burned" K'anwitznal (Carter 2016:243–246). Indeed, Caracol did manage to defeat Ucanal at the end of the Late Classic period. As detailed in Caracol's Altar 23, in A.D. 800 Tum Yohl K'inich of Caracol captured the Ucanal king, Xub Chahk, who was depicted as a bound captive with a ruler from B'ital (Figure 2b; Martin and Grube 2000:97). Four years beforehand, the same Ucanal king appears to have been captured and put on display by Yaxha's ruler K'inich Lakamtun as seen on Yaxha Stela 31 in A.D. 796 (Stuart 2019).

The tenuous position Ucanal played between the two large superpowers is also evident in its possession of a carved stone monument, Misc. Monument 1, found by Graham (1978:107, 110, 1980:152, 154) in Ucanal's Ballcourt #1. This monument is thought to have been part of a larger monumental program outlining Caracol ruler K'an II's conquest of Naranjo during the seventh century (Helmke and Awe 2016; Martin 2000, 2017). Naranjo, however, appears to have transported the sculptured panels from

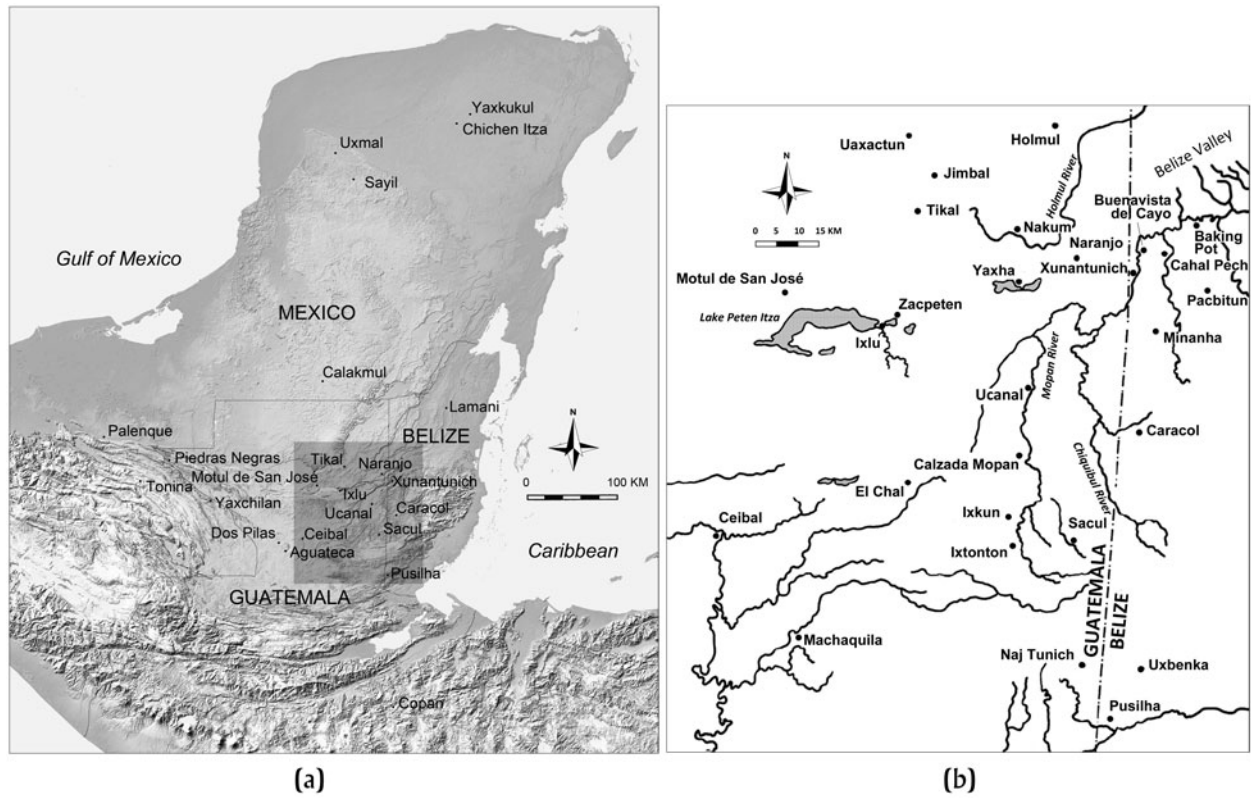


Figure 1. (a) Map of the Maya area with (b) inset map of eastern Peten and western Belize. Maps by Halperin.

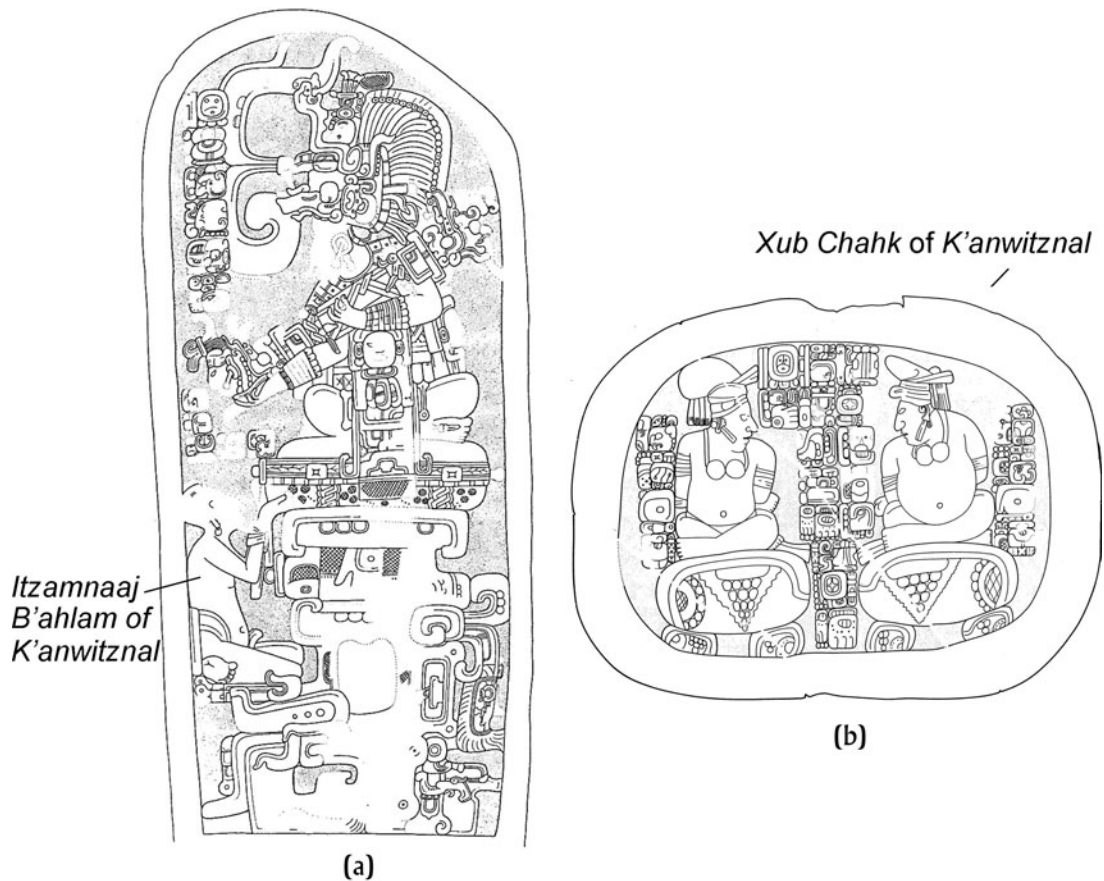


Figure 2. Monuments referencing the K'anwitznal kingdom's subordinate status. (a) Naranjo Stela 22 [Schele drawing No. 7648; <http://www.famsi.org>]. (b) Caracol Altar 23. Modified after Grube [1994:Figure 9.I].

Caracol and placed 12 of the panels in illegible order on a hieroglyphic staircase at the site of Naranjo. Martin (2000, 2017) and Helmke and Awe (2016) argue that these panels were war trophies, perhaps related to an A.D. 680 sacking of Caracol by Naranjo. The fact that one of these panels was found at Ucanal suggests that Ucanal too was implicated in the conflict, either as a subordinate to Naranjo with some rights over the taking of war trophies from Caracol or as their own retaliation against Naranjo at the end of the Classic period.

While these monumental records indicate that Ucanal sat at the political frontiers of Naranjo and Caracol, archaeological research at the site of Ucanal by the Proyecto Atlas Arqueológico de Guatemala (1997–2000) directed by Juan Pedro Laporte, and the Proyecto Arqueológico Ucanal (PAU, 2014–2019) directed by Halperin and Garrido, have yet to uncover strong evidence of Ucanal's incorporation or emulation of either of the two larger polities. One of the most revealing expressions of political fealty to, and alliance with Naranjo, was in the form of distinctive polychrome serving vessels, such as Cabrito Cream type vessels, some of which exhibit dancing Maize gods and dwarves in red and orange in what is termed the "Holmul dancer theme" (Helmke et al. 2017; Reents-Budet 1994:179–186, 2000). Naranjo elites frequently gifted these vessels to lords of subordinate centers, such as Buenavista del Cayo, Baking Pot, Xunantunich, Cahal Pech, Holmul, and Nakum. The unprovenienced vessel produced at Naranjo and dedicated to Itzamnaaj B'ahlam of K'anwitznal (MS1684) provides one example of such a practice more thoroughly documented at these other sites. Many of these subordinate sites, most notably Holmul and Buenavista del Cayo, also produced their own versions of Cabrito Cream polychrome pottery in the style of the pottery produced at Naranjo (Helmke et al. 2017; Reents-Budet et al. 2000). Ceramic analyses from materials recovered from the PAU excavations (2016–2018), as well as previous excavations by the Proyecto Atlas Arqueológico de Guatemala (Laporte 2007), however, reveal that Cabrito Cream polychrome pottery is rare, with only a single sherd conforming to this type to date. As such, local ceramic production in the Naranjo style was unlikely to have occurred at Ucanal.

Likewise, many traits specific to Caracol are relatively absent at Ucanal. Some of the most distinctive forms of local identity expression at Caracol and its subordinate satellite sites are face vessels and crude Jaguar God of the Underworld incensarios found in eastern shrine complexes, the use of Belize Red vessels within caches and burials, and the practice of caching small bowls with human fingers (Chase and Chase 1994, 2004b, 2012, 2017). Thus far, caching practices at Ucanal do not exhibit any of these caching and offering traditions, practices that would have been highly meaningful and symbolically potent manifestations of social identity and affiliation. In fact, the emphasis on eastern shrine complexes at Ucanal is noticeably absent with less than one percent of the 681 architectural groups surveyed to date containing eastern shrines.

Nonetheless, the material culture of Ucanal residents indicate that the site sat a convergence zone of many different interaction spheres of varying scales, some of which included both Naranjo and Caracol. For example, Ucanal sat at the edge of an eastern Maya tradition involving the use of slate maces (Figure 3, Table 1). Distribution analyses reveals that such maces are found only in the eastern Maya lowlands, with a particularly strong presence in the Upper Belize Valley (Barton Ramie, Baking Pot, Buenavista del Cayo, Cahal Pech, Xunantunich, Minanha,

Pacbitun), but also within and south of the Maya Mountains (Caracol, Pusilha, and Copan), and eastern Peten (Naranjo [limestone varieties], Ixtonton, and Ucanal).

Taube and Zender (2009:207–209) have argued that these objects were used in ritual combat, similar to *manopolas*. If this is the case, we suspect that incised maces with hieroglyphic texts may have been largely ceremonial and rarely used for actual combat. In contrast, the undecorated ones often show signs of considerable wear in the form of markings from a sharp, pointed object. As such, it is likely that the maces were used for both bashing (offense) and shielding from a pointed object (defense from an axe or lance). Although depictions of such maces are absent in Maya iconography, it is common to see the deity Chak depicted with both a chert axe (offense) and *manopola* (offense and defense), suggesting that the combination of offensive and defensive weapons were used together during close-contact ritual combat (see also Taube and Zender 2009:Figures 7.11a and 7.12). The finding of an almost complete slate mace with a complete monolithic axe and chert celt from Barton Ramie's Burial 3, BR-260, may support the idea that axes and maces were used together (Willey et al. 1965:479–482). Experimental studies, however, are needed to better understand their possible uses and pairing together. Regionalism in other types of sporting and ritual combat practices is noted for other areas of Mesoamerica, such as the use of stone *hachas* and yokes, which were concentrated along the Gulf coast and the Guatemalan Highlands (Shook and Marquis 1996).

Ceramic analyses also indicate that Ucanal sat at the intersection of slipped and polychrome ceramic ware types that were popular among sites in Peten and sites in Belize (Figure 4a). Monochrome and polychrome ceramics from Ucanal include Tinaja, Harina, Azote, Remate, Maquina, Infierno, Achote, Juleki, Saxche-Veracal, Saxche-Palmar, and Zacatal ceramic groups (all part of Peten Gloss wares), which are the most common slipped ceramics among Peten sites. Ucanal, however, also possesses slipped ceramics that are common to western Belize: the Upper Belize River Valley, the Mountain Pine Ridge, and parts of the Maya Mountains. These ceramics include Pine Ridge Carbonates (e.g., Dolphin Head Red, Mount Maloney, and Garbutt Creek groups), British Honduras Ash Wares (e.g., Belize Red, Platon Punctated-incised, and Martins-incised) and Vinaceous Tawney wares (Chase and Chase 2012; Gifford 1976; Kowakowsky 2012; LeCount 1996; LeCount et al. 2002). Both the Belize- and Peten-based ceramic ware ceramics were found in all excavated contexts from elite, ceremonial, middle-status, to commoner household contexts.

Interestingly, Ucanal exhibits a high frequency of black-slipped Mount Maloney ceramic types in comparison to red-slipped Pine Ridge Carbonate vessels, such as Garbutt Creek and Dolphin Head Red types (Figures 4b and 5a). Mount Maloney ceramics are known to have been used overwhelmingly at the site of Xunantunich (over 94 percent of Pine Ridge Carbonates are Mount Maloney types) and its affiliated centers, such as Chan, Actuncan, and San Lorenzo (Kowakowsky 2012; LeCount 2010a, 2010b:Tables 10.1, 10.2, 10.4, 2017:172–173). These vessels were not only the principal "workhorses" of quotidian cooking and food serving at these sites, they were also the choice vessels for socially and ritually significant cache deposits and burials offerings. In contrast, Mount Maloney ceramics comprise a small minority of the Pine Ridge Carbonate ceramics east and south of Xunantunich, such as at the sites of X-ual-Canil, Pacbitun, Baking Pot, and Caracol (Connell 2010:309). Unlike Ucanal, however,

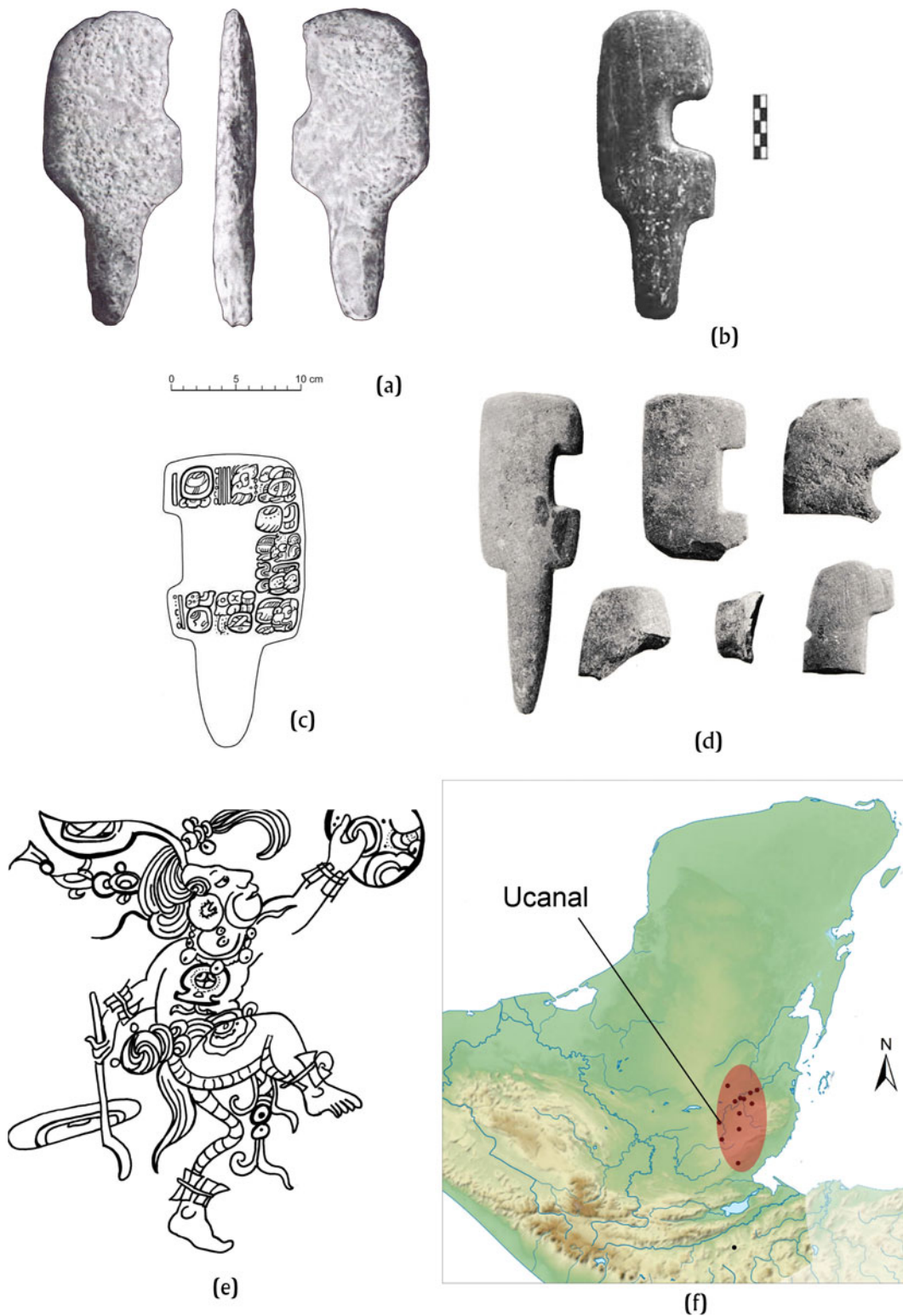


Figure 3. Late Classic maces from the eastern Maya lowlands and instruments of ritual combat. (a) Slate mace from Ucanal (MCML-049; UCA14A-3-4-1105). Drawing by Luis F. Luin. (b) Slate mace from Pacbitun. After Healy et al. (1995:Figure 3). (c) Limestone mace with glyphic inscription mentioning Naranjo king. After Grube (1994:Figure 10). (d) Slate maces from Barton Ramie, Belize. After Willey et al. (1965:Figure 295a). (e) Chahk with *manopala* in left hand and axe in right hand. Drawing by Halperin after K0521 (<http://www.famsi.org>). (f) Distribution of maces with concentrated zone in the eastern lowlands highlighted (see Table 1 for data). Map by Halperin.

Table 1. Maces (i.e., short clubs and wrenches) from the Maya area.

Site	Country	Material	Context	Time Period	Decoration	Reference
Baking Pot	Belize	Slate	Group M101, Settlement Cluster C	Late Classic	No	Walden 2016:272, Figure 4
Baking Pot	Belize	Slate	Terminal deposit in ceremonial plaza at the corner of Structures B6 and B7 in Plaza B	Terminal Classic	No	Hoggarth et al. 2016:256
Barton Ramie	Belize	Slate	Burial 3, BR-260	Late Classic	No	Willey et al. 1965:479–482, Figures 295a and 300b
Barton Ramie	Belize	Slate		Late Classic	No	Willey et al. 1965:479–482, Figure 300c
Barton Ramie	Belize	Slate		Late Classic	No	Willey et al. 1965:479–482, Figure 300a
Barton Ramie	Belize	Slate		Late Classic	No	Willey et al. 1965:479–482, Figure 295b
Barton Ramie	Belize	Slate		Late Classic	No	Willey et al. 1965:479–482, Figure 295c
Barton Ramie	Belize	Slate		Late Classic	No	Willey et al. 1965:479–482, Figure 295f
Barton Ramie	Belize	Slate		Late Classic	No	Willey et al. 1965:479–482, Figure 295d
Barton Ramie	Belize	Slate		Late Classic	No	Willey et al. 1965:479–482, Figure 295e
Buenavista del Cayo	Belize	Slate	BVS-006-1, Operation 355	Terminal Classic	No	Peuramaki-Brown 2012:Figures 7.2, 300
Cahal Pech	Belize	Slate	Zopilote Structure 2, Terminal deposit on plaza floor	Terminal Classic	No	Ebert and Fox 2016:99
Caracol	Belize	Slate		Late Classic	Glyphs	Chase and Chase 2001:Figure 4.5
Copan	Honduras	Slate	Structure 197-1st, Patio Group 9M-22A	–	Images	Taube and Zender 2009:207–209
Ixtonton	Guatemala	Slate	L-0231	Late Classic?	No	Mayra Reyes, personal communication 2017
Ixtonton	Guatemala	Slate	L-1206	Late Classic?	No	Mayra Reyes, personal communication 2017
Minanha	Belize	Slate		Late Classic?	No	Snetsinger 2013:277
Naranjo	Guatemala	Limestone	K7966, unprovenienced	Late Classic	Glyphs	Taube and Zender 2009:207–209, Figure 7.29e
Pacbitun	Belize	Slate	Burial 1-1	Late Classic	No	Healy 1990:Figure 9; Healy et al. 1995:Figure 3
Pusilha	Belize	Slate	Burial 6/1 in a low pyramid, rich secondary burial with jade, pyrite, Spondylus shell	Late Classic	No	Braswell et al. 2005:77, Figure 8
Pusilha?	Belize	Slate	K3409, unprovenienced, private collection	Late Classic	Glyphs and images	Wanyerka 2003:Figure 82; K340
Ucanal	Guatemala	Slate		Late Classic	No	Román and Garrido 2018
Xunantunich	Belize	Slate	San Lorenzo Structure SL-28	Late Classic?	No	Yaeger 2000:1100–1101

Xunantunich possesses very minor frequencies of Peten Gloss wares (less than 2.4 percent of all Late Classic ceramics) during the Late Classic period (LeCount 1996:Table 5.9, 1999:199). In turn, other Peten sites, such as Holmul and surrounding sites, which are located close to the Belize Valley, possess no Pine Ridge Carbonate, Vinaceous Tawny, or British Honduras Ash wares whatsoever during the Late and Terminal Classic period (Callaghan and Neivens de Estrada 2016). Likewise, Southeastern Peten sites along the Mopan, Salispuedes, San Juan, Poxté, and Machaquila rivers explored by the Proyecto Atlas Arqueológico reveals that British Honduras Ash and Pine Ridge Carbonate wares (no Vinaceous Tawny reported) possess 0.84 percent of slipped wares during the Late Classic period and 2.76 percent of slipped wares

during the Terminal Classic period (Laporte 2007:837–838, 1209–1218). Caracol possesses a mix of Peten gloss and Pine Ridge Carbonate, Vinaceous Tawny, and British Honduras Ash wares, but percentages of wares and their groups/types are not reported (Chase and Chase 2004a, 2005, 2012).

The higher frequencies of Mount Maloney among Pine Ridge Carbonate wares at Ucanal are not surprising given Ucanal's physical proximity to Xunantunich along the Mopan River. In addition, the two sites possessed a special political relationship as recent excavations reveal that Xunantunich possessed two “war trophy” monuments from the same monumental program thought to have originated at Caracol's Structure B-5, similar to Naranjo and Ucanal mentioned earlier (Helmke and Awe 2016;

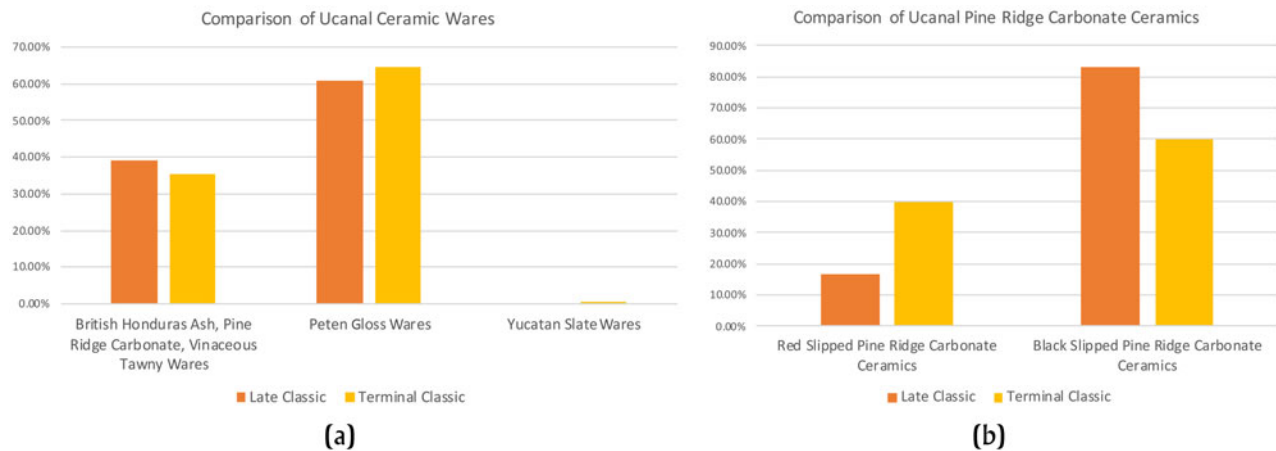


Figure 4. Ucanal ceramic frequency comparisons (data from 2016–2018 field seasons). (a) Slipped ware comparisons. (b) Red-slipped (Garbutt Creek Red and Dolphin Head Red types) and Black-slipped (Mount Maloney) Pine Ridge Carbonate Ceramics. Graphs by Halperin.

Martin 2000, 2017). The smaller number of monuments from Xunantunich and Ucanal suggests that they were more minor players in the transport and display of conquest monuments than Naranjo.

Despite evidence of ties between Ucanal and Xunantunich, Ucanal inhabitants did not make strong symbolic statements of affiliations to any one site or region in the use of offering and cache vessels in burials. In fact, if ceramic style affiliations of particular regions were meaningful on a symbolic level, more effort

appears to have been made to combine or juxtapose diverse style regions rather than represent a single one. For example, a Late Classic cremation burial, Burial 21-1, contained Garbutt Creek Red and Mount Maloney bowls placed lip-to-lip (Figure 5a), bringing together bowls affiliated with different regions of the Belize Valley as mentioned above. A Terminal Classic child burial, Burial 8-1, contained a miniature Mount Maloney jar and miniature Orange-slipped Pine Ridge Carbonate bowl (Figure 5b). Both of these vessels contained



Figure 5. Ceramic vessels from Ucanal burials. (a) Late Classic Mount Maloney (top) and Garbutt Creek Red (bottom) bowls holding cremated individual, Burial 21-1. (b) Orange slipped Pine Ridge Carbonate bowl with inflexed rim (left) and miniature Mount Maloney jar (right) from Terminal Classic Burial 8-1. (c) Saxche Orange Polychrome (Late Classic Tepeu 1; left) and Xunantunich Black-on-Orange bowl (Late Classic Tepeu 2; right) from Burial 1-1. Photographs and drawings by Halperin.

Table 2. Raw material of Ucanal manos and metates (excavated during the 2016–2018 field seasons) by time period. Does not include other groundstone artifacts such as pestles, mortars, stone spindle whorls, slate mirror backings, sculpted jade, and hammerstones.

	Late Preclassic		Late Classic		Terminal Classic		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Arkose	1	25			3	3.45	4	3.64
Limestone	1	25	1	5.26	5	5.75	7	6.36
Travertine					1	1.15	1	0.91
Orthoquartzite			2	10.53	1	1.15	3	2.73
Diorite			1	5.26	1	1.15	2	1.82
Siltstone			1	5.26			1	0.91
Sedimentary rocks total	2	50	5	26.32	11	12.64	18	16.36
Gneiss			1	5.26	1	1.15	2	1.82
Granite ^a	1	25	7	36.84	30	34.48	38	34.55
Quartzite	1	25	6	31.58	40	45.98	47	42.73
Metamorphic rocks total	2	50	14	73.68	71	81.61	87	79.09
Dacite					1	1.15	1	0.91
Trachyte					1	1.15	1	0.91
Vesicular basalt					3	3.45	3	2.73
Extrusive igneous rocks total					5	5.75	5	4.55
Total	4		19		87		110	

^aIncludes 3 granodiorite samples.

reddish-brown pastes with calcite and ferruginous temper typical of Pine Ridge Carbonate ceramics from the Belize Valley, but the small bowl has a form more typically found at Peten sites with an inflexed rather than an incurved rim (Fialko 2005:67; LeCount et al. 2002:50–51, Figures 7a and 7c; Sabloff 1975). Likewise, a Late Classic (Tepeu 2) burial, Burial 1-1, contained a Tepeu 1 phase Saxche Orange Polychrome (Peten Gloss ware) bowl and a Xunantunich Black-on-Orange (Vinaceous Tawny ware) bowl, a type more common in the Upper Belize River Valley (Figure 5c; Gifford 1976:269–272; Smith and Gifford 1966:155).

Analysis of ground stone artifacts also reveals that Ucanal sat at the intersection of the economic networks and/or cultural preferences of the Belize Valley and central Peten. Ucanal relied primarily on quartzite and granite mano and metates in roughly equal proportions (Table 2; De Chantal 2019). As identified by chemical analyses and the pink-gray color characteristics of the granite, the granite manos and metates derive from three principal sources from the Maya Mountains: the Mountain Pine Ridge, Hummingbird/Mullins River, and Cockscomb Basin (Figure 6; De Chantal 2019). Likewise, the closest known quartzite source to central Peten sites is located on the northern side of the Maya Mountains, between the Mountain Pine Ridge and Hummingbird/Mullins River batholiths (Dixon 1956:34–56; Vinson 1962; Wadell 1938). In contrast to the Ucanal ground stone, most central and southern Peten sites relied more heavily on quartzite and limestone for their manos and metates. Belize River Valley sites, located close to both quartzite and granite sources in the foothills of the Maya Mountains, almost predominately used granite manos and metates (Figure 6, Table 3). Since the Belize Valley sites are located relatively close to both granite and quartzite sources and both rocks are equally hard (quartzite being only half a point harder on the Mohs scale), the choice to use granite may have represented a cultural preference or an historically embedded network of greater

importance. Although Ucanal continued to sit at a crossroads of interaction spheres later during the Terminal Classic period, the nature and directions of these interaction spheres changed as outlined below.

AT A CROSSROADS BUT WITHOUT A CLEAR CENTER

At the beginning of the Terminal Classic period, Ucanal helped set up a new decentralized political order in Peten with a cohort of other previously subordinate political powers, such as Ceibal, Ixlu, Calzada Mopan, Nakum, and Jimbal. One day before the turning of baktun 10 in A.D. 830, the Ucanal lord Kan Ek' Jo' Pet helped oversee the arrival of Aj B'ahluun Ha'b'tal Wat'ul K'atel to Ceibal, an event that helped establish the site as the new seat of power in the Petexbatun region. During the Late Classic period, Ceibal was previously a small kingdom that had been under the grip of Dos Pilas and Aguateca (Schele and Mathews 1998: 179–183).

Many of these smaller political centers began to erect a new style of stela monument that broke earlier traditions by referencing foreign artistic and writing styles. These stelae (1) often contained figures floating in dotted “S”-shaped cloud scrolls above the ruler, (2) eclectically referenced foreign styles, (such as the use of central Mexican style atlats), (3) featured rulers with tubular nose ornaments, and (4) showcased square-shaped glyphs, which are a reference to foreign, non-Maya writing systems from Mexico (Figure 7; Just 2007; Lacadena 2010; Proskouriakoff 1965; Rice and Rice 2004:204–220).

Although Ucanal's participation in this new monumental style is known primarily from Ucanal Stela 4 (Figure 7c; Graham 1980: 159–160), a stela recently discovered by the PAU in 2019, Stela 29, also conforms to this new style (Figure 8b; Halperin and Martin 2020). The simply adorned ruler on Stela 29 dons a central Mexican style atlatl (see comparative examples from Slater

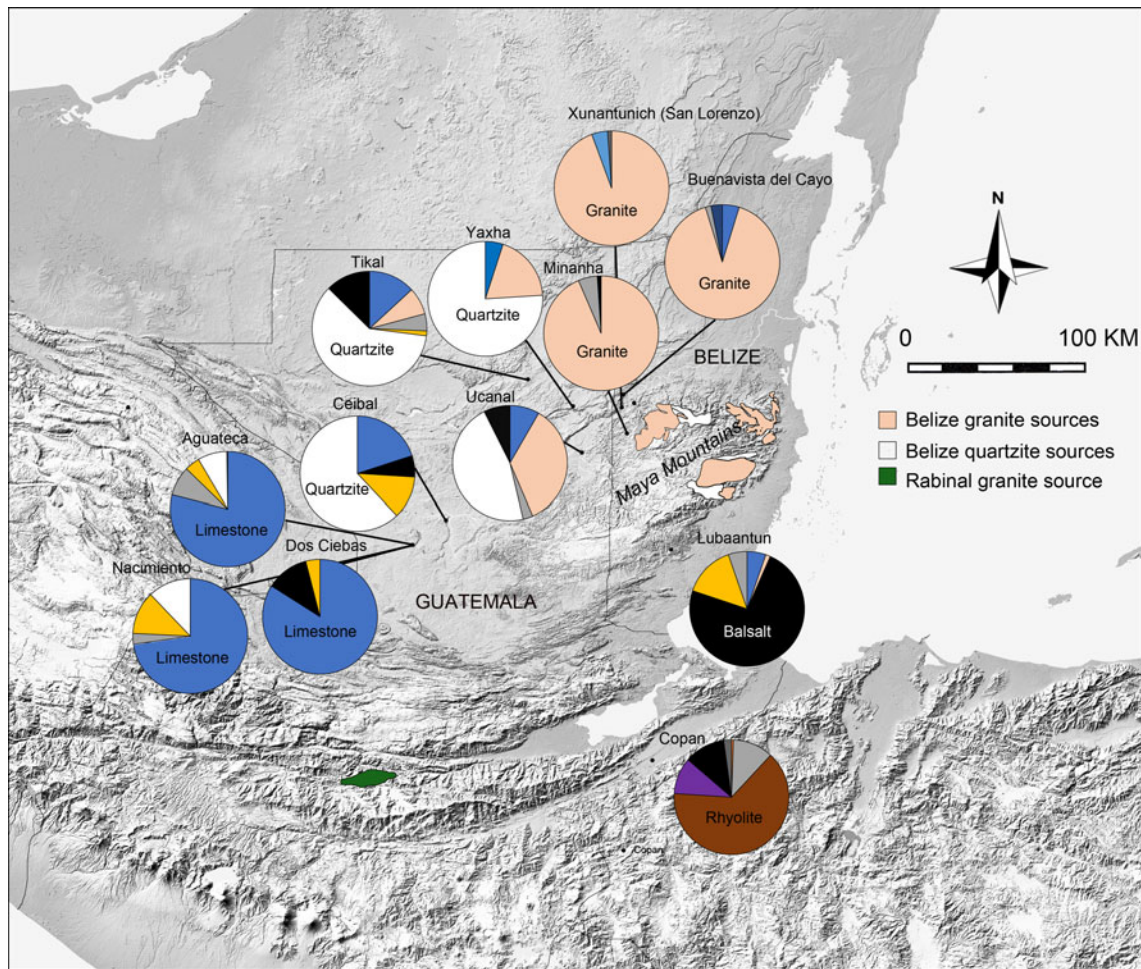


Figure 6. Map of the Maya area with mano and metate source distributions and granite and quartzite source locations highlighted (ground stone data in Table 3). Geologic source locations from Solari (2011:Figure 1) and Cornec (2003).

[2011] and Hruby [2019]) and holds three long darts, identified by the triangular shape of the stone point and their plurality since darts are almost always carried in multiples. The long length of the darts are a feature, in particular, of warriors from Chichen Itza (Figure 8a; Ringle 2009) and Cacaxtla (Brittenham 2011). Classic-period depictions of Maya rulers, in contrast, commonly held a single spear, identified by the laurel-shape of the stone point. The ruler wears a warrior's shirt, what is known as *ichachuipilli* in Nahuatl (Anawalt 1981:47–48). This short-sleeved shirt is decorated with dots or disc beads similar to the floating figure in Ucanal Stela 4, who also holds a central Mexican style atlatl and darts, and a figure Ringle (2009:Fig.15c) calls “warrior B” on the Upper Temple of the Jaguars at Chichen Itza (see Halperin and Martin [2020] for a more detailed description of Stela 29).

In addition to establishing a new monumental repertoire, flourishing Terminal Classic sites from the southern Maya lowlands began to adopt a new foreign style of ballcourt: courts with alleys shaped in the form of a “T” (half-enclosed) or an “I” (enclosed on both sides). In contrast, the typical Classic-period ballcourt form in the southern Maya lowlands was an open-ended playing alley. Interestingly, the sites that possessed monuments or monumental artifacts with square-shaped glyphs (e.g., Jimbal, Ucanal, Ceibal, and possibly Calzada Mopan), also constructed “I” or “T”-shaped

ballcourts (Figure 9; Laporte and Mejía 2002; Roldán 1996; Willey et al. 1982). Although not a site that exhibited square-shaped glyphs, Xunantunich built a “T”-shaped ballcourt that also featured a circular ballcourt ring, a characteristic of courts from the northern Maya lowlands and other parts of Mexico (Awe et al. 2020). Indeed, enclosed “I” shape or half-enclosed “T”-shaped ballcourts are most commonly encountered outside the southern Maya lowlands. During the Late and Terminal Classic period, they appear at sites in Chiapas (e.g., Tonina and the Upper Grijalva Basin) and northern Yucatan, most notably at Chichen Itza, Sayil, and Yaxkukul (Montmollin 1997; Scarborough 1991; Smith 2001; Taladoire 1981; Taladoire and Colsonet 1991). Other possible foreign influences in Ucanal's architecture include architectural groups with low, centrally located altars (Halperin and Garrido 2019), and a sunken ceremonial patio in Ucanal's Group M (LaPorte and Mejía 2002:16).

These monuments and architectural expressions suggest that Ucanal was part of a new cohort of baktun 10 polities, although no single one of these polities appear to have stood out to distinguish itself or dominate over the others. In contrast, more emphasis was placed on eclectically incorporating “international” influences and engaging in broad-reaching ties within and beyond the southern Maya lowlands (Halperin 2017; Halperin and Garrido 2019; Just

Table 3. Raw materials of manos and metates from southern lowland sites.

Site	Time Period	Limestone (%)	Granite (%)	Basalt (%)	Sandstone (%)	Quartzite (%)	Rhyolite (%)	Tuff (%)	Dacite (%)	Other (%)	Total	Reference
<i>Petexbatun</i>												
Aguateca	Late Classic	79.01	0.00	8.25	4.25	8.25	0.00	0.00	0.00	0.24	424	Inomata 2014:Tables 5.1 and 5.2
Nacimiento	Late Classic	72.73	0.00	3.03	12.12	12.12	0.00	0.00	0.00	0.00	33	Eberl 2007:Table 10.9
Dos Ceibas	Late Classic	84.00	0.00	12.00	4.00	0.00	0.00	0.00	0.00	0.00	25	Eberl 2007:Table 10.9
Ceibal	Preclassic – Terminal Classic	20.00	0.00	6.00	12.00	62.00	0.00	0.00	0.00	0.00	50	Willey 1978:59
<i>Central Peten</i>												
Tikal	Preclassic – Terminal Classic	13.13	7.70	4.81	1.39	60.34	0.23	0.19	0.00	12.21	2597	Moholy-Nagy 2003: Tables 4.2 and 4.8
Yaxha	Classic	5.00	19.00	0.00	0.00	76.00	0.00	0.00	0.00	0.00	NA	Sidrys and Andresen 1976:184–185
<i>Eastern Peten</i>												
Ucanal	Late and Terminal Classic	8.26	34.86	2.75	0.00	45.87	0.00	0.00	0.92	7.34	109	De Chantal 2019; reported here
<i>Belize Valley</i>												
Buenavista del Cayo	Late Classic	4.76	90.48	1.59	0.00	0.00	0.00	0.00	0.00	3.17	63	Peuramaki-Brown 2012:Table 6.1
Minanha	Late Classic	0.00	93.55	5.38	0.00	0.00	0.00	0.00	0.00	1.08	93	Turuk 2006:147
Xunantunich (San Lorenzo)	Late Classic	0.00	94.38	0.00	0.00	4.49	0.00	0.00	0.00	1.12	178	Yaegar 2000:Table IV.3
<i>Southeastern Sites</i>												
Lubaantun	Late Classic	5.30	1.32	73.51	14.57	0.00	0.00	0.00	0.00	5.30	151	Hammond 1975:343–348
Copan	Classic	0.00	0.55	11.37	0.00	0.00	64.11	10.27	11.51	2.19	730	Spink 1983:64–73

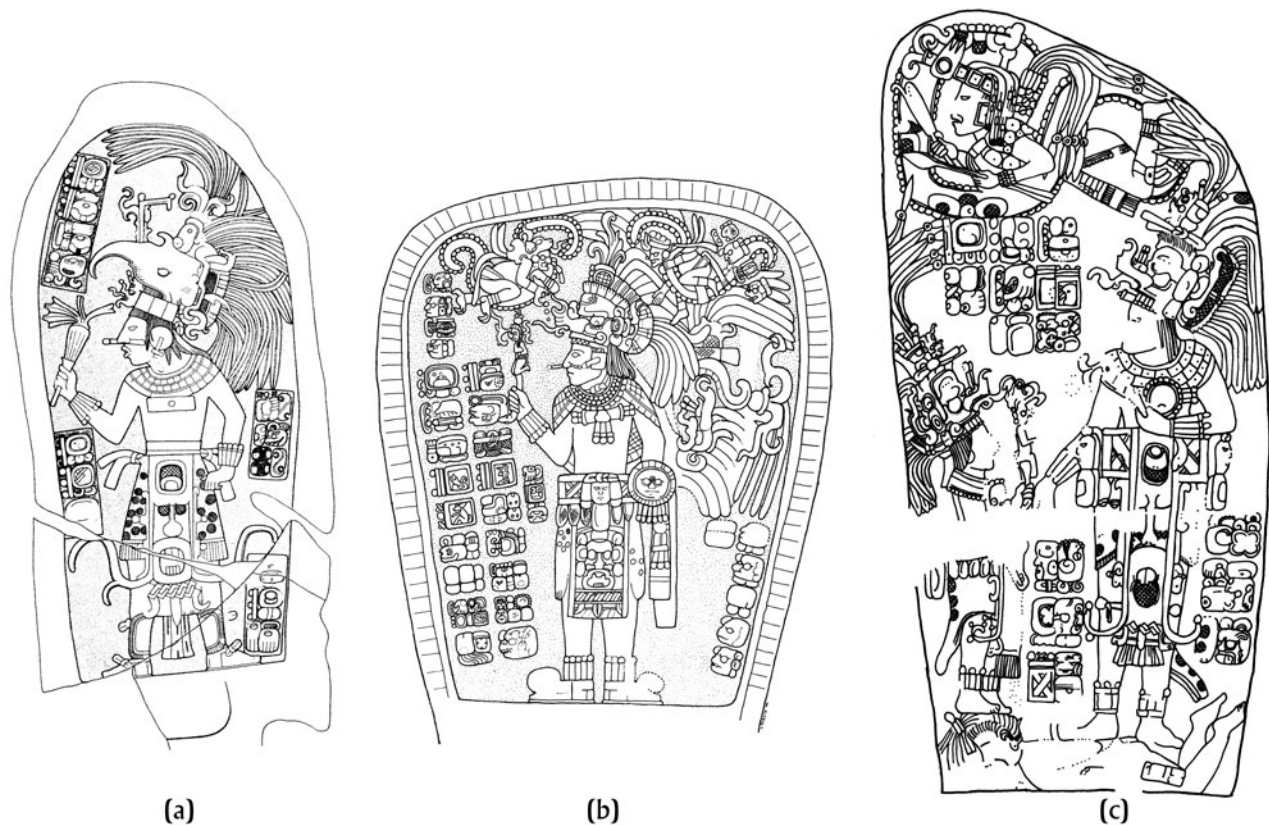


Figure 7. Terminal Classic monuments. (a) Machaquila Stela 5, A.D. 840. After Graham [1967:Figure 53]. (b) Jimbal Stela 1, A.D. 879 [Schele drawing No. 2029; <http://www.famsi.org>]. (c) Ucanal Stela 4, A.D. 849. After Graham [1980:Figure 2-159].

2007; Nagao 1989; Ringle et al. 1998). It was during this time period in which we see Yucatecan ceramic types (Puuc Red) at the site of Ucanal for the first time, although in very small percentages relative to other ceramic types ($n = 39$ sherds; 0.8 percent). The site also opened up stronger ties south of Peten, as attested to an increase in ground stone tools from the extrusive igneous source locations in highland Guatemala (Table 2). In general, the Terminal Classic period is known as a time in which new trade networks opened up (Demarest et al. 2004; Masson and Freidel 2002).

In addition, excavations at Ucanal's Group J recovered a carved jade pendant plaque and marine shell ornaments strewn on the surface of a Terminal Classic floor in front of Structure J-6 (Figure 10). This jade plaque is of the "drooping-mouth" style (Proskouriakoff 1974:97–98, Plate 53b; Smith and Kidder 1951: 37), which often features a frontal view of a Maize god with a head-dress of thick foliage and carved with tubular drills. Jade pendants in the "drooping mouth" style were part of Epiclassic and Terminal Classic elite networking and exchanges of inalienable objects throughout Mesoamerica. They have been documented primarily outside of Peten at sites such as Xochicalco, Morelos (Hirth 2000: Figure 9.3); Caxcatla, Puebla (Nagao 1989:Figure 8); Monte Alban, Oaxaca (Nagao 1989:90); San Geronimo, Guerrero (Hirth 2000:203); Chichicastenango, Guatemala (Digby 1972:Plate XIVa); San Salvador, El Salvador (Digby 1972:Plate XIVc); Tula, Hidalgo (Diehl 1983:Figure 51); Chichen Itza, Yucatan (Proskouriakoff 1974:Plate 53b); and Nebaj, in the Guatemalan Highlands (Smith and Kidder 1951:Figure 52g), although see also

examples from Topoxte, Peten, Guatemala (Castillo 2005:TPV014, TPV037, TPV048) and Pusilha, Belize (Braswell 2005 et al.: Figure 11). Notably, the example from Ucanal closely resembles the examples from Chichen Itza (Proskouriakoff 1974:Plate 53b).

During the Terminal Classic period, Ucanal also continued to serve as a convergence zone of influence between eastern sites in Belize and sites in western Peten, although Ucanal appeared to forge slightly stronger ties with sites to the west. For example, Ucanal sat at the intersection of three molded-carved vessel traditions, (1) Ahk'utu' molded-carved vases, which possess Pine Ridge Carbonate and British Honduras Ash pastes typically found at sites throughout Belize, (2) molded-carved vessels produced with Peten Gloss wares (what have often been called Portia Gubiado-Inciso or Sahcaba types) and found throughout central and eastern Peten, and (3) Pabellon molded-carved produced with Fine Orange pastes, ceramics produced in several locations in the western Maya lowlands, primarily at sites along the Usumacinta River (Figure 11; Bishop et al. 2012:2012; Foias and Bishop 2005; Helmke and Reents-Budet 2008; Ting 2015; Ting et al. 2015). These vessels were the quintessential feasting and food serving wares for elite and middle-status households, and likely served as highly symbolic gifts used to cement political and social alliances. The iconography, epigraphy, and vessel forms of those produced with Pine Ridge Carbonate and British Honduras Ash pastes differ from those produced with Peten Gloss and Fine Orange pastes (see descriptions in Helmke and Reents-Budet [2008]). Although Ucanal possesses all three of these molded-carved ceramic types as well as a possible locally produced

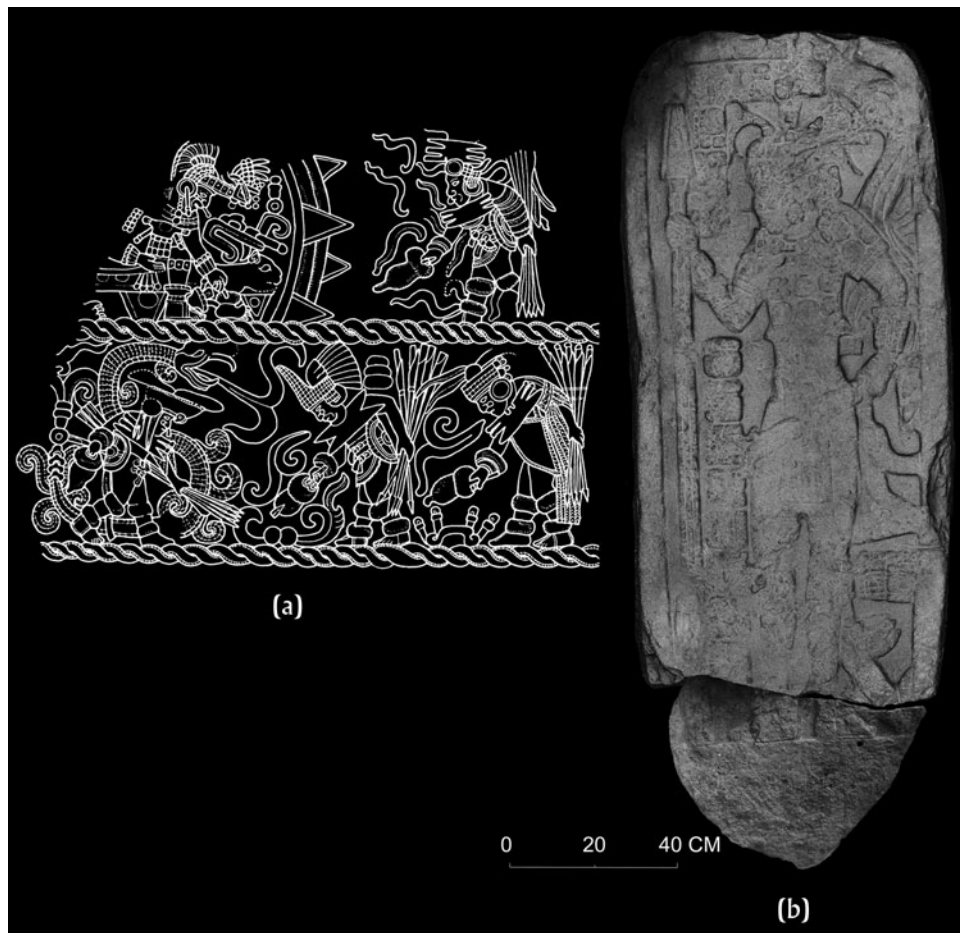


Figure 8. Terminal Classic iconography with central Mexican style darts and atlatl. (a) Detail from upper register, interior wall, Lower Temple of the Jaguars, Chichen Itza. Modified after Schele drawing No. 5019 (<http://www.famsi.org>). (b) Ucanal Stela 29. Photogrammetry reconstruction by Marion Radenne based on photographs by Halperin.

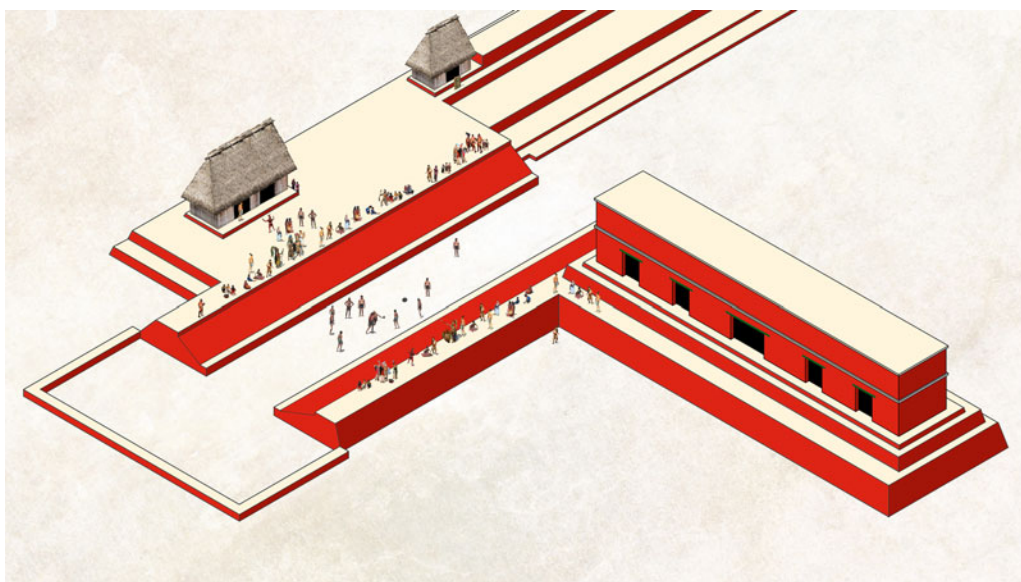


Figure 9. Example of T-shaped ballcourt from the site of Ucanal. Reconstruction drawing by Luis F. Luin based on excavation data from the Proyecto Arqueológico Ucanal.



Figure 10. Jade pendant plaques in the “drooping-mouth” style from: [a] Chichicastenango (modified from Digby 1972:PlateXIVa); [b] Oaxaca (modified from Digby 1972:PlateXIVd); [c] San Salvador (modified from Digby 1972:PlateXIVd); [d] Ucanal (photograph by Halperin); and [e] Chichen Itza (modified from Proskouriakoff 1974:Plate 53).

version of Fine Orange molded-carved, Pabellon molded-carved make up the largest frequency of these vessels at the site, suggesting that ties with Ceibal and other sites near and along the Usumacinta River to the west were particularly strong during this time. In contrast, the dwindling populations at the previously dominant Classic-period polities, such as Tikal and Naranjo, possessed very little to no Fine Orange vessels (Aquino 2007:602; Culbert 2003: 62; Fialko 2005:66–67).

CONCLUSIONS

Epigraphic research reveals that the K’anwitznal polity was likely a political frontier between the warring political powers of Naranjo and Caracol, underscoring the critical role provincial polities played in the making—and unraveling of—larger, centralized polities. The type of boundary zone Ucanal embodied, however, was not a line between two entities or even an end point of a singular dominant polity. Rather, the site served as a dynamic convergence of political forces and cultural groups. While Kopytoff (1987:5) underscored that political frontiers often emulated their metropolises, and other Maya studies show that peripheral provincial polities’ political expressions, economic networks, and practices of affiliations had the potential to conform closely to the dominant center (Golden et al. 2008; LeCount and Yaeger 2010), archaeological investigations at the site of Ucanal indicate that it straddled and mixed influences from multiple entities, serving more as a bridge more than an edge.

Ucanal took advantage of its positioning at the fringes of these larger polities to negotiate and network with a range of different political entities and actors. For example, although official

written histories in stone do not often detail the relationships *between* subordinate polities, it is clear that during the Late Classic period, inhabitants at the site of Ucanal forged valuable political-economic relationships with Belize Valley sites, and in particular Xunantunich to the northeast. In turn, Ucanal had strong relationships with southeastern Peten sites upstream on the Río Mopan. In considering multiple scales of interaction spheres, however, it is clear that Ucanal also sat on the western boundary of a larger sporting and ritual combat tradition of stone maces that included both Naranjo and Caracol as well as other sites in the eastern lowlands. Thus, while the K’anwitznal polity was in the unfortunate position to be caught in-between a tumultuous Classic-period political landscape, it also adopted the expressions and practices of multiple regions.

During the Terminal Classic period, Ucanal and other previously subordinate, provincial polities in Peten launched a new decentralized political order. Ucanal created new political ties to Petexbatun sites to the southwest as well as Yucatecan sites to the north. In addition, it forged economic networking ties to the Guatemalan Highlands. Similar to flourishing Epiclassic sites elsewhere in Mesoamerica (Brittenham 2015; Hirth 2000; Kowalski et al. 2007; Nagao 1989; Ringle et al. 1998), Ucanal’s new political identity did not present itself as the inheritor of a single dominant power or region. Rather, Terminal Classic Maya centers emphasized their eclectic affiliations within a larger Mesoamerican world whereby the local was merged with multiple regions and foreign entities. In this sense, even though the K’anwitznal polity became an independent political power during this time, it continued to position itself at a crossroads of traditions and influences.



Figure II. Comparison of molded-carved ceramics from Ucanal. (a) Pabellon molded-carved (UCA024). Photograph by Halperin. (b) Ahk'utu' molded-carved from LaBlanca, a site within 5 km of Ucanal (PLB009). Photograph by Halperin. Courtesy of Cristina Vidal-Lorenzo, Proyecto La Blanca. (c) Molded-carved vessel with British Honduras Ash paste (UCA340) Photograph by LeMoine. (d) Possible Ahk'utu' molded-carved with British Honduras Ash paste (UCA1296). Photograph by LeMoine. (e) Ahk'utu' molded-carved with Pine Ridge Carbonate paste (UCA818). Photograph by LeMoine. (f) Molded-carved vessels from Ucanal (2016–2018) with comparison of ware types in percent. Note that LaBlanca vessels are not included in graph. (g) Molded-carved with Peten Gloss paste (UCA148). Photograph by LeMoine. Black lines refer to 1-cm scale.

RESUMEN

El sitio arqueológico maya de Ucanal se encuentra en Petén, Guatemala, cerca de la frontera contemporánea con Belice. En la época precolombina, el sitio también se encontraba en las fronteras de algunos de los centros políticos más grandes, Naranjo en Petén Guatemala y Caracol, en Belice. Enredada entre estos centros dominantes y con lazos con los pueblos del Valle del Alto Belice, la región de Petexbatun en Guatemala, Yucatán y otros lugares,

Ucanal era una zona de convergencia crítica de interacción política y cultural. Este documento sintetiza la investigación arqueológica del Proyecto Arqueológico Ucanal para subrayar las formas en que esta entidad política provincial, identificada epigráficamente como *K'anwitznal*, maniobrabra dentro y entre diferentes afiliaciones culturales y redes políticas. Descubrimos que el papel del sitio como frontera política durante el período clásico tardío fue más

un puente que un límite de interacciones. Durante el período posterior del clásico terminal, el reino *K'awitznal* se independizó, pero continuó sirviendo

como una convergencia crítica de influencias y esferas de interacción en toda el área maya y más allá.

ACKNOWLEDGMENTS

Research by the Proyecto Arqueológico Ucanal was funded by grants from the Social Science and Humanities Research Council of Canada (SSHRC/CRSH), the National Geographic Society Waitt Foundation, Fonds de Recherche du Québec—Société et Culture (FRQSC), San Diego Mesa College, and Université de Montréal. We thank our project excavators and personnel from San José, Barrio Nuevo San José, La Blanca, and Pichelito II for their expertise and assistance in the field. We also thank the students and professional archae-

ologists from Universidad de San Carlos de Guatemala (CUDEP and Guatemala City), Université de Montréal, San Diego Mesa College, University of West Florida, University of Mississippi, and University of Kentucky. We are grateful to the Departamento de Monumentos Prehistóricos y Coloniales from the Ministerio de Cultura y Deportes in Guatemala for their support and permission to work at Ucanal. Finally, we are grateful to three reviewers for their comments to the manuscript.

REFERENCES

- Alvarez, Robert R.
1995 The Mexican–US Border: The Making of an Anthropology of Borderlands. *Annual Review of Anthropology* 24:447–470.
- Anawalt, Patricia R.
1981 *Indian Clothing Before Cortes: Mesoamerican Costumes from the Codices*. University of Oklahoma Press, Norman.
- Aquino, Daniel Eduardo
2007 La ocupación clásica terminal del epicentro urbano de Naranjo, Petén. In *XX Simposio de Investigaciones Arqueológicas en Guatemala, 2006*, edited by Juan Pedro Laporte, Bárbara Arroyo, and Héctor E. Mejía, pp. 590–604. Asociación Tikal, Museo Nacional de Arqueología y Etnología, Guatemala City.
- Awe, Jaime, Christophe Helmke, Diane Slocum, and Douglas Tilden
2020 Ally, Client, or Outpost? Evaluating the Relationship between Xunantunich and Naranjo in the Late Classic Period. *Ancient Mesoamerica* 31:494–506.
- Bhabha, Homi K.
1994 *The Location of Culture*. Routledge, New York.
- Bishop, Ronald L., Erin L. Sears, and M. James Blackman
2012 Cerámicas en el borde occidental de las tierras bajas mayas. In *Arqueología de la costa de Campeche: La época prehispánica*, edited by Rafael Cabos, pp. 187–216. Ediciones de la Universidad Autónoma de Yucatán, Mérida.
- Braswell, Geoffrey E., Christian M. Prager, and Cassandra R. Bill
2005 The Kingdom of the Avocado: Recent Investigations at Pusilha, a Classic Maya City of Southern Belize. *Anthropological Notebooks* 11: 60–88.
- Braswell, Geoffrey E., Christian M. Prager, Cassandra R. Bill, and Sonja A. Schwake
2004 The Rise of Secondary States in the Southeastern Periphery of the Maya World: A Report on Recent Archaeological and Epigraphic Research at Pusilha, Belize. *Ancient Mesoamerica* 15:219–233.
- Brittenham, Claudia
2011 About Time: Problems of Narrative in the Battle Mural at Cacaxtla. *RES: Anthropology and Aesthetics* 59–60:74–92.
- 2015 *The Murals of Cacaxtla: The Power of Painting in Ancient Central Mexico*. University of Texas Press, Austin.
- Callaghan, Michael G., and Nina Neivens de Estrada
2016 *The Ceramic Sequence of the Holmul Region*. University of Arizona Press, Tucson.
- Carter, Nicholas P.
2016 These Are Our Mountains Now: Statecraft and the Foundation of a Late Classic Maya Royal Court. *Ancient Mesoamerica* 27:233–253.
- Castillo, Thelma (editor)
2005 *Yaxha, laguna encantada*. 2nd ed. Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Chase, Arlen F., and Diane Z. Chase
1994 Maya Veneration of the Dead at Caracol, Belize. In *Seventh Palenque Round Table, 1989*, edited by Merle Green Robertson and Victoria M. Fields, pp. 55–62. Pre-Columbian Art Research Institute, San Francisco.
- 2001 The Royal Court of Caracol, Belize: Its Palaces and People. In *Royal Courts of the Ancient Maya: Volume Two: Data and Case Studies*, edited by Takeshi Inomata and Stephen D. Houston, pp. 102–137. Westview Press, Nashville.
- 2004a Terminal Classic Status-Linked Ceramics and the Maya “Collapse”: *De facto* Refuse at Caracol, Belize. In *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, edited by Arthur A. Demarest, Prudence M. Rice and Don S. Rice, pp. 342–367. University Press of Colorado, Boulder.
- 2005 Contextualizing the Collapse Hegemony and Terminal Classic Ceramics from Caracol. In *Geographies of Power: Understanding the Nature of Terminal Classic Pottery in the Maya Lowlands*, edited by Sandra L. Lopez Varela and Antonia E. Foias, pp. 73–91. BAR International Series 1447. British Archaeological Reports, Oxford.
- 2012 Belize Red Ceramics and their Implications for Trade and Exchange in the Eastern Maya Lowlands. In *Research Reports in Belizean Archaeology: Papers of the 2011 Symposium*, edited by John Morris, Jaime J. Awe, Melissa Badillo, and George Thompson, pp. 3–14. Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Chase, Diane Z., and Arlen F. Chase
2004b Archaeological Perspectives on Classic Maya Social Organization from Caracol, Belize. *Ancient Mesoamerica* 15:139–147.
- 2017 Caracol, Belize, and Changing Perceptions of Ancient Maya Society. *Journal of Archaeological Research* 25:185–249.
- Clemons, Russell E., and Leon E. Long
1971 Petrologic and Rb-Sr Isotopic Study of the Chiquimula Pluton, Southeastern Guatemala. *GSA Bulletin* 82:2729–2740.
- Connell, Samuel V.
2010 A Community to be Counted: Chaa Creek and the Emerging Xunantunich Polity. In *Classic Maya Provincial Politics: Xunantunich and Its Hinterlands*, edited by Lisa J. LeCount and Jason Yaeger, pp. 295–314. University of Arizona Press, Tucson.
- Cornec, Jean
2003 *Geology Map of Belize*. Geology and Petroleum Office, Belmopan, Belize.
- Culbert, T. Patrick
2003 The Ceramics of Tikal. In *Tikal: Dynasties, Foreigners, & Affairs of State*, edited by Jeremy A. Sabloff, pp. 47–82. School of American Research Advanced Seminar Series, Santa Fe.
- De Chantal, Kim
2019 Les pierres à moudre du site d’Ucanal, Guatemala: Provenance des matériaux dans les basses-terres mayas classique. Unpublished Master’s thesis, Department of Anthropology, Université de Montréal, Montréal.
- Demarest, Arthur A., Prudence M. Rice, and Don S. Rice (editors)
2004 *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*. University Press of Colorado, Boulder.
- Diehl, Richard A.
1983 *Tula: The Toltec Capital of Ancient Mexico*. Thames and Hudson, London.
- Digby, Adrian
1972 *Maya Jades*. Trustees of the British Museum, London.

- Dixon, C. G.
1956 *Geology of Southern British Honduras with Notes on Adjacent Areas*. Belize Government Printer, Belmopan.
- Eberl, Marcus
2007 *Community Heterogeneity and Integration: The Maya Sites of Nacimiento, Dos Ceibas, and Cerro de Cheyo (El Peten, Guatemala) during the Late Classic*. Unpublished Ph.D. dissertation, Department of Anthropology and Archaeology, Tulane University, New Orleans.
- Ebert, Claire E., and Steve Fox
2016 The 2015 Settlement Excavations at Cahal Pech, Continued Research at Tzutzuy K'in, the Zopilote Group and the Martinez Group. In *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2015 Field Season*, edited by Julie A. Hoggarth and Jaime J. Awe, pp. 80–112. Institute of Archaeology, Baylor University, Waco.
- Fialko, Vilma
2005 The Communities of the Holmul River Drainage at the Periphery of Tikal During the Terminal Classic and the Identification of a Distinctive Micaceous Paste Component. In *Geographies of Power: Understanding the Nature of Terminal Classic Pottery in the Maya Lowlands*, edited by Sandra L. López Varela and Antonia E. Foias, pp. 61–71. BAR International Series 1447. British Archaeological Reports, Oxford.
- Foias, Antonia E.
2013 *Ancient Maya Political Dynamics*. University Press of Florida, Gainesville.
- Foias, Antonia E., and Ronald L. Bishop
2005 Fine Paste Wares and the Terminal Classic in the Petexbatun and Pasion Regions, Peten, Guatemala. In *Geographies of Power: Understanding the Nature of Terminal Classic Pottery in the Maya Lowlands*, edited by Sandra L. López Varela and Antonia E. Foias, pp. 23–40. BAR International Series No. 1447. British Archaeological Reports, Oxford.
- García-Zambrano, Angel J.
1994 Early Colonial Evidence of Pre-Columbian Rituals of Foundation. In *Seventh Palenque Round Table, 1989*, edited by Merle Green Robertson and Virginia M. Fields, pp. 217–228. Pre-Columbian Art Research Institute, Monterey.
- Gifford, James C.
1976 *Prehistoric Pottery Analysis and the Ceramics of Barton Ramie in the Belize Valley*. Memoirs of the Peabody Museum of Archaeology and Ethnology, Vol. 18. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- Golden, Charles
2010 Frayed at the Edges: Collective Memory and History on the Borders of Classic Maya Polities. *Ancient Mesoamerica* 21:373–384.
- Golden, Charles, and Andrew K. Scherer
2013 Territory, Trust, Growth, and Collapse in Classic Period Maya Kingdoms. *Current Anthropology* 54:397–435.
- Golden, Charles, Andrew K. Scherer, A. Rene Munoz, and Rosaura Vasquez
2008 Piedras Negras and Yaxchilan: Divergent Political Trajectories in Adjacent Maya Polities. *Latin American Antiquity* 19:249–274.
- Graham, Ian
1967 *Archaeological Explorations in El Peten, Guatemala*. Middle American Research Institute Publication No. 33. Tulane University, New Orleans.
1978 *Corpus of Maya Hieroglyphic Inscriptions, Volume 2, Part 2: Naranjo, Chumhuitz, Xunantunich*. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
1980 *Corpus of Maya Hieroglyphic Inscriptions, Volume 2, Part 3: Ixkun, Ucanal, Ixtutz, Naranjo*. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- Grube, Nikolai
1994 Epigraphic Research at Caracol. In *Studies in the Archaeology of Caracol, Belize*, edited by Arlen F. Chase and Diane Z. Chase, pp. 83–122. Pre-Columbian Art Research Institute, San Francisco.
- Halperin, Christina T.
2017 Ancient Cosmopolitanism: Feminism and the Rethinking of Maya Inter-regional Interactions during the Late Classic to Postclassic Periods (ca. 600–1521 CE). *Journal of Social Archaeology* 17:349–375.
- Halperin, Christina T., and José Luis Garrido
2019 Architectural Aesthetics, Orientations, and Reuse at the Terminal Classic Maya Site of Ucanal, Petén, Guatemala. *Journal of Field Archaeology* 45:46–66.
- Halperin, Christina T., and Simon Martin
2020 Ucanal Stela 29 and the Cosmopolitanism of Terminal Classic Maya Stone Monuments. *Latin American Antiquity*. In press.
- Halperin, Christina T., and Zachary X. Hruby
2019 A Late Postclassic (ca. AD 1350–1521) Border Shrine at the Site of Tayasal, Petén, Guatemala. *Latin American Antiquity* 30:55–69.
- Hammond, Norman
1975 *Lubaantun: A Classic Maya Realm*. Harvard University, Cambridge.
1991 Inside the Black Box: Defining Maya Polity. In *Classic Maya Political History*, edited by T. Patrick Culbert, pp. 313–334. University of Texas Press, Austin.
- Healy, Paul F.
1990 Excavations at Pacbitun, Belize: Preliminary Report on the 1986 and 1987 Investigations. *Journal of Field Archaeology* 17:247–262.
- Healy, Paul F., Jaime J. Awe, Gyles Iannone, and Cassandra Bill
1995 Pacbitun (Belize) and Ancient Maya Use of Slate. *Antiquity* 69:337.
- Helmke, Christophe, and Dorie Reents-Budet
2008 A Terminal Classic Molded-Carved Ceramic Type of the Eastern Maya Lowlands. In *Research Reports in Belizean Archaeology* 5, edited by John Morris, Sheripyne Jones, Jaime Awe, and Christophe Helmke, pp. 37–49. Institute of Archaeology, National Institute of Culture and History, Belmopan.
- Helmke, Christophe, and Jaime J. Awe
2016 Death Becomes Her: An Analysis of Panel 3, Xunantunich, Belize. *The PARI Journal* 16:1–14.
- Helmke, Christophe, Yuriy Polyukhovych, Dorie Reents-Budet, and Ronald L. Bishop
2017 A Bowl Fit for a King: A Ceramic Vessel of the Naranjo Court Bearing the Komkom Emblem Glyph. *The PARI Journal* 18:9–24.
- Hill, Robert M.
1996 Eastern Chajoma (Cakchiquel) Political Geography: Ethnohistorical and Archaeological Contributions to the Study of a Late Postclassic Highland Maya Polity. *Ancient Mesoamerica* 7:63–87.
- Hirth, Kenneth G.
2000 *Ancient Urbanism at Xochicalco: The Evolution and Organization of a Pre-Hispanic Society, Vol. I*. University of Utah Press, Salt Lake City.
- Hoggarth, Julie A., Jaime J. Awe, Sarah Bednar, and Ambar Lopez Johnson
2016 How it Falls Apart: Identifying Terminal Deposits in Group B to Date the “Classic Maya Collapse” at Baking Pot, Belize. In *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2015 Field Season*, edited by Julie A. Hoggarth and Jaime J. Awe, pp. 240–267. Institute of Archaeology, Baylor University, Waco.
- Houston, Stephen D.
1983 Warfare between Naranjo and Ucanal. In *Contributions to Maya Hieroglyphic Decipherment*, edited by Stephen D. Houston, pp. 498–512. Human Relations Area Files, New Haven.
- Hruby, Zachary X.
2019 The Maya Atlal. Unpublished manuscript in possession of the author, Montréal.
- Iannone, Gyles
2002 *Annales History and the Ancient Maya State: Some Observations on the “Dynamic Model.”* *American Anthropologist* 104:68–78.
2010 Collective Memory in the Frontiers: A Case Study from the Ancient Maya Center of Minanha, Belize. *Ancient Mesoamerica* 21: 353–371.
- Inomata, Takeshi
2014 Grinding Stones and Related Artifacts. In *Life and Politics at the Royal Court of Aguateca*, edited by Takeshi Inomata and Daniela Triadan, pp. 54–83. University of Utah Press, Salt Lake City.
- Just, Bryan R.
2007 Ninth-Century Stelae of Machaquilá and Seibal. Report submitted to the Foundation for Advancement in Mesoamerica Studies, Crystal River.
- Kopytoff, Igor
1987 The Internal African Frontier: The Making of African Political Culture. In *The African Frontier*, edited by Igor Kopytoff, pp. 3–86. Indiana University Press, Bloomington.
- Kowakowsky, Laura J.
2012 Ceramics and Chronology at Chan. In *Chan: An Ancient Maya Farming Community*, edited by Cynthia Robin, pp. 42–70. University Press of Florida, Gainesville.

- Kowalski, Jeff K., and Cynthia Kristan-Graham (editors)
2007 *Twin Tollans: Chichén Itzá, Tula, and the Epiclassic to Early Postclassic Mesoamerican World*. Dumbarton Oaks Research Library and Collection, Washington, DC.
- Lacadena, Alfonso
2010 Highland Mexican and Maya Intellectual Exchange in the Late Postclassic: Some Thoughts on the Origin of Shared Elements and Methods of Interaction. In *Astronomers, Scribes, and Priests: Intellectual Interchange between the Northern Maya Lowlands and Highland Mexico in the Late Postclassic Period*, edited by Gabrielle Vail and Christine Hernández, pp. 383–406. Dumbarton Oaks Research Library and Collection, Washington, DC.
- Laporte, Juan Pedro
2007 *La secuencia cerámica del sureste de Petén: Tipos, cifras, localidades, y la historia del asentamiento*. Dirección General del Patrimonio Cultural y Natural, Ministerio de Cultura y Deportes, Guatemala City.
- Laporte, Juan Pedro, and Héctor E. Mejía
2002 *Ucanal: Una ciudad del Río Mopan en Petén, Guatemala, Vol. 1*. 2 vols. U tz'ib Serie Reportes. Asociación Tikal, Guatemala City.
- LeCount, Lisa J.
1996 *Pottery and Power: Feasting, Gifting, and Displaying Wealth among Late and Terminal Classic Lowland Maya*. University of California, Los Angeles.
1999 Polychrome Pottery and Political Strategies in Late and Terminal Classic Lowland Maya Society. *Latin American Antiquity* 10: 239–258.
2010a Ka'kaw Pots and Common Containers: Creating Histories and Collective Memories among the Classic Maya of Xunantunich, Belize. *Ancient Mesoamerica* 21:341–351.
2010b Mount Maloney People? Domestic Pots, Every Day Practice, and the Social Formation of the Xunantunich Polity. In *Classic Maya Provincial Politics: Xunantunich and Its Hinterlands*, edited by Lisa J. LeCount and Jason Yeager, pp. 209–232. University of Arizona Press, Tucson.
2017 Establishing the Preconditions for Ethnogenesis among the Classic Maya of the Upper Belize River Valley. In *The Only True People: Linking Maya Identities Past and Present*, pp. 157–185. University of Colorado Press, Boulder.
2010 *Classic Maya Provincial Politics: Xunantunich and Its Hinterlands*. University of Arizona Press, Tucson.
- LeCount, Lisa J., Jason Yeager, Richard M. Leventhal, and Wendy Ashmore
2002 Dating the Rise and Fall of Xunantunich, Belize: A Late and Terminal Classic Lowland Maya Regional Center. *Ancient Mesoamerica* 13:41–63.
- Lightfoot, Kent G., and Antoinette Martinez
1995 Frontiers and Boundaries in Archaeological Perspective. *Annual Review of Anthropology* 24:471–492.
- Marcus, Joyce
1993 Ancient Maya Political Organization. In *Lowland Maya Civilization in the Eighth Century*, edited by Jeremy A. Sabloff and John S. Henderson, pp. 111–183. Dumbarton Oaks Research Library and Collection, Washington, DC.
1998 The Peaks and Valleys of Ancient States: An Extension of the Dynamic Model. In *Archaic States*, edited by Gary M. Feinman and Joyce Marcus, pp. 59–94. School of American Research, Santa Fe.
- Martin, Simon
1996 Tikal's "Star War" Against Naranjo. In *Eighth Palenque Round Table, 1993*, edited by Martha J. Macri and Jan McHargue, pp. 223–236. Pre-Columbian Art Research Institute, San Francisco.
2000 At the Periphery: The Movement, Modification and Re-Use of Early Monuments in the Environs of Tikal. In *The Sacred and the Profane: Architecture and Identity in the Maya Lowlands*, edited by Pierre R. Colas, Marcus Kuhnert Delvendahl, and Annette Schubart, pp. 51–62. Verlag Anton Saurwein, Markt Schwaben, Germany.
2017 *The Caracol Hieroglyphic Stairway*. Maya Decipherment Ideas on Ancient Maya Writing and Iconography. Electronic document, <https://mayadecipherment.com/2017/01/20/the-caracol-hieroglyphic-stairway>, accessed August 25, 2018.
2000 *Chronicle of the Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya*. Thames and Hudson, London.
- Masson, Marilyn A., and David A. Freidel (editors)
2002 *Ancient Maya Political Economies*. AltaMira Press, Walnut Creek.
- McAnany, Patricia A.
1995 *Living with the Ancestors: Kinship and Kingship in Ancient Maya Society*. University of Austin Press, Austin.
- Moholy-Nagy, Hattula
2003 *Tikal Report No. 27, Part B. The Artifacts of Tikal: Utilitarian Artifacts and Unworked Material*. Edited by William A. Haviland, and Christopher Jones. University of Pennsylvania Museum, Philadelphia.
- Montmollin, Olivier de
1997 A Regional Study of Classic Maya Ballcourts from the Upper Grijalva Basin, Chiapas, Mexico. *Ancient Mesoamerica* 8:23–41.
- Musiał, Katarzyna, and Krzysztof Juszczyszyn
2009 Properties of Bridge Nodes in Social Networks. In *Computational Collective Intelligence. Semantic Web, Social Networks and Multiagent Systems*, edited by Ngoc Thanh Nguyen, Ryszard Kowalczyk, and Shyi-Ming Chen, pp. 357–364. Lecture Notes in Computer Science, New York.
- Nagao, Debra
1989 Public Proclamation in the Art of Cacaxtla and Xochicalco. In *Mesoamerica After the Decline of Teotihuacan A.D. 700–900*, edited by Richard A. Diehl and Janet C. Berlo, pp. 83–104. Dumbarton Oaks Research Library and Collection, Washington, DC.
- Ogundiran, Akinwumi
2014 The Making of an Internal Frontier Settlement: Archaeology and Historical Process in Osun Grove (Nigeria), Seventeenth to Eighteenth Centuries. *African Archaeological Review* 31:1–24.
- Parker, Bradley J.
2006 Toward an Understanding of Borderland Processes. *American Antiquity* 71:77–100.
- Peuramaki-Brown, Megan
2012 *The Integration and Disintegration of Ancient Maya Urban Centres: Charting Households and Community at Buenavista del Cayo, Belize*. Unpublished Ph.D. dissertation, Department of Anthropology and Archaeology, University of Calgary, Calgary.
- Proskouriakoff, Tatianna
1965 Sculpture and Major Arts of the Classic Lowlands. In *Handbook of Middle American Indians*, edited by Richard Wauchope, pp. 469–497. University of Texas Press, Austin.
1974 *Jades from the Cenote of Sacrifice, Chichen Itza, Yucatan*. Memoirs of the Peabody Museum of Archaeology and Ethnology, Vol. 10, No. 1. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- Puleston, Dennis E., and Donald W. Callender
1967 Defensive Earthworks at Tikal. *Expedition Magazine* Spring:40–48.
- Reents-Budet, Dorie
1994 *Painting the Maya Universe: Royal Ceramics of the Classic Period*. Duke University Press, Durham.
2000 Feasting among the Classic Maya: Evidence from the Pictorial Ceramics. In *The Maya Vase Book*, edited by Justin Kerr, pp. 1022–1037. Kerr Associates, New York.
- Reents-Budet, Dorie, Ron L. Bishop, Jennifer T. Taschek, and Joseph W. Ball
2000 Out of the Palace Dumps: Ceramic Production and Use at Buenavista del Cayo. *Ancient Mesoamerica* 11:99–121.
- Rice, Prudence M., and Don S. Rice
2004 Late Classic to Postclassic Transformations in the Petén Lakes Region, Guatemala. In *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, edited by Arthur A. Demarest, Prudence M. Rice, and Don S. Rice, pp. 125–139. University Press of Colorado, Boulder.
- Ringle, William M.
2009 The Art of War: Imagery of the Upper Temple of the Jaguars, Chichen Itza. *Ancient Mesoamerica* 20:15–44.
- Ringle, William M., Tomas G. Negrón, and George J. Bey III
1998 The Return of Quetzalcoatl. *Ancient Mesoamerica* 9:183–232.
- Roldán, Julio A.
1996 Primeras exploraciones en los Juegos de Pelota de Calzada Mopan, Dolores, Petén. In *IX Simposio de Investigaciones Arqueológicas en Guatemala, 1995*, edited by Juan Pedro LaPorte and Héctor Escobedo, pp. 79–92. Museo Nacional de Arqueología y Etnología, Guatemala City.
- Román Ramírez, Edwin, and Jose Luis Garrido
2018 Excavaciones en el Grupo 150 del sitio arqueológico Ucanal (Operación 14). In *Proyecto Arqueológico Ucanal: 3ra Temporada*

- de Campo, Año 2017*, edited by Christina T. Halperin and José Luis Garrido, pp. 151–176. Report submitted to the Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Sabloff, Jeremy A.
1975 *Ceramics*. In *Excavations at Seibal, Department of Peten, Guatemala*. Edited by Gordon R. Willey. Peabody Museum Memoirs, Vol. 13, No. 2. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- Scarborough, Vernon L.
1991 *Courting the Southern Maya Lowlands: A Study in Pre-Hispanic Ballgame Architecture*. In *The Mesoamerican Ballgame*, edited by Vernon L. Scarborough and David R. Wilcox, pp. 129–144. University of Arizona Press, Tucson.
- Scarborough, Vernon L., Fred Valdez Jr., and Nicholas P. Dunning
2003 *Heterarchy, Political Economy, and the Ancient Maya: The Three Rivers Region of the East-Central Yucatán Peninsula*. University of Arizona Press, Tucson.
- Schele, Linda, and David Freidel
1990 *A Forest of Kings: The Untold Story of the Ancient Maya*. William Morrow and Company, New York.
- Schele, Linda, and Peter Mathews
1998 *The Code of Kings: The Language of Seven Sacred Maya Temples and Tombs*. Scribner, New York.
- Schortman, Edward M., and Patricia A. Urban
1994 *Living on the Edge: Core/Periphery Relations in Ancient Southeastern Mesoamerica*. *Current Anthropology* 35:401–403.
- Shook, Edwin M., and Elayne Marquis
1996 *Secrets in Stone: Yokes, Hachas, and Palmas from Southern Mesoamerica*. American Philosophical Society, Philadelphia.
- Sidrys, Raymond V., and John Andreson
1976 *Metate Import in Northern Belize*. In *Maya Lithic Studies: Papers from the 1976 Belize Field Symposium*, edited by Thomas R. Hester and Norman Hammond, pp. 177–190. Center for Archaeological Research, University of Texas, San Antonio.
- Slater, Donald A.
2011 *Power Materialized: The Dart-Thrower as a Pan-Mesoamerican Status Marker*. *Ancient Mesoamerica* 22:371–388.
- Smith, Augustus Ledyard, and Alfred Vincent Kidder
1951 *Excavations at Nebaj, Guatemala*. Carnegie Institution of Washington Publication No. 594. Carnegie Institution of Washington, Washington, DC.
- Smith, Gregory
2001 *Preliminary Report of the Chichen Itza-Ek Balam Transect*. *Mexicon* 23:30–35.
- Smith, Robert E., and J.C. Gifford
1966 *Maya Ceramic Varieties, Types, and Wares at Uaxactun*. Middle American Research Institute, Tulane University, New Orleans.
- Snetsinger, Andrew K.
2013 *Burials and Mortuary Behavior of the Ancient Maya at Minanha, Belize*. Unpublished Master's thesis, Department of Anthropology, Trent University, Peterborough.
- Solari, L.A., A. Gomez-Tuena, F. Ortega-Gutiérrez, and C. Ortega-Obregon
2011 *The Chuacús Metamorphic Complex, Central Guatemala: Geochronological and Geochemical Constraints on its Paleozoic–Mesozoic Evolution*. *Geologica Acta* 9:329–350.
- Spink, Mary Louise
1983 *Metates as Socioeconomic Indicators During the Classic Period at Copan, Honduras*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Michigan, Ann Arbor.
- Stuart, David S.
2019 *A Captive's Story: Xub Chahk of Ucanal*. Maya Decipherment Ideas on Ancient Maya Writing and Iconography. Electronic document, <https://mayadecipherment.com/2019/06/23/a-captives-story-xub-chahk-of-ucanal>, accessed December 1, 2019.
- Taladoire, Eric
1981 *Les terrains de jeu de balle en Mésoamérique et dans le sud-ouest des Etats-Unis*. 4th ed. Mision Científica Franco-Mexicana, Mexico City.
- 1991 “Bois Ton Sang, Beaumanoir”: The Political and Conflictual Aspects of the Ballgame in the Northern Chiapas Area. In *The Mesoamerican Ballgame*, edited by Vernon L. Scarborough and David R. Wilcox, pp. 161–174. University of Arizona Press, Tucson.
- Taube, Karl A., and Mark Zender
2009 *American Gladiators: Ritual Boxing in Ancient Mesoamerica*. In *Blood and Beauty: Organized Violence in the Art and Archaeology of Mesoamerican and Central America*, edited by Heather Orr and Rex Koontz, pp. 161–220. Cotsen Institute of Archaeology Press, University of California, Los Angeles.
- Tenzin, Jinba
2017 *Seeing like Borders: Convergence Zone as a Post-Zomian Model*. *Current Anthropology* 58:551–575.
- Ting, Carmen
2015 *Data from The Production and Exchange of Moulded-carved Ceramics and the “Maya Collapse.”* *Journal of Open Archaeology Data* 4:e4–e4.
- Ting, Carmen, Marcos Martínón-Torres, Elizabeth Graham, and Christophe Helmke
2015 *The Production and Exchange of Moulded-Carved Ceramics and the ‘Maya Collapse.’* *Journal of Archaeological Science* 62: 15–26.
- Turuk, Janais Yvonne
2006 *More Grist for the Mill: An Analysis of the Grinding Stones Recovered from the Ancient Maya Site of Minanha, Belize*. Unpublished Master's thesis, Department of Anthropology, Trent University, Peterborough.
- Vinson, G.L.
1962 *Upper Cretaceous and Tertiary Stratigraphy of Guatemala*. *Bulletin of the American Association of Petroleum Geologists* 46: 425–456.
- Wadell, H.
1938 *Physical-Geological Features of Petén, Guatemala*. In *The Inscriptions of the Peten*, edited by Sylvanus G. Morley, pp. 336–351. Carnegie Institute of Washington, Washington, DC.
- Walden, John
2016 *Excavation in Settlement Cluster C at Baking Pot: Results of the 2015 Field Season*. In *The Belize Valley Archaeological Reconnaissance Project: A Report of the 2015 Field Season*, edited by Julie A. Hoggarth and Jaime J. Awe, pp. 268–280. Institute of Archaeology, Baylor University, Waco.
- Wanyerka, Phillip J.
2003 *The Southern Belize Epigraphic Project: The Hieroglyphic Inscriptions of Southern Belize*. Report submitted to the Foundation for the Advancement of Mesoamerican Studies. Electronic document, www.famsi.org/reports/00077/index.html.
- Webster, David, Timothy Murtha, Kirk D. Straight, Jay Silverstein, Horacio Martinez, Richard E. Terry, and Richard Burnett
2007 *The Great Tikal Earthwork Revisited*. *Journal of Field Archaeology* 32:41–64.
- Willey, Gordon R.
1978 *Artifacts*. In *Excavations at Seibal, Department of Peten, Guatemala*, edited by Gordon R. Willey, pp. 1–189. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- Willey, Gordon R., A. Ledyard Smith, and Jeremy A. Sabloff
1982 *Excavations at Seibal, Department of Peten, Guatemala*. Memoirs of the Peabody Museum of Archaeology and Ethnology, Vol. 15, No. 1–2. Peabody Museum of Archaeology and Ethnology, Harvard University Press, Cambridge.
- Willey, Gordon R., J. William R. Bullard, John B. Glass, and James C. Gifford
1965 *Prehistoric Maya Settlements in the Belize Valley*. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.
- Yaeger, Jason
2000 *Changing Patterns of Social Organization: The Late and Terminal Classic Communities at San Lorenzo, Cayo District, Belize*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Pennsylvania, Philadelphia.