

## The Political Geography of Long-Distance Exchange in the Elevated Interior Region of the Yucatán Peninsula

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### **Abstract:**

The boundaries of ancient polities were not always marked by fortifications, natural geographic features, or unoccupied buffer zones. Fortunately, in the case of the Classic Maya, economic and political systems often were coterminous because commerce was only partially commodified (G. Braswell 2010). Put another way, rulers sought to manage the exchange of certain goods within their territory, and the frontier of their economic control often coincided with the limit of their political sovereignty. The study of trade routes and networks, therefore, can help us better understand political organization.

In this chapter we reconstruct in broad strokes the patterns of exchange in the Elevated Interior Region (EIR) of the Yucatán Peninsula using data on the distribution of obsidian, ceramics, and other long-distance trade goods. Our goal is to understand to what extent these patterns paralleled changes in the political geography of the region. We suggest possible trade routes into and across the EIR based on least-cost analysis and integrate them into our analysis of the regional political economy. Finally, we discuss how these data contribute to our understanding of unresolved issues in the political and economic organization of the region.

**Keywords:** anthropology | archaeology | Elevated Interior Region | Yucatán Peninsula | trade routes

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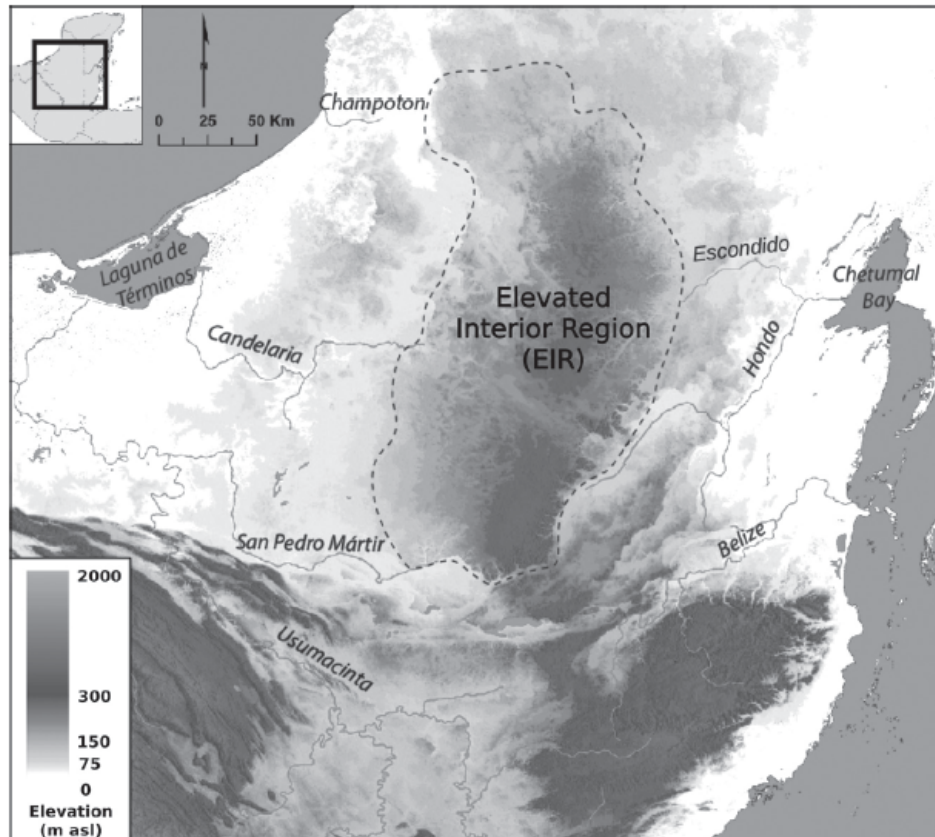
### **Physical Environment and Potential Routes**

The EIR is a hilly karst upland that forms the spine of the Yucatán Peninsula, extending approximately 250 km from central Campeche, Mexico, into northern Peten, Guatemala (Figure 20.1). It has been defined by Dunning and colleagues (2002) as the entire portion of the Yucatan Peninsula with appreciable topographic relief north of the La Libertad Arch, stretching from the northwestern corner of the Ticul Escarpment in the north to the Peten Lakes District in the south, and from the Edzna Valley in the west to the Hondo River in the east. We employ their terminology for the sake of consistency but reduce its extent to the area that has been previously referred to as karst plateau, Karstic Mesoplano, or Central Karstic Uplands (Folan et al. 2011; Gunn et al. 2014; Reese-Taylor 2017).

Major ancient cities of the EIR include the massive Preclassic center of El Mirador and its subsidiaries as well as the Preclassic to Classic metropolis of Calakmul. The dominant structural feature of this limestone plateau is the eastward arching north-south anticlinal fold that acts as watershed divide for the central part of the peninsula (Gates 1999). The Candelaria River drains the southwestern flank of the EIR toward Laguna de Terminos and the Gulf of Mexico, whereas the Hondo and Escondido systems flow toward Chetumal Bay and the Caribbean to the east. The region is split in two—into the Peten karst plateau to the south and the southern Campeche karst plateau to the north—by the *bajo* El Laberinto, one of the largest of the many seasonally inundated karst solution depressions that characterize the region. Starting in the Middle Preclassic, most major settlements in the central Maya lowlands were established in upland areas at the edges of large *bajos* (R.E.W. Adams 1980; Bullard 1960:364). Reasons may have included access to water and other wetland resources, abundant chert and clay, agricultural use, and, under certain conditions, strategic advantages for transportation (Dunning et al. 2002:268; Gunn et al. 2014:107; Hansen et al. 2002).

In the absence of the physical remains of ancient roads and paths, least-cost path calculations attempt to quantify environmental conditions (e.g., ruggedness of topography) and other variables that would have influenced the choice of paths across the landscape (D. White and

Surface-Evans 2012). This analysis results in the most cost-efficient routes between given origin and destination points based on these variables. Clearly, this may or may not correspond to the route a human actor would have taken. Least-cost path calculations are necessarily based on assumptions about past environmental conditions and cannot take into account the historical and cultural dimensions of routes (Conolly and Lake 2006; Herzog 2014). Nonetheless, they provide likely options that can be evaluated against archaeological evidence.



**Figure 20.1.** The Elevated Interior Region (EIR).

Using data on the topography and hydrography of the EIR, our least-cost path analysis suggests that there are three main east-west routes across the EIR (Figure 20.2; Volta and Gunn 2012). All three routes combine sections of river travel from the coasts with overland segments. These could have been used throughout the history of human occupation in the region, although the specific hydrological conditions of inland *bajos* at different points in time may have affected the relative efficiency of each path (Hansen and colleagues, Chapter 18). An additional suggested north-south route skirts the western edge of the plateau, approximating the path of the Camino Real used during the Spanish conquest of Peten in the late seventeenth century (Arias 2012). A slightly less cost-efficient path has been proposed for this area and may have been used instead: the “royal road” connecting the Pasión region and the western part of the EIR (Figure 20.3; Canuto and Barrientos 2013b; Demarest et al. 2014:Figure 5; Freidel et al. 2007:187). An additional consideration is that the construction of regional causeway systems across *bajos*, many of which date to the Preclassic Period, would have lowered transportation costs and provided more direct routes between sites in the EIR (Bolles and Folan 2001; Folan et al. 1995; Hansen et al. 2002; Hansen et al., Chapter 18; Rivas 2014).



Figure 20.2. East-west least-cost paths across the EIR.



Figure 20.3. The "royal road" from Cancuén to Calakmul.

## Political History

The EIR was home to some of the earliest hierarchical societies of the Maya lowlands. Starting in the latter half of the Middle Preclassic, around 600 BC, massive civic-ceremonial centers were constructed at sites like Nakbe, Wakna, and Xulnal in the southern part of the region (Hansen 2012b; Hansen et al. 2002). Hansen (2012b) and colleagues have argued that centralized rulership emerged during this period, followed by the establishment of the first lowland Maya kingdom at El Mirador at the beginning of the Late Preclassic (ca. 400 BC to AD 150). We now know that major sites farther north like Calakmul, El Zacatal, Uitzilna, Mucaancah, and Yaxnohcah also present important Middle and Late Preclassic occupations (Folan et al. 1995; Reese-Taylor 2017; Šprajc 2008, 2012).

With the abandonment of El Mirador and other centers in the Terminal Preclassic, the center of power shifted southeast and off the EIR to Tikal in the Early Classic (ca. AD 250-600). A little-understood “Bat Head” (Suutz’) polity centered at Naachtun rose to power in the southern half of the EIR during this period (Grube 2005). The Suutz’ rulers were involved in the event of AD 378 that epigraphers have described as a Teotihuacan *entrada* (Stuart 2000). The relationship between the Bat Head dynasty, the Early Classic rulers of Calakmul, and the Kaan (or “Snake Head”) dynasty is unclear (S. Martin 2005; Nondedeo et al. 2015).

The political history of the late Early Classic and the first century of the Late Classic (ca. AD 537-695) was dominated by the conflict between the rulers of Tikal and the Kaan dynasty, which established itself at Calakmul. The degree of centralization of these rival polities has been debated since the early 1970s, with a “strong” camp describing them as hegemonic states and a “weak” camp seeing them as the central nodes of two loose networks of shifting political alliances (e.g., Marcus 1973; S. Martin and Grube 1995; Mathews 1991). The Kaan rulers of Calakmul were ascendant for 150 years but suffered a crushing reversal of fortune in AD 695 at the hands of Tikal. In the ensuing balkanization of the Terminal Classic (ca. AD 750-900), many centers in the EIR that had been affiliated with the Kaan polity were rapidly abandoned (e.g., Uxul) or erected monuments that reasserted their newfound independence (e.g., Naachtun, Oxpemul, La Muneca).

### The Preclassic

At about 1000 BC the earliest pottery-using villages of the Maya lowlands obtained obsidian from El Chayal, Guatemala. Between 900 and 700 BC El Chayal was supplemented by minor amounts of material from San Martin Jilotepeque and Ixtepeque (Aoyama 2017:Table 2; Ebert et al. 2015:Table 4). During the later Middle Preclassic, beginning around 700 BC, most obsidian consumed in the lowlands came from the San Martin Jilotepeque (SMJ) source in the Kaqchikel highlands (e.g., F. Nelson 1985:Table 8). El Chayal again gradually emerged as the dominant source during the Late Preclassic period at many lowland sites, including El Mirador (Fowler et al. 1989; F. Nelson and Howard 1986:Table 2), but SMJ maintained importance, accounting for about one-quarter of the obsidian consumed at many sites (see also Hansen et al., Chapter 18). Ceibal is a notable exception to this pattern of resurgence of the importance of El Chayal. There roughly 90% of the obsidian consumed in the Late Preclassic continued to come from SMJ



(Aoyama 2017:Table 2; Nelson et al. 1978, see also Golitko and Feinman 2015:218-221). These distinct patterns may be associated with two separate trade routes from the Guatemalan highlands to the lowlands during the Late Preclassic Period: the overland route through Alta Verapaz to the Chixoy-Pasion-Usumacinta fluvial network and the riverine route linking the Motagua Valley to the Caribbean coast (Arnauld 1990).

In addition to obsidian from the Guatemalan highlands, Middle Preclassic contexts at Nakbe contain *Strombus gigas* (conch) shell from the Caribbean and jade from the Motagua region (Hansen 2012a:152; Hansen et al., Chapter 18). This indicates that long-distance trade connections between the EIR and both the highlands to the south and the eastern coast of the peninsula were already well established at an early date (Lohse 2010:326). During the Middle and Late Preclassic Periods, all sites in the EIR shared the extremely similar ceramics of the Mamom and Chicanel spheres, with very little imports except for Usulután wares indicating indirect contact with El Salvador at the end of the latter period (Culbert 2003; Demarest and Sharer 1982). Overall, there is little evidence for differences in procurement patterns of trade goods within the EIR during the Preclassic Period.

We do not yet know if some Preclassic lowland centers of the EIR had preferential access to obsidian or if it was evenly distributed based on population size and necessity. Put another way, we do not know if Preclassic exchange was dyadic or polyadic in nature or if it was somehow market-based (see Hirth 1998). If an early state did develop at El Mirador during the Late Preclassic Period, an administered market economy could have emerged at that time (Hansen et al., Chapter 18).

The favored routes from the Caribbean into the EIR in the Preclassic likely approximated the two southernmost least-cost paths (light and medium gray in Figure 20.2). The shared portion of these routes connects Chetumal Bay—where important trading ports such as Cerros and Nohmul were established—with the EIR via the Hondo River. The routes split near the site of Rio Azul, which also has an important Late Preclassic occupation (R.E.W. Adams 1990:34). The southern branch continues southward along the Azul/Tikal waterway before veering west toward Nakbe and El Mirador, whereas the northern branch crosses the watershed divide in the vicinity of Yaxnohcah and follows the Tomatillal River in the *bajo* El Laberinto toward Calakmul (see Gunn et al. 2014:107). Shell from the Caribbean, as well as jade and obsidian traded down the Motagua, would have been carried along these routes.

After reaching the center of the EIR, both routes continue west toward the Caribe and Las Golondrinas, two tributaries of the Candelaria River, and the site of El Tigre/Itzamkanak, another large Preclassic center with ties to the EIR (Vargas 2010). Vargas and Ochoa (1982:101) have hinted at the importance of the Candelaria as a transport route from the Laguna de Terminos into the EIR, but its connection to the *bajo* El Laberinto through its tributaries has generally been overlooked (Gunn and Folan 2000:Figure 9.1; but see Hansen et al., Chapter 18). Reese-Taylor and Walker (2002:90) have suggested that many Late Preclassic centers were established in strategic locations along riverine and overland portage routes. Considering evidence that at least some inland *bajos* were perennial lakes or wetlands until the end of the Late Preclassic (Dunning et al. 2002), it is tempting to link the founding of major centers like El Mirador, Yaxnohcah, and Calakmul with favorable locations along or between major waterways (e.g., Reese-Taylor et al.

2016:315). With the environmental changes that occurred at the end of the Late Preclassic, some of us have suggested that Calakmul resorted to hydrological engineering to maintain the strategic advantage of its location overlooking the *bajo* El Laberinto, whereas Yaxnohcah and El Mirador would have become cut off from major routes crossing the EIR (Gunn et al. 2002, 2014).

### The Early Classic

Throughout the Early and Late Classic Periods, El Chayal obsidian was the dominant source at virtually all lowland Maya sites except those in the southeastern Maya periphery (e.g., Aoyama 1999; G. Braswell 2003b; G. Braswell and Glascock 1998, 2007; F. Nelson 1985). Despite this, uneven patterns of exchange began to appear in the archaeological record of the EIR in the Early Classic. Although El Chayal obsidian is prevalent throughout most of the lowlands in the Classic Period, some sites had more access to it than others. Among the sites in the EIR that relied largely on El Chayal obsidian are Calakmul and its neighbor Uxul (Andrieu 2009b; G. Braswell 2013; G. Braswell and Glascock 2011). Very little obsidian has been excavated at Calakmul, especially compared to Tikal (G. Braswell 2010; G. Braswell and Glascock 2011). Moreover, green obsidian from Pachuca, Mexico, has been found in large quantities in Early Classic Tikal but not at Calakmul. This suggests that Early Classic Calakmul did not have strong connections—either direct or indirect—with Teotihuacan. In contrast, it is particularly striking to note much more significant use of green obsidian at Uxul (G. Braswell 2013:Table 1) and Naachtun (Nondedeo et al. 2015:117) during this period. These two cities would later become secondary centers of Calakmul; in the Early Classic, however, they participated in a bounded elite interaction sphere that was focused around Tikal and likely based on polyadic exchange.

Starting around AD 350, a little-understood polity associated with an emblem glyph in the form of a bat head (Suutz') rose to power on the southern part of the EIR (Grube 2005; Marcus 2012). The Suutz' polity was based at Naachtun in the fourth and fifth centuries AD (Nondedeo et al. 2015). The relationship between the Suutz' dynasty and the Early Classic rulers of Calakmul is unclear, especially because only two monuments dating from before AD 600 have been recovered at the latter site (Martin 2005:Figure 2). As G. Braswell (2013:169) has noted, the distribution of green obsidian from the Central Mexican source of Pachuca in this period suggests that certain EIR sites had indirect ties with Teotihuacan, likely mediated by Tikal. Pachuca obsidian was in no way commodified in the Maya region during the Early Classic and would have been exchanged only along political alliance channels (G. Braswell 2013:169; Spence 1996). Thus, this Early Classic elite interaction sphere—which included Uxul and Naachtun but not Calakmul—would have coincided at least in part with the political network of the Suutz' polity. Centers taking part in the “Tikal connection” (Rathje 1977) such as Rio Azul, El Peru-Waka', and Naachtun also shared cylinder tripod vessels associated with real or presumed interaction with Teotihuacan and more in general with participation in Early Classic elite exchange networks (Patino 2016:51-54; L. Sullivan 2002:204-211; Varela and Braswell 2003:253). With the exception of one possible example—a Balanza Black vessel from a tomb in Structure II (Carrasco et al. 1999:52; Mumary 2016:112)—this ceramic form has not been found at Calakmul (Dominguez 1994a).

Data from the regional center of Uxul demonstrate the existence of multiple overlapping exchange spheres in this period. During the entire Classic Period, the ceramics of Uxul bear strong similarities to those of Calakmul. The materials making up the Tzakol Period Aak complex of Uxul closely mirror those of the Kaynikte complex of Calakmul, including both Peten-centric wares and groups and types originating in the Rio Bec region such as Triunfo and Maxcanu (Dominguez 1994a; Dominguez and Folan 2015:16-17; Dzul 2013:446). It is reasonable to suppose that exchange with Calakmul played a significant role in the economy of Uxul throughout its history, and these ties clearly were well established by the Early Classic. Despite this, the relative abundance of green obsidian at Uxul also indicates participation in a Tikal-focused elite network (or at least a Naachtun-focused subnetwork) that excluded Calakmul during this period.

Calakmul did have access to large amounts of jade in the Early Classic, including the elaborate masks found in Tomb 1 of the Lundell Palace (Folan et al. 1995). Given the great quantities of jade found at Calakmul compared to Tikal, it is likely that the elites of the two cities participated in different jade procurement networks. Moreover, as Woodfill and Andrieu (2012:201-204) have pointed out, the presence of large amounts of Early Classic jade debitage at Tikal indicates that jade was imported to that city as raw material. This is unlike Calakmul, where jade appears in finished form. In fact, Tikal so far is a unique case as an importer of raw jade in the Early Classic Maya lowlands.

Two separate Early Classic exchange systems can thus be identified in the central region. Woodfill and Andrieu (2012) have discussed the domination by Tikal of the “Great Western Trade Route” descending from the highlands through the Chixoy-Pasion-Usumacinta network (see also Demarest et al. 2014). Freidel et al. (2007:196) argue that, thanks to their alliances with Yaxha and Rio Azul, the Early Classic rulers of Tikal also controlled the eastward trade routes on the Belize and Hondo river drainages (Figure 20.1). Nonetheless, it is necessary to clarify what such control really entailed. Did Tikal elites actively block obsidian trade to Calakmul, so notably poor in the material, or did the city just consume so much of it that very little made it into the EIR? Likewise, was jade bound for Calakmul carried down the same corridors as jade destined for Tikal, or did it follow alternate routes?

If they were needed, alternate routes for obsidian and jade to reach Calakmul would have been from the Caribbean coast by means of the more northerly Escondido drainage, or from the Gulf Coast through the Candelaria River (Figure 20.2). The western route would have provided Calakmul with indirect access to goods traded down the Usumacinta corridor through El Tigre/Itzamkanak, which would have controlled trade on the upper Candelaria system as it did in the Conquest Period (Scholes and Roys 1968). The eastern route would have passed through Dzibanche—the city where the kings of the Kaan dynasty apparently resided before moving to Calakmul (Nalda 2004; Velasquez 2005)—and reached La Muneca, located strategically at one of the shortest overland crossings between drainages on either side of the EIR. La Muneca would become a secondary center of the Late Classic Kaan regional state, likely mediating interactions with the Rio Bec region (Grube 2005; Marcus 1973). As previously noted, trade between Calakmul and this region was already important during the Early Classic and may already have been mediated by La Muneca (Dominguez and Folan 2015:16-17).



## The Late Classic

Political struggles for control of trade routes characterized the Late Classic, with distinct geopolitical conditions occurring before and after the collapse of the Kaan dynasty. Starting in the early seventh century AD, Kaan rulers either conquered or forged alliances with kingdoms throughout the lowlands (Martin and Grube 2008). Demarest and colleagues have argued that the political network built by the three Yuknoom kings effectively encircled the sphere of influence of Tikal, enabling Calakmul to access important trade routes to the southern highlands, the Caribbean, and the Gulf Coast (Demarest et al. 2014; Demarest and Fahsen 2003). Evidence from La Corona (Canuto and Barrientos 2013b) indicates that the overland trail on the western flank of the EIR was used in combination with the Pasión River route, especially in the second half of the seventh century when the Kaan lords had control of the trading centers of Cancuen—which they founded in AD 656—and Dos Pilas (Demarest et al. 2014).

Status goods such as jade and feathers seem to have been the principal materials that moved through this Kaan-controlled trade corridor. As iconographic evidence from Calakmul suggests, however, commodities such as salt were probably also traded (Carrasco et al. 2009). Andrieu and colleagues' (2014) reanalysis of jade from the trading port of Cancuen indicates that preforms were produced in workshops under elite control and then distributed to “consumer” sites such as Calakmul. As Kovacevich (2013a:270) has pointed out, down-the-line models for market exchange do not apply to the Pasión-Usumacinta route. Not all centers along this route had equal access to jade, suggesting that political alliances dictated, or at least influenced, access to the material. Kovacevich argues that trade in prestige goods such as jade took the form of emissary trade, with elite individuals or their representatives accompanying the goods.

Despite the position of Calakmul at the center of a vast political network, most of its economic sphere remained heavily focused on its immediate hinterland. The great city continued to receive very little obsidian during the Late Classic; as at most sites throughout the lowlands, these materials came predominantly from El Chayal and increasingly from Ixtepeque by the end of the Late Classic. Comprehensive data from other centers in the EIR is lacking, but it appears that sites located farther south, such as Uxul and Naachtun, enjoyed greater access to obsidian (G. Braswell 2013:163; Nondedeo et al. 2013:131). Large quantities of this material are also reported from Early and Late Classic contexts at La Corona (Andrieu and Roche 2015:341). Uxul and Naachtun both formed part of the territorial core of the Kaan polity during the seventh century, and La Corona was either a key ally or a trade entrepot under direct control of Calakmul (Canuto and Barrientos 2013b; Grube et al. 2012; Marcus 1973). The relative abundance of obsidian at these sites compared to the political capital parallels the situation during the Early Classic. Nonetheless, whereas the restricted distribution of green obsidian can be tied to gift-giving among Early Classic elite networks, obsidian from El Chayal and Ixtepeque in the Late Classic was consumed by elite and commoner households alike (G. Braswell and Glascock 2011:128). Therefore, as in the Early Classic, its continued paucity at Calakmul suggests the existence of a bounded redistributive or administered distribution system centered around Tikal (G. Braswell 2010:135; but see Hutson, Chapter 4; Masson and Freidel 2012, 2013).

The ceramics of Calakmul and surrounding sites in the EIR indicate the existence of a tightly knit regional economy clearly focused on the Kaan capital. Diagnostic groups and types of the

Late Classic Ku ceramic complex of Calakmul, such as Tinaja, Infierno, Cambio, and Encanto, are found in large quantities in the Baak complex of Uxul (Dzul 2013:448-450), the early facet of the Maax complex of Naachtun (Patino 2015:21-27), at Oxpemul (Dominguez et al. 2011:55), and in the El Mirador region (Forsyth 2003). Materials originating in the Rio Bec and Chenes regions also are present at Uxul and sites located farther north, indicating the continuation of the exchange ties established in the Early Classic (Dominguez and Folan 2015:17).

In the eighth century the power vacuum left after the military defeat of Calakmul by Tikal created both challenges and opportunities for small, strategically located entrepôts such as La Corona and Cancuen (Canuto and Barrientos 2013b; Demarest et al. 2014). The gradual decline of the former and the explosive florescence of the latter demonstrate the uncertainty of outcomes accompanying increased elite involvement in long-distance trade toward the end of the Classic (McAnany 2013:243). Despite political turmoil, most sites throughout the Maya lowlands continued to receive obsidian from El Chayal and increasingly from Ixtepeque by the end of the Late Classic. As Golitko and colleagues (2012:513) have shown, the decay pattern for Ixtepeque obsidian in relation to distance from the Caribbean, which began during the Late Classic, became more clearly defined in the Terminal Classic. This pattern reveals the growing importance of coastal routes after the collapse of Kaan control and the subsequent political instability in the southern lowland region.

### The Terminal Classic

As the rulers of newly independent kingdoms competed to display their status in the vacuum left by the dissolving Kaan polity, they sought access to highly valued goods from throughout the Maya world. At the same time, the exchange of more basic commodities such as obsidian became more diversified as the lowland economy was linked to broader Mesoamerican trade spheres (P. Rice 1987a).

Braswell and Glascock (2011:Figure 10.4) have assigned obsidian from the Terminal Classic occupation at Calakmul to Guatemalan (El Chayal, Ixtepeque, and San Martín Jilotepeque) and central Mexican (Pachuca, Ucareo, and Zaragoza) sources. El Chayal obsidian is found at Naachtun together with materials from the central Mexican sources of Otumba, Ucareo, and Zacualtipan. Other long-distance trade goods found at the site in this period include alabaster, pyrite, jade, serpentine, and schist from the Guatemalan highlands, pink granite from the Maya Mountains of Belize, and *Spondylus* from the Pacific coast (Nondedeo et al. 2012:221). If the economic sphere of Calakmul and its secondary centers gives the impression of having been closed in the Late Classic, it clearly was not bounded in any appreciable sense during the Terminal Classic.

Patterns of ceramic exchange also diversify in the Terminal Classic. Dominguez (1994b) and Boucher and Dzul (2006) have identified imports at Calakmul from the lower Usumacinta (Fine Grays and Fine Oranges) and the northern lowlands (Cehpech Slate wares) accounting for approximately 4% of the total (see also Rice, Chapter 25). Although the population of Uxul seems to have declined rapidly at the beginning of the Terminal Classic, similar types of imports have been identified (Dzul 2013:450-451). The ceramics of Naachtun indicate even broader contacts: they include Holmul-style vessels from the Belize Valley to the east, Fine Grays and

Fine Oranges from the lower Usumacinta region to the west, and slate wares from the north (Nondedeo et al. 2013; Patino 2015:14).

Braswell and colleagues (2004:185) have suggested that Chichen Itza was the primary importer of Ucareo and Pachuca obsidian in the lowlands. For sites in the EIR, contact with the Terminal Classic economic network established by Chichen Itza in the northern lowlands was likely mediated through the Chenes and Rio Bec regions (Boucher and Dzul 1998). At the same time that established Terminal Classic Period routes were abandoned due to political turmoil in the southern lowlands and trade moved toward the coast, it appears that the north-south overland route also became an important corridor into the EIR. The site of Edzna may have also functioned as an intermediary for the trade in fine-paste ceramics from the Usumacinta and other items from the Gulf Coast (Boucher and Dzul 1998).

## **Discussion**

Our brief overview of changes in exchange patterns in the EIR through time highlights the complexity of lowland Maya trade. The relative importance of trade routes was variable and in all periods was linked both to accidents of political geography and to broad economic patterns. We have used least-cost analysis to suggest a few paths across the EIR (Volta and Gunn 2012). Although the east-west routes that we discuss have received much less attention than the riverine corridors farther to the south, we argue that they played a key role in relation to social developments in the EIR. Beginning with the emergence of social hierarchies in the Middle Preclassic, the procurement, display, and redistribution of prestige goods were key to the creation and maintenance of social difference between emerging elites and commoners (e.g., Clark and Blake 1994).

There are clear associations between the positions occupied by many large early centers on the EIR and least-cost routes across the region. Calakmul and Yaxnohcah both sit on the edges of the *bajo* El Laberinto, the main corridor across the EIR. Similarly, El Mirador and Nakbe are both within short distances of the least-cost route across the southern half of the EIR (Figure 20.2). Furthermore, these routes can account for the importance of Chetumal Bay communities as entry points for goods from Honduras and highland Guatemala, as indicated by Golitko and colleagues' (2012) network analysis. In later times the association of the more northerly Escondido route with Calakmul and of the Hondo system with Tikal would also justify the existence of an Early Classic "buffer zone" between the two as proposed by Adams (1991:195).

A focus on routes and the actual mechanisms of trade raises the issue of political control over different forms of exchange. Although the exchange of prestige items such as jade could not have taken place without substantial elite involvement, it bears emphasizing that a certain degree of political control may have been involved in all Classic Maya trade. The key features of polyadic exchange can be recognized in the closed network in which Tikal, Naachtun, and their allies participated in the Early Classic (G. Braswell 2010:130). As we have noted, in the case of the distribution of green Pachuca obsidian and Teotihuacan-related ceramics, the limits of exchange appear to have coincided with the boundaries of the political alliances of the Suutz' polity. It should be noted that the Suutz' emblem glyph appears on Early Classic Stela 114 and Late Classic Stelae 59 and 62 from Calakmul (Martin 2005:10), indicating that Calakmul may

have had some sort of political relationship with the Suutz' dynasty in the Early Classic. Nonetheless, the exclusion of Calakmul from this network, despite exchange in other goods that occurred with some of its members, speaks to the boundedness of the system. Put another way, the differential distribution of green central Mexican obsidian and cylindrical tripod vessels at sites in the EIR during the Early Classic suggests a type of exclusive or exclusionary relationship based on political allegiance and elite gift-giving focused on claiming ties with Teotihuacan.

As the Kaan dynasty rose to power in the early Late Classic, the EIR sites fell under its influence and were absorbed into its economic system. The Calakmul interaction sphere was held together by two very different political strategies. The first and perhaps better known is the establishment of alliances or patronage relationships between the Yuknoom kings and distant centers through military action, elite intermarriage (mostly hypogamy), and the gifting of prestige goods (Martin and Grube 1995). The second is the more direct control over centers in the core region of the Kaan polity. As Grube (2005) has argued, the use of toponymic titles instead of full emblem glyphs at sites in the EIR during the seventh and early eight centuries indicates a relationship of subordination between the local ruler and the Kaan overlord. We suggest that this core area constituted a regionally bounded interaction sphere into which limited amounts of materials from other regions were traded (G. Braswell et al. 2004:168). Although diplomatic visits and supervision of rituals by Kaan kings did occur, lavish gift-giving was not necessary to secure the allegiance of local rulers in this area.

Secondary centers such as Uxul, Oxpemul, and Naachtun likely had tribute obligations toward the Kaan rulers. Tribute may have included dietary staples to support the growing population of Calakmul as well as textiles and other craft products. Exchange of other goods within the region may have been accomplished within markets, as suggested by Andrieu (2013) for chert, although the degree of control exerted by elites is still unclear. In the case of obsidian, Andrieu and Roche (2015:340-341) have recently observed that scarcity seems to have been the norm in the northern portion of the EIR. At sites in the Rio Bec region obsidian makes up an even smaller fraction of the lithic assemblage than at Calakmul. Although this pattern is suggestive, more data are needed to determine the actual distribution of obsidian in the region.

The contrast between Calakmul's political control of trade routes in the Late Classic and the paucity of obsidian in the city suggests that the lower perceived value of this material relative to prestige goods such as jade and feathers did not warrant the same level of elite involvement in its procurement and distribution. For example, whereas jade preforms were traded directly from Cancuen to Calakmul, Demarest and colleagues' (2014:203) discovery of a cache of more than 800 exhausted or partially exhausted obsidian cores at Cancuen suggests that this material was traded within the site's immediate region rather than with Calakmul. What is clear, however, is that the massive levels of obsidian consumption at Tikal are related to the scarcity of this material at Calakmul. As Braswell and Glascock (2011:128) observe, very little obsidian was allowed to leave the boundaries of the Tikal polity. In this sense, Tikal would have acted as an obsidian "sink" preventing more substantial amounts of it from reaching the EIR (see also Masson and Freidel 2013:218).

## **Conclusion**

The general patterns of exchange that we have discussed for the EIR illustrate the close relationship between trade and the political geography of the region. Beginning with the establishment of the Preclassic centers of Nakbe and El Mirador and ending with the depopulation of the region during the Terminal Classic, exchange was an integral part of the political developments that occurred on the EIR for almost two millennia. Leaders sought to control and administer the flow of goods into the region, at the same time seeking out objects to serve as material symbols of their power. The distribution of green obsidian in the Early Classic traces the outlines of the political alliances built by the local Suutz' dynasty (and probably by Tikal) on the basis of real or claimed ties with Teotihuacan. In the Late Classic the Kaan rulers went to great lengths to procure jade and other exotic goods with which to adorn their royal courts and to send off as lavish gifts for allies and subordinate kings. At the same time as it provides suggestions of the paths through which these goods were carried to the royal court, the analysis of exchange goods also sheds light upon the local relationships upon which the Calakmul polity was ultimately built. And once the Kaan dynasty began to lose its grip on power, the rapid increase in long-distance trade signals both the lifting of previously undetectable controls and the rise of new rulers who were eager to assert their power in the changing political landscape.