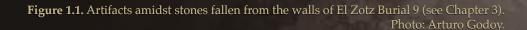
eath comes to every king. When it happens, a period of turbulence or crisis ensues, no matter the time or context. Governance may rupture and questions of succession and inheritance arise. Even in systems of semi-divine rulership, where kings arrogate sacred roles and identities, a faint degree of doubt develops (Houston and Stuart 1996:289). How can a being so powerful, so marked by special attributes, die like any other human? What does this weakness say about the grandiose claims of kingship? All such matters condense into the deathways of monarchs: the preparation, processing, and interment or disposal of their bodies, the beliefs that attend the passage to other states—final, absolute oblivion seems not to have been an option—and what those who come after do out of piety or self-interest. The passing of kings has large risks for the living. They are the ones who must work at explaining why rulers die and how that transition is both meaningful and supportive of the institution. Death is a matter that touches all. It relates to broader symbolic and social themes of "loss, souls, grieving, rebirth, fertility, gender, pollution and danger, life cycles, the negation of time, and the problem of succession" (Houston et al. 2006:114; also Bloch and Parry 1982:7, 11; Huntington and Metcalf 1979:153). As event and process, it demands notice and long reflection.

The deathways of Maya royalty are well studied (Fitzsimmons 2009), as are the means by which the placement of royal and other bodies establishes deep roots (McAnany 1995, 1998). There is variety in such practices but common features too. Rulers were the "special dead" (Houston et al. 2006:123; see also Binski 1996:21-22). Tropes include: (1) their renascence as plants of economic and symbolic import

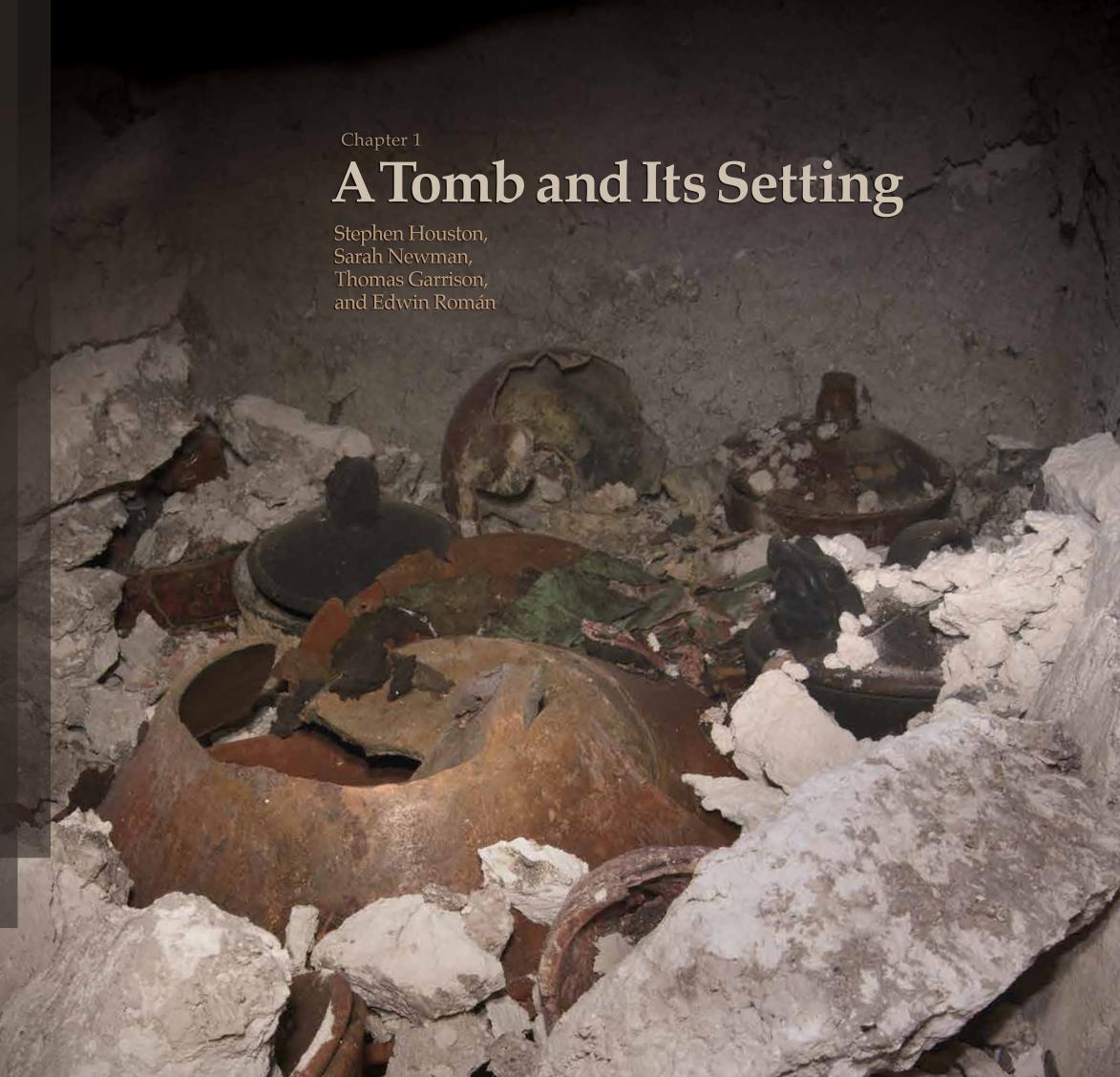
(maize principally)—a veritable *milpa*, orchard, and implied "harvest" of resurgent royalty; (2) a deathly voyage through water and along roads; (3) the extinction or transference of inspiriting wind; (4) their housing in versions of royal abodes, provisioned with food, liquids, riches, at times with servants or attendants; and (5) evidence, in many cases, of interregna or necessary lapses between the date of death and final interment (Fitzsimmons 2009, passim, but esp. Table 6; also Eberl 2005). The interregna, generally pauses of more than a month and sometimes longer, may represent the time necessary to prepare for interments, as goods await assembly and distant visitors gather for obsequies.

What poses a particular challenge is how to handle the *first* royal dead, the founder or founding couple of a dynasty (Fitzsimmons 2009: Table 4). Counts of kings reckoned from founders onward, the so-called *tz'akbu* statements, leave little doubt that the Classic Maya recognized such figures (Schele 1992, building on Mathews 1975 and added work by Riese 1984). Where such dates can be ascertained, many cluster in the third to fourth centuries AD. Some, as at Naranjo or Tikal, go back further still, into the beginnings of the millennium and, in the case of divine or semi-mythic predecessors, to shadowy times before reliable or contemporary records (Martin 2003:4-11; Stuart 2007). These founding figures were probably not the first rulers per se, but rather the kings who created sustained, citable lineages. As such, they contributed to a grand assertion: that a certain family was now ensconced as a ruling dynasty, its founder the central focus of ancestral rites and subsequent building activities.

To identify such founders' tombs is a matter of speculative plausibility. Glyphs themselves seldom confirm the



2015 In *Temple of the Night Sun: A Royal Tomb at El Diablo, Guatemala,* by Stephen Houston, Sarah Newman, Edwin Román, and Thomas Garrison, pp. 12-29. Precolumbia Mesoweb Press, San Francisco High-resolution version available at www.mesoweb.com/publications/TNS/index.html.



identification of a primary dynast. To be persuasive, such tombs should involve an early and rich crypt in a nodal or axial location, much investment in refurbishing or covering them with later constructions (as well as signs of a novel degree of architectural elaboration), and the continuance of cult practices over the next few centuries (Loten 2003:238-239). The best-attested examples are those at Copan, in the Hunal and Margarita tombs that held, respectively, the founder of a dynasty and his probable consort (Bell 2007; Sharer et al. 2005). Glyphs and later buildings, such as Str. 10L-16, buttress the identification by showing a long-term commitment to the founder and rites performed in his memory (Taube 2004a:293-294).

A yet earlier example is Tikal Burial 85, dating to ca. AD 100. Glyphic confirmation is lacking, but its occupant may well have been Yax Ehb Xook, the founder of the local dynasty. Discovered in Str. 5D-Sub.2-2nd of the North Acropolis, the interment lay within a low platform fronting a preexisting temple (Coe 1990:2:210-220, 4:Figs. 10e, 27b). In a sense, the new shrine both marked and interrupted passage to the structure behind, leading some to speculate that the deceased lord had used the earlier building in life (Houk et al. 2010:244-245). At Tikal, similar shrines appeared nearby in Burials 166 and 167, the latter in much the same position with respect to the building behind (Coe 1990:2:237). A century or so later a comparable tomb, also in a low shrine fronting an earlier mound, was built at Chan Chich, Belize (Houk et al. 2010).

But perhaps the most noteworthy shrines of this sort are the richly endowed tombs with Teotihuacanlinked objects in Mounds A and B at Kaminaljuyu, Guatemala (Kidder et al. 1946:Figs. 103, 104, 110, 111). Of these, Tomb B-1 under Mound B is perhaps closest to the Diablo pattern, with a lower shrine in front of the main temple (Kidder et al. 1946:Fig. 113). Mounds A and B both orient towards the west, much like El Diablo. It is El Diablo that is innovative. The tombs at Kaminaljuyu may be slightly later in date (Braswell 2003:102), with evidence that some of their occupants came from the Peten or

at least the southern Maya Lowlands (Wright et al. 2010:175).

cated. Calakmul's Early Classic Tomb

founder's interment: a vaulted masonry

1 includes all the telltale signs of a

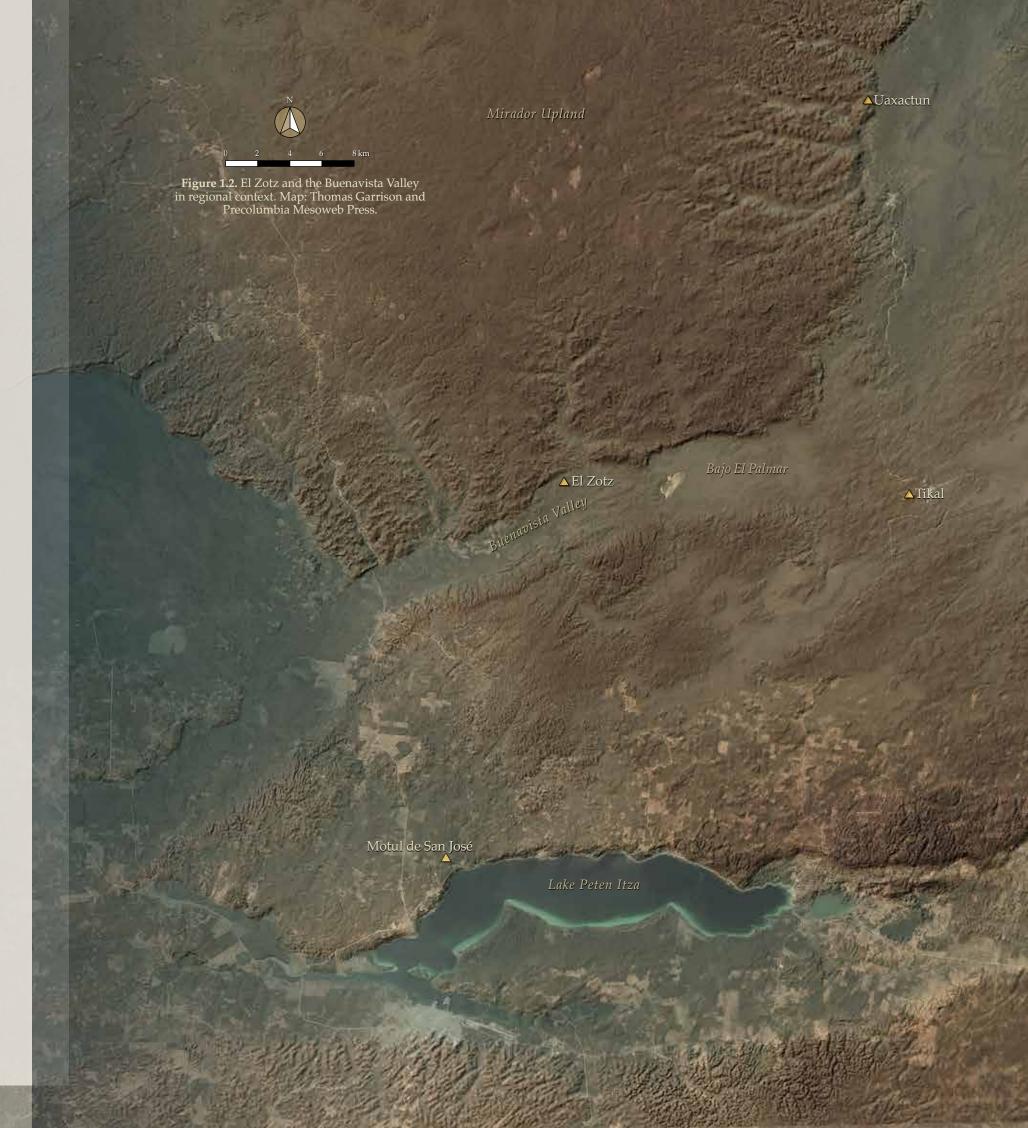
Some comparisons are more compli-

tomb featuring a nine-meter-long "psychoduct" recovered beneath Str. III (a major structure near the Central Plaza), as well as offerings with hundreds of shells, ten ceramic vessels of varying degrees of elaboration, and three jade mosaic masks. Yet despite the central location of the tomb and the richness of its contents, later rulers at Calakmul do not mention the individual within Tomb 1 and the tomb postdates Stela 43, commissioned by a different Early Classic ruler in AD 431 (Folan et al. 1995:321-325). A handful of other Maya tombs exhibit similar characteristics to those from Copan, but extensive looting often makes evidence linking chambers to founders elusive. Balamku's Tomb 5 and the associated (looted) Tomb 4 echo the paired placement of the Hunal and Margarita tombs, as well as the subsequent construction of monumental funerary architecture. The Balamku tombs preceded a later funerary temple, Str. D5-5 sub, with Tomb 4 found below the structure's front chamber and Tomb 5 directly beneath the rear (Pereira and Michelet 2004:333-334). Similarly, three Early Classic tombs (Tombs 1, 19, and 23) beneath Str. C1 at Río Azul each precede a major funeraryceremonial structure and demonstrate an elaboration in architectural design and decoration found in only one other instance at the site (Hall 1989:186-189). In 2013, Francisco Estrada-Belli found a parallel arrangement at Holmul, Guatemala, but from the final half of the sixth century AD. This building, Str. B in Group II, displayed a roofcomb frieze of deeply modeled stucco with a seated lord and deities. On axis with its front terrace, it also revealed a burial yielding ceramic vessels of Tepeu 1 (early Late Classic) form and decoration (Boyle 2013).

In an operation directed by Edwin Román in 2010, the El Zotz Archaeological Project found a similar tomb at El Zotz, Guatemala (Figure 1.2): an intact, vaulted chamber placed in front of a building modeled with

elaborate stucco. This monograph reports on that find, drawing on the efforts of specialists of varying backgrounds and a team of archaeologists working in the El Diablo Group from 2008 to 2015. The tomb, found beneath Str. F8-1 and labeled "El Zotz Burial 9," forms part of a continuous tally of interments recorded by the project, but it proved to be a singular find (Figure 1.1). Other intact burials at El Zotz included modest mortuary furniture and one to three ceramic vessels at most, while looted royal tombs under Strs. L8-9, L8-10, L8-11, and M7-1 only hinted at richly endowed deposits that are forever lost to illicit looting. Burial 9 stood apart. Its complete inventory of contents, untouched by looters, showed an exponential investment over the more modest interments recovered by the Project. As will become clear, its location on a high escarpment pointed to a message designed to be sent far and wide. The visibility of its associated funerary temple heralded the dynastic tomb, unparalleled to that point. The temple's elaborate stucco program likened the deceased lord to the sun in all its aspects: subject to daily renewal but also cloaked and transformed at night against a celestial band. Accession and succession were other themes embedded in its rich ornament (see Chapter 5).

In contrast to Burial 85 at Tikal and the find at Holmul. El Zotz Burial 9 could not have been intrusive. Rather, it motivated the construction of the temple behind it. Later, the addition of a freestanding shrine directly above the tomb paid homage to the funerary temple's stucco program through its recessed panels, a reference to the latest phase of the earlier structure. Over the next 50 to 100 years, remodeling completely encompassed both the stuccoed temple and its shrine, transforming the funerary monument into a higher pyramid with a single-chambered temple at its summit. Nonetheless, the iconography of the initial temple, though reduced, was retained via frontal masks with earspools that recalled the designs of those buried below. In sum: a place of dynastic origins, a bold affirmation of continuity, and a tangible link between rulers and solar or celestial deities.



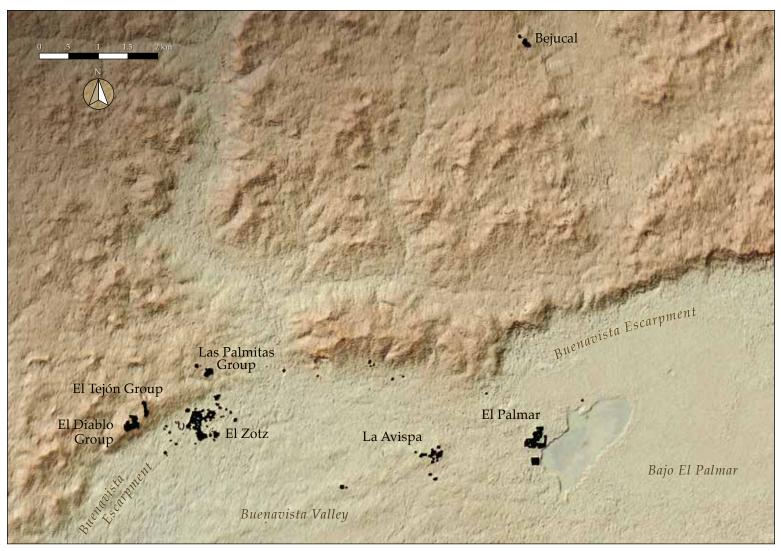


Figure 1.3. To the west and north of the main center of El Zotz, the El Diablo, El Tejón, and Las Palmitas Groups sit on higher ground atop the Buenavista Escarpment. To the east of El Zotz are the Preclassic settlements of La Avispa and El Palmar. The minor center of Bejucal is located in the karst hills to the north of the Buenavista Escarpment. Map: Thomas Garrison and Precolumbia Mesoweb Press.

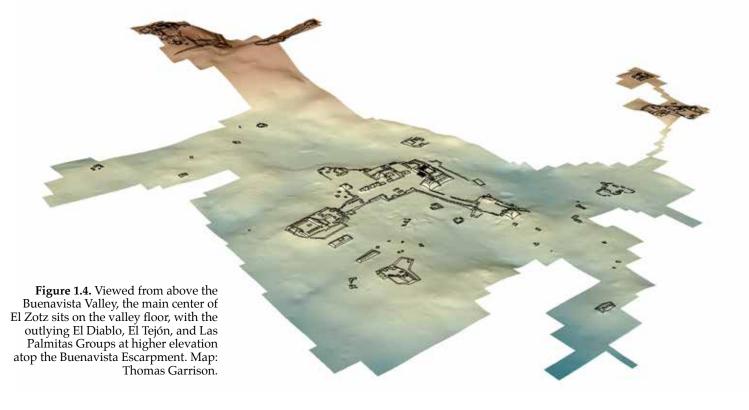
A Royal Redoubt

The regional setting of El Diablo, and the overarching city of El Zotz, is defined by the Buenavista Valley (Figures 1.2 and 1.3). This 32-km-long eastwest corridor forms the northernmost passage connecting the northeast and northwest Peten in the central Maya lowlands. The main ruins of El Zotz lie on low foothills to the north side of the valley, while the Preclassic settlements of La Avispa and El Palmar occupy the valley's center, reflecting a lesser concern with defense. El Palmar sits on the western edge of a small wetland (cival), which is fed by a large bajo or seasonal swamp. The most salient feature of the area, however, is the looming Buenavista Escarpment, a feature defining the northern edge of the valley. On it flourished the major satellite groups of El Zotz: El Tejón, Las Palmitas, and not least, El Diablo itself (Figure 1.4). The escarpment is a major geophysical feature in the landscape, transitioning to rolling karst hills to the north, beyond which lies the so-called Mirador "basin"—frequently misnamed, as it is in fact an upland. The minor center of Bejucal, a possible estate or rural retreat for the ruler of El Zotz, is situated among these hills.

The Buenavista Valley is also located at a strategic divide of drainages. The large Bajo El Palmar separates El Zotz and El Palmar from Tikal. The bajo also operates as a local watershed that drains into the El Palmar wetland as well as another nearby *cival* called El Yesal. To

the east, towards Tikal, all drainages flow toward the Caribbean. To the west, in and around El Zotz, all water leads to the San Pedro Mártir River, eventually spilling into the Gulf of Mexico. El Zotz is also situated just west of a major north-south drainage that splits the Buenavista Escarpment. The Las Palmitas Group rises on a low hillock overlooking this sector. The eastern side of the split contains a sinkhole with lateral caves that issue large clouds of bats each evening in search of food, along with swooping owls and hawks to prey on them. This phenomenon, which gives the site its modern name—*zotz* (sotz') meaning "bat" in most Mayan languages—would not have gone unnoticed by the ancient Maya.

The El Diablo Group was built on



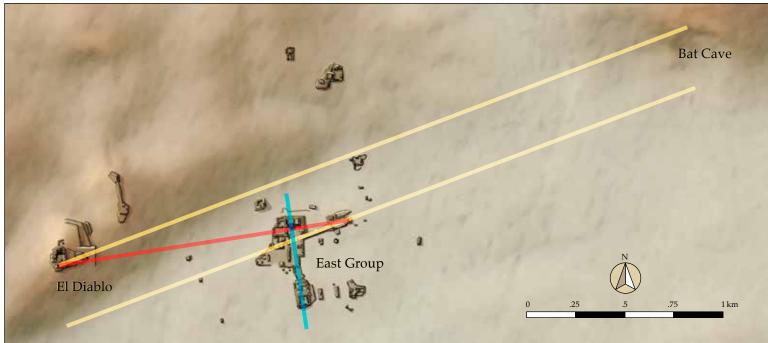


Figure 1.5. Alignments of Early Classic architecture at El Zotz. Str. F8-1 at El Diablo is oriented to 261°, directly aligned with the center of Str. M7-1-Sub.2 of the East Group at the main site along the reciprocal angle of 81° (red line). The Southern Causeway runs along a perpendicular axis of 171° (blue line). The Eastern Causeway of El Zotz orients to 69°, the same angle as the line of sight between El Diablo and the Bat Cave (yellow lines). Map: Thomas Garrison.

one of the most prominent hilltops along the Buenavista Escarpment. Although the El Tejón Group is a few meters higher in elevation than El Diablo, the Tejón ridge sits back from the edge of the escarpment. In contrast, the El Diablo architecture is located on the edge of a steep drop down to the valley floor. The buildings at El Diablo, especially Str. F8-1 and it anterior phases, would have been highly visible to foot traffic crossing the Buenavista Valley. In total, the El Diablo Group comprises 23 structures of various sizes and shapes, distributed over four tiers of platforms, which the Maya shaped out of the

natural contours of the hilltop. The plaza of the highest part of the group, where the elite architecture concentrates, corresponds to an elevation of 382.7 meters above sea level. This is about 150 m higher than the main ruins of El Zotz, which lie at the base of the escarpment to the east. The final phase of Str. F8-1



currently stands at 13.3 m in height, yet excavations demonstrate that the temple on top of the pyramid was destroyed down to its lower courses (see Chapter 2).

Str. F8-1 is oriented to about 261°, facing roughly to the west and towards the El Diablo plaza. This orientation was critical for Early Classic El Zotz. The centerline of Str. F8-1-Sub.1C (the Temple of the Night Sun, the elaborate stucco temple commemorating Burial 9) intersects with the centerline of Str. M7-1-Sub.2 of the East Group of El Zotz (a structure known as the Accession Platform) precisely along this axis, establishing the major east-west alignment for much early building at the site (Figure 1.5). The 171° orientation of the Southern Causeway at El Zotz is perpendicular. This east-west alignment, along with others at the site, may have derived from observations of sunrise, perhaps from the small platform behind Str. F8-1, which has an unobstructed view to the east and houses three mounds (Strs. F8-12, 13, and 14). One of the mounds, Str. F8-14, contains what might be described as a sub-royal burial, not as rich as Burial 9 but probably close to it (see below). The Eastern Causeway of El Zotz orients to 69°, the angle from which, at around the time of the summer solstice in the fourth century AD, the sun could be observed from El Diablo rising over the collapsed sinkhole

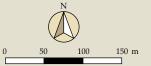
and bat cave (see Chapter 2).

The second highest tier of leveling at El Diablo supports three small structures to the north (Strs. F8-15, 16, and 17) and a vacant platform to the east (Figure 1.6). The structures are contemporary with the elite architecture above (see "Ceramics from El Diablo Fill," page 82), perhaps indicating that these housed palace support staff or functioned as work spaces for producing goods or food for courtly consumption. The third tier of architecture is defined by a massive depression, the result of quarrying to construct the more impressive masonry structures surrounding the main plaza. This depression may have later served as an aguada or reservoir for the El Diablo Group, but paleoenvironmental data to support this assertion were equivocal (Timothy Beach and Sheryl Luzzadder-Beach, personal communications, 2011); the presence of a cache of Dos Arroyos bowls within the cavity also raises doubts about such a mundane function. One small structure (Str. G8-1) is located to the southeast of the depression. The fourth and lowest tier of architecture served as a platform for three small structures (Strs. G8-2, 3, and 4). Below this lies Str. G8-5, as well as three chultunes (bedrock cisterns). Although uninvestigated, these minor structures likely housed palace support staff while El Diablo was occupied during the Early Classic. The presumed approach to the site, along an east-west ridge, appears to have been leveled artificially but with narrow areas of access—this feature, along with the stepped slopes to most sides of El Diablo, accentuates its defensive properties.

Construction of the major architecture of the El Diablo Group began in the fourth century AD. The establishment of a royal palace in this location reflects a local trend of elites



Figure 1.7. El Zotz's major architectural groups. Structures discussed in the text are indicated. Map: Thomas Garrison.







Temple of the Night Sun 18

El Diablo



Figure 1.8. Fragments of Urita Gouged-Incised pottery and *Spondylus* earspool from El Zotz Burial 1 in Str. F8-14. Photos: Sarah Newman.



Figure 1.9. Jade mosaic earflare plaques from Str. H6-2 at El Tejón. Photos: Nicholas Carter.

appropriating hilltops to use as residences and necropoleis in the beginning years of the Early Classic. This portion of the central Peten did not suffer large-scale regional abandonments at the end of the Late Preclassic, such as those observed in the area around El Mirador to the north (Forsyth 1989:129-131). There was, however, a decisive shift in settlement patterns in and around the Buenavista Valley. There is evidence that hilltops were in use in the region during the Late Preclassic, but they do not appear to have been residential sites. At Bejucal, at least seven small temples date to the second to third centuries AD. Similarly, excavations by Rony Piedrasanta at the El Tejón Group revealed a round platform dating to the beginning of the Early Classic, with a scattering of Late Preclassic ceramics that point to an even earlier occupation. No Preclassic architecture has been found at El Diablo so far.

The major occupation of El Palmar came to an end in the late third century AD, coinciding with a marked drying event in the *cival* (Timothy Beach and Sheryl Luzzadder-Beach, personal communications, 2011). Residential occupation in the valley itself, however, appears to increase, with an emphasis on settling towards the base of the escarpment. Seemingly, the seat of royal power shifted to the hilltops, while everyday life for the rural Maya throughout the Buenavista Valley continued

uninterrupted. It is difficult to explain why the elites headed for the uplands, but the pattern can be observed elsewhere. The site of Uaxactun is located 26 km northeast of El Zotz and is actually situated along the same escarpment, which takes a sharp turn to the north near Tikal (see Figure 1.2). Valdés and Fahsen (1995:199-201) propose that the seat of royal authority shifted repeatedly in the early periods of Uaxactun's history. Originally, in their view, the royal court was located at Group E, the first architectural group to be recognized as a place linked to solar observations in the Maya lowlands (Ricketson and Ricketson 1937). From 150 BC-AD 250 a new palace was built in Group H, decorated with monumental architectural masks. Following a brief return to Group E, between AD 250–300, the elites of Uaxactun moved the royal court to the highest hill at the site, establishing

Group A as the seat of Classic Period authority. This group, rendered in a celebrated watercolor by Tatiana Proskouriakoff (in Smith 1950), also became the royal necropolis for the Uaxactun dynasty. Although these political changes in Uaxactun were highly localized in the landscape, they provide an analogy to concurrent processes in the Buenavista Valley.

The original seat of power at El Palmar was similarly established at an E-Group (Doyle 2012, 2013). Around the same time that the palace in Group A was built on the highest prominence at Uaxactun, the El Diablo palace was developed as the Early Classic seat of authority at El Zotz. At Uaxactun, there had been minor structures on the Group A hillock that preceded palace construction (Valdés 1993). Although there has not been any confirmed Late Preclassic architecture at El Diablo, ceramic data, as well as evidence from other local hill sites, suggest that there would have been a minor occupation. Valdés (1993:92) also contends that increased visibility was one of the primary motivations for moving Uaxactun's royal court to Group A. El Diablo's location on the edge of

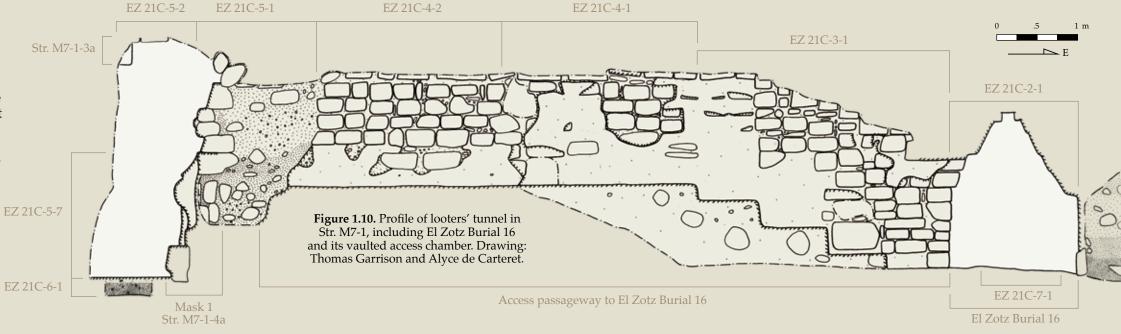
the Buenavista Escarpment exercised a similar effect on the local viewshed, both in terms of seeing and being seen.

Foundational Tombs in the Kingdom of El Zotz

The establishment of the palace at El Diablo represented the founding of the first royal burial ground at El Zotz. In addition to El Zotz Burial 9, to be addressed in later chapters, there is likely to be at least one other royal tomb in the vicinity of Str. F8-1. In 2008, Alejandro Guillot Vassaux excavated another royal or sub-royal interment, now looted, in Str. F8-14, one of the three small mounds immediately to the east of Str. F8-1; its finds included a fragment of Urita Gouged-Incised pottery and remains of two Spondylus earspools, inside a red-painted crypt with corbelled vault (Figure 1.8). The other mounds showed only equivocal evidence of crypts. One, Str. F8-12, may have had such a deposit but clear traces of it were obliterated because of looting from below. Other Early Classic royal burials are known from El Zotz (see below), but the El Diablo Group appears to have been the first

among them. Notably, Houston has observed that all high status burials encountered thus far in the El Zotz region follow Burial 9's pattern of having the head oriented to the north. Other high-status, though unvaulted, burial chambers dating to the Early Classic (El Zotz Burials 13, 14, and 18) have been found at the El Tejón Group. One of these contained two jade mosaic earflare plaques (Figure 1.9; Carter et al. 2012).

Three major vaulted tombs have been found in the epicenter of El Zotz. Unfortunately, all were looted. The most substantial, and probably the earliest was Burial 16, discovered in a looters' tunnel behind Str. M7-1 (Figure 1.10). The earliest architecture built at this location had been a low platform with two construction phases (Str. M7-1-Sub.1), oriented toward El Palmar to the east. The final phase of the platform was decorated with polychrome modeled stucco, far more deeply and architectonically modeled than the stuccoes on the Temple of the Night Sun, but without the same attention to dense detail (see Chapter 5). The platform was mutilated on all four sides with the advent of a new construction program, perhaps dating to the early fifth century AD, which obeyed the



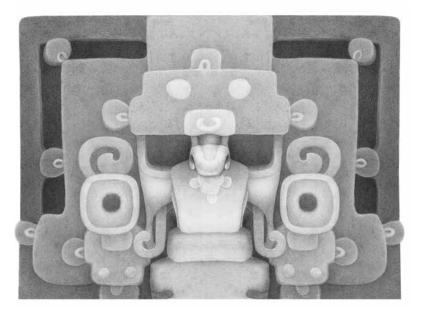




Figure 1.11. Drawing of Mask 1 from Str. M7-1 and photograph of Mask 2. Drawing: Mary Clarke; photo: Jorge Pérez de Lara.

orientational canons established at El Diablo. The royal tomb was placed against the rear (western) side of the earlier platform and a vaulted access chamber that stepped down into the tomb was added to the east side. This low corridor was covered in rustic stucco and crookedly constructed. The structure built around the tomb was a 3 m tall platform bearing three masks (Figure 1.11). These were each 3 m tall by almost 4.5 m wide. There is no evidence that the Accession Platform was ever painted: most of the stucco is well preserved and plain white, an exception being the faint hint of a painted pupil in the eye sockets of the northern mask.

Taube (1998:454-458; Taube et al. 2010:65-67) has previously identified the deity depicted on the masks as a conflation of the Principal Bird Deity (PBD) and the Jester God, which is often shown as a jewel or headdress offered to or worn by the ruler during royal accessions. In these instances, the two supernaturals also combine with world tree iconography, usually depicted emerging from the PBD's head (Taube 1998:Fig. 15; Taube et al. 2010:Fig. 43). More recently, Stuart (2012) has identified the name of this god as Ux Yop Huun, a deity associated with paper headbands presented during early royal accessions. Str. M7-1-Sub.2's monumental masks of Ux Yop Huun are the reason it is known as the Accession Platform.

The ancient Maya mutilated the central mask of the Accession Platform before building the next phase of Str. M7-1. It is probable that this was done to re-enter Burial 16. The combination of symbols associated with Ux Yop Huun, as embodied in a jewel or headdress, conflates the institution of kingship with a notion of centrality. An image of this headdress being presented to an acceding maize god is depicted on the West Wall of the San Bartolo murals, indicating the supernatural essence of the rite of accession (Taube et al. 2010:65-67). Perhaps the closest iconographic parallel to the mask on the Accession Platform is an early Late Classic carved jade boulder from Altun Ha dating to the beginning of the seventh century AD. This artifact, which Taube (1998:458) associates with one of the three stones of a jade hearth located at the world center, fuses Ux Yop Huun with Sun God imagery. In fact, when the imagery on this boulder is "rolled out," it presents a reasonable, albeit more detailed, resemblance to the Accession Platform masks. Taube (1998:467-468) has argued that Maya masks represent the concept of centrality and that the three hearthstones can be depicted in profile. In this arrangement, each mask of Ux Yop Huun represents one of the hearthstones. Together, the three would thus represent an extended, laterally displayed version of the jade hearth.

The parallels with Altun Ha go deeper still. The so-called "Sun God's Tomb" (Altun Ha Tomb B-4/7), the crypt containing the jade boulder, was found in Str. B-4, 2nd A, eventually adorned with five masks of Ux Yop Huun (Pendergast 1969, 1982a:47-78). The more complex Altun Ha building is about 100–150 years later than the Accession Platform at El Zotz, but it supports the idea that this was a specific type of Early Classic building associated with royal accessions. The Accession Platform only held a small (50 cm

high) superstructural platform, suggesting that it might have been designed to support a perishable scaffold throne, a feature depicted on San Bartolo's West Wall and on the façade of the Temple of the Night Sun. The fact that the Temple of the Night Sun and the Accession Platform are aligned perfectly along their centerlines creates a clear link between the two tombs and the individuals interred in them. Perhaps they were father and son, or some more distant connection, buried at the west and east termini of the main axis of Early Classic El Zotz.

Strs. L8-10 and L8-11 of the Plaza of the Five Temples at El Zotz, excavated by Jose Luis Garrido López, also revealed more impressive tombs. Burial 21 within Str. L8-10 consisted of a finely stuccoed chamber, painted red on all sides (Figure 1.12), while Burial 22 in Str. L8-11 featured a massive vaulted chamber with a crude shelf to hold offerings. A large jade earspool and fragments from a jade mosaic mask, similar to the ones found intact at El Diablo, were found beneath the looters' debris in Burial 22.

In 2009, archaeologists discovered a small hilltop site 2 km southwest of El Zotz using AIRSAR elevation data (Garrison et al. 2011). It contained another vaulted tomb within a small, looted temple at the site. The tomb included a small bench, which may have been used to place offerings, as well as ceramics from the Early Classic period found in the looters' back dirt. At nearby Bejucal, Burial 2 consisted of a large vaulted tomb with polished and stuccoed capstones, found in Str. S6-10 (Figure 1.13). The north side of this tomb may have had a psychoduct in its wall. As with much of El Zotz, the burial was looted, but a complex lip-to-lip dedicatory cache was found just east of the tomb, containing numerous seashells, stingray spines, miniature jade and

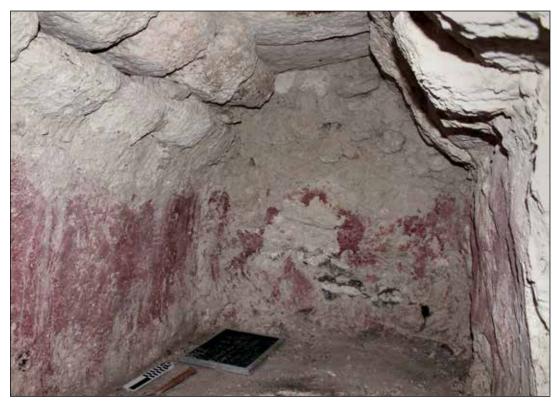


Figure 1.12. Stuccoed, red-painted tomb chamber of El Zotz Burial 21, located within Str. L8-10. Photo: Jose Luis Garrido López.

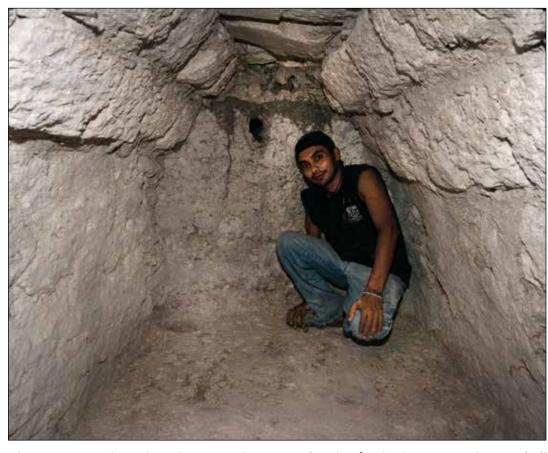


Figure 1.13. Bejucal Burial 2 and its stuccoed capstones, found within Str. S6-10, oriented at ca. 10° off magnetic north. Photo: Thomas Garrison.



Figure 1.14. Discovery of modeled stucco masks. Photo: Arturo Godoy.

mica objects, and a New World quail skeleton (a species also found in one of the ceramic vessels from Burial 9). There were other high-status burials at Bejucal (e.g., Burials 3 and 5), but none as impressive as Burial 2. All of these deposits provide a larger context for Burial 9 and its enveloping building, the Temple of the Night Sun.

Digging the El Diablo Tomb

The tomb came to light on May 29, 2010 Project members had suspected for a week that something lay nearby. The modeled stuccoes discovered in 2009 (Figure 1.14), the small free-standing shrine structure, and the eastern location in front of the Temple of the Night Sun all cued some special deposit. The

absence of looters' tunnels in this area heightened our sense of expectation, as did the growing (and rather grim) evidence of unusual features, principally the cached bowls with fingers or teeth described in Chapter 2. In the days leading up to the discovery, a pit in the central axis of the shrine had begun to reveal an increasingly ordered arrangement of stone slabs. Layer upon layer was removed. Then, in the late afternoon of May 29, Eliseo ("Cheyo") Alvarado, the worker tasked with this part of the El Diablo operations, probed a small aperture under a flagstone with a thin stick. He found no perceptible end. Houston descended to the level of the stone and, chipping away at the slab, opened a triangular hole (Figure 1.15). When a light bulb was lowered through

the opening, the deposit blazed with color. Alex Knodell, a Brown University graduate student mapping nearby, recorded a short video of this initial view into the chamber by lowering a hand-held camera alongside the light bulb, a record that captures the drama of the moment. After more chipping of the capstone, and some sawing—the limestone was quite soft—project photographer Arturo Godoy was able to take wide-angle images of the interior of the chamber. From this point on, security became a priority, and workmen took shifts at the tomb for a round-the-clock watch. A call went out by cellphone to find a professional conservator who could assist with the excavation. Fortunately, a freelancer, Catherine Magee, was available through the assistance of







Figure 1.15. Opening the triangular hole in the capstone of the Burial 9 tomb and a partial view through the aperture, showing fallen stones from wall collapse, ceramic vessels, objects covered in painted stucco, textiles, seashells, and red cubes of specular hematite. Photo: Arturo Godoy.

Harriet Beaubien of the Smithsonian Institution.

The initial approach to the tomb, just to the north of the central east-west axis of the chamber, proved awkward. The floor was littered with rock fall, calling into question the strength of the tomb's walls and capstones. This, combined with the two meter drop from the apex of the vault to vessels and other objects below, made it impossible to descend without damaging the find. Entering the tomb from the eastern wall, in the corridor between the Temple of the Night Sun and its fronting Shrine structure, was not an option because of unstable doorjambs nearby. Instead, the team decided that the most effective entry would be from the west, at the level of the chamber's floor. Workers could extend the main tunnel penetrating F8-1 beyond the front of the Shrine and drop down via a deep shaft to bedrock. Yet what had seemed the easiest route soon met other challenges.

A series of caches, six in all (Cache 3/Burial 6 and Caches 4–8), slowed excavation (see Chapter 2). Cache 3 was removed whole





Figure 1.16. Removal of Cache 3. Photos: Arturo Godoy,

on May 31 and its contents excavated in the on-site laboratory (Figure 1.16). The remaining caches, found in a quadripartite arrangement around a crude stone altar just outside the tomb's western wall, were excavated over the next few days. In addition, a poorly preserved column altar, its crude mask facing toward the west, was inadvertently cut by a laborer as the deep shaft was excavated through the night and into the early morning hours. Despite these difficulties, the entry was successful. By June 4, the team had reached the estimated level of the floor. Shaving away at the soft, tenoned stones of the western wall, Houston and Román soon saw a pin-prick of light through the stony matrix. This small beam came from a light bulb that had been lowered into the tomb itself. The talc-like stone, softened by water damage, soon gave way to a dull, brown surface. This proved to be the plastered wall of the tomb, now only centimeters away. A small hole was pried open and expanded as three rows of stone blocks were removed (the strength of the tomb's walls still a concern) (Figure 1.17). By chance, the hole lay close to the head of the tomb's main occupant, an area of complex deposits. Entering to the south by the feet would have been the ideal option, but the more extensive tunneling involved was held to be too risky, given the widespread looting that affected the structural integrity of the building.

On June 6, Magee arrived. Godoy attempted a photomosaic of the tomb deposit from the opening in the capstone above (Figure 1.18). The aim was to assemble an overall image that could be used for a plan drawing. The space for photography was limited, however, and distortions soon made this approach unworkable. Drawing and photographic documentation were instead done piecemeal, in smaller segments. The team decided to excavate the tomb by an alphanumeric grid system, with the northwest corner of the tomb set as the A1 square—in fact little more than a wedge due to the irregular space of the chamber floor. At Magee's suggestion, sectors of 25 x 25 cm were laid out across the surface of the tomb's contents, though not without frustrations. Any attempt to lay out an actual grid of line or string was thwarted by the difficulty of reaching across the full length and width of the tomb. Worse, the hard bedrock of the tomb floor dulled nails, and no permanent data points could be set. The team decided to use small floating markers to tag the corners between the grid's sectors, though these still posed certain challenges. The actual floor of the chamber was often some 10 to 20 cm below the markers (often placed atop vessels, shells, and other objects), and the markers shifted slightly as the layers of superimposed rock fall and objects were removed.

Nonetheless, Godoy was able to photograph each sector, taking multiple views of each level as the squares were slowly excavated to the bedrock floor. Digital images were downloaded to a laptop set up outside and printed at a scale of 1:2 using Adobe Illustrator software (the generators providing light to the excavations also serviced a computer station under tarps). At Garrison's





Figure 1.17. Opening the hole in the western wall and a first view through the aperture. Photos: Aturo Godoy.

suggestion, a layer of drafting film was then placed on each color print and attached to a clipboard, which was taken into the tomb and traced against measurements of the actual deposit. This process allowed drawings to be done rapidly and accurately. The drawings were marked extensively with comments and each artifact and fragment labeled and numbered on both the drawing of its sector and its packaging. Newman and Garrison kept a running inventory as every object was removed. At first, the cramped space made excavations slow, and the team had to perch outside the tomb to clear space inside. Once sectors were cleared, the team could enter the chamber in pairs and continue excavations. Magee removed more fragile remains, such as

wood, textiles, and thin painted stuccoes, using cyclododecane or Japanese tissue (see Appendix III). She also packaged each object for hand-carrying to the field lab, a distance of 2 km, and prepared objects in their final packing for transport to the project laboratory in Antigua, Guatemala. The results were remarkable. No objects were damaged in their journey from Burial 9 to the project lab.

Widespread use of cellphones at the site led to reports of the tomb reaching the nearby towns of Flores and San Benito. After discussion with Griselda Pérez, the official IDAEH representative for El Zotz, it seemed desirable to lift as many of the objects as possible for quiet transport to the lab in Antigua. Godoy took additional photographs and the

tomb's elaborate ceramic collection, obviously of interest to looters, was removed. Accompanied by Nicholas Carter, the objects left El Zotz on June 15 and arrived in Antigua the next day. Unfortunately, this furtive maneuver did not reduce our risk. The very secrecy of the process meant that thieves would think the finds were still in the tomb. A subset of the most reliable workmen continued on roundthe-clock watch at the entrance to the tunnel; most workmen had been sent home after backfilling other operations at El Zotz. Ironically, improvements in the weather only increased our vulnerability. Most vehicles can enter a dry road; a swampy route requires more expensive, specialized pickups—the lower the investment in getting to El Zotz, the greater the chance of theft or assault. The excavation of the final layers of artifacts within the tomb nearly became a 24-hour operation, with archaeologists taking shifts.

By June 17, the areas around the edges of the burial had all been documented and cleared. The few remaining sectors were those with especially fragile or perishable materials (described in detail in Chapter 3): a polychrome painted stucco vessel with a sculpted lid in the shape of a water bird, a complete (though crushed) bowl also of perishable materials, and a concentration of debris around the king's skull, including bits of his headdress. June 18 was the final day of full digging at El Diablo. Newman and Garrison finished architectural profiles and reviewed the artifact inventory; Magee lifted and packed all remaining objects. By late afternoon, Houston and Newman completed final measurements and sections of the now empty tomb. For the first time, faced with nothing but the empty chamber's walls, Houston noticed potter wasp nests on the eastern, southern, and western walls of the tomb. Photos and samples were taken for later study. The small remaining team was able to exit the camp on June 19, with all finds in good order.

The royal burial at El Diablo could now be described, analyzed, and reported, an undertaking of the chapters and appendices that follow.



References

Abbott, Tucker

1996 Seashells of North America: A Guide to Field Identification. St. Martin's Press, New York.

Adams, Richard E. W.

- 1971 The Ceramics of Altar de Sacrificios. Papers 63(1).
 Peabody Museum of Archaeology and Ethnology,
 Cambridge.
- 1999 *Río Azul: An Ancient Maya City.* University of Oklahoma Press, Norman.

Aldenderfer, Mark

1991 Functional Evidence for Lapidary and Carpentry Craft Specialties in the Late Classic of the Central Peten Lakes Region. *Ancient Mesoamerica* 2(2):205-214.

Aldenderfer, Mark, Larry Kimball, and April Sievert

1989 Microwear Analysis in the Maya Lowlands: The Use of Functional Data in a Complex-Society Setting. *Journal of Field Archaeology* 16:47-60.

Anders, Ferdinand, Maarten Jansen, and G. Aurora Pérez Iiménez

1992 Origen e historia de los reyes mixtecos. Libro explicativo del llamado Códice Vindobonensis. Fondo de Cultura Económica, Mexico.

Aovama, Kazuo

- 1989 Estudio experimental de las huellas de uso sobre material lítico de obsidiana y sílex. *Mesoamérica* 17:185-214.
- 1995 Microwear Analysis in the Southeast Maya Lowlands: Two Case Studies at Copán, Honduras. *Latin American Antiquity* 6(2):129-144.
- 1999 Ancient Maya State, Urbanism, Exchange, and Craft Specialization: Chipped Stone Evidence from the Copán Valley and the La Entrada Region, Honduras. Memoirs in Latin American Archaeology 12. University of Pittsburgh, Pittsburgh.
- 2001 Ritos de plebeyos mayas en la Cueva Gordon no. 3 de Copán (Honduras) durante el Período Clásico: análisis de las microhuellas de uso sobre la lítica menor de obsidiana. *Mayab* 14:5-16.
- 2004 El intercambio, producción y función de los artefactos de obsidiana del período formativo temprano en la costa del Pacífico de Guatemala: un estudio diacrónico y análisis de las microhuellas de uso sobre la lítica de obsidiana del complejo San Jerónimo, Escuintla, Guatemala. *U Tz'ib* 3(7):14-34.
- 2005 Classic Maya Warfare and Weapons: Spear, Dart and Arrow Points of Aguateca and Copan. *Ancient Mesoamerica* 16(2):291-304.
- 2007 Elite Artists and Craft Producers in Classic Maya Society: Lithic Evidence from Aguateca, Guatemala. Latin American Antiquity 18(1):3-26.
- 2008 Preclassic and Classic Maya Obsidian Exchange, Artistic and Craft Production, and Weapons in the Aguateca Region and Seibal, Guatemala. *Mexicon* 30(4):78-86.

2009 Elite Craft Producers, Artists, and Warriors at Aguateca: Lithic Analysis. Monographs of the Aguateca Archaeological Project First Phase, 2. University of Utah Press, Salt Lake City.

Aulie, H. Wilbur, and Evelyn W. de Aulie

Diccionario ch'ol de Tumbalá, Chiapas, con variaciones dialectales de Tila y Sabanilla. Instituto Lingüístico de Verano, Mexico.

Baez, Miguel

2009 Stěle en pierre taillée. In *Teotihuacan: Cité des Dieux*, edited by Felipe Gómez Solís, p. 439. Somogy Editions D'Art, Paris.

Baker, Brenda J., Tosha L. Dupras, and Matthew W. Tocheri 2005 The Osteology of Infants and Children. Texas A&M University Press, College Station.

Ball, Joseph W.

1977 The Archaeological Ceramics of Becan, Campeche, Mexico. Publication 43. Middle American Research Institute, Tulane University, New Orleans.

- Batta, Erasmo, Carlos Argáez, Josefina Mansilla, Carmen Pijoan, and Pedro Bosch
- 2013 On Yellow and Red Pigmented Bones Found in Mayan Burials of Jaina. *Journal of Archaeological Science* 40(1):712-722.

Baudez, Claude-François

1994 Maya Sculpture of Copán: The Iconography. University of Oklahoma Press, Norman.

Becquelin, Pierre, and Claude F. Baudez

1982 Tonina, une cité maya du Chiapas (Mexique), t. 2. Mission Archéologique et Ethnologique Française au Mexique, Etudes Mésoaméricaines 6(2). Centre d'Études Mexicaines et Centraméricaines, Mexico.

Bell, Ellen Elizabeth

- 2007 Early Classic Ritual Deposits within the Copan Acropolis: The Material Foundations of Political Power at a Classic Period Maya Center. Ph.D. dissertation, Department of Anthropology, University of Pennsylvania, Philadelphia.
- Bell, Ellen E., Robert J. Sharer, David W. Sedat, Marcello A. Canuto, and Lynn A. Grant
- 2000 The Margarita Tomb at Copan, Honduras: A Research Update. *Expedition* 42(3):21-25.

Bell, Ellen E., Robert J. Sharer, Loa P. Traxler, David W. Sedat, Christine W. Carrelli, and Lynn Grant

2004 Tombs and Burials in the Éarly Classic Acropolis at Copan. In *Understanding Early Classic Copan*, edited by Ellen E. Bell, Marcello A. Canuto, and Robert J. Sharer, pp. 131-157. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.

Berjonneau, Gerald, Emile Deletaille, and Jean-Louis Sonnery 1985 Rediscovered Masterpieces of Mesoamerica: Mexico-Guatemala-Honduras. Editions Arts 135, Boulogne.

Binski, Paul

1996 Medieval Death: Ritual and Representation. Cornell University Press, Ithaca.

Blainey, Marc G.

1997 Surfaces and Beyond: The Political, Ideological, and Economic Significance of Ancient Maya Iron-Ore Mirrors. M.A. thesis, Department of Anthropology, Trent University, Peterborough.

Bloch, Maurice, and Jonathan Parry 1982 Introduction: Death and the Regeneration of Life. In Death and the Regeneration of Life, edited by Maurice Bloch and Jonathan Parry, pp. 1-44. Cambridge University Press, Cambridge

Blom, Frans, and Oliver La Farge

1926 Tribes and Temples: A Record of the Expedition to Middle America Conducted by the Tulane University of Louisiana in 1925, v. 1. Tulane University, New Orleans.

Boone, Elizabeth H.

2000 Stories in Red and Black: Pictorial Histories of the Aztecs and Mixtecs. University of Texas Press, Austin.

The House of the Eagle. In Cave, City, and Eagle's Nest: An Interpretive Journey through the Mapa de Cuauhtinchan No. 2, edited by Davíd Carrasco and Scott Sessions, pp. 27-48. University of New Mexico Press, Albuquerque.

Bosecker, Klaus

1997 Bioleaching: Metal Solubilization by Microorganisms. FEMS Microbiology Reviews 20(3-4):591-604.

Boyle, Alan

2013 Inside a Maya Pyramid, Mysterious Carvings Hint at Superpower Struggle. NBC News: www.nbcnews. com/science/inside-maya-pyramid-mysteriouscarvings-hint-superpower-struggle-6C10861128.

Brady, James E., and Dominique Rissolo

2006 A Reappraisal of Ancient Maya Cave Mining. Journal of Anthropological Research 62(4):471-490.

Braswell, Geoffrey E.

2003 Dating Early Classic Interaction Between Kaminaljuyu and Central Mexico. In The Maya and Teotihuacan: Reinterpreting Early Classic Interaction, edited by Geoffrey E. Braswell, pp. 81-104. University of Texas Press, Austin.

Breedlove, Dennis E., and Robert M. Laughlin

2000 The Flowering of Man: A Tzotzil Botany of Zinacantán. Abridged ed. Smithsonian Institution Press, Washington, D.C.

Buikstra, Jane E., and Douglas H. Ubelaker

1994 Standards for Data Collection from Human Skeletal Remains. Research Series 44. Arkansas Archeological Survey, Fayetteville.

Callaghan, Michael G.

Technologies of Power: Ritual Economy and Ceramic Production in the Terminal Preclassic Period Holmul Region, Guatemala. Ph.D. dissertation, Department of Anthropology, Vanderbilt University, Nashville.

Campaña, Luz Evelia, and Sylvian Boucher

2002 Nuevas imágenes de Becán, Campeche. Arqueología *Mexicana* 10(56):64-69.

Carter, Benjamin P.

2011 Spondylus in South American Prehistory. In Spondylus in Prehistory: New Data and Approaches. Contributions to the Archaeology of Shell Technologies, edited by Fotis Ifantidis and Marianna Nikolaidou, pp. 63-89. BAR International Series 2216. British Archaeological Reports, Oxford.

Carter, Nicholas P., Rony E. Piedrasanta, Stephen D. Houston, and Zachary Hruby

Signs of Supplication: Two Mosaic Earflare Plaques from El Zotz, Guatemala. Antiquity 86(333), Project Gallery: http://antiquity.ac.uk/projgall/ carter333/.

Chase, Arlen F., and Diane Z. Chase

Investigations at the Classic Maya City of Caracol Belize: 1985-1987. Pre-Columbian Art Research Institute, San Francisco.

Heterogeneity in Residential Group Composition: Continued Investigation in and near Caracol's Epicenter: Caracol Archaeological Project Investigations for 2011. Report submitted to the Belize Institute of Archaeology, Belize.

Chase, Arlen F., Diane Z. Chase, Elayne Zorn, and Wendy

Textiles and the Maya Archaeological Record. Ancient Mesoamerica 19(1):127-142.

Chase, Diane Z., and Arlen F. Chase

The Archaeological Context of Caches, Burials, and Other Ritual Activities for the Classic Period (as Reflected at Caracol, Belize). In Function and Meaning in Classic Maya Architecture, edited by Stephen D. Houston, pp. 299-332. Dumbarton Oaks, Washington, D.C.

Archaeological Perspectives on Classic Maya Social Organization from Caracol, Belize. Ancient Mesoamerica 15(1):139-147.

Cheetham, David T.

2004 The Role of "Terminus Groups" in Lowland Maya Site Planning: An Example from Cahal Pech. In The Ancient Maya of the Belize Valley: Half a Century of Archaeological Research, edited by James F. Garber, pp. 125-148. University Press of Florida, Gainesville

Chinchilla Mazariegos, Oswaldo

2013 Tecum, the Fallen Sun: Mesoamerican Cosmogony and the Spanish Conquest of Guatemala. Ethnohistory 60(4):693-719.

Temple of the Night Sun

Codex Magliabechiano

2013 Electronic document, www.famsi.org/research/graz/ magliabechiano/index.html.

Coe, Michael D.

1977 Supernatural Patrons of Maya Scribes and Artists. In Social Process in Maya Prehistory: Studies in Honour of Sir Eric Thompson, edited by Norman Hammond, pp. 327-346. Academic Press, London.

Coe, William R.

1990 Excavations in the Great Plaza, North Terrace, and North Acropolis of Tikal. 5 vols. Tikal Report 14. University Museum, University of Pennsylvania, Philadelphia.

Coggins, Clemency C.

1988 Classic Maya Metaphors of Death and Life. RES: Anthropology and Aesthetics 16:64-84.

Cucina, Andrea, and Vera Tiesler

2006 The Companions of Janaab' Pakal and the "Red Queen" from Palenque, Chiapas: Meanings of Human Companion Sacrifice in Classic Maya Society. In Janaab' Pakal of Palenque: Reconstructing the Life and Death of a Maya Kuler, edited by Vera Tiesler and Andrea Cucina, pp. 102-125. University of Arizona Press, Tucson.

Cuevas García, Martha

2007 Los incensarios efigie de Palenque. Deidades y rituales mayas. Universidad Nacional Autónoma de México; Instituto Nacional de Antropología e Historia, Mexico.

Culbert, T. Patrick

1993 The Ceramics of Tikal: Vessels from the Burials, Caches, and Problematical Deposits. Tikal Report 25, Part A. University Museum, University of Pennsylvania, Philadelphia.

Czapiewska, Ewa, Thomas Garrison, Edwin Román, and Stephen Houston

2014 La cerámica de los grupos de élite: análisis de los restos hallados en El Zotz, Petén, Guatemala. In XXVII Simposio de Investigaciones Arqueológicas en Guatemala. 2013, edited by Bárbara Arroyo, Luis Méndez Salinas, and Andrea Řojas, v. 1, pp. 283-296. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal, Guatemala.

Danien, Elin C.

2002 Guide to the Mesoamerican Gallery at the University of Pennsylvania Museum of Archaeology and Anthropology. University Museum, University of Pennsylvania, Philadelphia.

Díaz Balsera, Viviana

2008 Celebrating the Rise of a New Sun: The Tlaxcalans Conquer Jerusalem in 1539. Estudios de Cultura Nahuatl 39:311-330.

Doyle, James A.

2012 Regroup on "E-Groups": Monumentality and Early Centers in the Middle Preclassic Maya Lowlands. *Latin* American Antiquity 23(4):355-379.

2013 The First Maya "Collapse": The End of the Preclassic Period at El Palmar, Peten, Guatemala. Ph.D. dissertation, Department of Anthropology, Brown University, Providence.

Eberl, Markus

2005 Muerte, entierro y ascención. Ritos funerarios entre los antiguos mayas. Universidad Autónoma de Yucatán, Merida.

Emery, Kitty, and Kazuo Aoyama

2007 Bone, Shell, and Lithic Evidence for Crafting in Elite Maya Households at Aguateca, Guatemala. Ancient Mesoamerica 18(1):69-89.

Escobedo, Héctor L.

2004 Tales from the Crypt: The Burial Place of Ruler 4, Piedras Negras. In Courtly Art of the Ancient Maya, edited by Mary Miller and Simon Martin, pp. 277-280. Thames and Hudson, New York.

Estrada Reynoso, José Luis

2009 Extrémité supérieure de marqueur, fragment. In *Teotihuacan: Cité des Dieux*, edited by Felipe Gómez Solís, p. 246. Somogy Editions D'Art, Paris.

Fash, William L., Jr.

1989 The Sculptural Façade of Structure 9N-82: Content, Form, and Significance. In The House of the Bacabs, Copan, Honduras, edited by David Webster, pp. 41-72. Studies in Pre-Columbian Art and Archaeology 29. Dumbarton Oaks, Washington,

Filloy Nadal, Laura, and Sofía Martínez del Campo Lanz 2010 El rostro eterno de K'inich Janaab' Pakal: la máscara funeraria. In Misterios de un rostro maya. La mascara funeraria de K'inich Janaab' Pakal de Palenque, edited by Laura Filloy Nadal, pp. 108-129. Instituto Nacional de Antropología e Historia, Mexico.

Fitzsimmons, James L.

2009 Death and the Classic Maya Kings. University of Texas Press, Austin.

Foias, Antonia E.

Changing Ceramic Production and Exchange Systems and the Classic Maya Collapse in the Petexbatun Region. Ph.D. dissertation, Department of Anthropology, Vanderbilt University, Nashville.

Folan, William J., Joyce Marcus, Sophia Pincemin, María del Rosario Domínguez Carrasco, Laraine Fletcher, and Abel Morales López

Calakmul: New Data from an Ancient Maya Capital in Campeche, Mexico. Latin American Antiquity 6(4):310-334.

Forsyth, Donald W.

The Ceramics of El Mirador, Petén, Guatemala. El Mirador Series, Part 4. Papers 63. New World Archaeological Foundation, Brigham Young University, Provo.

Furst, Jill L.

Codex Vindobonensis Mexicanus I: A Commentary Institute of Mesoamerican Studies Publication 4 State University of New York, Albany.

Garrison, Thomas, and Fernando Beltrán

2011 Investigaciones en Bejucal. In Proyecto Arqueológico "El Zotz," informe no. 5, temporada 2010, edited by Jose Luis Garrido López, Stephen Houston, and Edwin Román, pp. 293-319. Report submitted to the Dirección General del Patrimonio Cultural y Natural de Guatemala.

Garrison, Thomas, Jose Luis Garrido, Octavio Axpuac, Alexander Smith, Timothy Beach, Sheryl Luzzadder-Beach, and Fernando Beltrán

2011 Programa de investigaciones regionales (mapeo y excavaciones). In Proyecto Arqueológico "El Zotz," informe no. 5, temporada 2010, edited by Jose Luis Garrido López, Stephen Houston, and Edwin Román, pp. 321-386. Report submitted to the Dirección General del Patrimonio Cultural y Natural de Guatemala.

Gifford, James C.

1960 The Type-Variety Method of Ceramic Classification as an Indicator of Cultural Phenomena. *American Antiquity* 25(3):341-347.

Goodall, Rosemary A., Jay Hall, Rene Viel, F. Ricardo Agurcia, Howell G. M. Edwards, and Peter M. Fredericks

2006 Raman Microscopic Investigation of Paint Samples from the Rosalila Building, Copan, Honduras. *Journal of Raman Spectroscopy* 37(10):1072-1077.

Graham, Ian

1967 Archaeological Explorations in El Peten, Guatemala. Publication 33. Middle American Research Institute, Tulane University, New Orleans.

Greene, Merle, Robert L. Rands, and John A. Graham

1972 Maya Sculpture from the Southern Lowlands, Highlands and Pacific Piedmont, Guatemala, Mexico, Honduras. Lederer, Street and Zeus, Berkeley, CA.

Gutiérrez Castillo, Yeny Myshell, Stephen Houston, Edwin Román, Thomas Garrison, Sarah Newman, and Catherine Magee

2013 Entre conchas y océanos: analizando los artefactos malacológicos procedentes del Entierro 9 de El Zotz, Petén, Guatemala. In XXVI Simposio de Investigaciones Arqueológicas en Guatemala, 2012, edited by Bárbara Arroyo and Luis Méndez Salinas, v. 2, pp. 597-609. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal, Guatemala.

Hall, Grant D.

1985 Results of Tomb Investigations at Río Azul, Season of 1984. Report submitted to Richard E. W. Adams for *Río Azul Reports*, *No.* 2, July 1985.

Azul Reports, No. 2, July 1985.

1989 Realm of Death: Royal Mortuary Customs and Polity Interaction in the Classic Maya Lowlands. Ph.D. dissertation, Department of Anthropology, Harvard University, Cambridge.

Hamman, Byron

2002 The Social Life of Pre-Sunrise Things: Indigenous Mesoamerican Archaeology. *Current Anthropology* 43(3):351-382.

Hammond, Norman

1984 Holmul and Nohmul: A Comparison and Assessment of Two Maya Lowland Protoclassic Sites. *Ceramica de Cultura Maya* 13:1-17.

Hanks, William F.

1990 Referential Practice: Language and Lived Space among the Maya. University of Chicago Press, Chicago.

Hansford, Geoff S., and Tomás Vargas

2001 Chemical and Electrochemical Basis of Bioleaching Processes. *Hydrometallurgy* 59(2):135-145.

Harrison-Buck, Eleanor, Patricia A. McAnany, and Rebecca Storey

2007 Empowered and Disempowered During the Late to Terminal Classic Transition: Maya Burial and Termination Rituals in the Sibun Valley, Belize. In New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society, edited by Vera Tiesler and Andrea Cucina, pp. 74-101. Springer, New York.

Hellmuth, Nicholas

1987 Monster und Menschen in der Maya-Kunst: Eine Ikonographie der alten Religionen Mexikos und Guatemalas. Academische Druk- u. Verlagsanstalt, Graz.

Henderson, Lucia R.

2013 Bodies Politic, Bodies in Stone: Imagery of the Human and the Divine in the Sculpture of Late Preclassic Kaminaljuyú, Guatemala. Ph.D. dissertation, Department of Art and Art History, University of Texas at Austin.

Houk, Brett A., Hubert R. Robichaux, and Fred Valdez, Jr. 2010 An Early Royal Maya Tomb from Chan Chich, Belize. *Ancient Mesoamerica* 21(2):229-248.

Houston, Stephen D.

996 Symbolic Sweatbaths of the Maya: Architectural Meaning in the Cross Group at Palenque, Mexico. *Latin American Antiquity* 7(2):132-151.

2008 In the Shadow of a Giant. *Mesoweb*: www.mesoweb. com/zotz/articles/Shadow-of-a-Giant.pdf.

2012 Diadems in the Rough. *Maya Decipherment*: decipherment.wordpress.com/2012/10/06/diadems-in-the-rough/.

Houston, Stephen D., and Andrew K. Scherer

2010 La ofrenda máxima: el sacrificio humano en la parte central del área maya. In *El sacrificio humano en la tradición religiosa mesoamericana*, edited by Leonardo López Luján and Guilhem Olivier, pp. 169-193. Instituto Nacional de Antropología e Historia; Universidad Nacional Autónoma de México, Mexico.

Houston, Stephen, and David Stuart

1996 Of Gods, Glyphs, and Kings: Divinity and Rulership among the Classic Maya. *Antiquity* 70(268):289-312.

Houston, Stephen, and Karl Taube

2000 An Archaeology of the Senses: Perception and Cultural Expression in Ancient Mesoamerica. *Cambridge Archaeological Journal* 10(2):261-294.

Houston, Stephen, Edwin Román, and Thomas Garrison 2013 The Temple of the Night Sun: Configuring Kinship at El Diablo, Guatemala. Paper presented at The Maya Meetings, University of Texas at Austin.

Temple of the Night Sun

Houston, Stephen, David Stuart, and Karl Taube

2006 The Memory of Bones: Body, Being, and Experience among the Classic Maya. University of Texas Press, Austin.

Houston, Stephen, Claudia Brittenham, Cassandra Mesick, Alexandre Tokovinine, and Christina Warinner

2009 Veiled Brightness: A History of Ancient Maya Color. University of Texas Press, Austin.

Houston, Stephen, Héctor Escobedo, Andrew Scherer, Mark Child, and James Fitzsimmons

2003 Classic Maya Death at Piedras Negras, Guatemala. In Antropología de la eternidad: la muerte en la cultura maya, edited by Andrés Ciudad Ruiz, Mario Humberto Ruz Sosa, and María Josefa Iglesias Ponce de León, pp. 113-143. Sociedad Española de Estudios Mayas, Madrid.

Huntington, Richard, and Peter Metcalf

1979 Čelebrations of Death: The Anthropology of Mortuary Ritual. Cambridge University Press, Cambridge.

Iglesias, María Josefa, Andrés Ciudad, Eduardo Arroyo, Jesús Adánez, and Sara Álvarez

2001 Aplicaciones de la antropología molecular a la arqueología maya: el caso de Tikal. In *XIV Simposio de Investigaciones Arqueológicas en Guatemala, 2000,* edited by Juan Pedro Laporte, Ana Claudia de Suasnávar, and Bárbara Arroyo, v. 2, pp. 1069-1088. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal, Guatemala.

Jansen, Maarten

1997 La serpiente emplumada y el amanecer de la historia. In *Códices, caciques y comunidades,* edited by Maarten Jansen and Luis Reyes García, pp. 11-63.

Cuadernos de Historia Latinoamericana 5. Asociación de Historiadores Latinoamericanistas Europeos, Ridderkerk.

Jones, Christopher, and Linton Satterthwaite

1982 *The Monuments and Inscriptions of Tikal: The Carved Monuments.* Tikal Report 33, Part A. University Museum, University of Pennsylvania, Philadelphia.

Joyce, Rosemary A., and John S. Henderson

2007 From Feasting to Cuisine: Implications of Archaeological Research in an Early Honduran Village. *American Anthropologist* 109(4):642-653.

Keeley, Lawrence H.

1980 Experimental Determination of Stone Tool Uses: A Microwear Analysis. University of Chicago Press, Chicago.

Keen, Myra

1971 Sea Shells of Tropical West America: Marine Mollusks from Baja California to Peru. 2nd ed. Stanford University

Kidder, Alfred Vincent, Jesse David Jennings, Edwin M. Shook

2946 Excavations at Kaminaljuyu, Guatemala. Publication 561. Carnegie Institute of Washington, Washington, D.C. Kovacevich, Brigitte

2006 Reconstructing Classic Maya Economic Systems: Production and Exchange at Cancuen, Guatemala. Ph.D. dissertation, Department of Anthropology, Vanderbilt University, Nashville.

2011 The Organization of Jade Production at Cancuen, Guatemala. In *The Technology of Maya Civilization: Political Economy and Beyond in Lithic Studies*, edited by Zachary X. Hruby, Geoffrey E. Braswell, and Oswaldo Chinchilla Mazariegos, pp. 149-161. Equinox Publishing, London.

Kovacevich, Brigitte, and Zachary Hruby

2005 Towards an Understanding of the Value of Jade in Two Lowland Classic Maya City Centers, Cancuen and Piedras Negras. Paper presented at the 70th Annual Meeting of the Society for American Archaeology, Salt Lake City.

Krejci, Estella, and T. Patrick Culbert

1995 Preclassic and Classic Burials and Caches in the Maya Lowlands. In *The Emergence of Lowland Maya Civilization: The Transition from Preclassic to Early Classic,* edited by Nikolai Grube, pp. 103-116. Acta Mesoamerica 8. Verlag Anton Saurwein, Möckmühl.

Lacadena, Alfonso

2004 The Glyphic Corpus from Ek' Balam, Yucatán, México. Report submitted to the Foundation for the Advancement of Mesoamerican Studies, Inc. Available: www.famsi.org/reports/01057/01057 LacadenaGarciaGallo01.pdf.

Laporte, Juan Pedro

9 Alternativas del clásico temprano en la relación Tikal-Teotihuacán: Grupo 6C-XVI, Tikal, Petén, Guatemala. Ph.D. dissertation, Universidad Nacional Autónoma de México, Mexico.

2005 Exploración y restauración en la Plataforma Este de Mundo Perdido, Tikal (Estructuras 5D-83 a 5D-89). In XVIII Simposio de Investigaciones Arqueológicas en Guatemala, 2004, edited by Juan Pedro Laporte, Bárbara Arroyo, and Héctor E. Mejía, v. 1, pp. 153-200. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal; Foundation for the Advancement of Mesoamerican Studies, Guatemala.

Laporte, Juan Pedro, and Vilma Fialko

1987 La cerámica del Clásico Temprano desde Mundo Perdido, Tikal: una reevaluación. In *Maya Ceramics:* Papers from the 1985 Maya Ceramics Conference, edited by Prudence M. Rice and Robert J. Sharer, pp. 123-181. BAR International Series 345. British Archaeological Reports, Oxford.

1995 Un reencuentro con Mundo Perdido, Tikal. *Ancient Mesoamerica* 6(1):58-62.

LeCount, Lisa J.

2001 Like Water for Chocolate: Feasting and Political Ritual Among the Late Classic Maya at Xunantunich, Belize. *American Anthropologist* 103(4):935-953.

Lewenstein, Suzanne M.

1987 Stone Tool Use at Cerros. University of Texas Press, Austin.

1991 Woodworking Tools at Cerros. In Maya Stone Tools: Selected Papers from the Second Maya Lithic Conference, edited by Thomas R. Hester and Harry J. Shafer, pp. 239-249. Prehistory Press, Madison.

López Castro, Hermenegildo F., and Ethelia Ruiz Medrano 2010 Tutu Ñuu Oko. Libro del pueblo veinte. Relatos de la tradición oral mixteca de Pinotepa Nacional, Oaxaca.

Instituto Nacional de Lenguas Indígenas, Mexico.

Loten, H. Stanley

2003 The North Acropolis: Monumentality, Function, and Architectural Development. In *Tikal: Dynasties, Foreigners, and Affairs of State,* edited by Jeremy A. Sabloff, pp. 227-252. School of American Research Press. Santa Fe.

Lothrop, Joy Mahler

1992 Textiles. In Artifacts from the Cenote of Sacrifice, Chichen Itza, Yucatan, edited by Clemency Chase Coggins, pp. 33-90. Memoirs 10(3). Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.

Love, Bruce

1989 Yucatec Sacred Breads through Time. In Word and Image in Maya Culture: Explorations in Language, Writing, and Representation, edited by William F. Hanks and Don S. Rice, pp. 336-350. University of Utah Press, Salt Lake City.

Lucero, Lisa I.

2003 The Politics of Ritual: The Emergence of Classic Maya Rulers. *Current Anthropology* 44(4):523-558.

Marcus, Joyce, and Kent V. Flannery

2000 Ancient Zapotec Ritual and Religion: An Application of the Direct Historical Approach. In *The Ancient Civilizations of Mesoamerica: A Reader*, edited by Michael E. Smith and Marilyn A. Masson, pp. 400-421. Blackwell, Malden, MA.

Martin, Simon

2003 In Line of the Founder: A View of Dynastic Politics at Tikal. In *Tikal: Dynasties, Foreigners, and Affairs of State,* edited Jeremy A. Sabloff, pp. 3-45. School of American Research Press, Santa Fe.

Martin, Simon, and Nikolai Grube

2008 Chronicle of the Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya. 2nd ed. Thames and Hudson, London.

Martin-Sanchez, Pedro M., Santiago Sanchez-Cortes, Eduardo Lopez-Tobar, Valme Jurado, Fabiola Bastian, Claude Alabouvette, and Cesareo Saiz-Jimenez

2012 The Nature of Black Stains in Lascaux Cave, France, as Revealed by Surface-Enhanced Raman Spectroscopy. *Journal of Raman Spectroscopy* 43(3):464-467.

Mathema, Vivek Bhakta, Balkrishna Chand Thakuri, and Mika Sillanpää

2011 Bacterial Mer Operon-Mediated Detoxification of Mercurial Compounds: A Short Review. Archives of Microbiology 193(12):837-844. Mathews, Peter

1975 The Lintels of Structure 12, Yaxchilan, Chiapas. Paper presented at the Annual Conference of the Northeastern Anthropological Association, Wesleyan University, Middletown.

Matthews, Robert W., and Jorge M. González

2004 Nesting Biology of *Zeta argillaceum* (Hymenoptera: Vespidae: Eumeninae) in Southern Florida, U.S. *Florida Entomologist* 87:37-40. Available: www.bioone.org/doi/full/10.1653/0015-4040%282004%29087%5B0037%3ANBOZAH%5D 2.0.CO%3B2.

Maudslay, Alfred P.

1889-1902 Archaeology. 5 vols. Appendix to Biologia Centrali-Americana; or, Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. R. H. Porter and Dulau, London.

Maynard, David F., and Frances F. Berdan

2010 El adhesivo y el material de reparación de la mascara. In *Misterios de un rostro maya. La máscara funeraria de K'inich Janaab' Pakal de Palenque*, edited by Laura Filloy Nadal, pp. 154-161. Instituto Nacional de Antropología e Historia, Mexico.

McAnany, Patricia A.

1995 Living with the Ancestors: Kinship and Kingship in Ancient Maya Society. University of Texas Press,

1998 Ancestors and the Classic Maya Built Environment. In Function and Meaning in Classic Maya Architecture, edited by Stephen D. Houston, pp. 271-298. Dumbarton Oaks, Washington, D.C.

McNeil, Cameron L.

2010 Death and Chocolate: The Significance of Cacao Offerings in Ancient Maya Tombs and Caches at Copan, Honduras. In *Pre-Columbian Foodways: Interdisciplinary Approaches to Food, Culture, and Markets in Ancient Mesoamerica,* edited by John E. Staller and Michael Carrasco, pp. 293-314. Springer, New York.

Merwin, Raymond E., and George C. Vaillant

32 The Ruins of Holmul, Guatemala. Memoirs 3(2). Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge.

Miho Museum

2011 Tetrapod Vessel with Dog on Lid. *Miho Museum*: http://miho.jp/booth/html/artcon/00004354e. htm.

Miller, Mary, and Claudia Brittenham

2013 The Spectacle of the Late Maya Court: Reflections on the Murals of Bonampak. University of Texas Press, Austin.

Moholy-Nagy, Hattula, with William R. Coe

On The Artifacts of Tikal: Ornamental and Ceremonial Artifacts and Unworked Material. Tikal Report 27, Part A. Monograph 127. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.

Nascimento, Andréa M. A., and Edmar Chartone-Souza

2003 Operon Mer: Bacterial Resistance to Mercury and Potential for Bioremediation of Contaminated Environments. *Genetics and Molecular Research* 2(1):92-101.

Nuland, Sherwin B.

1994 How We Die: Reflections on Life's Final Chapter. Random House, New York.

Orrego Corzo, Miguel

2000 Informe sobre las investigaciones arqueológicas en el conjunto A-3, temporadas 1986-87, Río Azul, Municipio de Melchor de Mencos, Petén, Guatemala. In *Río Azul Reports, No. 5: The 1987 Season*, edited by Richard E. W. Adams, pp. 54-107. University of Texas at San Antonio, San Antonio.

Ortner, Donald I.

2002 Identification of Pathological Conditions in Human Skeletal Remains, 2nd ed. Academic Press, London.

Orton, Clive, Paul Tyers, and Alan Vince

1993 *Pottery in Archaeology.* Cambridge University Press, Cambridge.

Parsons, Elsie Clew

1933 Some Aztec and Pueblo Parallels. *American Anthropologist* 35(4):611-631.

Pereira, Grégory, and Dominique Michelet

2004 Gobernantes mayas en lechos de muerte: el caso de Balamkú, un patron funerario del Clásico Temprano. In Culto funerario en la sociedad maya. Memoria de la Cuarta Mesa Redonda de Palenque, edited by Rafael Cobos, pp. 333-368. Instituto Nacional de Antropología e Historia, Mexico.

Pendergast, David M.

1969 Altun Ha, British Honduras (Belize): The Sun God's Tomb. Art and Archaeology Occasional Papers 16. Royal Ontario Museum, Toronto.

1982a Excavations at Altun Ha, Belize, 1964-1970, v. 2. Royal Ontario Museum, Toronto.

1982b Ancient Maya Mercury. Science 217(4559):533-535.

Pillsbury, Joanne

1996 The Thorny Oyster and the Origins of Empire: Implications of Recently Uncovered *Spondylus* Imagery from Chan Chan, Peru. *Latin American Antiquity* 7(4):313-340.

Pires-Ferreira, Jane Wheeler

1978 Shell Exchange Networks in Formative Mesoamerica. In *Cultural Continuity in Mesoamerica*, edited by David L. Browman, pp. 79-100. Mouton Publishers, Chicago.

Pincemin, Sophia, Joyce Marcus, Lynda Florey Folan, William J. Folan, María del Rosario Domínguez Carrasco, and Abel Morales López

1998 Extending the Calakmul Dynasty Back in Time: A New Stela from a Maya Capital in Campeche, Mexico. *Latin American Antiquity* 9(4):310-327.

Plesters, Joyce

1956 Cross-sections and Chemical Analysis of Paint Samples. *Conservation* 2(3):110-157.

Pohl, John M. D.

2005 The Arroyo Group Lintel Painting at Mitla, Oaxaca. In *Painted Books and Indigenous Knowledge* in Mesoamerica: Manuscript Studies in Honor of Mary Elizabeth Smith, edited by Elizabeth H. Boone, pp. 109-127. Publication 69. Middle American Research Institute, Tulane University, New Orleans.

Pohl, Mary D.

Maya Ritual Faunas: Vertebrate Remains from Burials, Caches, Caves, and Cenotes in the Maya Lowlands. In *Civilization in the Ancient Americas: Essays in Honor of Gordon R. Willey*, edited by Richard M. Leventhal and Alan L. Kolata, pp. 55-103. Peabody Museum of Archaeology and Ethnology, Harvard University; University of New Mexico Press, Albuquerque.

Powis, Terry G., Fred Valdez, Jr., Thomas R. Hester, W. Jeffrey Hurst, and Stanley M. Tarka, Jr.

2002 Spouted Vessels and Cacao Use among the Preclassic Maya. *Latin American Antiquity* 13(1):85-106.

Pring, Duncan C.

000 The Protoclassic in the Maya Lowlands. BAR International Series 908. British Archaeological Reports, Oxford.

Redfield, Robert, and Alfonso Villa Rojas

1934 Chan Kom: A Maya Village. Publication 448. Carnegie Institution of Washington, Washington, D.C.

Rich, Michelle E.

2011 Ritual, Royalty, and Classic Period Politics: The Archaeology of the Mirador Group at El Perú-Waka', Petén, Guatemala. Ph.D. dissertation, Department of Anthropology, Southern Methodist University, Dallas.

Ricketson, Oliver G., Jr., and Edith B. Ricketson

1937 *Uaxactun, Guatemala: Group E, 1926-1931*.
Publication 477. Carnegie Institution of Washington, Washington, D.C.

Riese, Berthold

1984 Hel Hieroglyphs. In *Phoneticism in Mayan Hieroglyphic Writing*, edited by John S. Justeson and Lyle Campbell, pp. 263-286. Institute for Mesoamerican Studies Publication 9. State University of New York at Albany.

Robertson, John, Stephen Houston, Marc Zender, and David Stuart

2007 Universals and the Logic of the Material Implication: A Case Study from Maya Hieroglyphic Writing. Research Reports on Ancient Maya Writing 62. Electronic document, http://repositories.lib. utexas.edu/handle/2152/17706.

Robertson, Merle G.

1 The Sculpture of Palenque, Volume IV: The Cross Group, the North Group, the Olvidado, and Other Pieces. Princeton University Press, Princeton.

Rochette, Erick T.

2009 The Late Classic Organization of Jade Artifact Production in the Middle Motagua Valley, Zacapa, Guatemala. Ph.D. dissertation, Department of Anthropology, Pennsylvania State University, University Park.

Román Ramírez, Edwin

2011 Living the Sacred Landscape: The Process of Abandonment of the Early Classic Maya Group of El Diablo at El Zotz, Peten, Guatemala. M.A. thesis, Department of Latin American Studies, University of Texas at Austin.

Román, Edwin, Heather Hurst, Karl Taube, David Stuart, and William Saturno

Nuevos hallazgos arquitectónicos y pictóricos en la Pirámide Las Pinturas, San Bartolo, Petén. In XIX Simposio de Investigaciones Arqueológicas en Guatemala, 2005, edited by Juan Pedro Laporte, Bárbara Arroyo, and Héctor E. Mejía, v. 2, pp. 571-578. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal; Fundación Arqueológica del Nuevo Mundo, Guatemala.

2009 Estructuras ceremoniales del periodo Preclásico: Ixim, un ejemplo de ello. In XXII Simposio de Investigaciones Arqueológicas en Guatemala, 2008, edited by Juan Pedro Laporte, Bárbara Arroyo, and Héctor E. Mejía, v. 2, pp. 1253-1265. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal, Guatemala.

Román, Edwin, and Sarah Newman

2011 Excavaciones en el Grupo El Diablo (Operación 5). In Proyecto Arqueológico "El Zotz," informe no. 5, temporada 2010, edited by Jose Luis Garrido López, Stephen Houston, and Edwin Román, pp. 117-162. Report submitted to the Dirección General del Patrimonio Cultural y Natural de Guatemala.

Romero Molina, Javier

1986 Catálogo de la colección de dientes mutilados prehispánicos, IV parte. Colección Fuentes. Instituto Nacional de Antropología e Historia, Mexico.

Ruz Lhuillier, Alberto

1968 Costumbres funerarias de los antiguos mayas. Universidad Nacional Autónoma de México, Mexico.

Sahagún, Bernardino de

1950-1982 Florentine Codex: General History of the Things of New Spain. Translated from the Aztec into English, with Notes and Illustrations by Arthur J. O. Anderson and Charles E. Dibble. 12 vols. School of American Research Press; University of Utah, Santa Fe.

Saturno, William, Karl A. Taube, and David Stuart

The Murals of San Bartolo, El Petén, Guatemala, Part I: The North Wall. Ancient America 7. Center for Ancient American Studies, Barnardsville, NC.

Saunders, Nicholas I.

1988 Anthropological Reflections on Archaeological Mirrors. In Recent Studies in Pre-Columbian Archaeology, edited by Nicholas J. Saunders and Olivier de Montmollin, pp. 1-39. BAR International Series 421. British Archaeological Reports, Oxford.

Sax, Margaret, Nigel D. Meeks, and Dominque Collon

2000 The Introduction of the Lapidary Engraving Wheel in Mesopotamia. Antiquity 74(284):380-

Schele, Linda

1992 The Founders of Lineages at Copan and Other Maya Sites. Ancient Mesoamerica 3(1):135-144.

Schele, Linda, and Mary Ellen Miller

1986 The Blood of Kings: Dynasty and Ritual in Maya Art. Braziller; Kimbell Art Museum, Fort Worth.

Scott, David A., M. Newman, M. Schilling, M. Derrick, and H. P. Khanjian

Blood as a Binding Medium in a Chumash Indian Pigment Cake. Archaeometry 38(1):103-112.

Schmidt, Christopher W., and Steven A. Symes, eds. 2008 The Analysis of Burned Human Remains. Academic Press, Oxford.

Sempowski, Martha L., and Michael W. Spence

1994 Mortuary Practices and Skeletal Remains at Teotihuacan, Urbanization at Teotihuacan, Mexico 3. University of Utah Press, Salt Lake City.

Sharer, Robert J., David W. Sedat, Loa P. Traxler, Julia C. Miller, and Ellen E. Bell

2005 Early Classic Royal Power in Copan: The Origins and Development of the Acropolis (ca. A.D. 250-600). In Copán: The History of an Ancient Maya Kingdom, edited by E. Wyllys Andrews, and William L. Fash, pp. 139-199. School of American Research Press, Santa Fe.

Sievert, April K. 1990 Postclassic Maya Ritual Behavior: Regional Microwear Analysis of Stone Tools from Ceremonial Contexts. In The Interpretative Possibilities of Microwear Studies, edited by Bo Gräslund, Helena Knutsson, Kjel Knutsson, and Jaqueline Taffinder, pp. 147-158. AUN 14. Societas Archaeologica Upsaliensis, Uppsala.

Maya Ceremonial Specialization: Lithic Tools from the Sacred Cenote at Chichén Itzá, Yucatán. Prehistory Press, Madison.

Smith, Alfred Ledyard

Uaxactun, Guatemala: Excavations of 1931-1937. Publication 588. Carnegie Institute of Washington, Washington, D.C.

Smith, B. Holly

Standards of Human Tooth Formation and Dental Age Assessment. In Advances in Dental Anthropology, edited by Mark A. Kelley and Clark S. Larsen, pp. 143-168. Wiley, New York. Available: http://deepblue.lib.umich.edu/ handle/2027.42/90867.

Smith, Robert E.

Ceramic Sequence at Uaxactun, Guatemala. 2 vols. Publication 20. Middle American Research Institute, Tulane University, New Orleans.

Temple of the Night Sun

Smith, Robert E., and James C. Gifford

1966 Maya Ceramic Varieties, Types, and Wares at Uaxactun: Supplement to "Ceramic Sequence at Uaxactun, Guatemala." Preprint of Middle American Research Records 3:125-174. Publication 28. Middle American Research Institute, Tulane University, New Orleans.

Stemp, William J.

2001 Chipped Stone Tool Use in the Maya Coastal Economies of Marco Gonzalez and San Pedro, Amberoris Cave, Belize. BAR International Series 935. British Archaeological

2004 Maya Coastal Subsistence and Craft-Production at San Pedro, Ambergris Caye, Belize: The Lithic Use-Wear Evidence. Lithic Technology 29(1):33-73.

Stemp, William J., Christophe G. B. Helmke, and Jaime J.

2010 Evidence for Maya Household Subsistence and Domestic Activities: Use-Wear Analysis of the Chipped Chert Assemblage from Pook's Hill, Belize. Journal of Field Archaeology 35(2):217-234.

1988 Blood Symbolism in Maya Iconography. In Maya Iconography, edited by Elizabeth P. Benson and Gillett G. Griffin, pp. 175-221. Princeton University Press,

2006 Sourcebook for the 30th Maya Meetings, March 14-19, 2006. Mesoamerican Center; Department of Art and Art History, University of Texas, Austin.

Old Notes on the Possible ITZAM Sign. Maya Decipherment: decipherment.wordpress. com/2007/09/29/old-notes-on-the-possible-itzam-

2010 Shining Stones: Observations on the Ritual Meaning of Early Maya Stelae. In The Place of Stone Monuments: Context, Use, and Meaning in Mesoamerica's Preclassic Transition, edited by Julia Guernsey, John E. Clark, and Barbara Arroyo, pp. 283-340. Dumbarton Oaks, Washington, D.C.

Stuart, David, and George Stuart

2008 Palenque: Eternal Čity of the Maya. Thames and Hudson, New York.

Suzuki, Isamu

2001 Microbial Leaching of Metals from Sulfide Minerals. Biotechnology Advances 19(2):119-132.

Syms, Steven A., Christopher W. Rainwater, Erin N. Chapman, Desina Rachael Gipson, and Andrea L. Piper

2008 Patterned Thermal Destruction of Human Remains in a Forensic Setting. In *The Analysis of Burned Human Remains*, edited by Christopher W. Schmidt and Steven A. Symes, pp. 15-54. Academic Press, London.

Taschek, Jennifer T., and Joseph W. Ball

1999 Las Ruinas de Arenal: Preliminary Report on a Subregional Major Center in the Western Belize Valley (1991-1992 Excavations). Ancient Mesoamerica 10(2):215-235.

Taube, Karl A.

1988 A Study of Classic Maya Scaffold Sacrifice. In Maya Iconography, edited by Élizabeth P. Benson and Gillett G. Griffin, pp. 331-351. Princeton University Press, Princeton.

The Maize Tamale in Classic Maya Diet, Epigraphy, and Art. American Antiquity 54(1):31-51.

1993a Aztec and Maya Myths. University of Texas Press,

1993b The Iconography of Mirrors at Teotihuacan. In Art, Ideology, and the City of Teotihuacan, edited by Janet C. Berlo, pp. 169-204. Dumbarton Oaks, Washington, D.C.

1998 The Jade Hearth: Centrality, Rulership, and the Classic Maya Temple. In Function and Meaning in Classic Maya Architecture, edited by Stephen D. Houston, pp. 427-478. Dumbarton Oaks, Washington, D.C.

The Writing System of Ancient Teotihuacan. Ancient America 1. Center for Ancient American Studies,

Barnardsville, NC.

2003a Ancient and Contemporary Maya Conceptions about Field and Forest. In The Lowland Maya Area: Three Millennia at the Human-Wildland Interface, edited by Arturo Gómez-Pompa, Michael F. Allen, Scott L. Fedick, and Juan J. Jiménez-Osornio, pp. 461-492. Food Products Press, New York.

2003b Maws of Heaven and Hell: The Symbolism of the Centipede and Serpent in Classic Maya Religion. In Antropología de la eternidad: la muerte en la cultura maya, edited by Andrés Ciudad Ruiz, Mario Humberto Ruz Sosa, and María Josefa Iglesias Ponce de León, pp. 405-442. Sociedad Española de Estudios Mayas, Madrid.

2004a Structure 10L-16 and Its Early Classic Antecedents: Fire and the Evocation and Kesurrection of K'inich Yax K'uk' Mo'. In Understanding Early Classic Copan, edited by Ellen E. Bell, Marcello A. Canuto, and Robert J. Sharer, pp. 265-295. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.

2004b Flower Mountain: Concepts of Life, Beauty and Paradise among the Classic Maya. Res: Anthropology and Aesthetics 45:69-98.

The Symbolism of Jade in Classic Maya Religion. Ancient Mesoamerica 16(1):23-50.

Where Earth and Sky Meet: The Sea in Ancient and Contemporary Maya Cosmology. In Fiery Pool: The Maya and the Mythic Sea, edited by Daniel Finamore and Stephen D. Houston, pp. 202-219. Peabody Essex Museum; Yale University Press, New Haven.

Iconographie du monde maya ancien. In Maya de l'aube au crépuscule: Collections nationales du

Guatemala, pp. 50-57. Musée du quai Branly, Paris. The Classic Maya Temple: Centrality, Cosmology and Sacred Geography in Ancient Mesoamerica. In Heaven on Earth: Temples, Ritual and Cosmic Symbolism in the Ancient World, edited by Deena Ragavan, pp. 89-125. Oriental Institute, University of Chicago.

Taube, Karl, and Stephen Houston

2010 Lidded Bowl with the Iguana-Jaguar Eviscerating Humans. In Fiery Pool: The Maya and the Mythic Sea, edited by Daniel Finamore and Stephen D. Houston, pp. 250-253. Peabody Essex Museum; Yale University Press, New Haven.

Taube, Karl A., and Reiko Ishihara-Brito

From Stone to Jewel. In Ancient Maya Art at Dumbarton Oaks, edited by Joanne Pillsbury, Miriam Doutriaux, Reiko Ishihara-Brito, and Alexandre Tokovinine, pp. 134-153. Dumbarton Oaks, Washington, D.C.

Taube, Karl, William Saturno, David Stuart, and Heather Hurst

2010 The Murals of San Bartolo, El Petén, Guatemala, Part 2: The West Wall. Ancient America 10. Boundary End Archaeology Research Center, Barnardsville, NC.

Than, Ker

2013 Giant Maya Carvings Found in Guatemala. *National Geographic Daily News*: news.nationalgeographic. com/news/2013/08/pictures/130807-maya-frieze-discovered-holmul-guatemala-archaeology.

Tiesler Blos, Vera

1998 La costumbre de la deformación cefálica entre los antiguos mayas. Aspectos morfológicos y culturales. Instituto Nacional de Antropología e Historia, Mexico.

Turner, Christy G., II, C. R. Nichol, and G. Richard Scott

1991 Scoring Procedures for Key Morphological Traits of the Permanent Dentition: The Arizona State University Dental Anthropology System. In *Advances in Dental Anthropology*, edited by Mark A. Kelley and Clark S. Larsen, pp. 13-31. Wiley, New York.

Ubelaker, Douglas H.

1999 Human Skeletal Remains: Excavation, Analysis, and Interpretation. 3rd ed. Taraxacum, Washington, D.C.

Valdés, Juan Antonio

2005 Él Grupo A: nacimiento y ocaso de la Plaza Este. In El periodo Clásico Temprano en Uaxactún, Guatemala, edited by Juan Antonio Valdés, pp. 27-68. Instituto de Investigaciones Antropológicas y Arqueológicas, Universidad de San Carlos, Guatemala.

Valdés, Juan Antonio, and Federico Fahsen

1995 The Reigning Dynasty of Uaxactun during the Early Classic: The Rulers and the Ruled. *Ancient Mesoamerica* 6(2):197-220.

Valdés, Juan Antonio, Federico Fahsen, and Gaspar Muñoz Cosme

1997 Estela 40 de Tikal. Hallazgo y lectura. Instituto de Antropología e Historia de Guatemala, Guatemala.

Vasanthakumar, Archana, Alice DeAraujo, Joy Mazurek, Michael Schilling, and Ralph Mitchell

2013 Microbiological Survey for Analysis of the Brown Spots on the Walls of the Tomb of King Tutankhamun. *International Biodeterioration & Biodegradation* 79:56-63.

Vaughan, Patrick

1985 *Úse-Wear Analysis of Flaked Stone Tools.* University of Arizona Press, Tucson.

Vázquez de Agredos Pascual, María Luisa

2007 Los colores y las técnicas de la pintura mural maya. *Proceedings of the Anales del Museo de América* 15:55-66.

Von Winning, Hasso

1987 La iconografía de Teotihuacán. Los dioses y los signos. Universidad Nacional Autónoma de México, Mexico.

Walsh, Jane MacLaren

2008 The Dumbarton Oaks Tlazolteotl: Looking Beneath the Surface. *Journal de la Société des Américanistes* 94(1):7-43. Available: http://jsa.revues.org/8623.

Wagner-Döbler, Irene

2003 Pilot Plant for Bioremediation of Mercury-Containing Industrial Wastewater. *Applied Microbiology and Biotechnology* 62(2-3):124-133.

Watanabe, John M.

1992 Maya Saints and Souls in a Changing World. University of Texas Press, Austin.

Welsh, W. Bruce M.

1988 An Analysis of Classic Lowland Maya Burials. BAR International Series 409. British Archaeological Reports, Oxford.

Wisdom, Charles

1950 Materials on the Chorti Language. Microfilm Collection of Manuscripts on Middle American Cultural Anthropology 28. University of Chicago Library, Chicago. Available: www.utexas.edu/courses/stross/chorti/.

Wright, Lori E.

2005 In Search of Yax Nuun Ayiin I: Revisiting the Tikal Project's Burial 10. *Ancient Mesoamerica* 16(1):89-

Wright, Lori E., Juan Antonio Valdés, James H. Burton, T. Douglas Price, and Henry P. Schwarcz

2010 The Children of Kaminaljuyu: Isotopic Insight into Diet and Long Distance Interaction in Mesoamerica. *Journal of Anthropological Archaeology* 29(2):155-178.

Yadeun, Juan

1993 *Toniná*. El Equilibistra, Mexico.