



The PARI Journal

A quarterly publication of the Ancient Cultures Institute
Volume XVII, No. 4, Spring 2017

In This Issue:

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

by

Whittaker Schroder
Charles W. Golden
Andrew K. Scherer
Socorro del Pilar
Jiménez Álvarez
Jeffrey Dobereiner
and
Alan Mendez Cab

PAGES 1-15

A Carved Speleothem Monument at Yaxchilan, Mexico

by

Christophe Helmke

PAGES 16-43

Marc Zender
Editor

marc@ancientcultures.org

Joel Skidmore

Associate Editor

joel@ancientcultures.org

The PARI Journal
202 Edgewood Avenue
San Francisco, CA 94117
415-664-8889
journal@ancientcultures.org

Electronic version
available at:
[www.precolumbia.org/
pari/journal/1704](http://www.precolumbia.org/pari/journal/1704)

ISSN 1531-5398

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

WHITTAKER SCHRODER

University of Pennsylvania

CHARLES W. GOLDEN

Brandeis University

ANDREW K. SCHERER

Brown University

SOCORRO DEL PILAR JIMÉNEZ ÁLVAREZ

Universidad Autónoma de Yucatán

JEFFREY DOBEREINER

Dartmouth College

ALAN MENDEZ CAB

Universidad Autónoma de Yucatán

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

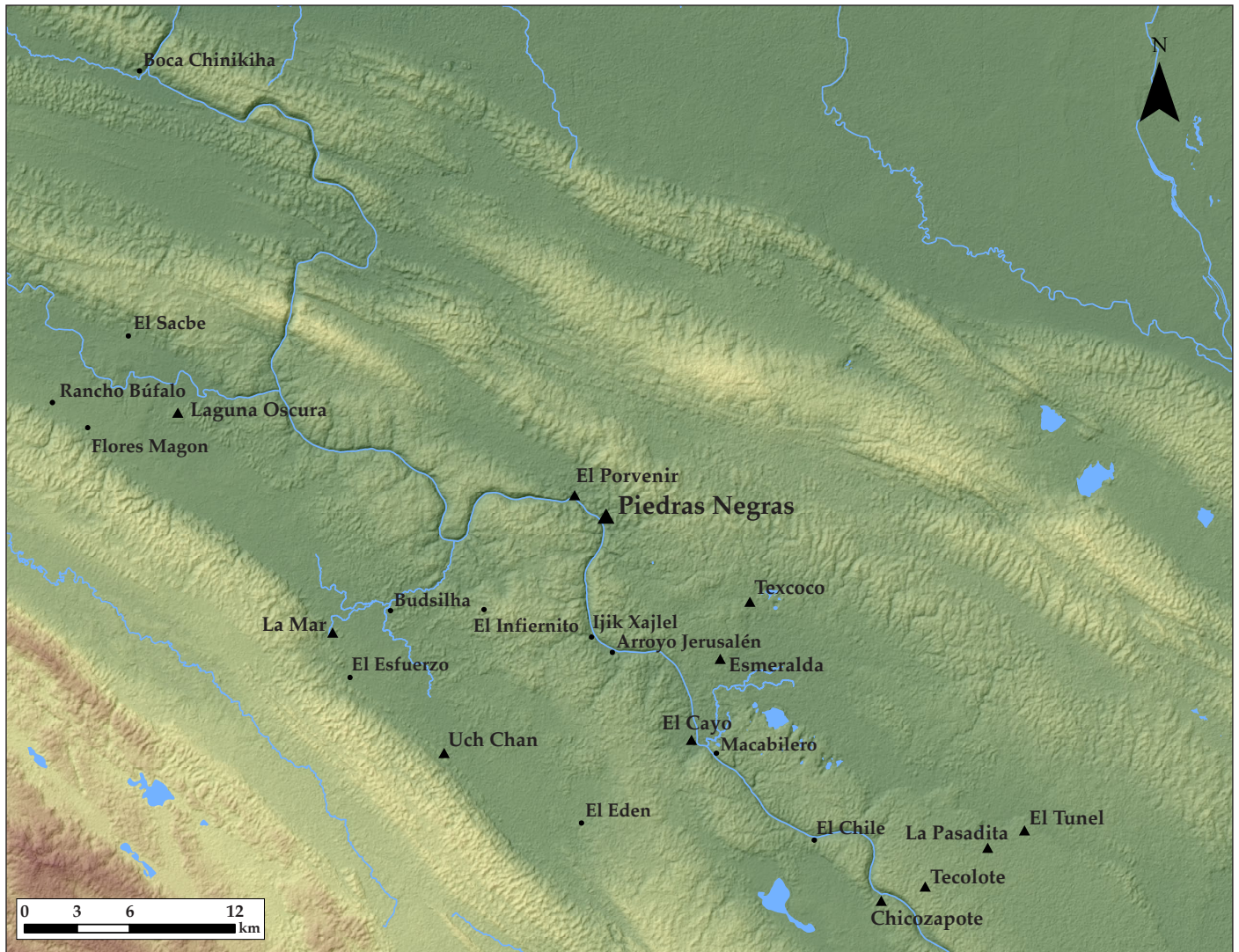


Figure 2. The Piedras Negras hinterlands showing sites mentioned in the text.

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 pilgrimages, 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 Aliphath 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,

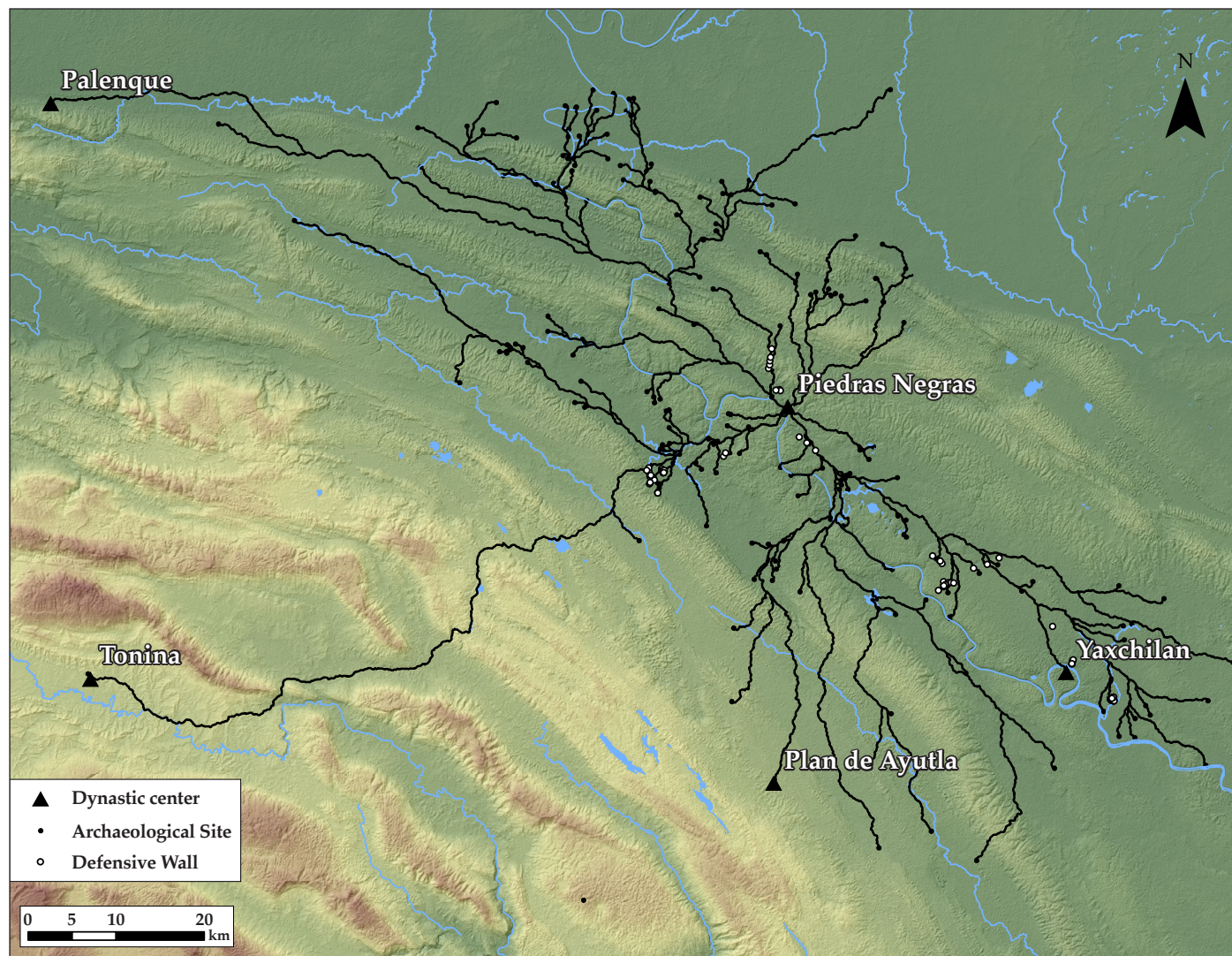


Figure 6. Location of defensive walls and least cost routes toward Piedras Negras.

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 counterparts 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 reconnaissance 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. Excavation of a system of defensive features near La Mar.

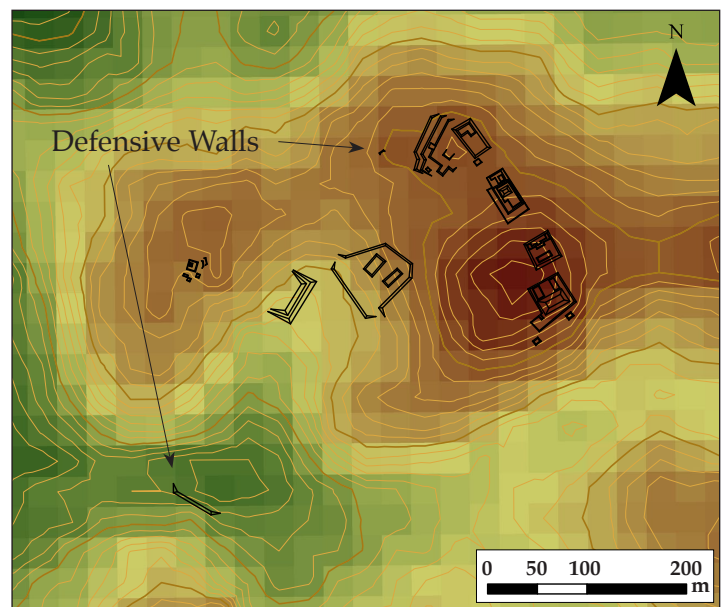


Figure 9. Preliminary map of El Infiernito, Chiapas.



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 landscape 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.

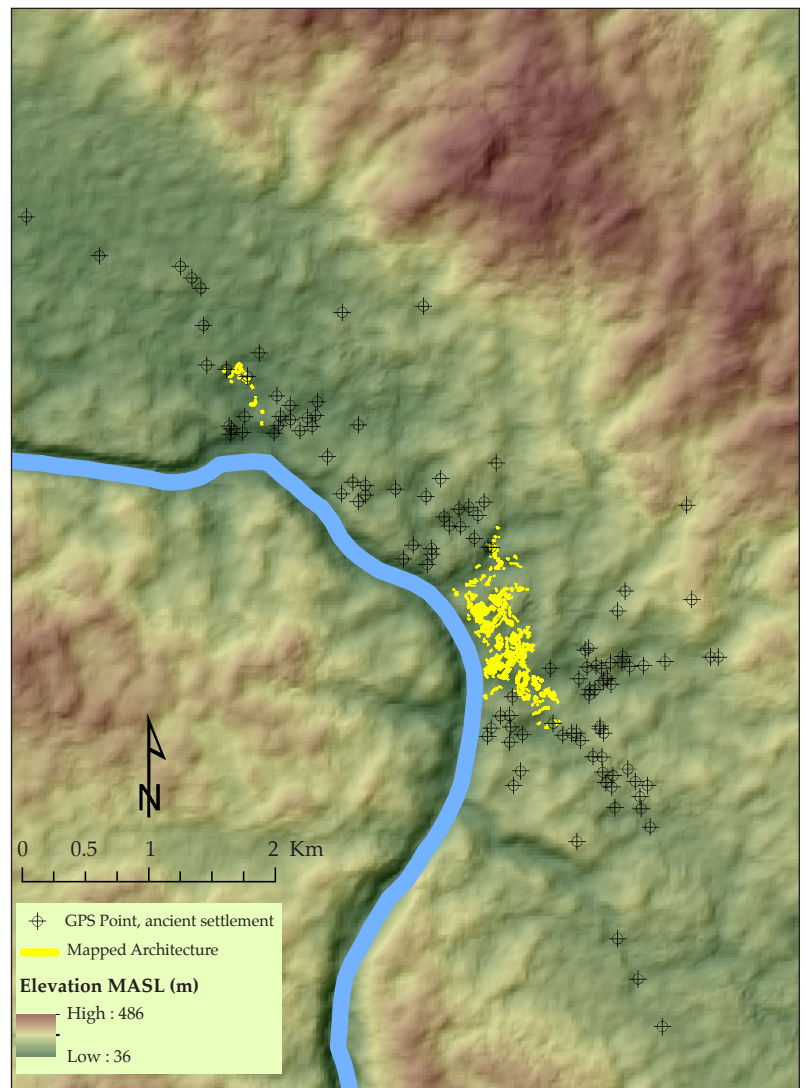


Figure 14. Settlement between El Porvenir and Piedras Negras, Peten, Guatemala.

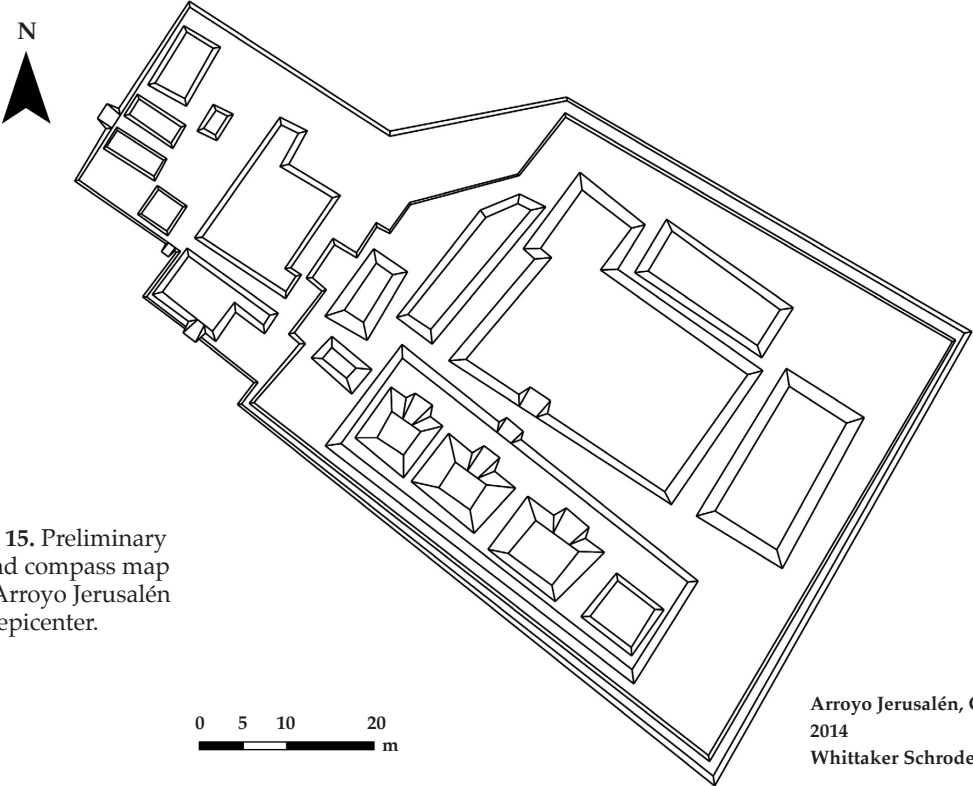


Figure 15. Preliminary tape and compass map of the Arroyo Jerusalén epicenter.



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.

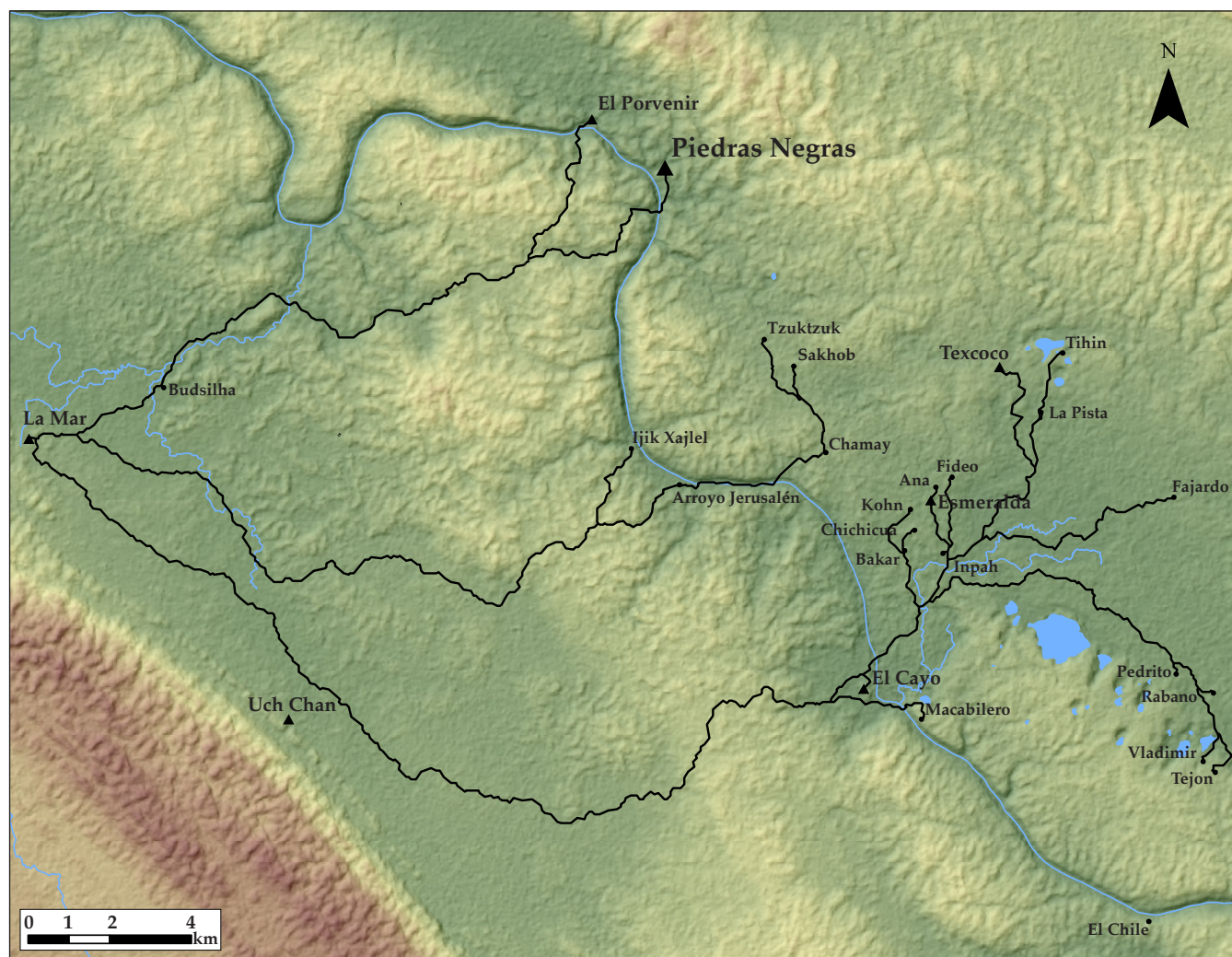


Figure 19. Least cost paths toward La Mar, showing river crossings at El Porvenir, Piedras Negras, Arroyo Jerusalén, and El Cayo.

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 transshipment 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 transshipment.

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'í'.

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 Técnica, 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.

Acknowledgments

Archaeological investigations in Chiapas were permitted by the Instituto Nacional de Antropología e Historia, Mexico. We are grateful for the permission and local knowledge of the people and communities

with whom we work. Institutional and financial support was awarded through Brown University, Brandeis University (the Jane Fund of the Latin American and Latino Studies Program), Harvard University, University of Pennsylvania (the Penn Museum, Department of Anthropology, and Latin American and Latino Studies), the Universidad Autónoma de Yucatán, Mérida, the Universidad de Ciencias y Artes de Chiapas; as well as the National Science Foundation (SBE-BCS #1115818 and the Dissertation Development and Improvement Grant #1444994, PI William Fash) the National Geographic Society (Grant #9054-12), the Rust Foundation, and Sigma Xi.

References Cited

- Aliphath Fernández, Mario M.
1994 *Classic Maya Landscape in the Upper Usumacinta River Valley*. Ph.D. dissertation, Department of Anthropology, University of Calgary, Calgary.
- Anaya Hernández, Armando
2001 *Site Interaction and Political Geography in the Upper Usumacinta Region During the Late Classic: A GIS Approach*. British Archaeological Reports, International Series 994. J. and E. Hedges, Oxford.
- Arkush, Elizabeth
2011 *Hillforts of the Ancient Andes: Colla Warfare, Society, and Landscape*. University Press of Florida, Gainesville.
- Barrientos Q., Tomás, Héctor L. Escobedo, and Stephen D. Houston
1997 PN 1: Excavaciones en la Estructura 0-13. In *Proyecto Arqueológico Piedras Negras informe preliminar no. 1: primera temporada, 1997*, edited by Héctor L. Escobedo and Stephen D. Houston, pp. 1-20. Preliminary report submitted to the Instituto de Antropología e Historia, Guatemala.
- Blaikie, Piers, and Harold C. Brookfield
1987 *Land Degradation and Society*. Methuen, London.
- Brookfield, Harold
1984 Intensification Revisited. *Pacific Viewpoint* 25:15-44.
2001 *Exploring agrodiversity*. Columbia University Press, New York.
- Butler, Mary
2005 Piedras Negras Pottery. In *Piedras Negras Archaeology, 1931-1939*, edited by John M. Weeks, J. Hill, and Charles Golden, pp. 90-139. University Museum Press, Philadelphia.
- Canter, Ronald L.
2007 Rivers among the Ruins: The Usumacinta. *The PARI Journal* 7(3):1-24.
- Carballo, David M.
2013 Cultural and Evolutionary Dynamics of Cooperation in Archaeological Perspective. In *Cooperation and Collective Action: Archaeological Perspectives*, edited by David M. Carballo, pp. 3-34. University of Colorado Press, Boulder.
- Chapman, John
2000 *Fragmentation in Archaeology: People, Places, and Broken Objects in the Prehistory of South Eastern Europe*. Routledge, London.

- Coe, William R.
1959 *Piedras Negras Archaeology: Artifacts, Caches and Burials*. Museum Monographs. University Museum, University of Pennsylvania, Philadelphia.
- Davenport, Bryce, and Charles Golden
2015 Landscapes, Lordship, and Sovereignty in Mesoamerica. In *Political Authority in Mesoamerica*, edited by Sarah Kurnick and Joanne Baron, pp. 181-216. University of Colorado Press, Boulder.
- Dobereiner, Jeffrey
2014 Investigaciones sobre sitios extra-locales en los alrededores de Rancho Búfalo, Chiapas, México. In Proyecto Arqueológico Busilja-Chocolja: informe de la quinta temporada de investigación, edited by Whittaker Schroder, Jeffrey Dobereiner, Charles Golden, and Andrew K. Scherer, pp. 43-58. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
- Doyle, James A., Thomas G. Garrison, and Stephen D. Houston
2012 Watchful Realms: Integrating GIS Analysis and Political History in the Southern Maya Lowlands. *Antiquity* 86:792-807.
- Erickson, Clark L., and John H. Walker
2006 Precolumbian Causeways and Canals as Landesque Capital. In *Landscapes of Movement: Trails, Paths, and Roads in Anthropological Perspective*, edited by James E. Snead, Clark L. Erickson, and J. Andrew Darling, pp. 232-252. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.
- García Moll, Roberto
2004 Shield Jaguar and Structure 23 at Yaxchilan. In *Courtly Art of the Ancient Maya*, edited by Mary Miller and Simon Martin, pp. 268-270. Fine Arts Museum of San Francisco, San Francisco.
- Golden, Charles, Andrew K. Scherer, A. René Muñoz, and Rosaura Vásquez
2008 Piedras Negras and Yaxchilan: Divergent Political Trajectories in Adjacent Maya Polities. *Latin American Antiquity* 19(3):249-274.
- Golden, Charles, Andrew K. Scherer, A. René Muñoz, and Zachary X. Hruby
2012 Politics, Boundaries, and Trade in the Classic Period Usumacinta River Basin. *Mexicon* 34(1):11-19.
- Golden, Charles and Andrew Scherer
2006 Border Problems: Recent Archaeological Research along the Usumacinta River. *The PARI Journal* 7(2):1-16.
2011 Conclusiones. In Proyecto Arqueológico Busilja-Chocolja: informe de la segunda temporada de investigación, edited by Charles Golden and Andrew Scherer, pp. 112-116. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
2013 Territory, Trust, Growth, and Collapse in Classic Period Maya Kingdoms. *Current Anthropology* 54(4):397-435.
2015 Steward the Past and Avoid Harm. *Anthropology News* Nov/Dec:10.
- Golden, Charles, and Bryce Davenport
2013 The Promise and Problem of Modeling Viewsheds in the Western Maya Lowlands. In *Mapping Archaeological Landscapes from Space*, edited by Douglas C. Comer and Michael J. Harrower, pp. 145-157. Springer, New York.
- Golden, Charles, Andrew K. Scherer, Melanie Kingsley, Stephen D. Houston, and Hector Escobedo
2016 The Life and Afterlife of the Classic Period Piedras Negras Kingdom. In *Ritual, Violence, and the Fall of the Classic Maya Kings*, edited by Gyles Iannone, Brett A. Houk, and Sonja A. Schwake, pp. 108-133. University Press of Florida, Gainesville.
- Golitko, Mark, and Gary M. Feinman
2015 Procurement and Distribution of Pre-Hispanic Mesoamerican Obsidian 900 BC-AD 1520: A Social Network Analysis. *Journal of Archaeological Method and Theory* 22:206-247.
- Halperin, Christina T.
2014 Ruins in Pre-Columbian Maya Urban Landscapes. *Cambridge Archaeological Journal* 24:3:321-344.
- Houston, Stephen, Héctor Escobedo, Mark Child, Charles Golden, and René Muñoz
2003 The Moral Community: Maya Settlement Transformation at Piedras Negras, Guatemala. In *The Social Construction of Ancient Cities*, edited by Monica L. Smith, pp. 212-253. Smithsonian Books, Washington, D.C.
- Hutson, Scott R., Aline Magnoni, and Travis W. Stanton
2012 "All that is Solid...": Sacbes, Settlement, and Semiotics at Tzacauil, Yucatan. *Ancient Mesoamerica* 23(2):297-311.
- Ingold, Timothy
1993 The Temporality of the Landscape. *World Archaeology* 25(2): 152-174. London.
2000 *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill*. Routledge, London.
- Jiménez Álvarez, Socorro del Pilar, Alan E. Mendéz Cab, Charles Golden, and Andrew Scherer.
2014 La cerámica procedente de la región entre los ríos Chocolja y Busilja, en el Usumacinta Medio de Chiapas. *Los Investigadores de la Cultura Maya* 23(2):181-199. Campeche.
- Kingsley, Melanie J., Charles W. Golden, Andrew K. Scherer, and Luz Midilia Marroquin de Franco
2012 Parallelism in Occupation: Tracking the Pre- and Post-Dynastic Evolution of Piedras Negras, Guatemala through its Secondary Site, El Porvenir. *Mexicon* 34:109-117.
- Liendo, Rodrigo
1999 *The Organization of Agricultural Production at a Classic Maya Center: Settlement Patterns in the Palenque Region, Chiapas, Mexico*. University of Pittsburgh Press, Pittsburgh.
- Liendo, Rodrigo, Elizabeth Solleiro-Rebolledo, Berenice Solis-Castillo, Sergei Sedov, and Arturo Ortiz-Pérez
2014 Population Dynamics and its Relation to Ancient Landscapes in the Northwestern Maya Lowlands: Evaluating Resilience and Vulnerability. *Archaeological Papers of the American Anthropological Association* 24:84-100.
- Maestri, Nicoletta
2010 Primera temporada de excavaciones en el sitio Boca Chinikiha: resultados preliminares. In Proyecto Arqueológico Chinikiha: tercer informe parcial temporada 2010, edited by Rodrigo Liendo Stuardo, pp. 216-244. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
2011 Informe preliminar de las excavaciones en el sitio de Boca Chinikiha, temporada 2011. In Informe, cuarta temporada, Proyecto Arqueológico Chinikiha, edited by Rodrigo Liendo Stuardo, pp. 275-319. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
- Maler, Teobert
1903 *Researches in the Central Portion of the Usumacinta Valley: Reports of the Explorations for the Museum.—Part Second*. Peabody Museum of American Archaeology and Ethnology Memoirs 2(2). Harvard University, Cambridge.
- Martin, Simon, and Nikolai Grube
2008 *Chronicle of the Maya Kings and Queens*. Thames and Hudson, New York.

At the Crossroads of Kingdoms

- Mathews, Peter
2001 The Dates of Tonina and a Dark Horse in its History. *The PARI Journal* 2(1):1-6.
- Marx, Karl
[1894]1992 *Capital, Volume 1: A Critique of Political Economy*. Ben Fowkes, tr. Penguin Classics, New York.
- Moore, Christopher R., and Victor D. Thompson
2012 Animism and Green River Persistence Places: A Dwelling Perspective of the Shell Mound Archaic. *Journal of Social Archaeology* 12(2):264-284.
- Morrison, Kathleen D.
2014 Capital-esque Landscapes: Long-term Histories of Enduring Landscape Modifications. In *Landesque Capital: The Historical Ecology of Enduring Landscape Modifications*, edited by N. Thomas Håkansson and Mats Widgren, pp. 49-74. Left Coast Press, Walnut Creek.
- Rodning, Christopher B., and Jayur M. Mehta
2016 Resilience and Persistent Places in the Mississippi River Delta of Southeastern Louisiana. In *Beyond Collapse: Archaeological Perspectives on Resilience, Revitalization, and Transformation in Complex Societies*, edited by Ronald K. Faulseit, pp. 342-379. Center for Archaeological Investigations Occasional Paper 42. Southern Illinois University, Carbondale.
- Ruz Lhuiller, Alberto
1973 El Templo de las Inscripciones. Instituto Nacional de Antropología e Historia, Mexico.
- Scherer, Andrew K., and Charles Golden
2009 Tecolote, Guatemala: Archaeological Evidence for a Fortified Late Classic Maya Political Border. *Journal of Field Archaeology* 34(3):285-304.
2012 *Revisiting Maler's Usumacinta: Recent Archaeological Investigations in Chiapas, Mexico*. Monograph 1. Precolumbia Mesoweb Press, San Francisco.
2014 War in the West: History, Landscape, and Classic Maya Conflict. In *Embattled Bodies, Embattled Places: War in Pre-Columbian Mesoamerica and the Andes*, edited by Andrew K. Scherer and John W. Verano, pp. 57-92. Dumbarton Oaks, Washington, D.C.
- Scherer, Andrew K., Charles Golden, Whittaker Schroder, Cyndi Medina Pimentel, and Pedro Guzmán López
2013 Budsilhá: investigaciones en el grupo principal. In Proyecto Arqueológico Busilja-Chocolja: informe de la cuarta temporada de investigación, edited by Andrew K. Scherer, Charles Golden, and Jeffrey Dobereiner, pp. 13-57. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
- Scherer, Andrew, Charles Golden, and Pedro Guzmán López
2013 La Mar: investigaciones en la periferia. In Proyecto Arqueológico Busilja-Chocolja: informe de la cuarta temporada de investigación, edited by Andrew K. Scherer, Charles Golden, and Jeffrey Dobereiner, pp. 58-76. Report submitted to the Instituto Nacional de Antropología e Historia, México.
- Schlanger, Sarah H.
1992 Recognizing Persistent Places in Anasazi Settlement Systems. In *Space, Time, and Archaeological Landscapes*, edited by Jaqueline Rossignol and LuAnn Wandsnider, pp. 91-112. Plenum Press, New York.
- Schroder, Whittaker
2014a Reconocimiento arqueológico en los ejidos La Selva, Las Margaritas, and Arroyo Jerusalén. In Proyecto Arqueológico Busilja-Chocolja: informe de la quinta temporada de investigación, edited by Whittaker Schroder, Jeffrey Dobereiner, Charles Golden, and Andrew K. Scherer, pp. 77-98. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
2014b Reconocimiento arqueológico en los alrededores de La Mar. In Proyecto Arqueológico Busilja-Chocolja: informe de la quinta temporada de investigación, edited by Whittaker Schroder, Jeffrey Dobereiner, Charles Golden, and Andrew K. Scherer, pp. 59-76. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
- Schroder, Whittaker, Yesenia Cabrera Tamayo, and Cyndi Medina Pimentel
2015 El Infiernito: investigaciones preliminares. In Proyecto Arqueológico Busilja-Chocolja: informe de la sexta temporada de investigación, edited by Whittaker Schroder, Charles Golden, and Andrew K. Scherer, pp. 70-98. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
- Schroder, Whittaker, and Kellie Roddy
2016 El Infiernito: investigaciones arqueológicas. In Proyecto Arqueológico Busilja-Chocolja: Informe de la séptima temporada de investigación, edited by Whittaker Schroder, Charles Golden, and Andrew K. Scherer, pp. 9-95. Report submitted to the Instituto Nacional de Antropología e Historia, Mexico.
- Sen, Amartya K.
1959 The Choice of Agricultural Techniques in Underdeveloped Countries. *Economic Development and Cultural Change* 7(3):279-285.
[1960]1968 *Choice of Techniques: An Aspect of Theory of Planned Economic Development*. Blackwell, Oxford.
- Shaw, Justine M.
2008 *White Roads of the Yucatán: Changing Social Landscapes of the Yucatec Maya*. University of Arizona Press, Tucson.
2012 Roads to Ruins: The Role of Sacbeob in Ancient Maya Society. In *Highways, Byways, and Road Systems in the Pre-Modern World*, edited by Susan E. Alcock, John Bodell, and Richard J. A. Talbert, pp. 128-146. Wiley-Blackwell, Malden.
- Silva de la Mora, Flavio Gabriel
2008 Sicix bábih, caminos en las tierras bajas noroccidentales: una propuesta de rutas de comunicación. Licenciatura thesis, Escuela Nacional de Antropología e Historia, Mexico.
- Widgren, Mats
2007 Pre-Colonial Landesque Capital: A Global Perspective. In *Rethinking Environmental History: World-System History and Global Environmental Change*, edited by Alf Hornborg, J. R. McNeill, and Joan Martinez-Alier, pp. 61-77. Alta Mira Press, Walnut Creek.
- Yadeun Angulo, Juan
2011 K'inich Baak Nal Chaak (Resplandeciente Señor de la Lluvia y el Inframundo) (652-707 d.C.). *Arqueología Mexicana* 19(110):52-57.
- Zender, Marc
2002 The Toponyms of El Cayo, Piedras Negras, and La Mar. In *Heart of Creation: The Mesoamerican World and the Legacy of Linda Schele*, edited by Andrea Stone, pp. 166-184. University of Alabama Press, Tuscaloosa.