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# Architectural Aesthetics, Orientations, and Reuse at the Terminal Classic Maya Site of Ucanal, Petén, Guatemala

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## ABSTRACT

The Terminal Classic period (ca. A.D. 830–950/1000) in the Southern Maya Lowlands is known as a time in which investments in public architecture and vaulted masonry buildings began to wane. Masonry constructions have often been noted to be of poorer quality in comparison with previous phases. Moving beyond models of scarcity, this paper examines the aesthetics, meanings, and reorientations of architectural projects at the site of Ucanal, Petén, Guatemala during the Terminal Classic period. We highlight three processes that were central to the new architectural programs at the site: an emphasis on the aesthetics of wood, the reorientation of sacred space in residential contexts, and the fragmentation and reuse of buildings and monuments. Although these materials and processes are often associated with a loss of splendor, we suggest that they were part of an active architectural revisionism, one that remade history by reworking the old and reorienting the new.

## KEYWORDS

architecture; aesthetics; monumental reuse; spolia; shrines; political collapse; Maya; Terminal Classic period; Mesoamerica

The Terminal Classic period (ca. A.D. 830–950/1000) in the Southern Maya Lowlands is known as a time in which architectural investments in major construction projects began to wane. In addition, the quintessential element of Classic period elite architecture, the masonry-vaulted building, dwindled as an architectural form or, in some regions, ceased to be produced entirely (Culbert 1988; Demarest, Rice, and Rice 2004; Iannone, Houk, and Schwake 2016; Thompson 1954). Indeed, the study of architecture during this time period can be challenging in that it is a study of absences in the durable landscape, since perishable architecture does not preserve in the archaeological record. When new architectural constructions are identified, they are often noted to be of poorer quality in comparison with previous phases. In this sense, Terminal Classic period architecture is often understood in terms of models of scarcity with diminishing access to knowledge, skills, labor, and resources.

This article, however, seeks to move beyond models of scarcity to examine the aesthetics, meanings, and shifts in architectural projects during this critical period of Maya history. Showcasing our recent archaeological research at the site of Ucanal, Petén, Guatemala, we focus on three prominent architectural patterns identified in the site's Terminal Classic constructions: an aesthetic shift from masonry to wood, a reorientation of sacred space in household contexts, and a reuse of sculpted stone blocks. While many of the Terminal Classic buildings did indeed exhibit diminishing labor investments and skill in their construction techniques, we assert that such construction projects were not just a passive unraveling of power, but were part of the remaking of history and the establishment of a new social and political order. The shift in focus from masonry to wooden buildings did represent a decline in a particular aesthetic of plastered masonry constructions to signal elite status, to embody a sense of permanence, and to create a flat surface that could be painted. Wood

buildings, however, were not necessarily devoid of meaning, aesthetic appreciation, and their own systems of value. We document a reorientation of sacred spaces from the eastern side to the center of residential patios, and underscore that this shift may have been inspired, in part, from northern Yucatan or further afield in Mesoamerica. Likewise, the inclusion of older building materials and monuments into new construction works was not just about the destruction of an older era, but the incorporation of the past to create the present.

## Aesthetics, Spolia, and the Foreign

We use the term aesthetics here not as an elite or refined sense of taste (Bourdieu 1987), but more generally as “the human capacity to assign qualitative values to properties of the material world” (Weiner 1996, 208; see also Eagleton 1990). In this sense, we seek to identify patterns and glean meaning from the materials and acts of construction within their given historical context. The experience of architecture does not revolve solely on its utility for the housing of people, the sheltering and storage of objects, or the loci of particular activities (i.e., sleeping, visiting, crafts production, ritual). Intertwined with the practice and performance of buildings are their materials, shapes, and orientations as embodiments of meaning and value that tap into memory, engage the senses, and create connections to peoples, places, and ideas (Ashmore 2002; Scruton 2013).

Studies of the meanings and value of architecture in the Southern Maya Lowlands have disproportionately focused on Classic period monumental masonry buildings with highly decorated stucco facades and vaulted stone roofs (Houston 1998; Proskouriakoff 1963). Its principal material component, limestone (found in its construction fill, walls, and finishing in the form of plaster), embodied earth and

mountain deities. In turn, the temple-pyramids and large monumental complexes imitated these sacred mountain places in their massive hill-like forms and were captured in the stucco and sculpted limestone images of mountain and earth deities on their facades (Stuart 1997; Taube 2004). The more exclusive access to palace and elite residential buildings constructed of limestone, mortar, plaster, and paint forged an aesthetic of privilege and power that merged with the sacred. Scholars have often treated the decline in these building traditions as a form of degeneration and have likewise disregarded the possible expressive nature of other types of buildings, such as those of wood, thatch, and mud, issues we address further below.

Another way in which buildings have the potential to take on meaning was in the use of spolia, whereby parts of old buildings or objects are inserted into new constructions. The term spolia has been used primarily by scholars working in Europe to describe the Early Christian and Medieval reuse of Classical building parts, although it has been more recently applied to other places, time-periods, and material forms (Alchermes 1994; Brillant and Kinney 2011; Kalakoski and Huuhka 2018). Its early use often underscored the potential degenerative and violent sentiments reused building parts and sculptures may have embodied, since their reuse implied a “forcible transfer of ownership,” a destruction of an earlier building or monument, and the seeming inability to recreate the glory of an earlier era (Kinney 2011, 4–7). More recently, these interpretations have been layered with more nuanced understandings, whereby spolia are also seen as a form of creative appropriation, a political statement of connecting to particular histories, and a claim of cosmopolitan belonging (Brillant and Kinney 2011; Toussaint 2012). Likewise, the meanings surrounding spolia in Mesoamerica may have been highly ambivalent. Maya and Aztec ethnohistoric and ethnographic data (Burkhart 1989; Hamann 2008; McAnany and Brown 2016; Tozzer 1941), for example, underscore that the reuse of building stones and monument fragments was not just about destruction and termination of an earlier tradition, but also about the harnessing of the power of the past to recreate the future. These incorporations forged fictive continuities, promoted particular memories, and helped imbue animacy into new constructions (Cecil and Pugh 2018).

Like the harnessing of the memories and materials of the past, the foreign can also be harnessed as a way of promoting new political orders, of connecting to sacred and powerful peoples and places, and of promoting cosmopolitan connections (Helms 1993; Nagao 1989; Ringle, Negrón, and Bey 1998). For example, Late Classic Maya rulers incorporated Teotihuacan forms and symbolism into their ceremonial attire and architectural facades to tap into this sacred and powerful center, even though it had already collapsed and was but a distant memory (Stone 1989). The Aztec also strategically incorporated objects from earlier eras, as well as exotic objects from the far reaches of their empire, as offerings into their most sacred building, the Templo Mayor. These dedicatory offerings helped center the Templo Mayor as an axis mundi of the city, empire, and cosmos and likewise was a means to appropriate foreign people into the Aztec empire (López Luján 2005). As we discuss below, references to the foreign were also a critical component of Terminal Classic architectural aesthetics.

## Shifting Political Orientations and New Architectural Forms During the Terminal Classic Period

The Terminal Classic period is generally known as a period of decline in the Southern Maya Lowlands. Many of the great Classic period centers, such as Tikal, Calakmul, Piedras Negras, Naranjo, Palenque, Yaxchilan, and Dos Pilas, underwent a contraction or cessation of royal power, in which monuments were no longer erected and royal palaces were either destroyed, repurposed, or fell to ruins (Figures 1, 2). These centers, as well as many smaller settlements, were abandoned or greatly reduced in population. Nonetheless, a number of Southern Lowland settlements continued to be occupied, and some, such as Ceibal, Calzada Mopan, Ixlú, Lamanai, Nakum, Tayasal, and Ucanal, flourished in the wake of the political and economic crises of their larger neighbors. Some of these sites continued to be occupied into the Postclassic period, underscoring the variability of experiences over the Classic to Postclassic transition (Aimers 2007; Demarest, Rice, and Rice 2004).

These smaller centers continued many Classic period (ca. A.D. 300–830) traditions but shifted their political orientations in several ways. Flourishing Terminal Classic centers often took part in new political networks that restructured the power dynamics between Maya centers and beyond. Earlier, many of the Classic period alliance networks revolved around the two warring superpowers of the Mutu’l dynasty, centered at Tikal, and the Kanu’l dynasty, centered first at Dzibanche and then at Calakmul. For example, during the Early Classic period (ca. A.D. 300–600), Tikal ruler Siyaj Chan K’awiil II (A.D. 411–456) served as an overlord to the ruler of Ucanal, identified epigraphically by the kanwitznal logogram (Martin and Grube 2000, 34). During the Late Classic period (ca. A.D. 600–830), however, Ucanal was largely under the grip of two other superpowers allied with the Kanu’l dynasty: first Naranjo from A.D. 698–744 and then Caracol in A.D. 800 (Carter 2016, 244; Houston 1983; Reents-Budet 1994, 300–305).

At the beginning of the Terminal Classic period, however, many lower-order polities showed signs of increasing independence from the major Classic period superpowers. For example, in A.D. 830, Aj B’ahlun Ha’b’tal Wat’ul K’atel established Ceibal as the new seat of power in the Petexbatun region, taking advantage of the power vacuum left by Dos Pilas and Aguateca. He oversaw the construction of several monumental programs and the erection of 5 stelae around and on Ceibal Temple A–3 (Sabloff 1973; Schele and Mathews 1998, 179–183). In the Upper Belize Valley, Xunantunich gained autonomy from Naranjo and experienced a short florescence from A.D. 780–890 (LeCount and Yaeger 2010; LeCount et al. 2002). Likewise, Ucanal appears to have won a certain level of independence from Caracol from A.D. 820 onward. For example, Altars 12 and 13 from Caracol record Ucanal ruler Nuun U Jol Papamalil and Caracol ruler Toob’il Yoatt jointly participating in ritual and captive-taking (Figure 3A). They are portrayed paired, side-by-side, and of the same size, a contrast to only 20 years earlier in A.D. 800, when the ruler of Ucanal is depicted as a bound captive of Caracol’s ruler (Caracol Altar 23) (Figure 3B) (Martin and Grube 2000, 97–98).

Many of these former subordinate polities formulated new political alliances with each other and also took on new



**Figure 1.** Map of the Maya area with selected sites mentioned in text (adapted by Halperin from Satellite map, NASA-JPL-Caltec PIA03364).

expressions of power. For instance, the Ucanal king, Kan Ek' Jo' Pet helped oversee the arrival of Aj B'ahluun Ha'b'tal Wat'ul K'atel to Ceibal one day before the turning of *baktun* 10 in A.D. 830, an event that ushered in a new political landscape in the Petexbatun region (Schele and Mathews 1998, 179–183). Likewise, a new type of stela monument that broke earlier traditions by referencing foreign imagery and writing styles was erected at Ceibal, as well as at a number of small upstart centers, such as Ixlú, Ucanal (Figure 3(C)), and Jimbal, located a few kilometers from Tikal (Figures 1, 2). These stelae contained figures floating in dotted S-shaped cloud scrolls above the ruler (some with atlats, which are often associated with foreigners), featured rulers with tubular nose ornaments (an ornamental feature that became popular during the Terminal Classic), sometimes had rounded tops

that were wider than their bases, and showcased square-shaped glyphs (Figures 3C, D). The square glyphs are a reference to non-Maya writing systems (Just 2007; Lacadena 2010; Rice and Rice 2004, 133).

Political networks, migrations, and alliances between the Southern and Northern Maya Lowlands were also strengthened during this time (Boot 2005; Harrison-Buck and McAnany 2013; Rice and Rice 2004). One manifestation of these links is the appearance of Terminal Classic circular shrines at upstart centers along the newly preferred eastern and western coastal trade routes between the Southern and Northern Lowlands, rather than along the inland trade routes previously dominated by the superpowers of Tikal and Calakmul (Harrison-Buck 2012; Harrison-Buck and McAnany 2013; McAnany 2012). As mentioned below, Ucanal also erected

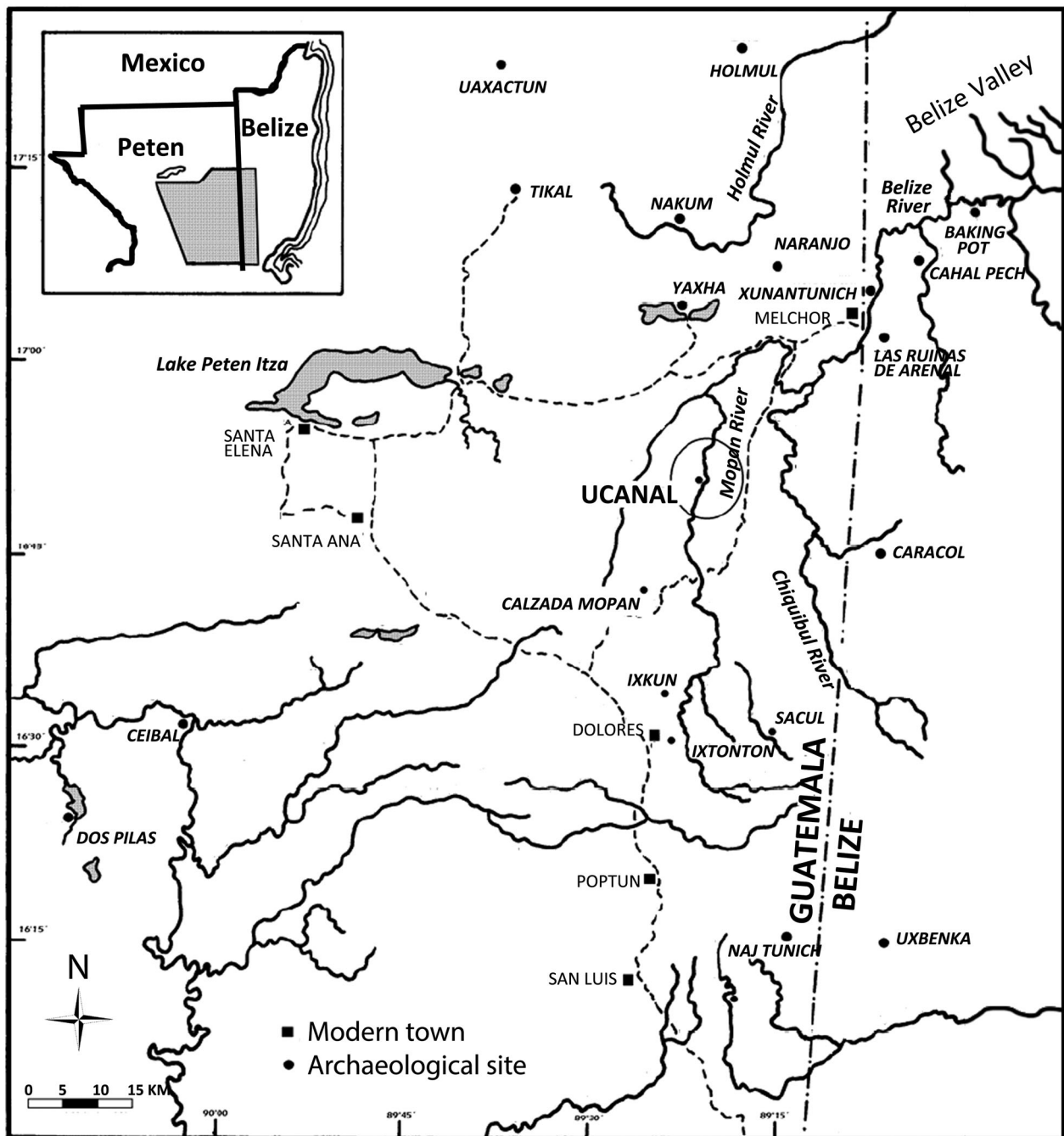
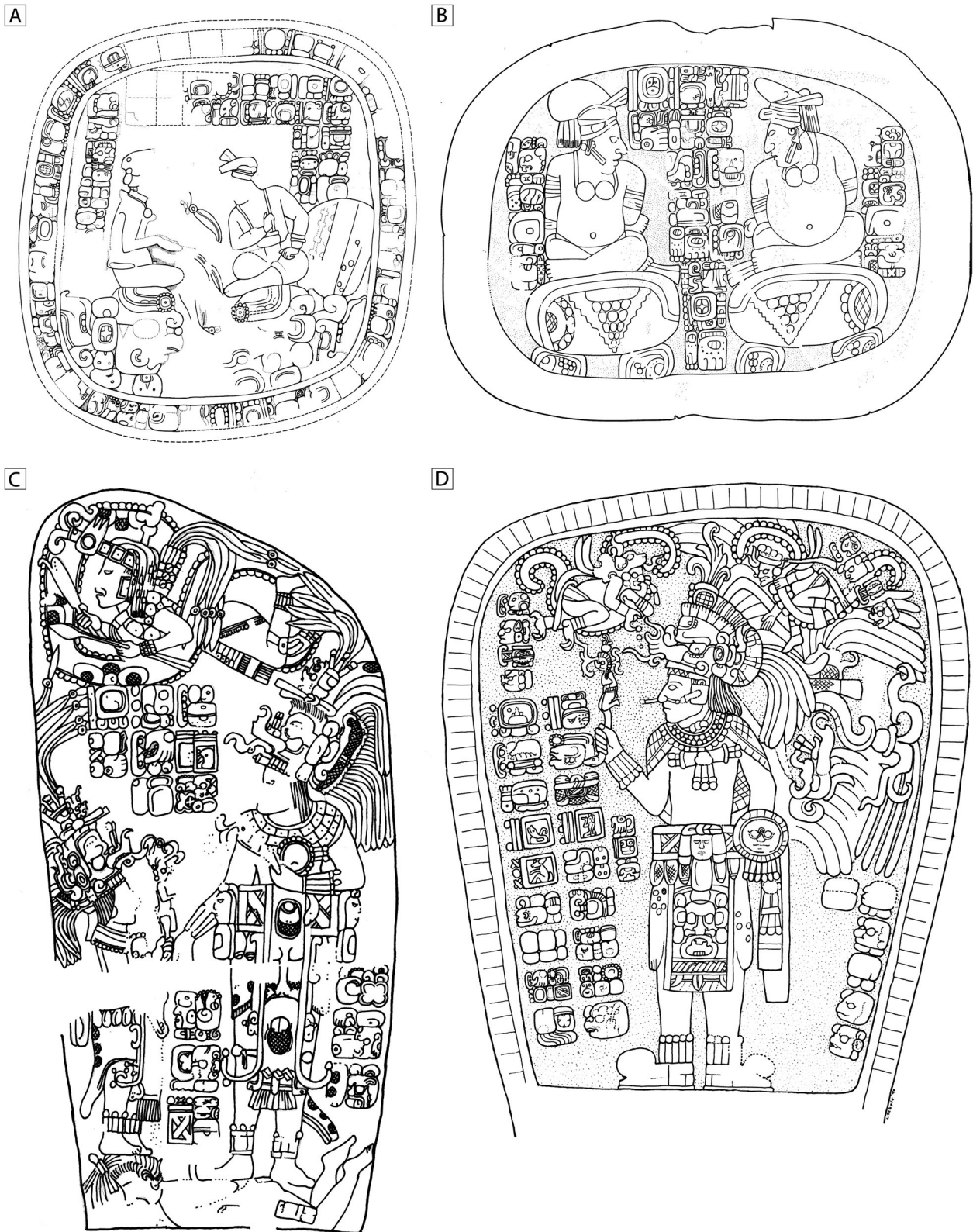


Figure 2. Map of eastern Petén showing the location of Ucanal relative to surrounding sites (after Mejía 2001, fig. 1).

a circular shrine during the Terminal Classic period. Outside the Maya area, the Epiclassic circular shrine network extended along the Gulf Coast all the way up to the Huastec region (Alarcón and Ahuja 2015; Pollock 1936). As such, scholars have interpreted the circular shrines from the Southern Maya Lowlands as an opening up of relations with foreign peoples (Chase and Chase 1982; Fox 1980; Harrison-Buck and McAnany 2013; Pollock 1936; Sabloff 1973, 128). William Ringle and colleagues have argued that the circular shrines were part of the spread of the cult of Quetzalcoatl, a political-religious cult promoted by new ruling elites, warriors, and merchants that cross-cut ethnic and cultural boundaries (Ringle, Negrón, and Bey 1998), although it is not clear if all circular shrines embodied the same meanings and values (Halperin 2017a; McAnany 2012).

In addition to the circular shrines, several other new Terminal Classic architectural features at Southern Lowland

sites underscore an increasing reference to foreign styles. For instance, several mosaic Puuc style masks on Terminal Classic building facades from southeastern Petén sites are similar to architectural features typical of northwestern Yucatan during the Late and Terminal Classic periods (Laporte and Mejía 2002a). A Terminal Classic patio quad from Nohmul, Belize, from the Southern Maya Lowlands, appears to have referenced similar architectural forms from Chichen Itzá in the Northern Lowlands (Chase and Chase 1982). In addition, although colonnaded buildings date back to at least the Early Classic period (Driver 2002), long, open colonnaded buildings with flat roofs, some of which are referred to as council houses or *popol nahs*, became popular during Late Classic and Postclassic periods in Northern Lowland sites. Showing affiliations with northern sites, a few examples of long colonnaded buildings have been identified in the Southern Lowland sites during the Terminal Classic period,



**Figure 3.** Stone altars that mention Ucanal rulers and Terminal Classic stela monuments: A) Caracol Altar 12 with Ucanal ruler on the left (after Grube 1994, fig. 9.7); B) Caracol Altar 23 with Ucanal ruler on the right as a bound captive (after Grube 1994, fig. 9.1); C) Ucanal Stela 4 (after Graham 1980, fig. 2–159); D) Jimbal Stela 1 (FAMSI Schele drawing No. 2029).

such as Structure 90 from Yaxhá, which was constructed after the site gained independence from Naranjo (Bey and May Ciau 2014; Hermes and Zralka 2012; Rice and Rice 2018). At this time, Southern Lowland sites also started to experiment with foreign ballcourt styles, such as enclosed I-shaped courts at Ceibal and Calzada Mopan (Roldán 1996; Willey, Smith, and Sabloff 1982) and half-enclosed T-shape courts at Calzada Mopan, Ucanal, and Jimbal (Laporte and Mejía

2002b, 1: 6–7; LeMoine et al. 2017, fig. 10.12; Quintana Samayoa 2008, fig. 2-1013). These ballcourt forms, especially the enclosed I versions, were common in northern Yucatan, western Chiapas, and elsewhere in Mesoamerica from the Epiclassic/Terminal Classic period onwards (Scarborough and Wilcox 1991; Taladoire 1981). Although many of these new, cosmopolitan architectural forms are identified in Terminal Classic public ceremonial architecture, such

elements are also identified in residential contexts, as seen at the site of Ucanal.

### Previous Archaeological Research at Ucanal

The site of Ucanal was first noted in a map by Teobert Maler (1908, fig. 9) and was later documented by a visit to the site by Robert Merwin and detailed in a publication by Sylvanus Morley (1938, 186–201). Merwin and Morley documented 17 of the site's stela monuments and noted their dates spanning baktuns 9 and 10 (Late Classic and Terminal Classic periods). Ian Graham (1980) also made a reconnaissance visit to the site in the 1970s, further documenting the stone monuments (Stela 2, 3, 4, 6, and 7, Altars 1 and 3, Misc. Monument 1) and remapping part of the ceremonial site core. The first excavations at the site were conducted in the late 90s and early 2000s by the Proyecto Atlas Arqueológico de Guatemala directed by Juan Pedro Laporte. Their excavations, which focused on both monumental and residential architecture, revealed a longstanding occupation at the site from the Middle Preclassic period to the Early Postclassic period (Corzo, Alvarado, and Laporte 1998; Laporte and Mejía 2002a, 2002b; Laporte et al. 2002). Their research also revealed that many monumental buildings had Terminal Classic period construction episodes, and some monumental buildings were built from scratch during the Terminal Classic, such as the Group A ballcourt (Ballcourt #1), Temple-pyramid A-5, Temple-pyramid A-12, and Structure A-6 (Figure 4).

More recent research at the site by the Proyecto Arqueológico Ucanal (PAU) (2014, 2016–2018) reveals that the site of Ucanal is composed of a core zone of approximately 7.5 km<sup>2</sup> of continuous settlement and a wider periphery that extends in all directions, including east of the Mopan River (Figure 5). Excavations in the residential and monumental zones of the city (n = 18 architectural groups) confirm earlier findings by the Proyecto Atlas Arqueológico that the site was most heavily occupied during the Late Classic and Terminal Classic

periods. PAU excavations purposefully targeted a cross-section of the social stratum to incorporate small-, medium-, and large-sized households. Of the 31 total groups excavated by the Atlas and PAU projects to date, 97% were occupied during the Terminal Classic, 81% exhibit Terminal Classic period construction, and 84% exhibit Late Classic construction (Figure 6). No evidence of abandonment and reoccupation over collapsed buildings or materials has been identified thus far, suggesting a strong continuity in occupation between Late and Terminal Classic periods. Excavations by the PAU of three of the site's water canals (at least 5 human-modified canals have been documented to date) also revealed that major water management features were built during the Terminal Classic period (Halperin, LeMoine, and Pérez Zambrano 2019; Pérez Zambrano 2017). These canals were used to drain water away from the urban site core to avoid flooding of ceremonial and residential sectors of the site. Likewise, excavation of one of five known intra-site causeways reveals a Terminal Classic construction episode. This research underscores that Ucanal not only maintained a healthy population during the Terminal Classic period, but that massive investments were made into the city's urban infrastructure. These new constructions, however, did not always replicate the same aesthetics, orientations, and construction techniques as exemplified earlier during the Late Classic period.

### Shifts from Masonry to Wood

One noticeable pattern at the site of Ucanal, as well as at other Terminal Classic settlements elsewhere in the Southern Maya Lowlands, is a shift away from the construction of buildings with masonry walls and a diminution or cessation of constructing buildings with vaulted stone roofs. Some exceptions throughout the Southern Maya Lowlands include the site of Nakum, in which many of its monumental stone masonry buildings with plaster finishing and vaulted roofs were rebuilt, new building construction occurred, and multiple construction episodes have been documented for the Terminal Classic

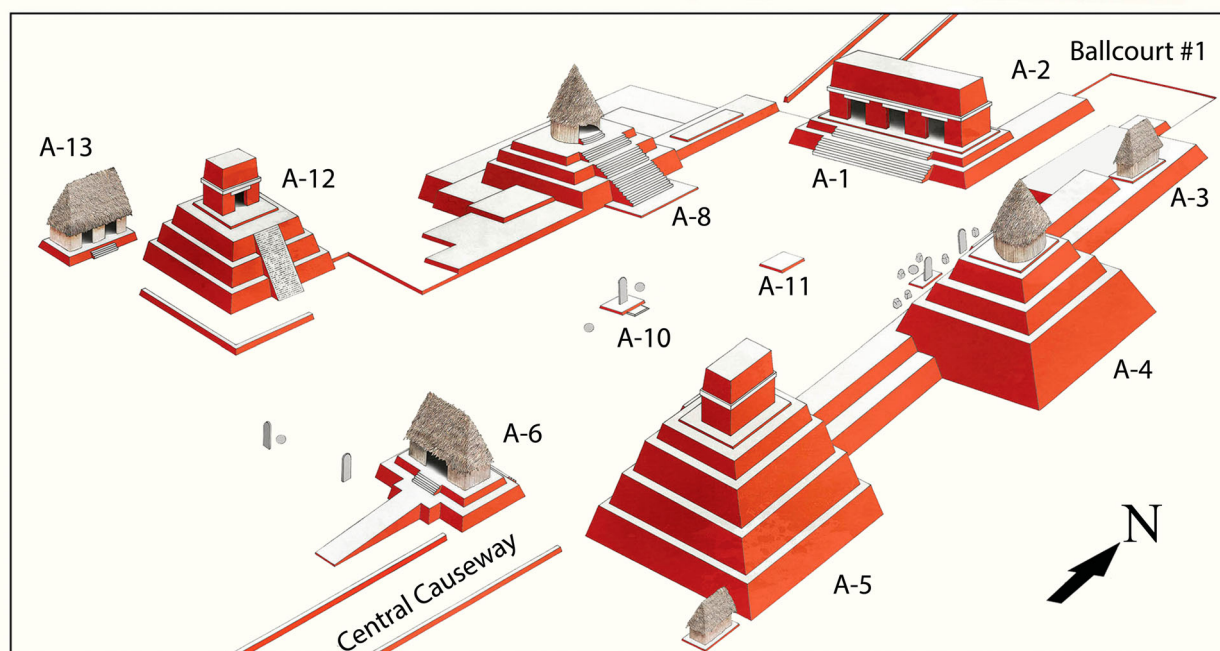
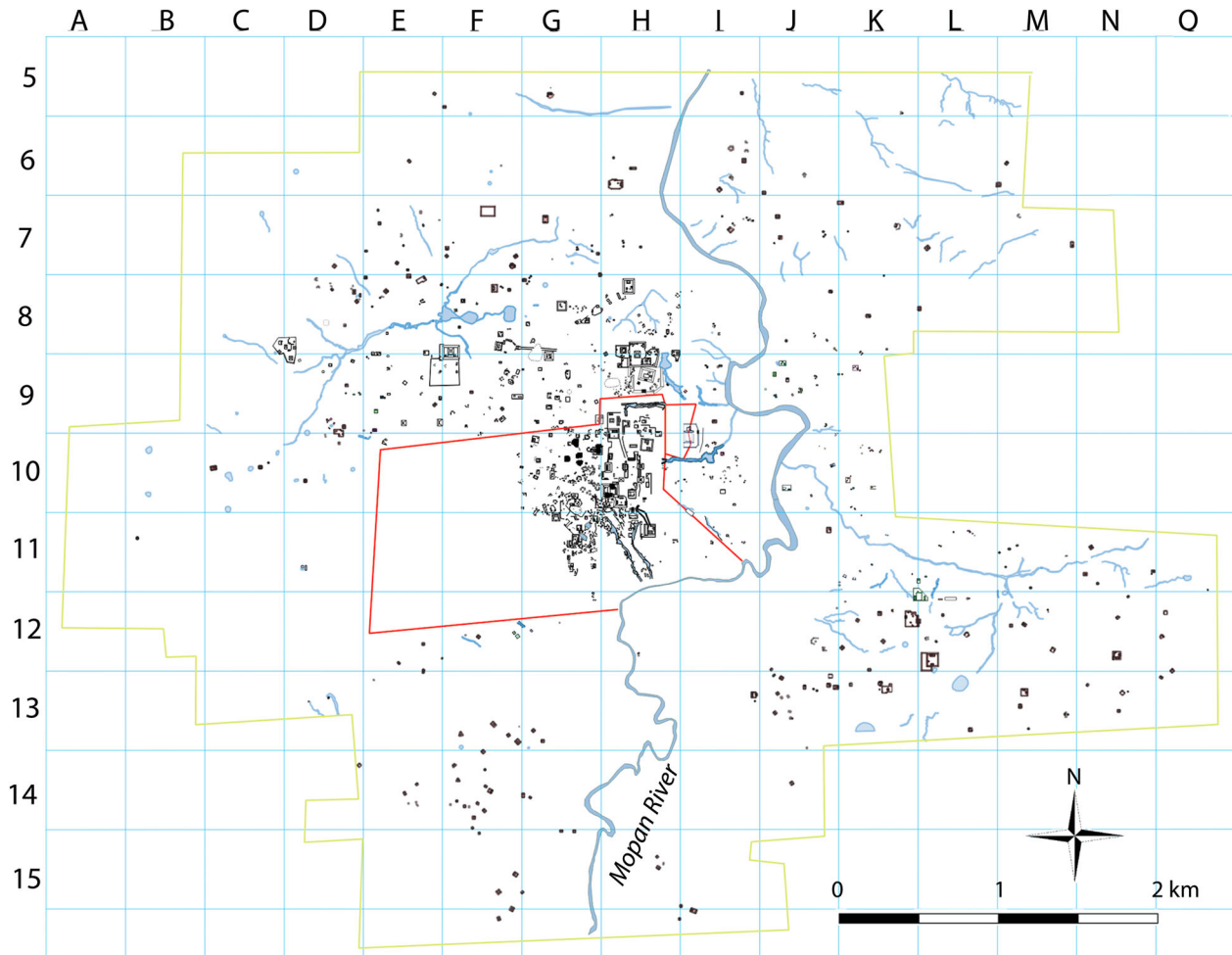


Figure 4. Plaza A, Ucanal (reconstruction drawing by Luis F. Luin after topographic data collected by the Proyecto Arqueológico Ucanal).



**Figure 5.** Map of Ucanal showing nucleated settlement close to monumental core (PAU total station and GPS/GNSS survey 2014–2018; Atlas survey 1998–1999; red line represents the national park boundary; yellow line represents the survey boundary to date).

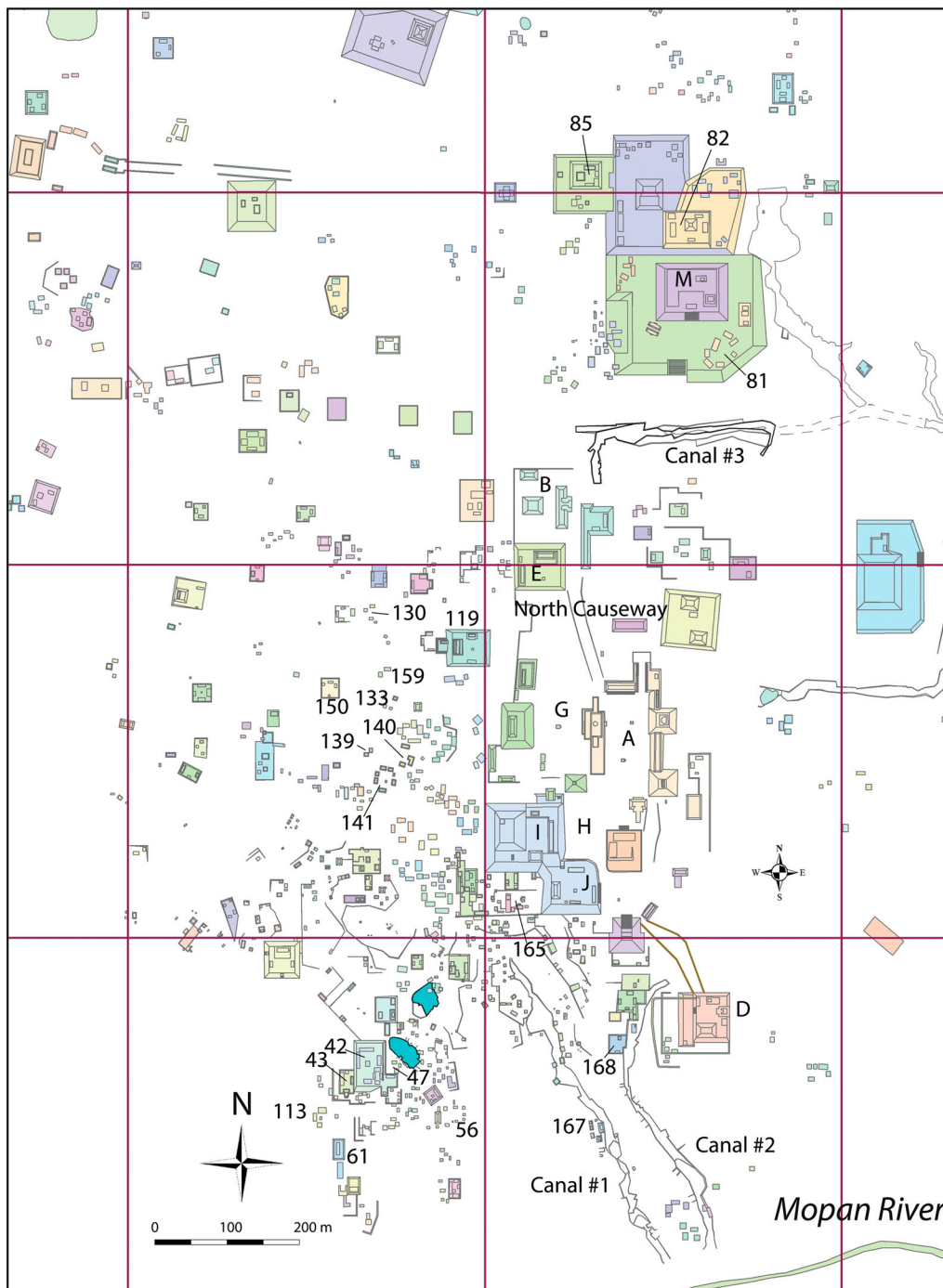
period (Zralka and Hermes 2012), as well as the site of Ceibal, in which the radial pyramid A-3 and one of its ballcourts (C-9) were constructed at the beginning of the Terminal Classic. In some cases, vaulted stone buildings continued to be occupied during the Terminal Classic period with small modifications, such as the closing off of rooms or doorways to prevent wall collapse or to restructure interior spaces (Gómez 2007; Salas 2006; Sion 2015; Vidal Lorenzo and Munoz Cosme 2013).

With the exception of the rebuilding of Ucanal's masonry-walled Temple D-3 from Group D (Laporte and Mejía 2002b, 15, fig. 17), Terminal Classic construction was largely in the form of stepped masonry platforms upon which perishable wooden buildings sat. For example, excavations by the PAU of large, elite monumental Groups J, E, and 119 reveal that even the larger Terminal Classic buildings (J-6, E-1, 119-1) that were taller than the long, low structures adjacent to them did not possess masonry walls or vaulted roofs (Figure 7). Instead they consisted of stepped masonry terraces with superstructures demarcated by low platforms (Cruz Gómez and Garrido 2016; Mongelluzzo 2016; Mongelluzzo, Halperin, and Thibodeau 2017). In general, Terminal Classic fill is distinctive from earlier Late and Early Classic construction in that it was less compact and composed of larger, non-uniform sized rocks (although such Terminal Classic fill techniques were similar to those used to build large platform foundations during the Late Preclassic period). Group I, whose tremendous height and morphology led Juan

Pedro Laporte and Hector Mejía (2002b, 13) to call it an Acropolis, surprisingly did not possess buildings with masonry walls or roofs in any of the structures tested (Structures I-1, I-3, I-4) (Figure 8). Rather, the final Late Classic phase constructions exhibited stepped masonry platforms on top of which perishable buildings would have stood. These platforms covered earlier Late Classic and Late Preclassic buildings that had full-length masonry walls, although some of the walls were not fully preserved to their original heights (Mongelluzzo, Halperin, and Thibodeau 2017). Although some contemporary Maya wooden buildings are covered with daub or plaster, neither daub nor plaster finishing with wood imprints have been identified in Terminal Classic contexts to date.

The shift to perishable wooden buildings even included the site's most sacred temples. For example, excavations by the Proyecto Atlas Arqueológico revealed that both temples A-4 and A-8 were built of perishable materials (Figure 4). Rather than the traditional rectangular shape, these temples took on new forms. Temple A-4 was semi-circular, and Temple A-8 was circular, corresponding to a new style of shrines that became popular in the Southern and Northern Lowlands during the Terminal Classic, as mentioned earlier. The wooden walls of the temples would have been impressive, as Laporte and Mejía (2002b, 8) report that the postholes in A-4 were 40 cm in diameter. This wooden temple replaced a Late Classic masonry one with vaulted roof. With the exception of the elaborate full-masonry examples from Chichen





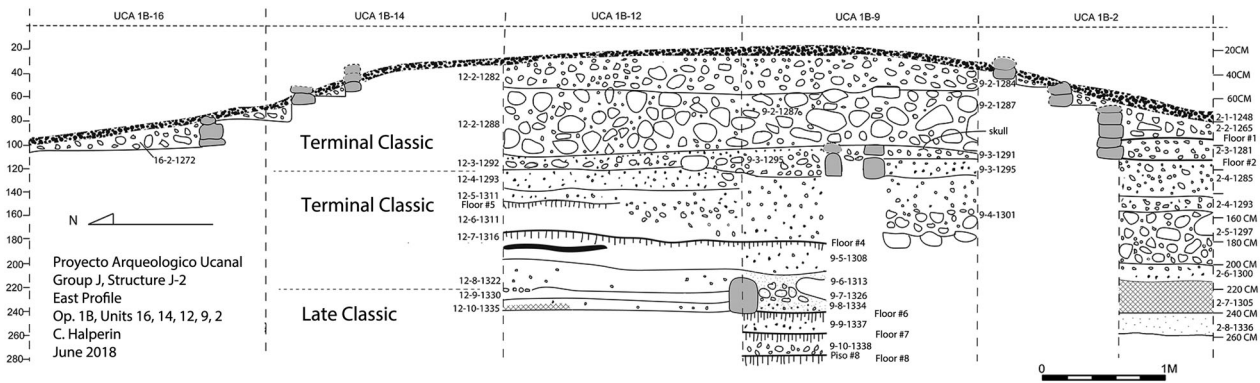
**Figure 6.** Map of Ucanal with architectural groups excavated between 1999–2018 and indicated by group labels (PAU total station and GPS/GNSS survey 2014–2018; Atlas survey 1998–1999).

Itza, it is noteworthy that the Terminal Classic circular shrines elsewhere in the Maya area also had perishable walls and roofs, as only stone foundation platforms or platforms with low plinth (20–30 cm) masonry walls have been documented (Harrison-Buck and McAnany 2013). PAU excavations in another monumental group at the site of Ucanal, Group E, revealed a possible posthole 20 cm in diameter cut into the exterior stucco floor of Structure E-3 (Mongeluzzo 2016, 68, fig. 4.19). These postholes contrast with more humble homes, such as a Late Classic farming household from the site of Chakököt (Group E2C), a periphery settlement of Motul de San Jose, which possessed corner postholes in the bedrock that were between 12–13 cm in diameter (Halperin, Martínez-Salguero, and Guzmán 2007, 93–94). In general, postholes in the Maya area are not well-preserved,

and thus little is known about the thicknesses and treatments of wooden walls.

### Recentering the Sacred

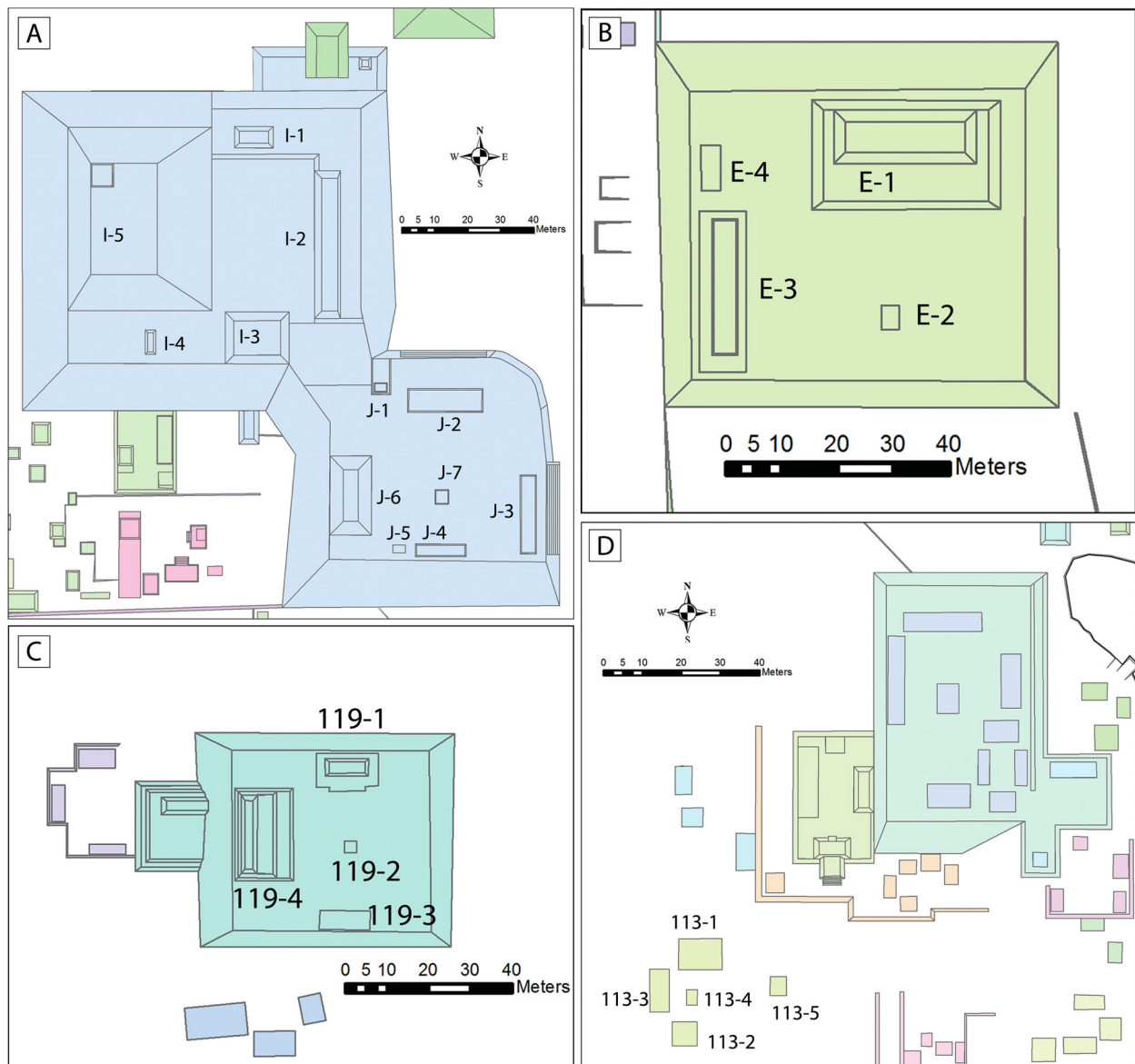
In addition to a growing reliance on wooden superstructures, Terminal Classic Ucanal inhabitants reorganized their residential architecture by re-centering sacred space. During the Classic period, formal residential groups with structures surrounding a central, open patio often contained altars or small shrine structures located on their eastern side (Ashmore 1981; Becker 2004, 2009; Hageman and Lohse 2003; Palka 1997). These eastern locations were preferred places for the interment of ancestors and the caching of offerings. The presence of eastern shrines



**Figure 7.** Profile map of Structure J-2, Group J, Ucanal, showing Terminal Classic fill of masonry platforms overlying Late Classic construction phases.

at residential groups of all different sizes indicates that they were not restricted to any one segment of the social stratum. Eastern residential shrines are common throughout the Petén and western Belize and especially common at Tikal (Becker 2004) and Caracol (Chase and Chase 2004, 144).

During the Terminal Classic period, however, a new architectural plan was adopted in which a small, low shrine was placed directly at the center of the residential patio. While shrines include both buildings and small platforms dedicated to ritual activities, those described herein were low (ca. 30–40 cm in height) platforms whose small size (ca. 2–3 m in



**Figure 8.** Ucanal residential architectural groups with central shrine platforms mentioned in the text: A) platform J-7 in Group J; B) platform E-2 in Group E; C) platform 119-2 in Group 119; D) platform 113-4 in Group 113.

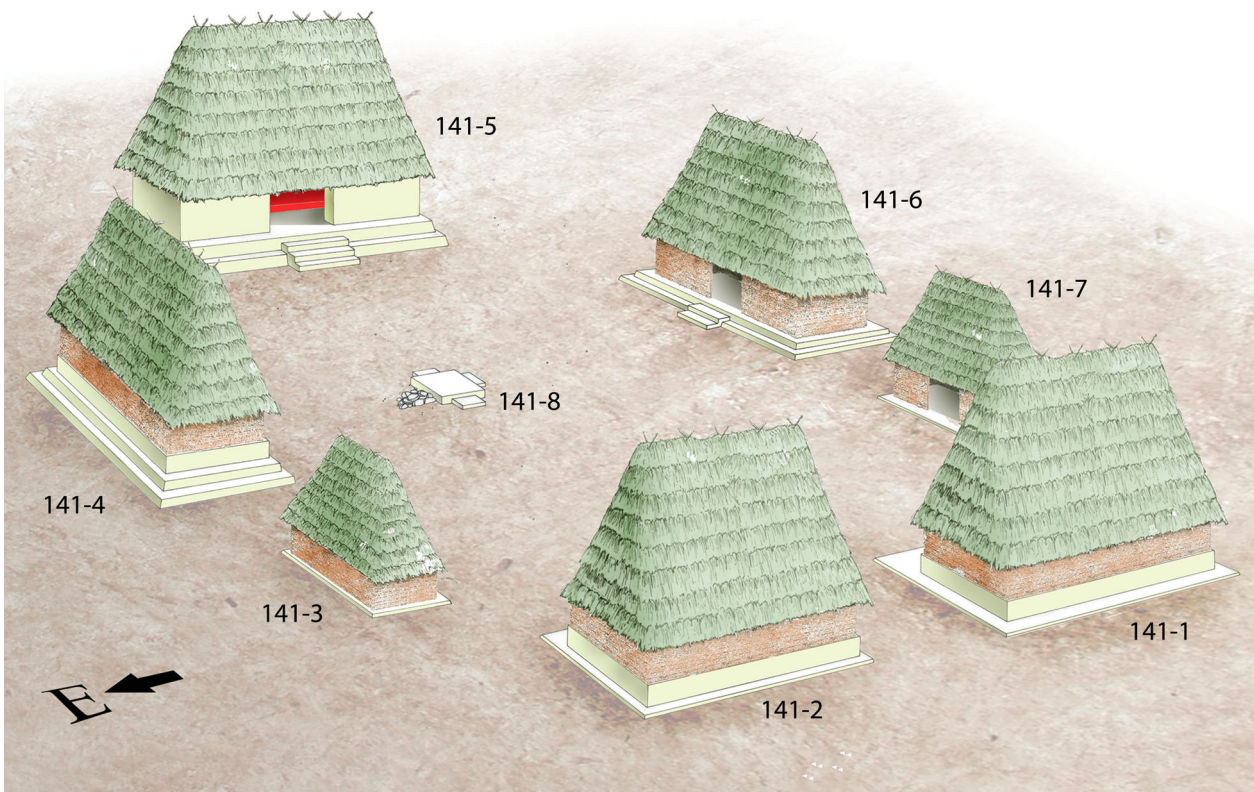
width and length) may indicate that they were platforms without walls or roofs. At the site of Ucanal, at least 10 architectural groups contain low shrine platforms in the center of the patio. Excavations reveal that they were constructed in the Terminal Classic period, as they sit directly on Terminal Classic floors, and ceramics found in their construction fill date to the Terminal Classic period. Elsewhere in the Southern Maya Lowlands, these residential plans are rare, appearing at a small number of residential groups at the sites of Tikal, Yaxhá, Machaquilá, and Ceibal during the Terminal Classic (Becker 2009; Ruiz Ciudad and Adánez Pavón 2011; Gamez Diaz 2013, fig. 4–2; Tourtellot 1988, 87–97). Because these shrine platforms are very low, however, they are difficult to detect from topographic surveys, and as such may be more under-represented than currently understood.

As in the Late Classic period, the Terminal Classic shrines at Ucanal were foci for burials and caches. Some of the Terminal Classic burials, however, were rather atypical. For example, at one middle-status residential group (Group 141), a burial (Burials 4–1A) located on the eastern side of the group's central shrine contained a young adult male dismembered post-mortem and placed in a small pit (Figures 9, 10). Some of the bones were still articulated, while others were cut or removed, suggesting that dismemberment occurred a short period after death when some tendons and ligaments were still intact. For example, the femur and pelvis, which were placed in the pit first, were articulated, but the right tibia and right ankle (with the right foot missing) had been cut approximately 10 cm below the knees, dismembered, and placed on top of the left tibia and foot. The humerus was cut 10 cm below the proximal head and separated from

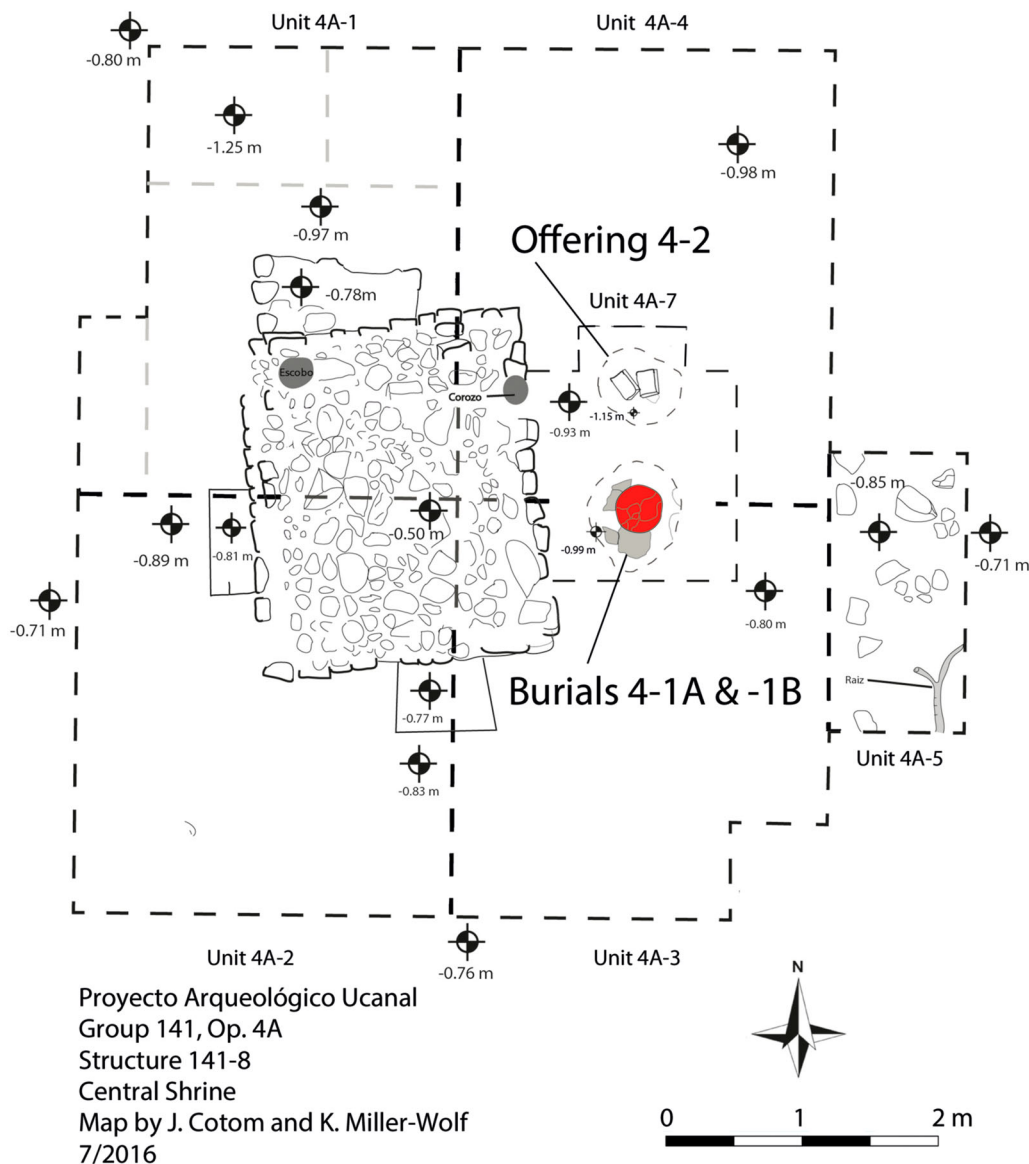
the torso, but was articulated with the forearms. The head was removed from its anatomical position and placed on the pelvis and behind the forearms (Cotom and Miller Wolf 2016; Miller Wolf 2019). Beyond a Garbutt Creek Red monochrome bowl inverted over the burial pit, no other grave goods were found directly with the individual. An adult female (Burial 4–1B) in a flexed position was found jammed tightly into a small pit just below the dismembered male individual (Burial 4–1A). She was accompanied by three small jade beads.

Another burial (Burial 13–3) from a centrally-located shrine in an elite residential group, Group 119, was also found in a small pit at the eastern side of the central shrine. At the bottom of the pit was a decapitated head with clear evidence of cut marks on the cervical vertebra. Above the head were disarticulated bones that did not belong to the body of the decapitated head (Burial 13–2). Pelvis and torso bones were overlaid by arm and leg bones, which had been placed parallel to one another, with additional bones and bone fragments placed on top (e.g., torso bones and foot bones) (Cruz Gómez 2017; Miller Wolf 2019). Aside from a few chert flakes that may have been part of the fill, no grave goods were found with this individual. These mortuary patterns recall similar practices identified at six Terminal Classic residential groups with centrally located shrines from Tikal. Excavations of these centrally-located shrines recovered cached vessels containing human skulls (Becker 2009, 96) (see also Barrett and Scherer [2005]; Duncan [2011]; and Mock [1998] for discussions of other Southern Lowland skull deposits in the Terminal and Postclassic periods).

These burials contrast with another burial found at the eastern side of the centrally-located shrine in elite Group



**Figure 9.** Reconstruction drawing of Group 141, Ucanal, with central shrine (reconstruction drawing by Luis L. Luin based on excavations and topographic data collected by the Proyecto Arqueológico Ucanal).



**Figure 10.** Plan map of central shrine at Group 141, Ucanal, showing the location of cached carved stone blocks (Offering 4-2) and Burials 4-1A and 4-1B (below inverted Garbutt Creek Red bowl at center of pit).

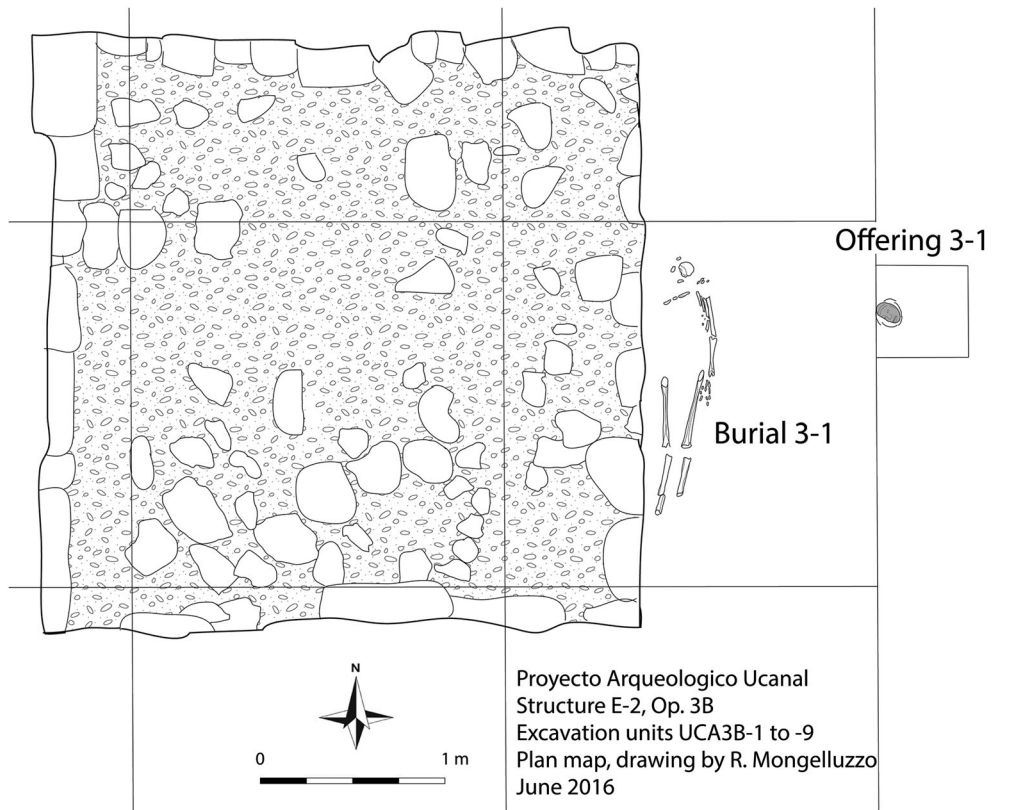
E. The interred individual was a robust adult male whose body was placed in an extended, prone position (facing down) (Figure 11). Since only 13 burials have been excavated at the site from initial excavations until 2018 (two excavated by the Atlas project; 11 excavated by PAU), it is premature to determine if the prone position was a regular burial pattern at the site. Much of the torso, cranium (only a few cranium fragments were recovered), hand, and feet bones were missing. It is also unclear if missing body parts were due to taphonomy, post-interment removal, or the interment of only some parts of the body. A large jade head pendant was placed inside two Terminal Classic bowls (placed lip to lip) and buried 90 cm to the east of the individual (Halperin, Hruby, and Mongelluzzo 2018). Thus, despite the ambiguous nature of the burial, it does appear to have served as a dedicatory offering similar to those from the other residential groups with centrally located shrines.

### Reuse of Sculpted Stone Blocks

Another trend noted at the site of Ucanal during the Terminal Classic period is the reuse or recycling of stone blocks and

monuments from earlier buildings. The reuse of cut stone blocks and monument fragments is common during this time period, but not isolated to it (Carmean, Mcanany, and Sabloff 2011; Cecil and Pugh 2018; Hansen 1998; Hendon 2010, 109; Manahan 2008; O’Neil 2012; Tourtellot 1988, 70–78). In fact, reuse of building materials is common in pre-industrial societies in general (Alcherms 1994; Brilliant and Kinney 2011; Gijseghem 2001). Although both undecorated and decorated stone blocks were likely recycled during this period, as in other periods, we restrict our examination here to only decorated stone blocks and monument fragments, since they are the most easily identified.

In most cases, the reuse of decorated stone blocks or monument fragments in Terminal Classic period constructions were “hidden” in the sense that they were not put on display in a visually prominent way. For example, the recycled decorated cut stone blocks interspersed with non-decorated blocks in the construction of the Terminal Classic terraced masonry platform of Structure J-6 in Group J was covered with a plaster coating. Two decorated cut stone blocks from an elite or ceremonial building were placed in the superstructure platform of a C-shaped structure from a



**Figure 11.** Plan map of central shrine at Group E, Ucanal, showing the location of Burial 3-1 and jade head pendant offering.

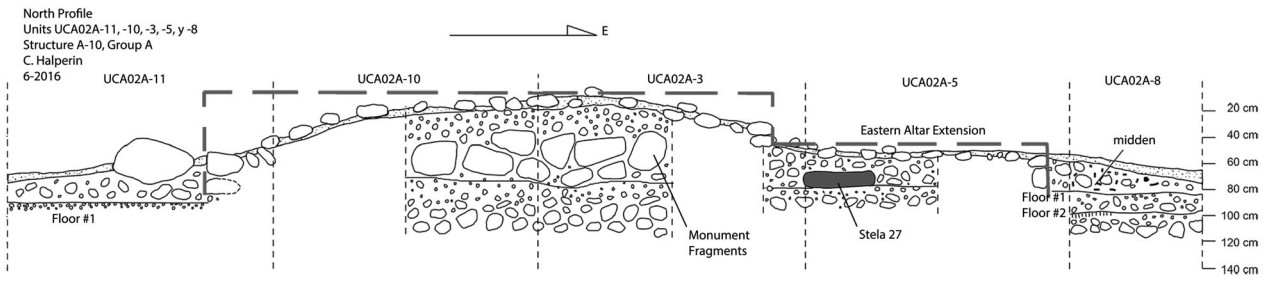
small residential group (Group 167) (Cano Estrada 2019) (see also Schwartz [2013] and Rice, Demarest, and Rice [2004] for discussion of C-shaped structures during the Terminal and Postclassic periods). These two blocks were visible, but not centrally displayed, since they were on a side portion of the building. Excavations of several small Terminal Classic shrines located in Ucanal's public plazas (Structure A-10, Op. 2; Structure G-2, Op. 7) reveal the use of monument fragments (either stela or altar monuments or large monumental blocks from building facades) as construction fill (Halperin 2016). They were first laid in a layer before placing small fill rocks (generally less than 10 cm) on top. Some had been carved, although their iconography and/or texts were no longer visible. The pieces were quite worn and fragmentary before their deposition, suggesting that they were not an example of destruction in which object reuse destroys the original (Kinney 2011, 9).

In contrast to these fragments whose iconographic programs were well-worn, one monument fragment, the butt end of Stelae 27 depicting a Late Classic style ruler's feet and the stela's lower text, was better-preserved and appeared to have been purposefully violated just before interment (Figures 12, 13). This monument fragment was excavated from a shoddily constructed eastern extension of a low, centrally-located shrine (A-11) located in Ucanal's public Plaza A (Figures 4, 12). It showed clear signs of destruction and effacement in the form of sharp, fresh cuts on the hieroglyphic texts and part of the monument base. The monument fragment was then placed image/text side down, directly on the level of the plaza floor, before the eastern extension was built around and over the monument fragment (Halperin 2016). The fill of both the shrine structure and its eastern extension date to the Terminal Classic period. The interment of

monuments, however, was not restricted to public ceremonial contexts. Terminal Classic inhabitants buried a semi-rectangular limestone altar (40 cm thick; 90 cm in length) in the central shrine of a residential group, Group 113 (Figure 8D) (Menéndez Bolanos 2001; Laporte and Mejía 2002b, 1: 32). Based on the Proyecto Atlas report, the altar does not appear to have been modified before interment.

The purposeful caching of decorated stone blocks was also found in a middle-status residential group from Ucanal, Group 141. Two sculpted blocks were carefully cached in a pit carved into the plaza floor just east of the group's central shrine. This pit was located just 25 cm north of the pit holding the two burials described earlier, Burials 4-1A and -1B (Figure 10) (Cotom and Miller Wolf 2016). Its placement next to the burial pit suggests that it was meant to be conceived of in analogous terms to the burials. Terminal Classic inhabitants later deposited a pile of rocks above the pit, creating a pile of rubble along the eastern section of the shrine. Sixteen sculpted (and in some cases painted) blocks from mosaic building facades were found haphazardly buried amongst the other rocks in the rubble pile. Since the group's buildings did not exhibit mosaic facades (only one of the structures had masonry walls, none of which were decorated), it is likely that these blocks were taken from either Ucanal's monumental buildings in the site core or from the monumental buildings from another site (Figure 14). While some of the blocks may have belonged to the same iconographic program, none of them fit together.

In contrast to these buried or inconspicuous examples of the reuse of carved stone blocks or monument fragments, Ian Graham (1978, 107, 110; 1980, 152, 154) documented the presence of a monument, Misc. Monument 1 (Figure 15A),



**Figure 12.** Profile map of shrine A-11 (original form outlined in hashed line), Group A, Ucanal, showing the reuse of monument and building façade fragments in shrine fill and the interment of Stela 27 in the eastern shrine platform extension (see also Figure 4 for location of altar in Plaza A).

on the surface of Ballcourt 1 from Ucanal’s Plaza A (Figure 4). Since previous excavations of the ballcourt date its construction to the Terminal Classic period (Laporte and Mejia 2002b, 6), its placement in this zone of the site occurred during the Terminal Classic period or later. Recently, several scholars have argued that Misc. Monument 1 was originally

taken from Caracol’s sculpted monumental program at Structure B-5 (Helmke and Awe 2016; Martin 2000, 57–59; Martin 2017). Many of the carved panels from the monumental program at Caracol appear to have been taken to Naranjo sometime during the Late Classic period, where they were haphazardly placed as part of a



**Figure 13.** Ucanal Stela 27: A) photogrammetry reconstruction (photographs by Christina Halperin and Camille Dubois-Francoeur, photogrammetry by Jean-Baptiste LeMoine, 2018); B) line drawing (by Simon Martin based on 2016 photographs by Halperin).



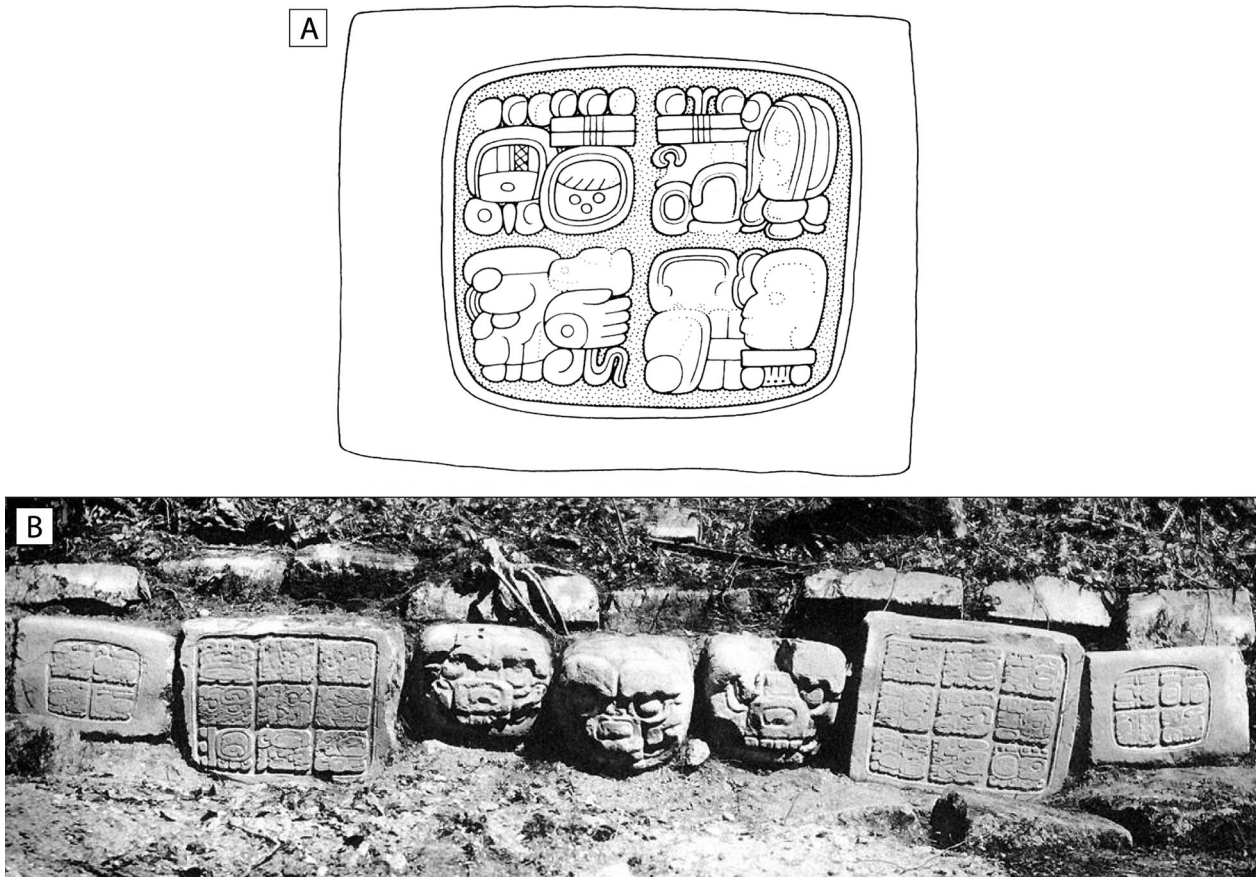
**Figure 14.** Sculpted stone blocks in a rock pile on the eastern side of Group 141's central shrine (A–D, F, H–L) and Offering 4–1 cached in pit next to Burial 4–1 (E, G): A) UCEM-001; B) UCEM-002; C) UCEM-004; D) UCEM-006; E) UCEM-007, Offering 4–1; F) UCEM-007P; G) UCEM-008, Offering 4–2; H) UCEM-008P; I) UCEM-010; J) UCEM-013; K) UCEM-014; L) UCEM-016 (photographs by Jean-Baptiste LeMoine).

hieroglyphic stair (Figure 15B). These panels outline the 7th century defeat of Naranjo by Caracol's ruler, K'an II (Helmke and Awe 2016; Martin 2000). As Helmke and Awe (2016) suggest, the newly constructed hieroglyphic stair may have been a Naranjo war trophy, a form of reversing their previous political fortune of defeat. Recent excavations at the site of Xunantunich, Belize, have uncovered two additional panels from the same monumental program (Helmke and Awe 2016) (Figure 3). It is unclear if the panels from Xunantunich and Ucanal were taken from Caracol, perhaps in alliance with Naranjo as part of the original removal of the panels, or from Naranjo, perhaps as spolia of spolia in which previously subordinate centers asserted their independence from Naranjo (and Caracol). In either case, these performances of monument reuse highlight the

remaking of histories and the production of new political relationships and alliances as discussed below.

### Discussion

Terminal Classic period architecture is often perceived through the cultural evolutionary lens of decline and decay. Despite the decline in many elite and monumental architectural forms, such as the vaulted masonry building with plaster finishing, Terminal Classic period constructions had their own aesthetics and meanings that merit reflection. One of the trends of the Terminal Classic period was a general shift from masonry to wood buildings. The meanings of wooden architecture and their different construction forms are



**Figure 15.** Monumental spoils: A) Naranjo Hieroglyphic Stair (after Maler 1908, pl. 24; Harvard University, Peabody Museum of Archaeology and Ethnology, PM# 2004.24.3432) and B) Ucanal Miscellaneous Monument 1 (after Graham 1978, 110).

difficult to assess, not least of all because such building parts do not preserve well in the archaeological record.

Wood, like stone, however, had its own aesthetics and meanings (Houston 2014, 10–19, 25). As identified in the iconographic record, sacrificial bowls were often carved of wood and marked with elements of the te’ (“tree”) glyph (Stone and Zender 2011, 70–71). Likewise, Bishop Diego de Landa (Tozzer 1941, 110–111), in writing about the 16th century Yucatecan Maya, noted that, compared with idols of clay, “wooden idols were so much esteemed that they were considered as heirlooms and were (considered) as the most important part of the inherited property.” The ethnobotanical evidence for the selection of particular species of hardwoods, such as *Manilkara zapota* (chicozapote) and *Haematoxylon campechianum* (logwood or inkwood) for Classic period lintel beams, underscores the important value and properties (hardness, insect and rot resistance) of some woods over others.

The fact that extremely large wooden beams were used for Terminal Classic temple and possible elite building construction at the site of Ucanal suggests that not just the size, but the maturity and age of the wood was of importance. In other cases, wood constructions could create forms that limestone blocks could not. For example, circular shrines with wooden superstructures (all except the Caracol from Chichen Itza) may have had conical roofs, constructed with wooden spiral framing and thatch, as illustrated in the Postclassic codices (Codex Borgia n.d., 33; Codex Zouche-Nuttall n.d., 15).

In addition, wood buildings may have taken on new aesthetics emphasizing simplicity, newness, or even the leveling

out of social divisions. For example, wooden architecture may have been conceived of as newer or fresher in comparison to the remaining standing masonry buildings that may have been crumbling, were in need of repair, and posed safety risks. Perishable buildings used by the city’s leaders in public, ceremonial contexts may also have served as a leveling mechanism whereby distinctions between leaders and common people were minimized, since common people had always lived in wooden buildings. Such shifts are not surprising, given that imagery in both stone and ceramic show an increasing tendency for simplicity in royal garments and ornamentation between the Late Classic and Terminal Classic periods (Graham 1973; Halperin 2017c; Just 2007). These changes in the embellishment of royal accoutrement were not always due to scarcity but to changing aesthetic and social values. While expert master stone masons may have fled or dwindled over the generations, at the site of Ucanal there was no lack of a vibrant population to help with construction efforts during the Terminal Classic period and no lack of interregional connections among its leaders to obtain imported goods and precious materials from afar (Halperin and Garrido 2016; Halperin, Hruby, and Mongeluzzo 2018).

There are also cases elsewhere in the Maya area in which these shifts appear to have been purposeful, deliberate acts that evoked a powerful sense of revision. For example, at the site of Minanha, Belize, Terminal Classic inhabitants carefully swept the floors of the buildings in the Late Classic royal court (Group J), placed a 10–20 cm thick lens of finely sorted sediments on the floor, and then filled in the masonry buildings with large boulders just up to the



vaulted stone arches of the masonry roofs. The only building that was preserved was the upper portion of a temple (Str. 38J–2nd, reused as Str. 38J–1st). They replaced the Late Classic palatial buildings with perishable and low masonry wall residential buildings. As Iannone (2005, 35) asserts, “it was a task that would have required significant coordination and labor output – two factors that suggest that it was not carried out by starving people eking out an existence ...” Likewise at the site of Lamanai, the Late Classic palace centered at the Ottawa Group was partially razed and filled in with boulders during the Terminal Classic period, a temporal period Lamanai project archaeologists refer to as the “Boulders phase” (Graham 2004). The large rocks filled in the entire courtyard, as well as the interiors of masonry buildings, including one with a finely painted polychrome stucco frieze (Str. N10–28). These elaborate masonry buildings were then replaced by low masonry platforms. Thus, although ancient Maya peoples placed extraordinary value on stone masonry architecture, such an emphasis does not negate the possibility that other types of construction had their own meanings forged in the context of the history of the moment.

Another way in which Terminal Classic inhabitants at the site of Ucanal reworked their built landscapes was in the construction of small, low shines in the center of their residential patios. Since centrally-located altars and larger radial pyramids located in the center of public plazas were common throughout the Southern Maya Lowlands during earlier periods, these public ritual loci may have served as a model for their placement in residential spaces during the Terminal Classic period.

Another possible source of inspiration for this new residential pattern was from foreign peoples and places, since centrally-located residential shrines have strong roots in the Basin of Mexico and also in northern Yucatan. During the Epiclassic and Terminal Classic periods, residential groups with centrally-located altars are found at Tula, Cholula, Ek Balam, Yaxkukul, and San Gervasio (Cozumel) (Bey 1997, fig. 3; Noguera 1937; Diehl 1983; Houck 2004, fig. A.18, A.20; Sabloff and Rathje 1975; Smith and Bond-Freeman 2018, fig. 5.9), and earlier in the Classic period they are common at Teotihuacan and Tetimpa (Puebla), as well as Chunchucmil (northern Yucatan) (Hutson 2009; Manzanilla 2009; Plunket 2002). As noted earlier, the incorporation of foreign architectural styles in public, ceremonial buildings—from circular shrines to ballcourt forms—was common during this time and parallels the adoption of non-Maya square-shaped glyphs and foreign elements in the iconography on stone monuments (Just 2007; Lacadena 2010; Ringle, Negrón, and Bey 1998). While it is difficult to assess the degree to which such foreign elements were a result of new migrants coming and going from the Southern Maya Lowlands or references to ideas from afar, they highlight a growing receptivity to foreign expressions. Arguably, such associations were not emulations of a single, powerful center. Rather, they were assertions of wider belonging in Mesoamerica (Halperin 2017b; Ringle, Negrón, and Bey 1998). Such cosmopolitan aesthetics, from the household to the public plaza, marked a new type of Terminal Classic social and political order.

Like the reuse of Roman bricks and sculpture in Medieval buildings in England (Bailiff et al. 2010; Brillant and Kinney 2011), the Terminal Classic and Postclassic reuse

of earlier building materials in the Maya area is often conceived as a sign of decline, the inability to harness the resources and splendor of earlier times. Indeed, the reuse of previously used blocks from dismantled, ruined, or unused buildings may have been pragmatic and opportunistic, as doing so is more efficient than acquiring and forming new building materials from scratch (Abrams 1994, 69–70). In some cases, the original meaning or significance of the reused blocks and fragments may not have been understood by those that placed them in new contexts. For example, Kam Manahan (2008) has suggested that the Early Postclassic (ca. A.D. 1000–1200) Copan inhabitants’ reuse of sculpted blocks from Late Classic ceremonial buildings to construct humble household foundations indicates that they were not concerned with or did not know how to appreciate the iconographic program in its original meaning, as they placed some of the images upside down.

The loss of original meaning, however, does not necessarily denote an absence of meaning. Materials from an earlier era may possess a form of animacy or *ch’ulel*, an essence or soul (Harrison-Buck 2012; Houston 2014; McAnany and Brown 2016). The inclusion of spolia in new buildings may have served as a seed or an essential animating component that gave life to a building (Stross 1998). In turn, such blocks and monuments take on new meanings as they become absorbed in rituals, contexts, and relationships with those who move and incorporate them into new forms (De Lucia 2017; Kinney 2011). Rather than solely a marker of decline or termination, Mesoamericans often considered old and worn out items in ambivalent terms. For example, Nahuatl peoples conceived of *tlazolli* (trash or filth) as simultaneously dangerous/disorderly and as essential ingredients used to stimulate renewal in the harkening of new temporal eras (Burkhart 1989; Hamann 2008; Klein 1993). Maya peoples broke objects and ritually placed trash on buildings to both extinguish and regenerate new phases of construction (Halperin and Foias 2016; Newman 2018; Stanton, Brown, and Pagliaro 2008). Likewise, the byproducts of chert production (chert flakes and debitage) placed as fill above royal and elite Maya burials helped ritually charge the burial location (Andrieu 2009; Moholy-Nagy 1997).

In a similar vein, theories of fragmentation emphasize that the breaking up and dispersal of an objects’ parts need not always signify death or termination. Rather, fragmentation underwrites the production of new relationships between the entities, places, and people that hold the broken parts (Bruck 2006; Chapman 2000; Houlbrook 2017). In some cases, the reuse of monuments and decorated building facades at Ucanal appears to have been an active attempt to remake histories. The sculpted blocks from the central altar of Group 141 restructured relationships between Group 141’s household members and the elite or monumental buildings from which the blocks derived. While these blocks may have been part of a dismemberment of different powerful zones of the site (or other nearby sites), they were also about proclaiming a new power of this middle-status household in relation to those of an earlier era. Miscellaneous Monument 1 from Ucanal’s Ballcourt 1 was also an attempt to rewrite the histories between Ucanal and the political powers that previously dominated it. Such declarations of either alliance (with Xunantunich and/or Naranjo) or

independence (from Naranjo or Caracol) were not written directly in stone. Rather they were embodied acts realized in the performances of monument reuse.

## Conclusion

Thus, if we look beyond the narrative of a declining society at the end of the Terminal Classic period, we find Maya peoples were active in re-making their histories and traditions. The architectural programs at the site of Ucanal underscore a thriving population that expressed a growing preference for a new, simplified architectural aesthetic. These changes emphasized a leveling out of social distinctions and a growing value placed on wood, even for the most sacred of buildings. In addition to shifts in monumental architecture, some Ucanal households may have drawn on styles that captured sentiments of the foreign and that spoke to a new cosmopolitan aesthetic as they re-centered their sacred spaces in the installation of small shrine platforms in the middle of their patios. And in reusing decorated stone blocks and monuments in households and public buildings, Ucanal inhabitants did not just destroy the vestiges of an earlier era. They harnessed the power of those earlier peoples and places to create new social and political relationships.

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## Disclosure statement

No financial interest or benefit that has arisen from the research conducted herein.

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## References

- Abrams, E. M. 1994. *How the Maya Built Their World: Energetics and Ancient Architecture*. Austin: University of Texas Press.
- Aimers, J. J. 2007. "What Maya Collapse? Terminal Classic Variation in the Maya Lowlands." *Journal of Archaeological Research* 15 (4): 329–377.
- Alarcón, G., and G. Ahuja. 2015. "The Materials of Tamtoc: A Preliminary Evaluation." In *The Huasteca: Culture, History, and Interregional Exchange*, edited by K. A. Faust and K. N. Richter, 37–58. Norman: University of Oklahoma Press.
- Alchermes, J. 1994. "Spolia in Roman Cities of the Late Empire: Legislative Rationales and Architectural Reuse." *Dumbarton Oaks Papers* 48: 167–178. <https://doi.org/10.2307/1291726>.
- Andrieu, C. 2009. "Des Déchets En Offrande: Les Dépôts d'éclats Dans Les Basses Terres Mayas." In *XXIXe Rencontres Internationales d'archéologie et d'histoire d'Antibes*, edited by S. Bonnardin, C. Hamon, M. Lauwers, and B. Quilliec, 105–115. Antibes: Éditions APDCA.
- Ashmore, W. 1981. *Lowland Maya Settlement Patterns*. Santa Fe: School for Advanced Research.
- Ashmore, W. 2002. "'Decisions and Dispositions': Socializing Spatial Archaeology." *American Anthropologist* 104 (4): 1172–1183.
- Baillif, I., S. Blain, P. Graves, T. Gurling, and S. Semple. 2010. "Uses and Recycling of Brick in Medieval and Tudor English Buildings: Insights from the Application of Luminescence Dating and New Avenues for Further Research." *Archaeological Journal (The)* 167. <http://orbi.ulg.ac.be/handle/2268/190365>
- Barrett, J. W., and A. K. Scherer. 2005. "Stones, Bones, and Crowded Plazas: Evidence for Terminal Classic Maya Warfare at Colha, Belize." *Ancient Mesoamerica* 16 (1): 101–18.
- Becker, M. J. 2004. "Maya Heterarchy as Inferred from Classic-Period Plaza Plans." *Ancient Mesoamerica* 15: 127–38.
- Becker, M. J. 2009. "Tikal: Evidence for Ethnic Diversity in a Prehispanic Lowland Maya State Capital." In *Domestic Life in Prehispanic Capitals: A Study of Specialization, Hierarchy, and Ethnicity*, edited by Linda Manzanilla and Claude Chapdelaine, VII: 89–104. Ann Arbor, MI: Memoirs of the Museum of Anthropology, University of Michigan.
- Bey, G. J. III. 1997. "Classic to Postclassic at Ek Balam, Yucatán: Architectural and Ceramic Evidence for Defining the Transition." *Latin American Antiquity* 8 (3): 237–54.
- Bey, G. J. III, and R. M. Ciau. 2014. "The Role and Realities of Popol Nahs in Northern Maya Archaeology." In *The Maya and Their Central American Neighbors*, edited by G. E. Braswell, 335–55. New York: Routledge.
- Boot, E. 2005. *Continuity and Change in Text and Image at Chichén Itzá, Yucatán, Mexico: A Study of the Inscriptions, Iconography, and Architecture at a Late Classic to Early Postclassic Maya Site*. CNWS Publications No. 135. Leiden: Centrum voor Niet-Westerse Studies Publications.
- Bourdieu, P. 1987. *Distinction: A Social Critique of the Judgement of Taste*. Translated by R. Nice. Cambridge, MA: Harvard University Press.
- Brillant, R., and D. Kinney, eds. 2011. *Reuse Value: Spolia and Appropriation in Art and Architecture from Constantine to Sherrie Levine*. Burlington, VT: Ashgate.
- Bruck, J. 2006. "Fragmentation, Personhood and the Social Construction of Technology in Middle and Late Bronze Age Britain." *Cambridge Archaeological Journal* 16: 297–315.
- Burkhart, L. M. 1989. *The Slippery Earth: Nahua-Christian Moral Dialogue in Sixteenth-Century Mexico*. Tucson, AZ: University of Arizona Press.
- Cano Estrada, M. A. 2019. "Excavaciones En El Grupo 167 Del Sitio Arqueológico Ucanal (Operación 17)." In *Proyecto Arqueológico Ucanal: Cuarta Temporada de Campo, Año 2018*, edited by C. T. Halperin and J. L. Garrido, 85–112. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.

- Carmean, K., P. A. Mcanany, and J. A. Sabloff. 2011. "People Who Lived in Stone Houses: Local Knowledge and Social Difference in the Classic Maya Puuc Region of Yucatan, Mexico." *Latin American Antiquity* 22: 143–158.
- Carter, N. P. 2016. "These Are Our Mountains Now: Statecraft and the Foundation of a Late Classic Maya Royal Court." *Ancient Mesoamerica* 27 (2): 233–253. <https://doi.org/10.1017/S0956536116000316>.
- Cecil, L. G., and T. W. Pugh. 2018. "Souls of the Ancestors: Postclassic Maya Architecture, Incensarios, and Mana." *Ancient Mesoamerica* 29 (1): 157–170. <https://doi.org/10.1017/S0956536117000232>.
- Chapman, J. 2000. *Fragmentation in Archaeology: People, Places, and Broken Objects in the Prehistory of South Eastern Europe*. London: Routledge.
- Chase, D. Z., and A. F. Chase. 1982. "Yucatec Influence in Terminal Classic Northern Belize." *American Antiquity* 47 (3): 596–614.
- Chase, D. Z., and A. F. Chase. 2004. "Archaeological Perspectives on Classic Maya Social Organization from Caracol, Belize." *Ancient Mesoamerica* 15: 139–47.
- Codex Borgia. n.d. Facsimile accessed online, British Museum. Accessed November 12, 2018. [https://www.britishmuseum.org/research/collection\\_online/collection\\_object\\_details/collection\\_image\\_gallery.aspx?assetId=552465001&objectId=3174834&partId=1](https://www.britishmuseum.org/research/collection_online/collection_object_details/collection_image_gallery.aspx?assetId=552465001&objectId=3174834&partId=1)
- Codex Zouche-Nuttall. n.d. Facsimile accessed online, British Museum. Accessed November 12, 2018. [https://www.britishmuseum.org/research/collection\\_online/collection\\_object\\_details.aspx?objectId=662517&partId=1](https://www.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=662517&partId=1)
- Corzo, L. A., M. Tulio Alvarado, and J. P. Laporte. 1998. "Ucanal: Un Sitio Asociado a La Cuenca Media Del Río Mopan." In *XI Simposio de Investigaciones Arqueológicas En Guatemala, 1997*, edited by J. P. LaPorte and H. Escobedo, 191–214. Guatemala City: Instituto Nacional de Antropología e Etnología.
- Cotom, J. A., and K. Miller Wolf. 2016. "Excavaciones Del Grupo 141 Del Sitio Ucanal: Operación 4." In *Proyecto Arqueológico Ucanal, 2da Temporada de Campo, 2016*, edited by C. T. Halperin and J. L. Garrido, 81–124. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Cruz Gómez, C. 2017. "Excavaciones En El Grupo 119 Del Sitio Arqueológico Ucanal, Operación 13." In *Proyecto Arqueológico Ucanal, 3ra Temporada de Campo, 2017*, edited by C. T. Halperin and J. L. Garrido, 123–50. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Cruz Gómez, C., and J. L. Garrido. 2016. "Excavaciones En El Grupo J Del Sitio Arqueológico Ucanal, Operación 1." In *Proyecto Arqueológico Ucanal, 2da Temporada de Campo, 2016*, edited by C. T. Halperin and J. L. Garrido, 23–44. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Culbert, T. P. 1988. "The Collapse of Maya Civilization." In *The Collapse of Ancient States and Civilizations*, edited by N. Yoffee and G. L. Cowgill, 69–101. Tucson: University of Arizona Press.
- De Lucia, K. 2017. "The Living House: The Vernacular Architecture of Early Postclassic Xaltocan, Mexico." In *Vernacular Architecture in the Pre-Columbian Americas*, edited by C. T. Halperin and L. E. Schwartz, 158–185. New York: Routledge, Taylor & Francis Group.
- Demarest, A. A., P. M. Rice, and D. S. Rice, eds. 2004. *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*. Boulder: University Press of Colorado.
- Diehl, R. A. 1983. *Tula: The Toltec Capital of Ancient Mexico*. London, UK: Thames and Hudson.
- Driver, W. D. 2002. "An Early Classic Colonnaded Building at the Maya Site of Blue Creek, Belize." *Latin American Antiquity* 13 (1): 63–84. <https://doi.org/10.2307/971741>.
- Duncan, W. N. 2011. "Bioarchaeological Analysis of Sacrificial Victims from a Postclassic Maya Temple from Ixlu, El Peten, Guatemala." *Latin American Antiquity* 22 (4): 549–72.
- Eagleton, T. 1990. *The Ideology of the Aesthetics*. Cambridge, MA: Basil Blackwell.
- Fox, J. W. 1980. "Lowland to Highland Mexicanization Processes in Southern Mesoamerica." *American Antiquity* 45 (1): 43–54.
- Gamez Diaz, L. 2013. "Cosmology and Society: Household Ritual among the Terminal Classic Maya People of Yaxhá (ca. A.D. 850-950), Guatemala." Ph.D. diss., Pennsylvania State University.
- Gijseghem, H. van. 2001. "Household and Family at Moche, Peru: An Analysis of Building and Residence Patterns in a Prehispanic Urban Center." *Latin American Antiquity* 12 (3): 257–73. <https://doi.org/10.2307/971632>.
- Gómez, O. 2007. "El Proyecto Plaza de Los Siete Templos de Tikal: Excavación de Los Templos Al Este de La Plaza." In *XXI Simposios de Investigaciones Arqueológicas En Guatemala*, edited by J. P. Laporte, B. Arroyo, and H. Mejía. Guatemala City: Instituto de Antropología e Historia de Guatemala, Asociacion Tikal.
- Graham, E. 2004. "Lamanai Reloaded: Alive and Well in the Early Postclassic." *Research Reports in Belizean Archaeology* 1: 223–241.
- Graham, I. 1978. *Corpus of Maya Hieroglyphic Inscriptions, Vol. 2, Part 2: Naranjo, Chunhuitz, Xunantunich*. Cambridge, MA: Peabody Museum of Archaeology and Ethnology, Harvard University.
- Graham, I. 1980. *Corpus of Maya Hieroglyphic Inscriptions, Vol. 2, Part 3: Ixkun, Ucanal, Ixtutz, Naranjo*. Cambridge, MA: Peabody Museum of Archaeology and Ethnology, Harvard University.
- Graham, J. A. 1973. "Aspects of Non-Classic Presences in the Inscriptions and Sculptural Art of Seibal." In *The Classic Maya Collapse*, edited by T. P. Culbert, 207–219. Albuquerque: University of Mexico Press.
- Grube, N. 1994. "Epigraphic Research at Caracol." In *Studies in the Archaeology of Caracol, Belize*, edited by A. F. Chase and D. Z. Chase, 83–122. San Francisco: Pre-Columbian Art Research Institute.
- Hageman, J. B., and J. C. Lohse. 2003. "Heterarchy, Corporate Groups, and Late Classic Resource Management in Northwestern Belize." In *Heterarchy, Political Economy, and the Ancient Maya: The Three Rivers Region of the East-Central Yucatán Peninsula*, edited by V. L. Scarborough, F. Valdez Jr., and N. P. Dunning, 109–121. Tucson: University of Arizona Press.
- Halperin, C. T. 2016. "Excavación de altares en los grupos A y G de Ucanal, Operaciones 2 y 7." In *Proyecto Arqueológico Ucanal, 2da Temporada de Campo, 2016*, edited by C. T. Halperin and J. L. Garrido, 45–60. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Halperin, C. T. 2017a. "Vernacular and Monumental Maya Architecture: Translations and Lost in Translations during the Terminal Classic Period (ca. 800-950 CE)." In *Vernacular Architecture in the Pre-Columbian Americas*, edited by C. T. Halperin and L. E. Schwartz, 113–138. London: Routledge, Taylor & Francis Group.
- Halperin, C. T. 2017b. "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 (3): 349–375. <https://doi.org/10.1177/1469605317730628>.
- Halperin, C. T. 2017c. "Temporalities of Late Classic to Postclassic (ca. AD 600-1521) Maya Figurines from Central Petén, Guatemala." *Latin American Antiquity* 28 (4): 515–540. <https://doi.org/10.1017/laq.2017.38>.
- Halperin, C. T., and A. E. Foias. 2016. "Household Garbage: Classic Period (ca. 300-900 CE) Maya Practices of Discard." In *Palethnology/Palethnologie, Household Archaeology - A Transatlantic Comparative Approach, Proceedings of the International Symposium, October 24-25 2014*, edited by C. Chapdelaine, A. L. Burke, and K. Gernignon. 126–145.
- Halperin, C. T., and J. L. Garrido, eds. 2016. *Proyecto Arqueológico Ucanal, 2da Temporada de Campo, 2016*. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Halperin, C. T., Z. X. Hrubby, and R. W. Mongelluzzo. 2018. "The Weight of Ritual: Classic Maya Jade Head Pendants in the Round." *Antiquity* 92 (363): 758–71.
- Halperin, C. T., J.-B. LeMoine, and E. Pérez Zambrano. 2019. "Infrastructures of Moving Water at the Maya site of Ucanal, Petén, Guatemala." *Journal of Anthropological Archaeology* 56 (2019): 1–15.
- Halperin, C. T., G. Martínez-Salguero, and J. Guzmán. 2007. "Excavaciones de Dos Grupos Residenciales Pequeños En El Centro Menor de Chäkokot: Operaciones 44E y 44C." In *Proyecto Arqueológico Motul de San José, Informe #7: Temporada de Campo*

- 2005-2006, edited by M. D. Moriarty, E. Spensley, J. E. Castellanos, and A. E. Foias, 75-96. Report submitted to the Institute of Anthropology and History (IDAEH), Guatemala City, and Williams College, Williamstown.
- Hamann, B. 2008. "Chronological Pollution Potsherds, Mosques, and Broken Gods before and after the Conquest of Mexico." *Current Anthropology* 49 (5): 803-836. <https://doi.org/10.1086/591274>.
- Hansen, R. D. 1998. "Continuity and Disjunction: The Preclassic Antecedents of Classic Maya Architecture." In *Function and Meaning in Classic Maya Architecture*, edited by S. D. Houston, 49-122. Washington D. C.: Dumbarton Oaks Research Library & Collection.
- Harrison-Buck, E. 2012. "Architecture as Animate Landscape: Circular Shrines in the Ancient Maya Lowlands." *American Anthropologist* 114 (1): 64-80.
- Harrison-Buck, E., and P. A. McAnany. 2013. "Terminal Classic Circular Architecture in the Sibun Valley, Belize." *Ancient Mesoamerica*: 295-306.
- Helmke, C., and J. J. Awe. 2016. "Death Becomes Her: An Analysis of Panel 3, Xunantunich, Belize." *The PARI Journal* 16 (4): 1-14.
- Helms, M. W. 1993. *Craft and the Kingly Ideal: Art, Trade, and Power*. Austin: University of Texas Press.
- Hendon, J. A. 2010. *Houses in a Landscape: Memory and Everyday Life in Mesoamerica*. Durham: Duke University Press.
- Hermes, B., and J. Zralka. 2012. "Nakum and Yaxhá during the Terminal Classic Period: External Relations and Strategies of Survival at the Time of the Collapse." In *Contributions in New World Archaeology: Maya Political Relations and Strategies, Proceedings of the 14th European Maya Conference, Polish Academy of Arts and Sciences*, volume 4, 175-204. Krakow: Jagiellonian University, Institute of Archaeology.
- Houck, C. W. 2004. "The rural survey of Ek Balam, Yucatán, Mexico." Ph.D. diss., University of Michigan, Ann Arbor. <https://search.proquest.com/pqdtglobal/docview/305135120/abstract/EAD9B3D3223944C6PQ/1>.
- Houlbrook, C. 2017. "The Other Shoe: Fragmentation in the Post-Medieval Home." *Cambridge Archaeological Journal* 27 (2): 261-74. <https://doi.org/10.1017/S0959774316000548>.
- Houston, S. D. 1983. "Warfare between Naranjo and Ucanal." In *Contributions to Maya Hieroglyphic Decipherment*, edited by Stephen D. Houston, 498-512. New Haven, CT: Human Relations Area Files.
- Houston, S. D. 1998. "Function and Meaning in Classic Maya Architecture." In *Function and Meaning in Classic Maya Architecture*, edited by Stephen D. Houston, 519-38. Washington D.C.: Dumbarton Oaks Research Library & Collection.
- Houston, S. D. 2014. *The Life Within: Classic Maya and the Matter of Permanence*. New Haven, CT: Yale University Press.
- Hutson, S. 2009. *Dwelling, Identity, and the Maya: Relational Archaeology at Chunchucmil*. Walnut Creek, CA: AltaMira Press.
- Iannone, G., B. A. Houk, and S. A. Schwake, eds. 2016. *Ritual, Violence, and the Fall of the Classic Maya Kings*. Gainesville, FL: University Press of Florida.
- Iannone, G. 2005. "The Rise and Fall of an Ancient Maya Petty Royal Court." *Latin American Antiquity* 16 (1): 26-44.
- Just, B. R. 2007. "Ninth-Century Stelae of Machaquilá and Seibal." Report Submitted to the Foundation for Advancement in Mesoamerica Studies, Inc, Crystal River, FL.
- Kalakoski, I., and S. Huuhka. 2018. "Spolia Revisited and Extended: The Potential for Contemporary Architecture." *Journal of Material Culture* 23 (2): 187-213. <https://doi.org/10.1177/1359183517742946>.
- Kinney, D. 2011. "Introduction." In *Reuse Value: Spolia and Appropriation in Art and Architecture from Constantine to Sherrie Levine*, edited by R. Brilliant and D. Kinney, 1-12. Burlington, VT: Ashgate.
- Klein, C. F. 1993. "Teocuitlatl, 'divine Excrement'." *Art Journal* 52 (3): 20.
- Lacadena, A. 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 G. Vail and C. Hernández, 383-406. Washington D.C.: Dumbarton Oaks Research Library & Collection.
- Laporte, J. P., and H. E. Mejía. 2002a. "Tras La Huella Del Mopan: Arquitectura Del Clásico Terminal y Del Postclásico En El Sureste de Petén." In *XV Simposio de Investigaciones Arqueológicas En Guatemala, 2001*, edited by J. P. Laporte, H. Escobedo, and B. Arroyo, 59-88. Guatemala City: Museo Nacional de Arqueología y Etnología.
- Laporte, J. P., and H. E. Mejía. 2002b. *Ucanal: Una Ciudad Del Río Mopan En Petén, Guatemala*. Vol. 1. 2 vols. U Tz'ib Serie Reportes. Guatemala City: Asociación Tikal.
- Laporte, J. P., H. E. Mejía, M. J. Acuña, S. Alvarado Alvarado, K. Alvarez, and A. L. Arroyave. 2002. "Las Exploración de Grupos Habitacionales En Ucanal, Melchor de Mencos." In *Reporte 16, Atlas Arqueológico de Guatemala*, 127-179. Guatemala City: Instituto Nacional de Arqueología e Historia.
- LeCount, L. J., and J. Yaeger. 2010. *Classic Maya Provincial Politics: Xunantunich and Its Hinterlands*. Tuscon: University of Arizona Press.
- LeCount, L. J., J. Yaeger, R. M. Leventhal, and W. Ashmore. 2002. "Dating the Rise and Fall of Xunantunich, Belize: A Late and Terminal Classic Lowland Maya Regional Center." *Ancient Mesoamerica* 13 (1): 41-63. <https://doi.org/10.1017/S0956536102131117>.
- LeMoine, J.-B., A. Rivas, D. Herrera, and F. Guyon. 2017. "Reconocimiento y Mapeo de Sitio Ucanal y Áreas Periféricas." In *Proyecto Arqueológico Ucanal, 3ra Temporada de Campo, 2017*, edited by C. T. Halperin and J. L. Garrido, 183-212. Guatemala City: Report Submitted to the Institute of Archaeology and History in Guatemala (IDAEH), Guatemala City.
- López Luján, L. 2005. *Offerings of the Templo Mayor of Tenochtitlan*. Albuquerque, NM: University of New Mexico Press.
- Maler, T. 1908. *Explorations of the Department of Peten Guatemala and Adjacent Region: Topoxté; Yaxhá; Benque Viejo: Naranjo* Vol. 4. 2. Cambridge, MA: Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University.
- Manahan, T. K. 2008. "Anatomy of a Post-Collapse Society: Identity and Interaction in Early Postclassic Copán." In *Ruins of the Past: The Use and Perception of Abandoned Structures in the Maya Lowlands*, edited by T. W. Stanton and A. Magnoni, 171-192. Boulder, CO: University Press of Colorado.
- Manzanilla, L. 2009. "Corporate Life in Apartment and Barrio Compounds at Teotihuacan, Central Mexico: Craft Specialization, Hierarchy, and Ethnicity." In *Domestic Life in Prehispanic Capitals: A Study of Specialization, Hierarchy, and Ethnicity*, edited by L. Manzanilla and C. Chapdelaine, 21-42. Memoirs of the Museum of Anthropology, University of Michigan Book 46. Ann Arbor, MI: University of Michigan Museum.
- Martin, S. 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 P. R. Colas, M. K. Delvendahl, and A. Schubart, 51-62. Markt Schwaben, Germany: Verlag Anton Saurwein.
- Martin, S. 2017. "The Caracol Hieroglyphic Stairway." *Maya Decipherment Ideas on Ancient Maya Writing and Iconography* (blog). January 20, 2017. <https://decipherment.wordpress.com/2017/01/20/the-caracol-hieroglyphic-stairway/>.
- Martin, S., and N. Grube. 2000. *Chronicle of the Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya*. London: Thames and Hudson.
- McAnany, P. A. 2012. "Terminal Classic Maya Heterodoxy and Shrine Vernacularism in the Sibun Valley, Belize." *Cambridge Archaeological Journal* 22 (1): 115-134.
- McAnany, P. A., and L. A. Brown. 2016. "Perceptions of the Past within Tz'utujil Ontologies and Yucatec Hybridities." *Antiquity* 90 (350): 487-503. <https://doi.org/10.15184/aqy.2016.39>.
- Mejía, H. E. 2002. "Ucanal: Aproximación a su Espacio Político Territorial." In *XV Simposio de Investigaciones Arqueológicas en Guatemala, 2001*, edited by J. P. Laporte, H. Escobedo and B. Arroyo, 285-303. Guatemala City: Museo Nacional De Arqueología y Etnología.
- Menéndez Bolanos, E. D. 2001. "Grupo 113 Del Sitio Ucanal, Peten, Proyecto Atlas Arqueológico de Guatemala." Field Report Submitted to the Escuela de Historia, Area de Arqueología, Universidad de San Carlos de Guatemala, Santa Elena, Petén, Guatemala.

- Miller Wolf, K. A. 2019. "Excavación de Entierro 4-1B y Análisis En Laboratorio de Restos Óseos de 2016 y 2017." In *Proyecto Arqueológico Ucanal, Temporada de Campo 2018*, edited by C. T. Halperin and J. L. Garrido, 197–222. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Mock, S. B. 1998. "Decapitation and Flaying as a Termination Event at Colha, Belize." In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*, edited by S. B. Mock, 113–123. Albuquerque, NM: University of New Mexico Press.
- Moholy-Nagy, H. 1997. "Middens, Construction Fill, and Offerings: Evidence for the Organization of Production at Tikal, Guatemala." *Journal of Field Archaeology* 24: 293–313.
- Mongelluzzo, R. W. 2016. "Las Excavaciones En El Grupo E: Operación 3." In *Proyecto Arqueológico Ucanal, 2da Temporada de Campo, 2016*, edited by C. T. Halperin and J. L. Garrido, 61–80. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Mongelluzzo, R. W., C. T. Halperin, and M.-E. Thibodeau. 2017. "Excavaciones En El Grupo I, Acrópolis Elite, Del Sitio Ucanal (Operación 9)." In *Proyecto Arqueológico Ucanal, 3ero Temporada de Campo, 2017*, edited by C. T. Halperin and J. L. Garrido, 35–58. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Morley, S. G. 1938. *The Inscriptions of Peten*. Vol. III. Washington D.C.: Carnegie Institute of Washington.
- Nagao, D. 1989. "Public Proclamation in the Art of Cacaxtla and Xochicalco." In *Mesoamerica After the Decline of Teotihuacan A.D. 700-900*, edited by R. A. Diehl and J. C. Berlo, 83–104. Washington D.C.: Dumbarton Oaks Research Library and Collection.
- Newman, S. 2018. "Rubbish, Reuse, and Ritual at the Ancient Maya Site of El Zotz, Guatemala." *Journal of Archaeological Method and Theory* 10: 1–38.
- Noguera, E. 1937. *El Altar de Los Craneos Esculpidos de Cholula*. Mexico, D.F.: Talleres Gráficos de la Nación.
- O'Neil, M. E. 2012. *Engaging Ancient Maya Sculpture*. Norman, OK: University of Oklahoma Press.
- Palka, J. W. 1997. "Reconstructing Classic Maya Socioeconomic Differentiation and the Collapse at Dos Pilas, Peten, Guatemala." *Ancient Mesoamerica* 8: 293–306.
- Pérez Zambrano, E. 2017. "Excavación de Los Canales Hidráulicos de Ucanal (Operación 10, Al Sur Del Grupo D y Sector B)." In *Proyecto Arqueológico Ucanal, 3ra Temporada de Campo, 2017*, edited by C. T. Halperin and J. L. Garrido, 59–74. Report submitted to the Instituto de Antropología e Historia (IDAEH), Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Guatemala City.
- Plunket, P. 2002. *Domestic Ritual in Ancient Mesoamerica*. Monographs 46. Los Angeles: Cotsen Institute of Archaeology, University of California.
- Pollock, H. E. E. 1936. *Round Structures of Aboriginal Middle America*. Washington D.C.: Carnegie Institute of Washington.
- Proskouriakoff, T. 1963. *An Album of Maya Architecture*. Norman: University of Oklahoma Press.
- Quintana Samayoa, O. 2008. "La Composición Arquitectónica y La Conservación de Las Edificaciones Monumentales Mayas Del Noreste de Petén." Ph.D. diss., Universidad de Valencia.
- Reents-Budet, D. 1994. *Painting the Maya Universe: Royal Ceramics of the Classic Period*. Durham: Duke University Press.
- Rice, P. M., A. A. Demarest, and D. S. Rice. 2004. "The Terminal Classic and the 'Classic Maya Collapse' in Perspective." In *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*, edited by A. A. Demarest, P. M. Rice, and D. S. Rice, 1–11. Boulder: University Press of Colorado.
- Rice, P. M., and D. 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 A. A. Demarest, P. M. Rice, and D. S. Rice, 125–139. Boulder: University Press of Colorado.
- Rice, P. M., and D. S. Rice. 2018. "Classic-to-Contact-Period Continuities in Maya Governance in Central Petén, Guatemala." *Ethnohistory* 65 (1): 25–50. <https://doi.org/10.1215/00141801-4260647>.
- Ringle, W. M., T. G. Negrón, and G. J. Bey III. 1998. "The Return of Quetzalcoatl." *Ancient Mesoamerica* 9 (2): 183–232.
- Roldán, J. 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 J. P. LaPorte and H. Escobedo, 79–92. Guatemala City: Museo Nacional de Arqueología y Etnología.
- Ruiz Ciudad, A., and J. Adánez Pavón. 2011. "Arquitectura y urbanismo de Machaquilá, Petén, Guatemala/Architecture and Urbanism of Machaquilá, Petén, Guatemala." *Revista Española de Antropología Americana* 41 (1): 175–204.
- Sabloff, J. A. 1973. "Continuity and Disruption during Terminal Late Classic Times at Seibal: Ceramic and Other Evidence." In *The Classic Maya Collapse*, edited by T. Patrick Culbert, 107–131. Albuquerque: University of New Mexico Press.
- Sabloff, J. A., and W. L. Rathje, eds. 1975. *Changing Precolumbian Commercial Systems, the 1972-73 Seasons at Cozumel, Mexico*. Monographs of the Peabody Museum of Archaeology and Ethnology, No. 3. Cambridge, MA: Harvard University.
- Salas, M. E. 2006. "La Contribución Arqueológica En La Recuperación de Los Valores Culturales, Programa de Rescate En Sitios y Comunidades: El Ejemplo de San Clemente, Petén, Guatemala." In *Actas Del II Congreso Internacional de Patrimonio Cultural y Cooperación Al Desarrollo*, edited by G. M. Cosme and C. V. Lorenzo, 113–124. Valencia: Universidad Politécnica de Valencia.
- Scarborough, V. L., and D. R. Wilcox, eds. 1991. *The Mesoamerican Ballgame*. Tucson: University of Arizona Press.
- Schele, L., and P. Mathews. 1998. *The Code of Kings: The Language of Seven Sacred Maya Temples and Tombs*. New York: Scribner.
- Schwartz, K. R. 2013. "Architecture, Materialization and Duality of Structure: A Maya Case Study of Structurally Shaped Innovation." *Cambridge Archaeological Journal* 23 (2): 307–332.
- Scruton, R. 2013. *The Aesthetics of Architecture*. Princeton Essays on the Arts 8. Princeton, N.J.: Princeton University Press.
- Sion, J. 2015. "Crisis y Prosperidad: El Clásico Terminal en Naachtun." In *XXVIII Simposio de Investigaciones Arqueológicas en Guatemala*, edited by B. Arroyo, L. Méndez Salinas, and L. Paiz, 65–80. Guatemala City: Museo Nacional de Arqueología y Etnología, Guatemala.
- Smith, J. G., and T. M. Bond-Freeman. 2018. "In the Shadow of Quetzalcoatl: How Small Communities in Northern Yucatan Responded to the Chichen Itza Phenomenon." In *Landscapes of the Itza: Archaeology and Art History at Chichen Itza and Neighboring Sites*, edited by L. Wren, C. Kristan-Graham, T. Nygard, and K. Spencer, 138–170. Gainesville, FL: University Press of Florida.
- Stanton, T. W., M. K. Brown, and J. B. Pagliaro. 2008. "Garbage of the Gods? Squatters, Refuse Disposal, and Termination Rituals among the Ancient Maya." *Latin American Antiquity* 19 (3): 227–247. <https://doi.org/10.2307/25478229>.
- Stone, A. J. 1989. "Disconnection, Foreign Insignia, and Political Expansion: Teotihuacan and the Warrior Stelae of Piedras Negras." In *Mesoamerica after the Decline of Teotihuacan, A.D. 700-900*, edited by R. A. Diehl and J. C. Berlo, 153–172. Washington, D.C.: Dumbarton Oaks Research Library and Collections.
- Stone, A. J., and M. Zender. 2011. *Reading Maya Art: A Hieroglyphic Guide to Ancient Maya Painting and Sculpture*. London: Thames and Hudson.
- Stross, B. 1998. "Seven Ingredients in Mesoamerican Ensoulment: Dedication and Termination in Tenejapa." In *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological Record of Mesoamerica*, edited by S. B. Mock, 31–39. Albuquerque: University of New Mexico.
- Stuart, D. S. 1997. "The Hills Are Alive: Sacred Mountains in the Maya Cosmos." *Symbols* Spring: 13–17.
- Taladoire, E. 1981. *Les Terrains de Jeu de Balle En Mésoamérique et Dans Le Sud-Ouest Des Etats-Unis*. 4th ed. 2. Mexico, D.F.: Misión Científica Franco-Mexicana.
- Taube, K. A. 2004. "Flower Mountain: Concepts of Life, Beauty, and Paradise among the Classic Maya." *RES* 45: 69–98.
- Thompson, J. E. S. 1954. *The Rise and Fall of Maya Civilization*. Norman, OK: University of Oklahoma Press.

- Tourtellot, G. I. 1988. *Peripheral Survey and Excavation: Settlement and Community Patterns*. Edited by G. R. Willey. Vol. 16. Cambridge, MA: Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University.
- Toussaint, G. 2012. "Cosmopolitan Claims: Islamicate Spolia During the Reign of King Henry II, 1002–1024." *The Medieval History Journal* 15 (2): 299–318. <https://doi.org/10.1177/097194581201500204>.
- Tozzer, A. M. 1941. *Landa's Relación de Las Cosas de Yucatán: A Translation*. Cambridge: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- Vidal Lorenzo, C., and G. Muñoz Cosme. 2013. "La Crisis de La Blanca En El Clásico Terminal." In *Millenary Maya Societies: Past Crises and Resilience*, edited by M.-C. Arnauld and A. Breton, 92–105. Electronic document, published online at Mesoweb: [www.mesoweb.com/publications/MMS/7\\_Vidal-Munoz.pdf](http://www.mesoweb.com/publications/MMS/7_Vidal-Munoz.pdf).
- Weiner, J. F. 1996. "1993 Debate: Aesthetics Is a Cross-Cultural Category." In *Key Debates in Anthropology*, edited by T. Ingold, 203–236. New York: Routledge.
- Willey, G. R., A. Ledyard Smith, and J. A. Sabloff. 1982. *Excavations at Seibal, Department of Peten, Guatemala*. Memoirs of the Peabody Museum of Archaeology and Ethnology, Harvard University v. 15, No. 1–2. Cambridge, MA: Peabody Museum of Archaeology and Ethnology.
- Zralka, J., and B. Hermes. 2012. "Great Development in Troubled Times: The Terminal Classic at the Maya Site of Nakum, Peten, Guatemala." *Ancient Mesoamerica* 23: 161–87.