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At the Crossroads of Kingdoms: Recent Investigations on the Periphery of Piedras Negras and its Neighbors

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Since 2011, the Proyecto Arqueológico Busilja-Chocolja (PABC) has sought to understand the kingdom of Piedras Negras through the archaeological study of communities located at the kingdom's periphery. Of particular interest has been the reconstruction of the diverse strategies employed by royal courts, local governors, and communities to navigate the complicated geopolitics of the western Maya lowlands during the Late Classic period (AD 500–800). While the Sierra del Lacandón Regional Archaeology Project (SLRAP) in Guatemala noted defined boundaries between Piedras Negras and Yaxchilan (Golden and Scherer 2006; Golden et al. 2008; Golden et al. 2012; Scherer and Golden 2009; Scherer and Golden 2014), our surveys in Chiapas, Mexico have suggested more complex territorial shifts over time. Indeed, the project area was contested throughout the Classic period by the kingdoms of Piedras Negras, Palenque, Tonina, and Sak Tz'i', the minor centers of La Mar and El Cayo, and the numerous smaller settlements throughout the region (Figures 1 and 2). To understand the role that these smaller settlements played in the broader political dynamics of the region, we interpret survey, excavation, and ceramic data by adopting the concepts of landesque capital and persistent places to interpret long-term landscape modification from the Preclassic period to the present (Brookfield 1984; Schlanger 1992; Sen [1960]1968).

The concept of landesque capital was originally applied to agricultural features constructed over the course of multiple generations (Blaikie and Brookfield 1987:9; Brookfield 2001; Marx [1894]1992:618-619; Sen 1959; Widgren 2007). Once established, these works can be maintained with minimal labor relative to the initial cost of their construction. This type of capital is ingrained in the landscape, where its value is reaffirmed over multiple generations through low costs of maintenance. Erickson and Walker (2006) have expanded the application of this concept beyond agriculture to encompass anthropogenic features, including paths,

Figure 1. Map of the Middle and Upper Usumacinta Region showing dynastic centers and secondary sites.

elevated causeways, and canals that facilitate the movement of people and things on a local and regional scale. Moreover, Kathleen Morrison (2014) has suggested that features including temples, shrines, and markets, as well as broader political and religious institutions that managed agricultural production should be considered as landesque capital. Although this broadening of scope does in some sense dilute the original significance of the term, it more meaningfully shifts the emphasis away from a particular landscape function (agriculture) to one that emphasizes the value of an enduring, heritable built environment.

For example, Elizabeth Arkush (2011:12) adopts the term landscape patrimony to describe the construction and maintenance of fortifications as perpetuating cycles of violence within contested landscapes. Such locations form persistent places, where repeated practice encourages and structures reuse (Chapman 2000:190; Moore and Thompson 2012; Rodning and Mehta 2016; Schlanger 1992). Changes in the experience and the perceptions of landscape are also tangible if we adopt the "dwelling perspective" of Ingold (1993, 2000), which suggests that the landscape represents a type of solidified performance that reflects social relations while continuing to impact and influence society. In this manner, the maintenance and control of movement across the landscape can be understood not only as expressions of a centralized political hierarchy but also at the scale of a community organized around local needs and the transformation of economic value and local experience.

The nature of dispersed settlement in the Western Maya lowlands during the Late Classic period provided opportunities where diverse communities had differential access and control over trade routes and areas of agricultural production in the Upper Usumacinta Basin. Within the Usumacinta Basin, examples of landesque capital include hydrologic features and the intensification of agricultural fields in the form of dams, channeled

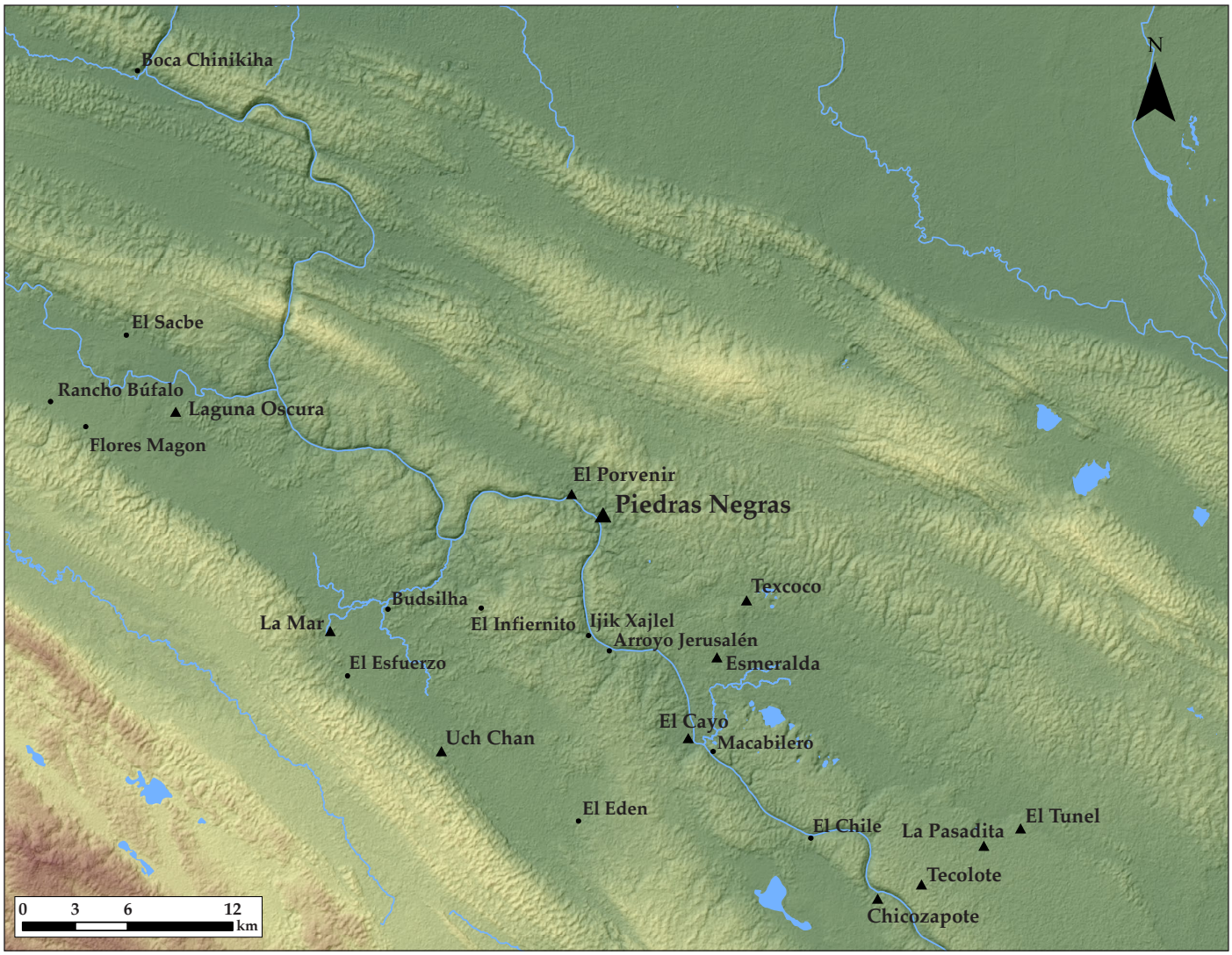

Figure 2. The Piedras Negras hinterlands showing sites mentioned in the text.

fields, and terraces (Figures 3 and 4). In addition, as other archaeologists have done, we can apply this concept to other features that aid in movement including trails, landscape viewsheds, elevated causeways (*sacbeob*), river access, and caves, as well as natural and cultural features that restrict travel, including fortifications (Golden et al. 2008).

In the rugged terrain of the Sierra Lacandona, the Maya utilized the canyons and passes through mountains to facilitate as well as to impede movement, promoting at times integration, while at other times inciting conflict, among settlements. In addition, we must consider features like hilltops and other high points that improved visibility of the surrounding landscape. Such strategic locations allowed communities to control critical land routes and to participate in rituals and pilgrimmages, and presented opportunities for military forces and political administrators to take in the ample extent of their territories (Davenport and Golden 2015; Doyle et al. 2012; Golden and Davenport 2013). When considered merely as natural features, such places appear to be stable or static; however, these areas required maintenance through the clearing of vegetation, opening of transects, and construction of platforms. Archaeologists have recovered abundant evidence of such persistent places in the Usumacinta region, particularly within conflict zones between rival kingdoms.

Local control of such examples of landscape modification directly impacted economic exchange. Based on results from earlier investigations, long-distance trade items such as jade and obsidian did not decline in frequency or quantity in a linear manner according to a site's distance from sources along the Motagua River valley and the highlands. In fact, the rulers of political centers were not necessarily able to accumulate such riches in excess of their subjects along the political peripheries, as might be expected if the power to control such networks spread outward from the royal court.

Figure 3. Agricultural terraces near the site of El Eden, Chiapas (photo by Charles Golden).

Figure 4. Potential relict channeled fields near the site of Budsilha, Chiapas (Google Earth, map of Budsilha by Bryce Davenport, Charles Golden, Andrew Scherer, and Jeffrey Dobereiner).

Indeed, when comparing the quantities of jade and obsidian excavated from the urban centers of Palenque and Yaxchilan, Piedras Negras appears to have been isolated physically and economically from trade in lithic materials (Garcial Moll 2004; Golden et al. 2012; Ruz Lhuiller 1973). For example, while the royal burials of Palenque and Yaxchilan were adorned with jade, the rulers of Piedras Negras were buried with clay beads painted green (Barrientos et al. 1997:8; Butler 2005: 128; Coe 1959: 88).

In contrast, secondary and tertiary political centers in the vicinity of Piedras Negras had better access to imported lithic materials. For example, excavations in a single 2 x 2 meter unit on a structure at Budsilha have revealed evidence of an obsidian blade workshop. Over the course of a day of excavation, we recovered more obsidian in this unit than has been documented over more than ten seasons of excavation at Piedras Negras. Aside from the dramatic quantity of obsidian at Budsilha, we noted the presence of all stages of manufacture from prismatic blades to polyhedral cores (Scherer et al. 2013:21-31). Furthermore, in spite of the scarcity of jade in Piedras Negras, villagers in the vicinity of the archaeological site of Flores Magon, 20 km northwest of Budsilha, recovered a fragment of jade weighing approximately 5 kilograms when machinery destroyed various structures to construct the modern highway that passes through the site (Golden and Scherer 2011:112-113) (Figure 5).

Though limited, this evidence suggests that local administrators and community members at minor centers, like Flores Magon and Budsilha, had the power to import and produce valuable objects in parallel with or even bypassing the trade networks among royal centers. The significant presence of ceramics originating from the zones of Palenque and Chinikiha at Budsilha, in spite of the latter site's proximity and clear political relationship to Piedras Negras, offers more evidence to support this possibility (Jiménez Álvarez et al. 2014). Perhaps the non-royal actors of these sites were more integrated with regional economic exchange than were the nobles and the royal family at sites like Piedras Negras. Indeed, this possibility has been explored more broadly throughout Mesoamerica by Golitko and Feinman (2015:209), who propose that networks of long-distance exchange diverged from simple least-cost predictions and top-down models of state control.

The ability of such communities to participate, and possibly control portions of these routes and networks of exchange relates to their positions at transport nodes. Secondary sites, particularly centers like La Mar and El Cayo, are located at the nexus of least cost paths connecting the royal centers of Tonina, Sak Tz'i', Yaxchilan, and Piedras Negras (Anaya Hernández 2001). The broken terrain of the Upper Usumacinta Basin partly restricts movement across land and water, and with minimal investment, people could maintain control over the few

Figure 5. Artifacts recovered from Flores Magon, Chiapas during highway construction (photo by Charles Golden).

mountain passes, as well as the beaches and other places of portage along the rivers. Armando Anaya Hernández (2001) and Mario Aliphat Fernández (1994) have identified the valleys in Mexico and Guatemala that run from southeast to northwest parallel to the Usumacinta River as the most important land routes that encouraged political integration and competition among the numerous communities and kingdoms of the Late Classic period in the region between Palenque and Yaxchilan. To these routes, we can also add the narrow valleys and canyons perpendicular to the Usumacinta River, particularly the path between Tonina (or modern Ocosingo) and La Mar (a route still used by pedestrians and vehicles) and the trails that cross from the Usumacinta River toward the San Pedro River and the Central Peten.

During the Late Classic period, these valleys became contested resources, often protected with military force. The maintenance and control of these landscape features were incorporated into the political strategies of diverse kingdoms to monitor movement (Golden et al. 2008). Anaya Hernández (2001) has generated GIS models to reconstruct the hypothetical boundaries of the kingdoms in the Usumacinta region, that correspond in part with controlled points of access on the landscape. In addition,

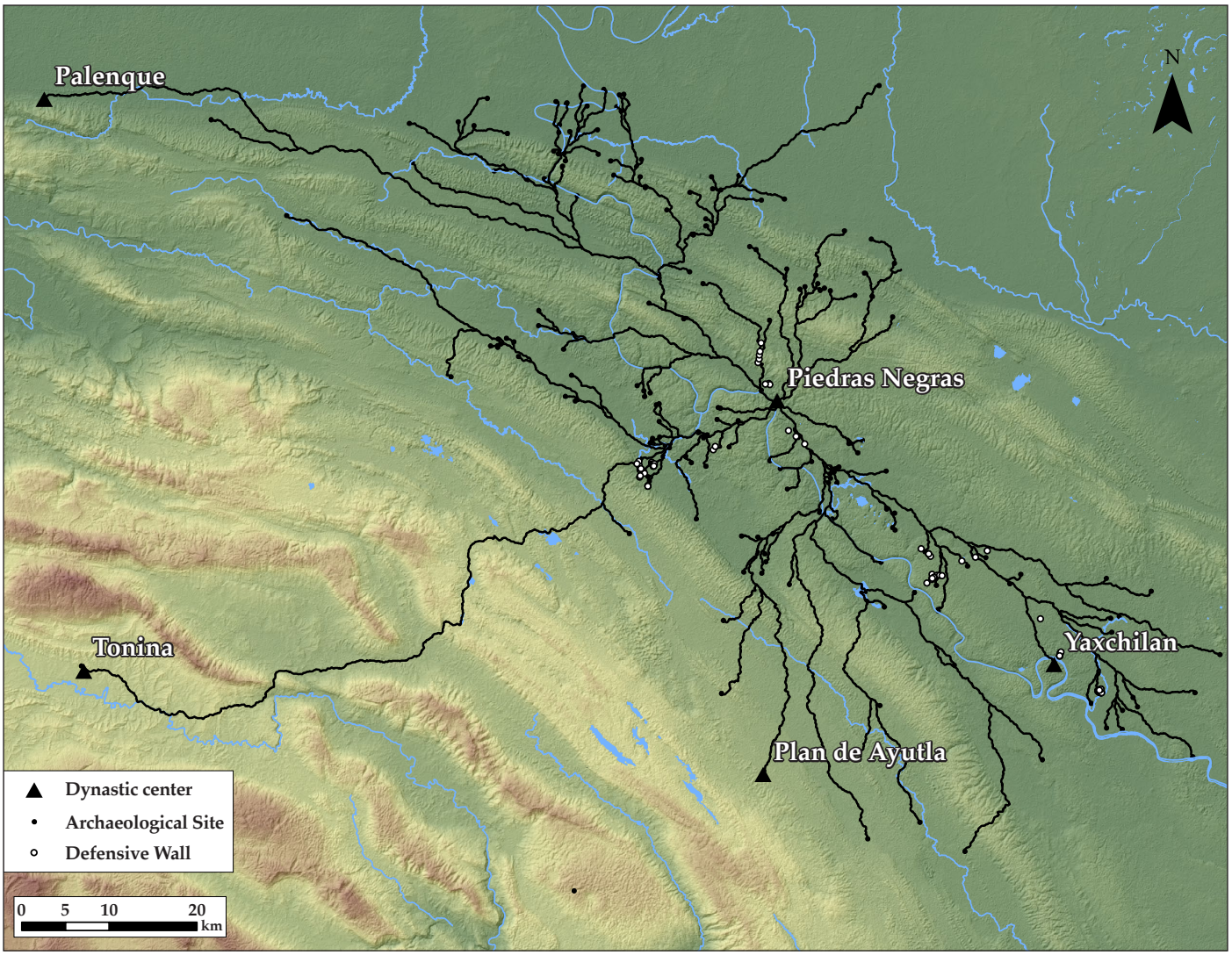

Figure 6. Location of defensive walls and least cost routes toward Piedras Negras.

Scherer and Golden (2009, 2014) have documented archaeologically the presence of a line of sites, including Tecolote, La Pasadita, and potentially Chicozapote in Mexico, possibly purpose-built for military reasons. These sites are associated with landscape-oriented walls and watchtowers, representing a military strategy on the part of the rulers of Yaxchilan to protect, delimit, and expand the frontier of their kingdom (Figure 6).

Nonetheless, as Carballo (2013:10) has noted, the construction and maintenance of defensive features like walls and palisades provide a public benefit to the community and a form of capital at a local level. Archaeologists should therefore consider the costs and benefits of such works for the local community, not merely the royal court or kingdom. In this way, while examining the reasons the rulers of Piedras Negras did not focus their efforts and resources on the fortification of their political borders, as did their conterparts at Yaxchilan, we must also recognize that perhaps the non-royal inhabitants of the Piedras Negras territory perceived no benefit in occupying or investing labor in a contested and dangerous frontier.

Local Defense

In fact, in peripheral areas like La Mar defensive features appear to be community-oriented, focused on the protection of an associated settlement. Archaeological survey to the south and west of La Mar has demonstrated that due to the rugged nature of the terrain, movement across the foothills would have been restricted to the passes and narrow valleys that cross west toward Tonina and to the east toward the Usumacinta River and Piedras Negras (Figure 7). Least cost models, as well as the movement of people who continue to cross the range by foot, clearly indicate that the site of La Mar and its surroundings formed a type of funnel or junction of multiple paths (Golden et al. 2012: 12). From La Mar,

a system of control points could have been used to monitor the movement of large and small forces of people. Not surprisingly, the epigraphic evidence indicates that the rulers of La Mar were important allies of Piedras Negras and the victims of attacks and capture at the hands of the kingdoms of Tonina and Palenque (Martin and Grube 2008; Mathews 2001; Yadeun 2011:55; Zender 2002:176-183).

Archaeological evidence near La Mar confirms the interpretation that defense of the immediate area was a central concern of local actors. In 2013, Scherer directed investigations in the hillslopes above La Mar, where he documented a system of stone walls that served as the foundations for palisades and gates among the lowlying passages between the hills (Scherer, Golden, Guzmán López 2013) (Figure 8). These defenses included not only architectural features but also caches and deposits of weapons, including lanceheads, knives, and stones for slings. During further reconaissance of the area in 2013 and 2014, we documented similar features near settlements, clearly for local defense of other passes south of La Mar, taking advantage of the possibility to maintain palisades at a local level with minimal investment and oversight (Schroder 2014b). This strategy differs from examples along the northern frontier of Yaxchilan, where defensive walls appear to protect the territory as a whole (Scherer and Golden 2009, 2014). In contrast, the focus of the defensive systems in the La Mar hinterlands was the protection of local communities. In this manner, although the lord of La Mar was an important ally of Piedras Negras, the local La Mar community was more disposed to protect its own settlement than to defend a relatively distant dynastic center.

Another example of community-oriented defense is the hilltop site of El Infiernito, located approximately halfway between La Mar and Piedras Negras (Figure 9). This site appears to have been naturally conducive to defense, as the majority of settlement is located on a crescent-shaped escarpment (Figure 10) with expansive views of the valley to the west, with viewshed analysis suggesting that every documented minor center in this valley would have been visible from the summit (Schroder et al. 2015). Furthermore, access to the epicenter of the site from the northwest and the southwest is blocked by dry stone masonry walls, the latter of which measures 20 m long and 4 m high (Figure 11). In fact, this wall would have sealed off the opening in the crescent shape of the hill, restricting access to the site and protecting a water spring and agricultural terraces (Schroder and Roddy 2016). Excavations have documented Late Preclassic occupations at the base and summit of the hill and Late, Terminal, and Postclassic settlement on the summit, underscoring

Figure 7. Architectural group at El Esfuerzo, Chiapas possibly meant to guard a natural chokepoint south of La Mar.

Figure 8. Excexcavation of a system of defensive features near La Mar.

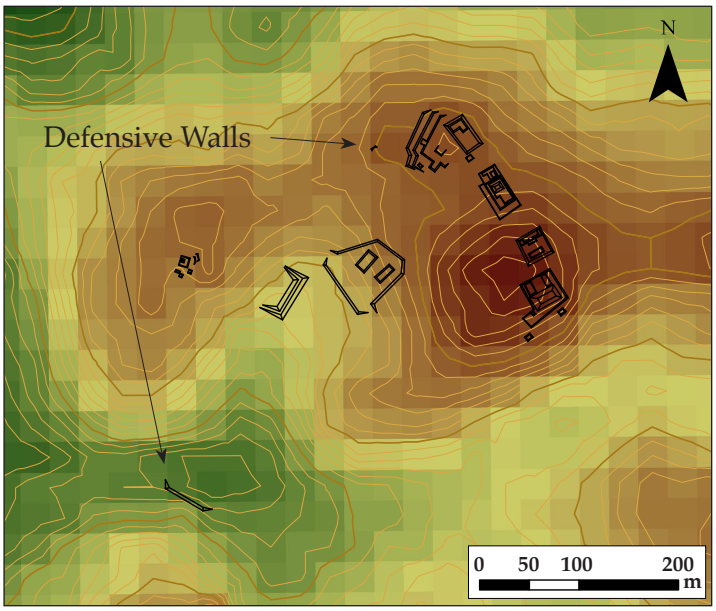

Figure 9. Preliminary map of El Infiernito, Chiapas.

Figure 10. View of the El Infiernito hilltop from the southwest.

Figure 11. Defensive wall at the base of the hill, El Infiernito.

Figure 12. View of *sacbe* near Rancho Búfalo, Chiapas.

the persistence of this place as a refuge during times of crisis.

Elevated Causeways or *Sacbeob*

Modifications to the landscape did not merely serve the purpose of restricting movement but also to facilitate transport. One of the most significant terrestrial routes linking Yaxchilan, Palenque, Sak Tz'i', and Piedras Negras is located in the wide valley west of the Usumacinta River. Today, the modern highway follows more or less this same least cost path. In fact, this highway likely covers large portions of a Precolumbian path that connected the sites La Cascada, Chancala, Flores Magon, La Mar, and Uch Chan (Scherer and Golden 2012), as we know that highway construction damaged large structures within these sites. Silva de la Mora (2008) confirmed this suspicion by documenting sections of a causeway connecting La Cascada, San Juan Chancalaito, and Chancala. The absence of a *sacbe* further south may be due to highway construction or it could signify a lesser degree of integration among sites outside of the Palenque kingdom.

During the 2014 field season, Dobereiner (2014) documented another section of a *sacbe* 10 km to the northeast of the Preclassic period site Rancho Búfalo. This causeway varies between 1 and 4 m in height, incorporating sections of modified hills to cross the surrounding landscape (Figures 12 and 13). The preliminary evidence suggests that this *sacbe* was a continuation of the La Cascada-Chancala causeway (Silva de la Mora 2008), paralleling the Chocolja River and possibly providing an alternate route to the Usumacinta River. Stone causeways stand in contrast with other landscape modifications described in this paper as features that imply a high degree of centralization. Though causeways would have benefited local communities and major centers alike, the coordination among sites required in their construction and maintenance would seem to demand state influence (Hutson et al. 2012; Shaw 2008; 2012).

Beaches, Ports, and Portage

Other settlements along the banks of the Usumacinta River exemplify other forms of landesque capital in the form of portage and ports. Canter (2007) has investigated

the possibility of navigating the Usumacinta River downstream by canoe, and through this study he has noted a consistent pattern of river sites that include from south to north Anaite, Tecolote, Chicozapote, El Chile, El Cayo, and El Porvenir. Each of these sites is located at prime locations for portage, immediately before or after dangerous rapids. El Porvenir, for example, sits at the crossroads of land routes toward Tabasco to the north and Piedras Negras to the south (Kingsley et al. 2012) (Figure 14). The expansive beach adjacent to the site continues to serve as the main landing for canoes and motorboats along the way to Piedras Negras. The enduring importance of the site of El Porvenir as a nexus of terrestrial and riverine travel routes is further underscored by its long, nearly continuous history of occupation from the Preclassic period to the present, with settlements dating to the Early Postclassic, the Lacandon, logging camps, CPR-P villages, and finally an outpost for the Sierra del Lacandón National Park.

In 2014, our archaeological reconnaissance of the area documented further settlement between El Cayo and Piedras Negras on the Mexican side of the border, centered on the modern community of Arroyo Jerusalén (Schroder 2014a). Arroyo Jerusalén is located at a natural access point between the sites of La Mar, Budsilha, and El Cayo, and the route to Piedras Negras by river is short, approximately 10 km. Arroyo Jerusalén's core settlement is within the modern community, only 50 m south of the Usumacinta River (Figures 15 and 16). This stretch of river parallels a broad shingle beach along a gradual bend immediately upstream from the "Piedras Negras Canyon" and the "Raudal el Desempeño," a Class 1 rapid (Canter 2007:11) (Figure 17). Above these rapids, approximately 1 kilometer northwest of Arroyo Jerusalén, lies a small settlement, Ijik Xajlel. This location is notable locally for the presence of a large black rock in the middle of the Usumacinta River, local geology for which the site, as well as Piedras Negras, were named (Figure 18). Thus, Arroyo Jerusalén and Ijik Xajlel offer the last opportunity for portage to avoid the rapids and swift waters above Piedras Negras. In addition, across the river from Ijik Xajlel, a land route through a series of canyons would have provided terrestrial access to Piedras Negras. Though we have not had the opportunity to conduct archaeological excavations in the area, looted

Figure 13. Portion of *sacbe* near Rancho Búfalo, Chiapas.

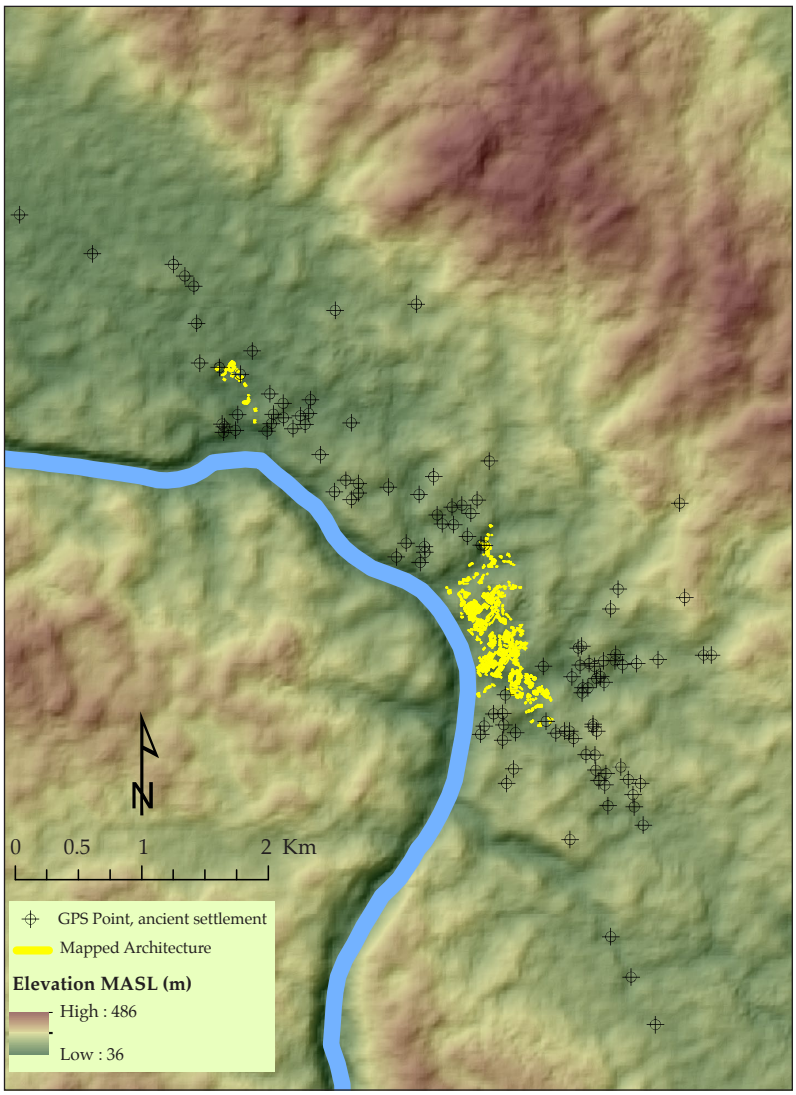

Figure 14. Settlement between El Porvenir and Piedras Negras, Peten, Guatemala.

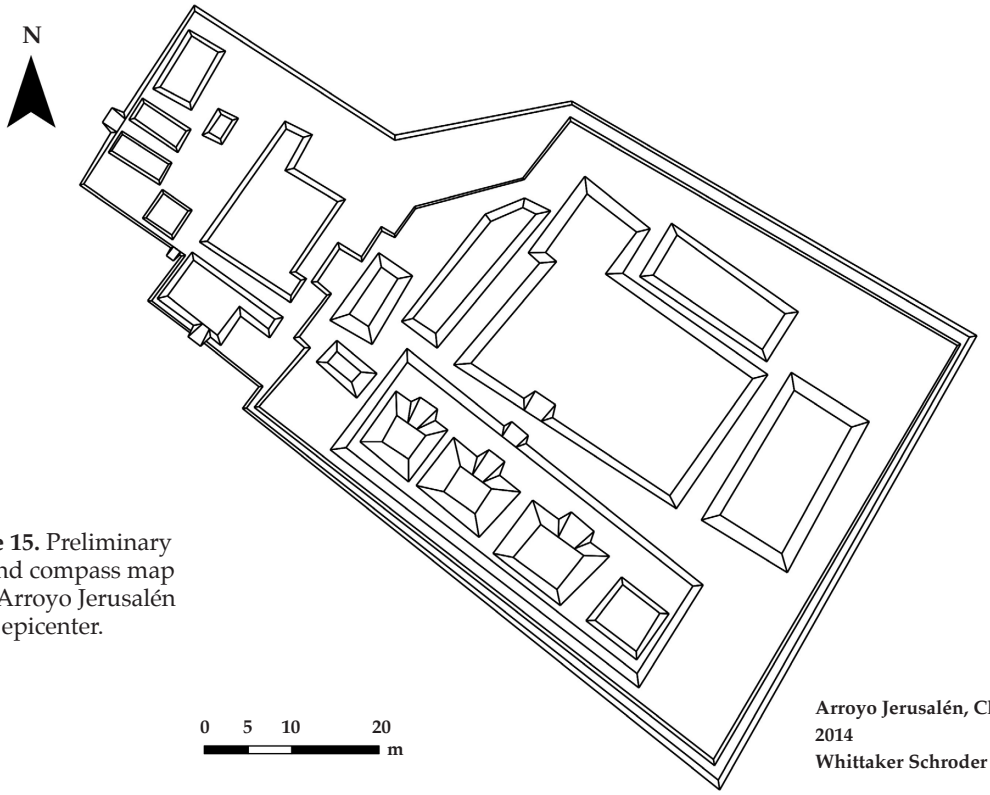

Figure 15. Preliminary tape and compass map of the Arroyo Jerusalén epicenter.

Figure 16. View of Arroyo Jerusalén's main structure.

Figure 17. Beach located 50 m below the epicenter of Arroyo Jerusalén.

Figure 18. Beach near Ijik Xajlel immediately above the rapids that begin in the background near the black conglomerate rock.

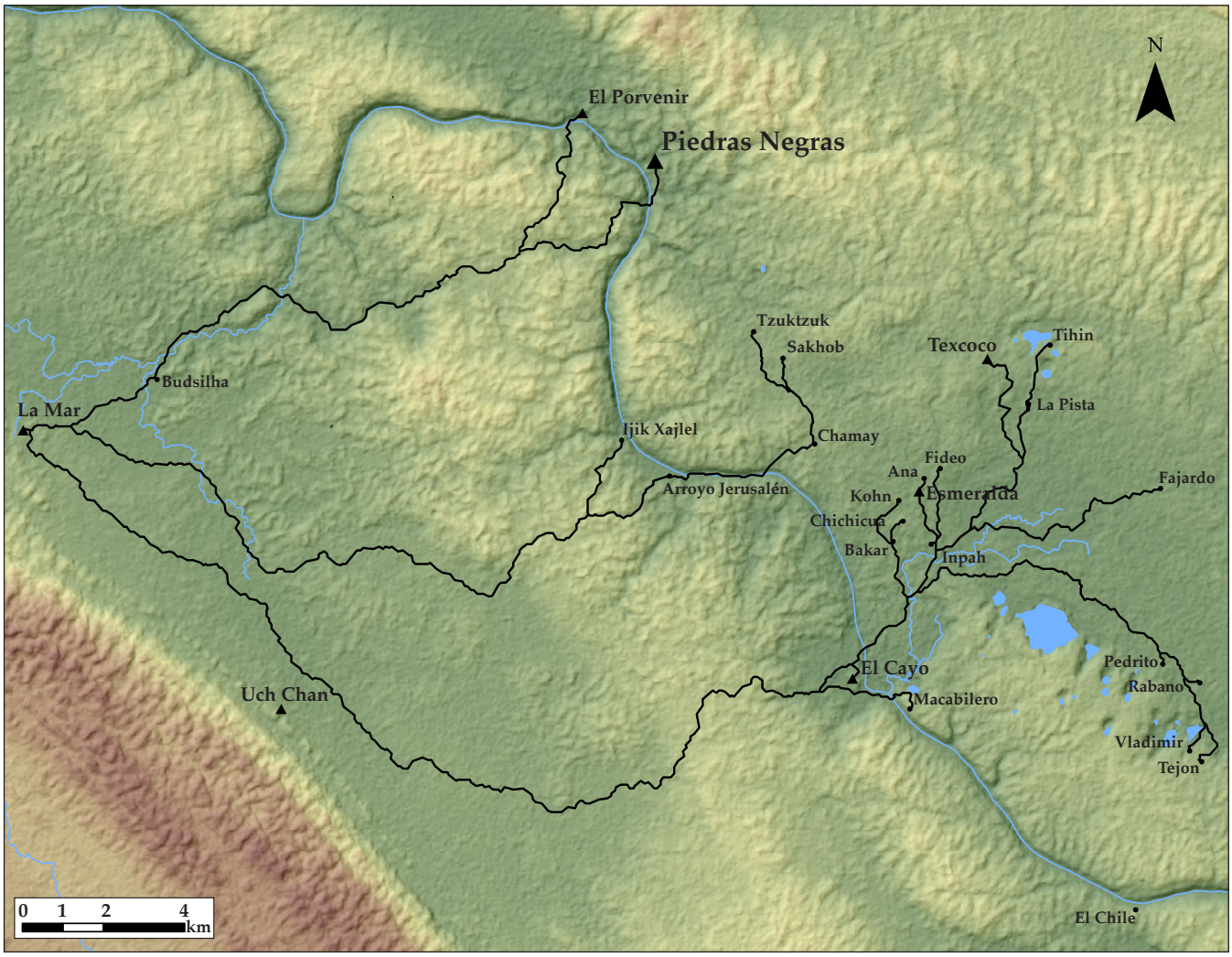

Figure 19. Least cost paths toward La Mar, showing river crossings at El Porvenir, Piedras Negras, Arroyo Jerusalén, and El Cayo.

ceramics from the site match types known from Piedras Negras during the Late Classic period.

After crossing the Usumacinta River at Arroyo Jerusalén, a traveler would have easy access to Piedras Negras and nearby rural settlement by land. Archaeological sites like El Cayo and Arroyo Jerusalén, with settlement on both sides of the river, are located along more gentle stretches of the Usumacinta River more favorable for river crossings by canoe. In contrast, the Usumacinta River near Piedras Negras is characterized by rapids, whirlpools, and steep canyons (Houston et al. 2003). Thus, Arroyo Jerusalén, Ijik Xajlel, and El Cayo may have provided not merely opportunities for portage along the Usumacinta River, but also safer places for river crossings (Figure 19), and loci where trade items could have been transferred from river to land routes. Maestri (2010; 2011) has proposed that Boca Chinikiha, an archaeological site located at the confluence of the Chinikiha and Usumacinta Rivers downstream from Piedras Negras, served a similar function as a transhipment center. In fact, such places were used historically and continue to be used to this day as ports. Though located in places that are naturally conducive to such activities, we must also recognize that maintenance would have been necessary to keep beaches clear of driftwood and vegetation. Furthermore, these areas would have been recognized by traders and travelers as dependable locations where canoes would be at the ready for river crossings and people could be contracted to assist with loading and unloading supplies for portage or transhipment.

Conclusions

As we continue to expand our archaeological research on both the Mexican and Guatemalan sides of the Usumacinta River, long-term modifications to the landscape will frame much of how we interpret the diversity of Maya politics and how peripheral sites were incorporated into royal strategies. This research will require

a balance between representative survey of the region and intensive excavations at individual sites, further challenged by the variety of modern forms of land ownership and management in the area (Golden and Scherer 2015). Working with the modern landowners and communal landholding *ejidos*, we hope to expand our survey between Arroyo Jerusalén and Piedras Negras, investigate the boundary between Piedras Negras and Yaxchilan near the site of Chicozapote (Maler 1903), and begin to document settlement patterns within the Santo Domingo valley within the kingdom of Sak Tz'i'.

When discussing the concepts of landesque capital in the Western Maya lowlands, we must also ask when and why certain places do not persist. In particular, the question of Late Classic period reoccupation of Preclassic period areas is especially complex. At sites with clear Preclassic and Late Classic period occupations, architecture dating to the two periods is typically distinct (Kingsley et al. 2012). This pattern has been observed throughout the region, at Esmeralda/Fideo, El Kinel/La Tecnica, Rancho Búfalo/Flores Magon, El Cayo/Macabilero, and El Infiernito. Though such places retain their importance, Late Classic period occupants seem to dissociate themselves from earlier constructions, leaving such structures in a ruined state (Halperin 2014).

Furthermore, regional patterns suggest that during the Early Classic period, numerous Preclassic centers were abandoned as populations coalesced on a handful of sites, which ultimately became the seats of royal courts (Liendo et al. 2014). By the Late Classic period, populations expanded and resettled the landscape. The role of the royal courts in these population dynamics is unknown, though Liendo (1999) attributes these processes to growing decentralization of the Palenque polity. Our research suggests similar transformations of the Piedras Negras hinterlands. Indeed, this rising decentralization allowed local actors to take advantage of resources and readapt landesque capital, including agricultural features, transportation nodes, defensive walls, and viewsheds. Ultimately this decentralization, whether a conscious strategy on the part of the royal elite or an inadvertent effect of expansion, led to a gradual shift in power away from the royal court to rural nobles and communities (Golden and Scherer 2013; Golden et al. 2016). Consequently, modifications of the landscape at a local level not only have repercussions for defining boundaries, encouraging or limiting movement, and defending settlements, but such repeated activity can affect the very political systems that attempt to structure such practices.

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A Carved Speleothem Monument at Yaxchilan, Mexico

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Over the past three decades it has become increasingly clear that cave formations occupied a privileged position in ancient Maya culture and ritual practices. Whereas such dripstone formations are commonly differentiated between stalactites (which form from the ceiling of a cave) and stalagmites (growing on the cave floor), another useful term is speleothem, which is a broader catch-all term for cave formations (e.g., Self and Hill 2003). The latter term is particularly useful in its archaeological application since it serves as a means of cataloging fragments of dripstone formations encountered in excavations, where it is often difficult to properly identify whether these fragments stem from stalactites, stalagmites, or other types of formations such as helictites or flowstone draperies (see Jennings 1985:159-163).

Karen Bassie-Sweet (1991:82-84, 110-126, 1996:70, 151-152), drawing on a range of evidence, was among the first to comment on the ritual importance of speleothems and their central role in rituals, both within caves and without. Likewise, James E. Brady has been instrumental in drawing the attention of his colleagues to archaeological examples of flowstone and dripstone formations, which were subjected to deliberate breakage and removal in antiquity (Brady et al. 1997, 2005). A number of researchers have followed up on this work, including Polly Peterson (Peterson et al. 2005) and Shawn Morton (2015) as part of their doctoral work in the caves of central Belize.

Although the motivations behind these actions are not always clear, instances are known wherein large columnar dripstone speleothems were deliberately broken by the ancient Maya and erected as monolithic monuments, either within another portion of the cave or at a surface site (Brady et al. 1997; Awe et al. 2005:238-240; see also Stone 2005). One such instance is that of Petroglyph Cave in Belize, where a 1.5 m-high speleothem column, interpreted by Barbara MacLeod as a "stela," was erected in the entrance amidst rimstone dams that are embellished by geometric petroglyphs (Reents-Budet and MacLeod 1997:12, 25, 88; see also MacLeod and Puleston 1979:75). The sexual connotations of caves as womb-like spaces coupled with the visual simile of speleothems as phallic expressions may be part of the explanation, as has been cogently noted by other authors (Brady 1988:53; Bassie-Sweet 1991:83-84, 113; Stone 2005:216).

The archaeological site of Yaxchilan, in present-day Mexico, provides several key examples of the practice of erecting speleothems as monolithic monuments. One such speleothem monument—designated Stela 31—was carved with an elaborate iconographic program and a series of glyphic captions. As will be discussed below, this instructive example demonstrates the importance of speleothems in royal rituals and reveals that erected speleothems, on a par with conventional stelae, could serve to commemorate rites performed at important calendrical stations.

The erection of speleothems as monuments also raises intriguing questions when this practice is compared to the erection of monoliths within caves, such as those that have been documented in subterranean sites in western Belize. These remarkable archaeological features were discovered in a series of caves of the area, including Actun Tunichil Mucnal (Figure 1), the Laberinto de las Tarántulas, and Actun Chechem Ha (Awe et al. 2005; Moyes 2006; Helmke 2009). One of the questions that arose as part of this research was whether these slate and limestone monoliths should be considered as megalithic monuments or even stelae, commemorating, as they do at surface sites, particular rituals that coincide with important calendrical stations. Clearly these monoliths were the focal points of ritual activities in much the same way that monuments at surface sites were ceremonial foci, considering the fragmented ceramic vessels, obsidian blades, charcoal, and special-function ceramic implements, including polychromatic vases, censers, and a barrel-shaped molded-carved vase, found around the base of the monoliths (Awe et al. 2005; Helmke 2009:339-341, 378-387). At surface sites,

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Figure 1. The monolithic monuments erected within Actun Tunichil Mucnal within their speleothem cribbing. Monument 1 is on the right and Monument 2 on the left (photo: Jaime Awe).

Figure 2. Erected speleothem shaft with ceramic vessels constituting a ritual feature, within the Cueva de los Altares, Chiapas (photo: Davide Domenici).

stelae are often associated with dedicatory caches (see Coe 1959:78, 118-119), and as a means of assessing the putative equivalence in emic terms a small sampling excavation was also conducted below the Chechem Ha monolith to test for the presence of buried votive offerings, of which there were none (see Awe et al. 2005:Fig. 9.17). As a result, whereas speleothem monuments can be considered ritual foci, they apparently did not witness or warrant the same type of dedicatory rituals as stelae at surface sites.

Speleothems erected at surface sites and the special category of monoliths erected within caves deserve concerted study and consideration in order to ascertain the features that they share with stelae, but also those that set them apart. As to the spatial distribution of these monoliths, it should be remarked that they are not restricted to the Maya area, since a stela-like monument of basalt has been reported from a cave at Teotihuacan in the central Mexican highlands (Soruco Sáenz 1985, 1991) and an erected speleothem also served as the focal point of ritual offerings at a cave in the Soke region of western Chiapas (Domenici 2010:356, 367) (Figure 2). In turn, clarifying the function of these monoliths in Mesoamerica allows us to better appreciate the ancient activities that they attracted, both within caves as well as at surface sites. It is precisely these queries that I will address here, by concentrating on one particular case study from the Maya area, the columnar speleothem that was erected at the archaeological site of Yaxchilan, Mexico, a monument designated Stela 31.

Context and Background

Yaxchilan Stela 31 is noteworthy for the fact that it is a large speleothem (originally a stalactite) that was carved and erected as a monument (Figure 3). The speleothem measures approximately 2.48 m high (height above lowest carving) and has a variable diameter, ranging between 34 and 41 cm. Due to its shape, the iconographic scene and glyphic texts carved into the speleothem span around the circumference of the monument (Graham and Von Euw 1977:10; Mathews 1988:226; Tate 1992:132). Aside from the engraved decorations, the exterior surface or cortex of the speleothem has not been altered. This is in itself remarkable since the ancient Maya were adept at modifying natural surfaces,

even grinding down and polishing exterior surfaces of shell and vessels made of travertine, to produce smooth, burnished, and soft surfaces (e.g., Borhegyi 1952; Fash 1991:166; Inomata et al. 2001:292; Houston 2014a:258-261; Inomata and Eberl 2014:110-113). In the case of the Yaxchilan speleothem it was meant for all to see that this is patently a speleothem, an alien and otherworldly stone hauled to the daylight from a dark cavern. It was the upper shaft of this monument that was discovered by Teobert Maler at the foot of Structure 33 during one of his three trips to Yaxchilan between 1895 and 1900. The toppled shaft, being exposed to the elements, has weathered and much of its exterior cortex has spalled off. Intriguingly, Maler noted: "I have found similar stalactite columns in front of other structures, which leads to the supposition that there must be an extensive stalactite cave near Yaxchilan from which the ancients procured their columns. This cave, probably concealed in the neighboring mountain range, is at present wholly unknown. It would be interesting to find it at some future time" (Maler 1903:158). The additional speleothems that Maler found include that found at the base of Str. 36 beside Stela 9 (Maler 1903:168), another in front of Str. 41 in association with Stelae 15, 16, 18, 19, and 20 (Maler 1903:179), and a fourth, measuring 2.8 m long, that was found in a secondary context south of Temple 3 (Maler 1903:183) (Figure 4). In addition, several caves have been identified at the site, including that associated with Str. 1, known as Maler's cave, as well as the cave below the grouping of Strs. 84–86, that below Str. 39 of the South Acropolis, and another associated with Strs. 44 and 45 of the West Acropolis (see Graham and Von Euw 1977:6-7; Tate 1992:150-151, 230, 250). This marks the terrain of Yaxchilan as one blessed with sacred geography, exhibiting a variety of caves—some of the most charged physiographic features of Maya cosmology—all intimately integrated into the architectural fabric of the ancient city (see also Brady 1997; Brady and Ashmore 1999).

Despite Maler's astute observations, which constitute a promising start, Stela 31 has not received the same attention from scholars as the other monuments at the site, perhaps owing to its irregular form and appearance as well as its unusual raw material. However, to anyone with an interest in caves (or it might be said, anyone swayed to the "dark side") this seems rather bizarre, since certainly this monument stands out as the most fascinating one at the site. Even the prodigious Sylvanus G. Morley failed to make explicit mention of it in his magnum opus (Morley 1937-1938). And even more recently, as I was finishing this paper, it was brought to my attention that a drawing of the iconography of Stela 31 had been published by Stephen Houston (2014:Fig. 50). Yet, despite my keen sense of anticipation, this drawing too revealed itself to be partial, focusing on one part of the iconography. Thus until this paper, no complete drawing of the monument has been published, nor has the iconography or epigraphy been coherently described or analyzed, or its date properly ascertained.

Figure 3. Stela 31 in situ, erected at the foot of Structure 33 at Yaxchilan (photo: Christophe Helmke).

The speleothem would eventually be pulled from oblivion and receive the designation "Stela 31," courtesy of Ian Graham, who undertook work at Yaxchilan from 1970 onwards as part of his documentation for the Corpus of Maya Hieroglyphic Inscriptions (Graham and Von Euw 1977:10). Yaxchilan was the focus of concerted excavations and an ambitious consolidation project by Mexico's Instituto Nacional de Antropología e Historia (INAH) between 1973 and 1985 under the direction of Roberto García Moll. It was in 1975, as part of these investigations, that the area around the shaft of Stela 31 was cleared, revealing its well-preserved butt (García Moll and Juárez Cossío 1986:160, n. 68). As part

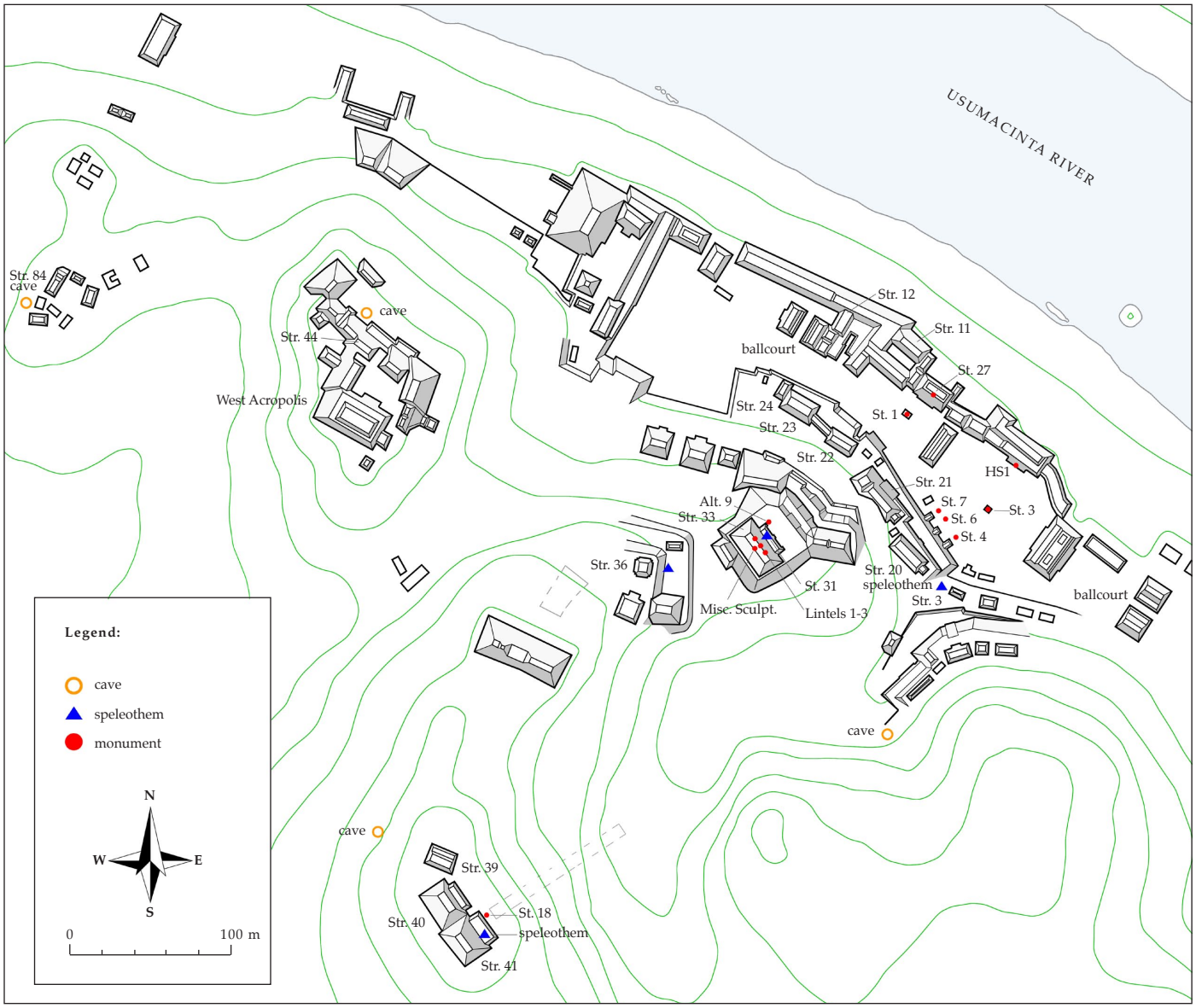


Figure 4. Map of Yaxchilan showing the location of Structure 33 and Stela 31, as well as other speleothem monuments and caves at the site. In addition other structures and monuments mentioned in the text are also represented. Contour lines indicate elevation intervals of ten meters (map by Christophe Helmke, based on the survey by John Bolles and maps by Ian Graham and Philip Winton, after Graham 1977:5-6 and Martin and Grube 2000:116).

of these efforts the fragments were reassembled and the monument was re-erected in situ. Just two years later, in 1977, Peter Mathews arrived on the scene to initiate his study of the Yaxchilan glyphic texts, which remains the cornerstone of our understanding of the dynastic history of the site (Mathews 1988). In 1978, Don Patterson served on the INAH project and in April of that year, took on the challenging task of producing a rubbing of Stela 31 on a cloth sheet (Patterson 2007:114-115). Over the course of three days he produced a field drawing from the rubbing, checking the tracing against the original monument (Patterson 2007:113, Fig. 7). Now, four decades later, I hope that the present study helps to redress the fact that Stela 31 has remained little more than a designation in the academic literature.

Stela 31 was erected in front of Structure 33, one of the most imposing structures at Yaxchilan, given it size and location (Morley 1937-1938:550-551; Graham and Von Euw 1977:10; Mathews 1988:226; Tate 1992:213-226) (Figure 5). The monuments associated with Str. 33 (Altar 9, Hieroglyphic Stair 2, Lintels 1 through 3, and Miscellaneous Sculpture 1) have traditionally been attributed to the reign of Yaxuun Bahlam IV (AD 752–768) (see Mathews 1988:332, 334; Tate 1992:223-224; Proskouriakoff 1993:115-116), although the structure may well have been completed by his son Shield Jaguar IV

Figure 5. Structure 33 at Yaxchilan with Stela 31 in the foreground, Hieroglyphic Stair 2 along the uppermost step, and Lintels 1 through 3 above the doorways of the superstructure (photo: Mark and Sarah Prior).

as a tribute to his father (Martin and Grube 2000:132).[1] In particular Altar 9 has been ascribed to the reign of Yaxuun Bahlam IV (Mathews 1988:213; Tate 1992:224), whereas it appears that Lintels 1 through 3 should be credited to Shield Jaguar IV (c. AD 769–800+) (Martin and Grube 2000:132). This conclusion derives from the fact that the pre-accession name of Shield Jaguar IV is incongruously styled with a full emblem glyph on Lintel 2, while he is anachronistically referred to by his accession name on Lintel 1. These are important clues that betray the retrospective nature of the references, suggesting that the monuments were raised after Shield Jaguar IV had come to the throne, around AD 769.

Hieroglyphic Stair 2 is more difficult to attribute, but since the risers depict Yaxuun Bahlam IV on Step VII, his father on Step VI, and his grandfather, Yaxuun Bahlam III (AD 629-669+), on Step VIII (Martin and Grube 2000:130), it is reasonable to suggest that this inscribed stair was also raised by Yaxuun Bahlam IV. The focus is evidently on this ruler, who is represented on the axial riser, which is also the largest of the entire stair, flanked on either side by his father and grandfather. However, this may partly result from preservation, since the adjoining risers (Steps V and IX) are now eroded and it remains unclear whether Shield Jaguar IV was originally represented, in which case the entire stair might also be attributable to his reign.

Miscellaneous Sculpture 1, the larger-than-life sculpture of a seated monarch that is housed within the sanctuary of Str. 33, may well have served as an ancestral cult figure depicting Shield Jaguar III, as is suggested by the name embedded into the headdress (Martin and Grube 2000:132) (Figure 6a). This sculpture also bears a connection to Yaxuun Bahlam IV since his name appears in the glyphic text on the back of the statue (Morley 1937-1938:Pl. 178Fb; Mathews 1988:227; Tate 1992:220, Fig. 117b) (Figure 6b). Yet, considering that elements of Shield Jaguar IV's name are rendered figuratively in the headdress of the statue—a relatively common practice for labelled royal portraiture in the Classic period—it seems most plausible that it too is

[1] The names of Yaxchilan rulers deserve some comment. In certain cases I have opted to use the commonly accepted nicknames, especially for instances that remain problematic in their reading, such as Shield Jaguar, whose name consists of the head of a jaguar preceded by the diadem that is typically associated with the supreme celestial deity God D, but also with the great avian creature known as the Principal Bird Deity (see Bardawil 1976; Nielsen and Helmke 2015). Neither the name of God D, nor the diadem have been coherently deciphered, and as such it seems premature to present a reading of this name. Conversely, where I feel that there are sufficient grounds I have provided a complete reading, such as *Yaxuun Bahlam*, wherein the first portion of his name refers to a particular type of bird, the lovely cotinga (*Cotinga amabilis*), which is phonetically complemented by **ya-** (e.g. Lintels 39, 41, and 43) and substituted by the sequence **ya-xu?-ni** (on Stela 12).

Figure 6. A selection of monuments of Structure 33: (a) Miscellaneous Sculpture 1; (b) detail of the text on the back of Miscellaneous Sculpture 1; (c) Altar 9 (after Morley 1937-1938:Pl. 105b, 107a, 178Fb).

his work depicts him, its text providing yet another retrospective reference to his father. The picture that emerges is thus one in which Yaxuun Bahlam IV initiated the construction of Str. 33 but it was his son and successor Shield Jaguar IV who either completed or refurbished the structure, hence the mixed dates and patronage of the various sculptures associated with the terminal-phase construction. Consequently, the earliest contemporary date borne by a monument associated with Str. 33 is that of Altar 9 dated to AD 751 (9.16.0.0.0) (see Morley 1937-1938:514-516) (Figure 6c), whereas the latest is that of Lintel 2, which records a date of AD 757 (9.16.6.0.0), falling squarely within the reign of Yaxuun Bahlam IV (see Mathews 1988:226) (Table 1).[2] These dates provide us with a framework for dating Stela 31,

[2] One set of dates remaining to be properly placed are those that were recorded on the back of the statue found within Str. 33, designated as Miscellaneous Sculpture 1. Although the text is extremely weathered, an extant photo (Morley 1937-1938:Pl. 178Fb) indicates that it mentions Yaxuun Bahlam IV; his name and warrior title "he of twenty captives" are evident. That sentence is followed by a weathered distance number that can be reconstructed as 14 days, 2 months, and 7 years, leading up to a partial Calendar Round, wherein only the Haab remains, possibly 7 Xul. Based on these parameters and the known dates associated with Str. 33 one can surmise that the statue once bore a sentence headed with the date 9.16.8.2.14 11 Hix 7 Xul, or May 21, AD 759 (cf. Proskouriakoff 1993:117-118).

Monument	Long Count	Tzolk'in	Haab	Gregorian Date
HS 2, Step VII	9.15.13.6.9	3 Muluk	17 Mak	22 October 744
Altar 9	9.16.0.0.0	2 Ajaw	13 Sek	10 May 751
Lintel 1	9.16.1.0.0	11 Ajaw	8 Sek	4 May 752
Lintel 2	9.16.1.0.0	11 Ajaw	8 Sek	4 May 752
Lintel 3	9.16.5.0.0	8 Ajaw	8 Sotz'	13 April 756
Lintel 2	9.16.6.0.0	4 Ajaw	3 Sotz'	8 April 757

Table 1. Temporal incidence of the dates recorded on the monuments of Structure 33. The HS 2, Step VII date is retrospective.

which until now has remained undated. Assuming that Stela 31 is contemporaneous with the other monuments of Str. 33, a very narrow window emerges, considering that the other dated monuments record a limited span of six years. However, based on contextual association alone and the retrospective nature of many of the texts it would seem prudent to date Stela 31 more broadly to the latter half of the eighth century by attributing the monument to either the reign of Yaxuun Bahlam IV (Mathews 1988:226; Tate 1992:132) or Shield Jaguar IV (Martin and Grube 2000:134).

Iconography

Due to the extensive breakage and spalling of the monument, nearly half of the original carving has been lost. The meticulous refitting and curation efforts of INAH conservators, however, resulted in the restoration and re-erection of the monument in situ. The speleothem's irregular natural surface was modified by a meticulously engraved iconographic scene accompanied by three glyphic captions (Figure 7). The imagery depicts a ritual known as a scattering ceremony involving three individuals—a seated person between two standing figures that face one another (Tate 1992:132; Proskouriakoff 1993:118).[3] Due to the break of the speleothem shaft the figures represented on the butt of the monument are poorly represented above the waist, and the superior portion of the iconography is only represented in fragmentary fashion. Nonetheless, from the waist down the original imagery and text of the monument are well preserved. Based on the extant imagery the dominant figure, and presumed protagonist, defines the right edge of the scene and is therefore designated as Figure 1. The identity of the seated figure is not entirely clear. Some elements of garment may at first sight suggest that this is a female, but based on comparisons to analogous compositions and iconographic programs, especially that of Stela 7, it is possible to identify the seated figure as male. This Figure 2 is seated beside a woven basket and wears a cape and large jewelry including broad bracelets, quadrangular earflares, and a large beaded necklace suspending a spiny oyster shell (*Spondylus* sp.) pectoral. This individual also wears a great headdress that includes the cranium of a snouted animal with curved fangs surmounted by a supernatural entity with goggles framed by "death eyes," in large measure recalling a local adaptation of a central Mexican divinity such as the War Serpent (Taube 1992:59-68; Nielsen 2003:93-94) or the Storm God (see Pasztory 1974; Wrem Anderson and Helmke 2013). A very similar headdress is represented on Stela 18 (dated to c. 9.12.5.2.12, AD 677) where a victorious Shield Jaguar III is shown wearing it. The second standing person on Stela 31, Figure 3, at the left edge of the scene, is only preserved below the waist, but based on what remains this individual wore much the same attire as the protagonist. Both standing figures wear high-backed sandals, pointed hip-cloths (Tate 1992:88, 132), and loincloths, each ornamented with personifications of bloodletting implements (see Schele and Miller 1986:176)—here rendered as the inverted head of a supernatural accompanied by three cloth knots—as well as elaborate shin-guards consisting of woven material bound together at the front with cloth lattices terminating in simplified personification heads (see Schele and Miller 1986:43-44). Due to better preservation we can also see that Figure 1 wore a small ancestor masquette with a cluster of three celts at the small of the back and an elaborate headdress. Close inspection reveals that Figure 3 also wore a small masquette at the small of the back, and although heavily weathered, one can make out the outlines of what may be an aged human head

[3] As part of his pioneering documentation work of the glyphic texts of Yaxchilan, Peter Mathews (1988:10) correctly identified the three figures represented on Stela 31 and identified all three of them as males. As part of the same analysis he initially estimated that the original text of Stela 31 consisted of at least three passages and over 20 glyph blocks, but he did not provide an estimated date for the monument, suggesting only that it was coeval with the dates of Str. 33 (Mathews 1988:10, 226).

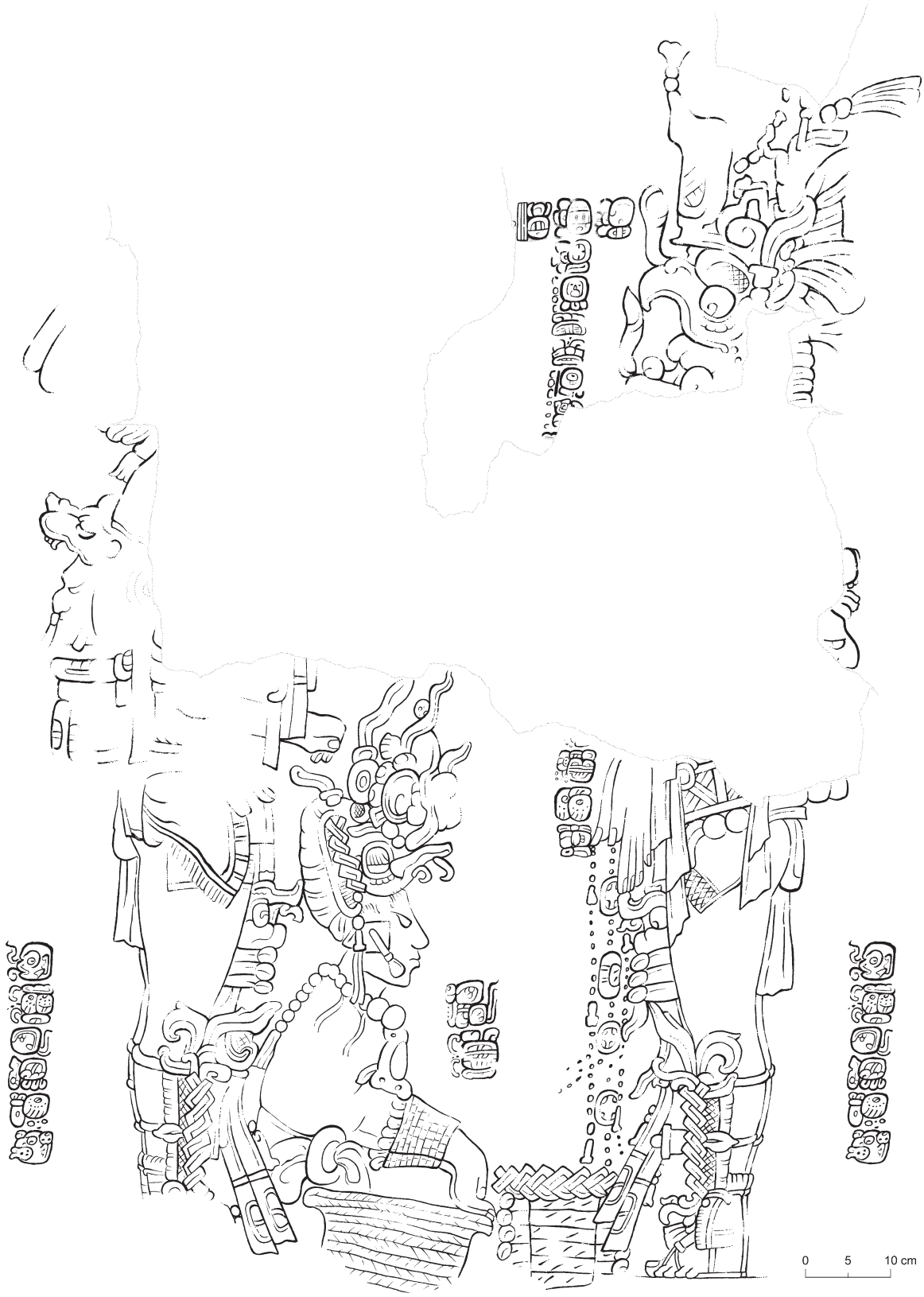


Figure 7. The elaborate iconographic scene and glyphic captions engraved into the speleothem shaft designated as Stela 31 (roll-out drawing by Christophe Helmke based on raking light photos by Harri Kettunen and Christophe Helmke).

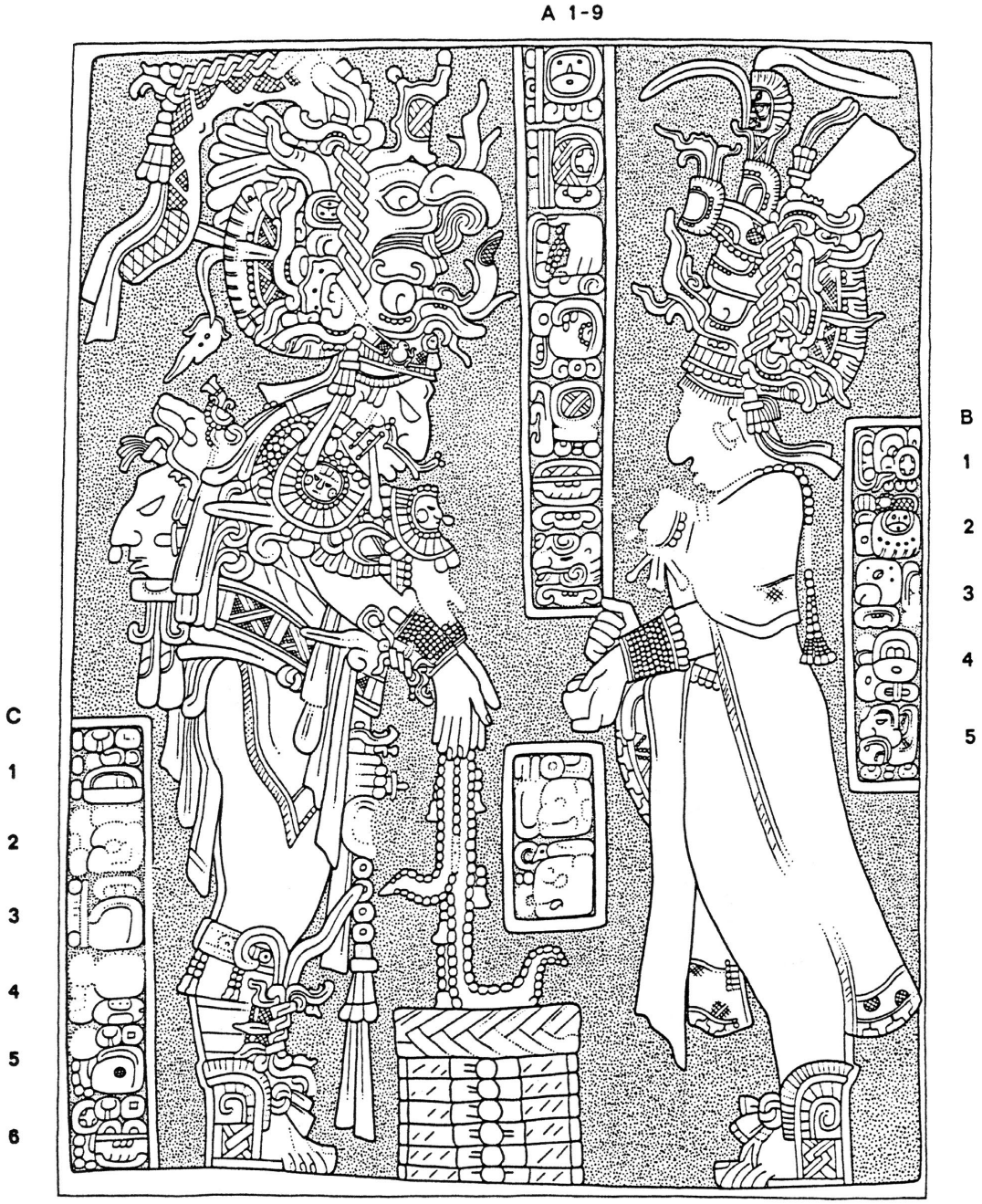


Figure 8. Lintel 2 of La Pasadita representing a scattering ceremony involving Yaxchilan's Yaxuun Bahlam IV and the local *sajal* Tilo'm (after Mathews 1988:Fig. 7-32).

emerging from the maw of a feline, presumably naming a prominent forebear. A salient point of comparison is the nearly identical masquette worn by Yaxuun Bahlam IV on Lintel 2 at La Pasadita (Figure 8), an important monument that we return to below.

In many respects it is the headdress of Figure 1 that is of greatest interest since—in addition to the great spray of feathers at its back—it portrays the head of the thunder deity Chaahk, surmounted by the head of a raptorial bird with black-tipped feathers, the whole topped by what has been called a shell diadem and a Jester God. The shell diadem with its distinctive crossed bands is a characteristic feature of particular manifestations of the thunder deity, such as Chak Xib Chaahk ("Red Man Chaahk"), associated with the eastern cardinal direction (see Schele and Miller 1986:49), and Yax Ha'al Chaahk ("First Rains Chaahk"), an incarnation of the first rains of the rainy season (Helmke et al. 2003:110, n. 5; Lacadena 2004:88-93). A depiction of a victorious Yaxuun Bahlam IV standing before three kneeling captives is found

Figure 9. Detail of a scattering scene on Yaxchilan Stela 7, wherein the stream is qualified by the logograms **YAX** "green" and **K'AN** "yellow" (photo: Merle Greene Robertson).

on the back of Stela 11 (dated to 9.16.1.0.0, AD 752), at a pre-accession event dated to AD 750 (9.15.19.1.1), where he wears a mask of Chaahk, shown in cutaway. Significantly, he is also wearing a knotted pectoral as well as the distinctive shell diadem, both distinguishing features of the thunder deity (see Schele and Miller 1986:49; Mathews 1988:212; Proskouriakoff 1993:111). The Jester God in the headdress represented on Stela 31 appears to be the personification of *amate* paper, known as *hu'un* in the Classic period (Stuart 2012), here serving to name the headdress as a "raptorial bird-thunder deity headdress." The raptorial bird in the headdress is known from epigraphic evidence as the *o'* bird, undoubtedly an onomatopoeic or sound-symbolic name. Unfortunately the Ch'olan languages do not preserve the name of this bird, but it is known in Yukatek sources such as Ritual of the Bacabs, where it figures as part of incantations against various types of seizures (Roys 1965:138; Stuart

2005:105, n. 38). Together this combination of a raptorial bird with the thunder deity Chaahk is remarkable since it is known from the texts of Yaxchilan that one of the paramount supernatural tutelary deities to preside over ritual actions was known as Ajk'ahk' O'chaahk (see García Barrios 2009:96-97, 99-101), in large measure duplicating the juxtaposition that we see in the headdress on Stela 31.

One of the very earliest references to this deity is found on Lintel 35, which is the culmination of the narrative that spans Lintels 11, 49, and 37, together recording the dynastic succession of the first ten kings of Yaxchilan as well as the names of prominent captives taken by these early rulers (Mathews 1988:70-78; Proskouriakoff 1993:24-29; O'Neil 2011). In reference to the tenth ruler, K'inich Tatbu Jo'l II (Martin and Grube 2000:121), a fitting list of four captives is provided, which in AD 537 are gruesomely said to be eaten by Yaxchilan's patron deities, including O'chaahk and K'an Wi' Chuwaaj. The next mention is seen on the famed Lintel 25 that was raised as part of the dedication of Structure 23 in AD 726 (9.14.14.13.17). On Lintel 25 we see a retrospective event of AD 681 (9.12.9.8.1), wherein Ixk'abal Xook—the principal spouse of Shield Jaguar III—invoked the martial manifestation of O'chaahk (Schele and Miller 1986:177-178; Mathews 1988:167-170; Martin and Grube 2000:125). Twenty-six years later, on Lintel 42, we see O'chaahk invoked in the context of a dance event involving Yaxuun Bahlam IV and K'an Tok Wayaab, his chief *sajal*, in AD 752 (9.16.1.2.0) (Helmke 2010). At the subsidiary site of La Pasadita, c. 20 km northwest of Yaxchilan, a site ruled over by a *sajal* named Tilo'm, this same headdress is represented on Lintel 2, which represents a scattering ceremony that took place in AD 766 (9.16.15.0.0) (Figure 8). This ritual involved the local lord Tilo'm but was officiated by none other than Yaxchilan's ruler, Yaxuun Bahlam IV (Schele and Miller 1986:137, 196; Mathews 1988:234; Schele and Freidel 1990:301-302; Proskouriakoff 1993:120; Golden 1999). This monument is all the more remarkable since it is Yaxuun Bahlam IV who is shown wearing precisely the same O'chaahk headdress as that rendered on Stela 31. In addition, Yaxuun Bahlam IV wears the same loincloth, pointed hip-cloth, shin-guards, and even the small masquette portraying his illustrious father. This then raises the possibility that this is one and the same headdress, but shown on different occasions. Certainly the attribution of Stela 31 to the same monarch is all the more tantalizing, but we should take into consideration the ritual privileges surrounding important pieces of regalia such as headdresses and the circumstance that these were often heirlooms passed from one generation to another (see Helmke 2010). As such, whereas it is persuasive, the incidence of the same headdress cannot be used as conclusive evidence that the protagonist of Stela 31 is also Yaxuun Bahlam IV.

The name of the tutelary deity appears in yet another context, on one of the nine carved and incised bones from Tomb 2, the final resting place of Ixk'abal Xook within Str. 23 (Mathews 1988:171-172; Stuart 2013). It is clear that this short text was a sort of name-tag providing a description of the object and a statement of ownership. The text reveals that the bone is that of a jaguar, that it was owned by Ixk'abal Xook, and that its epiphysis was carved to represent Ajk'ahk' O'chaahk. However, the spelling of his name is significant here, since the drawings that have been produced by David Stuart (1990:8, 2013:Fig. 1) make it clear that the name is not simply written with the vocalic sign **o** preceding glyphs naming the thunder deity, as it is usually found in all other contexts, but as the logogram **OCH** that represents the rattle of a rattlesnake, which by means of rebus is used as the intransitive verb "to enter" (see Stuart 1998:387-389). This highly illustrative example, which might constitute a hypercorrect spelling, may well indicate that the name of the deity was actually *aj-k'ahk' och-chaahk*, but that elision of the palato-alveolar affricate /ch/ in this theonym accounts for the way in which it is written in other contexts, adequately reflecting the spoken form. Based on this revealing example, the name of the deity can be aptly compared to other theonyms that entail verbal expressions involving fire, names of particular manifestations of deities that were also the preferred accession names of rulers in the eastern Maya Lowlands (see Grube 2002; Colas 2004, 2006; Helmke 2012a:75-78).

The event that brings the three figures of Stela 31 together is a scattering ceremony, an important ritual event that probably had its origins in agricultural rites wherein rulers symbolically sowed the seeds of the first figurative planting of a given season (see Houston 2014b:83-84). Drawing analogies to similar rites performed by other pre-industrial societies reveals that the divine power of the ruler was thought to virtually imbue the seeds and grains with sexual potency, thereby heightening the fertility not only of a restricted plot in proximity of the royal palace or a salient temple, but of the whole of a territory under the control of the monarch (e.g. Anonymous 1913:293-294; Uphill 1963; Scullard 1981:68). In the Maya area scattering rituals are documented for the whole of the Classic period, but especially for the Late Classic (c. AD 550–950) when nearly 98% of all references to scattering events are found in the epigraphic corpus, with the few remaining examples dating to the Early Classic (Jobbová and Helmke 2014). At Yaxchilan itself, the earliest dated reference to a scattering ritual—albeit a retrospective one—is an event in AD 379 (Hieroglyphic Stair 1), whereas the earliest contemporary date is provided by Stela 27 (AD 514) from the reign of Knot-eye Jaguar I, and the latest contemporary event is preserved on Stela 4 (AD 775) from the reign of Shield Jaguar IV

Monument	Long Count	Tzolk'in	Haab	Gregorian Date	Agent
HS 1	8.17.2.12.5	4 Chikchan	18 Woj	14 June 379	Yaxuun Bahlam I
Stela 27	9.4.0.0.0	13 Ajaw	18 Yax	19 October 514	Knot-eye Jaguar I
Stela 3	9.10.16.10.13	7 Ben	16 Sek	6 June 649	Yaxuun Bahlam III
Stela 6	9.11.16.10.13	5 Ben	1 Wayeb	21 February 669	Yaxuun Bahlam III
Stela 18	9.12.5.2.12	3 Eb	15 Mol	28 July 677	Shield Jaguar III
Stela 1	9.16.10.0.0	1 Ajaw	3 Sip	18 March 761	Yaxuun Bahlam IV
Stela 4	9.17.5.0.0	6 Ajaw	13 K'ayab	30 December 775	Shield Jaguar IV
Stela 7	9.?.5.0.0	—	—	—	Shield Jaguar IV

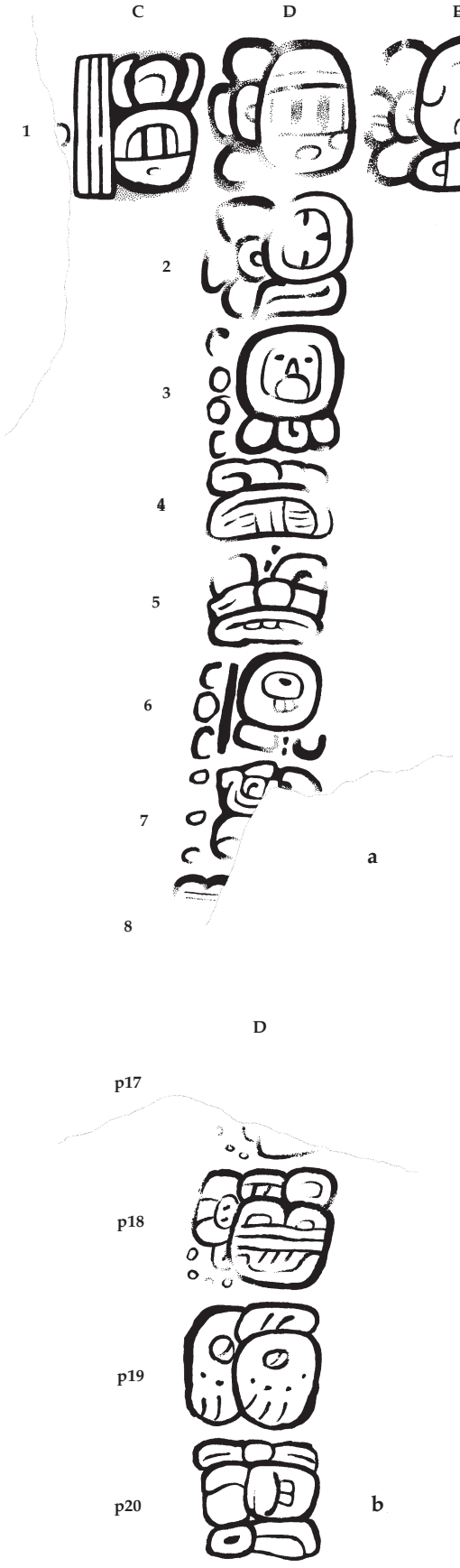
Table 2. Chronological incidence of monuments at Yaxchilan commemorating scattering rituals.

(Proskouriakoff 1993:24-25, 112-113) (Table 2).

This wonderful collection of monuments allows us to make some broad comments as to the nature of the scattering ceremony represented on Stela 31. Among the scattering monuments at Yaxchilan the two that that are most similar to Stela 31 are Stelae 1 and 3. Stela 3 dates to the reign of Yaxuun Bahlam III and Stela 1 is evidently an emulation by his later namesake, especially considering the many shared features, such as the pose and regalia of the protagonists. A vital part of scattering rituals involved the king, who from his hands released or symbolically sowed a stream that is framed by small beads and floral elements onto a small altar, bound in strips of cloth. At times the king also showered his blessings on a seated, subservient figure, as seen for instance on Stelae 7 and 31. The material that was scattered has attracted a fair bit of discussion, some scholars initially suggesting that the streams represented auto-sacrificial blood (see Stuart 1984, 1988; Schele and Miller 1986; Proskouriakoff 1993:118). Considering the agricultural overtones of these ceremonies one could naturally conclude that these streams contained seed grain, especially that of maize, held perhaps in woven baskets, such as that beside Figure 2 of Stela 31. These streams are often qualified by two hieroglyphs as though these were objects within the stream itself. These are the color logograms *k'an* and *yax* (Figure 9), which respectively mean "yellow" and "blue-green" in their literal and adjectival functions (see Houston et al. 2009; Tokovinine 2012). In addition, the terms *yax* and *k'an* occur together in the written corpus as a *difrasismo*—a metaphorical expression involving complementary pairings—that offsets "green/unripe" against "ripe," two alternate meanings of these terms (Stuart 2003). It is from these contexts, as well as the meaning of the reflexes of this *difrasismo* that are preserved in Ch'olti' and among Highland Maya languages, that we can ascertain the sense of this juxtaposition (Stuart 2005:100; Hull 2012:100-103; Law 2012:275-277). Thus in Q'eqchi' the *difrasismo raxal-k'anal* is glossed as "abundancia" (Haeserijn V. 1979:282), whereas <*raxalkanal*> in Colonial Poqoman is defined as "beatitud, dicha ventura" as well as "premio […] de las buenas obras, mérito" (Feldman 2000:370), and Cakchiquel glosses *raxal*, *q'anal* as "Las Riquesas o el Reino celestial" (Guzmán 1984:62, 103). It is as such that we should interpret these streams of grains as "abundance, riches," imbued with royal vitality and ready to impart abundant harvests and even "blessings, happiness" across the realm. The principal event commemorated on Stela 31 is thus one such scattering ceremony performed by the king, and attended by two additional figures.

Epigraphy

In keeping with the initial assessments by Mathews (1988:10), Stela 31 indeed exhibits three glyphic captions. The two shorter captions appear to be complete, whereas the lengthier clause that heads off the monument is only partially preserved, and those parts that remain are weathered. As a result, the preservation and therefore the legibility of the clauses vary from excellent to poor. These conditions depend on the section of the monument, since the base was found to be well preserved whereas the upper shaft is eroded by exposure to the elements. In commenting on the upper shaft of the monument, which he discovered, Maler (1903:158) remarked on the "little vertical rows of glyphs incised in its depressions, the details of which are almost obliterated." This situation has only been exacerbated by time, and the initial portion of the text found on the upper shaft is indeed highly weathered. Nevertheless, after some scrutiny it is clear that the initial clause records a dedicatory date in the Long Count as well as part of



the accompanying Calendar Round and Supplementary Series (Figure 10a). This crucially important segment was identified by the author during a visit to the site and photographically documented with the assistance of my colleague Harri Kettunen (Helmke 2012b). For whatever reason this segment has not been noted by previous researchers, or at the very least has not stimulated any written commentary. This segment is evidently important because it allows us to fix the date of the monument and to ascertain its relation to the other monuments of Structure 33 as well as to the monarchs who commissioned them.

Although the very start of the text is now missing, since it occurred on a part of the speleothem that has spalled off, we can reconstruct the first glyph (A1) as an Initial Series Introductory Glyph, which typically precedes Long Count dates, whereas the second glyph block (B1) undoubtedly provided the bak'tun portion of the date that records periods of 400 vague years, which is to say 394 solar years. It is virtually certain that this should have been 9 bak'tun, considering the style of the monument, which is clearly Late Classic. The third block (C1) remains and records the k'atun (period of c. 20 years), and although its coefficient is partly eroded it must record 16 k'atun. The tun or "vague solar year" follows (D1), as does the winal or "month" (here written **WINIK-ki** as is in keeping with the texts of the area; see Lacadena and Wichmann 2002:291-293, Table V), and the k'in or "day" (E1), each accompanied by a prefixed sign read *mih* for "nothing, none." This indicates that this was an important "even" date, 9.16.0.0.0, commemorating the completion of the sixteenth k'atun, which can be correlated to May 10, AD 751 in the Gregorian calendar, using the GMT+1 correlation (see Martin and Skidmore 2012).

This date is significant for several reasons. For one it makes this speleothem stela coeval with the earliest dated monument of Str. 33, namely Altar 9, and one can thus wonder if Stela 31 was once paired with this altar at its dedication. Noteworthy in this regard is Mathews's identification of the name of Yaxuun Bahlam IV on Altar 9 (Mathews 1988:213). Whereas the possibility remains that these are retrospective accounts, there is nothing in the texts of Altar 9 and Stela 31 to suggest that these are ex post facto, as with most of the texts associated with Str. 33. As such, it implies that Yaxuun Bahlam IV was already wielding some kind of power at Yaxchilan before his formal enthronization, precisely one year later in AD 752 (9.16.1.0.0) (Mathews 1988:205-206, 213-214; Martin and Grube 2000:127-128). Whether Yaxuun Bahlam IV wielded power during the 'interregnum' that preceded his accession has been a subject of considerable discussion (Proskouriakoff 1963:163, 1964:178-181; Mathews 1998:205-217). That he did is made evident by the fact that he eventually won the throne, no doubt after decisively defeating any rivals. In this respect AD 749 would prove

Figure 10. The first and last portions of Caption 1 on Stela 31: (a) the Long Count, Tzolk'in, and part of the Supplementary Series, and (b) the end of the nomino-titular section (drawings by Christophe Helmke, based on raking-light photos by Harri Kettunen and Christophe Helmke). For photographs, see www.precolumbia.org/pari/journal/1704/photos.html.

pivotal to Yaxuun Bahlam, since in April of that year Ixk'abal Xook passed away (on 9.15.17.15.14) (Mathews 1988:211; Proskouriakoff 1993:109; Martin and Grube 2000:127). Ixk'abal Xook was the principal wife of Shield Jaguar III and accordingly exerted great influence at court, even during the years after the passing of her husband, and she may even have acted as regent to the heir apparent. Yaxuun Bahlam, as the son of a minor consort, may have figured solely as heir presumptive, brooding in the shadow of a looming stepmother. Considering the prominence of Ixk'abal Xook, it is not coincidental that the first mention of a contender to the throne, a certain Yopaat Bahlam, appears just three months later, in July AD 749 (9.15.18.3.13). Importantly, this mention is made in a foreign reference at Piedras Negras, tacit evidence that this contender sought alliances outside of the realm with erstwhile enemies (Martin and Grube 2000:127; cf. Mathews 1988:211-212).

As such, it is important that the speleothem stela does not appear to be a secondary feature added at a subsequent point in time, but was instead erected coevally with the earliest monuments of Str. 33. In fact, excavations conducted by Roberto García Moll around Stela 31 found that it was erected within a small quadrangular platform that appears to predate the penultimate construction phase of Str. 33 (García Moll and Juárez Cossio 1986:160, n. 68). This implies that Stela 31 formed an integral part of the building plan and dedication of Str. 33, which were followed by the refurbishments of Yaxuun Bahlam IV and Shield Jaguar IV, both presumably around the times of their accessions. All in all, the importance of the 9.16.0.0.0 period ending cannot be overemphasized, and it seems that Yaxuun Bahlam IV capitalized on this event as a return to orthodoxy after the turbulent interregnum that preceded his accession. This may also help to explain why his accession took place precisely one year after this propitious event, as if to anchor his enthronement to his ritual ascendancy.

The calendrical information continues over the next four glyph blocks, until the sixth and seventh that are almost wholly spalled off. Undoubtedly the Calendar Round and Supplementary Series occupied at least nine glyph blocks. The first of these (D3) records the date in the Tzolk'in calendar, here the day sign Ajaw, accompanied by the coefficient 2, written as two dots framed by crescent-shaped fillers. This is in perfect accord with the Long Count date and helps to corroborate the dedicatory date of the monument. The Tzolk'in is followed by Glyph G (D4) that records which of the Lords of the Night presided on this date, and in keeping with the permutations of the calendar this is G9, here written in a simplified geometric form. Each of the Lords of the Night are provided with a title dubbed Glyph F (D5), which invariably reads *uti'hu'un*, lit. "mouth of the headband," that indicates that these supernatural entities were somehow conceived of as the spokespersons of another figure of greater power akin to a human ruler (see Zender 2004:210-221). The Lunar Series properly speaking is headed by a statement that indicates the number of days that have elapsed since the last New Moon. Usually this is written by two expressions, known as Glyphs E and D, and although not entirely clear here (D6) they appear to have been melded together and were read *wak huliiy* "six arrived." This accords with the identical Supplementary Series found on Altar 9 as well the lunar age, which on this date was 5.79 days, which is to say 5 days, 19 hours, and 1 minute (cf. Roys 1975:61). Little remains of the following glyph block (D7), but the three dots for the coefficient imply that it recorded Glyph C, providing the position of a given lunation within a cycle of six lunations. Unfortunately too little remains to be able to read this coherently, but it might have recorded the third lunation within the semester named after the Jaguar God of the Underworld, here represented by his characteristic eye. The Supplementary Series would undoubtedly have spanned another three blocks, providing the so-called Glyphs X, B, and A, and would have been closed by the second half of the Calendar Round, providing the date in the Haab calendar, which here ought to have been 13 Sek.

Unfortunately, the verb that would have been recorded immediately after the calendrical information and which would have provided us with information pertaining to the events that transpired on this day is completely absent. Nevertheless, taking into account the iconography of the stela, it stands to reason that it recorded a scattering event, considering the pairing of this initial clause with the protagonist of the monument, Figure 1. Nevertheless, as far as can be ascertained from the heavily eroded text of Altar 9, which duplicates that of Stela 31 in several details, the main event that transpired on this date was an *uk'alaw tuun* ritual, which can be translated as "he bound the stone" (see Stuart 1996:154-158). As to the subject of the clause nothing remains, since the name of the agent occurred on a now-missing section. Fortunately the last three glyphs of the clause are still preserved, providing the titles of a subject (Figure 10b). The first of these is a complete Yaxchilan Emblem Glyph (Dp18), read *k'uhul pa'chan ajaw* or "godly Pa'chan king," wherein the toponym Pa'chan or "broken sky" designates the name of the ruling dynasty (Boot 2004; Martin 2004), one apparently drawn from a mythological location (Helmke 2012c:100-107). The penultimate glyph block (Dp19) is to be read *baahkab*, lit. "head-earth," conferring on its bearer the meaning of "chief of the land" (see Houston 1993:129, 2008; Lacadena 2003). The titular section closes with the highly exalted title *kalo'mte'* (Dp20), which throughout the Classic period was usually borne only by kings of the most influential dynasties, and acquisition of the title required another separate accession to the corresponding

office (Wagner 1994). Although the importance of this title is clear (see Martin and Grube 1995, 2000:17-20), its literal meaning remains debated but appears to refer to a particular manifestation of the storm deity, Chaahk, here in his guise as "axer of trees," one possible etymology or analysis of the *kalo'mte'* title (see also Wagner 1994). The combination of the emblem glyph with the *baahkab* and *kalo'mte'* titles makes it clear that the subject of this clause was a ruler of Yaxchilan. Considering that Stela 31 may well be a pre-accession monument of Yaxuun Bahlam IV, it is difficult to explain how he could have held all the exalted titles preserved at the end of the first clause before he was created king. One might thus speculate that the titles are those of his father, who would have appeared here in a pedigree statement, naming first his mother Lady Ik' Skull and then his father Shield Jaguar III, thereby duplicating the texts of Stelae 10 and 11. However, the pedigrees recorded on Stelae 10 and 11 occupy between 12 and 14 glyph blocks each, which is difficult to reconcile with the number of available glyph blocks on Stela 31. Assuming that the verb was once rendered in glyph block D12 (see the appendix) and that it duplicates that of Altar 9, this leaves only 8 glyph blocks for the remainder of the whole nomino-titular section, of which the final four are preserved on Stela 31. On his stelae, the names and titles of Yaxuun Bahlam IV occupy 7 glyph blocks on average, with 8 glyph blocks on Altar 9.[4] Considering that none of the glyphs on Stela 31 are compressed or paired off, the most plausible solution therefore remains that it was Yaxuun Bahlam IV who was the agent of the first clause.

The second glyphic caption is associated with the seated individual, Figure 2 (Figure 11a). It is the shortest of the three captions, consisting solely of two glyph blocks. The first is written **a**-**ku**-**tu-TUN**-**ni** (F1), and although its constituent signs can all be read without any difficulty, their correct transcription is problematic. The combination of **a-ku** is usually an underspelling of the common anthroponym *Ahkul* "turtle" (apparently derived from a toponym meaning "where turtles abound"; see Lacadena and Wichmann n.d.; Helmke and Kupprat 2016:41-43), which is so commonplace in the Usumacinta and adjoining Pasión area. The second part is odd, since it involves the logogram **TUN**, literally "stone," but it is accompanied by two phonetic complements, a prefixed **tu**- and a postfixed -**ni**. The former might cue the word *tun*, with short vowel, the term for the 360-day vague year in the Classic period (see Thompson 1950:Fig. 33:27-32), whereas the latter typically prompts the reading *tuun*, with long vowel for "stone," in the more tangible and literal sense (Houston et al. 1998:280; Lacadena and Wichmann 2004:156-157). The combination of these two patterns of phonetic complementation is difficult to explain at present, not least if we consider the possibility that the segment **a-ku-tu-TUN-ni** was not meant to be parsed but was instead intended to be read as a single term *ahktuun*, rendered in a hypercorrect spelling. As such this compound has the literal meaning of "turtle-stone" or "arched/covered-stone" (see Barrera Vásquez et al. 1980:4-5), but as any caver in the Maya area would know, the term *áaktun* subsists in Yukatekan languages as a prominent lexeme for "cave, cavern, den" (Barrera Vásquez et al. 1980:7; Bastarrachea et al. 1992:25, 78; Helmke 2009:526-534; Hofling 2011:117).[5] The incidence of this term on a carved speleothem is significant and also demonstrates the antiquity of the term within a Ch'olan linguistic context, which in turn indicates that the origin and dispersal of the lexeme could be much more complicated than heretofore assumed. The second glyph block of this caption (F2) is written **ya**-**wa**-**CHAN**-**na**, which might be read as *yaw chan* and probably provides a proper name, possibly specifying the name of a location or that of the seated individual with whom this caption is associated. The segment

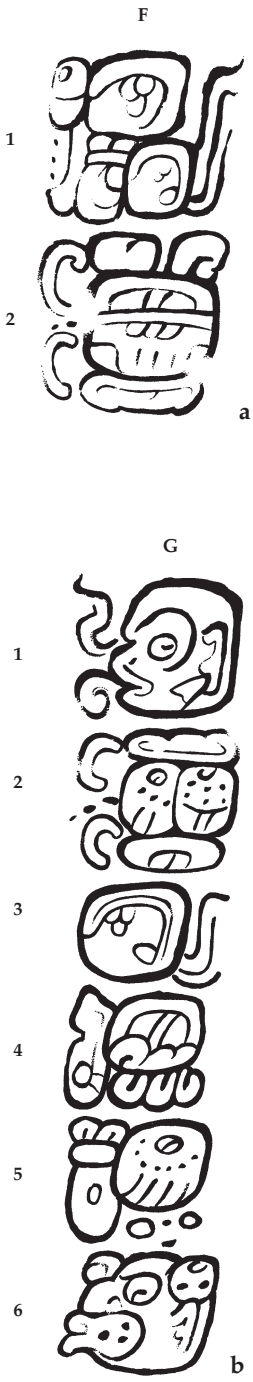


Figure 11. (a) Caption 2 and (b) Caption 3 of Stela 31 (drawings by Christophe Helmke, based on raking light photos by Harri Kettunen and Christophe Helmke). For photographs, see www.precolumbia.org/pari/journal/1704/photos.html.

[4] On the lintels (with the notable exceptions of Lintels 33 and 39), the nomino-titular segments of Yaxuun Bahlam IV tend to be shorter when compared to those found on his stelae. Thus for the most part his nomino-titular sections account for between 2 and 6 glyph blocks, with an average of 3.9. This is precisely why in the case of Stela 31 the comparison is made to the stelae of Yaxuun Bahlam IV, rather than to the lintels or the totality of his monuments.

[5] The Yukatek reflex *áaktun* is of great interest since it includes a rising tone, which indicates that the constituent lexemes can be reconstructed for proto-Maya as **ahk-toonh*, producing the Ch'olan reflex *ahk-tuun*, which matches that seen at Yaxchilan.

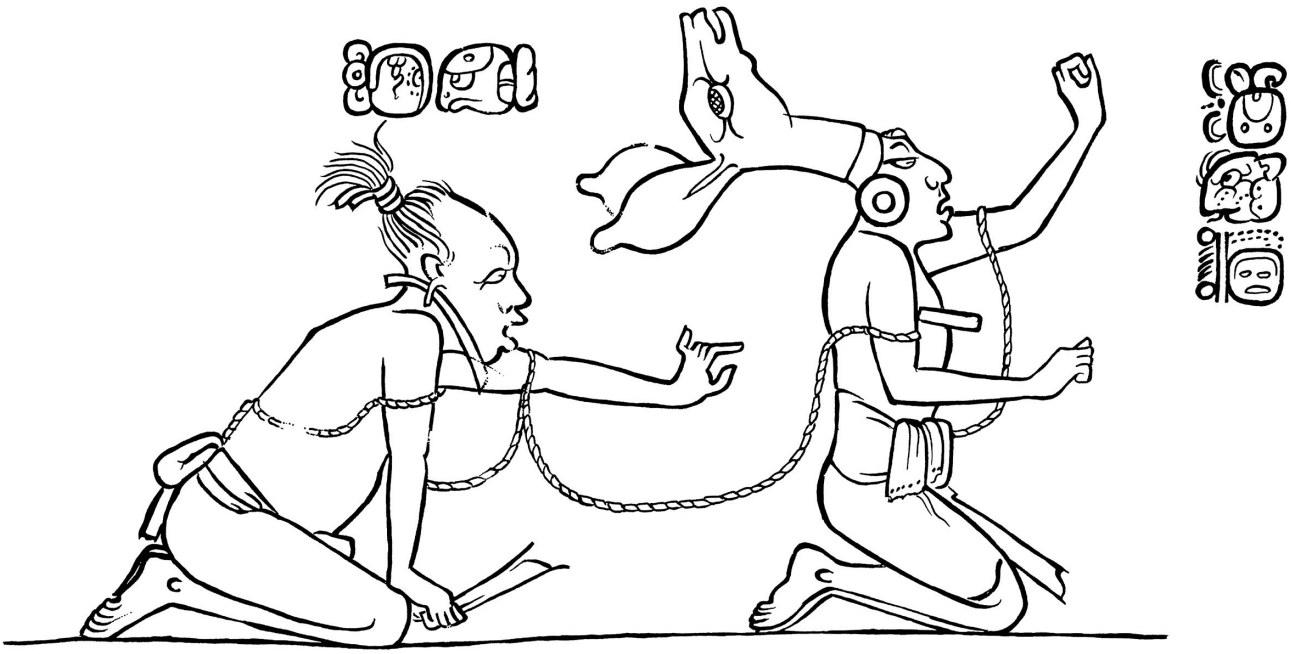


Figure 12. Detail of travertine vase depicting two bound captives, one to the left named Yuhk Tz'ikiin and the other to the right, an *ajk'uhu'n* or "priest" named Yawal Ch'o' (drawing by Christophe Helmke based on a photo by Justin Kerr).

remains difficult to parse and interpret at present, but it may involve the possessed form of the root *aw* "shout, yell" (see Kaufman 2003:716), tied to *chan* (here written using the "sky" logogram, although other homonymous terms are also possible). What may be an analogous name is found in the caption to a captive, depicted alongside his captor, on an unprovenanced travertine bowl, designated K1606 (see Coe and Kerr 1997:Fig. 10). Here the individual in question is named **ya-wa-la ch'o**, probably read *yawal ch'o'* for "the shouting/squealing of the rat" (Figure 12). While it is possible that this serves more as a pejorative reference to the captive rather than his actual personal name (see Colas 2014:52), it provides an important onomastic precedent for a name that pairs off *y-aw* with the name of an animal. This in turn implies that the *chan* segment on Stela 31 ought to be understood as "snake" by means of rebus. Alternatively, it may be more apt to transcribe the name as *ya[aj]w chan*, which might be understood as "vassal of the snake," involving the possessive form of *ajaw* "lord," as *y-ajaw* "vassal" (see Zender 2004:195-210). The medial segment that may be elided in this construction would duplicate similar omissions as in **wa-wa-li** (seen for instance on K1092 or MT176 from Tikal), best read as *w-ajw-aal* "my lord" (Marc Zender personal communication 2017).

The third and final glyphic caption is in many ways also the most interesting (Figure 11b). It starts off by recording an anthroponym, read *K'ahk' Maax* (lit. "fire spider monkey") (G1). This personal name is paired off with the title *anab* (G2a), the meaning of which remains debated although some earlier studies have proposed "sculptor" (e.g. Lacadena 2001:222; Boot 2002:17; but see Stuart 1993:332).[6] Here the title has the particularity of being rendered in possessed form as *y-anab*, its possessor written over two glyph blocks as *tzil-tuun* (G2b-G3). As such we can see that K'ahk' Maax was possibly the "sculptor of the *tzil* stone." The root *tzil* requires further commentary since it has not been documented in other texts to date. This root is found in several Lowland Maya languages, including Ch'ol where it serves as the transitive verb "romper," but is also found as the adjective *tzijl* for "broken" (Aulie and Aulie 1978:118). Similarly, in Chontal *tzilän* is also the verb "romper" (Keller and Luciano 1997:257), whereas the reflex of this lexeme in Ch'orti' is *tzir*, meaning "a break, breaking into two" (Wisdom 1950:729, 730). In Yukatekan languages the semantic domain is much the same, since *tzil* is variously glossed as "romper, despegar, [break, detach]" "rasgar [tear]," and "arrancar [uproot]" (Barrera Vásquez et al. 1980:861; Hofling 2011:431). However, it is precisely

[6] One alternative is that *anab ~ anaab ~ ana'b* may well function as a kinship term for family members of the same generation. Of interest is the Eastern Mayan kinship term **aanaab*, which can be glossed as "man's sister" (Kaufman 2003:107-108). Although this is evidently not the solution for the text at hand, since it ties together two ostensibly male figures, the possibility of a semantic shift in a conjunctive term should not be excluded outright. An alternative analysis of the title as *aj-naahb* has been presented elsewhere (Sheseña 2008).

the more nuanced glosses found in Yukatek that may be the key to understanding this term in the Classic period, since these relate not only to "breaking," but specifically to "arrancar cosa pegada [tear off something attached]" (Barrera Vásquez et al. 1980:861). This makes me wonder if the segment *tzil-tuun* at Yaxchilan is not an emic term for "speleothem," since it aptly describes it as a stone that has been torn off from whence it adhered. If this interpretation is correct, this means that the clause records that K'ahk' Maax was the one who carved the speleothem and as such serves as a scribal signature, more so than a caption for the standing male Figure 3. An alternate reading of this segment would see the sequence **ya**-**na**-**ba**-**tzi**-**li** as a single sequence. This is particularly significant in light of the spelling within a single glyph block and the fact that the *anaab* title is typically written **a**-**na**-**bi**, prompting a slightly different form (see Sheseña 2008). Whereas the meaning of this segment is not improved, one might entertain a different segmentation of the sequence as *yan-batzil*, as a compound form involving the adjectival *yan* "different" commonplace in greater Ch'olan languages (Kaufman and Norman 1984:137) and possibly the independent particle *batzil* "solo, mismo" documented in Yukatek (see Barrera Vásquez et al. 1980:40). Together this may form a heretofore unknown *difrasismo*, given the meaning of each constituent part.

The glyphic clause goes on to introduce another subject by means of the conjunctive expression *yitaaj* "companion" and by extension "with" (G4) (see Stuart 1997:5-6; MacLeod 2004:300-301). This allows multiple individuals to appear as subjects of a clause and to be co-agents of an event or verbal action. Thus the second individual is named here as the "companion" of K'ahk' Maax, but it is also implied that both individuals are involved with the *tziltuun*; however, a clearer understanding is contingent on resolving the segment *anab*. The name of this second individual is written over two glyph blocks, the first recording *sakbal* (G5), whereas the second depicts the head-variant of a glyph known rather irreverently as "Casper" (see Schele and Mathews 1998:130, 320; Martin and Grube 2000:157). Whereas no clear reading of this glyph exists, from texts at Palenque that provide us with initial phonetic complements we know that it start with /*ch'a*/, and its prominent and elongated lips have been interpreted as the proboscis of an insect such as a bee. As such the full name of the second subject may have been Sakbal Ch'a… ("white-round ?"), clearly a namesake of a much earlier individual who is cited on Lintel 18 at Yaxchilan. The co-occurrence of these names at Yaxchilan suggests that this is a local name.

Final Thoughts

Of the features that Stela 31 exemplifies it is evident that it was, for all intents and purposes, treated as a stela. The context in which it was erected, in alignment with the primary axis of Str. 33 and possibly paired with Altar 9, is entirely in keeping with stelae. In addition, the iconography that embellishes Stela 31, the ritual event that it portrays, and the calendrical information that is recorded are all on a par with the other stela monuments known from Yaxchilan and elsewhere in the Maya Lowlands. As such we can see that in at least one case a speleothem served as the ritual focal point for a major period-ending ceremony, involving a scattering ritual. Nevertheless, upon closer scrutiny it does seem as though the glyphic text makes salient mention of an *ahktuun* or "cave," and it may even refer to the speleothem as such by using the compound *tziltuun*. Thus, despite the overall treatment of the speleothem as a stela, the ancient Maya were keenly aware of the ritual importance of speleothems and of this monument in particular, hence the textual references that emphasize its otherworldly character.

The number of speleothem monuments at Yaxchilan attests to the importance of cave rituals and the predilection of local Late Classic rulers for erecting speleothem monuments. Whereas the construction dates of various structures remain unknown or debated (see Mathews 1988:329-336), those that are associated with speleothems can be reconstructed in broad terms (Table 3). For instance the dates of the monuments of Str. 41 span between AD 661 and 751, but the bulk concentrate around dates in the reign of Shield Jaguar III, and therefore a dedicatory date of around AD 692 (9.13.0.0.0) seems probable. As such the practice of erecting speleothems

Structure	Long Count	Tzolk'in	Haab	Gregorian Date	Agent
Str. 41	9.13.0.0.0	8 Ajaw	8 Wo	19 March 692	Shield Jaguar III
Str. 33	9.16.0.0.0	2 Ajaw	13 Sek	10 May 751	Yaxuun Bahlam IV
Str. 36	9.16.7.9.2	13 Ik'	0 Mak	2 October 758	Yaxuun Bahlam IV
Str. 3	9.18.17.13.14	9 Ix	2 Sek	14 April 808	K'inich Tatbu Joloom IV

Table 3. Chronological incidence of approximate dedicatory dates of the various structures at Yaxchilan that are associated with speleothem monuments.

as monuments thus precedes the interregnum and is a custom that Yaxuun Bahlam IV would have inherited from his father. Another building, Structure 36, can also be attributed to the reign of Yaxuun Bahlam IV based on the associated Stela 9. The practice of erecting speleothem monuments may have endured until the reign of K'inich Tatbu Joloom IV, the last known ruler of Yaxchilan, since his Str. 3, dated to AD 808 was also associated with a speleothem monument. Thus there is a nearly continuous sequence of speleothem monuments that can be attributed to a patrilineal succession of four rulers over a century. Therefore these speleothems do not represent a random collection of monoliths, but perhaps commemorate specific cave rituals wherein important scattering rituals were celebrated within the reigns of each of these kings. It remains within the purview of future studies to sample each of the speleothems and conduct elemental analyses to attempt to source them to the cave of their origin, as well as to refine the chronological series offered here.

The major question of interest remains, however, precisely the use of the speleothem as a stela. Why erect a speleothem before Str. 33 and not a limestone stela? This cannot be just a function of relative proximity to caves, since caves are relatively commonplace throughout the lowlands and yet multiple speleothem monuments are a distinctive characteristic of Yaxchilan, a peculiarity that begs for an explanation. In order to account for the monument's source material, one might speculate that the sexual connotations of caves and the phallic symbolism of speleothems (Brady 1988; Brady et al. 1997:732-736) may be the motivation for these monuments, as if to enhance the potency of scattering rituals and produce particularly bountiful harvests. Alternatively, the possibility remains that the erection of speleothems is a regional trait, particularly since a series of "oddly shaped slabs of limestone without carvings" have been reported at the site of Yoxiha in Chiapas (c. 29 km south of Palenque), along the course of the Río Tulija (Blom and LaFarge 1926-1927:1:223). Based on extant descriptions and published photographs this group of monuments appear to be speleothems that were once erected along the base of the principal structures (Blom and LaFarge:Fig. 180).

However, Stela 31 is far from the only piece of evidence to suggest that caves were intimately related to the ritual celebration of important calendrical rituals. For one, the paintings of Group 2 within Jolja cave in Chiapas make it clear that an important 9 Ajaw period ending was celebrated at the site by figures bearing torches (Stone 1995:87-88; Bassie 2002). Similarly, the painted glyphic text of Group 5 records the completion of the bak'tun on the 9.0.0.0.0 period ending of AD 435 (Bassie 2002; Helmke 2009:188-189). Also relevant is a painted flowstone panel that has been sawn off from a cave, which forms part of the collections of the Fundación Ruta Maya, Guatemala. This panel displays two standing individuals separated by glyphic collocations (Houston 2007) (Figure 13). The style of the iconography is clearly Early Classic, and the accompanying Calendar Round date 9 Ajaw 3 Muwan can be fixed to the *lahuntun* period ending of 8.19.10.0.0, or AD 426 (Houston 2007). The text and its accompanying imagery thus refer to an Early Classic period-ending celebration that took place in a cave, in the first half of the fifth century. David Stuart (personal communication in Houston 2007) has further suggested that this is the very same period ending that was celebrated at Jolja (Stone 1995:87-90; Bassie 2002). These examples have some important implications for other columnar speleothems that were erected both within and without caves. One salient example is the speleothem erected within Naj Tunich that is associated with the painted text designated as Drawing 88 (Stone 1995:128-130, 230-231). The speleothem in question was raised and a series of stones and broken speleothems were gathered to form a base or pedestal for the monolith, which was embellished with the inverted rims of two *ollas* (Figure 14). The lengthy text of Drawing 88, in addition to recording a pilgrimage to the site by a group of four individuals, one of them hailing from Caracol (Figure 15), goes on to culminate in the 9.13.0.0.0 bak'tun period ending of AD 692. Most significant of all, this calendrical station is the only bak'tun period ending recorded in the entire corpus of Naj Tunich, attesting to its unique character (Stone 1995:163; Helmke 2009:111-115). Thus, here again we have a speleothem monolith erected as a monument in conjunction with a major period-ending celebration, much as Stela 31 at Yaxchilan. Therefore, we have at our disposal unambiguous examples of caves as the setting of important calendrical rituals, and of speleothems—cave stones par excellence—figuring as the foci for the celebration of period-ending rites. Whether this pattern can be extended to all the speleothems that have been erected as monolithic monuments remains an open question at present. As such this is a line of inquiry that is best reserved for future investigations seeking to clarify the pervasiveness of this patterning. Nevertheless, this little foray demonstrates the importance of speleothems in royal rituals and reveals that erected speleothems, on a par with conventional stelae, could serve to commemorate rites performed at important calendrical stations.

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Figure 13. Detail of the painted flowstone panel in the collections of the Fundación Ruta Maya. Dated to the Early Classic, this panel shows a celebration of a period-ending ritual in AD 426 (photo: Harri Kettunen).

and Yaxchilan over the years. My thanks to Harri Kettunen, Julie Nehammer Knub, and Verónica Amelalli Vázquez López for a wonderful journey on the Usumacinta. Antonio Cuxil is thanked for assisting us in planning the logistics, as are the boatmen of the Cooperativa de Lancheros de Bethel and the guards of the Zona Arqueológica de Yaxchilan. An earlier version of this paper was presented in 2014 at the 79th Annual Meeting of the Society for American Archaeology. Many thanks to Ann Scott and C. L. Kieffer for convening that session and inviting me to present this piece of research. Thank you to Esperansa Gaitán, for guiding me to Petroglyph Cave where we inspected the petroglyphs and the speleothem, as well as to Dorie Reents-Budet and Barbara MacLeod for sharing their photos. This paper has greatly benefitted from the thoughtful and constructive comments of James Brady, Davide Domenici, Charles Golden, Jesper Nielsen, and Rosa-Maria Worm Danbo, who carefully read earlier drafts. I am extremely grateful to the two anonymous reviewers and to the editors of *The PARI Journal* for their constructive comments and perseverance in seeing this paper to publication. Thanks also to Jaime Awe, Davide Domenici, Harri Kettunen, and James Brady for their kind permission to include their photographs herein. To Justin Kerr I extend my gratitude for the high-resolution photograph of the travertine vessel (K1606) upon which the drawing in Figure 12 is based. This paper is dedicated to the lasting memory of Roberto García Moll.

Figure 14. Andrea Stone inspecting the glyphic text designated Drawing 88 painted on the wall behind the speleothem erected within the North Passage at Naj Tunich (photo: Chip Clark, courtesy of James Brady).

Figure 15. Excerpt of Drawing 88 that mentions a pilgrim from Caracol, named Tz'ahyaj K'ahk' along with another companion (photo: James Brady).

Appendix: Transliteration and Transcription of the Glyphic Texts of Stela 31.

Caption 1:
A1: #
ISIG
B1: {**9-PIK**}
baluun pik
"9 bak'tun"
C1: {**16**}-**WINAK**?-**HAB**
waklajuun wina[a]kha[a]b
"16 k'atun"
D1: MIH-HAB
mih ha[a]b
"no years"
E1: MIH-WINIK-ki
mih winik
"no months"
D2: MIH-K'IN-ni
mih k'in
"no days"
D3: 2-AJAW
[ta] cha'[te'] ajaw [k'in]
"on the day 2 Ajaw"
D4: yi-[IK']K'IN
yik'in
Glyph G9
D5: TI'-HUN-na
[u]ti' hu'un
"mouth of the crown" (Glyph F)
D6: 6-HUL-{**li**}**-ya**
wak huliiy
"six arrived" (Glyphs E+D)
D7: 3-#
Glyph 3CJ
D8: #
Glyph X
D9: {**u-ch'o[ko]-K'ABA'**}[7]
uch'ok k'aba'
"… is its youth name" (Glyph B)
D10: {**WINAK-10**}
wina[a]klajuun
"thirty" (Glyph A)
D11: {**11-ka-se-wa**}
buluch kase'w
"11 Sek"

[…]

Dp17: {**K'UH**-Y2-**AJAW**}
k'uhul …j ajaw
"godly Y2 king"
Dp18: K'UH-[PA']CHAN-AJAW
k'uh[ul] pa'chan ajaw
"godly Pa'chan king"
Dp19: ba-ka-ba
ba[ah]kab
lit. "head-earth" ~ "chief of the land"
Dp20: [KAL]ma-TE'
kal[o]'mte'
"tree axer" (exalted title)

Caption 2:
F1: a-ku-tu-TUN-ni
a[h]ku[l] tuun / a[h]ktuun
"turtle stone" ~ "cave"
F2: ya-wa-CHAN-na
yaw chan ~ ya[ja]w chan
(proper name)

Caption 3:
G1: K'AK'-MAX
k'a[h]k' ma[a]x
"fire spider monkey" (anthroponym)
G2: ya-na-ba-tzi-li
yanab tzil / yan-batzil
"the sculptor (?) of the *tzil*" / "different-same"
G3: TUN-ni
tuun
"stone"
G4: yi-ta-ji
yitaaj
"the companion of" ~ "with"
G5: SAK-ba-la
sakbal
"white-round ..."
G6: ?
?
(?) (anthroponym)

[7] This and following two glyph blocks are reconstructed on the basis of the drawing made by Morley (1937-1938:Pl. 26b) of text found on Altar 9 that presents a coeval Supplementary Series.

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Lintel 3 of Structure 33, Yaxchilan (rubbing by Merle Greene Robertson).