From Movement to Mobility: The Archaeology of Boca Chinikihá (Mexico), a Riverine Settlement in the Usumacinta Region

A Dissertation submitted in partial satisfaction of the requirements for the degree of

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in

Anthropology

by

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This dissertation talks about the importance of movement and – curiously enough – it is the result of a journey that started long ago and far away. Throughout this journey, several people, in the US, Mexico and Italy, helped me grow personally and professionally and contributed to this accomplishment.

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A mio padre Sergio.

“La pagina ha il suo bene solo quando la volti e c’è la vita dietro che spinge e scompiglia tutti i fogli del libro…”
(Il Cavaliere Inesitente, I. Calvino)
ABSTRACT OF THE DISSERTATION

From Movement to Mobility: The Archaeology of Boca Chinikihá (Mexico), a Riverine Settlement in the Usumacinta Region

by

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Doctor of Philosophy, Graduate Program in Anthropology
University of California, Riverside, June 2018
Dr. Wendy Ashmore, Chairperson

Current studies on the movement of goods among the ancient Maya have highlighted the variability existing in different regions in terms of degree of economic integration, control between main centers and outlying communities, and transportation modes. Yet, investigations on riverine ports, as locales of intra- and interregional economic networks, have been largely neglected, and until recently, biased by two main arguments. First, large exchange networks were not pivotal to the development of Classic period, inland Maya centers; and secondly, the development of a bustling trade economy emerged in later periods, when the conjunction of new political strategies and new coastal trade routes occurred. In light of recent data emerging in various riverine regions of the Maya area, researchers have started to question these assumptions and reassess the importance of riverine navigation for the development of inland Maya polities. This study explores the sophistication and internal variability of
riverine route systems within the Maya Lowlands, focusing on the Upper Usumacinta Region, where such sophistication has been barely recognized, possibly due to the unpredictable nature of the river course. However, recent research in the area has shown that facilitating and controlling inland and riverine movement was important, politically and economically, for major polities in the region. In this scenario, I propose that during the Classic period, the site of Boca Chinikihá was a trade port in the Upper Usumacinta landscape. Boca Chinikihá’s communication routes, infrastructure, and internal distribution of imported goods reflect its strategic position along an important communication artery, and convey its role as a trade node.

Furthermore, on a regional scale, I suggest that movement of people and goods was not only a way to secure every day and luxury wares, but was also part of a larger political narrative used by the Usumacinta polities to define themselves in contrast to, or in alliance with, other neighboring polities. To unpack the various facets of movement, I apply the concept of mobility to my analysis, originally proposed by social scientists to tackle the issue of physical movement, its representations, ideologies, and practices from an overarching perspective. By considering mobility as a series of social practices that give socio-political meaning to the act of movement, this work adds to ancient trade and transportation studies a new dimension of movement not as epiphenomenal to social life, but as an inherent aspect of politics and power relations in antiquity as in modern times.
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CHAPTER 1
INTRODUCTION: ANCIENT MAYA POLITICAL ECONOMY AND RIVERINE MOBILITY

This dissertation deals with ancient Maya political economy and trade ports from the perspective of riverine mobility. As I discuss later, through the idea of riverine mobility I seek to join the encompassing concept of mobility (Cresswell 2010; Sheller and Urry 2006)—rather than movement—to the archaeological context of an ancient riverine system, the Usumacinta, which was constituted by and constituting several social spheres, such as the regulation of physical movement, trade organization, and political control, among others.

In terms of trade organization, recent studies have shown that the Classic Maya had a much more complex economic system than traditionally thought (Braswell 2010; King 2016; Oka and Kusimba 2008; McAnany 2013; McKillop 2016; Shaw 2012; West 2002), and that its distributive system was probably an uneven combination of redistribution, gift giving, and market exchange (Oka and Kusimba 2008). Regional overviews on the movements of goods in the Maya Lowlands suggest that various regions had a different degree of economic integration and control between main centers and outlying communities (West 2002; Rands 1980; Shaw 2012). Furthermore, different riverine/lake, terrestrial, coastal and lagoon communication and trade routes existed and overlapped. Within these circuits, specific settlements functioned as simple crossing or disembarking points, transshipment nodes, and trade ports. Examples are described and discussed in this and later chapters. Focus now needs to be geared towards understanding the role played by
these communities in intra- and interregional trade networks and, at the community level, the degree in which different segments of society were involved. Specifically, the present study aims at investigating the site of Boca Chinikihá, an ancient Maya community located in the Northwestern Maya Lowlands, on the riverbanks of the Usumacinta River, and assessing its role in the political landscape and trade network of the Usumacinta region. (Fig. 1.1, and 1.2).

Fig.1.1. Map of Southern Mesoamerica, with location of Northwestern Maya Lowlands (in red) (adapted from www.latinamericanstudies.org/maya/maya-map2.gif).
I propose that the site was one of several trade ports in the Upper Usumacinta landscape during the Classic period, and I argue that its geographically and politically privileged location at the interface between waterborne and terrestrial routes, and intermediate between the Palenque region and the Usumacinta polities of Piedras.
Negras, Pomonal and Yaxchilán—allowed this riverine settlement to thrive as a trade center. Furthermore, I suggest that its monumental architecture, along with the internal distribution of portable goods are clues to the status achieved by this community during the Late Classic as gathering and exchange place.

**Genealogy of this Dissertation and Research Questions**

Research at Boca Chinikihá started in February 2010 within the framework, and with the logistical support, of the Chinikihá Archaeological Project (Proyecto Arqueológico Chinikihá, or PRACH), directed by Rodrigo Liendo Stuardo of the National Autonomous University of Mexico (UNAM). Flavio Silva de La Mora and Esteban Mirón Marván, members of the PRACH, had visited the site in 2008 during the survey of the Lindavista valley (cf. Fig. 1.2, 1.3). In this occasion an expedient map was produced, offering a glance of the topographic setting and architectural layout of the settlement (Silva de La Mora and Mirón Marván 2009). My fieldwork stemmed from this survey and lasted about four months spread over two field seasons, in 2010 and 2011. This phase was followed by a period of laboratory analysis in 2011 and 2012 in the facilities of the Institute of Anthropological Investigations at the UNAM.

Boca lies on the east end of the Lindavista valley, on a fluvial terrace at the confluence of the Usumacinta River and Chinikihá stream. The Lindavista valley is one of several valleys that run NW-SE, parallel to a series of low karst hills that constitutes the northernmost limit of the Sierra Norte de Chiapas, toward its border with the Tabasco floodplains (Teranishi Castillo 2011). Several years of regional investigations by the Proyecto Integración Política Señorio de Palenque (PIPS) in
the Northwestern Maya Lowlands identified a total of 575 sites, ranging from simple clusters of artifacts to complex civic-ceremonial centers, over a territory of about 470 km², which spans three different physiographic regions (Fig.1.2.) (Liendo Stuardo 2011b). These regions include, from north to south, the geologically more recent alluvial plains of the Usumacinta, located on fluvial terraces originated during the Pleistocene, and densely inhabited especially in Preclassic times; the Intermediate Plains, which represent the oldest and more heavily eroded section of the Tabasco floodplains; and, third, the Sierra Norte de Chiapas, which represents the northern limit of the Sierra de Chiapas, a mountain range that crosses most of southern Mexico and whose elevations range between 250 and 1000 m asl (Teranishi Castillo 2011).

Regional surveys by the PIPSP in this section of the Sierra ascertained that the majority of the settlements in the Palenque area were located along its hill slopes.

The size and typology of the settlements vary considerably within and between regions. To organize such variability, Liendo Stuardo and colleagues (Flores Esquivel 2011; Liendo Stuardo 2007, 2011c; Lopez Mejia 2017) developed a settlement classification based both on qualitative and quantitative variables. The majority of site types include isolated platforms (N=171), whose excavation produced cultural materials related to domestic activities (Liendo Stuardo 2011c). A second type of sites is characterized by the so-called “Informal Groups” (N=130), which correspond to cluster of several structures not organized around a central patio. Next in line in terms of growing architectural complexity and decreasing frequency are Patio Oriented Groups (N=63), sites whose structures are organized around a central patio and are traditionally considered the minimum unit in ancient Maya sociopolitical organization (Ashmore 1981; Ashmore and Wilk 1988). Several, bounded Patio
Oriented Groups constitute Multipatio Groups (N=36), in which the number of Patio Group ranges from two to five; finally, the most complex site types are Civic Ceremonial Centers (N=15), whose architectural layout, in addition to presenting almost all of the above groups, is characterized by non-domestic, public structures, such as ball courts, pyramids and large range platforms, whose functions were related to public events (Liendo Stuardo 2011b). Furthermore, two of these civic-ceremonial centers – Palenque and Chinikihá - were the seats of ruling dynasties, as reflected in the presence of historic texts and palace complexes, their massive architectural volume, along with structures density and variability that bespeak their role as political and economic nodes (Fig. 1.2).

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<tr>
<td>AD 250 - 350</td>
<td>Early Classic</td>
<td>Picota</td>
<td>Puy</td>
</tr>
<tr>
<td>300 BC – AD 250</td>
<td>Late Preclassic</td>
<td>Pre- Picota</td>
<td>Max</td>
</tr>
</tbody>
</table>

Table 1.1. Chronological table correlating Mesoamerican time periods with regional phases

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1 the total number of archaeological sites recorded in the region so far is 575, which includes the settlement types mentioned in the text plus 124 clusters of scattered materials.
Fig. 1.3. Map of the Palenque region with limits of the PIPSP – PREP regional survey, and major sites (Courttesy Proyecto Regional Palenque - PREP)
Additionally, results of the regional settlement study indicate that during the local Murcielago-Balunté (AD 700 – 820) ceramic phase (Table 1.1), corresponding to the Late Classic, the Palenque region might have been organized into various subregions, with slightly different occupation histories, population dynamics, and separated by clear frontier zones, attributable to social and political processes rather than environmental factors (Liendo Stuardo 2007).

In this sense, it seems that the presence of a strong ruling dynasty at the regional capital was never a homogenizing factor in the history of the region, and architecture variability, cultural materials, population dynamics, presence of connecting routes and pathways, as well as evidence of frontier zones might reflect divergent practices of affiliation among local communities and the major center (ibid.). These subregions are (Fig. 1.4):

1) Palenque’s immediate hinterland, an area of about 40 km², around the regional capital where, with the exception of the paramount center, population density is low and limited to simple platforms and patio groups;

2) the Nututun - El Lacandón subregion, east of Palenque, limited by the sites of El Lacandón to the east and Nututun to the west. These represent the major centers and where population density seems higher and more evenly distributed than in the Palenque regional core;

3) The Chancalá subregion includes two narrow river valleys, those of the Ashipa and Chancalá rivers, which seem to correspond to two separate settlement systems orbiting one around the centers of Xupá, to the west, and the other clustering around the major sites of San Juan Chancalaito, Reforma de Ocampo, and La Cascada;
4) The intermediate Plains subregion includes a rather homogeneous group of sites both in terms of building characteristics (earthen mounds), ceramic assemblage, and chronology (Late Classic). They are regularly located only a few km from one another, connecting the Sierra subregion to the south with the Tabasco plains to the north. The larger of these are Belisario Domínguez, El Bari, San Joaquín, and Lindavista (Liendo Stuardo 2007: 98).

5) Finally, the Sierra subregion, whose limits are represented by the site of El Lacandón on the west, the southern bank of the Chacamax river on the north, and Chinikihá to the east, is characterized by a string of settlements located along the Sierra, some of which connected through sections of a causeway running east-west.
The only primary center is Chinikihá and the area seems to have been densely populated in the Late Classic. East of Chinikihá, lies the Lindavista valley, one of the valleys that connect the Sierra subregion with the Usumacinta River. Here, the only civic-ceremonial site is Boca Chinikihá, whereas other large group clusters are the sites of La Urania and Las Delicias.

Considering the physiographic and cultural characteristics described above, Boca Chinikihá seemed the perfect location to address the research questions I started to formulate in my proposals and before heading to the field. Some of these were: How are relations of authority between paramount centers and satellite sites instantiated in the landscape? What role the secondary centers played, like Boca Chinikihá, in the political affairs of important polities such as Palenque, Piedras Negras, and Yaxchilán? Was Boca Chinikihá’s relation to Chinikihá—the only primary center in the Sierra Subregion—one of political and economic dependency? Or, as I argue in this dissertation, did Boca Chinikihá, for its strategic position along an important communication artery - and its role as trade node - benefit from a special status among the other secondary settlements in the region? Finally, was Boca’s monumental architecture, with unusually wide (informal) plazas, ball court, and massive acropolis topped with double structures, a result of its economic importance as gathering place for people and goods? The material correlates I present to address these questions are organized into three scales of analysis: 1) At the regional level, I analyze the geographical setting of Boca Chinikihá in relation to the Usumacinta and Palenque regions, to show its interconnectedness through riverine and inland routes; 2) at the urban scale, I consider Boca’s settlement layout and architectural infrastructure as aimed at facilitating and controlling movement to and from the river,
as well as at organizing, storing and distributing the goods circulating at Boca; 3) finally, the intra-site analysis of artifact frequency, distribution, and provenience help shed light onto the activities carried out at the site, their specific locations, and the trade circuits in which Boca Chinikihá was enmeshed at the regional and interregional level.

From Movement to Mobility in Archaeology: Boca Chinikihá as a Case Study for Riverine Mobility

As already mentioned, the selection of Boca Chinikihá was based on its potential to answer my research questions in an encompassing manner. Its geographic location, urban layout and material culture, reflecting its regional connections, are discussed throughout this dissertation to contend that this settlement was in the Classic period a riverine port community and a commercial node in the highly interconnected trade network of the Usumacinta basin. In my discussion, these three lines of inquiry: the physical and political setting of movement, its local infrastructure, and the circulation of goods are bound together and analyzed through the lens of Maya political economy —especially the organization of distribution systems—, the archaeology of landscape and movement, and through recent approaches to understand systems of mobility.

By the term mobility, I refer to a series of practices associated with the circulation of people, things and ideas, as recently proposed by some social scientists interested in tackling the issue of physical movement, its representations, ideologies, meanings, and practices from an encompassing perspective (Cresswell 2010; Sheller 2007; Sheller and Urry 2006; Urry 2007). Some archaeologists have embraced this
approach and stimulated new discussions on past mobilities from the perspective of prehistoric archaeology (Leary 2014), historical and industrial archaeology (Beaudry and Parno 2013), and phenomenology, literally addressing the “archaeology of flow” (Edgeworth 2011). This new “mobility turn” focuses, according to Tim Cresswell (2010:22), on “the fact of movement, the represented meaning attached to movement and the experienced practice of movement.” Mobility also entails lack or restraint of mobility, therefore, its study needs to encompass all those limitations, powers, and infrastructures that facilitate or hinder mobility.

The last few decades of research in the Upper Usumacinta have contributed to the identification of this region as a fragmented landscape of movement, where circulation of people and things depended on physiographic features as much as it was hindered by socio-political constraints (Golden and Scherer 2006; Golden et al. 2008, 2012, 2013). Movement through this landscape involved a system of both waterborne and overland routes, as well as settlements located on strategic points along the river and internal paths facilitating and controlling such circulation (Canter 2007; Aliphat 1994). In the Classic period, the community of Boca Chinikihá would have been located strategically within the Sierra Subregion, which—through its parallel, inter-montane valleys—connected the Palenque region with the Usumacinta drainage; the Tabasco floodplains, where several sites controlled the intricate waterways of this portion of the Usumacinta and San Pedro rivers, like Pomoná and Moral-Reforma; and the Upper Usumacinta region, where the polities of Piedras Negras and Yaxchilán incessantly fought over the control of this broken and fragmented—but vital—communication route (cfr. Fig.1.1.).
By considering the Usumacinta region a system of riverine mobility, I mean to add to the study of riverine movement and transportation a series of economic, social and political practices that enables a better understanding of this historically situated landscape. In this scenario, Boca Chinikihá is discussed as a place where waterborne and terrestrial forms of circulation merged, and in which different types of communication and trade infrastructure coexisted. In summary, by framing my study into such mobility approach, I mean to offer an encompassing view of a riverine port community, and to shed light onto the practices of mobility within the highly politicized landscape of the Classic period Usumacinta drainage.

Outline of the Dissertation

In this chapter I presented the topic of my dissertation, specifying the research questions this study sought to address and under which explanatory framework these questions were tackled. A history of how this research came into existence and developed, along with a brief description of its regional setting, helped put my work at Boca Chinikihá, described in the following chapters, in a wider context.

Chapter 2 delineates the theoretical trajectories that buttress and inform my three lines of inquiries. Succinctly, the encompassing theme of movement in archaeology is broken down into specific social practices and assessed at different scales, through various approaches.

Chapter 3 discusses the natural and political landscape of the Usumacinta region through a mobility approach, addressing the regional scale aspect of my research, that is, the role of Boca Chinikihá as a potential trade node in the landscape of movement of the Usumacinta basin.
My research strategy and methodology are described in Chapter 4, along with a short overview of previous works carried out at the site.

The urban layout and infrastructure of Boca Chinikihá are presented in Chapter 5, where I examine in details the transport, controlling and storing facilities I identified at the site to argue that such architectural elements are related to port activities and therefore bespeak the function performed by this community within the region.

To put my interpretation of Boca Chinikihá’s layout in context, in Chapter 6, I compare its features to those of other riverine settlements in the Maya area, interpreted as port facilities. Within each riverine system, I highlight the differences among simple disembarking points, sites that functioned as transshipment nodes and large riverine port complexes. In doing this, I hope emphasize the sophistication and internal variability of riverine route systems within the Maya Lowlands.

Chapter 7 includes the smaller scale of my research. Here I present the intra-site analysis of the material assemblages retrieved at Boca. The typology, distribution and provenience of ceramic and obsidian artefacts are analyzed and compared regionally to support my hypothesis that the nature and intensity of the circulation of goods at Boca Chinikihá reflect its role as trade node.

Finally, in Chapter 8, I wrap up the evidence presented throughout the dissertation, reiterate the research questions presented in Chapter 1, and offer few conclusive statements to such issues, based on some of the more relevant points arose from this project. At the same time, I acknowledge the limitations emerged from this research and propose future venues of research.
CHAPTER 2
FROM MOVEMENT TO MOBILITY: THEORETICAL CONSIDERATIONS FOR AN ARCHAEOLOGY OF RIVERINE MOBILITY

In this chapter I outline the theoretical background for the idea that Boca Chinikihá was a trade port and a communication node within a political landscape of movement. I delineate the approaches behind my three lines of evidence from the perspectives of landscape archaeology, and social archaeology of exchange, paying special attention to the political, social, bodily and economic aspects of moving; finally I introduce the idea of mobility as a productive focus to understand the different social spheres involved in movement.

Within the broader framework of landscape archaeology, I incorporate recent discussions about how ancient polities manipulated, constructed, and imagined landscapes to legitimize or reinforce authority, for example, by controlling and channeling movement through the landscape. Then, through an overview of how phenomenological approaches have tackled the topic of movement in archaeology, I offer an approximation on how movement across a regional and urban landscape might have been experienced and understood.

Archaeological interest on movement has taken many forms in the tradition of the discipline: migration, diffusion, interaction spheres, and trade. However, the structure and organization of movement have rarely been theorized and contextualized. Recent theories on ancient landscapes, the built environment, and the infrastructures of movement have emphasized the need to consider the human body as
well as relations of power to better capture the many facets and meanings that movement had in antiquity. Incorporating some of these latest trajectories in my discussion allows me to offer a finer-grained explanation of the types and modes of circulations at Boca Chinikihá. Finally, things, as much as people, are on the move as personal belongings and heirlooms, exchange goods, ransoms and gifts. In the second section of this chapter I center my discussion on exchange studies, the contextual meaning of value, as well as the debated topic of economic infrastructures within the Classic Maya world to frame the movement of goods that occurred at Boca Chinikihá.

I conclude this chapter with some considerations about the fruitfulness of the “mobility” approach, as elaborated in geography, sociology, environmental and cultural studies, within the context of Maya archaeology, as a fresh look onto issues such as the socio-political organization of movement and trade, and its underlying power relations.

**Movement and Archaeology**

The study of movement in archaeology has generally been a secondary byproduct of other aspects of inquiry about how ancient societies lived, functioned and operated. Within Culture History, archaeologists worldwide were trying to explain cultural variability through migration and diffusion. British anthropologist Grafton Elliot Smith, for example, argued that invention of architecture, religion and agriculture, took place in Egypt and these innovations were then carried to other parts of the world by merchants looking for exotic raw material (Trigger 2006: 220). V. Gordon Childe interpreted the origin of agriculture and metallurgy in Bronze Age Europe as a result of the diffusion of cultural achievements as well as waves of
migration from the East into continental Europe, introducing also the idea of the Indo-European people as carriers of these cultural changes (Trigger 2006: 243-246).

In the mid-20th century, Graham Clark, along with other prehistoric archaeologists, was particularly interested in movement as a pivotal aspect of hunter-gatherers’ way of life (Trigger 2006). Clark’s interest in understanding the patterns of resource acquiring by seasonal mobile groups, from an encompassing perspective, informed his student, Eric Higgs, to develop site catchment analysis, a method to reconstruct the patterns of resource acquisitions within a specific walking time distance from a site (Trigger 2006; Higgs and Vita Finzi 1970).

In North America, the fading of diffusionist/migrationist perspectives and the emergence of cultural ecological approaches shifted interest on movement from its nature as the prime mover of culture change to being an inherent aspect of how ancient societies operated. Although within cultural ecology archaeological inquiry was not directly focused on movement, the study of culture change through subsistence economy, population size, and settlement patterns opened the way to a more detailed analysis of the relation between humans and their environment, not only that of mobile hunter-gatherer groups but also of sedentary social groups, with a multilevel, hierarchical settlements organization. This idea evolved in the 1970s and 1980s, with processualist approaches interested in understanding how prehistoric cultures operated and changed (Trigger 2006: 385). Within processualism, settlement pattern studies emerged as a powerful tool to understand how ancient societies interacted with their environment. Suzanne Fish described settlement patterns as “…the spatial matrices that mark the intersection between human activities and their cultural environment” (Fish 1999: 203). Furthermore, she argued that their study often
included “the location of fields, canals, wetland resources, quarries ... but how these elements are integrated into the settlement system organization is rarely discussed...” (Fish 1999: 205). In my opinion, her idea of integration can be translated as movement and infrastructure, yet, these variables were rarely taken into consideration within traditional settlement pattern studies.

From the late 70s through the 90s, materialist approaches in archaeology started to study the relation between political economy and transportation within ancient societies. For ancient Mesoamerica, Robert Drennan (1984a, 1984b) assessed the importance of long-distance movement of goods within ancient Mesoamerica, through cost of transport. In his argument, movement appears as a variable of economic rationale, presupposing an effort towards economic efficiency. Similar examples are the studies included in the volume edited by Thomas Lee and Carlos Navarrete (1978) on Mesoamerican communication routes where contributors focus on transportation time/costs, especially for commercial purposes along several regional overland routes and waterways. The work of Ross Hassig (1985, 1991) has been particularly influential in assessing the economic, political and social implications of road construction in ancient empires. Although the previous examples equated the study of movement to that of transport technologies, their analysis of interconnection of formal roads, paths and waterways represent a first approximation to the social implication of movement, looking at the degree of political and economic integration of a region.

Other attempts can be found in spatial archaeology and locational analyses, which tried to understand the “The flow and integration of activities within and between structures, sites and resource spaces from the micro to the semi-micro and
macro scales of aggregation” (Clarke 1977: 9, quoted in Crumley 1979: 142). I interpret Clarke’s idea of “flow and integration of activities” as the closest definition of movement within the neoevolutionist paradigm of spatial archaeology. Within this framework, locational analyses emerged as a tool to explain the patterns of movement that integrate the economic organization of societies with their resource areas.

Carole Crumley (1979) warned against the dangers of applying locational analyses to prehistoric contexts. She argued that these approaches emerged within economic geography to understand trade and exchange in capitalist societies, and, therefore, lack historical variability and temporal depth. For this reason, with few exceptions, they result unsuited to understand premarket societies. Furthermore, she contended that economic rationality cannot be presupposed in the interaction of ancient communities, and that measurable variables of movement, such as distances, paths, topographic features and slopes, for example, need to be integrated with cultural variables and the temporal dimension that affect human decisions over route choices, crossing points, and transportation types. Kenneth Hirth (1978) put forth a similar criticism, arguing against the appropriateness of Euclidean space on which central place analysis is predicated. What emerges from these discussions is a homogeneous concept of movement equated to transportation, which calls for a culturally integrated reconstruction of ancient movement and landscapes, where economic-focused models are integrated with social, cultural and historical studies.

Recently, however, our ability to understand and reconstruct patterns of ancient movement through the landscape has been enhanced by the use of Geographic Information Systems (GIS) and other technological advances in archaeology. Although these techniques risk to fall into environmental determinism, and echo the
warnings cited above by Crumley and Hirth, recent humanistic approaches have been applied with interesting results to the computer analysis and digital modeling of ancient landscapes, adding socio-cultural variables to topographical features (Forte 2002; Glover 2006; Mehrer and Wescott 2006). In particular, *viewshed* analyses, a computer tool used to identify a series of inter-visible locations along a view line, and *least-cost path* calculations, which measure the minimal effort route between two places (Conolly and Lake 2006) have been enhanced by adding culturally specific variables to the calculations. For example, the study of least-cost path analysis in the Holmul region carried out by Estrada Belli and colleagues was aimed at elucidating movement patterns to and from the capital not only through the most efficient route, but also considering visibility with important cultural landmarks, such as Holmul’s acropolis (Estrada Belli and Koch 2007) (Doyle et al. 2012; Estrada Belli and Koch 2007; Landau 2015). Similar studies in the Maya area have been targeted to understand circulation preferences in the Copan’s pocket (Landau 2015; Richard-Rissetto and Landau 2014), and – joined with epigraphic data - to study political control over trade routes in the Peten (Doyle et al. 2012), and Usumacinta region (Anaya 2001, 2007).

All these examples indicate a shift from reductionist pictures of human environment interaction and movement and a direction toward a more human centered understanding and reconstruction of ancient landscape. Furthermore, how people moved through, perceived and engaged with their surroundings while moving through a landscape has been particularly addressed by phenomenological and postmodernist approaches to landscape and movement.
Archaeologies of Landscape and Movement

Landscape archaeology has emerged, in the last few decades, as an arena where different insights contribute to a more human-centered reconstruction of ancient landscapes and their dynamic relations with human lives. Engaging with theory about agency, practice, and humanistic geography, current landscape approaches have enriched the archaeological record with human actors whose relation with the environment and among them was at once constrained, negotiated and informed by their social, religious, economic practices and by a set of power relations (Anschuetz et al. 2001; Ashmore and Knapp 1999; Blake 2004; Tilley 1994). Knapp and Ashmore (1999) argue that landscapes exist by virtue of human mediation, that they are socially and historically situated, and that they are perceived, experienced and contextualized through human bodies and minds (ibid: 1). Several contributors in Ashmore and Knapp’s volume address human movement within landscapes and among places as a social practice that activate, animate and imbue landscapes with meanings (Brady and Ashmore 1999; Richards 1999; Barrett 1999). Furthermore, these approaches have emphasized the importance of adding an historical dimension to landscape (Ashmore 2004), what Ingold (1993) defined as the temporality of landscape. The temporality of landscape and its perception through movement has been particularly addressed by phenomenological approaches within British Prehistory. As conceptualized by such philosophers as Husserl, Heidegger, Merleau-Ponty and Sartre, among others, phenomenology holds that knowledge is possible only through sensorial experience and, therefore, it is mediated by the human body. Phenomenological approaches have tried to assess the human scale of the experience of movement. An emblematic
description of walking the city is given by De Certeau (1984). He describes the sensuouos experience of moving through the city as practitioners, and the city as an organized space that channel and control movement, whereas, at the same time, practitioners eluded the “urbanizing” program and pedestrian movement shape the city in a process of contradictory appropriation, by creating shortcut and detours, contrasting the “strategies” of movements, supposedly dictated by the urban planners, and the “tactics” adopted by the pedestrian.

In archaeology, studies on monuments, causeways, quarries, mines and enclosures of prehistoric Britain, for example, have been particularly fruitful in offering a more nuanced understanding of the perception of ancient landscapes by their inhabitants (Bender 1998; Barrett 1999; Edmonds 1999; Tilley 1994). Again, the experience of moving along Roman roads, as well as people’s engagement with imperial cultural features and infrastructures - which represented and served to legitimize the hegemony of Rome - have been explored through phenomenological approaches to show that these practices were differentially understood and perceived depending on travelers’ status, gender, profession, and origins (Ananchev 2013; Foubert and Breeze 2014).

In the context of the New World, where academics long perceived Pre-Columbian societies, especially in the Neotropics, as naturally as well as culturally unimpressive, historical ecology, landscape archaeology, direct historical approaches, ethnohistory, and phenomenology, among other approaches, have refocused our understanding of such landscapes as places layered with the histories of people living in and moving through them (Balée 2006; Erickson 2003; Fedick 1996, 2003; 2010; Taube 2003). Using these and other perspectives, the contributors of the volume
Landscapes of Movement (Snead et al. 2009) stress the importance of reconstructing landscapes of movement focusing on “pattern, scale, context and association, incorporating the fabric of the features [of movement] themselves.” (Snead 2009). This book addresses movement in context, highlighting meaningful, intentional practices embedded in social structures and historical particularities, which result in a better understanding of the way ancient people engaged with and conceptualized landscapes. In this publication, Angela Keller (2009) offers a diachronic view onto the perception of movement through roads, paths and trails in the Maya world. To do so, she focuses on the use and meaning of the Maya terms for roads from ethnographic to precolonial examples.

For the ancient Maya, movement was restricted to walking, navigating, and probably, for people of noble status being carried on litters. The most striking manifestation of these movements through the Maya landscape is undoubtedly the discontinuous, patchy presence of sacbeob (Maya roadways) in the Northern and Southern lowlands. Several recent studies have addressed the multiple forms and multipurpose functions of ancient Maya roads, which include transportation, commercial nodes, points of social interactions, ceremonial paths, boundary maintenance, water management, as well as political control (Chase and Chase 2014; Keller 2006, 2009; Shaw 2001; Silva de la Mora 2011). Other scholars have approached ancient Maya movement by looking at Classic Maya place names in elite narratives, recognizing verbs of movement, and glyphs such as beh/bih, represented by the image of a quincunx, possibly indicating a crossroad (Keller 2009: 150). These elements, used to describe the lives and actions of rulers, such as warfare, ceremonies, marriages, accessions, as well death, offer a rich repertoire about real or metaphorical
places and movement (Keller 2009; Stuart and Houston 1994). Furthermore, iconographic examples of movement are present in murals, where they are often represented as set of footprints encased in a path, such as at the sites of La Sufricaya, in the San Bartolo North Wall mural, or in the emblematic murals of Chichen Itzá, where movement is reflected in the bustling economic activity of a coastal commercial center (Tokovinine 2008, 2011).

**Movement, Landscape and Political Authority**

What emerges from the previous discussion is that landscapes are never just a passive backdrop for human activities, instead they are socially constructed, interacting with people and shaping human life. “Power” permeates the fabric of these landscapes and these spaces are experienced through the negotiation of power relations. The concept of power has been widely discussed within archaeology, as a force embedded in social relations and not as an essential thing possessed by specific agents or by reified political institutions (Delles 2000; Miller and Tilley 1984; Smith 2003). Social power, as theorized by Foucault (1995) and Giddens (1984) is materialized in different forms within ancient social arenas. Miller and Tilley (1984), for example, propose that instead of thinking of power as something possessed by individuals or inherent in social structures, we should consider power as an aspect of social relations that is exercised, rather than owned. They use the idea of power to and power over, where

\[\text{\ldots power to} [\text{refers to}] \text{power as an integral and recursive element in all aspects of social life, [whereas] power over can be specifically related to forms of social control. \ldots Both these senses of power indicate an irreducible link between power as a capacity to modify or transform, referring to the ability of}\]
human subjects to act in and on the world and in definite relationships to each other” (1984:5).

Adapting these concepts to my discussion on movement as an aspect of social life, we can look at power to move and power over movement. In this sense, power to move can be considered as the simple ability to move, as well as the affordances that through movement create positive effects for individual and collectivities, either material or immaterial, such as wealth, goods, knowledge, prestige, access to wider networks, among others.

Power over movement, by contrast, can be materialized through controlling/limiting or forcing/directing movement. This control can take material and non-material forms, and can be accomplished through a series of practices. Recent archaeological discussions see power as materialized in strategies of control and manipulation of regional and urban landscapes, this strategy has been defined as the “spatiality of political authority” (Smith 2003:10), which I interpret as the attempts by the political authority to exercise power over movement and the negotiation of this spatialized authority by various agents who embody the power to move. At the regional scale of my analysis, I consider political authority and other intertwined relations of power shaping movement over a larger territory. In this scenario, control of movement is a strategy used to create, maintain political authority within and among polities. On the other hand, discussion of movement at the smaller scale of the urban spaces allows me to address issues of power imbued within civic plans, accessibility, inclusiveness and exclusiveness of movement within and among community sectors. These two scales of movement within political and built landscapes are addressed in the next sections.
**Movement and the Regional Landscape**

One of the underlying premises of the idea of a political landscape is the control of movement over its territory (Smith 2003). This can be obtained through physical construction of limits, boundaries, and movement infrastructure or through ideology. An example of this can be the construction of roadway systems by a central authority, as in the case of Rome, the Aztecs and the Incas (Ananchev 2012; Hassig 1991; Mantha 2013).

Recent archaeological discussions on the social and political aspect of movement within a political landscape have used terms such as geopolitics, territoriality, and political networks to explain and define the socio-political meaning of spatialized forms of political authority encountered by the archaeologists. In this sense, ancient social landscapes are dotted with instances of these negotiations of power and political authority. I will now offer examples of the materialization of such power relations, which involve specifically power over movement and power to move. Movement within a political landscape enters these negotiations of power through actors who want to and had the means of controlling movement, and others over who power was exercised via practices of dwelling in and moving through the landscape.

In his discussion of how ancient polities constitute and legitimize authority through the politicization of landscapes, Adam Smith (2003) offers the case of Urartian kings who, in the first half of the First Millennium BCE, relocated conquered populations into new territories within the empire to “detach them from personal or historical connection to the places and monuments of previous local polities” (ibid: 169). A further strategy adopted by Urartu involved reshaping practices of movement within the subjugated regional landscape through the relocation of fortresses and political
centers from the highlands to the lowlands to obtain a more direct control over pathways and trade routes (ibid: 180). A similar case has been presented by Alexis Mantha, in his analysis on the impact of the Inka conquest and occupation of the Rapayán region in the Central Andean Highlands (Mantha 2013).

In the context of early Nineteenth century Jamaica, James Delle (2002) presents a case where spatialities of movement were resisted and negotiated by slaves and planters alike, foregrounding the dialectical relation between power over movement and power to move. He argues that planters’ main houses were located to allow a controlling gaze over the movement of slaves within the work and living space, as well as to assure visibility among other plantations owners’ houses so that slaves movements were potentially always under a panoptical control. This, according to the author, created a geography of power where movement was highly controlled and disciplined (Delle 2000). However, thanks in this case to written records, Delle could also trace the power to move employed by the slaves through resistance practices, such as lingering in places where they were not allowed to, and therefore such panoptical control was lower (Delle 2000: 356).

**Movement, the Body, and the Built Environment**

In the previous discussion I emphasized how negotiations of power affect practices of movement at the regional level. An area where power over movement further emerges is when considering movement within the constructed environment of urban landscapes. Lawrence and Low broadly define the built environment as “… any physical alteration of the natural environment, from hearths to cities created by humans to shelter, define, and protect activity … built forms also include, however,
spaces that are defined and bounded, but not necessarily enclosed, such as the uncovered areas in a compound, a plaza, or a street” (1990: 454). Archaeological reflections on the built environment have ranged from assessing its role as mirror of social organization, architectural forms as reflecting power relations, site plans as communicating cosmological views, as well as recognizing patterned social behavior through spatial organization of dwellings and activities (Ashmore 1991, 2014; Ashmore and Sabloff 2002, 2003; Brady and Ashmore 1999; De Marrais 2002; Joyce 2004; Sugiyama 1993). Many scholars have embraced social theory to explain the relation between built forms and human actions; some have built on Foucault’s historical approach to the relation of power and space to explain how architecture functions as a political tool to control and channel people’s movement through space (Foucault 1995 [1978]). Theories about the social production of built forms emphasize, on the one hand, the social, political, and economic forces that produce the built environment, and on the other, the social and behavioral responses to the socially produced built environment (Rapoport 2006). Movement, within these theoretical trajectories, appears as a practice that can be enabled and facilitated or constrained and controlled by built forms. Archaeologists have often argued about whether it is possible to trace patterns of movement within the urban space by looking at civic plans, types and position of infrastructure, and – at the same time- grasping the meanings that moving within an ancient city could have had. James Snead argues that “constructed features represent a specific mode of movement, usually imbued with authority and these modes and intents not always match those of who use [such features]” (Snead 2009:43).
An effective way to ground control of movement to archaeological data, space, and built environment has been through application of access analysis and space syntax. Developed to understand linkages between spatial forms and social organization (Hillier and Hanson 1984), space syntax has been widely applied to different archaeological context. It works through schematic graphs that convert space and access into node and networks maps. Each room is represented by a dot (node) and the access routes between rooms are represented by lines (network). The result is a graph that elucidate the connection and movement patterns within a structure. In archaeology, this methodology has been proved a useful tool when integrated with contextual data and able to reveal subtle patterns of movement embedded in the social fabric of the urban environment as well as in non-urban contexts (Dawson 2002; Stockett 2005).

Jerry Moore (1992) for example, analyzes access patterns to specific types of rooms within Chimu’s capital, Chan Chan, to question their alleged functions as checkpoints to control movement within the city’s citadel and its storerooms. In this case, a detailed study of movement patterns and access control through graph analyses and lines-of-sight graphs, challenged the assumption that these architectural features were a manifestation of Chimú state control (Moore 1992: 110). Addressing questions on accessibility, social control and architectural functions, Rodrigo Liendo Stuardo (2003) compares access diagrams of several Maya palaces from the Classic and Early Postclassic period and argued that shifts in movement patterns and access restriction through time reflect changes in Maya political organization and palaces social functions. Miranda Stockett applied access analysis to Las Canoas, a relatively small, but densely settled Late Classic village in Northwestern Honduras, where structural
remains are more ephemeral and architectural boundaries less rigid. (Stockett 2005). Combining distribution of artifacts, and considerations of the surrounding landscape with access diagrams of two formally similar household compounds, her analysis revealed a different degree of control over pathways in and out of the two groups, along with divergent patterns in which these spaces were used, controlled and accessed (Stockett 2005:404).

Addressing movement at the level of the built environment also allows analysts to put the human body - through which movement is performed and perceived - back into the picture. It has been argued that, with the exception of phenomenological approaches, discussion at the regional scale of movement has often been disconnected from the body (Snead 2009). By contrast, an area where the dimension of bodily movement has been easier to recognize and assess is exactly within ceremonies, processions and ritual performances at the level of the urban environment. These approaches consider urban spaces and infrastructures, such as plazas, ball courts, precincts, and pyramids as stages for public performances where ancient bodies, moving along ritual paths, were both actor and spectators of ceremonies, pilgrimages, dances and processions (Inomata and Tsukamoto 2014; Inomata and Coben 2006; Lawrence and Low 1990; Liendo Stuardo et al. 2014; Looper 2001, 2009; Snead and Preucel 1999). In an edited volume assessing the importance of theatrical performances in ancient polities, building on theories of the body, ritual and performance, Inomata and Coben (2006) argue that theatrical events, such as diplomatic ceremonies, dances, ritual performances, pilgrimages, and processions were pivotal to the formation, maintenance and challenging of political authority as well as community identity. According to the authors, these theatrical
performances involved the physical participation - both as actors and spectators - of many individuals and were usually staged within a highly charged spatial setting (ibid.). The bodily co-presence of several segments of the community during these gatherings was achieved through organized movement, for example, from peripheral villages to the urban centers, and once in the city through movement within its built environment. By integrating architecture, iconography, and mobile features, other scholars have studied possible circuits of ritual movement and processions routes, as well as identified possible social differentiations in the audience’s access to the plazas, palaces, stairways, temples, and terraces where these performances took places. These differences include not only restricted or privileged access to these places, but in some cases limited or privileged view of ritual movement, depending on the audience’s social status. Examples of analysis of ritual movement, their audience and circuits, include various Mesoamerican sites, such as Dos Pilas (Brady and Ashmore 1999; Demarest et al 2003), Palenque (Liendo Stuardo 2003; Zalaquett Rock 2011), Holmul (Mongelluzzo 2011), and El Tajin (Reese-Taylor and Koontz 2001); in the ancient Andes, Jerry Moore studied ritual proxemics at Chan Chan (Moore 1996); an analysis of the intersection of the processional movement of people, water engineering and architectural infrastructure has been addressed for the Roman city of Ephesus (Weiss 2010); and finally, Alexandra Mack (2004) offers a vivid picture of different visitors’ perceptions of Vijayanagara sacred circuits.

Movement, therefore, in these urban spaces was a medium for the production and reproduction of social relations and an ally to the “the centripetal force of spectacle that brings people together beyond the limitations of groups based on daily face-to-face contact” (Inomata and Cobean 2006:25).
Population Movements and Migrations: Bodies on the Move

A final area of investigation that addresses ancient movement are migration studies, which bring evidence of people resettling in different regions, whether willingly or under coercion. Bioarchaeology - with the help of a set of recently developed bone chemistry technologies - has widened our understanding of population migration in ancient societies, pinpointing the exact geological regions where such individuals grew up, moved to, and died (Freiwald 2011; Price et al. 2010, 2014, 2015). These tools offer a new dimension for understanding ancient movement, and tackle the issue of migration from a fundamentally different perspective than the traditional studies mentioned at the opening of this chapter. As an example, recent studies of chemical traces on human remains interred in Neolithic cemeteries at LBK (linearbandkeramik) sites demonstrated that migration was indeed a factor, albeit not the only one, in the spread of agriculture in Europe (Price et al. 2001, 2004 cited in Freiwald 2011: 27). Yet, in this case migration comes back into the picture of archaeology not as abstract migration of cultural waves, but as long and short distance movements of people with gender, status, age and origins (Freiwald 2011: 27).

In Mesoamerica, the best documented example of population movement is probably the case of the multiethnic city of Teotihuacan where analysis of strontium isotopes on several individuals have detected that some of the residential neighborhoods, such as the “Oaxaca Barrio” and “The Merchants’ Barrio”, were composed by immigrants relocated in the Central Mexico metropolis from places as far away as Oaxaca and the Gulf Coast (Manzanilla 2012; Price et al. 2000). Studies on migration and population movement in the Maya world have been appearing in
recent years (Cucina 2015; Freidwald 2011; Miller 2014; Suzuki 2015; Wright and Bachand 2009). In these studies, assessments of geochemical signatures of human remains along with analysis of cultural aspects such as burial treatments, diet, ornaments, body modifications at several Lowland Maya sites have produced a picture of dynamic patterns of population movement that in some cases contradicts and, at the same time, deepens what scholars thought of ancient Maya mobility based, for example, on the epigraphic record. The two most famous examples are the cases of Copan’s king and dynasty founder, Yax K’uk Mo, and Tikal’s lord Yax Nuun Ayiin. According to the epigraphic record, as well as material culture, these individuals seemed to have strong relations with Teotihuacan, and were possibly originary from that place. However, bone chemistry suggests that they were actually both born and raised in the Maya lowlands (Price et al. 2010, 2015). Apart from elite individuals, recent works in the Maya lowlands have identified patterns of population movement and immigration among commoners too, at sites such as at Copán (Pierce et al. 2010; Suzuki 2015), and in Belize (Freiwald 2011), supporting the idea of a mobile Maya society. These new data bring about important political implications about who was more likely to move in Maya society, to what extent (physical and metaphorical) and for what reasons. It has been suggested that elite groups were probably more attached to the lands and territories they controlled and from which they benefited (McAnany 1995 cited in Freiwald 2011), and for this reason they moved for shorter periods and distances, for example to visit other courts, to assist and patronize public events, for marriages, alliances and to control subject centers. Epigraphic discourses are replete with these examples. Commoners and farmers, on the other hand, were probably more prone to vote with their feet and look for better opportunities elsewhere, especially in
times of political instability (Ashmore et al. 2004; Freiwald 2011), even if, especially
during political upheavals, commoners could have also been taken captive, enslaved,
and sometimes sacrificed by conquering kingdoms, as isotopic analyses might indicate
(Cucina and Tiesler 2003, cited in McAnany 2010).

A final aspect of movement regards people who moved with things and goods
for economic reasons. The Postclassic Central Highlands and Yucatan peninsula
offered well-known examples of merchants who moved over large distance to create
economic alliances and distribute goods. Similar evidence is also emerging now for
the Maya lowlands during the Classic period and the implications of this are starting
to figure in discussion of Maya society. In order to address this issue, in the next and
final section I consider how the social and political implications of movement of
goods have been theoretically framed within and beyond the Maya region.

Movement of Goods: Exchange, Trade Networks and Infrastructures

Social Approaches to Exchange, Trade and Value

Movement of goods can involve social mechanisms of exchange such as gift
giving, heirloom movement, itinerant craftsmen, and trade, but it can also occur
through technological imitation and human migration. Therefore goods’ distribution
can represent an indirect evidence of trade and the problem of equifinality needs to be
taken into consideration (Dogan 2010). Furthermore, these goods can be both tangible
and intangible (services, information, and the like), the first can be stored physically,
and the second may be kept as knowledge and as cultural capital (Bourdieu 1984;
Jenkins 1992). For this reason, some scholars attribute to exchange a wider, social
meaning, including interactions aimed at interchanging not only goods and services,
but also information and ideas (Dogan 2010). Among these facets of exchange forms, trade - considered as “the process of transferring commodities from one person or group to another” (Runnel and Van Alden 1988:92, quoted in Dogan 2010: 35) - has been one of the most discussed aspects of goods circulation in archaeology, and it has recently been readdressed as a social practice, moving beyond a strictly economic perspective and materialistic analysis.

A first understanding of trade as embedded in social relations was proposed by Karl Polanyi, whose substantivist approach to trade held that in pre-capitalist societies the social relations involved in the circulation of goods can be more important than the economic ones (Dillian and White 2009; Polanyi 1957; Valensi 1981). According to Robert Preucel (2010), recent theoretical approaches to trade need to understand trade as social phenomenon embedded in and at the same time constituting social interactions, a phenomenon that brings together places, people and things. Apart from this relational component, trade also has a contextual aspect, that is, it needs to be understood “within its cultural, ideological and historical contexts” (ibid.:7; see also Dogan 2010); and a communicative aspect, which means that trade is also about the meaning that the circulating goods have for the people exchanging them (Preucel 2010).

The social embeddedness of most ancient economies has been highlighted in many recent archaeological discussions (Dillian and White 2009; Bauer and Agbe-Davis 2010), including pre-Columbian societies (Hirth and Pillsbury 2013a; Isaac 2013; McAnany 2010, 2013; Oka and Kusimba 2008).

When discussing trade in archaeology, we normally look at the archaeological record for traces of raw material acquisition, its production or transformation, types
and circuits of distribution, and patterns of consumption (Dogan 2010: 40): all of these processes involve some kind of movement. However, in this discussion I primarily focus on the circulation and distribution of goods and their social implications.

Traditional discussion of circulation of goods among the ancient Maya, has often underlined two types of exchange systems: one related to everyday items, which probably circulated on a more local and sometimes regional level, and another circuit involving valuables that moved interregionally, over long-distance, and whose distribution was likely administered by elites in regional centers. Luxury goods, such as jadeite, precious colorful feathers, marine shells, cacao beans, and cotton cloth were fundamental in activities such as feasting, public performances with display of symbolic body adornments, royal gifting, private rituals for supernatural intercessions, practices all linked to the production and reproduction of royal power (McAnany 2010, 2013, Taube 2005). However, recent discussions about ancestral Maya economies have started to doubt that such separate “spheres of conveyance” (Bohannon 1955, cited in McAnany 2010) actually existed, and scholars are finding more and more areas of overlapping, and contexts with nuanced variations (Chase and Chase 2014; Hirth and Pillsbury 2013b; Kovacevich 2013; Masson and Freidel 2013; McAnany 2010, 2013).

This new approach seems to me directly related to a new problematization of the idea of value, in which this concept is discussed not as an absolute constant, but rather as culturally and context dependent (Bailey and Mills 1998; Dogan 2010; Papadopoulos and Urton 2012b). Various authors agree that in antiquity as in modern times, there is not such a thing as inherent, absolute value, on the contrary, value is a social construct (Preucel 2010; Papadopoulos and Urton 2012a). Papadopoulos and
Urton (2012a) contend that the concept of value should be replaced by the plural values, acknowledging social, political and economic types of value. These authors also advocate a more social, less western-oriented, approach to the meaning and construction of value in ancient societies, one which embraces a more nuanced and culturally embedded understanding of valuables in antiquity, including ideas like social life of things (Appadurai 1986; Kopytoff 1986), inalienable possession (Weiner 1992), the creation of value through destruction or inhumation of goods, by taking them out of circulation; as well as the construction of value by narratives about the distance of goods’ place of origin (Papadopoulos and Urton 2012a:34). In the last case, the political value of an imported item is often based on its performative value and on the gap in knowledge that separated the export community from the place where these items were used, generally by high status people, as paraphernalia in symbolically charged situations, such as ceremonies aimed at creating and maintaining social, political and economic power (Helms 1992; Pydyn 1998). McAnany (1989, et al. 2002), for example, in addressing the change in value of obsidian through Maya prehistory, argues that from being a relatively rare and valuable import during the Late Preclassic and Early Classic periods, obsidian lost its uniqueness and became a traded good during the Late Classic, based on its widespread presence in household contexts.

In terms of political value of imports, the Maya region offers other interesting cases. For Belize, McAnany (1989) notices that in the Late Classic elite participation in long distance networks of exchange might have decreased and valuable polychrome vessels - highly important in socially charged feasting events - were instead made locally, demonstrating that the political value of imported goods might have shifted, or
been manipulated by necessity. For Late Classic Cancuen, Andrieu and colleagues (2014) have suggested - based on a qualitative reanalysis of jade objects- that jade didn’t have a monolithic, unique value, rather its appreciation depended on its perceived color and size, and that this visual quality affected circuits of distributions within and outside the center. A corollary to this discussion about reshaping the political value of import and jade as an inalienable possession comes from Piedras Negras. In this site, two of the most elaborate royal burials, Burial 5 and 13, both of them interments of 8th century kings, presented a mix context of jade objects along with clay beads, painted in green-blue to mimic the real stone (Escobedo 2004; Golden et al. 2012). These contexts, in spite of dating to the height of Piedras Negras power, bespeak a limited access by this kingdom to the precious stone (about 10 % of total elite burials), especially when compared, for example, to contemporary Palenque (about 70% of elite burials). Considering the larger distance of Palenque from jade sources, this pattern cannot be explained by geographic position, but, rather by possible shifts in the control of circulation networks (Golden et al. 2012). This practice of replacing real jade beads with fakes illuminates an understanding of value and inalienable possessions by the ancient Maya in which the performative value of jade apparently went beyond its exclusive acquisition circuits.

While valuables and everyday goods might have circulated in separate spheres of distribution, they intersected at specific nodes, such as central market places, ports, and regional centers (Chase and Chase 2014). As proposed by various authors (Bauer and Agbe-Davis 2010; Hirth 1998; Preucel 2010), archaeologists should concentrate more on the networks and circuits among people, object and places than on the goods themselves, if we are to understand the meaning that circulation of
goods had for different people in different places in antiquity. As McAnany states, “attention [needs to be] directed to the flow of exchanges, [with] the goods only marking out the pattern of social relations” (McAnany 2010:12). To this scope, in the next section I examine recent discussions about the circulation of goods and trade networks of Classic period Maya economies.

**Trade Networks and Maya Economies**

In his analysis of archaic state economies, Polanyi had noted the existence of overlapping distribution spheres (McAnany 2010:271), and the ancient Maya were not an exception. Recent regional studies have revealed that the circulation of goods in the Classic Maya Lowlands was a complex and multileveled issue, where practices of redistribution, gift giving and market exchange coexisted and overlapped (Braswell 2010; King 2015; McAnany 2002, 2010, 2013; Oka and Kusimba 2008; Pyburn 2008, Shaw 2011; West 2002). Pyburn (2008) and others (Tokovinine and Beliaev 2013) also argue that in some areas commercialism might have been more pronounced than in others.

Possibly because of a biased view of Classic Maya economies as fragile, and ephemeral (Hirth and Pillsbury 2013; Isaac 2013), little attention has been paid until recently to the infrastructure of goods circulation. However, recent shifts in research focus, along with the development of new analytic techniques have allowed a deeper understanding of how transportation and distribution of goods were organized. For example, detailed distributional analysis of artefact debris, and constructive features, as well as chemical analysis of soils have produced tantalizing, albeit sometimes still ambiguous, evidence of formal and informal plazas used as market places (Dahlin et al. 2007, 2010; Freidel and Masson 2012; Terry et al. 2015)
Especially debated has been the role of elites in exchange networks, and in controlling economic production and distribution. Some scholars argue that, at least for the Late Classic, elites did not regulate the production and distribution of everyday goods, but they were probably involved in the final production steps of luxury goods such as jade and textiles (Chase and Chase 2014; Kovachevich 2013). These crafts, in fact, probably involved some kind of esoteric knowledge, or symbolic capital not available to the average artisan (Andrieu et al. 2014; Chase and Chase 2014; McAnany 2010). In terms of goods circulation, it is probable that elite were seldom involved in controlling distribution of everyday items, and that commoners were independent in acquiring them through central markets, itinerant vendors and so forth. However, nobility was probably involved in long-distance acquisition of rare and luxury items, such as jade, through trade emissaries and merchants, as well as in extracting tributes and taxes from periodic markets held in urban centers (Chase and Chase 2014).

Recent attention to the economy of Maya royal courts brought to light a dynamic organization based on both centripetal and centrifugal movement of goods. Tokovinine and Beliaev (2013), and McAnany (2010, 2013) offer detailed analysis and interpretation of vessels’ iconography, which shows that much of Late Classic Maya palace economy was based on a mixed system of tributes linked to warfare, trade alliances, gift exchanges, marriages, and ransoms (McAnany 2010: 184). It seems that rulers needed merchants and trade emissaries to fulfill all these trade/exchange activities, but at the same time feared their potential prestige and wealth accumulation. This royal versus merchant ideal also appears in the representation of God L, whose iconography tends to emphasize its suspicious
morality, in contrast to the sacredness of the *k’uhul ajaw* (McAnany 2013). This perception changed toward the end of the Classic period and in the Postclassic, when the association of wealth and divine power became not only an acceptable ideology, but also a widespread political strategy in the iconographic and architectural discourses of Maya elites (McAnany 2010, 2013; Tokovinine and Beliaev 2013).

The evidence presented above, apart from creating a picture of a complex and variable Maya economic system, also implies that ancient Maya centers, with population in some cases exceeding thousands of individuals, were not self-sufficient and that they probably relied on a wide range of infrastructures to receive, organize and distribute both luxury and staple goods, whose organization might have partially fallen under elite control (Freidel and Masson 2012; McAnany 2010, 2013; Pyburn 2008). To delve further into such issue, in the next section, I review some recent discussions about economic infrastructure in Maya centers.

**The Infrastructure of Circulation: roadways, markets and ports**

The ancient Maya had a walking economy (Graham and Simmons 2015), and their distribution systems - terrestrial and aquatic - was limited to human porters and canoes. In this scenario, the main infrastructural elements for movement of goods were roads, markets and ports. Furthermore, Patricia McAnany (2010, 2013) has recently emphasized how ancient Maya economy, especially palace economy, was probably based on a strategy of “appropriation on demand”, instead of “appropriation storage”, since long-term storage might not have been a successful practice in tropical lands. So, contrary to other ancient economic systems, for example ancient Mesopotamia, Egypt, or the Mediterranean, there was no need, for the ancient Maya, to create durable large storage warehouses or other such facilities. However, other
type of infrastructures, short-term storage structures, possibly constructed of perishable material, most certainly existed, along with large stuccoed surfaces, useful to keep pests away. Additionally, since a growing number of scholars agree that Classic Maya urban centers were not self-sufficient, distribution facilities, related to periodic markets, along with communication infrastructures were most likely in place. Recent investigations have expanded our knowledge of Classic Maya market organization (Chase and Chase 2014; King 2015; McAnany 2010, 2013; Tokovinine and Baeliev 2013) and port facilities (Demarest 2014; Moriarty 2013), themes that along with the already established body of knowledge on road systems – allow a more integrated reconstruction of how ancestral Maya economies functioned.

New encompassing evidence on Maya roadways highlights their importance for goods circulation. Intra-site *sacbeob* (Maya roadways), for example, were connecting the urban center of Caracol to hinterland markets (Chase and Chase 2014); at Cancuen, Chichen Itzá and El Tigre/Itzamkanac, *sacbeob* linked the settlement core to the sites’ port facilities (Cobos and Winemiller 2001; Demarest 2014; Shaw 2001; Vargas 2001); finally, Angela Keller (2006) compellingly suggests that a wide section of a causeway at Xunantunich functioned as marketplace.

After a long neglect, studies of marketplaces in Maya archaeology are finally receiving adequate attention (Dahlin et al. 2007, 2010; Jones 1996; King 2015; Shaw 2011; Masson and Freidel 2012, 2013). Although some authors argue that pinpointing the exact location of marketplaces is not a necessary condition to identify market exchange in ancient Maya centers (Braswell 2010; Garraty 2010; Hirth 1998; McAnany 2013), I agree with scholars who contend that the possibility of identifying the actual locales of trade activities can enormously enrich our understanding of urban
layouts, social organization, and regional interaction. New methods and dataset, such as soil chemistry on plaza floors, presence of stalls and other features, along with a tantalizing but still debated iconographic evidence, coupled with traditional artifact distribution studies, have allowed the detection of possible market spaces in several Maya centers (Becker 2015; Cap 2015; Dahlin et al. 2007, 2010; Jones 1996, 2015; King and Shaw 2003; Mejía and Valle 2010; Moriarty 2013; Shaw and King 2015; Terry et al. 2015). Finally, marketplaces’ importance in Classic period centers is also suggested by their location in central—often easily controllable—sectors of the settlement, and the presence of signaling markers, such as stelae (Pyburn 2008; King and Shaw 2003, 2015).

The third element that, in my opinion, constitutes the core of goods’ circulation in ancient Maya economy, is port infrastructure. Ports represent nodes at a land/water border that allow the transfer of people and goods across different communication systems. Generally, ports have been categorized, in both modern and ancient contexts, based on their geographic location, traffic load, and the amount and complexity of their port facilities (Hoyle 1998; Laxe 2004; Weigand 1958).

In ancient Maya studies, port facilities have been recognized at several coastal and inland sites, but only recently riverine and lake ports have obtained the same level of interest and extent of investigation of maritime ports (Andrews 2008; Andrews et al. 1988; Demarest 2014; Moriarty 2013). Furthermore, whereas it is widely accepted that a bustling port economy existed during the latest periods of Maya pre-Hispanic history, recent evidence is allowing the reconstruction of a Preclassic and Classic period political economy in which small and large settlements figured as important economic nodes along riverine and coastal communication routes. Some of these are
well studied settlements with a large occupation histories, such as Isla Cerrito (Andrews et al. 1988), Cozumel (Freidel and Sabloff 1984), Cerros (Freidel 1979; Reese-Taylor 2016), Xcambó (Sierra Sosa 2015), Wild Cane Cay, Moho Cay (McKillop 2010, 2016), and Muyil (Andrews 2008), Vista Alegre (Glover and Rissolo 2006) all sites located along and off shore the coasts of Yucatan and Belize; among the various riverine settlements that flourished in the Maya lowlands, some have produced the evidence of being important trade centers. These are, Cancuen, on the Pasión (Demarest 2014), Quiriguá along the Motagua river (Ashmore 2007; Ashmore et al. 1983; Sharer et al. 1983), El Tigre/Itzamkanac, on the Candelaria (Vargas 2001), Rio Azul and Blue Creek in the Belize Three River Region (Adams 1999; Barret and Guderjan 2006; Guderjan 2007), and the lake site of Trinidad de Nosotros (Moriarty 2008, 2013). However, more suggestive is – in my opinion- the recognition, near or between these larger port complexes\(^2\), of smaller sites whose layouts present one or few features connected to port functions, such as embarking and disembarking, or controlling the river traffic. The presence of such installations, in fact, might suggest the existence of a more complex, diverse and decentralized system of riverine routes than previously thought. Evidence about these smaller communication nodes, along with an evaluation of their role within specific riverine systems, is offered in chapter 6.

An important corollary to such evidence is that – as suggested by Matthew Moriarty (2013) - the proliferation of small and medium port sites, both in maritime and riverine environments, made difficult to sustain the traditional models of centralized exchange systems, exemplified by the port-of-trade or getaway community

\(^{2}\) By port complex, I follow Andrews definition (2008:31) in which he includes sites with two or more architectural features related to port activities.
model. The port of trade model, as defined by Chapman (1957) after Polanyi, holds that long-distance exchange occurred at politically weak spots, to facilitate neutral relations among foreign traders, and they were controlled by elites; whereas getaway communities, or transshipment ports, do not presuppose elite monopoly (Andrews 1990). Although neither models necessarily imply a coastal or riverine location, they have been used to explain exchange at several coastal ports in Mesoamerica (ibid: 165).

To address the emerging scenario of a more decentralized organization of waterborne communication and trade, we need a more flexible theorization of how the communities hosting such infrastructure of movement, the political landscapes in which they were enmeshed, and their different economic spheres interacted. I suggest that a mobility approach could offer a viable framework to understand how these systems functioned and were integrated. In order to apply such an explanatory framework to my case study, in the next and final section of this chapter I present some of the positions and key elements of such mobility approach, as theorized by its major proponents.

Final Thoughts: Toward an Archaeology of Maya Mobility

In this chapter I tried to show that in antiquity, as well as in modern times, there is no such a thing as meaningless movement, and that movement is always loaded with significance and power. The ancient Maya world was not an exception, but - as in other areas of the world- sedentarism, and the study of settlements have generally
prevailed over studies of movement and spaces “between” settlements. This idea has been recently and more thoroughly theorized by scholars proposing a “mobility turn” in social sciences (Cresswell 2006, 2010; Sheller 2011; Sheller and Urry 2006; Urry 2007). This new approach poses a series of questions and methodologies to address the issue of physical movement, its representations, ideologies and meanings in an encompassing manner (Sheller 2011). Traditionally, mobility was considered as a neutral set of practices underlying forms of economic, social and political life, which are explicable by other more causally powerful processes (Urry 2007:12). By contrast, this recent mobility approach puts social aspects of movement at the center of the stage and attempts to “establish a 'movement-driven' social science in which movement, potential movement and blocked movement are all conceptualized as constitutive of economic, social and political relations” (Urry 2007:43).

Among the scholars that propelled this new mobility approach, I found geographer Tim Cresswell’s focus and terminology - as presented in his Toward a Politics of Mobility article (2010) - the most useful and applicable to my study, possibly because of its substantial historical component and interest. He defines mobility as the entanglement of physical movement, the representations of movement and the embodied practices of movement. By physical movement he means the measurable act of moving from A to B; representations of movement indicate the different narratives that can be created about movement; the third element includes the bodily experience of movement (ibid.). These elements are what change abstract movement into mobility. Furthermore, each particular, historically situated concurrence of these three social aspects represents a constellation of mobility (ibid):

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3 Notable exceptions are, for example, Edgeworth 2011, Ingold 2011, Snead et al. 2009, and Tilley 1994.
Cresswell also argues that such constellations of mobility are never politically neutral, rather, movement, representation and practice are embedded in the production and maintenance of power relations. He uses the term “politics of mobility” to describe the set of social relations that underlie the organization and differential access to movement, its narratives and experiences (ibid: 20-21).

In order to understand and unpack the politics that exist within each constellation of mobility, Cresswell breaks down mobility into six analytical units. These units are: the reason why people or things move; their speed; rhythm; the routes or channels in which mobility is funneled; the experience of the different forms of mobility; and finally, friction, the boundaries of mobility (ibid: 22-26). The politics of mobility, in fact, also entail the lack or restrain of mobility. An encompassing study of mobility, therefore, should include those infrastructures, boundaries, and power relations that organize, facilitate or hinder the intermittent flow of people, objects, and ideas (Cresswell 2010; Sheller and Urry 2006).

Although this approach has been developed to deal with the different facets of modern mobility, it has been interestingly applied to archaeology (Beaudry and Parno 2013; Leary 2014), and it seems to me a useful lens through which analyze mobility issues among the ancient Maya.

In this dissertation, the Classic period Usumacinta system is seen as a “constellation of mobility”, and Boca Chinikihá as a node within this interconnected system. By looking at the physicality of movement, its routes and boundaries, political control, as well as the embodied practices of movement that concurred at Boca Chinikihá and in the wider Usumacinta region, I hope offer a deeper understanding of
the organization, patterns, and meaning of movement within this historically situated Maya landscape.
CHAPTER 3

THE POLITICAL LANDSCAPE OF CLASSIC PERIOD USUMACINTA: A CONSTELLATION OF FRAGMENTED MOBILITY

The last few decades of research in the Upper Usumacinta have contributed to the identification of this region as a fragmented landscape of movement, where circulation of people and things depended on physiographic features as much as on socio-political organization (Aliphat 1994; Anaya 2001, 2006, 2007; Canter 2007; Golden and Scherer 2006, 2013; Golden et al. 2008, 2012; Obregón and Liendo Stuardo 2016).

Movement through this landscape was patchy and necessitated a system of both waterborne and overland routes. When – in the Classic period - this area started to be highly controlled, with the emergence of Piedras Negras and Yaxchilán as paramount centers, its physical fragmentation became political and turned into a powerful tool of negotiation and source of conflict among these and other polities of the wider Usumacinta basin, such as Palenque, Pomoná, Bonampak and Toniná. Building on rich data from settlement patterns, epigraphic records, as well as distribution of material culture and funerary practices, Charles Golden, Andrew Scherer and colleagues theorized a model for the creation and maintenance of political authority by Piedras Negras and Yaxchilán, in which the capitalization of movement, in terms of assuring power to move and power over movement, emerged - among other practices - as a pivotal strategy (Golden 2010; Golden and Scherer 2013; Golden et al. 2008). At the regional scale, smaller settlements located on strategic communication points were created ex novo or co-opted by each polity, and others were located to control their border; alliances were forged, marriages arranged, and wars made; at the local level,
free movement of people from the hinterland toward each capital needed to be secured by the elite, who needed an audience to reinforce and materialized their authority; imported goods and staple food had to circulate. All these activities underscore a particular attention to the politics of movement.

In this chapter I review and filter these political strategies and patterns, based on the research by Golden and Scherer’s project, as well as other scholars (Aliphat 1994; Anaya 2001, 2006, 2007), through the lens of mobility. My approach aims - as outlined in the introduction and theory chapter - to reconstruct the constellation of fragmented mobility that characterized the political landscape of the Usumacinta system during the Classic period. In this scenario, Boca Chinikihá figures as a node where different forms of circulation, waterborne and terrestrial, merged; at the same time, the site was a connector between the Usumacinta and Palenque polities, which for long time struggled against each other for the control over this pivotal communication route.

In the following sections, I first restate and elaborate on some of the concepts at the heart of the mobility approach, then, I offer a brief description of the physiography of the Usumacinta river system, to set the stage for the physicality of movement; next I outline the origins of this constellation of mobility, tracing the occupation history of the region before the Late Classic period; lastly, I detail the political history of the Usumacinta region as a constellation of fragmented mobility, elucidating the constituting elements of its politics of mobility.
Setting the Stage for the Usumacinta Region as a Constellation of Mobility: Some Clarifications on Concepts and Terminology

Mobility recently emerged in the social sciences as an approach that attempts to tackle the practices associated with the movement of people, things and ideas in an encompassing manner, looking at the same time at the physicality of movement, its representations and narratives, embodied practices, and the different meanings attached to it (Cresswell 2006, 2010; Sheller 2011; Sheller and Urry 2006; Urry 2007). Interestingly, proponents of this approach are also aware of, and give the proper attention to, the lack of mobility. According to Cresswell (2010), the physical act of movement through its different forms and media, the represented meaning attached to movement by different social actors, and the experienced practice of movement constitute a “politics of mobility”. Politics of mobilities are always historically situated and based on power relations. Once in place, they are not fixed, rather they shape and are shaped by social relations and negotiations. Furthermore, they are at the base of “constellations of mobilites”, which constitute a specific, historically grounded occurrence of the three aspects of movement: physicality, representations, and experiences.

In order to unpack and understand the politics behind the constellation of mobility of the Usumacinta and Palenque systems in the Classic period, I describe the six analytical units that, according to Cresswell (2010), compose the three facets of mobility, which are later presented with examples from such areas. These are: motive, speed, rhythm, routes, experience, and friction.

Motive is the reason why people or things move. Movement can be voluntary or forced, but more often than not, there is not such a clear cut divisions. Things
moved because they are carried by humans. Although in archaeological contexts identifying reasons behind movement can be difficult, some examples in the Usumacinta region can offer a broad picture about the willing or compelling forces behind movement. These motives are often embroiled into the representations and narratives of mobility.

Second, speed represents a measurable variable of the physicality of movement. The value of speed has changed a lot over history, but it still holds an important place among hierarchies of mobilities (Cresswell 2010). Conceivably, in the past too it was a valued aspect of movement, considering the effective networks of roads that existed in different periods and regions of the world. In the context of the ancient Usumacinta, speed has been measured in terms of cost/surface analyses (Anaya 2001, 2006), and through experimental cases of navigating the river with ancient technologies (Canter 2007; Shaw 2000). What appears clear is that the double nature of movement in the region, combining terrestrial and waterborne circulation, affected velocity, and choices of speed had to be negotiated with safety issues.

Rhythm is another aspect related to speed, the physicality of movement and its tempos. According to Cresswell, rhythms include repeated moments of movement and rest, or movements at different speeds (2010: 23). In my analysis of mobility in the Usumacinta, rhythm is materialized through the opposition of moving during the rainy and dry season. These two yearly-around repeated “moments” of movement, in facts, affected –among other activities- several aspects of circulation.

The forth category by which mobility is analyzed includes the routes of movement, the channels through which movement is funneled. These routes include natural conduits and infrastructures that create connectivity, but at the same time
facilitate the control over movement. In the Usumacinta region, although there are no clear constructed routes, as it seems to have existed in the Palenque region, the riversides and parallel valleys were dotted with infrastructures to facilitate, hinder and control the “natural” routes through which mobility was channeled. Control over communication and trade routes became the major theme of struggle among the Usumacinta kingdoms.

Fifth, movement is experienced through the body, therefore, human mobility needs to take into account the embodied practice of movement. For the ancient Maya, movement happened mainly by foot or canoes. Yet, it was experienced differently by different people depending on the season of the year (rhythm), on the medium, through walking, navigating a calm or impetuous river, or by being carried on litters. These elements also imply a differential experience based on social status, gender, and identity. The same section of the Usumacinta landscape was probably experienced differently from a war captive forced into the enemy capital, a noble bride-to-be being accompanied toward her new home, a trader travelling to make profit from his/her cargo, and a farmer or hunter walking to his/her field or favorite hunting spot.

Finally, all forms of movement involve friction and stillness. Frictions slow, hinder, or halt movement. These resistances can be natural, such as distance, an impassable mountain chain, a body of water, or artificial: constructed barriers, gates, fortresses, check points; further, other non-constructed barriers, such as frontiers, and buffer zones existed.

These six facets need to be analyzed to understand how mobility becomes political and each of them is related, someone more directly, others loosely, to the three spheres of mobility: physicality, representations, and experience. In order to
address these issues within the context of the Late Classic Usumacinta, I first present its setting, that is, describe the physiographic characteristics of the Usumacinta basin, then I trace the occupation patterns and political scenario of the Late Preclassic and Early Classic periods, which predate and allowed the formation of a constellation of mobility during the Late Classic.

The Usumacinta River System: The Building Blocks for a Constellation of Mobility

The division between the upper and lower Usumacinta, as defined by Robert Rands in the 1970s (Rands 1973), responds to both geomorphological as well as cultural variables. In fact, as Mario Aliphat pointed out, “the Usumacinta dominates both in terms of the natural landscape and in terms of cultural landscape of the Classic Maya” (1994:15). Several archaeological investigations have demonstrated how the river was a fundamental “actor” in the ancient Maya occupation of the region and that the historical development of this region was tightly connected to the characteristics of its landscape (Aliphat 1994; Aliphat and Caso 2005; Golden et al. 2012; Golden and Scherer 2013; Obregón and Liendo Stuardo 2016; Scherer and Golden 2012; Teranishi 2011). The geographical fragmentation of this landscape played a key role in shaping the political development and fortunes of the Maya kingdoms that flourished along the Usumacinta. For this reason, in order to address the first of the three spheres of mobility, physical movement, I start by a detail description of the physiographic characteristics of the Usumacinta basin. According to Cresswell, physical movement represents “the raw material for the production of mobility,
something that can be measured, a positivist analysis of movement” (2010:19). For the Usumacinta, under the rubric of “physicality” I include the routes, infrastructures, and technologies that constitute the building blocks of the Usumacinta mobility system, some of these elements, when addressed within their specific historical contexts, clearly coincide with the analytical units presented above for the politics of mobility. However, in the following section I offer an “abstract” description of the Usumacinta region, focusing only on its immutable (from the perspective of human time-scale) geo-physical characteristics, without deep consideration of any artificial feature or settlement along the river course or adjoining valleys. These elements are addressed at length when dealing with the occupation history of the region.

The Upper Usumacinta

The Usumacinta basin, with an extension of approximately 105,000 km², constitutes the major drainage of Mesoamerica (Amezcua et al. 2007; West et al. 1985 [1976]). The tract of the river known as Usumacinta starts at the junction of the Salinas and Pasión (Chixoy) rivers, but its watercourse originates in the Guatemala Highlands in the Sierra de Chama and Los Cuchumatanes mountains. After a course of 1200 km and receiving the waters of many tributaries, the Usumacinta joins the Grijalva river at the Tres Bocas confluence, in a wide wetland region known as Pantanos de Centla, and flows into the Gulf of Mexico, discharging approximately 100 Mm³/year, which represents almost 90% of the waters of the region (West et al. 1985 [1976]).

The Upper Usumacinta starts at the confluence of the Pasión and Salinas rivers and ends at the Boca del Cerro gorge. For its first 50 km, the river runs flat and with a

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4 For the origin of the name Usumacinta, see Canter 2007, Shaw 2000, Obregón and Liendo Stuardo 2016
meander course, then it cuts through the core of the Usumacinta anticline and runs into narrow gorges, whose escarpments reach a maximum height of 100 m (Aliphat 1994). Frequent islands are present in this portion of the river, which is particularly deep and receives the water of many small and medium tributaries such as the Lacantún, Yaxchilán and Agua Azul streams (Canter 2007). Few hundred meters downriver from Arroyo Yaxchilán, a small beach inside the omega-shaped bend formed by the Usumacinta represents one of the best natural harbors along the upper river course. The site of Yaxchilán is located within this bend. From here, ancient travelers could have navigated along the rim of the bend or crossed the neck of the omega through portage and hauling canoes (ibid.).

Downriver from Yaxchilán, the Usumacinta runs for almost 50 km in a series of narrow canyons with walls up to 250 m high until the first rapid, known with the modern name of Chicozapote falls, but referred to as “Raudales de Anaité” by Teobert Maler (1903). Few kilometers after the Chicozapote rapids, the river bends to the left and cuts through a series of blocks with travertine layers, before falling into a small rapid. Near the Macabilero stream, few kilometers downstream, the river exits the narrow gorge to flank, on the Mexican side, the “El Cayo Pocket”, a small valley, characterized by suitable farmland and surface access to good quality flint (Aliphat 1994; Canter 2007). Here, two important sites are located on both sides of the river: El Cayo and Macabilero (Golden et al. 2001). Macabilero is located on a rugged hill that overlooks the mouth of the arroyo Macabilero, whereas El Cayo, on the Mexican side, is easily accessible through a large beach, another favorable landing spot between Yaxchilán and Piedras Negras. El Cayo also occupies an important midway position along the intermontane valley that connected the two centers. Navigation, is difficult
upstream from Piedras Negras toward Yaxchilán, but rapid and dangerous downstream, following the strong current. Before reaching Piedras Negras, the river passes through a steep canyon with few minor rapids but strong currents, and just 1.5 km before the ruins, where the gorge is more constricted, the Usumacinta falls into a challenging rapid called Raudal El Porvenir or Raudal de Piedras Negras (Canter 2007). Nearby, Piedras Negras is located on the right side of the Usumacinta on a fracture of the karstic escarpment overlooking the river (Aliphat 1994: 164). Few hundred meters downriver from Piedras Negras, lies the site of El Porvenir, whose location and landing beach also coincides with the last easily navigable point before a series of dangerous rapids (Golden 2010; Kingsley et al. 2010, 2012).

After El Porvenir, the Usumacinta enters the Canyon Cola de Diablo and passes through a series of challenging rapids, which would have probably required some portage options, especially for cargo boats. One of these is the Busilhá Falls formed by the Busilhá River entering the Usumacinta (Canter 2007). The sites of La Mar and Budsilhá are located along this river, few km inland from the left bank of the Usumacinta (Canter 2007; Scherer and Golden 2012) (Fig.3).

About 16 km downstream from the Budsilhá River, the Usumacinta receives the water of the Chocolhá River. Before flowing into the Usumacinta through a series of waterfalls, the Chocolhá receives the water of the Chancalá River about 20 km west of the Usumacinta. Several sites flank both the Chocolhá and Chancalá rivers and their valleys have been surveyed by different projects (Liendo Stuardo 2011b; Golden and Scherer 2011; Scherer and Golden 2012).

Few kilometers after receiving the waters of the Chocolhá, the Usumacinta enters the Iguanas Canyon, one of the most spectacular of the entire river course. The
river winds through the anticlinal ridge between walls up to 600 meters high, and difficult rapids are located at the entrance and exit of the canyon. This series of rapids, with strong downstream current, makes unlikely that the ancient Maya could have traveled upstream, paddling against current, since neither lining through the river or hauling the canoes was a possibility because of the steep vertical walls of the canyon (Canter 2007: 18). Once entered, the Iguana Canyon offers no other option than running the rapids until its end. Therefore, it is probable that the ancient Maya used alternative routes, through an overland detour, to move across this section of the river (Canter 2007).

Once exiting the canyon, through the “El Tumbador” rapids, the Usumacinta widens and is navigable for the next 10 km. In this tract, the river is flanked by wide valleys on both sides. On the left side, the Valle de la Primavera flanks the river until the San José Canyon, whereas on the right bank there is a small landing beach that could accommodate few boats, and from here movement can continue inland through the Santo Tomás valley (ibid.).

A series of ancient settlements have been detected on both sides of the river, such as Ojo de Agua about 2 km from the west bank of the Usumacinta and a series of sites called Santo Tomas I to VI along the Santo Tomas Valley, on the opposite side. From the west bank of the river ancient travelers could have continued northwest passing the site of Las Delicias, and entering the Primavera and Lindavista valleys, where Boca Chinikihá is located, and from here walking west toward Chinikihá or the Chacamax river (Canter 2007). On the opposite side, people could have continued south, passing the Santo Tomás valley and entering the Redención del Campesino

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5 Cfr. Anaya 2001, and Canter 2007 for a detailed account of the Spanish expedition led by Alonso Dávila who ran the rapids through the canyon until Boca del Cerro
valley and from here back to Piedras Negras; or by moving north they would have reached the San Pedro Martir River to the east, or the Tabasco plains and Pomoná to the west.

In this section of the river, the inland routes would have been the safest option, since the river enters the San José Canyon where a series of rapids, the Raudal San José and San José Chico, and the steep canyon’s walls make the passage quite challenging, even if not impossible (Canter 2007). If the Classic Maya had wanted to avoid running the canyon by canoes, the possible options would have been a portage from the site of San José Usumacinta on the west bank and from here continuing west along the broad valley of La Primavera, or from the east bank entering the Santo Tomás valley. Once entered the gorge, the only breaking of the high canyon wall is located few kilometers before the rapids of San Joselito or Raudal Chico. The sites of San José Los Rieles I and II are located in correspondence of this break, on the east bank of the river. This point would have been a further option of portage through an inland route detour. From here, in fact, one could have continued northwest, through the Sierra del Lacandón and then toward Pomoná and the lower Usumacinta region, avoiding the river completely, or could have moved southeast toward El Porvenir and Piedras Negras (Canter 2007). According to Ron Canter (2007: 19), San José los Rieles II might have been the Classic period head of navigation toward the lower Usumacinta area. The San José Canyon, in fact, represents the last challenging tract of the Usumacinta. After that, the river runs straight for 14 km until the Lindavista Valley and Boca del Cerro.

The Lindavista valley is the last intermontane valley the river flanks before leaving its upper course, and entering its lower course in the Tabasco floodplains.
through the narrow gorge of Boca del Cerro. The valley is crossed by the Chinikihá stream, which runs for 15 km within the valley before flowing into the Usumacinta. This valley constitutes an avenue that connects the west bank of the Usumacinta with the interior valleys of the Low Sierra and the Palenque hinterland. The central portion of the Lindavista valley is covered by seasonal swamps, especially during the rainy season. These, along with the Chinikihá stream, provide a large and differentiated series of fresh water resources (Teranishi 2011). Several settlements have been recorded, mostly along the foothills or in elevated position to avoid the floodable bottom of the valley (Silva de la Mora and Mirón Marván 2009). The largest of these is Boca Chinikihá, located on a prominent terrace of the Usumacinta River on the southern foothill of the Boca del Cerro ridge. Few kilometers downstream, on the opposite side of the Boca del Cerro ridge, lies the hilltop site of Panhalé (Anaya 2001). Boca del Cerro is the last canyon the Usumacinta passes through in its course, and it also marks the end of its upper course.

**The Lower Usumacinta**

The lower course of the Usumacinta starts at Boca del Cerro and ends in the Gulf of Mexico. Here its course is a meandering one with slow currents during the dry season and swifter ones during the rainy season. Navigation is easy for any type of canoes, even though parallel channels were probably used in some tracts to avoid the strong currents during the rainy season (Canter 2007: 23). The geomorphology of the lower Usumacinta is characterized by Pleistocene terraces that slope toward the Gulf of Mexico and by recent alluvial plains of quaternary origin which form the deposits of the coast (Teranishi 2011; West et al.1985 [1976]). Several settlements are located along the Usumacinta banks, mainly on high terraces (Anaya 2001). One of these is
Pomoná, near the Pomoná stream (García Moll 2005). Few km south of Pomoná is a broad intermontane pass through the Boca del Cerro ridge that gives access to the Lindavista valley, to Chinikihá -which lies only 12 km southeast- and from here to the Palenque region.

Few kilometers downriver, on the opposite side of the river from Pomoná, lies the modern town of Tenosique, built on top of the Prehispanic city of Tanoche. Approximately 80 km after Tenosique, the river receives the water of one of its major tributary: the Río San Pedro Martir. The San Pedro Martir River was the preferential route to enter the Petén from the Western Maya lowlands and for this reason many settlements, among which Moral-Reforma, Namaan/La Florida, and Santa Elena, were located along its banks⁶ (Anaya 2007). The other important tributary that joins the Usumacinta at this point is the river Chacamax, which represented the alternative, and sometimes preferred route to the upper Usumacinta, running along the foothills of the Sierra de Chiapas and -continuing westward along its course- to Palenque (Canter 2007). In this tract, the Usumacinta starts a sinuous course, characterized by wide meanders. Several sites are located on its bends, such as Canitzán, Estapilla, Balancán, Pobilcuc, Zapatillo, Trinidad, and Tierra Blanca (Teranishi 2010, 2011). The latter is only few km far from the mouth of the Chacamax and it could have been a node in the navigation route toward the Chacamax valley, Chinikihá and the Palenque region. After this point, the Usumacinta starts to run straighter and its course is characterized by parallel channels, which create a landscape of shallow lakes, lagoons, marshlands and large islands. Near the town of Jonuta, which was a Maya Preclassic and Late

⁶ Many other settlements were located along the San Pedro river, but Moral-Reforma, and Santa Elena were the most directly connected with the political affairs of Palenque and the Usumacinta politics.
Classic site, the river branches into its first distributary: the Río Palizada. This point also signs the beginning of the river delta.

The Usumacinta delta covers approximately 4,850 km². The area is almost completely covered by swamps and lagoons, whereas lakes are present especially along the connecting line between the Pleistocene fluvial terrace and the recent alluvial plains (West et al. 1985 [1976]: 94-95). In the region known as Pantanos de Centla, the Usumacinta breaks into three channels, forming the Arroyo de los Idolos and the Río de las Islas, which then join the Grijalva River at Tres Bocas. The Usumacinta course officially ends here. The last kilometers before the Gulf of Mexico pertain to the Grijalva River.

**Before the Constellation Formed: the Occupation History and Landscape of Movement of the Usumacinta During the Late Preclassic and Early Classic Periods.**

Considering the previous, unbalanced discussion about the physiographic characteristics of the Usumacinta landscape, it appears clear that this discussion focuses more on the Upper Usumacinta region. The reason for this is that not only it is the section of the region where Boca Chinikihá is located, but also because, for this area, we have the richer amount of data to reconstruct a landscape of movement, and a constellation of mobility.

The Usumacinta was an important communication route and source of subsistence since its earliest occupation history (Aliphat 1994; Obregón and Liendo Stuardo 2016). From at least the Middle Preclassic (600-400 B.C.), several settlements dotted the rich and productive alluvial soils of the Usumacinta floodplains, along with
its banks, terraces and valleys (Liendo Stuardo 2011c; Teranishi 2010). Many of these became, by the Late Preclassic, important settlements with monumental architecture, such as Trinidad, Tierra Blanca, La Carmelita, Pomoca, La Concepción, Povictuc, Nueva Esperanza (Liendo Stuardo 2011; Teranishi 2010). The easily navigable system of the lower Usumacinta, with large, slow meanders, and connecting channels, along with the presence of interconnected lagoons, facilitated communication among these settlements and with other regions, as demonstrated by the presence of Olmec and Petén style Preclassic Maya ceramic.

By contrast, the fragmented landscape of the Upper Usumacinta made communication difficult and subsistence sources patchy, with small, localized areas for producing food. Archaeological evidence indicates that during the Late Preclassic the landscape of the Upper Usumacinta was dotted by several small, independent settlements, most of them located along the river banks (Obregón and Liendo Stuardo 2016). According to scant ceramic fragments and few architectural and burial evidence, it seems that Piedras Negras and Yaxchilán, the future capitals of the two most powerful kingdoms of the Usumacinta, Yokib and Pa’Chan, were small villages during this time (Golden et al. 2008; Muñoz 2006; Obregón and Liendo Stuardo 2016). Along with other settlements, these communities had public architecture, but none played a prominent role outside their immediate surroundings, nor dominated over the others (Golden et al. 2008; Golden and Scherer 2011; Golden et al. 2013). It seems that the original settlements at both Piedras Negras and Yaxchilán were on defendable positions, near the river, suggesting that – at least by the Late Preclassic - the atmosphere must have been one of political instability (Golden et al. 2008; Golden and Scherer 2011). Similar concerns seem to have dictated the position of other sites,
such as the hilltop site of Zancudero, for example, surrounded by a massive wall that
dates back to this period, and Macabilero, a small settlement associated with an
imposing system of terraces overlooking the Usumacinta, which provided both a
dominant view over the river and a defendable position (Golden et al. 2001).

In the Palenque region, a similar scenario emerges, in which the few sites for
which we have secure occupation for this period are located near rivers and perennial
streams. At Palenque, two occupation nuclei possibly existed in the west and central
sector of the later, Classic period, settlement. These are located near the reduced flat
areas and perennial streams of the city (Lopez Bravo 2012). Other sites with evidence
of Late Preclassic occupation are El Lacandón and Nututún (Lopez Bravo 2012,
2013), both located near watercourses. In the Low Sierra, where rivers are scarce and
located at the bottom of floodable valleys, a string of sites with Late Preclassic
occupation has been detected in the Lindavista valley, in upland areas, connecting
Chinikihá and Boca Chinikihá (Mirón Marván 2010; Rands 2007).

In general, the political landscape of the Late Preclassic seems characterized
by small, competing, petty communities, located near good quality lands and river
courses, suggesting a concern for food production and access to communication
routes, provided – along with other riverine resources- by the watercourses. In the
upper Usumacinta, where these resources were more localized and communication
fragmented, communities were often fighting over an ephemeral control over the best
farming lands, access to good quality raw material, or small tract of communication
routes, as reflected in the defensive location of several settlements. Movement of
people and goods through this landscape was probably not controlled by overarching
power, but still insecure.
As a result of this endemic warfare and political instability, by the end of the Late Preclassic most of the Usumacinta region was depopulated, with the exception of some centers that experienced a boom in construction, as well as a process of conurbation, which will result in the formation of the major regional centers (Golden et al. 2008; Golden and Scherer 2011). A similar pattern has been detected in the Palenque region, where the population seems to cluster in few larger sites, and most of the Late Preclassic settlements were abandoned (Liendo Stuardo 2011c). The Early Classic is still poorly known in the region, and this information gap can be due to lack of investigation or to an actual paucity of evidence. However, both in the Palenque and Upper Usumacinta regions, information coincides about a phenomenon of migration that brought people into major centers from the countryside. Piedras Negras, Yaxchilan, and El Cayo, in the Usumacinta, and Palenque and Chinikihá in the Sierra region\(^7\), are the few settlements with evidence of an Early Classic occupation (Liendo Stuardo 2011c; Golden et al. 2008, 2013). A different scenario appears for the Lower Usumacinta where several sites present evidence of an important occupation during this period, such as Pomoná, Tiradero, Moral-Reforma (Liendo Stuardo 2011c).

In the Early Classic some of the social and political characteristics of a system of mobility that will crystallize and take full form in the Late Classic started to emerge. For example, the larger centers of Piedras Negras, Yaxchilán and Palenque, became the seats of royal dynasties, in some cases thanks to the arrival of noble groups originary from central Petén royal courts; these capitals flourished, and showed a high level of artisan specialization, with people from the countryside moving in.

\(^7\) Few sherds of Early Classic materials have been also recovered at Boca Chinikihá, but the chronology is a problematic one for the Sierra region, as it will be discussed at length in chapter 7.
The growing population was, therefore, participant in a bustling cultural and social life (Golden et al. 2008; Golden and Scherer 2011). In this scenario, the fight for control over the Usumacinta and other communication routes became a political issue, and an empty, buffer zone started to form between the two capitals (Golden et al. 2008). It seems that the two polities did not interfere in each other’s political spheres and conflicts among them did not aim at controlling each other’s territory, but rather at maintaining access to economic goods and establishing hierarchies in the regional network (Golden et al. 2013).

Epigraphic evidence confirms the establishment of royal dynasties at Piedras Negras, Palenque and Yaxchilán during the middle of the Early Classic (Martin and Grube 2008). Still based on epigraphic evidence, it appears that Piedras Negras’ and Yaxchilán’s dynasties came into power thanks to some external influence from the longer established kingdoms of the Petén region, possibly through the arrival of royal wives from the Petén kingdoms (Golden and Scherer 2013, Martin and Grube 2008). Since the onset, these kingdoms had regular political relations, through royal visits and noble emissaries, with other polities of the Maya lowlands, such as Bonampak, Lacanhá, Tikal and La Corona (Anaya 2001).

By the 6th century, physical movement within the region was hindered by conflicts between Piedras Negras and Yaxchilán, and with other western Maya polities for the control of transportation routes along the major riverine arteries of the Usumacinta, San Pedro and Lacantún rivers (Golden and Scherer 2011; Martin and Grube 2008; Obregón and Liendo Stuardo 2016). Mobility in the Early Classic seems characterized by an unpopulated countryside that functioned as a buffer zone between Piedras Negras and Yaxchilán, and that was not directly controlled by neither of the
two kingdoms (Golden et al. 2008). Furthermore, warfare – likely over the control of communication routes - was limited to few episodes between the two capitals, and it often involved the direct defeat and capture of the enemy king, without the involvement of surrounding settlements (ibid). In spite of this, movement was probably safer with these overarching powers in place than in the previous times, since both polities needed the flow of goods and staple food to arrive at the capitals, circulate and feed their nucleated population.

Early Classic narratives about the importance of the movement of goods and control over traffic routes in the Usumacinta are memorialized in two panels from Piedras Negras, Panel 2 and 12, dated to the early 6th century. These texts celebrate the victory of two kings of Piedras Negras over the riverine polities of Yaxchilán, Santa Elena and Bonampak, Lakamha and Lakamtuun. The monuments imply that Piedras Negras gained control over the main regional commercial routes (Scherer and Golden 2014; O’Neil 2003: 163, cited in Obregon and Liendo Stuardo 2016). However, this was an ephemeral success, since in 554 Piedras Negras was defeated by Pomoná, and few years later Yaxchilán defeated Bonampak/Lakaná, further unbalancing power relations within the region (Martin and Grube 2008).

This discussion about various aspects of movement in the political landscape of the Early Classic offers a first glance into the genesis of the politics of mobility of the Usumacinta kingdoms, and the emergence of the Usumacinta system as a constellation of mobility during the Late Classic, when issues about physical movement, its representations and embodied practices become more crystallized. The following section addresses these issues in detail, unpacking some of its constituent elements.
The Late Classic: Constellation of Fragmented Mobility in the Upper
Usumacinta and Palenque Regions.

During the Late Classic (AD 600-800), the power of the various dynasties
founded in the Early Classic consolidated and the politics of mobility within the
Usumacinta kingdoms crystallized. The large, previously unoccupied, buffer zone
between Piedras Negras and Yaxchilán became more secure, and populations moved
back in this border area, which became a well-defined and highly controlled political
frontier (Golden et al. 2010; Golden and Scherer 2013). Although the physical act of
moving within the fragmented landscape of the Usumacinta didn’t change from the
Early into the Late Classic, or from previous times, a political fragmentation was
added to the geographical one, and friction of movement rose. Now the riversides and
parallel valleys became a contested landscape, over which the two river kingdoms
fought, primarily between themselves, but often involving other political actors, such
as the Palenque and Pomoná polities. The interest was, most likely, the control over
communication and trade routes, in order to maintain a steady flow of goods within
each capital (Golden and Scherer 2011; Golden et al. 2012; Scherer and Golden
2014). The acquisition of foreign crafted goods or raw materials, such as feathers,
precious woods, jade, shells, cacao, pyrite, among other items, was, in fact, an
important aspect of political legitimation for Classic Maya rulers (Foias 2002;

Paraphrasing Cresswell (2010), it seems, therefore, that during the Late
Classic a clear constellation of mobility emerged in the Usumacinta region, that is, a
“way of accounting for [the] historical sense of movement … attentive to movement,
[its] represented meaning, and practice, and the ways in which these are interrelated” (ibid.: 26). Such consolidation of political power brought about a formalized politics of mobility that involved the creation of infrastructures that regulated and channeled physical movement, controlled its bodily experience, through points of friction and immobility, and created historical narratives about power to and power over movement. In the following section I present some examples of the materialization of such politics of mobility, organized through its three constituent spheres.

**Physical Movement**

As Golden and Scherer (2008; Scherer and Golden 2014) point out, the reoccupation of the frontier zone between Piedras Negras and Yaxchilan occurred with a clear concern about territoriality, and control of riverine and terrestrial routes. Some of the aspects that manifest this control over patterns and forms of movement are routes, through which movement is channeled, settlements, as nodes of connectivity and points of mooring, and infrastructures, as materialization of facilitations, control, and frictions.

*Routes, Settlements and Infrastructures:* Although no formal routes have been identified in the landscape of the Upper Usumacinta region, various authors agree that the intermontane valleys, passes, navigable river tracts and portage points functioned very much as “roads”, channeling movement, and they were consequently controlled during the Late Classic (Aliphat 1994; Anaya 2001; Golden and Scherer 2008). Movement - especially in the tract between Piedras Negras and Yaxchilán- necessitated a continued negotiation between riverine and inland routes, and the Usumacinta polities shaped their politics of mobility accordingly, through alliances, marriages, conflicts, and settlement foundations.
Moving from Yaxchilan to Piedras Negras was probably more effective by river (Aliphat 1994; Anaya 2001; Canter 2007), benefiting from the downriver current. It is not a case, therefore, that Piedras Negras tried to establish relations with centers, such as El Cayo, located at a strategic point along the riverine system, but where additionally converged important overland routes (Golden et al. 2008; Golden and Scherer 2011). Movement upriver, by contrast, was more secure through the valleys and passes that run parallel to the river. It seems, therefore, logical that more efforts were put by Yaxchilán toward controlling such overland routes, co-opting sites located within these valleys, as well as often founding settlements anew (Golden et al. 2008, 2013). Settlements like La Pasadita, El Tunel and Tecolote were, in fact, strategically located in such valleys, and could have watched a possible military advance from Piedras Negras.

These patterns of movements have been supported by least-cost analyses performed by Armando Anaya (2001). His results suggest that - in spite of the natural frictions, such as slopes, swampy areas, and rough terrain- in the Usumacinta movement was generally more efficient by overland routes. However the river was a pivotal - albeit intermittent - communication route, and for this reason both polities invested in controlling its portages points near rapids and overland routes, as well as landing beaches.

By contrast, in the Palenque region, the generally smoother terrain and interconnected valleys apparently allowed for the management of more formal overland routes. In this area, Silva de La Mora (2011) detected several tracts of elevated karst terrains that could have facilitated the communication between satellite sites during the rainy season, and that could have been used along with waterborne
routes. Some of these paths have been recognized connecting the site of Santa Isabel and Palenque, and Palenque with Nututún\(^8\), and from here to Xupá and El Lacandón; in the Sierra subregion, another segment of route runs along the foothills connecting Chinikihá with various smaller sites to the east and west, possibly passing through the Lindavista valley and reaching the Usumacinta (Silva de La Mora 2011: 64); finally, another section of elevated route has been detected in the Chancalá valley. Silva de La Mora also performed some least-cost analyses and most of these informal routes coincide with the most cost-efficient paths (ibid.). Several sites have been detected along and at the ending points of such routes, and these settlements seem to predate or be contemporary with use of the communication system. This pattern may suggest that, contrary to the Usumacinta region, where satellite settlements were often founded anew by Piedras Negras and Yaxchilan to control communication routes, in the Palenque region the control from the capital was not so direct.

The settlement hierarchy and distribution reconstructed by Golden, Scherer and colleagues around Piedras Negras and Yaxchilán reflect a territorial strategy in which settlements were both connective nodes that ensured movement through the landscape within each polity, as well as points of friction and barriers against the other (Golden and Scherer 2011; Golden et al. 2008, 2012). Defensive features and fortified, hilltop sites were strategically located to control movement along the border and at transshipping points within the valleys and along the riversides (Golden et al. 2005, 2008, 2012; Golden and Scherer 2011). The Yaxchilán polity seemed particularly concerned with warfare and a fortified border. Settlements in its hinterland, such as La Pasadita, Tecolote, El Bayal and El Tunel present features like walls and palisades

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\(^8\) The site of Nututun possibly functioned, at least during the Late Classic, as riverine port for Palenque. Movement from here, therefore, could have also continued by water.
that choke the accesses to the Yaxchilan territory (Scherer and Golden 2014). Further, the site of El Kinel, located on a bend of the Usumacinta, presents a ditch-and-berm infrastructure that can stop the water flow and isolate the settlement, a feature similar to the one found at Punta de Chimino in the Pasión region (Golden et al. 2008). Other smaller settlements around Yaxchilan were located near streams, such as Arroyo Yaxchilán and La Tecnica, on the west bank of the Usumacinta, and Dos Caobas, on its eastern bank. These communities were founded anew in the Late Classic and probably functioned as controlling points for traffic to and from the Usumacinta via the two streams, as well as facilitating portages and overland movement. Dos Caobas, for example, is located in the valley that leads to Bonampak (Golden et al. 2012). A further example is the site of El Chicozapote, an important outpost of Yaxchilán located only 14 km upriver from Piedras Negras’s satellite site of El Cayo (Golden et al. 2008).

Navigation near Piedras Negras, in fact, was difficult and long upstream toward Yaxchilán, but rapid downstream, following the strong current; covering the 45 km by water between Yaxchilan and El Cayo would only have taken 5.6 hours by an army traveling by canoes (Canter 2007: 41). It is not a surprise, therefore, that El Cayo, which was occupied since the Late Preclassic, became in the Late Classic a strategic southern outpost of the Piedras Negras kingdom against possible threats from Yaxchilán (Aliphat 1994, Golden et al. 2008, Scherer and Golden 2012).

While Yaxchilán’s politics of mobility apparently relied on direct control over its territory, exemplified in fast access to the border zones, new settlement foundations, and heavy infrastructure, Piedras Negras’ relations with its satellite centers and frontier zone seems, by contrast, to have depended more on a trusting
relation with few important dynastic families at long-occupied centers, such as El Cayo and La Mar (Golden et al. 2008, 2013). Even the tertiary center of El Porvenir, a possible riverine port few km north of Piedras Negras, which possibly was its main port during the Late Classic, shows evidence of having been an independent center in earlier times and it continued to be occupied after the demise of the dynastic power at Piedras Negras (Kingsley et al. 2012). These centers were located at strategic points along the least-cost routes to access many vital communication and trade routes, such as the Tabasco plains (El Porvenir), as well as its competing kingdoms, like Palenque and Toniná – via La Mar– and Yaxchilán from El Cayo. La Mar\(^9\), for example, lies less than 20 km west of Piedras Negras, on the opposite side of the Usumacinta, near the Budsilhá stream. The site is located near productive farming land, and along a strategic overland route, elements that made it an important player in the political events of the Late Classic Usumacinta (Aliphat 1994; Scherer and Golden 2012).

Near La Mar lies the settlement of Budsilhá, few hundred meters south of the homonymous river (Scherer and Golden 2012). A seasonal stream runs near the site’s main architectural group, which stands on elevated terrains, and a small platform is located near the river. During the rainy season the stream floods the surrounding area transforming the main group into an island and the small platform might have functioned as disembarking point for canoes travelling up the Budsilhá river (Scherer and Golden 2012:53). Based on the settlement’s position and layout, paucity of

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\(^9\) La Mar and its hinterlands was a strategic area for the Usumacinta kingdoms. According to Anaya (2001), the site is located on the least-cost travel route between Yaxchilan and Palenque, as well as between Piedras Negras and Tonina. Furthermore, the lords of La Mar often appear as allies of Piedras Negras, but they were also conquered by Palenque and Toniná (de la Garza et al. 2012, Scherer and Golden 2014). Scherer and Golden (2014: 70) identified a series of defensive features around the southern perimeter of the site near the route to Tonina, possibly a Piedras Negras’ imposition to defend La Mar’s strategic position.
residential platforms and their organization, Scherer and Golden propose that Budsilhá might have been a trade node and possibly a market, under the control of La Mar and Piedras Negras (ibid:54).

In the Palenque region, regional surveys and settlement studies detected a settlement pattern, especially in the 8th century, in which buffer zones and frontiers existed among the five subregions identified by Liendo Stuardo and colleagues (Liendo Stuardo 2007, 2011d). According to Liendo Stuardo (2007: 97), these regions might indicate the existence of socio-political units larger than the community, whose main centers interacted with the capital independently. Here secondary civic-ceremonial centers were located at regular intervals along the Sierra (Liendo Stuardo 2007). Movement among these areas apparently lacked friction, since no evidence of defensive or controlling infrastructure has been found within their frontier zones. Based on architectonic and ceramic data, it seems that these micro-zones were well integrated in the Palenque polity. Furthermore, as already mentioned, a system of roads connected some of the main centers within each subregion and with the capital, suggesting a lack of concern over controlling movement by the Palenque kingdom. However, the site of Xupá, for example, seems to have been occupied only in the Late Classic and it is located an intermontane pass through the sierra. This seems to suggest that its position was not haphazard and could have been connected to controlling movement between the Chancalá valley and the Nututún-El Lacandon subregion. It is interesting to note that one of its main temple and lintel bear a striking resemblance to the buildings and text styles of the Cross Group at Palenque, build during the reign of K’íńich Kan B’ahlam (de la Garza et al. 2012; Flores Esquivel 2011), which might suggest a direct involvement and interest of the Palenque dynasty in the foundation of
this outpost. Movement through the landscape was plausibly a concern for the Palenque ruling elite, for example monitoring the arrival of enemy armies. Palenque was, in fact, involved in several conflicts during the 7th and 8th centuries - especially against Piedras Negras and other Calakmul allies in the Usumacinta region, and Tortuguero to the west (de La Garza et al. 2012). However, it seems that the region’s landscape infrastructure does not reflect such concern. Nonetheless, some glimpses of Palenque’s politics of mobility can be caught analyzing other spheres, such as its textual and iconographic representations.

**Bodily Experience of Movement**

The second aspect through which a politics of mobility is constructed includes how movement is experienced within a specific constellation and by whom. In Cresswell’s words “Human mobility is practiced mobility that is enacted and experienced through the body” (2010: 20). Although this evidence is more ephemeral, we can address bodily experience of movement within the Usumacinta looking at phenomenological descriptions of moving in this landscape at different speed and rhythm; through the embodied experience of different people, such as captives, military, and noble brides-to-be, and through the practice of wearing imported objects acquired as results of politics of mobilities unique to each kingdom.

*Speed and Rhythm of the Usumacinta:* The experience of moving through the Usumacinta region probably changed based on few major factors: the medium and its speed, and if it happened during the rainy or dry season (Anaya 2001; Canter 2007). Furthermore, speed must be translated into the time required for moving through the landscape, rather than distance covered (Anaya 2001:31), and this aspect changed if movement involved walking or navigating, with or without heavy cargo, or if your
social status allowed you to be carried by porters, and so forth. Therefore, bodily experience of movement also depended on gender, status and occupation.

In general, it seems that the dry season was best for river travelling both downstream and upstream at least for experienced canoeists who knew the location of rapids and portages (Anaya 2001). Ronald Canter (2007) suggests that, albeit difficult, the rapids in the Usumacinta canyon were not impassable, especially if the motive was strong enough, as in the case of a military expedition; however it could have been more risky for a trading party whose cargo safety was probably more important than speed.

Overland routes were not necessarily easier, the rugged terrain around Piedras Negras, for example, and marshy lands to the east of the site, toward the Petén, made it difficult to reach the city both by land and river (Scherer and Golden 2014). Visibility was also an issue for Piedras Negras, since the site is not visible from the river and the rugged topography hindered visibility from the city toward the river and surrounding valleys. These elements, however, made Piedras Negras particularly safe against attacks (ibid.). Yaxchilán and Palenque, by contrast, were located on relatively easy slopes and wide terrains, although Yaxchilán was protected by the omega bend of the Usumacinta (Canter 2007; Scherer and Golden 2014), and any visiting party was probably under watchful control while approaching.

At the end of the Usumacinta canyon, issues of control and visibility were also critically important. Armando Anaya (2001) suggests that some of the structures of the hilltop site of Panhalé, located on the Boca del Cerro ridge, might have functioned as watchtower and lookout point toward the Usumacinta, and that the site was a satellite of Pomoná (Anaya 2001, 2006). His survey identified other smaller
settlements, probably also under the control of Pomoná, that could have communicated the center with the Usumacinta, the western kingdom of Palenque, via the Chacamax, as well as the Tabasco Plains and San Pedro River (Anaya 2006; Canter 2007).

Bodies on the move: the dual rhythm of dry and rainy season, already important for a series of social practices, such as agriculture, and religion, also marked how mobility was experienced by people. Furthermore, the bodily experience of movement was affected by people’s social identity: soldiers, farmers, traders, captives, kings, wives-to-be perceived movement through the landscape differently.

Maya wars were probably fought during the dry season (Foster 2002), and in the Usumacinta region this made even more sense, since it was the easier period of the year to move in this landscape both by land and river. Generally speaking, ancient Maya warfare involved city raids and siege, rather than open field battles, and it was more about booties and tributes than political control (Freidel 1986; Martin and Grube 2008; Scherer and Golden 2014). Evidence from sites like Palenque, Piedras Negras, Caracol, Aguateca, among other Classic cities, suggest that enemy armies actually moved into their urban spaces causing destruction and abandonment. Although we don’t have direct, material evidence of a Maya army marching through the landscape, a suggestive example is Yaxchilan’s king, Bird Jaguar, who attacked Santa Elena (Scherer and Golden 2014: 80). Santa Elena is located 70 km away, on the other side of the Piedras Negras kingdom, and - although we don’t know the route taken by this military party - the options are few and all involved the king leading his army for a march of several days, through rugged and swampy terrain, crossing the river and lakes, stationing probably at La Pasadita and/or some other outposts, passing through
the enemy territory, before reaching the San Pedro river. This probably overly creative
description can, nonetheless, provide a glimpse into the bodily experience of the
politics of mobility within a politically unstable landscape. Further examples of bodily
experiences related to political strategies of power to and over movement include war
captives and wives to be, whose “mobility” materialized practices and patterns of
negotiations among polities. As I describe in the section related to the narrative and
representations of movement, in fact, the transfer of these special actors from one
polity to another reflects political strategies of control over the territory through
alliances and subordination.

*Portable mobility, the politics of imported goods:* politics of mobility can also
emerge from looking at the circulation of objects. Clearly, most of the conflicts in the
Usumacinta region concerned control over trade and communication routes, the result
of these conflicts was the abundance or lack of imported objects at their capital and
polities. Along with powerful alliances, the presence and display of precious materials
bespoke the power and success of the royal dynasties, additionally, these valuable
objects were necessary for the success of royal performances. At Piedras Negras, for
example, jade was scarce compared to Yaxchilán and Palenque (Golden et al. 2012).
Suggestively, the burials of two 8th century kings at Piedras Negras present few (about
one hundred) jade beads mixed with many more blue-painted clay beads to mimic
jade, whereas the few contemporary royal burials for which we have information at
Yaxchilán contained four times this amount (ibid.). This pattern has been explained by
Yaxchilán choking the flow of this precious stone, and Piedras Negras having to find
alternative acquisition routes (Golden et al. 2013). One response might have involved
the royal negotiation of a marriage with a noble woman from Namaan, along the San
Pedro River, providing Piedras Negras nobility an alternative circuit, possibly via the Petén, through which jade was obtained, albeit in smaller quantities than the other kingdoms (ibid.).

A further example comes from the Palenque kingdom, which after the victory over Pomona in 659 imposed a jade tribute to the latter that continued for decades, and not only secured a flow of jade into the capital, but also materialized the control of Palenque over Pomona’s communication and trade network in the lower Usumacinta (de la Garza et al. 2012).

**Representations and Narratives of Movement**

The third sphere that reflects a specific politics of mobility concerns discourses created around movement, its representations and narratives. Although among the classic Maya movement was rarely captured in public manifestations of political discourses - such as imagery and epigraphic texts - its results were. In this domain I include artistic representations and architecture as media to convey messages about movement, as well as pictorial and textual narratives. Some examples of these political strategies are mentions of foreigner royal wives and war captives on monuments, and artistic commissions at subsidiary centers.

**War Captives and Wives:** War captives reflect a political strategy of control over territory, and - once dragged into the enemy capital- they became metaphors of dominance over their kingdom of origin, securing steady flows of tributes (Houston et al. 2006; Scherer and Golden 2014). In this sense, captives embodied different aspects of movement: the marching of a conquering king and army into the enemy kingdom and capital; the glorious return with booties and captives; their physical and memorialized display in the victorious capital; as royal wards, they were leverage for
a continuous flow of tributes from the conquered reign, and, finally, captives’
inglorious return home as vassals of the victor, or – more rarely- their death.

The Yaxchilán kings of the 8th century made of war captives an important
aspect of their political narratives (Scherer and Golden 2014). Several monuments
from this period memorialized captives taken from Namaan, Lakanhá, Santa Elena,
Hix Witz, and Piedras Negras (ibid.). These displays worked as mnemonic devices of
the polity successes, which resulted the unprecedented florescence of Yaxchilán.

At Palenque, discourses about captive-making seem to have been less integral
to the kingdom politics (Scherer and Golden 2014). Nonetheless, the presence of stone
panels with named captives in the patio of the Palace’s House C suggests that they
were functional to the narrative of power. These monuments memorialized Pakal’s
victory over Pomoná and its allies in AD 659, which resulted in important economic
benefits for Palenque for many decades (de la Garza et al. 2012). Yet, about 50 years
later, Palenque was attacked and defeated by Toniná and its king, K’an Joy Chitam,
was brought to Toniná, where his image as captive remained as perpetual reminder of
this success. Although he returned few years later, his power declined and the defeat
produced a waning of Palenque’s influence over the Usumacinta region, of which its
enemies took advantage (de la Garza et al. 2012; Martin and Grube 2008).

It seems that well into the 8th century, the political strategies and narratives of
the three kingdoms in terms of captive taking and its display converged. Images and
texts from Piedras Negras, Yaxchilán and Palenque started to include subaltern
nobles, as military chiefs, and lords of satellite centers, who accompanied their kings
in battle and partook the honor of making captives.
A second type of narrative of movement is represented by the arrival and departure of noble brides-to-be in the Usumacinta and Palenque kingdoms. The mapping of these noble women’s origins and destinations reflects skillful practices of negotiations and alliances. At Piedras Negras, for example, during the Late Classic, royal brides generally came from the centers of Namaan and Zapote Bobal, located in the San Pedro River region, possibly to reinforce political and commercial relations with this area, strategic for the access to the Petén (Martin and Grube 2008). Interestingly, Ruler 2 of Piedras Negras arranged the marriage of his son and successor, K’inch Yo’nal Ahk II, to a noble woman of Namaan/La Florida. Her importance for the politics of mobility of Piedras Negras is reflected in the honor bestowed on her by appearing on two stelae at the site, the only case at Piedras Negras (Scherer and Golden 2014:77). For its strategic position, Namaan - whose lords and nobles were often featured as captives on Yaxchilán’s monuments - represented an important bone of contention between Piedras Negras and Yaxchilán during the mid-8th century (ibid.).

By contrast, possibly because Yaxchilán didn’t need to establish strong alliances with strategic communication nodes in order to secure a steady flow of goods, strategies of alliances included royal marriages with bordering centers, like Bonampak, and with the Petén kingdoms of Calakmul and Motul de San José, likely to build prestigious relations.

At Palenque, royal brides often arrived from the satellite site of Ux te’ ku, as in the case of Pakal’s wife, Lady Tz’ ak-b’u (de la Garza et al. 2012). This unknown site was likely located between Palenque and Tortuguero, and its alliance was particularly important for Palenque since the ruling dynasty at Tortuguero was
attempting to be independent from and compete with Palenque (ibid.). Finally, an interesting case is a noble woman of Palenque who, in the mid-8th century, travelled about 500 km to reach Copan, where she married the king and gave birth to the city’s 16th ruler (Martin and Grube 2000: 174). Interestingly this happened sometime later the events registered on Copan’s Stela A, where Palenque appears as one of the four more powerful Maya cities, along with Copan, Tikal and Calakmul. Although we don’t know if these episodes are related, they for sure testified the existence of contacts and travelling among the two kingdoms.

**Art and architecture:** Similar art styles and architecture within a polity have already been considered as evidence of practices of affiliation, emulation and sometimes control by overarching powers (Smith 2003). In terms of politics of mobility, they can exemplify the presence of circuits of artists and builders, or transmission of techniques, used to create a uniform narrative within a polity and cement relationships.

In the Yaxchilán kingdom, for example, some architectural features at secondary sites, like Tecolote, La Pasadita, El Tunel, El Chicozapote, and Oso Negro closely resembles those of the capital. Golden, Scherer and colleagues suggest that some multi-door elevated buildings functioned as halls to receive noble visitors and emissaries (Golden et al. 2008; Scherer and Golden 2014). These buildings include facades and wall paintings stylistically similar to those at Bonampak. The authors, therefore, suggest that, as it happened for Bonampak, Yaxchilán commissioned the construction and decoration of such halls for noble gatherings, as a form of social cohesion and control, by sending artists from the capital to the satellite centers (Scherer and Golden 2014). Further, viewshed analyses by Golden, Scherer and
colleagues proved that these constructions were visible from hilltop buildings in the capital, suggesting that the Yaxchilan’s king kept a direct control over their subordinates (ibid.).

A similar practice seems to have been in place in the Palenque kingdom, where K’an Bahlam, after the construction of the Cross Group, possibly sent artisans to construct a temple in the outpost center of Xupá, whose architectural style and wall panel texts resemble those of the capital (de la Garza et al. 2012). Still during his reign, K’an Bahlam invited the king and royal emissaries from Moral Reforma, on the San Pedro River, to assist the inauguration of the Temple of the Inscriptions, in AD 690, occasion in which the lord of Moral-Reforma was re-crowned king under the aegis of Palenque (ibid.). The center had, in fact, previously been an ally of Calakmul (ibid.). In addition to accepting to travel to Palenque, the king of Moral Reforma possibly “agreed” that artists from Palenque were sent to his capital to carve Stela 4, on which this series of events are memorialized.

Summary and Discussion

In this chapter I reviewed some of the political strategies related to movement developed by the Usumacinta and Palenque kingdoms through the lens of a mobility approach. A mobility approach promotes a wider understanding of the politics and practices of movement in a historically situated context. By adopting this approach, I aimed to reconstruct the constellation of fragmented mobility that characterized the political landscape of the Usumacinta system during the Classic period. Political authority in these kingdoms involved various aspects of the capitalization of movement and different politics of mobility emerged as powerful tools to control their
territory and communication routes. In this system, Boca Chinikihá figures as a node where different forms of circulation, waterborne and terrestrial, merged; at the same time, the site was a connector between the Usumacinta system and the Palenque polity.

This approach highlighted some interesting differences and parallelism in the way Piedras Negras, Yaxchilán and Palenque dealt with physical movement, its representations and bodily practices. For example, although all of them were concerned about who and what moved into their territories, their control strategies varied in forms and intensity. Furthermore, plotting their friendly and conflictive political relationships elucidated patterns of resource acquisition and trade routes.

In sum, presenting the constellation of mobility that characterized the Usumacinta and Palenque regions during the Late Classic period helped me set the stage for discussing the role of Boca Chinikihá within this system in a historically situated, yet encompassing manner.
CHAPTER 4

RESEARCH STRATEGY AND METHODOLOGY

In this chapter I present the research strategies and methodology that underpinned my investigations at Boca Chinikihá. If my hypothesis that Boca functioned as a riverine port is correct, I expected to find evidence to support my idea in its geographical location, urban setting and material remains. Specifically, these would reflect a tight connection to the river and association to other regions outside its immediate surroundings. Therefore, to validate my ideas I anticipated identifying elements in its architecture that could be interpreted as port facilities, a settlement layout pivoted on controlling the two watercourses and, finally, I expected to find access to imported goods along with a wider array of stylistic affiliations.

Consequently, my research strategy involved two methodologies: first, creating a detailed, computerized map to use as a basis for spatial analyses that could shed light on the organization and mutual articulation of the different sectors of the site, as well as their spatial relations with the two watercourses; second, carrying out intensive excavations at major structures of the site to 1) outline the temporal development of Boca Chinikihá and its occupational chronologically; 2) identify remains of port-related infrastructure that could indicate its inhabitants facilitating, channeling and/or controlling the access to and from the watercourses; 3) recover possible imported materials and compare their frequency with Chinikihá- the nearest major site in the region- in order to buttress my hypothesis that Boca Chinikihá had preferential access.
to imported items as well as a more varied sample of those thanks to its inter-regional connections through the Usumacinta river.

**Previous Work at Boca Chinikihá**

The existence of ancient ruins and archaeological materials in this area has been known by the local residents and archaeologists alike for a long time. The site was recorded, but never studied further, by different scholars under the name of Santa Margarita (Rands 1969; Johnson 1976a) or Lindavista (Anaya et al. 2001, 2005) after a cattle ranch (Santa Margarita) and the modern ejido currently located in its vicinity (Lindavista). In 2002 the Mexican Federal Commission of Electricity (CFE) conducted a survey in the Lindavista valley to assess potential damages to archaeological sites in light of the construction of a hydrological dam at Boca del Cerro, on the Usumacinta River (CFE 2002). In this survey the commissioners drew sketch maps of several archaeological ruins in the valley, including Boca Chinikihá (in their report the site is named Falso Chinikihá) (CFE, 2002) (Fig. 3.1). Fortunately, the project – which would have inundated many archaeological sites along the Usumacinta banks as well as several modern communities – was finally dismissed by the Mexican government.

In 2008 Esteban Mirón Marván and Flavio Silva de la Mora, members of the Chinikihá Archaeological Project (PRACH), conducted a systematic survey of the Lindavista valley recording more than 100 sites, among them Boca Chinikihá.
During this survey the team produced a sketch map of the ballcourt of the site, which was later used to produce a more detailed map based on satellite images (Silva De La Mora and Mirón Marván 2009) (Fig. 4.2).

With this information at hand, in 2010 I started a two-year project at Boca Chinikihá that entailed the creation of a detailed, digital map of the site and systematic excavation.

Mapping

Boca Chinikihá was mapped in two weeks during the field season 2010 and 2011, by the topographers of the Chinikihá Archaeological Project (Lopez Mejía et al. 2011, 2012). Two Total Stations (SOKKIA SET 630 RK y PENTAX PCS-325), prisms and prism poles, owned by the Instituto de Investigaciones Antropológicas,
UNAM, were kindly provided for the job by the project director, Rodrigo Liendo Stuardo.

Fig. 4.2: Survey map of Boca Chinikihá (Silva de la Mora and Mirón Marván 2009)

Mapping was limited to the monumental core of the site, which is located on the northern side of the Chinikihá stream, an area now used as a ranch and that pertains to the *ejido*10 El Faisán Río, in Tabasco. The presence of cattle has heavily damaged the structures, which have also been subjected to years of looting activity. The residential area was likely on its southern side and is now obliterated by the modern *ejido* of Lindavista, in Chiapas. Although it has not been systematically studied, surveys and information from local inhabitants have revealed the presence of stone platforms and regularly shaped stone alignments under the modern *ejido* along with cultural

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10 *Ejido* is a technical term that in Mexico indicates a parcel of land that belongs communally to a specific village and is usually farmed or used for herding cooperatively or individually (sometimes the term *ejido* stands for the town itself).
materials such as ceramic sherds, grinding stones and lithic tools (Silva de la Mora and Mirón Marván 2009).

The limits of the map encompass the foothills on the north and north-east of the monumental core and the course of the Chinikihá stream to the south and east. Although smaller platforms have been identified farther to the west, only few of these have been recorded due to lack of time, making the western limit of the site tentative and subject to future modifications.

![Fig. 4.3: Map of Boca Chinikihá (PRACH 2011)](image)

The final map included 27 structures, covering an area of 13.4 ha, and was created through a network of about 5100 control points (López Mejía et al. 2011, 2012) (Fig. 4.3). A detailed description of the settlement layout of the site is provided
in Chapter 5, where the architectural and topographic characteristics of Boca Chinikihá are discussed in relation to its potential function as riverine port.

**Excavation Procedures**

Permit restrictions and monetary constraints limited excavations to non-extensive and non-architectural contexts, except for one case in which the surface of a large, double platform construction was tested.

Excavation recording procedure and terminology at Boca Chinikihá followed the ones set first by the Proyecto Integración Política Señorio de Palenque (PIPSP) and later by the Chinikihá Archaeological Project (PRACH) (Liendo Stuardo 2009, 2011a, 2011d). Every excavation consisted of an Operation unit identified by an increasing number starting from 206 (200 is the number code for operations conducted outside the site of Chinikihá, and numbers from 200 to 205 identify operations in the valleys of Chancalá and Lindavista) (Silva de la Mora and Mirón Marvan 2009). With the exception a single extensive excavation, operations at Boca Chinikihá comprised units of 2x2meters and 1x1meter located behind constructions, near the external corners, or in line with their central axes. Excavation units were aligned following the orientation of the structure or, when not connected with any construction, following a north-south or east-west cardinal axis. This strategy was chosen with the aim of finding refuse areas and trash middens rich in cultural materials, which could provide at the same time information about chronology and ceramic affiliations of Boca Chinikihá. For the same reason, excavations were distributed almost evenly within the site, in order to obtain a spatially more inclusive sample. However, special emphasis was placed on Structure 10, which, according to my research hypothesis, played a
relevant role in river-related activities. In total, excavation units throughout the settlement covered an area of 105m².

Standard procedure included first, clearing vegetation over an area of approximately 3x3 meters, in order for the excavators to be able to position the excavation grid. All excavations were directly supervised by myself or by Christian Arias, a B.A. candidate from ENAH (Mexican National School of Anthropology and History), who assisted me as field supervisor in both the 2010 and 2011 field seasons. We were aided in the excavation process by local workers and, in 2011 we were joined by undergraduate students from the University of “La Sapienza”, Rome (Italy), who - thanks to an agreement between this university and the UNAM (Universidad Nacional Autónoma de México) – were carrying out their field school within the Chinikihá Archaeological Project (PRACH).

Equipment included small pick axes (*picoletas*) to loosen soil and remove stones, trowels and smaller wooden and metal dental picks for those contexts or artifacts that needed special care such as bones, whole or fragmented vessels, etc. Sediments were removed by natural and cultural strata (*capas*), and each capa/stratum was further subdivided in artificial levels of 10 cm to maintain vertical control. Artifacts from each *capa* were also bagged separately for each 10cm, as well as being divided by material type. For example, a bag tagged “OP. 206, cerámica, capa1, nivel 1”, included all the ceramic materials found in the first 10 cm. of the first stratum (capa) of operation 206. During the 2011 field season, sediments were screened through a ¼ inch mesh sieve in order to retrieve particularly small finds, not visible to the naked eye, such as obsidian or lithic splinters, small beads etc. Finally, at least a liter of soil from each operation was bagged for flotation.
Architecture-Related Excavations

Structure 1, Operation 214

Structure 1 underwent a single test operation in 2010 to collect information about its chronology. This structure is located in the NE sector of the site on top of a basal platform about 34 meters long, 25 meters wide, and 5.6 meters high (Structure 1a) (Fig.3.4).

![Fig. 4.4: Op. 214, Structure 1](image)

Platform 1a was constructed on top of a remodeled natural terrace at the northeastern mapped limit of the site. Structure 1 is a quadrangular building measuring approximately 14.5 x 14.4 m and 1.8 meters in height on top of platform 1. It faces one of the two main plazas of the settlement as well as the Chinikihá stream, offering a potential point of ancient observation. Structure 1 shows signs of heavy
looting, and exploration of the looted interior revealed fragments of red painted stucco out of context and mixed in the looter rubble.

The operation unit measured 2x2 meters and was located adjacent to the NE corner of Structure 1, on the surface of Platform 1a. The excavation detected a single layer (capa 1), the dry laid boulder fill of the platform on top of which Structure 1 was built. This fill consisted of large stone blocks, irregularly shaped, and the natural soil matrix that surrounded the stones (Fig. 3.5.). Cultural material was scarce.\footnote{A detailed description and analysis of the materials recovered at Boca Chinikihá will be provided in chapter 7.}
**Structure 4, Operation 216**

Structure 4 is a large pyramidal construction, approximately 38 meters long, 24 meters wide, and about 4.5 meters high, with two lower platforms on its summit (Str. 4a, 4b) respectively 2.5 and 1.2 meters high. This building closes the east side of the site, creating a narrow passage with Structure 1, descending toward the Usumacinta river. The area east of this structure, in which no structures were detected, is periodically flooded by the Usumacinta. The pyramid has been heavily looted and a large looting trench almost bisects substructure 4A. Operation 216 was the only excavation carried out in this structure. It measured 2x2 meters and was located at the base of the pyramid, on its NE corner. The purpose of this excavation was to detect a possible midden or refuse materials associated with the use of the structure, as well as to obtain preliminary information about its chronology (Fig.3.6.).

The superficial layer (capa 1) was highly disturbed, probably due to the looting activities, and contained intruded modern materials such as glass and a copper button. The matrix was a dark brown soil (Munsell Color 10YR 3/3) mixed with large and small stones, probably coming from the collapse of Structure 4. This context produced little cultural material. The two following layers (capa 2 and 3), by contrast, were richer in cultural material, such as ceramics, lithics, and a bone needle. Animal bones featured a huge proportion of deer bones (Carlos Varela, 2013, personal communication). This excavation apparently only penetrated the collapsed stones from Structure 4 and, although highly disturbed, seems to indicate food refuse, possibly discarded.
from the structures on top of the pyramid. However the context is not clear enough to offer a more definitive interpretation.

**Structure 6, Operations 228, 229**

Structure 6 is a long rectangular platform, approximately 25 x11 meters and 1.5 meters high, located on the SE side of the North Plaza, on the edge of a steep slope toward the Chinikihá stream. It has been heavily affected by looters and presents a large looter trench in its east-west axis. Operation 228 was opened at the base of the NE side of the structure and its aim was to find a possible midden with discarded materials that could shed light on the use of the platform. However the excavation put
to light few large, roughly shaped stones, probably collapsed from Structure 6 and provided little cultural material (fig.4.7.).

Operation 229, instead, was open at the base of the west side of the platform, in correspondence with its medial axis, just east of the looter trench, on the side facing the plaza. We hoped to find the floor level of the plaza, associated with the structure. In the superficial layers (first 10-15 cm) we found modern materials such as fragments of a glass bottle. In general, cultural material in this excavation was scarce. However, at about 40 cm from the surface, we encountered what seemed to be the plaza floor fill made of small, regularly placed stones located on the north, north east, and west sections of the excavation unit (fig.4.8). The fill was discontinuous and disappeared in
the central portion of the operation. Artifacts were scarce and included ceramic and few lithic materials.

![Image](image.png)

**Fig.3.8. Op. 229, Structure 6, possible plaza floor level**

**Structure 7, Operations 226, 227:**

Structure 7 is a low rectangular structure, about 35 meters long and 39.7 meters large, located few meters southeast of the ball court. It is located on a little pronounced promontory on the ridge of the escarpment that slopes down toward the Chinikihá stream (fig.4.9). During the rainy season, when the water level of the Chinikihá grows, flooding part of the steep slope, the platform is few meters higher that the water level and results easily reachable from a (natural?) gully between structure 6 and 7. Because of these conditions, I thought that the structure could have been related with the traffic.
and the access from the river to the site. To test this hypothesis two excavation units were opened.

Fig.4.9. Op. 226, 227, Structure 7

Operation 226, with its two 1x2 meters extensions (Op.226 EXT. SUR and Op.229 EXT. ESTE), had a total width of 8 m² and was located outside the west side of the platform, aligned with the NE corner of Structure 8, one of the two structures composing the ball court. A layer of dark brown soil (capa 1) covered part of the platform fill, which include large, unshaped stones, especially in the NW sector of the excavation unit. The second layer (capa 2) was about 30-40 cm deep and consisted in the soil matrix that surrounded the platform fill. Cultural material in this context was particularly abundant and in the SW corner of the operation, within the platform fill,
we found a secondary burial, in a poor conservation state (fig.4.10). These were located directly on the bedrock and were surrounded by irregularly shaped stones. The remains of the skull seem to have undergone a cranial deformation, although it is impossible to detect which type, and of the few teeth, which were not found in anatomical position, a front one seems to have been smoothed and reshaped. Objects spatially associated with the burial included a rectangular fragment of pyrite, fragments of obsidian prismatic blades, and few ceramic sherds.

Operation 227 measured 2x2 meters and was opened on the east side of Structure 7, near the edges of the sharp slope that descends toward the Chinikihá, an area now covered by secondary vegetation and not used as pasture land. A total of two
natural layers, with no evidence of artificial construction, were registered and artifacts were scarce. This could be due to the periodic floods that this area is subject to and this can also explain the silty nature of the soil matrix.

**Structure 10, Operations 206, 208, 210**

Structure 10 is one of the most imposing constructions at the site. It is a large two-level platform that supports a C-shaped structure and it is located in the central portion of the settlement, facing the Chinikihá stream. The platform is 82 meters long, 45 meters wide and 2.3 meters high. Whereas the C-shaped structure measures 21.8 x 37.4 meters and is 1.5 meters high.

This structure captured our attention since our first visit at Boca because of its imposing size, as well as for its strategic position, facing the stream. It is located next to a gentle slope, which forms a gully that leads to the river (fig.4.3). It is also interesting that the majority of the surface of the platform is void of permanent constructions apart from the C-shaped structure, located at the further west side of the two-level platform. The reason why this structure was tested is that I supposed that its function was connected to the river traffic, possibly related to the loading and unloading of items and/or the temporary stock of merchandise entering the settlement from the river.

Operations 206, 208 and 210 were opened at the back of the platform, behind Str. 10a, and aimed at individuating trash accumulation that could shed light onto the activities carried out on the platform (fig.4.11). Op 206 measured 1x1 meter was aligned with the central axis of structure 10a. The excavation revealed a single context composed by medium and large size stones collapsed from structure 10a, but no
evidence of refuse accumulation. In fact, cultural material was particularly scarce in this operation.

Op. 208 was opened at the back of the NW corner of the northern arm of structure 10a. It measured 2x2 meters and reached a depth of 40 cm. It revealed a single context, which included unregularly shaped stones and one slab collapsed or looted from structure 10a. No evidence of trash accumulation was registered, and the cultural material was scarce.

Op. 210 measured 2x2 meter and was located about 2.5 meters from the SW corner of structure 10. As for Op. 208, the context represented mainly collapsed stones
from the structure. The excavation reached a depth of 60-70 cm, and the material was scarce, limited to the first 30/40 cm, and it included –as for Op. 208- few ceramic and obsidian fragments.

**Structure 11, Operations 220, 221**

Structure 11 is a low platform, about half a meter high that measures 18.8 x 13.5 meters. The construction partially includes a natural outcrop and is located on a slope which forms a small ravine that leads to the Chinikihá stream. The structure is about 40 meters far from the limit of the floodable area, during the rainy season.

The position of this structure, so close to a natural access from and to the river, suggested to us that it could be related to the control of the traffic from and to the settlement, and – in order to test this hypothesis two excavations OP 220 and 221 were opened on its south and north sides (fig.4.12).

Operation 220 measured 2x2 meters and was located on the southern side of the platform, in correspondence of its central axis. A total of two natural strata were detected. The first layer (capa 1) was about 15 cm deep and was composed by large and small irregularly shaped stones, mixed in a dark brown soil matrix (color Munsell 5 YR 2.5/1 black), and were concentrated in the north sector of the unit. The second stratum (capa 2) was 30-35 cm deep and of a lighter color (color Munsell 2.5 Y 4/6 olive brown), and it seemed to surround the stones from the previous layer that continued toward the center of the unit.
The fact that the stones were concentrated around the natural outcrop that buttressed the platform, suggested me that the largest ones could have been part of the collapsed platform, whereas the smaller ones could have been used to level the surrounding terrain as well as being been part of an external platform. Cultural material in this context was abundant, especially lithic tools. Once this stratum was removed, the bedrock appeared and the excavation was concluded.

Operation 221, which consisted of a 2x2 meters area and a later extension of 1x1 meter on its west side, was located on the NE corner of structure 11, near the natural outcrop that buttresses the platform. A total of two strata were recorded and cultural material was abundant. Capa 1 was 15 cm deep and consisted of a dark brown soil (color Munsell 7.5 YR2.5/2 very dark brown). The second layer (capa 2) was about 25
cm deep and was composed of medium and small stones mixed in a brown soil (color Munsell 7.5 YR 4/3 brown), especially concentrated in the west sector of the unit (fig. 3.12).

![Fig.4.13. Op. 221, capa 2](image)

The investigation of this area ended with the removal of capa 2, when the bedrock surface appeared. Finally, no evidence of port-related infrastructures appear in this excavation, although artifacts, especially lithic tools, found in the two operations were abundant and might indicate an area related to production activities

**Structure 12, Operations 217, 218, 219**

Structure 12 is a small platform located in the southern sector of the site, almost at the center of the South-West plaza of the site. This informal plaza is an open space loosely bounded by structures 10 and 22 on the north-west, and structures 14, 15, 16 and 17 on the south-east. The platform measures 10.5 x 9.7 meters and is 0.7

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12 As it will be described with more details in chapter 7.
meters high. My working hypothesis was that this structure could mark the access to this plaza from the river passing by Structure 11. To test this hypothesis, a series of equidistant excavations were opened on the east side of the platform, the side facing the river. These excavations had the scope to verify the presence of possible infrastructures related to the transit facilitation in this plaza, such as an artificial leveling of the ground with stones or ramps. Three operations (Ops. 217, 218, 219) oriented NE-SW, toward the Chinikihá stream were located every 5 meters from structure 12 (fig.4.14).

Operation 217 measured 2x2 meters and was the closest one to the platform. Once removed the first stratum of soil, the excavation exposed the limits of the
platform walls, as well as a series of large, irregularly shaped stones with a north – south direction (fig. 4.15).

![Fig. 4.15. Photo and drawing of stone alignment from OP 217.](image)

This layer of stones, which stands on top of a layer of smaller cobble stones, continues outside the limits of the excavation. In order to follow this stone alignment, an extension of 1x1 meter was opened outside the SW corner of the operation, but after half a meter it seemed to disappear. Ceramic material was scarce, but lithic artifacts, especially obsidian blades, were particularly abundant.

Operation 218 was opened 5 meters east of Op. 217. The layer of stones detected in operation 217 seems to continue in this area and an alignment of slabs, running NW-SE, was identified (Fig.4.15). To determine its extension, 3 extra units were opened 1 NW and 2 SW of Op 218. Material included few ceramic fragments, chert flakes, polished lithic, and obsidian blades and flakes. However, these were not as abundant as in Op 217. Once this layer was removed, the bedrock appeared and works were transferred to OP 219.
Operation 219 was opened 5 meters east of OP 218. Here, there were no signs of the *empedrado* detected in OP 217 and 218, and the context provided scarce cultural materials. At a depth of 40 cm from the surface, a stratum of parent clayish soil appeared, with no evidence of cultural material, and excavation was interrupted.

![Map with structure 12 and the level of *empedrado* detected in OP 217 and 218](image)

*Fig. 4. 16. Map with structure 12 and the level of *empedrado* detected in OP 217 and 218*

In general, the excavation around structure 12 didn’t provide conclusive evidence about transit infrastructure, although the remains of a possible paved area surrounding the platform may suggest the intent of facilitating the circulation in this area along with some other type of activities, connected to the abundant presence of obsidian technology detected in operations 217 and 218.
**Structures 13-14, Operations 213, 213A**

Structure 13 is a low quadrangular platform, which measures 11x11 meters and is 0.8 meters high. It is located in the southern sector of the site, on the edges of a narrow gully that leads to the Chinikihá stream and that during the rainy season could have functioned as inlet from the watercourse to the settlement. Structure 14 is a tall pyramid structure, 46.8 meters long, 24.8 meters large and 3.3 meters tall, located few meters west of structure 13 and it closes the south side of the small, informal plaza formed by structures 11 and 12 (fig.4.16). Excavations in this area had a twofold purpose: on the one hand, to encounter a midden related to structure 14 that could shed light onto the function and chronology of this pyramid, and, on the other hand, to verify if structure 13 was related to the traffic to and from the stream through some sort of terrain modification or ramps as well as to verify its temporality.

To this scope, operation 213, an excavation of 2x2 meters, was opened in the narrow alley between structure 13 and 14 (fig.4.17). After removing the superficial layer of organic matter, it appeared, at about 15 cm from the surface, a layer of compacted soil mixed with small pebbles, with abundant presence of cultural material, among which obsidian blades, lithic tools, and ceramic fragments. On the SE corner of the unit, three aligned slabs, with a NW-SE direction, emerged. To follow this alignment, a new operation was opened, OP 213A. Once the superficial layer of soil was removed, it appeared clear that the stone alignment was in fact part of a low platform which in front had an open space (fig.4.18).
The space in Op 213 not covered by the platform was dotted with small and medium stone slabs, as well as smaller pebbles, that could have been part of a patio floor or could well have been fallen from the platform. In this space a large number of domestic tools were recovered, such as grinding stones (*a mano* and a *metate*), polishing tools, a small limestone axe, fragmented ceramic vessels, animal bones, freshwater snail shells (*xutes*), fragments of carbon, fragments of anthropomorphic
and zoomorphic figurines, obsidian blades, flakes and other lithic tools. The majority of these artifacts were concentrated in the west side of the operation. These elements induced me to interpret this space as an activity area linked to the platform. The space on top of the platform also produced abundant materials. These included a projectile point, ceramic fragments, especially jar rims, and fragments of bajareque. The platform was constructed on top of the same layer that was recorded outside it, and once the latter was removed, it appeared clear that this context, about 0.20 meters deep, insisted directly on the bedrock.

Although this excavation did not produce direct evidence on the use of either structure 13 or 14, it appeared clear from the abundance and typology of artifacts
encountered that this space, possibly ancillary, if we consider its secluded location, was the locus of intense activity.

Structures 15, 16 and 17 ("The Palace"), Operations 207, 209, 211

Structures 15, 16 and 17, with their adjoined sub-structures, form the most imposing architectural group at the site. This complex, through comparison with a similar architectural space in Chinikihá and Palenque, has been interpreted as a palace, or better, as a multi-functional elite residence (cf. Chapter 5 for a more detailed discussion of this space). Structure 15 and 16 are two low, large platforms that support several structures on top, whereas, structure 17 consists of a series of large rectangular platforms, about 2 meters high, which surround two sunken patios (Str. 17a, 17b) (Fig.4.19). Structure 15 is a roughly squared platform, about 55x54 meters wide and less than half a meter high, which supports four constructions: structures 15a, 15b, 15c are low (less than 50 cm) long rectangular platforms, measuring about 20x10 meters, and 30x10 (15b) meters, these three platforms are arranged in a C shape and close the north side of structure 15; structure 15d, on the other hand, is a tall pyramidal platform, measuring 29x15 meters, and about 2 meters high, located in the middle of platform 15. Structure 16 is a long rectangular platform, 75x30 meters large, 1 meter tall, which supports two platforms, a rectangular one, Str.16b (70.5x7.6x1 meters), and a C-shaped one, Str.16a (85.7x46x0.5 meters).
Finally, structure 17 is a large rectangular construction, about 84 meters long, 53 meters large and 2 meters tall that encloses two inner sunken patios: structures 17a, and 17b. These wide open areas measure 29x24 meters (17a), and 24.7x12.4 meters (17b). The whole complex represents the most imposing construction at the site, covering a total area of 9780 square meters (López et al. 2011).

Excavations in this area were aimed toward identifying a possible trash midden located on the southern side of the complex, the side where a steep escarpment slopes down toward the Chinikihá stream. The objective was to collect materials that could shed light onto the function and temporality of the construction. A series of three operations were opened in this area, two at the top and one at the bottom of the escarpment. Operation 207 was located on the mid-axis of the southern side of Str. 16,
and was 1x1 meter large. The single context encountered consisted in large, roughly shaped stones, probably collapsed from structure 16, mixed with loose, clayish soil. Cultural materials were scarce and included few ceramic fragments, heavily eroded, obsidian blades, a projectile point, animal bones and snail shells.

Operation 211 was opened at the bottom of the escarpment, few meters from the bank of the Chinikihá stream, in axis with operation 207. The excavation measured 2x2 and uncovered three natural layers. Cultural materials were scarce and concentrated toward the north side of the operation, in correspondence of the base of the escarpment.

Operation 209 was a 1x1 meter unit opened behind the southern side of the long platform that closes patio 17a. This operation, as the previous two, had the objective of detecting the presence of a midden related to the activities of Str. 17. Three natural layers were identified, but in general cultural material was scarce, and this included few ceramic sherds, and fragments of lithic artifacts.

In conclusion, the operations in this sector of the site didn’t produce satisfactory evidence on the presence of a refusal area in connection with the architectural complex.

**Extensive Architectural Excavation**

**Structure 10, Operations 222-225 and 231**

Test excavations carried out at the back of Structure 10a in 2010 did not provide informative data about this complex; therefore in 2011 I opened a trench of 2x8 meters, plus two extensions of 1x1 meter, for a total surface of 18 m², on top of
the platform. This excavation was located along the base of the northern arm of structure 10a and included four operations of 2x2 meters (OP 222, 223, 224, and 225) and two extensions of 1x1 meter (OP 231 N and S), (fig.4.20).

Our starting hypothesis was that this complex could have functioned as a control point for the loading and unloading of items proceeding from the river traffic, as well as a possible temporary stock area. For this reason, I wanted to test the surface and corners of the platform to look for evidence that could shed light on the activities carried on in this complex. Presence of plastered floors, or lithic tools, for example, could suggest areas dedicated to store perishable materials, preserving them from pests, or the refinement and/or production of finished artifacts, respectively. Furthermore, the absence of evidence related to domestic activities, such as the
presence of vessels for storing food, but not for cooking, as well as the lack of hearths and burials could have ruled out the option of a residential structure.

Operation 222 was located in correspondence with the NW corner of structure 10a. The first layer removed consisted mainly of large, roughly shaped stones fallen from structure 10a, mixed with a dark, loose soil (color Munsell: 7.5 YR 2.5/1). These fallen stones seemed to be on top of a layer of small stones and pebbles, which appeared at a depth of about 0.30 m from the surface. This layer (capa 2), possibly the surface of the platform, was laid down on top of a level of roughly leveled stones of medium and large size, which was interpreted as the fill of the platform and that continued in operation 223. This stone fill included reutilized materials such as a fragmented grinding stones (a metate and a mano). Other cultural materials included few ceramic sherds, lithic tools, bones, obsidian blades, a clay bead, and a good amount of freshwater snail shells, whose poor shape impeded to verify if they had been eaten –through the characteristic broken end-tip – or not.

The stone fill discovered in OP 222, continued eastward in OP 223. This area was still covered with the stones fallen from structure 10A. Once this level was remove (capa 1), a layer of more compacted soil, mixed with small stones and pebbles emerged (capa 2). This was similar to the one found in operation 222 and roughly at the same level. Once this context was excavated, the stone fill already detected in Op 222 emerged. This seemed to be contained, along the eastern limit of the unit, by a stone alignment, running north-south from the northern arm of structure 10a and extending south toward the other arm of the construction, about 5 meters from the from the facade of Structure 10A.
With the excavation moving to operation 224, it appeared clear that the stone wall found in Op 223, was actually the contention wall of a large terrace extending all the way to the front side of Structure 10A. To follow this contention wall, two other operations, of 1x1 meter, were opened NW and SW of Op. 224 (Op. 231N, Op. 231 S). These extensions allowed me to verify that the wall leaned against the north arm of structure 10a and toward south it continued outside the limit of the excavation, possibly up to the opposite arm of structure 10a. This wall, about 0.50 meters high, was constituted by regularly shaped stones, in the upper row, and mostly by irregular stoned in the lower part (Fig. 4.21).

This contention wall seems to have been partially covered by a surface of compacted soil (capa 3) (apisonado), which leaned on the second course of stones, at a height of about 25 cm below the wall surface (Fig. 4.22).
Continuing the excavation, it emerged that the base of the wall, about 0.25 meters below, leaned on a plastered floor badly eroded, of which only few fragments were still visible (fig. 4.23).
On top of this surface, which – for time limitations - was excavated only for an extension of 1 x 0.50 meters, we collected few fragments of polychrome ceramic and some fragmented obsidian blades. Operation 225 was the last excavation carried out on Structure 10. After removing the first layer of loose soil mixed with the collapsed stones from the structure (capa 1), we found that the surface encountered in the adjacent operation 224 was not visible and, in contrast, a layer of smaller stones and pebbles mixed with a lighter color soil emerged (capa 2), with an area of burnt soil and material in the SW corner of the unit. This context continued for a depth of 0.25-0.30 m, and possibly more, but for lack of time the excavation was interrupted. Materials included abundant ceramic, obsidian, burnt bones, a bone bead, jutes (freshwater snails), and a human tooth.

In spite of the efforts put on the investigation of structure 10, it was not possible through its excavation to recover concluding evidence about its relation with the Chinikihá stream. Although its space seems to have been organized in different level, no direct evidence of internal subdivision or a clear plastered floor, which could indicate specialized sectors for storage, were detected on the majority of its surface. Furthermore, artifacts were generally scarce, compared with other areas of the settlement, especially lithic tools and storage vessels, as it will be discussed in detailed in chapter 7. However, other evidence discussed in the following chapters, such as its architectural layout, urban position and the presence of a possible stone marker, keep the hypothesis of a port-related function for this structure a viable option.
Non-Architectural Excavations

Operation 230

Operation 230 consisted of a test unit of 2x2 meters, later extended through two other units of equal size to the north and east, for a total of 12 m², opened between structure 6 and 7 (fig.4.24). The objective of this excavation was to test a possible access from the Chinikihá stream to a wide open area, defined as the North-East plaza. The area selected for excavation was a mild slope toward the river. Here, a series of cut stones, arranged along the edge of the slope, were visible from the surface, and my hypothesis was that they could have been part of a ramp, or of a terrace leveled to facilitate the access from the watercourse to the settlement. The excavation was, therefore, aimed at finding remains of steps, or of a stone fill. After removing a layer of sediment of about 10-15 cm, where the few artifacts were mixed with modern materials, a layer of roughly shaped stones appeared. These were not arranged in any particular way and only in some sectors were leveled (Fig.4.25). However, it may well be the case that modern anthropic activities had in part altered the original position of the stones, which were very superficial. In conclusion, although the nature of this construction seems artificial, no concluding evidence about its origin and function was found.
Fig. 4.24. Op. 230 between Str. 8-9 and Str. 6

Fig. 4.25. Op. 230, looking east, toward the descent to the Chinikihá stream
Conclusions

Excavations at Boca Chinikihá during the 2010 and 2011 field seasons were the first systematic investigations carried out at the site and were targeted toward identifying evidence of port facilities or infrastructures, as well as artifacts that could shed light onto the function of some specific areas of the settlement along with its chronological framework. The areas selected for excavation included structures, or groups of structures whose locations seemed to me particularly connected to activities related to the Chinikihá stream and the Usumacinta River, as well as with traffic to and from them. Although neither the testing nor the limited extensive excavations produced conclusive evidence about the function of specific structures, some elements indicate that, during the Late Classic period, a special effort was made by the inhabitants of Boca toward remodeling its urban form into a space where movement to and from the rivers – along with its control - was facilitated. These included the leveling and paving of some open areas in connection to the urban circulation to and from the Chinikihá stream, the construction of imposing structures in strategic positions for control, as well as the location of platforms next to inlets and gullies that, depending on the season, were partially flooded, allowing canoes to approach the settlement, or allowed a smooth descent toward the watercourse.

In the following chapters this evidence will be analyzed in detailed, put into context and compared at different scales, from the regional setting of the site and its urban elements (chapter 5) to the analysis of its portable artifact typologies, provenience and distribution (chapter 7), in order to buttress my hypothesis that Boca Chinikihá was, during the Late Classic, a port community.
CHAPTER 5
BOCA CHINIKIHÁ: URBAN SETTING AND INFRASTRUCTURE OF MOVEMENT

As outlined in chapter 3, Boca Chinikihá is located in a regional landscape where the issue of moving, along the river as well as via internal land routes, was of paramount importance and—at least during the Late Classic period—highly political. Furthermore, many of the sites mentioned in Chapter 3 present indicators of having functioned as transportation nodes or control points along the inland and riverine routes. In this chapter, I present the architectural and topographic evidence from the urban layout of Boca Chinikihá, as well as of some of the sites in the Lindavista Valley that surround the center, to suggest that Boca played an important role in the riverine and inland communication system of the region.

Various authors have pointed out that not a lot of infrastructure was necessary to maintain a highly interconnected system of mobility in ancient contexts (Andrews 1990, 2008; Rickman 1985). An example is ancient Rome, where investment in movement infrastructure and navigation is well known. In spite of this, some scholars argue that the great roman port complexes were anomalies in the everyday practices of seaborne or riverine trade and communication, since most activities were performed at simple ports or coastal towns with no man-made facilities at all (Houston 1988; Rickman 1985). A similar assertion is even more appropriate for the ancient Maya, for whom evidence of riverine or coastal facilities is definitely sparser than for ancient Rome. However, recent evidence suggests that some infrastructure features existed
and various archaeological works have presented the importance of port facilities in ancient Maya sites for communication and transportation.

Historical geographer, Brian Hoyle, addressing the historical trajectory and development of city-ports, argues that ports “represent one aspect of the timeless interdependence between environment and society and constitute a fundamental element in the spatial structure, organization and re-organization of economies and societies, and in relationship between those societies and their environments” (Hoyle, 1998:264). Even if his analysis mostly focuses on modern contexts, his statement that “the function of a port or a city-port is common through time, that is, transfer of goods and people across the land-water interface” (op. cit: 266) holds general validity. He also argues that ancient contexts showed a closer spatial and functional association between city and port, which disappeared with modern, industrial societies (op. cit: 268). In the context of ancient cities, various authors have discussed the types of infrastructures normally present in ancient coastal and riverine communication nodes (Andrews 1990, 2008; Algaze 2008; Rickman 1985; Rogers 2013). For the ancient Maya, more and more examples of port facilities are being found, which consist of both the use of natural harbors with little human modifications, as well as of port complexes as man-made features, including facilities such as piers, breakwaters, jetties, ramps, areas to load and unload cargoes, and storerooms. Examples of these features in Maya riverine sites are discussed in detail in Chapter 6. In this study, I group these infrastructures into broad categories based on their functions, such as transportation, control, and storage and distribution facilities. These are in fact the most important activities that normally take place in a communication and commercial node.
Transportation facilities include infrastructures that facilitate movement or connect waterborne and inland circuits of movement, such as docks and wharves, ramps and jetties, piers, slipways, embarcaderos, artificial and/or natural channels, bollards and other mooring infrastructure, as well as causeways, bridges and stairways. Control facilities consist of lookout structures, fortifications, platforms located at narrow passages as checkpoints, as well as pyramids and other architectural elements, which - although not necessarily constructed for this purpose - could offer a privileged viewpoint over a large area. Finally, storage and distribution facilities, such as storehouses, markets, stalls, and such, not necessarily, but normally coexist in places of large fluxes of people and goods.

As argued by Anthony Andrews (2008), among others, material port infrastructures are elusive at best in the Maya area, especially in the tropical lowlands. Recently, however, more attention has been paid to themes such as economic organization, ports, markets and interconnectivity among communities not only in coastal contexts, but also in inland locations, especially riverine areas. Yet, recognizing the materiality of movement and connectivity among settlements and regions, with the exception of the well-documented networks of *sacbeob* (causeways), has been particularly difficult (Andrews 2008:16). However, recent technological tools, such as GIS, have helped show circuits of movement, through cost path analyses, control over movement, and accessibility patterns (Doyle et al. 2012; Estrada Belli and Koch 2007; Landau 2015; Richards-Rissetto and Landau 2014). In the following sections, I describe in detail the urban setting and architecture of Boca Chinikihá, as well as that of its immediate surrounding area, to propose possible internal circuits and patterns of movement to and from the site.
Setting, Urban Layout, and Surroundings

The archaeological site of Boca Chinikihá is located at the border of the Mexican states of Chiapas and Tabasco, in the Lindavista Valley, one of the several alluvial valleys that run perpendicular to the Usumacinta River and connect the latter to the inland regions of the Northwestern Maya Lowlands (cfr. Fig. 1.2.). The Lindavista Valley, approximately 27 km wide, runs east west and connects the Usumacinta with the Low Sierra sector of the Palenque region, where the site of Chinikihá is located (Fig. 5.2.) (Liendo Stuardo 2007, 2011; Silva de la Mora y Mirón Marván 2009). Along with the valleys of Chancalá and La Primavera, and the Chacamax River course, the Lindavista Valley represented one of the preferential routes to reach Chinikihá and Palenque from the Usumacinta (Aliphat 1997; Anaya 2006; Liendo Stuardo et al. 2014a; Silva de la Mora 2017). Within the valley, Boca Chinikihá is located on its eastern tip, toward the Usumacinta, whereas Chinikihá occupies the opposite side of the valley, at its narrow entrance from the Sierra (Fig. 5.1). Although it is not clear to what extent Palenque exerted an influence on Chinikihá, Boca Chinikihá, and their surrounding regions, various lines of epigraphic evidence support the interest of the Palenque kingdom in the area (Martin and Grube 2008; de La Garza et al. 2012). During the Late Classic period, in fact, Palenque was involved in several conflicts with some of the Usumacinta polities, likely for the control of the river and overland traffic.

In this scenario, the alliance with or control over the two largest sites in the Lindavista corridor might have been pivotal for the political strategies of the Palenque kingdom.
Fig. 5.1. Map of the Lindavista Valley with major sites.
The Lindavista Valley is crossed by the Chinikihá stream, which originates about 20 km southwest, from a spring near the homonymous site, and flows into the Usumacinta River near Boca Chinikihá. Despite the fact that an area of about 4 km^2 in its northwest portion is often flooded during the rainy season (Teranishi 2011; Mirón Marván 2010), the valley’s edges and elevated areas seem to have been densely populated in Prehispanic times. Here, 109 sites, ranging from isolated structures, areas of ceramic concentration, residential compounds, and the monumental sector of Boca Chinikihá, have been identified, recorded, and mapped by the Proyecto Integración Política en el Señorio de Palenque/Proyecto Arqueológico Chinikihá (PIPSP-PRACH). According to this evidence, Boca Chinikihá constitutes the most elaborate and architecturally complex settlement in the valley (Silva de la Mora and Mirón Marván 2009). The monumental sector of the site is located on an alluvial terrace on the west bank of the Usumacinta and comprises 28 structures, organized along a NW-SE axis, bounded by a series of low hills to the north and the Usumacinta River and Chinikihá stream to the east and south (López Mejía et al. 2011, 2012). The residential sector, in contrast, is located on the southern side of the stream and almost completely obliterated by the modern constructions of the Lindavista town (Fig.5.2). The surveys carried out by the project, as well as the information gathered from the local population, show that some modern constructions lie on top of ancient platforms, and the project’s investigations brought to light the presence of stone alignments and archaeological materials around the houses and in their gardens (Silva de la Mora and Mirón Marván 2009).
The main structures in the urban core are oriented toward the two river courses, and their large volume reflects an unusual construction effort for the size of the settlement. The main construction event seems to have occurred in the Late Classic period. Earlier materials, especially Late Formative and few Early Classic ceramic sherds were recovered in construction fills, but mixed with materials dating to the Late Classic. Within the site layout, it is possible to recognize three main sectors (Fig.5.3). **Area 1** includes the northeast section, where a series of elongated platforms and pyramidal buildings are located; the central sector, with the two largest constructions of the site – the acropolis complex and Structure 10-10a – constitutes **Area 2**; **Area 3** is a large double-patio compound with adjoined structures occupying the southwest area of the settlement.
Area 1
Area 2
Area 3

Fig. 5.3. Map of Boca Chinikíha with the three urban areas highlighted (courtesy PREP.)
Buildings in these three areas seem spatially organized around large informal plazas (Fig. 5.14). The location and configuration of the architecture at Boca seem to reflect the typologies previously mentioned in relation to the infrastructure normally present in ancient communication nodes. For this reason, in the following sections, I describe in detail the sectors of the site and their characteristics, grouped under the rubric of these broad functional categories.

**Transportation Facilities at Boca Chinikihá**

Boca Chinikihá is strategically located in a small navigable tract of the Usumacinta, between two rapids, and it offers, through the Lindavista Valley, access to the inland region of the Northwestern Maya Lowlands where Chinikihá, Palenque, and other major settlements are located. It lies on the western bank of the Usumacinta, and is bounded on its southern and eastern sides by the Chinikihá, a seasonally navigable stream, which runs into the Usumacinta northeast of the site. These elements make Boca Chinikihá a good point to embark and disembark from a canoe on the river before approaching the falls that characterize the exit of the Usumacinta from its canyon, few kilometers downriver. As previously mentioned, the Lindavista Valley is one of various natural corridors that offers facility of movement from the Usumacinta to the interior of the Western Maya Lowlands (cfr. Fig. 1.2). To assess the potential transportation practices to and from the watercourses, as well as from the watercourses to the valley, I studied the settlement layout of Boca and some of its surrounding smaller compounds, paying special attention to areas where it was possible to access the site from the river, areas of loading and unloading, and the presence of related infrastructure. I considered aspects such as the difference in the
configuration of and accessibility to the site from the Usumacinta and Chinikihá stream, along with the practicability of movement through the Lindavista corridor during the rainy and dry season.

Although our investigations at Boca have not detected any evidence of docks or jetties, other indirect elements suggest that some areas of the site might have been used to facilitate movement of people and goods to and from the river. As Anthony Andrews (2008) pointed out, the identification of specific infrastructures related to navigation, disembarking, and mooring can be very difficult for various reasons in the Maya area. First is the possibility of equifinality, where, for example, a pile of stones, or even a clear platform near the river or seashore might correspond to a pier as well as to a simple residential structure (ibid.). Cultural materials in both cases might be scant and difficult to discern. Second, the water level might have changed, and therefore structures might be underwater or, on the other hand, too far from the shore. Finally, as ethnographic and modern examples taught us - as well as our own stay at Boca - ancient canoes or modern small motor boats can easily reach the riverbank, and moor to a stone or a root without the need of major infrastructure to load or unload people and goods.

For these reasons, more than isolated infrastructures, I tried to identify areas of gentle slope, presence of inlets, gullies and channels, and possible associated structures along the Usumacinta and Chinikihá to propose areas of access to Boca from its watercourses, taking into consideration the notable changes that occur at the site during the dry and rainy season. In sum, I tried to apply a conjunctive approach, considering multiple lines of evidence to buttress the identification of activities that per se leave scant evidence.
In terms of transportation, few areas could be interpreted as landing points along the Usumacinta and the Chinikihá rivers. I believe that the use of each landing point was dependent on the season and the water level. For example, along the Usumacinta a wide beach still serves as landing point today. However, during the rainy season, the river dramatically rises up to 20 m and, as a result, this beach becomes completely inundated, so that boats can almost reach the settlement, from its northeast sector, without major effort (Fig. 5.4).

Furthermore, when the water level rises, it would have also been possible to navigate through the Chinikihá stream and reach the central sector of the settlement through various landing points where natural gullies facilitate the climb from the river to the settlement. Within the monumental core of Boca Chinikihá, these smooth accesses from the stream seem to have been marked by low, isolated, platforms: Structures 7, 11 and 13 (Fig. 5.2). I consider these possible transportation facilities, related to the access, loading and unloading of people and goods to the settlement. It is also worth notice that Structures 11 and 7 have the same orientation and position with respect to the gullies, reinforcing the idea that their function was somehow auxiliary to the circulation from the stream to the settlement and vice versa.

**Structure 7**

Structure 7 is a large platform, approximately 35 meters wide, 39.7 meters long, and 0.8 meters high, located about 8 meters southeast of the ball court (López Mejía et al. 2012). It lies on a low but pronounced promontory on the ridge of the escarpment that slopes down toward the Chinikihá stream (Fig. 5.2). During the rainy season, when the water level of the Chinikihá rises, flooding part of the steep slope,
the platform is only a few meters above the water level and thereby easily accessible from a natural gully between structure 6 and 7.

Here, a series of cut stones, arranged along the edge of the gully, were visible from the surface, and I decided to test a small section of this stone alignment, at the edge of the slope for evidence of remodeling, related to improve the movement toward de site, such as steps, ramps or slipways (cf. Chapter 4, fig. 4.24). Although the presence of

![Fig.5.4. Picture of motorboat moored near Structure 4 during the rainy season and its approximate location in the map.](image-url)
cut stones indicate a human-made effort, the altered context did not allow me to recognize any specific function\(^{13}\).

**Structure 11**

About 150 meters southwest of Structure 7, Structure 11 is located in an analogous position to the former. Quite smaller than Structure 7, Structure 11 measures 18.8 meters in length, 13.5 meters in width and is 0.4 meters high. Along with Structure 10, which I describe in the following section, structure 11 mark the sides of a gully that leads to the Chinikihá stream and is located about 40 meters above the limit of the area flooded during the rainy season.

**Structure 13**

Structure 13 is a small quadrangular platform, which measures 11.3m in length, 11.2m in width, and it is approximately 0.4m high. It is located in the southern sector of the site, on the southern side of a narrow gully that offers access from the Chinikihá stream to one of the largest compound of the settlement, composed of Structures 15, 16, and 17. This small platform seems also related to Structure 14, a tall pyramid at the east end of the southern sector of the settlement (Fig. 5.3: Area 3). Excavations carried out in the space between Structures 13 and 14 produced evidence of domestic materials, such as fragments of grinding stones, figurines and pottery (cf. Chapter 4). This made me doubt the functional independence of Structure 13 and suggests some kind of role, as an ancillary platform, related to Structure 14. However, its position near a Chinikihá inlet or narrow channel, might offer a further explanation connected to providing the large residential/administrative area of Structures 15, 16

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\(^{13}\) For a detailed description of the procedure and findings of this excavation, see Chapter 4.
and 17 – discussed later in this chapter – with a direct and controlled access to the watercourse. Considering that the complex is located near the steepest slope of the terrace, it seems plausible that the inhabitants of this sector had used this access to the stream, at least during its navigable season. In a similar fashion, Caroline Tate suggests that, at Yaxchilán, similar small platforms behind the residential areas near the Usumacinta might have been used to provide the inhabitants with direct access to the river (Tate 1992).

Other Transportation Facilities in the Valley

Other constructions possibly related to transportation have been detected in the valley. These are sites S2E12-508 and S2E12-509\textsuperscript{14}, two groups of structures, initially recorded as individual sites, but that might well be part of Boca Chinikihá (Fig. 5.2) (Silva de La Mora and Mirón Marván 2009). The first one corresponds to an isolated earthen platform located at the confluence of the Usumacinta and the Chinikihá, on the modern town’s side of the settlement. Although its function is difficult to ascertain, since it is poorly preserved, and the only associated materials were a handful of obsidian prismatic blade recovered during its mapping, its location at the union of the two watercourses might bespeak a controlling point for river traffic, including any boat approaching the settlement.

The second construction (S2E12-509) includes a low platform with two superstructures in front of Structure 10, on the other side of the Chinikihá stream, about 10 meters from the slope that leads to the riverside (Fig. 5.2 and 5.3). The project surveyors found the constructions full of modern garbage from the community,\[14\] PIPSP-PREP sites first recorded during survey are named based on a code formed by the grid quadrant in which they are located, with respect to the survey map (S2E12) and a consecutive number (508, 509) (Lopez Mejía 2011).
one of which had been heavily looted (Silva de la Mora and Mirón Marván 2009). Although the evidence is too scant to propose any realistic hypothesis of function, my suggestion is that this group might have been an auxiliary checkpoint for canoes arriving at Boca, in conjunction with Structure 10.

**Inland Circulation and Infrastructures**

Once disembarked at Boca Chinikihá, circulation continued west through the Lindavista Valley toward Chinikihá, Palenque and other western lowlands sites via inland routes. The valley constitutes a natural corridor *per se* easy to cross. However, during the rainy season, various sectors of the valley turn into swamp. Silva de la Mora (2011) identified various routes in the region, running along the sierra foothills. These partially natural, partially modified paths follow natural fractures in the karst terrain to create elevated, sometimes plane surfaces. He performed a least cost analysis to buttress his hypothesis and it resulted that most the preferable routes actually overlapped with the elevated paths he recognized during the surveys. Of the three main routes he identified, one seems to connect Chinikihá with various secondary sites to the west and with the Usumacinta to the east, through the Lindavista Valley, reaching Boca Chinikihá (Figs. 5.1, 5.5). Interestingly enough, most of these routes run parallel to the watercourses of the region, suggesting that alternative movement along the rivers and through inland routes was possibly part of the same communication circuit. In this context, Boca Chinikihá might have grown into the large settlement that it became in the Late Classic, thanks to its favorable position within this regional mobility network.
Control of Movement and River Traffic at Boca Chinikihá

If several structures at Boca Chinikihá, and the site position itself, were meant to facilitate movement to and from the watercourses, and to the interior region through the Lindavista Valley, this circulation did not occur without a watchful control. I postulate that some of the larger buildings at Boca functioned as controlling infrastructure for people and things that approached, moved through and left the settlement. Although this was not their primary purpose, I propose that the acropolis complex, composed by Structures 22, 23, and 24, as well as Structure 10, and the twin structures on top of the pyramid of Structure 4 functioned as control points for movement. The following discussion examines these three areas.

Structures 22, 23 and 24 - The Acropolis Complex

Structures 22 to 24, plus ancillary platforms 20 and 21, formed a huge pyramid complex located on a natural hill remodeled with stone walls and terraces (Fig. 5.2). The basal construction (Str. 23) supports two pyramids, Structures 22 and 24, respectively 10 and 14 meters high. The whole complex reaches a total height of approximately 30 meters from the ground level (López Mejía et al. 2011, 2012). This huge complex dwarfs any other structure of the settlement and from its summit—despite the current presence of thick vegetation—you have a good view of both the Chinikihá stream and the Usumacinta, before the latter bends toward the Boca del Cerro canyon (Figs. 5.1., 5.2).
Fig. 5.5. Map showing regional settlement distribution and route locations as resulting from Least Cost Path Analysis (routes in green). Boca Chankilú is located on the east side of the map (in red) at the end of one of the routes. The valley of the Tulijá river was not included in the survey (adapted from Silva de la Mora 2017)
Despite this being a working hypothesis that still needs testing, I propose that the double pyramid complex was also visible from the river and for a large tract from the Lindavista Valley too. On its top, pyramid Structures 22 and 24 were constructed with large blocks and might have included vaulted rooms and roof combs now collapsed (Campiani, personal communication, April 2015). Between the two pyramids, lies Structure 23a, formed by a basal platform and a C-shaped superstructure, which faces the terraced stair that give access to the summit of the complex from the east. A narrow passage separates the remodeled hill where this complex is located from the northern chain of hills that bounds the site to the north.

A smaller pyramid, Structure 27—about six meters high—is located on a lower level of the terrace and restricts this passage. Finally, two small platforms—Structures 20 and 21—adjoin the southern side of the pyramidal complex at its base. I propose that not only the acropolis complex at Boca, which is located on the northern sector of the settlement, functioned as visible reference within the settlement and in the surrounding valley, but that it also watchfully overlooked the circulation within the site, the valley, and along the watercourses.

Several scholars have noticed the importance for the ancient Maya of elevated buildings and visibility (Doyle et al. 2012; Landau 2015). Various authors have also highlighted the importance of seeing as sensuous experience, and the link between the act of seeing and royal power (Houston et al. 2006); the act of seeing and being seen during particularly powerful ceremonies, for example, was at the same time reinforcing and constituting the rightness of such events (Landau 2015). For this reason, important events were carried out in very visible and elevated spaces, such as pyramid stairs or their summits, and these buildings were active parts of the
performances (Plank 2004). These spaces also functioned as landmark points within a political landscape where it was important to see and be seen, as an act of control and surveillance. Various examples are known of referential buildings that, although not necessarily created for this purpose, offered a commanding view over their surrounding territories and inhabitants, and at the same time functioned as landmarks.

The Temple of the Inscriptions at Palenque, for example, is visible from several points in the valley below and to the north, along the path that leads west to Santa Isabel and other surrounding sites. A further example is Pyramid O-13 at Piedras Negras. As George Andrews suggested, this building offered a magnificent view of the Usumacinta from the temple located on its top (Andrews 1975: 137), and although its primary purpose was not controlling movement, the latter might well have been a secondary function. As seen in Chapter 4, access to Piedras Negras was mainly from the valleys on its north and west sides, and the bulk of its riverine traffic arrived at the nearby site of El Porvenir (Kingsley et al. 2010). However, a small amount of traffic might have reached the capital via the river. Pyramid O-13 is located at the end of a gully that from the riverbank opens into a wide plaza, and it could have marked the access from the Usumacinta to the plaza, providing a directional reference for people entering Piedras Negras (Fig. 5.7). A similar point can be made about other structures in riverine settlement within the Usumacinta region and elsewhere, as I discuss in Chapter 6.

Following this line of thought, I therefore suggest that the architectural complex formed by Structures 22, 23, and 24 at Boca Chinikihá, in addition to being an important elite building and ceremonial fulcrum for the community, also functioned as lookout for access and traffic.
This group was a landmark and directional referent for people approaching Boca Chinikihá from the river and the Lindavista Valley.

**Structures 10 – 10a**

Structures 10 and 10a constitute a different type of controlling facility. This complex is located in what I defined as Area 2, next to the wider gully that from the Chinikihá leads to the settlement core (Fig.5.2). The two constructions create a huge compound of a two-level platform, about 80 meters long, 45 meters wide, and 2.3 meters high, which supports a C-shaped structure measuring about 22 x 27 meters. Except for the C-shaped structure (Str. 10a), which closes the west side of the complex, the architectural assemblage is open on its other three sides and faces the Chinikihá stream. The eastern limit of the two-level platform is bounded by steep slope, whose bottom end reaches the watercourse, about 15 meters below. The
northern and southern sides of the lower level platform, by contrast, are easily reachable from the gully that, as previously mentioned, descend gently toward the stream, offering a smooth access to and from the watercourse. On this side of the double platform, there is evidence of retention constructions that seem to frame and mark the limits of the slope (cfr. Chapter 4). During the dry season, the distance of this complex from the stream is about 60 meters, but when the water of the Chinikihá rises during the rainy season, it becomes easier to reach the site core and the wide gully facilitates movement. Structures 10 and 10a are, therefore, in an optimal position to check who and what are approaching the settlement.

Furthermore, a large monolith, about one meter high, without sign of having been artificially modified, is located at the limit of the lower level of the platform, near the edge of the escarpment (Fig. 5.7). According to local informants, this stone has “always” been there and, although no excavation was carried out around the monolith to test its antiquity, I suggest that –if its antiquity is proven - it could have

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*Fig. 5.7. Picture and location of the monolith found on the lower platform of Structure 10 (image not to scale)*
functioned as a stone marker, indicating a control point and/or offering directional reference for people accessing Boca from the Usumacinta through the Chinikihá stream.

The location of inscribed as well as aniconic stelae at important traffic positions, such as causeway crossing, and accessing points has been recorded at various Classic Maya sites, such as Maax Na, in Belize (King and Shaw 2003; Shaw and King 2015); Quiriguá (Ashmore 2007); Copán (Stela J, Ashmore, personal communication, March 2012); Aké, in the Yucatán Peninsula; Xunantunich (Keller 2006), and the cluster of stelae at the juncture of the three causeways at Ceibal (Ashmore, personal communication, March 2012). Some scholars suggest that in these contexts stelae might have functioned as directional markers to channel movement along causeways, indicating accesses from the river and transition points, as well as demarcating administrative spaces such as marketplaces (Shaw and King 2015). A similar purpose might have had the carved outcrop located on the river escarpment near Piedras Negras (Taube, personal communication, February 2018).

Excavations on the surface of the double platform validated our first impression that the surface was empty of constructions, except for the C-shaped structure on the back. All these data allow me to suggest that this complex might have been a checkpoint, as well as an area of loading and unloading of people and goods to and from canoes. People would have passed under the supervision of whoever was in charge of controlling the traffic in order to reach the shore and load or unload cargo.

**Structures 1 to 6 and Plaza I**

Structure 1 is a basal platform, about 5.5 meters high, adjoined to the two-level terrace buttressing the base of the hill that closes the north side of the site, where
the Acropolis complex is located (Fig. 5.2.). This construction supports Structure 1a, a heavily looted pyramid, about 2 meters high, with evidence of having been vaulted and decorated with painted stucco. East of Structure 1, separated by a narrow passage that leads toward the Usumacinta riverside and beach, stands Structure 4, a tall pyramid, about 4.5m high, which sustains two platforms - Structures 4a and 4b - respectively, 2.5 and 1.2 meters high. Structures 5 and 6 are two elongated platforms that close the southeastern limits of the site, where the terrain abruptly slopes down toward the Chinikihá stream. This group of structures (1, 4, 5, and 6) enclose an informal plaza (Plaza I, fig. 5.14) whose southwest end is limited by Boca’s ball court (structures 9 and 8). Two small platforms, Structures 2 and 3, are also located in this informal plaza. Structure 2 is a low platform adjoined to the base of Structure 1, while structure 3 is a low, quadrangular platform located almost in the middle of the open space. About 45 meters southwest of Structure 6 stands the only ball court recognized in this settlement, formed by parallel Structures 9 and 8. The ball court connects this northeast area with the central sector of the site, where Structures 10 and 10a and the pyramidal complex are located.

The presence of two tall pyramidal structures (Structures 1 and 4), and a ball court, the fact that this space is easily accessible from the Usumacinta (through the narrow passage between structures 1 and 4), as well as from the Chinikihá stream, (through a smooth slope between the ball court and Structure 6), suggest me that Plaza I constituted a civic-ceremonial space for the community, and that Structures 1, 4, as well as the ball court were the loci of public events attended by people gathered in the plaza. Although it is difficult to pinpoint the specific nature of the events carried out in Plaza I, its location, accessibility, and architectural characteristics, common to other
civic plaza plans identified in the region (Campiani 2014; Flores Esquivel 2011; Liendo Stuardo et al. 2014), and elsewhere in Mesoamerica (Ashmore 2014; Ashmore and Sabloff 2002; Inomata and Tsukamoto 2014), as well as give me confidence to interpret this area as a civic-ceremonial space.

As a secondary purpose, Structures 4 and 1 might have also functioned as lookout locations to observe movement along the Chinikihá and Usumacinta rivers, as well as people approaching the settlement core through such watercourses. It seems to me, therefore, that the urban layout of Boca Chinikihá was particularly focused on monitoring movement and access to and from the watercourses, as well as circulation along the Lindavista Valley. Its major buildings are oriented toward these communication routes, and their towering position offered a commanding view over the surrounding landscape, at the same time as functioning as powerful reminder of this potential watchful control. In the next section I present the results of a series of viewshed analyses I performed in order to test this hypothesis.

**Assessing Control of Movement and Visibility at Boca Chinikihá through Viewshed Analyses**

Scholars interested in landscape archaeology have largely used viewshed analyses, since the latter allow determining which areas can theoretically be seen from one or more specific viewpoint locations in a map, creating an output map with visible and invisible areas (Conolly and Lake 2006; Wheatley and Gillings 2002). These analyses have been especially appreciated by approaches focused to understand the perception that ancient inhabitants had of their landscape through bodily movement nd

For Boca Chinikihá, I tested my hypothesis that some buildings functioned as controlling points for people moving through the valley and approaching the settlement from the watercourses, performing a series of viewshed analyses elaborated through a GIS on a Digital Elevation Model (DEM) of the site and region.

I first proceeded to elaborate a digital elevation model (DEM) of the site and the surrounding valley. The rendering was based on two sets of contour maps, a regional map from INEGI (the Mexican National Institute of Statistics and Geography) where elevations were recorded every 20m, and the topographic map of the settlement core elaborated by our project, in which the contour lines were recorded every 2 meters. After creating the DEM, I elaborated three single viewshed maps, one for each of the main landmarks at Boca: the Acropolis complex, Structure 4 and Structure 10 (Figs. 5.9, 5.10, 5.11.). Wheatley and Gillings point out that viewshed maps show associations between the locale feature chosen and the area of visibility, although this needs not to be taken necessary as the primary cause for the construction (Wheatley and Gillings 2002: 86).

This seems also true for Boca, whose referential buildings, such as the Acropolis complex, and Structure 4 were probably constructed for other reasons, and their preferential view over sections of the Lindavista Valley and the river was a secondary consequence.
Fig. 5.8. Viewshed map showing potential field view from Structures 23 and 24 at Boca Chinikihá.

Fig. 5.9. Viewshed map showing potential field view from Structure 4 at Boca Chinikihá.
Fig. 5.10. Viewshed map showing potential field view from Structure 10 at Boca Chínikihá.

Fig. 5.11. Viewshed map showing potential field view from the main structures at Boca Chínikihá.
Later, I elaborated a multiple viewshed map that integrated all the visible space from these three locations (Fig. 5.12). This provided me with a very rough approximation of what was visible from the main landmarks of the site, since I did not consider, for example, any obstructions in the form of vegetation and the like. Despite the simplicity of my analysis, some interesting considerations emerged. For example, before I ran the analysis, I assumed that the most commanding view from the Acropolis complex was toward the watercourses, but after I analyzed the viewshed maps it appeared that the wider view field was actually in the direction of the Lindavista Valley (Fig. 5.8, 5.11).

In general, it emerges that large tracts of the Lindavista Valley were visible from almost all the landmark points, which I had initially thought were controlling the access to and from the rivers. It seems, therefore, that a major concern could have also been controlling the traffic along the valley, which connected the watercourses to the northwestern lowlands and the sites of Chinikihá and Palenque. Various authors have warned against the unquestioning acceptance of these visibility maps as actual ancient scenarios, and therefore many proponents of viewshed analysis suggest that these should be considered as a probability surface of visible space, more than real representations of a view field (Wheatley and Gillings 2002).

Other caveats mentioned by specialists include pragmatic, procedural and theoretical issues (Conolly and Lake 2006; Doyle et al. 2012; Richards-Rissetto 2010; Wheatley and Gillings 2002). Some of these are the accuracy and precision of the digital elevation model, the data and parameters used, paleoenvironment and vegetation reconstructions, as well as theoretical concerns related to the actual ability
to grasp ancient perception of the landscape, and, finally, the prominence of sight over the other human senses (Conolly and Lake 2006; Wheatley and Gillings 2002).

Despite the previous concerns, I agree with Wheatley and Gillings in considering viewshed maps as representations of a possible visible space and, therefore, a plausible approximation to its ancient perception.

Furthermore, as already noticed by other scholars who applied viewshed analyses in the Maya region (Doyle et al. 2012; Landau 2015; Richards-Rissetto 2010), it seems that sight for the ancient Maya held a paramount position compared to the other human senses (Houston et al. 2006). The act of “seeing” and “being seen” was in fact a constituent part of the ceremonies carried out by rulers and nobles in highly visible spaces (Landau 2015: 277). Elevation and vision were directly related with power (Houston et al. 2000: 175), and the control of and from elevated architectonic landmarks offered, therefore, a control tool over the surrounding people and landscape.

**Potential Elite Residence, Storage, and Distribution Facilities at Boca Chinikihá**

The third sector of the site (Area 3) consists of a large double patio architectural complex, with several adjoined and superimposed structures, located on the southwestern end of the settlement (Fig. 5.3). I propose that this complex, along with the large, informal plaza that it overlooks, functioned as the administrative center and residence for Boca’s elite, as well as possible short-term storage and distribution facility. This architectural group includes Structures 15, 16, and 17 and their related superstructures. Two small platforms, Structures 18 and 19 are located a few meters
northwest of the double patio compound, whereas Structures 14 - a high pyramidal platform - and 13, a low platform, are located a few meters east of Structure 15 (Fig. 5.2).

I propose that Structures 15, 16, 17, with their substructures, formed an elite residential compound, but since no extensive excavations have been carried out within the complex, the following discussion constitutes a working hypothesis that needs testing through future investigations. The main architectural features are two large adjoined patios, which close the northwest side of the complex. Whereas the southern and larger patio, Structure 17a, measures 29x24 meters, with an internal open area of 696 m², the northern one, Structure 17b, measures about 24 x12 meters, with an internal space of 288 m². The rectangular platforms that enclose the two patios are about 2 meters high. Southeast of the double patio is an elongated platform with a “C” shaped structure on top, facing north (Structures 16 and 16a). The compound is closed on its east side by a squared platform (Structure 15) that supports a series of structures: a large mound (Structure 15d) and three long platforms limiting its north, east and west sides (Structures 15a, 15b, 15c).

Based on its layout, I suggest that this compound could have been an elite residence and, at the same time, have concentrated administrative and public functions. Structure 16, for example, might have been a locale for holding public audiences. Its superstructure, Structure 16a, in fact, is a large C-shaped construction, facing a wide open plaza (Plaza III, cf. Fig. 5.14) that could have gathered a large crowd. The two patios, on the other hand, seem very secluded and difficult to access from the outside plaza, since no clear stairways are visible from the adjacent plaza, and, for this reason, could very well have been private residential areas. It is also
possible that these open spaces served as temporary storage places, possibly with some internal, perishable subdivisions. Their secluded position and difficult access from the plaza, along with the protection they benefit from the steep slope toward the Chinikihá stream on the south side, made this complex a perfect location for an elite residence, administrative building, as well as a storage facility, especially if considered in association with the large plaza they enclose.

In terms of storage facilities and palace economy, Patricia McAnany (2010:197) citing Michael Smyth (1996), suggests that Maya and Mesoamerican royal courts prior to the Mexica did not stockpile vast amount of goods, but rather provisioned themselves through "appropriation storage." Specifically, goods and food were stored locally and then passed up the storage hierarchy to noble and royal houses as demanded. For royal courts located in a tropical environment where spoilage and insect/rodent infestation are chronic problems, this type of decentralized storage would have been especially efficacious (McAnany 2010:197). Storage might have taken place for short periods or as a temporary transition to other places. She also suggests that a large part of a royal palace space was assigned administrative functions, not residential (McAnany 2010). This idea has been proposed for various Maya “palaces”, such as Palenque (Liendo Stuardo 2003; Liendo Stuardo et al. 2014), Aguateca (Inomata and Triadan 2003), and Cancuen (Demarest 2014). At Boca, I propose that the unusually large size of Structure 17’s patios might be related to the commercial nature of the settlement and that this space, at least the larger patio of Structure 17a, functioned as multipurpose, storage/administrative facility, receiving items directed to the elite residence, as well as materials meant to circulate within and outside the center. To test this idea, I ran a comparison with this structure and all the
other patio groups of the region, benefiting from the project large database and previous architectonic analyses carried out by Arianna Campiani, as part of her Ph.D. dissertation research (Campiani 2014). First, I selected all the architectonic groups of the region that were categorized as patio groups; this produced 336 (excluding Boca Chinikihá) records. Within this group, I selected those patio groups whose internal area was as large as or larger than Structure 17a, whose patio measures about 696 m². Therefore, I looked for patios whose internal open space measured 600 m² or more. This query produced a smaller group of 21 elements. In terms of architectonic characteristics, however, this group includes both informal open spaces, limited by two or more structures, as well as formal internal patios, bounded on the four sides by enclosing rectangular structures. When I took into consideration only examples similar to Boca, with a patio open space of at least 600 m² and bounded on the four sides, at rank 2 sites, only three records emerged. These compounds are: SUL/1, at Sulusum, and CHK/D78 at Chinikihá. These two spaces exceed the open area of Structure 17, since they measure, respectively 3400 m² and 1734m². The buildings that bound these spaces include a large, elevated pyramidal building, and three long, low platforms that completely enclose the space (Fig.5.13) leaving a narrow, secluded entrance on the side, plausibly easy to control.
I believe that the open spaces at SUL/1 and CHK/D78 might have functioned as enclosed plazas, possibly holding periodic markets. The site of Sulusum does not share any other elements of monumental architecture, but it is located only 750 m north of the Chacamax River, an important waterway in the Northwestern Maya Lowlands. I suggest, therefore, that the site might have been a commercial node in its subregion. The similar complex at Chinikihá, CHK/D78, on the other hand, measures almost double that Sulusum’s, but this can be related to the higher rank of the larger site. This area is also near to two water sources: the Chinikihá stream, which runs about 500 m to the south, and a natural *aguada*, located east of the complex. Compound CHK/78 is also strategically located next to the internal path that allows circulation within the settlement and that it is now cut by the modern road (Campiani 2014; Liendo Stuardo, personal communication April 2016). These lines of evidence incline me to suggest that these two areas might have functioned as local marketplaces for the settlements and surrounding communities. I intend to pursue this line of investigation in future research.
An important aspect that I purposely omitted to this point is comparing Boca’s residential complex to the other two large residential, elite compounds of the region: those of Chinikihá and Palenque. Chinikihá’s palace, similarly to Boca’s structure 17, has a double patio, whereas Palenque’s palace incorporates two interconnected and one independent patios\(^{15}\) (Fig.5.13). The total area of the palace patios at Chinikihá is approximately 100 m\(^2\). Both patios are secluded and difficult to access. The structures that limit the patios are well cut masonry buildings, with vaulted rooms, located several meters above the level of the patio floors, which made the patios accessible only through internal stairs from the palace rooms (Campiani 2014: 84). Furthermore, a deep midden was found behind the eastern structures of the palace at Chinikihá (Liendo Stuardo 2011, 2012). These elements suggest that this complex was most probably a residential compound for the elite of Chinikihá.

A similar argument can be made for the palace of Palenque. Here the combined total open space of its patios is about 600 m\(^2\), which barely correspond to the larger patio at Boca. However, there is no doubt about the paramount importance of the palace of Palenque within the regional political system, and that it was the fulcrum of the regional politics during the Late Classic. Liendo Stuardo (2003; Liendo Stuardo et al. 2014) suggests that the palace of Palenque was multifunctional, probably administrative and politically representative residence, and that its internal patios were meant to host private events, which few, selected people could attend. Furthermore, as for Chinikihá, a large midden with refuses of varied domestic

\(^{15}\) Despite the problematic origin and nature of the term “palace”, this is a well-established category used in Maya archaeology to define architecturally sophisticated, multichambered structures, often located in prominent locales within a site, whose function seems to have been multipurpose: residential and administrative for Classic period elites (often the royal family) (cf. Campiani 2014; Christie 2003; Gendrop 2001; Inomata and Houston 2001, among others).
activities, was found in the southeastern section of the Palenque’s palace (Liendo Stuardo 2003), reinforcing the idea that at least in the Palenque region these two “palaces” represented multipurpose, elite residential units. Consequently, it seems plausible as hypothesis that, although on a different scale, the activities carried out in the patios of the Palenque and Chinikihá palaces were mutually similar, whereas – in my opinion - the open spaces at Boca Structures 17a and 17b had a different purpose. Furthermore, the amount of construction investment at both Palenque and Chinikihá palaces largely exceeds Boca’s. For example, I found no evidence of vaulted or masonry buildings for Structure 17 at Boca, elements that abound at both Chinikihá and Palenque.

Based on the scarce amount of rubble on the surface of Structure 17, I suggest that its superstructures were made of perishable materials, possibly with a stone base. Additionally, considering the relatively simple architectonic characteristics of this
complex, compared to its large measures, it is interesting to recall what Sabloff and Freidel (1975) argue about the commercial center of Cozumel. They suggest that elites at centers with a strong commercial focus might have not invested largely on monumental architecture, but rather in infrastructure important for the prosperity of the commercial community. It is therefore possible that elite at Boca did not have the interest, or the authority, to invest in large construction work to reinforce their political authority, as happened in other major centers. Rather their interest or political role was to maintain an efficient system of control, communication, and storage facilities for the region. This seems to me an interesting assumption that needs further investigation through future excavations.

Summarizing the evidence presented, I argue that the Structure 17 at Boca was not meant as private residence and that its larger patio, Structure 17a, had an administrative and storage function connected with the role of Boca as commercial node in the region. This unusual large space with possible internal perishable subdivision and/or stalls, similarly – but on a smaller scale - to what Chris Jones (2015) suggests for Tikal, might have been used to temporally store items that were entering or leaving the settlement through its water and inland communication routes, and that might have need special supervision. In addition, Structure 16, the large C-shaped elevated platform, facing the plaza, might have served as administrative or audience-like facility, based on its configuration and location. By contrast, the more isolated and secluded southeastern sector of the complex, composed by Structure 15 with its Superstructures, 15a, 15b, 15c, might have functioned as residential facilities for noble and high-status people at Boca.
In this framework, I also suspect that the large plaza formed by Structures 14, 15, 16, 17 (Plaza III, fig 5.14) could have functioned as a gathering and market space. Excavation in the open space in front of Structure 12, a small platform almost at the center of the “plaza”, produced huge quantity of obsidian and the gullies next to Structures 13 and 11 might have offered a direct access from the Chinikihá stream to this sector. Liendo Stuardo and colleagues (Liendo Stuardo et al. 2014) carried out a study of the plaza capacity of first and second rank sites in the Palenque region to assess the possibility for accommodating people to attend public events. They found out that in the majority of the cases plazas’ capacities exceeded the resident population for the area of influence of the specific site (ibid: 116). The analysis also shows a significant correlation between the capacity of the plaza and its local surrounding population. So, people living in surrounding settlements moved to major and minor centers periodically to gather for religious, political or economic events. They consider the total area of various open spaces at the sites of Palenque, Chinikihá, and other second rank sites in the region, including Boca Chinikihá. What emerged from their study is that, as expected, the two major sites, Palenque and Chinikihá had a total plaza capacity that surpasses the estimate of their surrounding population. What seems more interesting, though, is that the calculated plaza areas at rank two sites by far exceed the number of people living in their hinterland.

At Boca, the study considers three open plazas: Plaza I, which consists of the informal plaza in the northeast sector of the site, limited by Structures 1 to 9, Plaza II, the open space between the acropolis complex and Structure 10, and Plaza III, bounded by Structures 14, 15, 16 and 17 (Fig. 5.14). According to Liendo Stuardo and colleagues’ calculations, after Palenque, Boca Chinikihá has the largest plaza area in
the region, with dimensions very similar to the one calculated for Chinikihá, the only other rank 1 site of the region, but far larger than any other regional rank 2 site. Furthermore, its plazas have the highest population capacity, although the population estimate for its surrounding region does not exceed the average of other rank two sites hinterlands. Especially suggestive is Plaza III, whose area of 10,000 m² is comparable only to Palenque’s and Chinikihá’s plazas. It is difficult to believe that such a wide space responded to the needs for public gatherings of the same nature of those at the two main political centers of the region. For this reason, I suggest that this area was intended to accommodate activities and perishable infrastructures needed during market days.

Fig. 5.14. Map of Boca Chinikihá with plaza areas as proposed by Liendo Stuardo et al. 2014 (adapted from Liendo Stuardo et al. 2014)
These might have included temporary stalls, and simple petates to organize and show merchandises, space to walk around among the stalls, all possibly under the watchful eye of people superintending these activities from the double-patio complex and adjoined structures. Finally, the plaza is easily accessible from the Lindavista Valley from the west, but still under the control of the acropolis complex, and it is also conveniently near the Chinikihá stream that, although not always navigable, offered easy access to water needed for a variety of activities in a market, such as washing, crafting, and food preparation, among others.

What all this suggests to me is that Boca Chinikihá’s urban layout seems to have been planned with the idea of gathering large amount of people in its open spaces. However, considering the low amount of surrounding population for Boca’s region, it seems that the settlement was receiving people from more than its own immediate hinterland. These people might have congregate at Boca for several reasons. One explanation that seems very plausible to me is that the settlement had an important role as communication, and exchange center in the region, often in conjunction with other public gatherings.

Conclusions: Movement at Boca Chinikihá

In this chapter, I presented geographic and architectonic data to test my hypothesis that Boca Chinikihá was a community oriented toward its riverine and inland communication routes. These tests support the hypothesis. The site position, urban layout and architectural features bespeak a series of functions connected to the organization and control of circulation within and through the settlement, as well as linked to the organization and distribution of goods. The Lindavista Valley was one of
the many valleys that facilitate movement in the region from the Usumacinta to the eastern and western regions, and Boca Chinikihá was strategically located on its western end. Furthermore, the interpretation of some of the site’s architectural features as transportation, controlling, and distribution facilities might illuminate why a relatively small secondary site (in terms of size and provisional population estimate), with a low density of nearby potential residential units, presents an unusual pairing of construction effort and architecture monumentality. Although riverine port facilities have not been deeply studied in Maya archaeology, recent investigations have started to demonstrate that such evidence exist and that the topic deserves deeper consideration. Additional and specific analysis at Boca, such as extensive excavation of the patio areas, and chemical analysis of patio and plazas floors, will shed new light onto the activities carried out in these spaces and hopefully buttress my hypothesis that Boca was an important riverine port and circulation node within the discontinuous communication system of the Usumacinta region.

Boca was probably not the only settlement that fit this role in the region, and other sites with similar characteristics could have existed. The next chapter focuses on the evidence produced by other investigations about the existence of riverine facilities and ports along the Usumacinta, as well as in the wider Maya region.
CHAPTER 6
THE INFRASTRUCTURE OF MOBILITY: EVIDENCE FOR RIVERINE PORT FACILITIES IN THE MAYA LOWLANDS

According to geographer Brian Hoyle, ports represent the timeless interdependence between environment and society and constitute a fundamental element in the spatial structure, organization and reorganization of economies and societies, and in the relationships between those societies and their environments (Hoyle 1998: 264).

Hoyle further defines a “city-port” as a locale where goods are transferred across the land-water interface, and whose function is common through time (ibid: 266). He also argues that in pre-modern societies there was no spatial and functional separation between cities and ports, in a “primitive city port” the two functions of urban community, and commercial-communication node were not separated16 (ibid: 268). A topic of discussion among specialists is the priority between geographic location and commercial needs that underlies the location of a premodern port. Hoyle and others contend that there is not necessarily a close geographical coincidence between natural harbours, and port development, for ports originate and grow where trade demands their facilities, rather than where nature provides an appropriate local framework (ibid.; Rickman 1985; Weigend 1958). I would argue that, in antiquity, this might have been true for cases where high level of infrastructure was available, such

16 English specialized literature distinguishes between modern port cities and city ports. A port city is a city that also functions as a port. A city port refers to a city that has a port for its primary growth mechanism (i.e. Rotterdam and Le Havre). A further important terminology distinction exists between harbor and port. Harbor is an area of water partially enclosed and protected from storms, whereas a port also provides safe and suitable accommodation for vessels seeking refuge, supplies, repairs, transfer of cargo. A port indicates a sheltered harbor, where facilities are provided. It can consists of piers and wharves to load and unload cargoes, warehouses, and storage areas.
as some Roman, Greek and Medieval ports. Rickman (1985) offers the examples of Roman and Medieval ports such as Luna in Tuscany and Narbonne in southern France, both several km inland but connected to the sea through channels and located near important communication routes and economic points, such as Carrara's marble quarries in the case of Luna. For societies with high level of technological advancement in port infrastructure, it was possible to create ports far from coastline or waterways, whereas, in other pre-modern societies, where port infrastructures were less sophisticated, location was pivotal, and people relied more on vicinity to waterways, as it seems the case for Mesoamerican societies. However, even within societies with specialized and technologically advanced ports, some scholars believe that most of the navigation was carried out without a lot of infrastructure. George Houston (1988) discusses ancient Roman ports and ships, and notices that the large port complexes of the Roman world were actually an exception, and the majority of mercantile and communication activities took place beaching ships landing in spots with minimal man-made facilities.

In Mesoamerica, and especially in the Maya area, evidence of port facilities at coastal sites exist since early periods. Some authors argue that long distance trade was source of development for several communities, which later thrived into trading ports. In the next section I briefly trace the history of port studies in the Maya area, to later focus only on riverine ports.

**Ancient Maya Ports**

Recent research has shown how coastal ports were a reality that emerged far earlier than Terminal Classic and Postclassic period along the coasts of Yucatan and Belize (McKillop 2010). Traditional approaches saw port communities along the coasts of
Yucatan and Belize as the result of the strong commercialism emphasis of Postclassic societies (Sabloff and Freidel 1975). However, recent studies showed that most of these communities had a strong Preclassic and Classic component. Sites such as Xcambó (Sierra Sosa 2015), Santa Rita Corozal (Chase and Chase 2004), Isla Cerritos (Andrews et al. 1988), Wild Cane Cay (2010), Conil (Andrews 2002; Glover and Rissolo 2005; Glover et al. 2015), Uayamil (Inurreta Diaz and Cobos 2003), and Cerros (Freidel 1979; Walker 2016), among others, offer evidence of a landscape in which multiple trading ports existed since the Late Preclassic, probably autonomously, and where long-distance trade between the coast and the interior was pivotal (McKillop 2016). Goods like jade, obsidian, salt, and pyrite moved between inland and coastal sites along maritime and riverine routes. Friedel (1979) and McKillop (2010), among others, further suggest that many of these sites thrived as trading ports to fulfill the need of inland polities for coastal products, such as marine shells, and stingray spines, as well as to facilitate distribution of inland products.

In light of this more dynamic scenario, Anthony Andrews (1990) offered a categorization of coastal communities involved in exchange activities, based on their importance and organization, which includes simple coastal communities, transshipment points and trading ports. He later proposed a series of infrastructures related to port activities present at several riverine and coastal sites, whose identification may clarify the specific role and importance of each community (Andrews 2008). Parallel to the bias that port communities emerged only during the Postclassic, is the issue about their social and economic organization. Traditional approaches describe most of these sites as ports of trade (Sabloff and Freidel 1975), following Anne Chapman’s (1957) application in Mesoamerica of Polanyi’s economic
concept. According to these authors, a port of trade is a specific type of economic enclave that predates market systems, and that offers traders of different origins a safe place to meet and exchange, in a neutral location\textsuperscript{17} (Chapman, 1957; Polanyi 1963). Recently, however, the shortcoming of applying the port of trade concept to Mesoamerican communities emerged. Andrews (1990), for example, has suggested that encapsulating ancient Maya trade into such a specific system is counterproductive, since ports of trade are difficult to identify archaeologically without the aid of written records. Contrary to Old World cases, where detailed documentation about port operations, and economic transactions existed, Mesoamerican economic structures, before Mexica times, are rarely well documented, and have only recently begun to emerge thanks to targeted research questions and the conjoined efforts of multiple disciplines. For this reason, Andrews (1990) and others (McKillop 2010, 2016) propose the more encompassing term of trading ports.

Furthermore, although -as McKillop (2010, 2016) argues- coastal and riverine routes were both enmeshed in long-distance trade, until recently, the organization of riverine trade systems have been less central to such debate. Although structure typologies and functions of structures, as well as good circulation in riverine and coastal ports might be similar, different geographic locations and navigation techniques call for specific discussion. For this reason, in the rest of this chapter I chose to focus only on riverine ports and describe elements in their settlement layout and artifact assemblages that can shed light onto each site’s organization and function within the larger riverine system they pertain to.

\textsuperscript{17} It is important to highlight that to both authors, ports of trade do not necessarily imply a land-water interface. Desert caravan cities, or locations between different ecological zones may also serve as ports of trade (Polanyi 1963).
I approach riverine settlements’ geographic location, urban layout and material assemblages, through three broad functional categories: 1) transportation/communication; 2) control; and 3) storage/distribution. I argue that these functions are partially or completely fulfilled by port communities, depending on their status, and they are recognizable in sites’ material record. Furthermore, the same categories have been used in chapter 5 to describe Boca Chinikihá, and might produce fruitful comparisons. Transportation is the primary function of port communities, where connection between different transportation interfaces occurs. Material evidence includes infrastructure such as piers, dock, roads, ramps, as well as mooring and sheltering features, among others. However, such movement is rarely without control, therefore most port communities include constructions to watch inland routes, settlement entrance, river and sea landing. These elements may be natural, taking advantage of hilltop locations, or artificial. I also suggest that in addition to specialized constructions, other architectural elements might have had the intended or unintended function of controlling movement, such as pyramids, and remodeled terraces. Finally, ports are nodes where people meet and interactions of different forms take place. This interaction can take the form of economic exchange of materials and information. In this sense, ports represent a unique location for economic activities and I suggest that most communities functioned also as exchange hubs at different scale. Evidence of this function is more ephemeral, but recent research has started to reveal traces of marketplace, and possible storage facilities. Material correlates and case studies of these three functions are discussed at length in the following sections. The examples I present are not exhaustive, but they are a representative selection of different riverine systems within the Maya Lowlands.
These examples are summarized in Table 6.1, which includes a list of the Maya riverine sites in which the chosen categories have been identified, organized by riverine system. Figure 6.1 and Table 6.2., instead, offer a schematic map with location and list of these same sites.

**Transportation Infrastructure and Geographic Location**

The first function of a port is connecting land-water transportation modes. Therefore, its location is directly connected to such transportation interfaces. However, some scholars argue that a port position is not as critical as the necessity for the infrastructure and the technologies available to constructors and users. In the ancient Mediterranean world, for example, specialists note that port construction was more linked to economic reasons than geographic locations. French ports like Narbonne and Arles, for example, were far from the coast but connected through canal systems (Rickman 1985). This aspect is connected to the ideas of “hinterland” and “foreland”, respectively the region from which the economic demand originates, and which often produces the traded goods; and the ports toward which the products are directed (Karmon 1985). On the one hand, the economic demand for import or export plays a heavier role than the actual location of the port to be. On the other hand, some authors believe that the majority of waterborne navigation and trade in the ancient Mediterranean occurred with little port infrastructure and with small ships, and that the great Roman and Greek port complexes, such Ostia or Piraeus, were exceptions (Houston 1988). For the Roman Empire, Houston (1988) suggests that beaching, mooring and transshipping at small coastal towns with little or no man-made facilities was the common practice. In this scenario, however, geographic location is pivotal.
<table>
<thead>
<tr>
<th>RIVER SYSTEM</th>
<th>TRANSPORTATION FACILITIES</th>
<th>CONTROL FACILITIES</th>
<th>STORAGE/DISTRIBUTION FACILITIES</th>
</tr>
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<tbody>
<tr>
<td>Three Rivers Region</td>
<td>Blue Creek; Nohmul</td>
<td>Blue Creek</td>
<td>Nohmul; Rio Azul</td>
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<td>New River</td>
<td>Cerro Maya</td>
<td>Cerro Maya</td>
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<td>Belize River Valley</td>
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<td>Buenavista del Cayo</td>
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<td>Pakal Na, Oshon</td>
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<td>Lake Petén Itzá</td>
<td>Trinidad de Nosotros</td>
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<tr>
<td>Pasión River</td>
<td>Cancuen; Punta de Chimino</td>
<td>Cancuen; Tres Islas; Ceibal;</td>
<td>Cancuen; Ceibal</td>
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<tr>
<td>Candelaria River</td>
<td>El Tigre/Itzamkanac</td>
<td>El Tigre/Itzamkanak</td>
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<tr>
<td>Palenque’s Hinterland</td>
<td>San Miguel</td>
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Table 6.1. Table with sites that present one or more riverine port facilities within each riverine system
<table>
<thead>
<tr>
<th>RIVER SYSTEM</th>
<th>TRANSPORTATION FACILITIES</th>
<th>CONTROL FACILITIES</th>
<th>STORAGE/DISTRIBUTION FACILITIES</th>
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<td>Quiriguá</td>
<td>Quiriguá; Las Playitas; Las Quebradas, Morley’s Group A</td>
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<td></td>
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<td>Yaxchilán; El Cayo; Piedras Negras; Budsilhá; La Mar; Panhalé; Pomoná; Boca Chinikihá</td>
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<tr>
<td>Upper Usumacinta River</td>
<td>Yaxchilán; Budsilhá; Boca Chinikihá</td>
<td>Yaxchilán; El Cayo; Piedras Negras; Budsilhá; La Mar; Panhalé; Pomoná; Boca Chinikihá</td>
<td>Boca Chinikihá</td>
</tr>
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</table>

Table 6.1. (cont.’)
Similarly, ancient Maya riverine and coastal communication, was not dependent upon sophisticated transportation technologies. Canoe navigation activities, such as mooring, embarking, disembarking, and portage took place without elaborated facilities, and
<table>
<thead>
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<th>ID</th>
<th>Site</th>
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<tr>
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<td>Santa Elena</td>
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<td>7</td>
<td>La Mar</td>
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<td>Piedras Negras</td>
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<td>Trinidad de Nosotros</td>
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Table 6.2. List of ID and names of sites represented in figure 6.1.
therefore, port location was highly dependent on locales. However, evidence of more elaborated port complexes are emerging in the Maya area. Furthermore, as Andrews (1990, 2008) noted, a high variability occurred in terms of number and quality of facilities related to disembarking, mooring, loading and unloading or transshipment activities. Transportation facilities, such as docks, dams, bollards, jetties, ramps, and artificial channels have been found in various riverine settlements of the Maya lowlands; some as isolated features, some in combination to form larger port complexes and connected to inland roads (Andrews 2008).

Architectural features facilitating embarking, disembarking and transshipping activities have been documented by the archaeologists at several Belizean riverine sites. The sites of Blue Creek and Rio Azul, in the Three Rivers Region, probably functioned as facilities at the head and end points of navigation, along the Río Azul – Río Hondo system. At Blue Creek, located at the head of the navigation of the Río Hondo, Barrett and Guderjan (2006) identified a dam, a dock, and two weirs that might be related to river navigation and to the role of the site as transshipment point. These constructions not only blocked further upstream navigation, but also provided areas for loading and unloading of goods, and for fishing (Barrett and Guderjan 2006). These barriers also allowed people at Blue Creek to exert a direct control on riverine movement. The Río Hondo constituted an important avenue from the Caribbean sea to the Petén lowlands, and it is possible that during the Early Classic the site of Blue Creek, thanks to its docking facility, represented a strategic node along a long-distance communication route (Barrett and Guderjan 2006: 237).
The site of Río Azul, Guatemala, is located on the east bank of the homonymous river, about 40 km west of Blue Creek. The Río Azul is navigable only during the rainy season, and near Blue Creek it runs into a deep canyon where it receives the waters of several springs and turns into the permanent watercourse of the Río Hondo (Adams 1999; Guderjan 2008). Upriver transportation, by contrast, requires portage during the dry months (Adams 1999). Probably to facilitate these activities, the river shows evidence of having been dammed, enlarged and kept clean, possibly since Late Preclassic times (ibid.). Other important transportation nodes that connected inland Belize to Chetumal Bay were Nohmul, Lamanai and Cerro Maya. At Nohmul, a platform near the Río Hondo was interpreted as a possible jetty (Pring and Hammond 1985) and might have facilitated transshipment and navigation between the Río Hondo and the New River through Pulltrouser Swamp. At Lamanai, on the New River Lagoon, archaeologists did not find conclusive evidence of port infrastructure, but Pendergast (1981) proposes that a deep gully along the shore of the lagoon might have functioned as a harbour, since it offers a safe spot to shelter vessels, as well as to load and unload items.

The site of Cerro Maya is located on the Corozal Bay, near the mouth of the New River. Its waterfront presents long lasting evidence of modifications that made it a pivotal trade and transshipment center during the last facet of the Late Preclassic (Freidel 1979; Reese-Taylor 2016; Scarborough 1991; Schele and Freidel 1992[1990]). Excavations at the western end of the site brought to light a large masonry platform, about 20 m wide,

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18 Cerro Maya is better known as Cerros, in traditional literature. However, recent publications on the site and, in general, on the archaeology of the Chetumal Bay, prefer using the name under which the site is listed by the Belize Institute of Archaeology.
with an adjoining rubble jetty that protruded out into the water of Corozal Bay. According to Freidel (1979: 42), the platform and its jetty could have functioned as a docking facility used by the inhabitants of Cerro Maya to load and unload large quantities of goods (Fig. 6.2). Furthermore, artificial canals crosscut the site core, providing water level control and drainage in an easily floodable zone. These canals are bridged at various points by segments of causeways that connect them with residential areas (Scarborough 1991). During the Late Preclassic, Cerro Maya seems to have thrived thanks to its port facilities and became an important node in long-distance trade networks (Reese-Taylor 2016).

Fig. 6.2. Map of Cerro Maya with docking area to the north (from: Walker 2016:57)
Transportation facilities have been also identified in inland regions, such as the lake port of Trinidad de Nosotros, on the north shore of lake Petén-Itzá. The site is located near an inlet of the lake, an area that corresponds to one of the best portage locations to move from the lake to the interior of Petén, through a stream that also connects the important center of Motul de San José with the San Pedro Martir River (Moriarty 2012, 2013). The site has a natural protected harbor, with remodeled terraces sloping down to the lake. Moriarty and colleagues have identified a series of constructions interpreted as harbor facilities, such as an artificial dock, or loading platform adjacent to the lake, a jetty, a man-made breakwater peninsula, artificially filled with stones and partially covered in stucco, retaining walls, as well as a ramp, probably to easily haul canoes and cargo to and from the lake (Fig.6.3) (Moriarty 2012, 2013). The site spanned from Late Preclassic to the Postclassic period (Moriarty 2013; Spensley 2007), however, its apogee occurred when Motul de San José emerged as a regional center, during the Late Classic (Moriarty 2013). Finally, Trinidad is today an important port facility, used as point of transshipment and disembarking by modern chicleros who use the site to transport cargoes of chicle from distant areas of Petén to Flores, through canoes (Moriarty 2004, 2005, 2012, 2013).
Probably the most famous and studied riverine port complex in the Maya area is the site of Cancuen, in the Pasión River system. Cancuen lies at the head of navigation of the Pasión River and constituted an important portage point from the highlands to the lowlands (Demarest 2014; Kovacevich 2006). Investigations at Cancuen have brought to light a series of port complexes located, respectively, north, east and south of the site epicentre (Fig. 6.4.) (Alvarado et al. 2006; Barrientos and Demarest 2007; Demarest 2014; Kovacevich 2006).
The northeast and northwest ports are located on the northern sector of the peninsula on which Cancuen lies, and probably served as head of navigation for inter and intraregional trade exchange (Demarest 2014). The eastern port was connected to Cancuén’s epicenter via a *sacbe*. Here, infrastructure related to port activities consisted of a dock, ramps, and a terrace located just above water level. This could have functioned as a wharf for the transportation of goods to and from the site center (Demarest 2014). This area is about 12
meters above river level during the dry season, but only three meters higher than the water level during the rainy season (Cook 2005). Finally, the southern port provided access to the ceremonial core of Cancuen and to the royal Palace. Considering its restricted access, Demarest suggests that the southern port was related to bringing provisions directly to the epicenter, and possibly marked the entrance for political and ritual visits (Demarest 2014: 212).

A part from the sophisticated port complex at Cancuen, other smaller sites along the Pasión River, provided transportation facilities to and from the river and its tributaries. Sites such as El Raudal, Punta de Chimino, and Tres Islas were probably important transshipment and portaging points connecting the main riverine artery (Bachand 2010; Inomata et al. 1989; Tomasic et al. 2005).

During the Late-Terminal Classic, port activities apparently became more intense along the coasts of Yucatan and the Gulf of Mexico. The riverine site of El Tigre/Itzamkanac dominated the traffic along the Candelaria River, which connected the Maya lowlands to the Gulf Coast. El Tigre lies on a dominating hill on the west side of the watercourse, just downstream of the confluence of the rivers Caribe and San Pedro, which form the Candelaria, and was the Late-Terminal Classic capital of the Chontal Maya in the Acalan province (Vargas 2001). During his research at the site, Ernesto Vargas identified an area with a series of platforms and canals, located north of the site, which he suggests was the city’s port (Andrews 2008; Vargas 2001). This area includes some platforms that reach the river bank, along with few higher structures located on the slopes some meters above, in a favorable position for controlling the disembarking and
loading of items from the canoes to the river. Furthermore, several sabeob seem to connect the monumental sectors with the surrounding bajos. One of these reaches a platform on the bank of the Candelaria River that plausibly served as a jetty. As for Cancuen in the Pasión region, El Tigre was the most complex, but not the only site related to riverine transportation along the Candelaria-San Pedro system. Other transshipment/portaging sites included the smaller sites of Salto Grande, near the Salto Grande rapids, Cerro de los Muertos, Santa Clara, San Roman and Santa Isabel (Vargas 2001).

A region where only recently the issue of port and riverine transportation facilities has been raised is the Palenque hinterlands. Although the Palenque region is replete with perennial and seasonal streams and small rivers, only recently two settlements have been proposed as riverine ports and communication nodes (Balcells 2011; Liendo Stuardo 2011c; Torres Díaz 2017), the sites of San Miguel, west of Palenque, along the Michol River, and Nututum, a center located few kilometers east of Palenque on the Chacamax River (Liendo Stuardo 2011c). San Miguel is located at the confluence of the Michol and Tulijá rivers, in an area that connected Palenque with the Tabasco plains and the Gulf Coast (Balcells 2011). The site consists of 34 platforms located along the Michol River, some of which have been identified as possible piers or embarkation facilities (Fig. 6.5.) (Balcells 2011). Nututun, by contrast, is a higher rank center, about 7 km southeast of Palenque, located on the banks of the Chacamax River (Liendo Stuardo 2011c).
Fig. 6.5. Map of San Miguel, Palenque region (from Torres Diaz 2017:202)
The site is currently largely obliterated by the tourist installations of a hotel, but its remains include 26 structures organized on a plain terrain along the bank of the Chacamax River (Fig.6.6.).

The settlement is located at the point where the river ceases to be navigable toward Palenque, and the site is connected to the major center by a sacbé that runs from Nututún to Palenque and continues west toward the site of Santa Isabel (Flores Esquivel 2011; Silva de la Mora 2011). For these characteristics, Nututún has been interpreted as a possible fluvial port, directly dependent on Palenque.
Summarizing the evidence described so far, it appears that most of the major riverine systems in the Maya area present a similar pattern of one or few large port complexes and several smaller functional sites that provide transshipment and/or portaging to and from the river. El Tigre/Itzamkanac, Cancuen, and Cerro Maya were larger, sophisticated port complexes that emerged to fulfill commercial, communication and control roles along their respective river systems. A further example is the site of Quiriguá, in the Lower Motagua valley, where a possible pier or dock could now be buried under alluvium or removed by a change in the river channel, but a docking area, discussed later, has been identified west of the ball court plaza (Ashmore 2007).

The ancient Maya were clearly preoccupied with facilitating and controlling access to and from inland waterways. However a variety of solutions existed related both to the degree of navigability of the rivers and to historical conditions linked to political hierarchy. It seems also clear that control of riverine movement was pivotal and these transportation nodes were controlled taking advantage of natural locations, as well as through various levels of architectonic features.

**Lookout Facilities and Control of Movement**

Although facilitated by the above mentioned transportation facilities, waterborne movement along and across these riverine systems was clearly under a great deal of control. Specialized sites and/or isolated structures were located at strategic points. I dubbed these infrastructure as lookout and control facilities. It is also possible that natural elements, such as top hills, natural terraces, and outcrops were used for this purpose.
Control facilities at port sites include lookout structures, fortifications, and elevated platforms located at narrow passages as checkpoints. In this category, I also include pyramids and other architectural elements, which – although not directly constructed for this purpose – could monitor and channel movement along rivers, as well as mark access to and from waterway and inland transportation points. As already mentioned in the discussion of the architecture of Boca Chinikihá, in the previous chapter, these constructions might offer a privileged view over a large area, and therefore monitor movement within and around sites. Most paramount centers within riverine regions presented structures that might fulfill this role. Furthermore, in their surroundings, archaeologists have recognized minor settlements whose role might have been that of lookout points.

In the Lower Motagua valley, the site of Quiriguá and satellite centers appear to have devoted infrastructures to control the riverine route from the Motagua valley to the Caribbean coast. Quiriguá is located near the confluence of the Motagua and its tributary, the Rio Quiriguá, in a strategic position to control valley and river traffic (Sharer 1978). Furthermore, its position at the crossroad between the Guatemalan highlands and the Caribbean Sea, as well as its central position among Copán and the southeastern periphery of the Maya area, and central Petén to the north, reveals a preoccupation with access to communication and trade routes by its founders (Ashmore 1984; Sharer 1978; Sharer et al. 1983).

Archaeological and geomorphological studies have shown that, until the Late Classic, the course of the Motagua flanked the west side of the site, and passed by the
Great Plaza and the Acropolis (Ashmore et al. 1983; Sharer et al. 1983). Excavation in the Great Plaza produced evidence of architecture related to transportation facilities, with at least one dock for the mooring of canoes (Ashmore et al. 1983:56), and brought to light a cobble-surfaced depression in connection with a deep alluvium deposit that led Sharer and colleagues to suggest that this area was once an embayment connected to the river. Furthermore, on top of a docking facility connected to such embayment archaeologists identified two large aniconic stelae, probably transported there by water, off-loaded on the jetty and, for unknown reasons, never moved to their final location (Ashmore et al. 1983). However, it might also be possible that these were stone markers intentionally posited on the jetty - and later collapsed- meant to signal the location of the jetty from the river and/or to channel movement from the river to the plaza. Some cases have been reported, in fact, where large boulders or aniconic stelae were located at the entrance of cities, or at important junctions for the urban traffic as signals meant to channel movement\(^{19}\)

Outside the monumental core of Quiriguá, a series of isolated constructions and compounds might be related to the control and possibly management of the river traffic. In her survey of the floodplain periphery, Wendy Ashmore recorded a series of structures on a high ridge, located northwest of Quiriguá’s site core, which seem to overlook the western end of the Lower Motagua valley and its tributaries (Ashmore 1984, 2007). One of these, the so-called Morley’s Group A, consists of a two-level platform with two

\(^{19}\) At the site of Palenque, the probable ancient entrance to the city, located in the so-called Picota group, is marked by a large monolith located along the path. Similarly, at the site of Max Nah, Eleanor King and colleagues noted the presence of a large stelae located at the entrance of the site’s possible marketplace (Shaw and King 2015).
structures on top and two associated stelae. Other possible lookout points or sentry stations have been detected at the confluence of the Quiriguá and Motagua rivers, overlooking the floodplain, the Motagua and two of its tributaries, the Jabuco and Morjá rivers (Ashmore 2007: 128). The author suggests that these infrastructures might have had multiple functions, such as lookout points, marking the landscape, and serving as defensive stations (ibid.). She also noticed the similarity of one of these constructions to Mound 38 at Altar de Sacrificios, which overlooks the confluence of the Pasion and Chixoy rivers (Ashmore 1984: 377). Still in the lower Motagua Valley, two large sites, Playitas and Las Quebradas, were strategically located at the confluence of the Motagua with its tributaries to control the movement of people and goods (Schortman 1993).

According to Ashmore, Quirigua’s florescence in the 8th century was probably due to the city’s new independent control over the trade route as well as its acquired importance as exchange center with and outside the lower Motagua (Ashmore 1980, Ashmore et al. 1983). Sharer also suggested that the lack of emphasis on ceremonial construction at Quiriguá, compared to other Late Classic Maya sites, might be attributed to a stronger commitment by its late ruling elite to a new source of power based on trade routes and economic connections, rather than the traditional emphasis on divine rulership (Sharer 1978: 68). An argument also made by Sabloff and Rathje (1975) for the center of Cozumel.

Similar to the Lower Motagua region, the Sibun River valley was an important locale for cacao production and trade during the Late and Terminal Classic. Here, three sites dominated the three sections of the river, the Hershey site, located upriver, Pakal Na
in the central section, and the Oshon site in the lower portion of the river valley. Materials and architectonic evidence suggest that these sites were paramount centers of the region in different periods (McAnany et al. 2005). It appears that the Hershey site controlled a portion of the Petén-Central Belize-Caribbean sea route (Harrison-Buck and McAnany 2007), whereas Pakal Na, located at the confluence of Indian Creek and the Sibun River, seems to have overlooked the transshipment point between the two waterways (Thomas 2004; McAnany et al. 2005). In the Terminal Classic and Early Postclassic, when coastal trade rose in importance, it seems that the Oshon site, at the mouth of the Sibun River, flourished and likely facilitated the monitoring and transfer of goods up and down the river (McAnany et al. 2005: 318).

Two of the major centers in the Pasión-Petexbatun region, Ceibal and Altar de Sacrificios, seem located in strategic locations to control traffic along the river, as well as junctions of tributaries and inland routes (Demarest 2006). The site of Ceibal lies atop a high escarpment; about 110 meters high, on a wide bend of the Pasión river, on the edges of the Petexbatun region, where the river turns west, and the trade route divides. The settlement developed on a series of high terraces, on the southern bank of the river, divided by deep ravines (Willey et al. 1975; Smith 1982). The site core is organized into three main groups, connected through a series of causeways, whereas several small mounds are distributed on the outskirt of the main groups (Smith 1982). Ceibal’s strategic position, easily defensible and apt to control the river traffic, might well be one of the reasons why the settlement continued to thrive during the Terminal Classic, a period in which most of the centers in the Pasión-Petexbatun region declined (Demarest 2006;
Inomata et al. 2009; Triadan and Palomo 2010). Altar de Sacrificios lies at the confluence of the Pasión and Salinas rivers, whose conjunction marks the beginning of the Usumacinta. The ceremonial center is distributed along an elevated terrace on the south bank of the Pasión River, surrounded by swampy, low, areas and is organized in three architectural groups, Groups A, B, and C - which cover approximately a total area of 400 m² (Willey 1973). During the Early Classic, Altar was probably the largest center on the Pasión River and it seems to have established important political and economic ties with Salinas de los Nueve Cerros on the upper Chixoy-Salinas River and with the central Petén (Bachand 2010). Although no structures have been identified or interpreted as related to port activities, the site occupies a strategic position for control as well as observation of all river travel (Smith 1972), and Mound 38, as observed by Ashmore, might be an example of such facilities (Ashmore 1984).

**Control Facilities in the Upper Usumacinta River System:** Various authors have pointed out that many sites along the Usumacinta River might have functioned as control points for traffic and navigation between inland and riverine routes (Aliphat 1994; Canter 2007; Golden et al. 2012; Golden and Scherer 2006; Scherer and Golden 2012). Especially in the Late Classic, when the control over this communication and trade artery was monopolized between the kingdoms of Piedras Negras and Yaxchilán, many satellite sites arose - or grew from earlier settlements- along the river, its tributaries, and parallel valleys to monitor movement along the riverine and inland routes²⁰. Golden and Scherer (2006) noted the presence of walls and fortification at the border between the two main

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²⁰ cfr. Chapter 4 for a detailed description of the political geography of the Upper Usumacinta during the Late Classic period.
polities, along with check points and lookout sites strategically located along the banks of the Usumacinta and smaller inlet streams, as well as inland routes. Examples of this are the sites of El Kinel, Arroyo Yaxchilán, and La Tecnica, on the west bank of the Usumacinta, and Dos Caobas, on the east bank, along the Agua Azul stream (Fig. 6.7). Although no specific control facilities have been detected at these sites, their locations bespeak an interest by Yaxchilán in controlling movement to and from the river, and they functioned as transshipment points between inland and riverine transportation, as well as traffic sentries for their paramount center (Golden et al. 2008, 2012).

![Fig.6.7. Map with riverine settlement in the Yaxchilán area (adapted from Golden et al. 2010:3)](image)

At the site of Yaxchilán, by contrast, several constructions seem related more or less directly related with riverine traffic control. Yaxchilán lies on the west bank of the
Usumacinta River, on a long, omega-shaped river bend, from which it is easy to control the traffic flow (Golden et al. 2008). The bulk of the ancient city, which is limited on the north by the river and on the south and southwest by a series of hills, developed on top of a long and narrow fluvial terrace, about 20 meters above the river level in the dry season. Yaxchilán was strategically located on a peninsula that offered its planners and inhabitants not only an easily defendable position, but also an elevated ground to construct main buildings as high control points toward the Usumacinta and its opposite side (Andrews 1975; Tate 1992). Within its current urban form, which corresponds to the Late Classic period, it is possible to identify several sectors that seem related to the control of movement to and from the river. For Yaxchilán, the river was the only connection to the rest of the Usumacinta region and other Maya areas. For this reason, it is plausible that much effort was devoted to the maintenance and control of infrastructure related to the river traffic. Various authors suggested that part of the city developed on what is now the riverbank, and have, therefore, been washed away (Garcia Moll 2003; Tate 1992: 157). Some of these structures might well have been piers or landing platforms, since other structures along the riverbank, on the north side of the Main Plaza, have been interpreted as masonry piers that offered access to different sectors of the city (Tate 1992).

I propose that Structure 80, located on the northwest sector of the site, facing the river, might have functioned as landing point for canoes approaching Yaxchilán. It is a tall, elongated platform, with two arms protruding from its west and east side, that enclose a sunken space. The construction rises about 16 meters above the water level, and
it might have worked as embayment, when the water level rose (Fig.6.8.) Behind Structure 80 stand two tall pyramids, structures 31 and 32, about 10 m high, constructed apparently benefitting from the steep slope. These might well have functioned as lookout points toward the river, as well as landmark to indicate where Structure 80 was.

I don’t imply that the primary purpose of these pyramids was controlling the river, however, I suggest that this could have been a secondary, ancillary function. This complex might have had a similar role to what I propose for Structures 22 and 24 on top of the acropolis at Boca, behind Structure 10 (cfr. Chp. 5).

An isolated pile of stones, located in the middle of the river bed – and visible only during the dry season - has been interpreted as the remains of a pillar for a
suspended bridge that could have connected Yaxchilán’s Main Plaza to the opposite side of the river (O’Kon 2005). Although its nature is debated – since ancient Maya bridge technology was not so sophisticated to resist the strong currents of the Usumacinta, this construction is almost aligned with Structures 6 and 7 (García Moll 2003: 343), which – incidentally- have façades on both sides, towards the river and towards the plaza, and might have been one of the entrances to the site from the river. As García Moll notes (2003: 349), the great plaza, apart from being the most important public and gathering space in the city, was also the main avenue and artery to direct movement within the urban space, as well as toward the river. It is plausible, therefore, that most of its constructions were devoted to control and channel movement to and from the river.

The majority of settlements between Yaxchilán and Piedras Negras are located near the mountain passes and valley that run parallel to the Usumacinta. This is probably due to the difficulty of navigating the river in this tract, and settlements were strategically located to control movement along the inland routes, rather than along the river itself (Aliphat 1994; Golden et al. 2008; Scherer and Golden 2012). However, one key settlement is located near the only beach appropriate for landing, the site of El Cayo. This site was an ally and subsidiary of Piedras Negras and probably controlled the river traffic in this tract (Golden et al. 2012).

El Cayo spreads over the two banks of the Usumacinta, and several elevated platforms have been identified on both the Mexican and Guatemalan sides of the river. However, more information is available for the Mexican side (Mathews and Aliphat 1993, 1997). The center is located in a karstic pocket of land suitable for agriculture and
rich in flint deposits (Aliphat 1994: 170). As described in chapter 4, El Cayo played an important role in the political struggle between Piedras Negras and Yaxchilan and its privileged role among the satellite sites of Piedras Negras might be due to its role as sentry of the frontier zone between the two kingdoms, as well as its position as pivotal landing point along the river. The two main architectonic complexes at El Cayo are the Grupo Norte and Grupo Sur (Mathews and Aliphat 1993). The Grupo Norte is the most imposing and articulated complex at the site, and it is paired by two tall pyramids on the opposite site of the river. It is worth noting that both complexes are aligned with the small island in the middle of the river that functioned as landing point (Fig. 6.9.). Although the tallest structures in the Grupo Norte (Str. A, D, and F, after Mathews and Aliphat 1993) are oriented not toward the river, but toward the central plaza they enclose, I suppose they were visible on either side of the river and might have functioned as navigation landmarks as well as a control point for the river traffic.
Fig. 6.9. Map of El Cayo with close up of Grupo Norte (adapted from Mathews and Aliphat 1993)

The Grupo Sur is located on a wide, open space about 800 mt south of Grupo Norte and about 60 mt west of the riverbank (Mathews and Aliphat 1993: 14). The arrangement of its structures and its position, near a trail that goes west toward one of the interior valley, parallel to the river, suggests to me that this complex might have functioned as check point for people approaching El Cayo and/or portaging from the waterway to the interior valleys. After El Cayo, most of the travelling, especially upriver, toward Yaxchilán (south) likely happened via land. In this scenario, El Cayo is located in a spot where the river slows its course and near a landing beach suitable for portage toward the interior valley and/or resting and provisioning for continuing the navigation. It seems plausible, therefore, that some of its structures also functioned as controlling points for the
downriver traffic from Yaxchilán toward Piedras Negras, as well as for the portaging
routes that in this section run parallel to the river.

The next riverine site downriver from El Cayo is Piedras Negras. George F.
Andrews (1975) argued that, contrary to Yaxchilán, Piedras Negras gives its back to the
Usumacinta and it is more inland oriented, toward the valleys that run parallel to the
water and give access to north and south inland routes. This might be due to its location in
a difficulty navigable tract of the river. However, by looking at its map, it is clear that the
location of Piedras Negras, at a narrow passage of the river as well as in connection to the
inland valley route that leads to Tabasco floodplains and the kingdoms of the San Pedro
River, had as much to do with the river traffic and trade as much as with inland routes. It
is notable that some low platforms were built near the depressed areas that fracture
Piedras Negras in a west-east direction. Zachary Nelson noticed that the location of most
of these structures, along the foothill, is consistent with the floodable nature of the areas
and argues that when the river level rises, the structures in these zones might have been
approached by canoes directly from the watercourse (Nelson 2005). Furthermore, several
of these small platforms (N-13 to N-18) lie near the entrance of a gully that rises gently
from the river and opens up in the plaza delimited by Structures O-13, O-12, P-6 and P-7.
These small platforms parallel the watercourse, suggesting that this area might have been
an entry point from the river. Other platforms are located on the sides of the ravine
following the path toward the plaza dominated by Pyramid O-13. George Andrews
suggests that because of its height and orientation, people standing on top of Pyramid O-
13 afforded a magnificent view of the river (Andrews 1975). As I suggest in chapter 5,
there is no clear evidence that pyramid O-13 had a direct relation to the river, however, it could have marked the access from the Usumacinta to the plaza, providing a directional reference to people entering Piedras Negras via the river, due to its axial position with respect to the gully (cf. fig. 5.6.). I furthermore suggest that since it was probably visible from the river, with its privileged view also offering a perfect control point.

Nonetheless, the steep terraces on which the site is located hindered the landing of the heavy traffic that a paramount center such as Piedras Negras might have experienced. For this reason, it has been proposed that the site of El Porvenir, located northeast of Piedras Negras, could have functioned as the capital’s port in the Late Classic (Kingsley et al. 2012). This settlement is only 2 km via land and 4km via river from the capital and coincides with the last easily navigable point before a series of dangerous rapids (Kingsley et al. 2010, 2012). Additionally, it has a wide landing beach, able to harbor several canoes, along with an easy overland access to Piedras Negras and – through interior valleys– to the Tabasco plain and the San Pedro river region (Fig. 6.10) (Canter 2007; Kingsley et al 2012). As many authors have noted, El Porvenir seems to have been a better option to facilitate trade and control of movement across the landscape than Piedras Negras (Kingsley et al. 2012).
Although not directly on the Usumacinta, the sites of La Mar and Budsilhá played an important role in the control of communication routes of the Upper Usumacinta (Fig. 6.10) (Scherer and Golden 2012). The site of La Mar is located on the La Mar stream, which flows into the Busiljá River, located about 10 km downriver from Piedras Negras. Several pyramidal structures at the site seem to overlook this stream. According to Scherer and Golden, La Mar was an important communication node since it was located on the inland route between Yaxchilán and Palenque, and at the head of navigation of the Busiljá River,
which connects the Usumacinta to the interior valleys and to the sierra where Toniná is located (ibid.).

Fig. 6.11. Map with section of the Upper Usumacinta with location of the sites of La Mar and Budsilhá on the homonymous stream

The site of Budsilhá is located near the homonymous river and its structures lie on top of elevated platforms to avoid the seasonally inundated valley floor. Structure 17, specifically, is a large platform located on top of a natural hill that offers a direct view over the Busiljá River and its adjacent inlet. According to Scherer and Golden, this area becomes an island during the rainy season and canoes could have reached the site’s main groups through a landing point, Structure 12 (ibid: 52-
Fig. 6.12. Map of La Mar with the homonymous stream running through the site and the Budsilha River to the east (Adapted from Scherer and Golden 2012:63)

54). The junction of the river Budsiljá with the Usumacinta is characterized by imposing falls, which, however, are mostly underwater during the rainy season (Canter 2007). It seems, therefore, that in this watery landscape, both the tallest structures at La Mar and Budsilhá might have functioned as lookout facilities, possibly for their overlords from Piedras Negras, and controlling the traffic to and from the Usumacinta, along its tributary and inland valley. Few kilometers downstream from Budsilhá, on the Boca del Cerro ridge, which marks the end of the Upper Usumacinta, lies the hilltop site of Panhalé.
According to Armando Anaya (2001), the site seems to have been divided into two main sectors Panhalé I and Panhalé II. Panhalé I is located on a terrace about 100 meters above the river, and includes two higher structures that could have functioned as a watchtower and a lookout point toward the Usumacinta (Anaya 2001). Panhalé II is located at the top of the Boca del Cerro hill, about 300 meters above the river level, on a highly defendable as well as controlling position (ibid.). Anaya (2001, 2006) further suggests that during the Late Classic Panhalé could have been a sort of fortress that controlled the traffic through the Boca del Cerro gorge on behalf of Pomoná.

Various authors have stressed the importance of Pomoná and its satellite communities in controlling overland movement and riverine routes between the upper Usumacinta and the Tabasco plains, as well as toward the San Pedro River region (Anaya 2006, 2007, García Moll 2005). The site is located few km downriver from the Boca del Cerro gorge, near the arroyo Pomoná, which provides access to the Usumacinta. The settlement is composed of 6 architectural complexes of which only one, Complex 1, has been thoroughly studied (García Moll 2005). Complex III is a group of three large platforms located on a low hill overlooking the Pomoná stream. Next to it flows one of the several seasonal streams that give access to the Arroyo Pomoná. I suspect that Complex III might have functioned in some ways as control facilities for canoes that, through the stream, accessed the Usumacinta.

The sites and features mentioned in this section exemplified the need of controlling waterborne transportation in different riverine systems by their respective paramount centers. Isolated lookout sites, and sentry points, as well as elevated urban
features and control infrastructures are evidence of a highly politicized landscape where movement of people and goods was not left unwatched.

**Storage, Workshops, and Distribution Facilities**

The third and final characteristic of a port community is its role as a distribution node. Its nature as land-water interface made a port particularly suitable for social interaction and economic activities. Although material evidence for such practices is usually ephemeral, recent research at various Maya sites, some of which port communities, have revealed traces of storage, production and distribution facilities, such as marketplaces, workshops, warehouses and possible administrative infrastructure. Furthermore, according to Kenneth Hirth (1998), if a site was an important distribution node, this would be reflected in the frequency and quality of the materials circulating within the site. So ports would benefit from their role and position and show a higher and/or more diverse array of imported items, along with the possible presence of specific places meant to stock and redistribute goods. McAnany (2010) points out that in the Maya Lowlands pests and climate would prevent storing large amount of goods, especially perishable items. Therefore, infrastructure directed to store traded items would be minimal at these centers. Although I agree with her arguments, I suggest that for a short amount of time, items would have needed to be stacked, organized, divided and packed to be distributed within the same center or to other settlements. Infrastructures such as raised platforms -often stuccoed-, large patios, and open plazas represent the
perfect facilities to store and organize trading items, and have been frequently recorded at Maya riverine sites.

**Storing Facilities**

Group E at Río Azul has been interpreted by the archaeologists as a possible warehouse with administrative and/or market function (Adams 1999). This building complex, formed by a series of large structures arranged in quadrangles with wide courtyards, lies in the northern edge of the site, at a suitable disembarking point for canoes arriving from and leaving toward the Chetumal Bay (ibid.: 113). The internal courtyards could have functioned as storage areas covered by perishable roofs. Furthermore, a series of stairs were identified descending from the group’s main building toward the river, facilitating possible loading and unloading of merchandises (ibid.). Although imported materials at Río Azul are not especially abundant, they included goods from the whole Maya area and beyond, such as seashells from the Yucatan coasts, obsidian and pyrite from the Guatemala Highlands, Teotihuacan and Gulf Cost style pottery, and jade (Adams 1999). It is also possible that other perishable items were imported and rapidly moved to other locations, as proposed for Nohmul (Pring and Hammond 1985). This evidence suggests that the Río Azul community—or at least part of it—participated in interregional exchange circuits.

Possible storerooms have also been identified at Quiriguá, where Ashmore suggests that the southern construction of Structure 059/ Loc.059 was an open-storage facility, and Structure 3C-5 could have functioned as a processing place and storing facility for cacao production and distribution (Fig. 6.14) (Ashmore 1984, 2007). The latter
has an unusually restricted access to its multiple inner rooms from the outside, as it seems plausible for a place containing precious commodities (Ashmore 1984: 384). Furthermore, excavations have uncovered several metates, storage vessels, comales and other utilitarian items probably involved in cacao bean processing activities. Among these items, grinding stones were the most numerous imported goods at Quiriguá, suggesting that their use exceeded the need of domestic production and they were used to process perishable materials, later probably exported (ibid.).

**Workshops**

In the Maya area, the port city of Cancuen represents the best example of imported good manufacturing related to port activities. The most indicative case is the jade workshop directly connected to the northeast port of Cancuen. Here, four low platforms produced evidence of intense craft activity in which jade boulders were transformed into bead and earspool preforms (Demarest 2014, Kovacevich 2006). A large platform overlooks the lower workshop mounds and access to the area is restricted, and dominated by an elite complex (Fig. 6.14).
Fig. 6.13. Map of the northern section of Cancuen with northern port and jade workshop (adapted from Martinez Paiz et al. 2017: 25)

Considering the location of the workshop areas it seems most likely that the boulders of jade -coming down via the highland land route- were worked at the head of navigation and then exported, all under the tight supervision of Cancuen’s elite (Demarest 2014). A further evidence of the export end of the jade crafted at Cancuen is the regular, not exceptional, presence of finished products in elite contexts, as well as the scarce and lower quality type at the commoner level, a sign that higher quality jade worked at the site circulated outside the local network (Andrieu and Forné 2010). The interregional associations of both norther ports are further strengthened by the presence of a significant
percentage of obsidian from Central Mexico, pyrite, and by the distribution of more opaque, lower quality jade (Andrieu and Forné 2010; Kovacevich 2006). In terms of their distribution, Andrieu and colleagues note that the presence of lower quality jade in non-elite domestic contexts bespeaks an easy access to this rare material, possibly through market distribution of large debitage pieces\(^{21}\) (Andrieu and Forné 2010, Andrieu et al. 2014). Crafting of pyrite mirrors, beads and dental inlays were also among the activities carried out by Cancuen’s inhabitants. Although in this case no specialized workshops have been detected, pyrite manufacturing occurred in several households (Kovacevich 2006). Additionally, Kovacevich notes that, albeit present in small quantity, Central Mexico obsidian was evenly distributed among Cancuen’s house groups, suggesting a market setting distribution, or informal exchange relations, such as bartering (Kovachevich 2006: 288). In conclusion, Cancuen’s port economy may have created the opportunity for market exchange in the domestic economy, in which all households had access to imported goods, while some of these households specialized in the production of higher quality, luxury goods meant for interregional trade.

Other jade workshops related to riverine communities and, possibly, port activities have been detected by Walters (1982) at sites located near the Motagua River (cited in Kovacevich 2006:120). These sites not only benefited from the Motagua as a jade source, but probably also as a transportation route.

\(^{21}\) A debated issue, which I don’t address, is whether jade was a sumptuous, inalienable possession, not normally distributed via market exchange, or simply a highly valuable commodity (cf. Kovacevich 2006, 2014, Andrieu and Forné 2010)
Distribution Facilities

As King and Shaw acutely summarize, markets are by nature transient places where short-lived, ephemeral human activities take place (2015: 14). For this reason, archaeology seems especially ill-suited to detect its evidence, since it relies on repetitive actions and consistent spatial use to discern patterns (ibid.). However, recent research in the Maya area is finally identifying not only traces of market exchange systems (Braswell and Glascock 2002; Masson and Freidel 2002; McAnany 2010), but the actual locales where market activities took place (Chase and Chase 2014; King 2015; King and Shaw 2015; Masson and Freidel 2012, 2013; Tokovinine and Beliaev 2013). Scholars generally agree that markets were held in open plazas with little or no infrastructure, and that built marketplaces, such as that at Tikal and –recently- Calakmul, were exceptions to the rule (Becker 2015; King 2015; Jones 1996, 2015). For this reason, it has been proposed that instead of pinpointing to one specific architectural element, marketplaces can be detected by the conjoined presence of several features, such as large open spaces in central locations, sometimes with aligned structures or walls, lack of contemporary domestic structures, easy access through causeways or paths, proximity to a ball court and water sources (Becker 2015; Cap 2015; Shaw and King 2015; Dahlin et al. 2007). Although not everybody agrees (cf. Becker 2015), other evidence can include the presence of middens in nearby locations, and distribution of perishable products detected through soil chemistry. I find a striking coincidence that many of these elements have been detected at sites that also are ports or riverine centers. Furthermore, at riverine and lake shore port
communities two of the previous categories, water source and causeways, merge to offer waterborne transportation.

Among riverine communities where the presence of marketplaces have been tentatively identified are Buenavista del Cayo (Cap 2015), Ceibal (Tourtellot 1988, cited in Dahlin et al. 2010), Quiriguá (Ashmore 2007), Trinidad de Nosotros (Moriarty 2013), La Puente (Mejía and Valle 2010), and Piedras Negras (Perez Robles et al. 2016).

Based on the presence of a causeway, lithic debitage, chemical signatures, and spatial arrangement, Bernadette Cap (2015), suggests that the East Plaza of Buenavista del Cayo, a site located on the east bank of the Mopan River, might have functioned as marketplace. Later, at the beginning of the ninth century, Xunantunich apparently replaced Buenavista as economic node of the Upper Belize Valley (Taschek and Ball 2004:203). The site is located on a prominent location, about 100 above the level of the Mopan River, on a strategic point to control river traffic along the Mopan toward the Belize River. In this sense, it is interesting that Keller (2006) proposes that a section of the causeway that connects the ceremonial core with the Mopan riverbanks might have hosted periodic markets.

At Ceibal, whose elevated position, overlooking the Pasión River, bears similarities to Xunantunich, Smith (1982) proposed the northern portion of the Central Plaza as candidate for a possible marketplace. The enclosed setting of the plaza, the presence of low, elongated structures that could have supported perishable, temporary stalls, along with an elevated surface from which a control of such activities could take place seem to offer some of the architectural features previously listed as marketplace.

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traits. Additionally, a nearby causeway seems directly connected to the watercourse. During the rainy season, when the river level plausibly rose of several meters, this route could have provided a direct access to canoes for the loading and unloading of items transported through the river. Furthermore, recent geochemical analyses carried out in the Central Plaza of Ceibal have produced evidence interpreted as traces of food processing at a large scale, connected with periodic market activities (Dahlin et al. 2010; Triadan and Palomo 2010).

Although some authors warn against the possible equifinality of the results of soil chemistry (Becker 2015), this approach is being frequently adopted in marketplace research. At the port community of Trinidad de Nosotros, soil residue analysis has been carried out to test Plaza V as a possible marketplace (Dahlin et al. 2010; Moriarty 2013).

According to Moriarty (2013), Plaza V’s easy access, unusual size, lack of ceremonial buildings, and presence of low structures on its west and north sides make it a viable option for a marketplace. In addition, chemical signatures recorded on the plaza floor, along with midden assemblage distinguish it from a ceremonial space and suggest that domestic activities, which are more appropriate to a market setting, took place in this locale (Dahlin et al. 2010).

In sum, although difficult to identify, marketplaces are finally emerging as an important element of ancient Maya urban layouts. Their association with other trade facilities, such as storerooms, warehouses and workshops at riverine port communities might clarify the role of individual communities and the organization of riverine trade system.
Ports and Imported Goods

Port communities would definitely benefit from their role of trade nodes. In the case of Cancuen, jade was present at all levels of households, although in different amounts and quality. Kovacevich indicates that a total of 3538 jade artifacts were recovered at Cancuen. Of these, more than 3300 pieces represent the early stage of production and were distributed in humble households (Kovacevich 2011: 151), which, apparently, had access to smaller and lesser quality finished products. At the head of navigation of an important trade artery, and relatively near the material source, Cancuen’s elite and commoners alike, albeit at different scale, participated and benefited from the vibrant economy of an important port complex.

At Cerro Maya large quantities of jade have been found in burials and caches, and especially in middens and storage areas associated with the docking facility located on the bay waterfront (Freidel 1979, Walker 2016). In the Late Preclassic, Cerro Maya was a thriving trade community, connecting the Caribbean coast with Belizean inland riverine routes. Inhabitants of the waterfront had access to imported goods such as jade, obsidian, and Colha chert, as well as trading items from the coast, like marine shell ornaments and salt, along with probably a variety of perishable trade goods (Chiarulli 2016; Reese-Taylor 2016; Walker 2016). Connected to Cerro Maya through the New River was the riverine site of Lamanai, on the New River Lagoon, which was a possible obsidian trading hub along the New River-Chetumal Bay route (Chiarulli 2016), and
whose pivotal role in coastal-inland communication persisted until Colonial times (Oland 2016).

In the Usumacinta River system, Piedras Negras and Yaxchilán, along with their satellite centers, were undoubtedly enmeshed in a trade network, as visible in their material record. However, distribution of imported materials highlights different patterns of acquisition and accessibility. Jade and obsidian, for example, both imported items that reached the Usumacinta through the Pasión route, were not evenly distributed between the two kingdoms. At Yaxchilán large amounts of jade and huge proportions of obsidian debitage were found in elite burials, furthermore, obsidian tools were not used up to their exhaustion as it happened at Piedras Negras (Hruby 2006; Golden et al. 2012). By contrast, it seems that Piedras Negras received lesser amounts of obsidian or of smaller size (Hruby 2006). Piedras Negras’ elite had access to jade. However, compared to Yaxchilán and Palenque, Piedras Negras had modest quantities of jade and sometimes its elite substituted the precious stone with painted clay beads (Golden et al. 2012; Escobedo 2004). Golden and colleagues (2012) suggest that Yaxchilán somehow controlled the flow of jade and was able to “choke” its flow toward Piedras Negras, and in general toward the lower portion of the Upper Usumacinta. Another possibility is that Piedras Negras supplied itself form a completely different route, through which jade was not very abundant (ibid.). A similar assertion can be made about imported fine paste wares of the Altar and Tres Naciones groups. Produced either in the Pasión Chixoy region, or locally at Yaxchilán during the Late-Terminal Classic, it seems that these wares were rare at
Piedras Negras and El Porvenir, but abundant at Yaxchilán (ibid: 14). The southern kingdom was, once again, “choking” the flow of such prestige goods toward its enemy.

In the next chapter I delve further into this issue and present the assemblage of imported goods at Boca Chinikihá, addressing the procurement and distribution of obsidian at Boca Chinikihá, along with its ceramic inventory, and compare them with other sites in the Usumacinta and Palenque regions.

Summary and Conclusions

Trade facilities such as storerooms, warehouses, workshops and marketplaces have been identified at several Lowland Maya riverine and port communities. The association of such infrastructures with transportation and control facilities bespeak a multiscalar organization of riverine trade, from small transshipment locales to large port complexes that only recently archaeologists have started to study to its fullest extent. As summarized in table 6.1, few centers, such as Cancuen, Trinidad de Nosotros and Quiriguá - and possibly Boca Chinikihá - had large port complexes that covered all the functions hypothesized for a port city. Although this can be due to different research questions and strategies, it seems logical to think that few paramount centers within each river system capitalized the profitable venues derived from port activities. Even more remarkable than the large port complexes, however, is the large number of small and medium size settlements that fulfilled one or few of the functions related to port activities. These supposedly isolated transhipment points, portaging points, lookout structures, and distribution nodes offer a glimpse over highly organized, differentiated and interconnected riverine mobility systems within the Maya Lowlands.
CHAPTER 7

CIRCULATION OF GOODS: ARTIFACT TYPOLOGIES AND DISTRIBUTION AT BOCA CHINIKIHA’

If Boca Chinikihá was a port community, then my third and final line of evidence to be fulfilled is that - as a communication and commercial node- the site should have benefited from its position, and this would be reflected in its material assemblages, in terms of higher densities of imports and wider stylistic affiliation than its surrounding, equally important centers. Specifically, in this chapter, I discuss obsidian and ceramic assemblages, their distribution across the settlement, and compare them with other communities within the region for which these data are available, in order to understand the role of Boca as trade node and the degree to which its inhabitants participated in a local and regional network.

During the two field seasons at Boca, we collected several types of artifacts, especially ceramic sherds, and lithic artifacts. Other materials included animal bones, worked and unworked, and shells. Ceramic materials have been analyzed by the author, under the guidance of the project ceramist, Esteban Mirón Marván, whereas obsidian artifact have been studied by Flavio Silva de La Mora. Non-obsidian lithic artifacts are currently under study by Valentina Valiente, a student at the ENAH (Mexico’s National School of Anthropology and History) and will be included in her B.A. dissertation. Paleo-faunal remains are also under study by a member of the project.
Apart from obsidian, the only easily recognizable foreign materials found at the site is a small piece of pyrite, found in a secondary burial in Operation 226, and basalt grinding stones, the majority of which found in construction fills. No jade has been recovered at Boca Chinikihá.

Discussion in this chapter centers on ceramic and obsidian assemblages, provenience and distribution, to support my hypothesis that Boca was a port community and commercial node within the region. First, I present the ceramic materials found at Boca. Unfortunately, no provenience studies were carried out on vessels, so my argument is limited to typological and chronological descriptions, as well as vessels grouping into functional categories. Through this, I aim to see distribution patterns within the site that would bespeak broad activities areas related to circulation of goods. I present these data after a general introduction about the role of ceramics in trade and the circulation of ceramic vessels within the Usumacinta and Palenque region. The second section of this chapter describes Boca’s obsidian assemblage. Obsidian is an imported good in the Maya lowlands and its provenience can be specifically ascribed. For this reason, obsidian has been a useful lens through which to analyze economic distribution systems within the Maya region. A large sample of Boca’s obsidian has been chemically sourced through XRF analysis, and after a brief introduction about the role of obsidian in ancient Maya trade, and specifically within the Usumacinta basin and Palenque region, my discussion centers on presenting the results of this analysis and compare it with other sites in the region. In my conclusions, I wrap up evidence from both goods, arguing that compared to the other centers in the region, Boca benefited from a privileged position, probably
derived from its role as trading port and communication node within the Usumacinta river system.

**Role of Ceramic in Ancient Maya Trade**

Ceramic vessels enter the circuits of exchange in two forms: as goods traded *per se* or as container of the goods traded. In archaeology, examples of the first case are Chinese porcelain in the 18th and 19th centuries, Puebloan vessels, and Maya Fine wares of the 8th and 9th centuries, among many others. Examples of the second case are the ubiquitous amphorae that during the Roman Empire and before transported foodstuff all over the Mediterranean. In the first case, ceramic materials can shed light onto contact and relations among communities, and provide a picture of a site’s political and economic relations. In the latter, large quantities of storage and transportation jars can support the role of a community as a central distribution and commercial point (Toll 1981). In the case of the site of Pueblo Alto, a site in the American Southwest, Toll suggests that the high variety of pastes and forms, as well as the predominance of pottery types related to storage and transportation activities (i.e. jars), support the idea that Pueblo Alto was a central node in a market-redistribution trade system for the Puebloan communities (1981).

Up to few decades ago, the only way to detect patterns of ceramic exchange and circulation was through seriation and stylistic affiliation, recognizing foreign vessels types, through exotic forms, in local assemblages. In the last 40 years, chemical analyses, such as Neutron Activation Analysis, have allowed researchers to pinpoint the exact region of origin of the constituent materials of a vessel, leading to a finer-grained
reconstruction of pottery circulations (Foias and Bishop 2007, 2013; Sinopoli 1991; Toll 1981). Sinopoli and other specialists concur that ceramic vessels were not usually traded for themselves over long distances, except in cases where they represented valuable, luxury goods (Sinopoli 1991: 104).

For the ancient Maya, various scholars agree that ceramic production and distribution were decentralized activities, and that the elite probably played a minimal role in the administration of production and distribution of ceramic utilitarian vessels, and other utilitarian goods alike (West 2002; Foias and Bishop 2013). Authors also agree that as for other circuits of exchange, different economic systems might have coexisted within the same area for ceramic distribution, and that different regional patterns existed. Some systems were more bounded and functioned as solar central place systems (Smith 1976, cited in West 2002: 168), and coexisted with redistribution and gift-giving modes. Others were less bounded, and local markets allowed more decentralized mechanisms. Some Maya centers, like Caracol and Tikal, seem to have been more centralized (Chase and Chase 2014; Fry 1979). The cost of transportation also poses its limits. For areas along the coasts or with major river and lagoon systems, like Northern Belize, water transportation may have been important in the distribution of pottery of all shapes and sizes (Fry 1989: 96).

For Tikal, Fry (1979) argues that both utilitarian and serving vessels were distributed through a central and regional market. He suggests that it is unlikely that two separate spheres of circulation existed for the two types of ceramics, even if serving vessels probably had a wider distribution. However, he did not rule out the possibility that
more specific luxury items were produced and distributed outside this system through elite commission or by specialized craftspeople in the capital. Furthermore, chemical and petrographic analysis show that utilitarian pottery was produced in peripheral areas, where it was also likely distributed. In general, as I discuss for Palenque later, it seems that Tikal imported pottery from surrounding areas, rather than producing it and it was mainly a distribution hub (West 2002).

In the Petexbatun, Foias and Bishop (2007) argue that during the Late-Terminal Classic possibly two circuits of ceramic goods existed: a local one for utilitarian pottery, and an interregional distribution system of fine pastes, and volcanic ash tempered pottery. For these authors, utilitarian carbonate pottery was made locally and distributed through an intraregional exchange system, whereas ash-tempered and fine-paste vessels were manufactured outside the Petexbatun region and obtained through long-distance trade (Foias and Bishop 2013). Ash temper constitutes an interesting case of imported good, although opinions differ about whether the import concerns the raw material or the final ceramic product. Some authors argue that ash temper is available along riverbanks in the Lowlands thanks to wind-deposition after volcanic eruptions (Ford and Rose 1995), whereas others suggest that the raw material was imported from the highlands, probably because of some renowned properties of this type of temper. In the Petexbatun this idea is supported by INAA results showing that the majority of polychrome serving vessels were imported (Foias and Bishop 2013).

Although there is no a clear evidence that polychrome pottery production and distribution were controlled by elites (West 2002), it seems clear that some types of
valuable or luxury vessels might have had a restricted circulation. At Tikal, however, the presence of polychrome serving vessels does not seem restricted to elite contexts. For many Lowland Maya centres, in fact, it seems more an issue of having access to major distribution hubs, such as Tikal and Palenque, and not a restriction linked to social status (West 2002). A similar scenario has been proposed for Copan, where Copador polychrome vessels have been recovered in contexts across social strata, suggesting a highly developed commercial system (West 2002: 162).

In summary, it appears that a highly diverse ceramic distribution system existed within each polity, and that production and exchange of ceramic vessels in the Maya Lowlands, at least for the Classic period, were generally detached from elite control. This might indicate that both utilitarian and polychrome serving pottery circulated through intra and interregional autonomous distribution systems (West 2002).

**Circulation of Ceramics in the Usumacinta and Palenque Regions**

It is difficult to trace ceramic trade patterns in the Usumacinta for periods earlier than the Late Classic. The first ceramic evidence along the Usumacinta appears during the Middle Preclassic (600-300 AC), with types considered local variants of the Mamom ceramic sphere from central Petén. Small settlements continued to be established on both side of the river, and during the Late Preclassic later Chicanel style materials appeared. It seems, therefore, that central Usumacinta region was completely enmeshed in Petén style ceramics for these earlier phases. During the Early Classic, the growth of Yaxchilán and Piedras Negras functioned as magnets for dispersed, surrounded populations. Both sites
are enmeshed within the Tzakol sphere, but a regional variance starts to develop, with closer similarities emerging between Piedras Negras and El Cayo, for example, and differences appearing with Yaxchilán (Golden et al. 2008).

During the Late Classic, resist decorated pottery, instead of the Petén style positive-painted ceramic tradition, is present at Piedras Negras in larger quantities than in any other Maya Lowland site (Golden et al. 2012). This type of polychrome pottery is usually less abundant at Maya Lowland sites, but at Piedras Negras it is the most common one and persisted for much of the Late Classic (ibid.). Golden and colleagues note that the distribution of resist-decorated pottery from the Santa Rosa group corresponds roughly with the limits of the Piedras Negras polity, whereas the occurrence of resist-decorated pottery decreases upriver from Piedras Negras towards the border with Yaxchilán (Golden et al. 2012: 13). By contrast, the Late Classic polychrome types at Yaxchilán are typologically similar to pottery from central Petén and the Pasion River region. This might have been a stylistic choice by Piedras Negras, and in light of this, Muñoz (2006) suggests that the Santa Rosa polychrome type actually originates in the Piedras Negras region, where it was in use for a longer period. It is also possible that Piedras Negras didn’t have an easy access to polychrome ceramics from the Petén, as it has been suggested for other imported materials, namely jade and obsidian (cfr. Chp. 6), since Yaxchilán “choked” the flow of long-distance items entering the Usumacinta region from the south, and for this reason it developed a parallel tradition.

During the late facets of the Late Classic period, the distribution of Fine Paste Wares, namely of the Chablekal and Altar and Tres Naciones groups, in the Usumacinta
basin helps shed light onto the local trade system and on the relations between Piedras Negras, Yaxchilán, Palenque and the Pasión region. According to compositional analyses, the first originated in the Palenque region in the first half of the 8th century, during the local Murcielago phase, and shortly after this date ceramics of this group appear in elite and non-elite contexts at Piedras Negras (Bishop and Rands 1982). Since they are not restricted to elite contexts, it is possible that these vessels were available through market exchange. Furthermore, Golden and colleagues (Golden et al. 2012) argue that this scenario may indicate trade connections between Piedras Negras and the Palenque region, in the decades preceding the dynastic collapse (ibid: 14). The second group includes the Fine Gray and Orange ceramics of the Altar and Tres Naciones groups. Recent INAA research demonstrates that, apart from the traditional production focus in the Pasión region, some of these wares might have been produced in the Yaxchilán region (ibid.). Based on stratigraphy, it seems that at Piedras Negras these wares were limited to post–dynastic collapse contexts. This might suggest that the city only had access to this materials once Yaxchilán’s tight control over the traffic along the Usumacinta waned and commerce along the river opened up a little (Golden et al. 2012). A similar pattern is discernable at the port site of El Porvenir, a satellite site of Piedras Negras during the Late Classic (Kinglsey et al. 2012). Probably an independent trading center during the Late Preclassic, El Porvenir, after a phase of abandonment, in which population moved to the recently founded dynastic capital, became the main port of Piedras Negras during the Late Classic (ibid.). Here, Terminal Classic Altar and Tres Naciones ceramics – albeit scarce-along with more distant, Early Postclassic imported ceramics from Yucatan, and Tohil
Plumbate from Soconusco, seem to indicate that El Porvenir maintained its role as trade node after the end of dynastic power at Piedras Negras, and that it possibly regained some political and economic independence (ibid.).

Contrary to its neighbor, Yaxchilán continued to be enmeshed in the Petén ceramic sphere after the Early Classic, and well into the Late Classic period (Lopez Varela 2005). Late Classic ceramic assemblages at Yaxchilán are more tuned with central Petén style, and similar to types well attested to in the rest of the Maya Lowlands. Yaxchilán, for example, never developed a strong polychrome resist tradition (Golden et al. 2008). It is interesting to note that these ceramic “choices” extended to their hinterlands, with ceramic types at secondary sites similar to those of their paramount centers, especially during the 7th and 8th centuries (ibid.)

During the late facet of the Late Classic and Terminal Classic, Yaxchilán is well enmeshed in the circuit of Fine Paste Ware distribution, originated from the Palenque area and Pasión region. The quantity of these imported goods bespeak a larger access to trade circuits for Yaxchilán than Piedras Negras. Some authors even suggest that Yaxchilán could have been a production locus for at least one type of Fine Wares (Bishop et al. 2005). This might explain the presence of Fine Wares at Yaxchilán’s satellite sites, possibly redistributed by their paramount lords. Furthermore, Chablekal Fine Grey, for example, is widely distributed at Yaxchilán, and in the Pasión region, although it seems to have originated in the Palenque area (ibid.).

In the Lower Usumacinta, the site of Pomoná seems to fall within the Petén ceramic sphere as well, at least since the Early Classic and for most of its history (Lopez
Varela 1994, 2005). The site’s position at the end of the Usumacinta canyon, where the river starts to be easily navigable and near the overland route to the San Pedro Martir and the central Maya Lowlands, facilitated its embeddedness into Petén ceramic sphere. Furthermore, the presence of Fine Grey types since the Late Classic suggests that Pomona had easy access to this good traded along the central Usumacinta, and later to Fine Orange Balancan types along the lower Usumacinta, in the Terminal Classic (Lopez Varela 1995).

Contrastingly, Palenque is famous in the Maya region for its relative isolation in terms of ceramic style (Jimenez 2015; Rands 1987, 2007; San Roman 2007). Robert Rands (2007) points out that during the Preclassic, Palenque’s ceramic assemblage shows few of the widespread Maya traits, whereas, during the Early and Middle Classic, the site seems to open more toward the Petén, with few examples of polychromes and Petén Glossy wares. Some diagnostic formal elements of this similarity include basal and medial flanges, and basal ring-stands. Within the local Early Classic Motiepa phase (AD 400-600), Rands (2007) distinguished an “Exotic Motiepa” facet to define an early phase in which Petén-like, glossy slipped pottery is present. However, it is not clear if these are examples of non-locally manufactured pottery or vessels locally made by foreign potters or people with outside training (San Roman 2007). The “local” Motiepá facet, by contrast, is characterized by monochrome slips of low quality (Rands 2007). This clear difference in Palenque’s Early Classic ceramic assemblage, seems to fade toward the east of its region, where sites like Chinikihá, Chancalá, Yoxihá, and Boca Chinikihá show stronger Petén affiliation, visible not only in their serving vessel types, but also with
utilitarian pottery. These elements mark a striking stylistic difference between Palenque and its hinterland sites to the east (Jimenez 2015). During the Late Classic, exotic imports, already scarce, virtually disappear, at least in its early facet, represented by the local Otulum phase (600-680 DC). Although this period represents Palenque’s apogee under the rule of K’ínich Janab’ Pakal, the city seems more secluded in terms of ceramic style, which is characterized by local polychrome with poor surface preservation (Rands 2007). The early facet of the Late Classic is also characterized by the emergence of Fine Paste wares produced locally, which will become more widespread during the second portion of the Late Classic, the local Murciélago-Balunté phase (A.D. 680-810), when Palenque’s inventory also include Fine Wares from other areas of the Usumacinta (Rands and Bishop 1980).

Compositional studies at Palenque enabled researchers to detect interesting patterns of pottery production and distribution. Rands and Bishop (1980) identified different paste groups that potentially correspond to specific forms and production sub-regions. Chemical and petrographic analyses, in fact, show that utilitarian pottery was produced in areas beyond the ceremonial center, and vessel shapes produced with clays far from the Palenque nuclear zone appear to have had a wide distribution. It seems that the capital imported pottery from surrounding areas, rather than producing it, and that hinterland communities, outside the Palenque nuclear zone, probably acquired utilitarian vessels from local markets. The only form that was produced in the immediate Palenque area, but distributed widely, were flanged incensarios bases (Rands et al. 1978). Ceramic vessels produced near or at Palenque were consumed there, whereas pottery from the
other paste groups were imported at the capital, supporting its role as consumer (West 2002). Jimenez (2015) also suggests that, due to an increase of population during the Late Classic, ceramic demand grew and led to a standardization in production.

As already mentioned, recent INAA analyses on various samples of Fine Paste wares, demonstrate that Fine Black and Fine Grey wares of the Chablekal group started to be produced in the Palenque region at the end of the Otulum phase (Bishop et al. 2005; Rands 2007), and increased during the Murcielago-Balunté phase (A.D. 700-810). Fine Orange and Fine Grey ceramics of the Altar, Tres Naciones and Balancán groups were instead introduced from the Upper and Lower Usumacinta and circulated widely in the region (Bishop et al. 2005). This evidence suggests that Palenque in the 8th and beginning of the 9th century was enmeshed in a wide commercial network within its own region, as well as with both the Upper and Lower Usumacinta.

One of the larger sites between Palenque and the Usumacinta polities was, at least during the Late-Terminal Classic, Chinikihá. At the present, however, it is not possible to clearly define the role of Chinikihá in the regional and interregional system of ceramic distribution. The site is located on the western end of the Palenque region, and – although considered part of the wider Palenque polity - its ceramic affiliation varied widely during its history (Jimenez 2015). It appears that in its earlier phases, during the Late Preclassic and Early Classic, Chinikihá was embedded in the larger Petén ceramic sphere, but during the Late and Terminal Classic its assemblages are more similar to Palenque’s types. The fact that the majority of Late Preclassic materials from Chinikihá comes from cave contexts around the site (Rands 2007) and are mixed with Early Classic,
Tzakol types, makes it difficult to establish clear interregional connections for the site in this early phase. Mirón Marvan (2014) suggests that a possible “Preclassic Corridor” through intermountain valleys existed, connecting the Usuamcinta banks with Chinikihá. This channel included the area of Boca Chinikihá and other sites where larger amount of Late Preclassic, Petén-style ceramic, have been found.

To further complicate things, the local Early Classic phase at Chinikihá, called Puy, is known only through few diagnostic forms, such as ringed-base plates, similar to the Motiepá type in Palenque. In general terms, we can say that Chinikihá, possibly for its geographic position, was more enmeshed than Palenque in the wider Maya ceramic sphere during the Late Preclassic and Early Classic periods, even if the paucity of data makes it difficult to ascertain it.

During the Late Classic, ceramics at Chinikihá seems to change. It appears that types start to differ more from Palenque. The early facet is called Sip and correspond to the Otulum period at Palenque. It has been recognized only through the presence of diagnostic Otulum style plates, associated with other forms that for their stratigraphic context can be included in this phase. The late facet spans from 700 to 850 AD. This phase is called Ajín and is roughly coeval with the Murcielagos and Balunté phases at Palenque. Ajín ceramic inventory is the best known in the Chinikihá region, thanks to the works of Socorro Jimenez (2015) and Esteban Mirón Marván (2014), and, albeit far from concluded, its study shed light onto the relations that Chinikihá interwove inter and intra-regionally.
Ceramic Inventory and Typological Classification at Boca Chinikihá

Ceramic typology from Chinikihá is particularly important for discussion of Boca’s materials, since their analysis is based on the typologies created for Chinikihá. In the following sections, I describe in detail ceramic typology from Boca and try to describe its role in the ceramic distribution circuit of the Usumacinta region.

Boca Chinikihá assemblages are quite problematic since none comes from a sealed context. Through excavation and surface collection, 20704 ceramic sherds were collected, for a total weight of 107.317 kg, and an excavated volume of about 50 m$^3$. Ceramic analysis took place between 2011 and 2012 and included all the materials. At the beginning, my idea in analyzing the ceramic assemblage of Boca was to see patterns of stylistic affiliation, if not direct import of ceramic material. However, it was difficult to ascertain how much ceramic was produced locally, following foreign trends, and how much was instead imported, without chemical signature analyses, such as INAA.

In terms of stylistic affiliation, ceramic at Boca Chinikihá shows similarities both with the Palenque sphere, as well as with central Petén style, especially in earlier periods. One thing that characterized Boca’s assemblage is the relatively large percentage – compared to regional standards - of waxy slips that are reminder of Petén wares. It is possible that this amount could be related to position of Boca along the Usumacinta, and therefore more close to sites such as Yaxchilán and Pomoná where Petén-style assemblages are common since the Late Preclassic$^{22}$. However, Rands and others suggest

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$^{22}$ In 2013 and 2015 excavations at the site of Santa Isabel, a secondary center located few km west of Palenque, exposed a context with high number of Late Preclassic waxy wares, not mixed with later materials.
that in the Palenque region, waxy slips are a late introduction, dating at the end of the Late Preclassic, and that they continued up to the Early Classic (Rands 1987; Jimenez 2015). For later periods, Boca is more similar to Palenque’s assemblages and most of its Late Classic materials lacks finishing and slips\(^23\).

Ceramic classification at Boca Chinikihá followed the multi-classification system used at Chinikihá by Socorro Jimenez (2015) and Esteban Mirón Marvan (2014), Multi-classificatory analysis was chosen in order to standardize comparison with other regional centers, as well as because it works better in contexts where slips are poorly preserved. In this section, I describe the assemblage studied at Boca, without entering in great detail into the methodology; for more information about the ceramic typology and classification method used in the region I refer to Jimenez (2015) and Mirón Marván (2014).

Ceramic sherds were classified through four main attribute groups, which included: 1) paste, 2) form, 3) surface finishing/slip, and 4) decorations. Quantification proceeded by number of sherd (frequency) and by weight. These data were then grouped into ceramic records, which reflect the minimum number of (whole) vessels, with the same characteristics (paste, form, finishing, and decoration) from the minimum unit of recovery/excavation, in our case the layer (capa). Following Rice (2005 [1987]), this conservative approach, since it tends to underestimate the number of vessels actually present (ibid: 392), is – nonetheless- a viable attempt to retrieve an estimate of the actual number of whole vessels in each context. Sherd frequency, in fact, can be misleading since there is no way to measure in how many pieces a vessel can break. Furthermore, it

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\(^23\) Only 600 of 2786 records show presence of surface washing (baño) and only 427 records are slipped.
has been empirically noted that fine wares, such as thin bowls (cajetes) tend to break in
more and smaller pieces than thicker pots, such as storage jars, for example. By the same
token, fragments of thicker, coarser pots, such as basins and utilitarian jars, tend to weight
more than the same number of thinner vessels, for this reason, sherd weight is also
misleading. For this reason, and in line with Chinikihá’s analysis, although sherd
frequency and weight are always shown in the tables below, ceramic records are generally
used in the analyses, except when use of frequency or weight is necessary in order to
compare the same kind of data among projects.

The Chinikihá pottery multi-classificatory system included 26 groups of paste
(Jimenez 2015), the most common of which are carbonated (Carbonatadas/Pasta con
Carbonatos) and sandy (Arenosas) pastes. It appears that at Boca the majority pertained
to carbonated and sandy groups. Vessel forms are organized into 9 classes: serving bowls
(cajetes), vases, jars (ollas), tecomates, large cooking basins (cazuelas), plates (platos),
large plates (platones), comales, and a tenth group that includes decorative appendages
(ibid.). Other ceramic materials, not included in the vessel/container repertoire are:
censers (incensarios), figurines, whistles, spindle whorls (malacates), and musical
instruments. Of the 20685 sherds, 4510 were vessels fragments of which I was able to
identify the form. These data are summarized in tables 7.1. and 7.2.

24 I am grateful to Esteban Mirón (personal communication, January 2017) for bringing this point up to me.
25 The other 86 artifacts were non-vessels ceramic artifacts, such as figurines (41), censers 39, possible
musical instruments whistles and drums (4), decorative appendages (2), and weaving instruments (1),
possibly a ceramic loom weight.
<table>
<thead>
<tr>
<th>PASTE TYPE</th>
<th>FREQUENCY</th>
<th>WEIGHT (gr.)</th>
<th>FREQUENCY %</th>
<th>WEIGHT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonatos</td>
<td>2668</td>
<td>11657.5</td>
<td>12.8%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Carbonatos Ferrosos</td>
<td>11101</td>
<td>57372</td>
<td>53.6%</td>
<td>52.2%</td>
</tr>
<tr>
<td>Carbonatos Compactos</td>
<td>17</td>
<td>120</td>
<td>0.08%</td>
<td>0.11%</td>
</tr>
<tr>
<td>Carbonatos Finos</td>
<td>371</td>
<td>1302</td>
<td>1.8%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Arenosa</td>
<td>4642</td>
<td>28526.57</td>
<td>22.4%</td>
<td>26%</td>
</tr>
<tr>
<td>Arenosa Fina</td>
<td>4</td>
<td>37.71</td>
<td>0.02%</td>
<td>0.03%</td>
</tr>
<tr>
<td>Arenosa Crema</td>
<td>157</td>
<td>482</td>
<td>0.75%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Arenosa Rojiza</td>
<td>395</td>
<td>2076</td>
<td>1.9%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Arenosa Semi-Fina</td>
<td>9</td>
<td>26</td>
<td>0.04%</td>
<td>0.02%</td>
</tr>
<tr>
<td>Aluvión (Late Classic Paste)</td>
<td>28</td>
<td>206</td>
<td>0.13%</td>
<td>0.18%</td>
</tr>
<tr>
<td>Fine Orange</td>
<td>41</td>
<td>356</td>
<td>0.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Caolinitica</td>
<td>140</td>
<td>367</td>
<td>0.6%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Chalky</td>
<td>86</td>
<td>476</td>
<td>0.41%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Crema Fino</td>
<td>20</td>
<td>43</td>
<td>0.09%</td>
<td>0.04%</td>
</tr>
<tr>
<td>Pasta Glifo</td>
<td>8</td>
<td>33</td>
<td>0.03%</td>
<td>0.03%</td>
</tr>
<tr>
<td>Gredosa Oxidada</td>
<td>25</td>
<td>63</td>
<td>0.12%</td>
<td>0.05%</td>
</tr>
<tr>
<td>Fine Gray</td>
<td>43</td>
<td>87</td>
<td>0.2%</td>
<td>0.08%</td>
</tr>
<tr>
<td>Micácea</td>
<td>78</td>
<td>544</td>
<td>0.37%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Negra Burda</td>
<td>6</td>
<td>80</td>
<td>0.02%</td>
<td>0.07%</td>
</tr>
<tr>
<td>Pomácea</td>
<td>203</td>
<td>1332</td>
<td>0.98%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Preclásica Medio-Fina</td>
<td>334</td>
<td>2690</td>
<td>1.6%</td>
<td>2.4%</td>
</tr>
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<td>Preclásica Burda</td>
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<td>1356</td>
<td>0.77%</td>
<td>1.2%</td>
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<td>Preclásica</td>
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</tr>
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<td>615</td>
<td>0.7%</td>
<td>0.5%</td>
</tr>
<tr>
<td>TOTAL ID</td>
<td>20559</td>
<td>109317.28</td>
<td>99.3%</td>
<td>99.4%</td>
</tr>
<tr>
<td>TOTAL BOCA</td>
<td>20704</td>
<td>109932.3</td>
<td>100%</td>
<td>99.9%</td>
</tr>
</tbody>
</table>

7.1 Table showing total frequency and weight of ceramic pastes at Boca

<table>
<thead>
<tr>
<th>FORM CLASSES</th>
<th>FREQUENCY</th>
<th>WEIGHT (gr.)</th>
<th>RECORD</th>
<th>FREQ. %</th>
<th>WEIGHT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAJETES</td>
<td>2076</td>
<td>5895.5</td>
<td>477</td>
<td>10%</td>
<td>5.5%</td>
</tr>
<tr>
<td>PLATOS</td>
<td>575</td>
<td>5110.5</td>
<td>235</td>
<td>2.7%</td>
<td>4.75%</td>
</tr>
<tr>
<td>OLLAS</td>
<td>1512</td>
<td>15225</td>
<td>478</td>
<td>7.3%</td>
<td>14.17%</td>
</tr>
<tr>
<td>Pottery Type</td>
<td>Frequency</td>
<td>Weight (kg)</td>
<td>Relative Percentage</td>
<td>Total Weight</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
<td>-------------</td>
<td>---------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>CAZUELAS</td>
<td>337</td>
<td>8915</td>
<td>1.6%</td>
<td>22.2%</td>
<td></td>
</tr>
<tr>
<td>COMALES</td>
<td>1</td>
<td>32</td>
<td>0.004%</td>
<td>0.004%</td>
<td></td>
</tr>
<tr>
<td>TECOMATES</td>
<td>7</td>
<td>64.3</td>
<td>0.03%</td>
<td>0.03%</td>
<td></td>
</tr>
<tr>
<td>INCENSARIOs</td>
<td>39</td>
<td>584.1</td>
<td>0.18%</td>
<td>5.5%</td>
<td></td>
</tr>
<tr>
<td>FIGURITAS</td>
<td>41</td>
<td>377</td>
<td>0.2%</td>
<td>0.2%</td>
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</tr>
<tr>
<td>SILBATOS</td>
<td>1</td>
<td>6</td>
<td>0.004%</td>
<td>0.004%</td>
<td></td>
</tr>
<tr>
<td>MALACATES</td>
<td>1</td>
<td>9</td>
<td>0.004%</td>
<td>0.004%</td>
<td></td>
</tr>
<tr>
<td>TAMBORES</td>
<td>1</td>
<td>5.7</td>
<td>0.004%</td>
<td>0.004%</td>
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</tr>
<tr>
<td>TAPAS (LIDS)</td>
<td>1</td>
<td>5</td>
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<td>0.004%</td>
<td></td>
</tr>
<tr>
<td>APLICACIONES</td>
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<td>TOTAL ID</td>
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<td>73702.3</td>
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<td>66%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>20704</td>
<td>109932.3</td>
<td>100%</td>
<td>99.8%</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.2. Summary of pottery types at Boca Chinikihá by frequency and weight. Both total amounts and relative percentages are presented.

**Boca’s Ceramic Phases and Site Chronology**

The ceramic classification developed by Socorro Jimenez for Chinikihá allowed establishing pottery types diagnostic of different occupation periods at the site and in the region. Thanks to stylistic traits common to Palenque, as well as observed attributes, pastes, forms and decoration associated with specific excavation contexts, five ceramic complexes have been defined (Jimenez 2015). These -named after Chol words - are Max, Puy, Sip, Ajín and Post-Ajín.
Unfortunately, at Boca none of the 23 excavation units has produced sealed contexts with unmixed materials, therefore it is difficult to clearly distinguish temporally or spatially with the site. The basis of my classification is therefore a comparison of diagnostic forms found at Boca, which have been recognized at Chinikihá and/or Palenque. Chinikihá is the closer site whose materials have been thoroughly studied and for which a typological classification exist. Furthermore, it is the largest site of the region, after Palenque, and its ceramic forms are strongly related to Palenque’s and Boca Chinikihá. However, I can’t ascertain if the ceramic materials found at Boca, which bear resemblance with Chinikihá and Palenque, were introduced at the site in the same period as the two major sites or later, or neither if such forms lingered longer. The following discussion, therefore, considers large temporal frames, namely, the phases cited above for Chinikihá, and includes the global distribution of such diagnostic material within the site, without –at this stage - consideration of the deposits in which they were found.

20,704 sherds were recovered in the excavations at Boca, but for only 4406 was possible to identify elements, such as slips, shapes or pastes diagnostic of some specific ceramic complex established for the region. Pottery included in a temporal framework corresponds, therefore, to 21.3% of the total (cfr. Table 7.3). The periods are such represented in terms of sherd numbers, or frequency: 4.8% of sherds pertains to the Max period, 1% to Puy, 0.3% to Sip, 14.9% to Ajin, and 0.2 to post-Ajin periods.

In the next sections I describe in details the numbers and characteristics of each complex in terms of ceramic forms, paste and diagnostic elements recognized at Boca, along with presenting a general contemporaneous comparison of the site with other
neighboring centers. Figure 7.1 presents a synoptic table with the regional ceramic complexes and ceramic complexes from sites mentioned in the chapter.

Table 7.3. Total and Percentages of ceramic phases by frequency and weight.

<table>
<thead>
<tr>
<th>CERAMIC PHASES</th>
<th>FREQUENCY</th>
<th>WEIGHT (GR.)</th>
<th>RECORD</th>
<th>FREQUENCY %</th>
<th>WEIGHT %</th>
<th>REC. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX (260 AC – AD 250/300)</td>
<td>996</td>
<td>7218</td>
<td>395</td>
<td>4.8%</td>
<td>6.7%</td>
<td>14.1%</td>
</tr>
<tr>
<td>PUY (AD 250/300-600)</td>
<td>209</td>
<td>1917.7</td>
<td>140</td>
<td>1%</td>
<td>1.8%</td>
<td>5%</td>
</tr>
<tr>
<td>SIP (AD 600-700)</td>
<td>66</td>
<td>862.6</td>
<td>44</td>
<td>0.3%</td>
<td>0.8%</td>
<td>1.5%</td>
</tr>
<tr>
<td>AJÍN (AD 700-850)</td>
<td>3094</td>
<td>19105.6</td>
<td>649</td>
<td>14.9%</td>
<td>17.8%</td>
<td>23.3%</td>
</tr>
<tr>
<td>POST-AJÍN (POST 850)</td>
<td>41</td>
<td>356.1</td>
<td>14</td>
<td>0.2%</td>
<td>0.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>TOTAL/ID</td>
<td>4406</td>
<td>29460</td>
<td>1242</td>
<td>21.3%</td>
<td>27.4%</td>
<td>44.5%</td>
</tr>
<tr>
<td>N/ID</td>
<td>16298</td>
<td>77869.4</td>
<td>1544</td>
<td>78.7%</td>
<td>72.5%</td>
<td>55.4%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20704</td>
<td>107329.5</td>
<td>2786</td>
<td>100%</td>
<td>99.9%</td>
<td>99.9%</td>
</tr>
</tbody>
</table>

**Max Period (Late Preclassic, 260 BC – AD 250/300)**

Middle Preclassic materials have been identified in the region, although with some doubts, by Rands (2007) and seem to pertain to a pre-waxy phase of Maya ceramics, shared with other sites of the Usumacinta basin. The Max period at Boca
Chinikihá and in the region roughly corresponds to the Late Preclassic and the beginning of the Early Classic. Recent C14 dates from a sealed context at the site of Santa Isabel, few km west of Palenque, produced a calibrated date of 360 -200 BC (Liendo Stuardo et al. 2015). This represents the earliest date so far known for the region.

Before this absolute date, Late Preclassic materials in the regions had been identified through comparison with waxy Petén-style materials of the Sierra group. Regional evidence of Max ceramic comes from caves around Chinikihá, surface collection and test pit materials from 81 sites throughout the Sierra foothills (Mirón Marván 2010, 2014), as well as excavations at Chinikihá (Mirón Marván 2014; Jimenez 2015; Rands 2007), Palenque (López Bravo 2003, 2005; San Román 2007), El Lacandón (Lopez Bravo 2013), and Boca Chinikihá.

The Max assemblage at Boca includes 996 ceramic sherds, for a weight of 7218 grams, grouped into 395 records. 72.1% of the Max records were body sherds, of which it was impossible to define a class form, but were assigned to this temporality because of their waxy slipped surface, thickness and/or paste typology defined by Jimenez (2015) and Mirón (2014) as fine-medium and coarse Preclassic Ware. For a small group of 112 records (167 sherds), corresponding to the 28.3% of the total record assemblage, it was possible to identify ceramic classes based on some diagnostic elements, such as neck/rims, bases, finishing and decorations. If I can assume that the waxy slip on the outside of the vessels indicates that they were not exposed to fire, and it generally indicates a high labor investment, then the largest proportion of the sherds, about 17%, pertained to serving vessels. These were mainly bowls (*cajetes*) 8%, plates and large
plates (*platos y platones*) 8%, a single *tecomate* 0.2 %, and basins (*cazuelas*) 1%. Jars (*ollas*) made up 10.8% of the Max inventory. Among jars, whose functions are generally more variable, including serving, processing, storing and transporting containers, I could recognize two wide groups, one of medium and coarse paste with no traces of slip (13 records, 3.3%), and a second group (31 records, 7.8%) with traces of waxy slip on the exterior and sometimes in the neck’s interior. If this difference is not due to some conservation issue, in which the slip has somehow disappeared, then it is possible that the first group, because of its coarse temper and paste, was exposed to the fire and used to process and cook food, while the second group might have been reserved for serving and/or storing purposes.

Boca Chinikihá’s Max inventory is in line with what Mirón observes at Chinikihá for the same period. At both sites, Late Preclassic materials seem widespread throughout all the context excavated. At Boca, 18 of the 22 excavation units produced Max materials, albeit no Late Preclassic sealed contexts have been identified and – both at Boca Chinikihá and Chinikihá - Late Preclassic pottery is always mixed with later, Early Classic materials.
Fig. 7.1. Synoptic table of ceramic complexes from various Maya sites mentioned in this chapter.
Table 7.4. Total and Percentages of Max ceramic by frequency, weight and record.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>FREQUENCY</th>
<th>WEIGHT (GR.)</th>
<th>RECORD</th>
<th>FREQUENCY %</th>
<th>WEIGHT %</th>
<th>REC. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS: Cajetes (1)</td>
<td>45</td>
<td>327.5</td>
<td>32</td>
<td>4.5%</td>
<td>4.5%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Ollas (3)</td>
<td>56</td>
<td>922</td>
<td>43</td>
<td>5.6%</td>
<td>12.7%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Cazuelas (5)</td>
<td>6</td>
<td>75.6</td>
<td>4</td>
<td>0.6%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Platos (6)</td>
<td>43</td>
<td>434</td>
<td>22</td>
<td>4.3%</td>
<td>6%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Platones (7)</td>
<td>16</td>
<td>247.7</td>
<td>10</td>
<td>1.6%</td>
<td>3.4%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Tecomates</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0.1%</td>
<td>0.02%</td>
<td>0.2%</td>
</tr>
<tr>
<td>TOTAL/ID</td>
<td>167</td>
<td>2009</td>
<td>112</td>
<td>16.7%</td>
<td>27.7%</td>
<td>28.3%</td>
</tr>
<tr>
<td>N/ID (class)</td>
<td>829</td>
<td>5209</td>
<td>283</td>
<td>83.2%</td>
<td>72.1%</td>
<td>71.6%</td>
</tr>
<tr>
<td>TOTAL MAX</td>
<td>996</td>
<td>7218</td>
<td>395</td>
<td>99.9%</td>
<td>99.8%</td>
<td>99.9%</td>
</tr>
</tbody>
</table>

In general, the most common ceramic forms for this facet include medium size jars with pronounced everted necks and thick rims, flat based bowls with everted walls and thick rims, and similar, but larger plates (Jimenez 2015; Mirón Marván 2014). Mirón noticed that some of the unslipped, thick jars are similar to those of the Achiote group (2014:103), and were probably used for processing food. In my analysis, Max ceramics were recognized only on the base of well maintained, waxy slips and few diagnostic coarse pastes, established in the region. Jimenez (2015: 281) also argues that it is difficult to discern if the waxy wares in the Chinikihá region are products of local crafters,
following central Petén modes, or imported materials, and the same assertion can be made for Boca. Furthermore, although we now have a firm post quam terminus for the presence of Late Preclassic material in the region, thanks to the context in Santa Isabel, we still don’t know for how long these ceramic types lingered into later facets. As already mentioned, in fact, it has been observed for Palenque and its region that it is possible that these materials were introduced later and continued to be used well into the Early Classic period (Rands 1987, 2007). Furthermore, it is interesting to notice that, while Chinikihá’s Max assemblage counts for 0.77% of the temporally recognized pottery (Mirón 2014:107), and 0.2% of the total frequency of ceramic sherds (189,290), at Boca, Max’s inventory makes up 4.8% of the total ceramic inventory.²⁶ In order to evaluate the significance of this information, I performed a significance test and showed its result though a bullet graph (Fig. 7.2.). What the bullet graph shows is that we can be highly confident (more than 99%) that the different percentage in Max materials at the two sites corresponds to a real difference in the quantity of Late Preclassic materials present at both sites. Some of the implications resulting from these data are presented in the following section and, more in details, in the conclusions of this chapter.

**Boca’s regional framework during the Late Preclassic**

The percentage of Max materials at Boca is higher than at any other site in the Low Sierra subregion, where a total of 81 sites of different rank-size have yielded only 2367 ceramic sherds attributable to this period (Mirón 2014:101). Among the secondary

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²⁶ These percentages are calculated over total of sherd frequency, not records.
sites in the Low Sierra that have produced traces of Late Preclassic materials through surface collection are San Juan Chancalaito and La Cascada. In general, various authors have noticed how the Low Sierra was scarcely occupied during the Late Preclassic, compared to the alluvial plains of Tabasco, where several sites were more densely occupied and since earlier Preclassic facets (Lopez Bravo 2005; Rands, 2007; Jimenez 2015). In the wider Palenque region, important Late Preclassic occupations have only been identified at Palenque (Lopez Bravo 2003 et al., 2005), El Lacandón (Lopez Bravo 2013) and, recently, at Santa Isabel.\footnote{The Late Preclassic assemblage from Santa Isabel is currently under study by the PREP.}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{bullet_graph.png}
\caption{Bullet graph showing comparison of Max ceramic percentages between Chinikihá and Boca Chinikihá at various confidence levels.}
\end{figure}
At Palenque, the Proyecto Crecimiento Urbano (PCU) identified two main areas of concentration of Late Preclassic materials, a large area west of the nuclear zone, and a smaller sector northeast of the same. Lopez Bravo and colleagues (Lopez Bravo 2013, Lopez Bravo et al. 2003) suggest that at the end of the Late Preclassic the two settlement clusters at Palenque reached an extent of 30 ha, each one with a population of about 265 people. Of the total ceramic inventory recovered by the project, only 8.8% was possible to ascribe to a ceramic sphere. The local Late Preclassic sphere (Pre-Picota) includes only 0.2% of the total dated materials (Venegas Durán 2009). Ceramics from this and previous projects (Rands 1987, 2007; Lopez Bravo 2005; San Roman 2007) include typical Petén-style vessels of the Sierra group, indicating that the majority of the traded or emulated pottery were serving vessels.

At that same moment, El Lacandón, located about 18 Km east of Palenque, had an area of 5.7 ha and a population about 100 inhabitants (Lopez Bravo 2013). The site seems to have undergone two major occupation phases, one in the Late Preclassic and one in the Late Classic and, according to Lopez Bravo, it was abandoned during the Early Classic. Here more than 50%\(^\text{28}\) of the recovered materials pertain to the Late Preclassic and it includes a high percentage of serving vessels types within the Sierra group in both elite and commoner contexts\(^\text{29}\) (ibid.). Lopez Bravo suggests that all levels of society at El Lacandón had access to highly decorated vessels in almost the same proportion (ibid: 57). This seems in line with what Mirón (2010) observes for the Chinikihá region, where -

\(^{28}\) The percentages at the site of El Lacandón are based on frequency of sherds and not on number of records.
\(^{29}\) Contexts at Late Preclassic El Lacandón include mainly household burials and platform fills.
contrary to later periods - the distribution of Petén-style serving vessels was more horizontally organized, and the majority of settlements on the region and their inhabitants had access to traded or locally copied exotic ceramics, indicating a more heterarchical social organization, a scenario already proposed by Robert Rands for the region before the founding of the Palenque dynasty in AD 431.

Finally, an interesting comparison is with Late Preclassic assemblages from the Usumacinta region. As already mentioned, especially the Lower Usumacinta had an important development in the Early and Middle Preclassic periods, with sites like Balancan, Trinidad, Paso Nuevo developing during the Olmec period and continuing to thrive in the Late Preclassic (Rands 2007). In the Upper Usumacinta, many settlements were deeply enmeshed in the central Petén ceramic sphere, like Yaxchilán (Lopez Varela 1995. 2005), and Piedras Negras (Muñoz 2006). Pomona, on the contrary, shows little contact with the Usumacinta and wider Maya area for this early phase, since only 8 of the 10,465 temporally determined pottery sherds can be ascribed to Late Preclassic wares (Lopez Varela 2005)³⁰.

Within the Usumacinta, especially interesting for my discussion is the riverine site of El Porvenir, located few hundred meters northwest of Piedras Negras. Analysis of El Porvenir ceramic inventory suggests that the site had two main occupations: one during the Late Preclassic and one during the Late Classic. The site was a satellite or cluster of Piedras Negras during the Late Classic, but was probably an independent community in the Late Preclassic (Kingsley et al. 2012). 17.7% of the 49.7% of the

³⁰ Ceramic assemblage from Pomona comes primarily from cleaning of Late Classic building collapse in the main plaza
ceramic assemblage for which it was possible to ascertain a ceramic sphere corresponds to the Late Preclassic (Kingsley et al. 2010b), with a virtual abandonment during the Early Classic (with ascribable ceramic materials totaling less than 1%), when the population was probably absorbed by the recently founded capital of Piedras Negras, and a renewed occupation, under the control of Piedras Negras during the Late Classic. The comparison of El Porvenir with Boca Chinikihá is particularly interesting for my discussion, since both sites were probably riverine ports whose fortunes and trajectory were linked to larger centers such as Piedras Negras and Chinikihá.

Puy Period (Early Classic AD 250/300 - 600)

The Early Classic is still poorly known in the region and its materials present some problems in terms of classification (Jimenez 2015). Jimenez (2015) and Mirón (2014) noticed that Early Classic ceramic assemblage in the Chinikihá region lacks the typical Tzakol wares, which - albeit scarce - are recognizable by contrast in Palenque. For this reason, Mirón affirms that outside Palenque it is difficult to clearly define this ceramic phase (2014: 107). Furthermore, as already mentioned for the Late Preclassic, researchers agree that the Palenque region shows a delay in accepting ceramic styles and typologies from Petén, and that Late Preclassic ceramic modes were still in used well into the Early Classic (Mirón Marván 2014; Rands 1987, 2007).

In the nuclear zone of Chinikihá, and at Boca few sherds pertaining to the Early Classic Petén Glossy tradition have been identified, and also rare are materials from Palenque’s contemporaneous Motiepá phase, with which are often mixed (Jimenez 2015: 240).
These scarce, but diagnostic sherds are grouped into the local Puy phase (A.D. 250/300-600).

At Boca, of the 21.3% of pottery I could attribute to a ceramic sphere, 1% corresponds to Puy materials. 209 ceramic fragments were attributed to this phase, for 191 (91.4%) of these, corresponding to 128 records, it was possible to recognize a ceramic class. The majority of forms in the identified assemblage pertain to serving vessels, especially plates, bowls and fine jars (cfr. Table 7.5). In terms of records, 41 were bowls, 62 plates, 24 jars, and only 1 was a basin. The plates’ assemblage include 24 Motiepá plates, recognized by the characteristic everted rims and ringed base, and one typical Picota tripod plate with slab feet (Fig. 7.3.) (San Roman 2005).

Fig. 7.3. Slab foot from Picota phase plate
Fig. 7.4. Tzakol sherd, possibly Dos Arroyo Orange type
The majority of the pastes for Early Classic plates are carbonated pastes, both coarse and fine. Only 6 records were clearly polychrome plates of the Tzakol tradition, and one recognizable as Dos Arroyos Orange Polychrome type (Fig. 7.4.). This feeble presence is in line with the Chinikihá regional pattern, but slightly different from Palenque, where composite silhouette forms, glossy wares, polychrome and orange slip are essentially absent (Rands 1987). The 18 body sherds (8.6%) for which it was not possible to identify a ceramic class were nevertheless grouped into the local Early Classic phase for the presence of polychrome and red-orange glossy slip.

Table 7.5. Total and Percentages of Puy ceramic by frequency, weight and record.

<table>
<thead>
<tr>
<th>VESSEL CLASS</th>
<th>FREQUENCY</th>
<th>WEIGHT (GR.)</th>
<th>RECORD</th>
<th>FREQUENCY %</th>
<th>WEIGHT %</th>
<th>REC. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cajetes (1)</td>
<td>84</td>
<td>287</td>
<td>41</td>
<td>40.2%</td>
<td>14.8%</td>
<td>29.3%</td>
</tr>
<tr>
<td>Platos (6)</td>
<td>80</td>
<td>1032</td>
<td>62</td>
<td>38.2%</td>
<td>53.3%</td>
<td>44.3%</td>
</tr>
<tr>
<td>Ollas (3)</td>
<td>26</td>
<td>455.5</td>
<td>24</td>
<td>12.4%</td>
<td>23.5%</td>
<td>17%</td>
</tr>
<tr>
<td>Cazuela (5)</td>
<td>1</td>
<td>18.4</td>
<td>1</td>
<td>0.4%</td>
<td>0.9%</td>
<td>0.7%</td>
</tr>
<tr>
<td>TOTAL/ ID</td>
<td>191</td>
<td>1793</td>
<td>128</td>
<td>91.4%</td>
<td>92.6%</td>
<td>91.3%</td>
</tr>
<tr>
<td>N/ID</td>
<td>18</td>
<td>143</td>
<td>12</td>
<td>8.6%</td>
<td>7.4%</td>
<td>8.6%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>209</td>
<td>1936</td>
<td>140</td>
<td>100%</td>
<td>100%</td>
<td>99.9%</td>
</tr>
</tbody>
</table>

PUY (AD 250/300 – 600) CERAMIC ASSEMBLAGE
Boca’s regional framework during the Early Classic

Considering the few, but present, Early Classic Petén Glossy types, and diagnostic fragments of the so-called “exotic” Motiepá phase from Palenque (Rands 1987, 2007), it seems that Boca was enmeshed in both the local tradition revolving around Palenque, as well as within the wider Maya region, exemplified by the Central Petén ceramic modes. It is possible that during the Early Classic, Boca Chinikihá was more connected than coeval Chinikihá to the Petén region, thanks to its position along the Usumacinta. Unfortunately, it is not possible to discern if these vessels were made locally at Boca or were imported. I am inclined to consider the few Petén-style materials as probable imports, considering their well-preserved glossy slip, decoration, and different paste, whereas the ring based plates, mainly with matte finishing, although not widespread, are common in the Palenque’s hinterland and might have been manufactured locally in the Chinikihá area.

In the largely divergent ceramic tradition of Palenque, the Early Classic, local Picota-Motiepá phase, is apparently the only period in which the site is partially enmeshed in the wider Maya ceramic sphere. During its later facet, an “exotic” Motiepá subcomplex emerges, characterized by glossy monochrome slips and forms connected to the contemporaneous Piedras Negras phase (Rands 1987). These were probably imported goods since both the slips and the paste look very different from local Motiepa pastes, which include brown pastes, and usually a matte finishing (ibid.). San Roman (2005) noticed that Motiepa coincides with the rise of the Palenque ruling dynasty and argues that it was probably important for the ruling dynasty to show contacts and connections
with the wider Maya region and other capitals, such as Tikal and Piedras Negras. Nevertheless, the quantity of Early Classic material at Palenque is minimal. The ceramic materials recovered by the PCU and dated to this period includes 1.5% of the total assemblage (Venegas 2009).

Outside Palenque and its immediate surrounding area, Early Classic materials are even scarcer. At El Lacandón, for example, there is a hiatus in occupation and the site would be reoccupied only in the Late Classic (Lopez Bravo 2013). It is probable that the local population was absorbed by the recently found capital (Liendo Stuardo 2007, 2011b). Nonetheless, Lauren Herkis’ research (2015) found Early Classic materials at few small house groups clustered around the secondary centers of El Lacandón and Nututún, proving that these were newly founded or continued to be occupied in this period. In general, however, a trend is noticeable, with low occupation densities during the Early Classic outside the Palenque hinterland and in the Low Sierra sub-region.

In the Usumacinta, a similar trajectory has been detected for the site of El Porvenir, which was probably abandoned at the end of the Preclassic period (Kingsley et al. 2010b, 2012). No architecture was built and no ceramics found at the site pertain to the Early Classic. Paralleling El Lacandón and the newly founded dynastic capital of Palenque, it is possible that the population of El Porvenir, which lies only few km north of Piedras Negras, was attracted to the Usumacinta capital for social and economic opportunities (Kingsley et al. 2012).

By the same token, at Piedras Negras, the Early Classic marks the seating of the ruling dynasty and the expansion of the existing settlement. According to Muñoz (2006),
almost all sectors of the site present Early Classic materials – local Naba and Balché 
phases - most of which are right above bedrock. Interestingly, although enmeshed in the 
central Petén ceramic sphere, Piedras Negras’ ceramic modes diverge from typical Tzakol 
polychromy, since here resistant decoration is more common and eventually developed in 
a regional style (ibid.).

By the Early Classic, the site of Pomoná is completely involved in Petén ceramic 
sphere (Lopez Varela 2005). About 9% of its ceramic assemblage pertains to this period, 
and includes both slipped and unslipped types of Petén tradition. Furthermore, Lopez 
Varela noticed that, compared to Yaxchilán, Pomoná is more influenced by Central Petén 
and that its ceramic assemblage does not show the characteristic lingering of earlier 
Chicanel ceramic types so typical of other Northwestern Maya sites (Lopez 1989, 2005). 
However, Pomoná’s inventory also shows brown pastes, typical of Palenque and 
Usumacinta regions. This is probably due to its intermediate position between the 
Usumacinta region and the Northwestern Maya lowlands.

Yaxchilán too seems fully enmeshed in Petén ceramic modes, even more than 
Piedras Negras and Pomoná. The city by AD 514 was a regional capital, involved in a 
wide trade network, with emblem glyph and inscriptions linking its politics to Tikal. 
Possibly for this last reason its ceramics seem the most similar to the Tzakol sphere 
among the Usumacinta capitals (Lopez Varela 1989).

**Sip-Ajín Period (Late-Terminal Classic, AD 600-900)**

The Late Classic is divided in the Chinikihá region in two phases, an early facet 
called Sip (AD 600-700), roughly corresponding to the Otulum period (AD 600-683) at
Palenque, and a late facet, Ajín (AD 700-850), coeval of Palenque’s Murcielago-Balunté periods (683-850). Sip is characterized by wares elaborated primarily with carbonated pastes and by the emergence of fine ware polychrome vessels (Jimenez 2015). Grooved jars are common in this period, as well as large ringed plates (platones anulares). In terms of serving vessels, the Sip period also includes large rimmed tripod plates, typical of the contemporary Otulum phase of Palenque. In this period, Chinikihá also seems to share many ceramic traits with the larger Usumacinta region, as well as with Central Petén (ibid.).

At Boca Chinikihá, only 66 fragments (0.3%) were assigned to Sip. But this can be probably due to our little knowledge of this period except for few diagnostic forms and pastes typical of Palenque, and found at Chinikihá, which include large ringed based plates, fine carbonated pastes, and fine jars. Polychrome vases and thin bowls are present in this early facet of the Late Classic, which also sees the emergence of striated jars, and tripod plates with small, solid feet. Coarse carbonated pastes are typical of striated jars, as well as large basins. Mirón Marván (2014) observes that at Chinikihá during the Sip complex emerges the production of more serving vessels and more varied forms. This is reflected in the presence of thin walled jars, with everted necks, often decorated with bichrome lines. At Chinikihá, the Sip assemblage was recorded together with Puy, and both complexes made up approximately 5% of the dated materials.

The Ajin complex includes the largest and best represented ceramic assemblage in the region. For this period, a finer grained typological classification was possible, recognizing vessel sub-classes and suggesting some form and function connections
(Jimenez 2015; Mirón Marvan 2014) (Fig. 7.6). Ajin’s ceramic types include serving vessels such as fine bowls (*cajetes*) with vertical or slightly everted walls and sometimes hemispherical small bowls (*cuencos*) with slightly restricted openings; jars with fine walls and cooking implements like large bowls, with wide open orifices. Diagnostic of this period are also large tripod plates with tall feet, similar to the contemporaneous Murcielago-Balunté plate tradition at Palenque (Rands and Bishop 2003). A second group of utilitarian vessels includes coarser pastes used for modeled low-neck jars, and the already mentioned striated jars. According to Jimenez, Ajin is the period with the largest variety of pastes at Chinikihá, with a majority of sandy wares, in contrast to earlier periods where carbonated wares predominated (Jimenez 2015: 149). Furthermore, it seems that differently from Palenque, where this period sees the emergence of Fine Wares, Chinikihá does not show evidence of Fine Orange or Fine Gray wares, at least in the central portion of the settlement (ibid.). At Chinikihá about 94% of dated materials by records, which correspond roughly to 31% of the total sherds found, pertains to the Ajin phase (Mirón Marván 2014).

Based on the ceramic assemblage she analyzed, Jimenez (2015) argues that during the earlier facet of the Late Classic (Sip), Chinikihá seems more opened toward Palenque’s ceramic modes and shows links to the Usumacinta sphere. However, during the late portion of the Late Classic, corresponding to the Ajin phase, Chinikihá seems to shrink into an “intraregional” ceramic sphere, with little contacts with the Usumacinta and the wider Maya area, especially in terms of utilitarian pottery (ibid.).
### SIP-AJIN (AD 600 – 850) CERAMIC ASSEMBLAGE

<table>
<thead>
<tr>
<th>CERAMIC CLASSES</th>
<th>FREQUENCY</th>
<th>WEIGHT (GR.)</th>
<th>RECORD</th>
<th>FREQUENCY %</th>
<th>WEIGHT %</th>
<th>REC. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cajetes (1)</td>
<td>1786</td>
<td>4364</td>
<td>305</td>
<td>56.5%</td>
<td>21.8%</td>
<td>44%</td>
</tr>
<tr>
<td>Ollas (3)</td>
<td>1037</td>
<td>9000</td>
<td>240</td>
<td>32.8%</td>
<td>45%</td>
<td>34.6%</td>
</tr>
<tr>
<td>Cazuelas (5)</td>
<td>89</td>
<td>4558.7</td>
<td>42</td>
<td>2.8</td>
<td>22.8%</td>
<td>6%</td>
</tr>
<tr>
<td>Platos (6)</td>
<td>164</td>
<td>1494.6</td>
<td>63</td>
<td>5.2%</td>
<td>7.5%</td>
<td>9%</td>
</tr>
<tr>
<td>Platones (7)</td>
<td>17</td>
<td>293</td>
<td>14</td>
<td>0.3%</td>
<td>1.4%</td>
<td>1.1%</td>
</tr>
<tr>
<td>TOTAL/ID</td>
<td>3094</td>
<td>19711</td>
<td>658</td>
<td>97.6%</td>
<td>98.7%</td>
<td>94.7%</td>
</tr>
<tr>
<td>TOTAL N/ID</td>
<td>73</td>
<td>257.5</td>
<td>35</td>
<td>2.3%</td>
<td>1.2%</td>
<td>5%</td>
</tr>
<tr>
<td>TOTAL SIP-AJIN</td>
<td>3160</td>
<td>19968</td>
<td>693</td>
<td>99.9%</td>
<td>99.9%</td>
<td>99.7%</td>
</tr>
</tbody>
</table>

Table 7.6. Total and Percentages of Sip-Ajin ceramic by frequency, weight and record.

At Boca Chinikihá the Sip-Ajin complexes include 3160 sherds, which makes up about 15% of the total pottery found at the site (20704 sherds), or 71% of the dated material (4406 sherds). An overwhelming quantity of this pottery includes, once again, mainly serving vessels, in the form of thin walled bowls (*cajetes*), and plates (cf. Fig. 7.5). A second group of vessels include utilitarian pottery, mainly large basins, and striated jars, which constitute the majority of the jar class.
Late Classic materials, especially from the Ajín phase, are widespread in all sectors of the site and all the contexts excavated so far seem to date to this period. Finally, similarly to what happens at Chinikihá, at Boca only few sherds of Terminal Classic materials have been detected, about 41 sherds, which count for less than 1% of the total assemblage. These include mainly sherds of Fine Orange cajetes.

Functions and Distribution of Sip-Ajín Ceramic Subclasses at Boca

Thanks to the research at Chinikihá and its hinterland sites by Socorro Jimenez (2015) and Esteban Mirón (2014) it was possible within the Ajín period to recognize ceramic subclasses related to form-functional categories. Not all the subclasses identified at Chinikihá are present at Boca Chinikihá but the overlap is robust, and the differences interesting.

My interest in analyzing, in detail, subclasses at Boca has various reasons. First, the detail of sub-forms related to possible function within the Ajin period, which is also the period in which the bulk of the construction at Boca occurred, would help me recognize patterns of functions among pottery possibly related to functional areas within the site. Furthermore, to support my idea that Boca was a riverine port and connecting node, the typology of ceramic materials found could shed light on the differences with other sites. For example, since no residential areas have been detected in the sector of the site studied during my fieldwork, I suggest that material would differ from the residential areas excavated at Chinikihá. Also, I would expect to find less serving vessels in areas related to the traffic to and from the river, such as the platforms excavated on the terrace.
limit along the riverbanks. I would rather expect ceramics related to storage and transportation, such as large jars, despite the possibility that these functions were performed by perishable materials such as baskets, ropes, or textile sacks. Still, even if this is a general statement, it can be a first approximation to understand the different functions of the different sectors of the sites that I outlined in chapter 3.

This analysis includes only 14.9% of my ceramic data, that is, the Sip-Ajin ceramic assemblage for which it was possible to recognize a functional subclass within the already mentioned ceramic classes (Table 7.7). Furthermore, instead of percentages of frequency of sherds, I take into consideration record percentages. As already mentioned, records are a closer approximation to minimum number of vessels than sherd counts or weight and since my ultimate intention is trying to map the distribution of specific functional forms within the settlement, it seems more precise to use such an analytical unit. The Late-Terminal Classic ceramic vessels identified at Boca Chinikihá can be grouped – as it has been done at Chinikihá (Mirón Marván 2014) – into three broad categories: serving, transport, and storing/processing vessels. The largest sample of serving vessels is represented by different types and size of bowls

**Cajetes Subclasses**

Jimenez defined *cajetes* as thin walled serving bowls, whose height can be the same as, but never less than a third of their diameter (Jimenez 2015: 109).

Of the six cajete subclasses identified at Chinikihá, only three were present at Boca. These include cajetes with thin, slightly out-flared walls, with or without feet (subclass

---

31 In this analysis I only include ceramic vessels and no other ceramic materials such as musical instruments, censers and figurines.
1.1), cajetes with markedly out-flared walls, with or without feet (1.2) and cuencos, convex bowls, with or without feet (1.4). Pastes are remarkably fine and include Fine Sandy, Kaolinite and Fine Grey. At Chinikihá these bowls often shows decorations as geometric patterns and incisions. At Boca these are rarer, but few examples present incisions and grooves. Furthermore, their surface is often coated with a light cream or black wash, sometimes covered with a reddish or brown slip, or with color bands.

**Platos Subclasses**

A second group of serving vessels include plates (platos) and large plates (platones). Plates are vessels whose opening is three or five times bigger than their height, and, for the Sip-Ajin phase, all plates have supports (Jimenez 2015). In general, these forms have medium to thick walls and do not usually occur with fine pastes (ibid.). At Chinikihá there are grouped into nine subclasses (6.1 – 6.8), plus one class, without subclass for platones (7). Subclass 6.1 and class 7 are actually diagnostic of the early facet of the Late Classic (Sip), since they are typical forms of the Otulum period at Palenque (Jiménez 2015). At Boca, only the first six subclasses have been identified (6.1. to 6.6), plus various examples of platones (class: 7). Subclass 6.1 includes tripod plates, with solid feet and straight but divergent walls; the rim is extremely everted. Subclasses 6.2, 6.3, 6.5 consist of plates with elongated or hemispherical hollow feet, often with a basal flange, and are diagnostic of the Ajin phase at Chinikihá and the Murcielago-Balunté period at Palenque (Jimenez 2015: 142). These plates, with hollow, elongated feet are similar to those recorded at Piedras Negras for the contemporaneous Chacalhaaz phase (Jimenez 2015:143). Contrary to Palenque, Chinikihá, and Piedras Negras,
however, at Boca these plates don not show traces of polychromy, and are rarely coated with wash or slip. This, however, could be an issue of poor conservation. Subclasses 6.4. and 6.6. diverge from those mentioned above for having solid, conic feet and at Palenque seem to be more frequent during the first facet of the Murcielago-Balunté phase (San Roman 2007).

**Cazuelas Subclasses**

Basins in Chinikihá regional classification are divided into nine subclasses (5.1 to 5.9). Mirón (2014) considers that this form might have been used for different purposes from storing, short-distance transport and processing, but probably not serving. The main differences among subclasses are the base, which can be flat or concave, and the rim, which can span from extremely out-flared, flat rims, to out-flared but downward curved rims (5.1 to 5.6), and inward curved rims typical of the “Tepeu” style basins (5.8). A final subclass, 5.9., includes basins whose rim is slightly outward and ends with a ticker flange. Their walls range from thick to medium and are made out of coarse to medium pastes, like sandy and carbonated clays (Jimenez 2015). Subclass 5.9 is particularly frequent at Chinikihá (Jimenez 2015), whereas at Palenque, especially during the Balunté facet, basins have thinner walls and their rims are extremely divergent and horizontal (San Roman 2007), more similar to the 5.6 subclass, whereas 5.9 are almost absent. Interestingly enough, at Boca Chinikihá the only recorded basin subclass is the 5.8, flat based, with concave walls and inward rims, typical of the Petén Tepeu 1-2- group. It is very uncommon in Chinikihá, but present at Pomoná within the basin assemblage of the Chaquiste Impreso type (Lopez Varela 2005). For Piedras Negras, Holley (1983, cited in
Jimenez 2015) argues that basins similar to the 5.9 subclass are common in the first portion of the Late Classic, whereas Tepeu basins, corresponding to the 5.8 subclass, appear during the second part of the Late Classic. It seems, therefore, that during the first portion of the Late Classic the sites within the Usumacinta and Palenque region did not share this tradition of utilitarian vessels.

**Ollas Subclasses**

One of the most flexible and difficult ceramic classes to constrain into one functional category is that of jars. The regional ceramic classification identified nine subclasses of these forms, based on wall thickness, rim diameter, neck size, and presence of decoration (Jimenez 2015). Jars are multipurpose, but based on some of their characteristics it was possible to distinguish among subclasses whose main intended purpose was serving food or liquids, and other larger, coarser vessels which were probably used for more utilitarian activities, such as cooking, processing, storing and transportation. Jars were crafted in a variety of coarse, medium and fine sandy, carbonated, micaceous, and chalky clays, and some of these were particularly apt to be exposed to high temperatures (Mirón Marván 2014). Furthermore, in addition to be indicative of specific functions, some jars are also diagnostic of specific cultural periods. Of the ten subclasses identified at Chinikihá and in its region (subclasses 3.1 to 3.10), only eight were registered at Boca (3.1 – 3.8). Subclasses 3.1. and 3.2. are fine walled jars, with straight or divergent necks, and flanged rims (Jimenez 2015). Normally fashioned with medium sandy clays, and often painted red over a black wash, these jars were possibly used to pour liquid during special events (ibid.). Another characteristic of
these subclasses is a notched decoration around the neck. According to Jimenez (2015), these forms were introduced in the Ajín phase and their decorations bear similarities with jars recorded at Palenque during the Murciélago complex, and are widely distributed in the Usumacinta basin. At Boca, these subclasses are present, but not very common, counting for less than 1% of the recognized class forms. Jars from the 3.3 subclass are smaller, with particularly thin walls and a bead-rimmed, slightly convergent neck (Jimenez 2015). Their miniature size suggest some special-purpose use within serving activities. These are mainly associated with Ajín contexts at Chinikihá and are also present in the Murciélago assemblage at Palenque (ibid.). 3.4. and 3.6 jars are thicker walled vessels, made with coarser carbonated and sandy clay. Both have short necks, with direct or flanged rims. Sometimes their surfaces are smoothed and covered with a light wash, but more often they are rough to the touch. Based on these characteristics, it is possible that such subclasses fulfilled a mix of purposes related to the processing and storing of food. They are abundant at Chinikihá during the Ajin sphere, and are paralleled by similar forms at Palenque during the Balunté facet of the Late-Terminal Classic (Jimenez 2015). Especially the 3.4. sub-group seems a local form, not widespread in the Maya area, or outside the Usumacinta region. At Boca they count for less than 1% of the recorded jars. 3.5 jars are fine globular jars, made with sandy clay of a fine texture. They have thin walls and a curved-divergent neck. It is typical of the Sip facet of the Late Classic (AD 600-700). Subclass 3.7 is also diagnostic of the Sip period. These are jars with carbonated paste of medium texture, with a smoothed surface and light grooves (Jimenez 2015).
Fig. 7.5 Ceramic Classes and Subclasses for the Sip-Ájin Complex (AD 600-850) in the Chinikihá region (from: Jimenez 2015: 95)
They have thin walls, short necks with out-flared rim. It sometimes presents light grooves on the surface. Because of their thin walls and sometimes presence of paint on the surface they probably have some special purpose as fine wares (ibid.).

The largest sample of jars at Boca Chinikihá include types of the 3.8 subclass. These are multipurpose jars, used for processing, storing and transporting, and less probably as serving vessels (Mirón Marván 2014: 138). Of the 955 fragments (182 records) attributed to this subclass, 824 are sherds with grooves (for 119 records). Deep, horizontally grooved jars includes 30.8% of fragments recorded for this period, and are typically thick walled, carbonated pastes with large, out-flared necks. Interestingly, this subclass is absent at Palenque. Similar types are common to other Maya sites during the Classic period, sharing similarities to the Early Classic Triunfo type identified at Uaxactun, and in the Usumacinta at Piedras Negras and El Cayo. Other grooved jar types were found at Altar de Sacrificio. Adams suggested that these might have been water containers (Adams 1971, cited in Jimenez 2015). Mirón too agrees that these jars were used to transport water and suggests that their deep grooves were meant to better grasp the containers in the absence of handles (Mirón Marván 2014: 163).
<table>
<thead>
<tr>
<th>VESSEL CLASS &amp; SUBCLASS</th>
<th>FREQUENCY</th>
<th>WEIGHT (GR.)</th>
<th>RECORD</th>
<th>FREQ. %</th>
<th>WEIG. %</th>
<th>REC. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS: Cajetes (1)</td>
<td>1786</td>
<td>4364</td>
<td>305</td>
<td>57.7%</td>
<td>21.8%</td>
<td>45.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAJETE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>48</td>
<td>244.6</td>
<td>30</td>
<td>1.5%</td>
<td>1.22%</td>
<td>4.5%</td>
</tr>
<tr>
<td>1.2</td>
<td>41</td>
<td>199</td>
<td>32</td>
<td>1.3%</td>
<td>1%</td>
<td>4.8%</td>
</tr>
<tr>
<td>1.4</td>
<td>82</td>
<td>440.4</td>
<td>54</td>
<td>2.6%</td>
<td>2.2%</td>
<td>8.1%</td>
</tr>
<tr>
<td>SUBCLASS N/D</td>
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<td>3480</td>
<td>189</td>
<td>52.2%</td>
<td>17.4%</td>
<td>28.4%</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASS: Cazuelas (5)</td>
<td>89</td>
<td>4558.7</td>
<td>42</td>
<td>2.8%</td>
<td>22.8%</td>
<td>6.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.8</td>
<td>87</td>
<td>40</td>
<td>2.8%</td>
<td>22%</td>
<td>6%</td>
</tr>
<tr>
<td>SUBCLASS N/D</td>
<td>2</td>
<td>160.7</td>
<td>2</td>
<td>0.06%</td>
<td>0.8%</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASS: Ollas (3)</td>
<td>1037</td>
<td>9000</td>
<td>240</td>
<td>33.5%</td>
<td>45%</td>
<td>36.1%</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.1</td>
<td>7</td>
<td>36.5</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>3.2</td>
<td>19</td>
<td>83</td>
<td>0.6%</td>
<td>0.4%</td>
<td>1.8%</td>
</tr>
<tr>
<td></td>
<td>3.3</td>
<td>1</td>
<td>5</td>
<td>0.03%</td>
<td>0.02%</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td>3.4</td>
<td>21</td>
<td>401.5</td>
<td>0.6%</td>
<td>2%</td>
<td>2.7%</td>
</tr>
<tr>
<td></td>
<td>3.5</td>
<td>7</td>
<td>97</td>
<td>0.2%</td>
<td>0.4%</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>3.6</td>
<td>9</td>
<td>223</td>
<td>0.3%</td>
<td>1.1%</td>
<td>1.2%</td>
</tr>
<tr>
<td></td>
<td>3.7</td>
<td>16</td>
<td>211.3</td>
<td>0.5%</td>
<td>1%</td>
<td>1.2%</td>
</tr>
<tr>
<td></td>
<td>3.8</td>
<td>955</td>
<td>7932.3</td>
<td>30.8%</td>
<td>39.7%</td>
<td>27.4%</td>
</tr>
<tr>
<td></td>
<td>SUBCLASS N/D</td>
<td>2</td>
<td>13.5</td>
<td>0.06%</td>
<td>0.06%</td>
<td>0.3%</td>
</tr>
<tr>
<td>CLASS: Platos (6)</td>
<td>164</td>
<td>1494.6</td>
<td>63</td>
<td>5.3%</td>
<td>7.4%</td>
<td>9.5%</td>
</tr>
<tr>
<td>------------------</td>
<td>-----</td>
<td>--------</td>
<td>----</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>6.1</td>
<td>4</td>
<td>62</td>
<td>4</td>
<td>0.1%</td>
<td>0.3%</td>
<td>0.6%</td>
</tr>
<tr>
<td>6.2</td>
<td>70</td>
<td>747</td>
<td>11</td>
<td>2.2%</td>
<td>3.7%</td>
<td>1.6%</td>
</tr>
<tr>
<td>6.3</td>
<td>1</td>
<td>3.6</td>
<td>1</td>
<td>0.03%</td>
<td>0.01%</td>
<td>0.1%</td>
</tr>
<tr>
<td>6.4</td>
<td>2</td>
<td>7.5</td>
<td>2</td>
<td>0.06%</td>
<td>0.03%</td>
<td>0.3%</td>
</tr>
<tr>
<td>6.5</td>
<td>3</td>
<td>15.6</td>
<td>2</td>
<td>0.1%</td>
<td>0.07%</td>
<td>0.3%</td>
</tr>
<tr>
<td>6.6</td>
<td>11</td>
<td>56.4</td>
<td>6</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

| CLASS: Platones (7) | 17 | 405 | 14 | 0.5% | 2% | 2.1% |

| TOTAL CLASSES /ID | 3093 | 19822.7 | 664 | 99.8% | 99.3% | 99.9% |
| TOTAL SUBCL ID | 1401 | 15566 | 434 | 45.3% | 78% | 65.3% |
| TOTAL SUBCL N/ID | 1692 | 4256.7 | 230 | 54.7% | 21.3% | 34.6% |

<table>
<thead>
<tr>
<th>SIP-AJIN TOTAL N/ID* (neither classes or subclasses id)</th>
<th>67</th>
<th>145.5</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP-AJIN TOTAL</td>
<td>3160</td>
<td>19968</td>
<td>693</td>
</tr>
</tbody>
</table>

Table .7.7. Sip-Ajín Quantities and Percentages of Ceramic Classes and Subclasses at Boca
Sip-Ajín Ceramic Subclasses grouped by Functional Categories

Mirón’s (2014) study of vessel morpho – functional categories in the Chinikihá region recognizes certain types of class attributes that bespeak “attitude” of the vessels to perform certain activities, depending on size, shape, and opening. He compares these functional categories within Chinikihá and among settlement ranks. Mirón offers a detailed graphic of these categories (Mirón Marván 2014: 201-202) where he differentiates among serving, short and long term storing, processing with and without fire, and short/long distance transport vessels. He then compares these functions among different areas within Chinikihá urban core, as well as Chinikihá, as a site, with other rank sites. My analysis at Boca Chinikihá, although following this format, is simpler and it only includes three broad functional groups:

**Serving Vessels**

In this analysis, all subclasses of bowls, plates, and large plates are included among serving vessels. Among jars, which – as already mentioned- represented the more flexible among the ceramic classes, subclasses 3.1, 3.2, and 3.3 are fine jars, probably used for serving liquids during convivial events.

**Storage/Processing Vessels**

Under this rubric, I group two categories that Mirón treats separately in his study (Mirón Marván 2014: 201-202). My reasons for doing so are: 1) my analysis is not as detailed as his, for example, in very few cases I have data such as jar diameter, which can help me divide between larger, stationary, storing jars and more portable processing/cooking jars; 2) my interest is not pinpointing specific domestic activities.
within residential areas of a larger site (Chinikihá), or among different site ranks, rather it
is attempting to differentiate Boca’s assemblage from those of other sites, as well as –
considering that no domestic areas have been identified – recognizing broader sectors of
the site possibly connected with storing and transporting goods, or with providing on the
spot goods and service to people gathering in these areas. Following Jimenez’s (2015)
classification of forms and Mirón’s (2014) functional categories, I group under this rubric
jar subclasses of the 3.4, 3.5, 3.6, 3.7 types, and non-striated 3.8 type. The latter are jars
without grooves, but often with notched decorations along the neck, and include 131
fragments (2305.5 gr.), or 63 records. Basins were probably processing implements and
more rarely used as short-term storage vessels. The only basin subclass identified at Boca
includes “Tepeu” style cazuelas of the 5.8. group. For 2 fragments of basins was it not
possible to identify a subclass. In general, these vessels have rough or moderately
smoothed surfaces, and are made with coarse pastes and temper, which made them more
apt to be exposed to high temperatures.

*Transport Vessels*

Finally, grooved 3.8 jars represent the only ceramic vessels in the regional
classification directly related to long-distance transport of water. The regional inventory
of jars do not present handles to hold and transport vessels, with one exception (Mirón
Marván 2014), therefore, the presence of grooves on the body creates a surface of friction
that facilitate their grip. This category includes 824 fragments of 3.8 jar types, (5627 gr)
and 119 records. Table 7.8 presents the same data of table 7.7 but grouped by functional categories, according to the characteristics described above\textsuperscript{32}.

I have compared these data with Chinikihá’s assemblage for the Ajín period, based on the research by Esteban Mirón. He doesn’t use for this analyses the subclass codes defined by Jimenez. However, his definitions of subclasses more or less coincide with such subgroups, and when grouped into functional categories, these difference disappear (cfr. Mirón Marván 2014: 122).

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>FREQ.</th>
<th>WEIGHT gr.</th>
<th>RECORD</th>
<th>FREQ. %</th>
<th>WEIGHT %</th>
<th>RECORD %</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVING</td>
<td>1994</td>
<td>6388</td>
<td>391</td>
<td>64.5%</td>
<td>32.2%</td>
<td>60%</td>
</tr>
<tr>
<td>PROCESSING/STORING</td>
<td>273</td>
<td>7807</td>
<td>137</td>
<td>8.8%</td>
<td>39.3%</td>
<td>22%</td>
</tr>
<tr>
<td>TRANSPORT (grooved 3.8)</td>
<td>824</td>
<td>5627</td>
<td>118</td>
<td>26.6%</td>
<td>28.4%</td>
<td>18%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3091</td>
<td>19822</td>
<td>646</td>
<td>99.9%</td>
<td>99.8%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 7.8. Boca’s Sip-Ajin Ceramic Quantities grouped by Functional Categories

<table>
<thead>
<tr>
<th>CATEGORIES</th>
<th>FREQ.</th>
<th>WEIGHT kg.</th>
<th>RECORD</th>
<th>FREQ. %</th>
<th>WEIGHT %</th>
<th>RECORD %</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVING</td>
<td>36470</td>
<td>300.45</td>
<td>9851</td>
<td>69.1%</td>
<td>46.5%</td>
<td>68.4%</td>
</tr>
<tr>
<td>PROCESSING/STORING</td>
<td>11308</td>
<td>271.452</td>
<td>3505</td>
<td>21.4%</td>
<td>42%</td>
<td>24.3%</td>
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</tbody>
</table>

\textsuperscript{32} The discrepancy between these figures and the ones in table 7.6 are due to the only 2 fragments of jars, corresponding to 2 records, for which I could not identify a subclass and, therefore, a functional category, since jars are the most flexible among the ceramic classes and can include more than one functional subclass.
Table 7.9. Chinikihá’s Ajin Ceramic Assemblage grouped by Functional Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRANSPORT</strong> (grooved 3.8)</td>
<td>2782</td>
<td>19.19</td>
</tr>
<tr>
<td>OTHER</td>
<td>585</td>
<td>4.1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>14388</td>
<td>99.9%</td>
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</table>

This table is based on functional categories of ceramic classes grouped by me, and does not necessarily overlap with the intentions of the original author of the study. For this reason, I briefly describe my reasoning behind the functional groups, referencing the original work for further information (Mirón Marván 2014: 122-123; 201-202).

In tables 7.8 - 7.10., serving vessels include all the subclasses for bowls (*cajetes*) and plates (*platos*), as well as jars with thin walls and vertical necks, and small jars with glossy surface (Mirón 2014: 141-145). A second category groups storing and processing vessels, like basins (*cazuelas*), jars with thicker walls, globular body and short necks, possibly of the 3.6 and 3.4 subclasses, and 3.8 jars, with large necks, but without grooving on their body (Mirón 2014: 138-141). Finally, transport refers to jars with grooved bodies, apt to be held and moved frequently. This group includes the majority of the 3.8 jars.

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33 This category groups together non-culinary artifacts, such as censer burners and musical instruments.
34 This total does not include jars without subclass, which consist of 5456 fragments and 844 records.
Taking into consideration only the record column, I wanted to compare Boca’s figures for each category with those of Chinikihá and of other sites of the same rank, to see if the distribution of each functional category could be explained through the different role played by Boca Chinikiha within the regional political organization. These data are, once again, taken and adapted from Mirón’s thesis (2014: 84, 122). Chinikihá is the only rank 1 site in the Sierra subregion, dwarfed only by the regional capital, Palenque. Rank 2 sites in Mirón’s analysis include the settlements of La Providencia, Lindavista, San Juan Chancalaito, Sulusum and Santa Isabel. Table 7.9 shows the record frequency and percentages for each category. Table 7.10 illustrates the quantity of ceramics for each functional category, in terms of records and record percentages at sites of rank 1 and 2.

As observed by Mirón (2014) in his comparison of Chinikihá and satellite sites, the higher frequency is represented by serving vessels in the higher ranks. At a first

<table>
<thead>
<tr>
<th>SITES</th>
<th>CHINIKIHA’</th>
<th>BOCA</th>
<th>RANK 2 SITES</th>
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<tr>
<td>CATEGORY</td>
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<td>REC. %</td>
<td>REC.</td>
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<td>399</td>
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<td>25.4%</td>
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<td>TRANSPORT</td>
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<tr>
<td>TOTAL35</td>
<td>13803</td>
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<td>664</td>
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</tbody>
</table>

Table 7.10. Chinikihá’s, Boca’s and regional rank 2 sites Ajin Ceramic Assemblage grouped by Functional Categories

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35 This total does not include jars without subclasses and not culinary vessels, such as censer burners and musical instruments.
glance, Boca seems to behave as a regular rank 2 site, sharing the formal characteristics of this type of settlement. To buttress the information provided in table 7.10, and to analyze in depth the significance of these percentages, I calculated the standard errors for each proportion, and produced a bullet graph (fig. 7.6.) with error bars for confidence levels at 80%, 95% and 99%. Some inferences can be made based on this graphic. In relation to serving wares, for example, Boca Chinikihá’s proportion falls lower than both Chinikiha’s and other rank 2 sites with a 99% confidence. This is understandable, being Chinikihá a rank 1 site and a paramount center in the region, whose elites engaged in a more varied sets of public events, where such vessels were used. More interesting is the difference of Boca with the other rank 2 sites. This could be due, of course, to the type of contexts excavated, residential vs. public, open spaces (at Boca), or to a difference in the activities carried out at Boca, whose public/ceremonial areas (from which all the materials come from) were possibly devoted to different sets of practices. The second comparison concerns a less specific functional category, which includes processing and storing vessels. In general, Rank 1 and 2 sites seem more similar in terms of proportions of utilitarian vessels. This can be explained by the fact that we know less about detailed differences within utilitarian vessels, and that these might have been more standardized within the region. Boca falls below the 99% confidence error range for Chinikihá, the difference, however, is not striking, and Chinikihá’s estimated proportion touches the limit of the 99% confidence error bar of Boca. Similarly, Boca’s proportion falls within the 95% error range of other rank 2 sites, signifying a slightly bigger similarity in this

36 Although the ceramic materials from Chinikihá come from contexts all over the site, a huge proportion of it derives from the palace and from two other elite residences (Mirón 2014: 121)
functional category. All in all, it seems that this broad functional group might not be well suited to address issues of activity differentiation among sites. However, it is worth remembering that, despite the similarity in the estimated proportion of presence of utilitarian vessels, some of their form subclasses show a clear boundary. Basins at Boca Chinikihá, for example, are more similar to Petén types (5.8 subclass) than to Chinikihá’s (5.9) or Palenque’s (5.6) forms.

Finally, the third comparison concerns the transport category. Here the bullet graph shows an interesting pattern. While Chinikihá and the rank 2 sites present a similar, quite small, estimated proportion of grooved jars (below 5%), interpreted as vessels used to transport liquid over long and medium distances, at Boca their presence jumps up to 18% of the total recognized subclasses. Mirón discusses at length the reasons he believes behind the different distribution and frequency of this ceramic form between the eastern and western sectors of the region (2014: 162-164).

I agree with him that it might reflect a technological response to the different need of transporting water: these jars are virtually absent from Palenque, where most residential units had direct access to permanent source of water, but present in sites east of the capital, in the Chancalá valley and Chinikihá region, which were relatively close to rivers, but lacking sophisticated water systems. However, this doesn’t explain the striking frequency of these jars at Boca, a site that, similarly to Palenque, had a permanent source of water in the form of the Chinikihá stream and Usumacinta River. One explanation could be that, differently from Chinikihá - whose urban landscape was nonetheless punctuated with sinkholes and *aguadas*- and other secondary centers east of Palenque,
whose small percentage of grooved jars reflected probably domestic needs, it is possible that at Boca the larger percentage of grooved jars in its civic-ceremonial sector might be linked to activities in which transporting or storing water from the river was not necessarily a domestic issue, but rather connected to workshops and other port related activities, or public gathering in its main plazas.
Fig. 7.6. Comparison of Functional Categories Proportions through Bullet Graph
Boca’s Intra-Site Comparison of Functional Categories for the Sip-Ajín Ceramic Complex.

After the previous inter-site analysis and comparison, my idea was to compare the same functional categories proportions for each structure against the functional categories percentages within the urban space of Boca to identify or propose areas within the settlement possibly related to specific activities. In order to do this, I performed the same work as in the previous section, but with the contexts excavated at Boca. Their results are shown in table 7.1, in which I show percentages of ceramic records grouped by functional categories for each operation unit. My idea was to detect possible clusters of materials related to broad functions. However, some problems emerged when approaching my argument. First, the majority of my contexts represents construction fills, plaza leveling fills and backside areas of buildings in which the materials are not only mixed, but they probably represent secondary refuse, where ceramic and other materials were probably accumulated haphazardly (Newman 2015). Furthermore, when tempted to trace the possible origin of Boca’s refuse assemblages, I encountered that most archaeological discussions about refuse disposals tend to deal with domestic activities and consequent refuse disposal patterns at the household or neighborhood level (Hayden and Cannon 1983; La Motta and Schiffer 1999; Schiffer 1972; Sinopoli 1991). So it is difficult in the case of Boca to assume that the ceramic found in specific places could tell me something about the activities carried out in such areas. Nonetheless, it is logical to think that the materials that Boca’s inhabitants used to level the plaza during the Ajin period, came from nearby, as people do not go far away to throw their trash, except in the case of particularly hazardous materials (Hayden and Cannon 1983). Furthermore, the
areas excavated at Boca are probably non residential structures (cfr. Chapter 5), since I believe that most residential platforms were located on the opposite side of the Chinikihá stream, where the modern ejido is located, and where some evidence of domestic structures and materials have been found (Silva de La Mora and Mirón Marván 2009). Therefore, I can at least say that the materials found in my excavations at Boca pertain to the activities carried out in the structures and surrounding areas located in the public sector of Boca. For this reason, instead of discussing each structure separately, for the caveats clarified above, I discuss the functional categories detected grouped in broader areas, roughly corresponding to the settlement areas discussed in chapter 5. A summary of the following discussion is presented in table 7.10.

Area 3 includes operation 207, 209 and 211 behind the complex formed by structures 16-17, operations 217-219, near structure 12 and operation 13 between structures 13 and 14 (cf. Chapter 5, Fig. 5.3). The idea behind excavations near the double patio complex was to find trash middens, but actually the excavations carried out here yielded the least amount of materials, only 6.3% of Sip-Ajin materials (42 ceramic record) found at the site come from this area, for a total volume excavated of 5.2 m³. The majority of the materials here are serving vessels, which might have actually been accumulated from refuse disposal of the patio complex and adjoined structures. In general, however, this was not a helpful context to understand the activities carried out in this important sector of the site. It is also possible that the steepness of the slope behind the complex facilitated erosion by the river and rains and therefore washed materials away. Excavations in proximity of structure 12, by contrast, were richer and count for
about 12% of the total Ajin materials at the site. The contexts of Operation 217-219, however, probably represent fill from the plaza leveling mixed with materials that fell from Platform 12, especially in Operation 217. Again, the majority of ceramic include serving vessels, which may or may not come from Structure 12. Lastly, Operation 13, located between Structures 13 and 14, albeit quite shallow, it was only 1.8 m³, yielded about 9% of the Late-Terminal Classic ceramic at the site.

Area 2 covers the central sector of the site and includes Structures 10 and 11. Major effort was dedicated to Structure 10, which I thought particularly relevant to the port activities at Boca Chinikihá. Contrary to my expectations, the two excavations located behind and on top of Structure 10 failed to produce abundant materials. Operations 206, 208 and 210 –located at the back side of the superstructure (Structure 10a) only had 3.7% of the total materials. Excavations on top of Structure 10 cover 8 m³ and yielded 12.4% of the total. These operations dug through the surface and construction fill of the structure, so again the materials probably constitute secondary fill brought from somewhere else during the construction effort of this huge double level platform. It is possible, however, that in order to minimize construction efforts, people recovered materials from locations nearby.

By contrast, the two contexts excavated near Structure 11, Operations 220 and 221, produced the highest percentage of materials, 24% of the total, with only 3.4 m³ excavated.
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<th>10-8</th>
<th>0-2 %</th>
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<th>3.7 %</th>
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Table 7.1. Intra-site distribution of ceramic functional categories at Boca Chinikihá by operation units and grouped by structures. (*) This total does not include sherds from surface collection.

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<td>5%</td>
<td>9%</td>
<td>9%</td>
<td>0.1%</td>
<td>1%</td>
<td>0.1%</td>
<td>1%</td>
<td>0.6%</td>
<td>4%</td>
<td>229</td>
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The excavations were located at the two side of a small, isolated platform and together were the area with the highest density of Sip-Ajín ceramic with 24% from only 3.4 m$^3$.

Finally, Area 3 covers the most secluded section of the site, on its northeast side, and it includes Structures 1 to 9, of which only Structures 1, 4, 6 and 7 were tested through excavation. Operation 214, was located on top of Structure 1. We dug into the construction fill, composed of large unshaped blocks, of structure 1, the large terrace that limits the northeast sector of the site. Materials were scarce, with only few sherds recovered. Operation 216, instead, was located on the back side$^{37}$ of Structure 4, the tall pyramid that closes the northeast side of the settlement. Excavated volume here was about 3.6 m$^3$, but it yielded about 10% of the total materials, with a rough balance among the three functional groups. The second layer of this operation (capa 2) was particularly rich in animal bones and ceramic materials and could have been a refuse deposit from the structures on top of the pyramid. Operation 228 and 229 were located along the west side of Structure 6, an elongated structure that closed the plaza toward the Chinikihá stream. These were among the operations with the scarcer materials recovered, although they put to light a possible level of pebbles that could have been a preparation for the plaza floor. Materials only reached 1.8% of the total. Finally, Operations 226 and 227 were located on the west and east sides of Structure 7, a large rectangular platform, few meters south of the Ball Court, on the limit of the slope toward the stream. These excavations produced a good amount of materials (about 17%), but were also among the more extensively excavated, totaling about 8 m$^3$.

$^{37}$ I consider the northeast side of the structure its back, because it is on the opposite side of the plaza, toward the beach that conduces to the Usumacinta, often flooded during the rainy season.
What it is interesting to note is that, whether or not the materials reached their locations as secondary refuse deposit, construction fills or plaza leveling, a pattern emerges in which the locations where I least expected to find abundant materials, such as isolated platforms along the border of the plaza limits (Structures 7 and 11) or between major constructions (Structure 12, between 10 and the patio complex), were instead the most productive. Whereas, areas where I thought possible middens could be located (back of Structures 10 and 17) failed to yield abundant materials. Admittedly, this could very well be due to the choices of locating the excavation units. However, it still seems to me that the areas around the accesses from the river to the settlement were possibly focal points of activities whose byproducts were then scattered near these structures. Although it has been shown to have empirical validity the statement that archaeological contexts are in large part formed by secondary refuse deposits, and therefore a large array of supporting data are needed in order to reconstruct patterns and areas of activities (Newman 2015; Rice 2005 [1987]; La Motta and Schiffer 1999; Schiffer 1972; Sinopoli 1991), it might be assumed that people will follow the logic of minimum effort and dispose of their trash as close as possible, if lacking hazardous materials. Furthermore, most of the area excavated correspond to the external corner or sides of platforms where provisional discards are usually deposited after sweeping living surfaces (Hayden and Cannon 1983; La Motta and Schiffer 1999). Although the contexts excavated at Boca do not necessarily correspond to household areas, these could have been working and gathering spaces, which were still maintained as cleaned surfaces – as the small sample of
structure surface excavations shows – and around which refuse and byproducts of everyday activities concentrated.

**Ceramic Discussion**

Ceramic vessels enter circuits of distribution as goods in themselves or as containers for the actual item exchanged. My analysis of Boca Chinikihá’s ceramic inventory was aimed at understanding the circulation systems in which the site was embedded. However, the lack of compositional studies hindered such objective and my study was, therefore, re-geared toward a typological description and comparison. On the one side, through comparison with Chinikihá, Palenque and other Usumacinta sites, it was an attempt to trace differences and similarities that would bespeak Boca’s connections and entanglement with larger social and economic spheres through time. On the other side, at the intra-site scale, I sought to find patterns of distribution of vessel functional forms that would elucidate possible functional areas within the settlement. However, acknowledging the debate behind the use of ceramic distribution on surface and secondary deposits, this last point was more problematic, and ultimately was a weak buttress for my argument of Boca being a commercial and communication node. Nevertheless, some interesting inferences can be made, which - if joined with the results from the obsidian analyses presented in the following section - offered a glimpse into the changing role played by Boca Chinikihá in the regional dynamics, as presented in the chapter’s conclusions.
Role of Obsidian in Ancient Maya Trade

Recent discussions about the role of obsidian in ancient Maya trade have become more articulated, abandoning simplistic pan-Maya models, and focusing on chronologically and regionally specific scenarios. The fact that obsidian is foreign to the Maya lowlands, makes it the perfect good to analyze and discuss circuits of long-distance networks. Furthermore, the possibility of pinpointing specific volcanic deposits allows discussion of distribution networks and interregional trade networks. Obsidian figures prominently in discussions about systems of economic production and distribution, that is, if its production was centrally controlled by elites or was independently crafted by local artisans, and if it was top-down distributed by primary centers, or available through market exchange, or itinerant craftsmen/traders.

A further issue in discussing obsidian exchange is whether it was a luxury item or a commodity, which brings about the topic of value as an inherent category or a culturally relative variable. According to McAnany (2010: 258) “The movement of goods throughout Maya society was a complex and layered affair and involved what Rowlands (1993:149) terms the "transformation of value through movement in space/ time". Some specialists agree that obsidian artifacts produced from raw materials from “local” sources, such as Guatemalan deposits, were considered utilitarian items, whereas long-distance acquired obsidian, such as the one from outcrops in Central and West Mexico were considered more exotic, and therefore more valuable. Other argues that this utilitarian vs. exotic value could have changed through time (McAnany 1989).
A more recent set of viewpoints consider that debates about the value of obsidian should not focus so much on the importance and exoticness of the source, but rather on the knowledge of production, and skilled crafting (Hruby 2014), moving away from formalist emphasis on supply and demand or scarcity of the raw material. Hruby argues that “In many cases, restricted knowledge employed during craft production was much more valuable than the raw materials used to make stone artifacts” (Hruby 2014:172), a statement similarly made for jade (Kovacevich 2014; Andrieu et al. 2014).

A further debated theme involved the degree of involvement of elites in the import and distribution of obsidian. The issue of whether obsidian was a luxury good whose importation and distribution was controlled and administered by the elite, or a commodity that entered the exchange system through commerce and in some instances market exchange, has now moved to a general acceptance of the existence of a variety of cases, with different scenarios through time and space.

Most scholars now agree that obsidian circulation was highly dependent on the economic system it was embedded in. More and more specialists argue that it is not possible – and not worth – trying to identify a pan-Maya model for distribution system, but it is quite possible that – at least for the Classic period - there were as many circulation systems as polities (Hruby 2014; McAnany 2013; Potter 1993; McKillop 2016).

Various scholars agree that the organization of obsidian procurement and circulation in the Maya Lowlands was highly variable regionally and through time (Clark and Lee 1984; Glascock 2002; Hammond 1972; McAnany 1989; Nelson 1994, 2004).
According to Nelson’s obsidian distribution model (1994), the three main sources exploited in the Maya lowland, El Chayal, Ixtepeque and San Martin Jilotepeque/Rio Pixcaya, were differently used during the Preclassic, Classic and Postclassic periods. San Martin Jilotepeque/Rio Pixcaya dominated during the Early and Middle Preclassic, a period in which – it has been suggested- the Olmec controlled the flux of obsidian from El Chayal. After San Lorenzo’s decline, El Chayal became the most widespread obsidian in the lowlands, possibly distributed via Kaminaljuyu, starting in the Late Preclassic and through all the Classic period, reaching an almost monopoly in the Late Classic (Nelson 1994:64). Finally, during the Terminal Classic and Postclassic periods, another major shift in provenience and routes occurred, with the obsidian from San Martin Jilotepeque becoming widespread again and the one from Ixtepeque expanding from its localized use to a pan-lowland distribution, especially during the Early Postclassic (ibid.).

Central Mexico obsidian, especially the highly valued green obsidian from Pachuca, started to be distributed during the Early Classic in the Maya Lowlands. However, its distribution was apparently more restricted to elite contexts, at least in earlier times. Nelson (1994), after Lee (1978), proposes that the distributive route for green obsidian was from Central Mexico, to Oaxaca, from there to the Tehuantepec Isthmus and, along the Pacific coast, to the Guatemalan Highlands and Kaminaljuyu. Once reaching this important Maya Highland center, Central Mexico obsidian continued along the same routes as the Guatemalan ones toward the Lowlands. With the decline of Teotihuacan, obsidian from Central Mexico significantly decreased in Maya assemblages. Additionally, it seems that in the Late Classic the route of this good changed and now
reached first the Gulf Coast and then, from the port of Xicalango, it travelled to the interior via the Usumacinta and Pasion rivers (Nelson 1994: 67). During the Terminal Classic, a new impulse of Central Mexico obsidian rose, and alongside Pachuca obsidian, other outcrops supplied the Maya Lowlands, such as Zaragoza (Puebla), Penjamo, and Zinapecuaro (Michoacan). This variety was paralleled by a change in distribution routes, with an increase in use of coastal routes and growth in importance of commercial centers along the Yucatan coast. An additional distribution route for the Ixtepeque obsidian was along the Motagua River to the Caribbean coast, and from there to ports along the Yucatan coast. During the Postclassic, the control of this distribution circuit was centered at the site of Nito, at the mouth of the Motagua River, whereas during the Late Classic it probably fell under Quiriguá.

Despite the lack of agreement among experts about the degree of use and priority of overland and riverine versus coastal routes in the different periods (Chiarulli 2016; Clark and Lee 1984; Hammond 1972; McKillop 1989, 2016; Nelson 1994), it emerges clearly that obsidian trade and distribution was highly dynamic and needed some degree of infrastructure to receive, transform and redistribute the finished and raw materials moving along those routes.

Accordingly, scholars now are more concerned in how the distribution of obsidian (as well as other goods) was organized, and they recognized the socio-political embeddedness of any aspects of trade. In light of this, more detailed pictures are emerging, in which many distribution systems were probably at work at the same time, for different goods, people and communities. Scholars who agree that obsidian was
distributed through market exchange suggest that obsidian polyhedral cores reached the lowlands via specific market hubs, such as Cancuen, Tikal, and Seibal (Hruby 2006: 130; Kovacevich 2006; Braswell and Glascock 2014; Dreiss and Brown 1989). These sites, except Tikal, were located along one of the routes through which, according to Hammond (1972), El Chayal obsidian travelled to the lowland, that is, via the Chixoy-Pasion to Seibal, Altar de Sacrificios and from there to Tikal, overland, or down the Usumacinta river to Yaxchilán, Piedras Negras and northern sites, such as Palenque (Hammond 1972; Dreiss and Brown 1989). Some scholars argue that obsidian that arrived at Lowland centers was acquired through a centralized distribution, regulated or at least controlled by elites. Others suggest that there might have been a shift in the perception and political value of obsidian (à la Helms) in which at first obsidian trade was controlled by elite and later, during the Terminal Classic and Postclassic periods this material lost its exotic value and became a commodity acquired through commercial exchange (Dreiss and Brown 1989:78).

However, Moholy-Nagy (2014) contends that at Tikal Central Mexican obsidian was not considered a luxury item, and it might have been distributed through centralized markets as it happened for the Guatemalan obsidian. Furthermore, this author argues that, except for rare Teotihuacan-style obsidian eccentrics, which probably circulated as redistributed goods or gifts among elites, there is no evidence that the latter controlled the acquisition or distribution of neither Guatemalan nor Central Mexican obsidian. In general, it seems that throughout its history, Tikal had a continuous flow of obsidian and that its elites were not interested in controlling its distribution. Compared to Tikal,
obsidian assemblages at Calakmul are, by contrast, generally small (Braswell and Glascock 2014). It seems that the equally paramount center of Calakmul was cut out from the main obsidian circulation routes for most of its history (ibid.). Calakmul’s main source was El Chayal, throughout its history, but the capital also received obsidian from other Guatemalan deposits as well as, albeit in lesser amount, from Central and West Mexico. On the one hand, quantity and typology of obsidian industry reflect little access to this material by the inhabitants of Calakmul. Obsidian assemblages at the site, however, come primarily from Terminal Classic contexts, a fact that can bias this reconstruction. On the other hand, it is particularly interesting that large amount of jade reached the site, which apparently followed the same obsidian trade routes.

According to Aoyama (2001, 2014), Copan presents a different scenario where inter-regional distribution of obsidian, more than long-distance acquisition was important in development of the Copan polity (Aoyama 2001). Here, even though considered a utilitarian good, Ixtepeque obsidian was apparently distributed from the capital to local leaders (Aoyama 2001). Copan was always bound to Ixtepeque, which lies less than 100 km from the site, and it has been suggested that the site controlled its distribution down the Motagua valley. Aoyama suggests that during the Early Classic Pachuca obsidian was gifted by the emergent dynasty of Yax K’uk’ Mo’ to allied noble families in satellite sites (Aoyama 2014: 41). Copan rulers seem to have had a preferential access to large blade cores (ibid: 42). Aoyama argues that at Copan, intra-regional exchange with local elites was an important legitimizing practice by the ruling dynasty, and it probably controlled its distribution within and outside the Copan valley (Aoyama 2014: 44). For this reason,
intra-regional distribution of obsidian was more crucial than long-distance procurement for emerging ruling elite.

Getting closer to our region of study, it seems that in the Pasion region there were as many varied scenarios as polities. For Aguateca, Aoyama suggests that the procurement and distribution of obsidian was a task carried out by court economy (Aoyama 2014: 53). Conversely, at Cancuen, Kovacevich (2006) concludes that elites did not control the import or redistribution of obsidian, and did not have more trade connections than others did at the site. Obsidian typologies and sources were evenly distributed within the site. Additionally, in terms of sources, Cancuen does not differ from other lowland Maya sites, in spite of its preferential position. Nonetheless, elites had larger access and to better quality of obsidian being by tribute or because they had more acquisition power (Kovacevich 2006: 272). The presence of obsidian at the site as polyhedral cores and not raw material made Kovacevich suggest that Cancuen did not have preferential access to obsidian raw material and that polyhedral cores were accessible to all residents through market distribution or itinerant traders (2006). However, it seems that Cancuen had more access to obsidian than some other lowland sites farther from the highland Guatemalan sources, such as Calakuml or Piedras Negras. This suggests that Cancuen may have served as a central place for trade in the immediate surrounding region, especially because of its location near the highlands and its role as port.
Circulation of Obsidian in the Usumacinta and Palenque Regions

In contrast to other Maya regions, where the study of provenience, and distribution modes of obsidian has a longer and steadier tradition, in the Usumacinta and Palenque regions its study has been unbalanced. Only in the last two decades considerable advancements have been made in a consistent manner (cf. Table 7.12.). Earlier exceptions are Jay Johnson’s study (1976) on obsidian coming from test excavations carried out by Robert Rands in the Palenque hinterland and lower Usumacinta region, and Coe’s analysis of the Piedras Negras obsidian assemblage in the 1950’s (Hruby 2006). More encompassing, recent works include Hruby’s (2006) dissertation on the complete assemblage of Piedras Negras’ obsidian, and Kaneko’s (2003) and Brokmann’s (2000) publications on Yaxchilán stone tools. In the Palenque region, recent works include Lopez Bravo’s analysis of El Lacandon obsidian (2013), in whose discussion the author also includes materials from Palenque’s excavations; Lauren Herckis’s analysis of obsidian assemblages from a few households around the secondary sites of Nututun and El Lacandon; and the recent research by Flavio Silva de La Mora (2017) concerning the morphological analysis and provenience study of more than 1000 obsidian artifacts from the site of Chinikihá, surrounding settlements, and other Northwestern Maya centers. Among the assemblages analyzed by Silva de La Mora and Steven Shackley at the Geoarchaeological XRF Laboratory at Berkeley, was a sample of more than 500 specimens from Boca Chinikihá. It is mainly Silva de La Mora’s technological analysis and sourcing that my discussion and final inferences about Boca’s role in regional obsidian circulation stem from.
Obsidian at Piedras Negras, Yaxchilán and Satellite Sites

For the Usumacinta region, Golden and colleagues have demonstrated that the movement of imported goods, including obsidian and jade, among others, was subject to political control and that most of the conflicts among the Usumacinta kingdoms were probably directed toward the control of such trade routes (Golden et al. 2008, 2012). In the Usumacinta basin most of the obsidian, at least during the Late Classic, came from El Chayal, with minor presence from other Guatemalan and Central Mexican sources (Hruby 2006, Brokmann 2000, Kaneko 2003).

The two main centers, Piedras Negras and Yaxchilán, presented different trajectories with unbalanced availability of this good. According to Hruby (2006), Piedras Negras received a small amount of cores, and blade production was minimal. Obsidian flows and production increased at the site during the Late-Terminal Classic, but still it was not comparable to Yaxchilán. A proof is the extremely small size of obsidian cores found at Piedras Negras. This has been explained by the excessive efficient use of the imported cores, due to an already small size of the imported raw material, or to the difficulty of acquiring it (Golden et al. 2012, Hruby 2006). Piedras Negras was somehow at the end of the exchange/distribution system of obsidian, possibly because its southern neighbor, Yaxchilán, “choked” the flow of obsidian toward the north, limiting the circulation of the volcanic glass to Piedras Negras. For this reason, it has been suggested that Piedras Negras used an alternative, inland route, via Tikal and through the Petén, instead of moving along the Pasión River and the Usumacinta (Golden et al. 2012). It seems therefore that it was not an issue of political importance of the center or of the
dominant elite, but rather that the flow of obsidian followed the political control of trade routes.

Hruby (2006) argues that the rarity of obsidian at Piedras Negras might have increased its value and suggests that the royal family was responsible for the acquisition and redistribution of obsidian cores. Hruby proposes a scenario, especially during the earlier phase of the Late Classic, in which for their role as redistributors of the raw material, Piedras Negras elites, in return, received obsidian eccentrics, exhausted cores, and fine prismatic blades from producers (Hruby 2006: 326). Interestingly, although the disparity in obsidian artefacts among the two centers, about 6000 specimens have been found at Piedras Negras against more than 40,000 at Yaxchilán, Piedras Negras seems rich in obsidian eccentrics. This element, along with the possible alternative trade route via the Petén, made Golden and colleagues suggest a particular connection to Tikal, where obsidian eccentrics are abundant (Golden et al. 2012). As already mentioned, Yaxchilán inhabitants had an undoubtedly larger access to obsidian (Kaneko 2003). The site seems to confirm the pattern for the southern Maya Lowlands, where the majority of obsidian during all the Classic period came from El Chayal. More than 99% of Yaxchilán obsidian has been visually sourced from El Chayal (ibid, Brokmann 2000). Furthermore, a large amount of obsidian debitage has been recovered in association with caches and burials. Brokmann (2000: 140-141) suggests that Yaxchilán might have acquired Guatemalan obsidian via the Pasión-Usumacinta trade route, possibly controlled by Altar de Sacrificios or Ceibal, or otherwise, via the Lacantun river, and exerting a control over its distribution, hindering Piedras Negras acquisition. Such interest of Yaxchilán in
controlling the Lacantun River might have brought to the war and relative subjugation of Bonampak (ibid.). Central Mexico obsidian at Yaxchilán seems limited to few blades found in ritual contexts, apparently supporting the mainstreamed view that Central Mexico obsidian was imported as finished artifacts, since there is no evidence of production debitage (ibid.). Brokmann considers obsidian items from Central Mexico found in royal tombs as prestige goods, similar to what stated for Tikal (ibid.). Considering the data from Yaxchilán, he also doubts that obsidian was exchanged in markets (ibid: 142) or there was a centralized control of the sources.

In terms of their satellite sites, it seems that they acquired obsidian from the same source as their paramount centers, or directly from them. El Chayal is the predominant source and this was apparently true for the region in general. Recent research at the site of El Zotz seems to support the same acquisition pattern (Hruby and Kingsley 2008). At the site of Tecolote, a subsidiary center of Yaxchilán, for example, scattered evidence of obsidian artifacts was found, with only 18 items, whereas works at El Kinel, still a subsidiary, but closer site of Yaxchilán produced 95 obsidian specimens, suggesting that possibly, for its proximity to the paramount center, it benefited from larger and better obsidian materials (ibid.). By contrast, La Tecnica, which lies only few km south than El Kinel, had apparently an even smaller access to obsidian. Here only few (8) obsidian artifacts were found, and they were visually sourced to the San Martin Jilotepeque outcrop (ibid.).
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<td>VALETTE</td>
<td>Disp</td>
<td>S2E11-460</td>
<td></td>
</tr>
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<td>VALETTE</td>
<td>Disp</td>
<td>S2E10-734</td>
<td></td>
</tr>
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<td>VALETTE</td>
<td>Disp</td>
<td>SIE8-301</td>
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<td>Disp</td>
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<td>VALETTE</td>
<td>Disp</td>
<td>SIE3-337</td>
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<td>Piedras Negras</td>
<td>Excavation</td>
<td>USUMACINTA</td>
<td>Upper</td>
<td>6545</td>
<td></td>
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<td>USUMACINTA</td>
<td>Disp</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
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<td>USUMACINTA</td>
<td>Disp</td>
<td>4-153</td>
<td></td>
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<td>Excavation</td>
<td>USUMACINTA</td>
<td>Disp</td>
<td>N/A</td>
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<tr>
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<td>Excavation</td>
<td>USUMACINTA</td>
<td>Disp</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Del Agua</td>
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<td>Excavation Result</td>
<td>Surface Collection</td>
<td>Surface Collection</td>
<td>Surface Collection</td>
<td>Surface Collection</td>
</tr>
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<tr>
<td></td>
<td>S2E9-260 (a)</td>
<td>S2E8-238 (a)</td>
<td>S4E8-254 (a)</td>
<td>S4E7-247 (a)</td>
<td>S4E7-246 (a)</td>
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<td>S2E9-250 (a)</td>
<td>S2E9-469 (a)</td>
<td>S2E12-312 (a)</td>
<td>S2E12-311 (a)</td>
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<td>S2E12-309 (a)</td>
<td></td>
<td></td>
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Table 7.2. Overview of obsidian frequency and relative percent for some sites of the Northwestern Maya Lowlands. (a) Silva de La Mora 2012, PREP database; (b) López Bravo 2013; (c) Kingsley et al. 2010; (d) Lindo Stuardo 1999; (e) Herkis 2015; (f) Hruby 2006; (g) Brokmann 2000; (h) Kaneko 2003; (i) Johnson 1976.

<table>
<thead>
<tr>
<th>Site</th>
<th>Type</th>
<th>Obsidian in Mayan Lowlands</th>
<th>Total Northern Western Maya</th>
</tr>
</thead>
<tbody>
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<td>Tierra Blanca</td>
<td>Excavation</td>
<td>42760 Upper USUMACINTA</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Surface Collection</td>
<td>1 Lower USUMACINTA</td>
<td>N/A</td>
</tr>
<tr>
<td>Santa Isabel</td>
<td>Excavation</td>
<td>350 Palenque HINTERLAND</td>
<td>2</td>
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</table>
The authors affirm, though, that the site’s difference in number and acquisition source could be attributable to a chronological gap, dating the main occupation of La Tecnica to the Late Preclassic period (ibid: 191). Even if they don’t rule out that these assumptions could be misled by the small size of the samples.

At the riverine settlement of El Porvenir, a satellite site of Piedras Negras, Kingsley and colleagues recovered 203 obsidian artifacts (Kingsley et al. 2010). These were visually sourced to one of the two Guatemalan sources, El Chayal or San Martin Jilotepeque, but no chemical assessment was performed. The majority of the specimens were blades, but few samples of production debitage suggest that the inhabitants of El Porvenir had direct access to preformed cores, even if, similarly to their paramount center, access must have been difficult, based on the level of usage (ibid.).

Table 7.12 summarizes some of the data presented in the previous discussion. It is an attempt, not exhaustive but illustrative, to present a synopsis of obsidian assemblages studied from different sites and projects. Data are incomplete and the samples are not standardized, lacking information of density, chronology and so forth. However, it offers some grounding on the state of obsidian studies in the area and, in the case of Boca Chinikihá and the Palenque region, which I discuss in the following section, it introduces the framework within which more specific patterns of acquisition source, production and distribution can be brought to light.

Circulation of obsidian in the Palenque region

The first systematic study of obsidian from the Palenque region was carried out by Jay Johnson, who analyzed the lithic assemblages of the test excavations and surface
collection carried out by Robert Rands in the 1970s (Johnson 1976a, 1976b). His study included about 1300 lithic materials from Palenque and other nearby sites. Of these, about 900 were obsidian artefacts (Table 7.13). Based on his analysis of the assemblage from Palenque’s nuclear area (which was also the largest =780), he noticed that craftsmen apparently retouched blades up to a technological minimum (Johnson 1976a: 37), and argued that at Palenque people didn’t have an access to obsidian as large as in other Lowland sites. He also observed that obsidian was more abundant in the nuclear zone of the city, whereas peripheral areas relied heavily on chert implements. In terms of distribution networks, Johnson suggested that, similarly for what Rands argued for fine ceramics, Palenque controlled the redistribution of exotic goods, among which obsidian, and that primary and secondary sites had a preferential access to this, compared to tertiary sites (Johnson 1976b).

For about 30 years, Johnson’s study remained the only information available for the Palenque region. Recently, however, thanks to the studies by Herckis (2015), Lopez Bravo (2013) and Silva de La Mora (2013, 2017), it is possible to offer a broader and more detailed picture on the organization of obsidian acquisition, production and distribution within the region.

<table>
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<tr>
<th>SITE</th>
<th>PRISM_BLADE</th>
<th>CORE</th>
<th>FLAKE</th>
<th>GROUND_OBS</th>
<th>BIFACE</th>
<th>TOTAL</th>
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<td>8</td>
<td>33</td>
<td>2</td>
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<td>420</td>
</tr>
<tr>
<td>PAL. SITE PERIPHERY</td>
<td>287</td>
<td>3</td>
<td>69</td>
<td>1</td>
<td></td>
<td>360</td>
</tr>
<tr>
<td>ARINETAS (?)</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
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<td>2</td>
</tr>
<tr>
<td>LAS COL. MENAS</td>
<td>13</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>YOXIHÁ</td>
<td>53</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
<td>61</td>
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<tr>
<td>TRINIDAD</td>
<td>23</td>
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<td>24</td>
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<tr>
<td>EL RETIRO</td>
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<td>3</td>
<td></td>
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<td></td>
<td>13</td>
</tr>
<tr>
<td>CHINIKIHA</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
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</table>
Table 7.13. Summary of obsidian assemblage analyzed by Johnson (adapted from Johnson 1976a)

<table>
<thead>
<tr>
<th>Location</th>
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<tr>
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<tr>
<td>BELDOMINGUEZ</td>
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<td>4</td>
</tr>
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<td>CALATRAVA</td>
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<td>4</td>
</tr>
<tr>
<td>MIRAFLORES</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>NUTUTUN</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>NARANJO</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>POMONA</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>S.MARGARITA</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SANTA CRUZ</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>S.FRANCISCOAG</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>SAN JOSE DEL RIO</td>
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<td>1</td>
</tr>
<tr>
<td>SAN MANUEL</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>TIERRABLANCA</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>XUPA</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Analysis and discussion on obsidian artifacts proceeding from the excavations carried out by the Palenque Special Project in the 1990s have been included in Lopez Bravo’s Ph.D. dissertation on the site of El Lacandón (Lopez Bravo 2013). This group of obsidian from Palenque comes primarily from secondary deposits, such as construction fill, rubble, and middens. Specifically, materials come from the Palace midden and from three elite residential groups: Group I, Group B and the Group C (Lopez Bravo 2013). These excavations yielded a total of 4093 obsidian artifacts, all pertaining to Late-Terminal Classic contexts. Of these, 3441 were prismatic blades. Interestingly, obsidian technological and expected/observed ratio analyses suggest that the blades produced at the three elite households were not for internal consumption, but probably for exchange (ibid: 87). The obsidian assemblage from the Palace midden, by contrast, shows the smallest proportion of debitage, in terms of flakes and shatters, but a large amount of cores. This made Lopez Bravo suggest that the production at the Palace was aimed at
satisfying internal needs, and that flakes were possibly deposited in a different place.

Conversely, the sizeable amount of cores recovered in this context might be the result of other activities, different from obsidian crafting (ibid: 88.). Excavation at El Lacandón showed an interesting pattern in terms of obsidian distribution. A total of 917 pieces were recovered at the site, for a total of excavated volume of 145.5 m3. Materials were almost equally distributed in the two main occupation phases: 511 specimens came from Late Classic contexts, and 406 from Preclassic ones. For a total density of 6.3 obs./m3. However, Lopez Bravo noticed that obsidian was more equally distributed among commoner and elite households during the Late Preclassic, whereas, during the Late Classic, it was more abundant in elite contexts (ibid.). A pattern that shows similarities with Palenque.

Comparing El Lacandón’s and Palenque’s assemblages, Lopez Bravo came to the conclusion that obsidian blade production at both sites, at least during the Late Classic, was generally carried out by the elite members of the communities, who, later, distributed them to commoner households, even though it is not clear via which mechanisms, whether through market setting, or redistribution.

Recent research by the PREP at the secondary site of Santa Isabel, few km west of Palenque (Liendo Stuardo et al. 2015) seems to confirm the pattern described above. Here a total amount of 350 obsidian artefacts have been recovered during two field seasons, and although the study of this assemblage is currently in process, it seems that the place received finished products of obsidian blades from the paramount center, possibly benefitting from a direct redistribution system centered at the capital.
These recent data from the Palenque region seem in line with those described by Johnson, according to whom, during the Late Classic, obsidian blade production was preferentially realized at Palenque and, possibly, in secondary centers involved in a regional exchange network, such as Yoxihá and El Arenal (Johnston 1976a:126; Table 7.13). From here, obsidian blades were then distributed to surrounding communities. Similarly, blades produced at El Lacandón probably circulated to commoner families in the community and immediate surroundings (Lopez Bravo 2013: 89).

However, the eastern sector of the region, where Chinikihá and Boca Chinikihá are located, seems to present a different scenario, in which secondary sites were more disembedded from centralized distribution of the paramount center.

In terms of acquisition patterns, before Silva de La Mora’s analyses, only 173 obsidian specimens from the Palenque region had been chemically sourced by Johnson (1976a). His analysis from Palenque and other sites found 94% of obsidian coming from El Chayal, smaller proportions from San Martin Jilotepeque, Ixtepeque, and from the Central Mexican sources of Pachuca and Zaragoza. One green obsidian blade from Yoxihá was visually sourced to Pachuca, whereas Ixtepeque and Zaragoza artifacts were found only at Palenque (ibid.).

In light of these data, Johnson proposed that Yoxihá possibly participated in a different distribution network centered on Toniná (Johnson 1976a:132). He further suggested that obsidian at Palenque arrived through fluvial routes from Guatemala, and didn’t travel through coastal routes along the Yucatan Peninsula and up the Usumacinta River. This would be proved by the absence of Pachuca obsidian at Palenque and
Comalcalco, but its presence at Yoxihá, an interior site, closer to the Guatemala highlands suggests to Johnson that Pachuca and Guatemalan obsidian were traded from Kaminaljuyu. This hypothesis, however, would pose some chronological problems that he resolved suggesting that the obsidian from Zaragoza might come from a later, Terminal Classic, context, a period in which different routes were in place (ibid.).

According to Johnson, obsidian reached the Western regions via an interior riverine route, traveling down the Pasión/Chixoy and the Usumacinta rivers. Furthermore, if obsidian arrived at Palenque via the Usumacinta, Rancho Santa Margarita, which correspond to a group of structures a few hundred meters southeast of Boca Chinikihá, might have functioned as a disembarking point for the cargo. From here, obsidian might have been transported up the Chinikihá stream (when navigable), or via land through the Lindavista valley to Chinikiha and the Chacamáx river and continued along the sierra foothills and valleys westward to Palenque (ibid: 125). At Palenque, the Michol River provided another water route to reach sites to the west, like Miraflores and El Retiro.

For El Lacandón, where obsidian has been visually sourced, Lopez Bravo suggests a scenario in which El Chayal figures as the primary source in both the Late Preclassic and Late Classic. It seems, however, that dependence on this source was more pronounced during the Late Classic period (77.6%), when there was also a higher variety of sources, with Ixtepeque and Central Mexico sources, such as Pachuca and Zaragoza obsidian present in small quantities (Table 7.14). Furthermore, if we consider obsidian density for the two periods identified at El Lacandon, the results are similar. Lopez Bravo states that 406 obsidian artifacts (198 blades, 204 flakes and 4 cores) were found in Late
Table 7.1. Obsidian sources for the Palenque region by frequency and weight.
Adapted from PREP database, Silva de la Mora 2013; and (*) El Lacandón through visual sourcing (Lopez Bravo 2013);

<table>
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<tr>
<th>SITIO</th>
<th>El Chayal</th>
<th>SM Jilotepeque</th>
<th>Ixtepeque</th>
<th>Penjamo</th>
<th>Pachusca</th>
<th>Zaragoza</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td># gr.</td>
<td># gr.</td>
<td># gr.</td>
<td># gr.</td>
<td># gr.</td>
<td># gr.</td>
<td># gr.</td>
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<td>EL LACANDON *</td>
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<td>62</td>
<td>n/a</td>
<td>177</td>
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<td>184</td>
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Preclassic contexts, from a total excavated volume of 70.9 m³, which correspond to 5.7 obs/m³. A total of 511 obsidian artifacts (348 blades and 163 flakes) were, by contrast, recovered from Late Classic contexts, from an excavated volume of 74.39 m³, which results in a little higher density for the Late Classic of 6.8 obs./m³. However, if we sum together the total of obsidian and the total volume excavated, we have a density of 6.3 obs./m³ (917/145.5), which is strikingly similar to the density calculated for Chinikihá, as we will see in the following section.

In general, it appears that in the Palenque hinterland, during the Late-Terminal Classic, a pattern of distribution emerges in which sites around the capital seem to have gravitated more around Palenque for acquiring obsidian, whereas a different pattern seems in place in the eastern region, around the sites of Chinikiha and Boca Chinikihá, where there was a more autonomous patterns of acquisition.

**Comparison of Obsidian Assemblages, Densities and Provenience at Chinikihá and Boca Chinikihá**

Outside the Palenque’s hinterland, the largest assemblages of obsidian artefacts have been recovered by the PRACH project at Chinikihá and Boca Chinikihá. This is probably the result of the larger amount of work invested at the two sites and excavated volume, but it also reflects the prominent role of both sites in the eastern region of the Palenque polity. At Chinikihá, several years of excavations by the PRACH have resulted in the recovery of large quantities of obsidian, whose analysis is still in progress, and for
which it is difficult to make an estimate of the total amount. However, a rough, partial, estimate includes 695 obsidian specimens analyzed by Silva de La Mora (2013, 2017) through EXDRF, and other 400 artefacts from the palace midden context, not included in the EXDRF analysis, which are currently under study by Roberto Vilchis.

Furthermore, excavations by Jeanne Lopiparo found evidence of obsidian artifacts, covering all stages of production in the residential area of Group D (Lopiparo 2015), totaling up to 2083 artifacts, from 49.7m³ excavated. If we add this volume to the total volume excavated at Chinikihá by the PRACH in several field seasons, roughly 450.37 m³, the result is 500.07 m³ excavated at the site, and about 3178 obsidian specimens recovered. These, albeit partial, data offer a first glance into the density of obsidian found at the site, which correspond to 6.36 obs/m³.

Considering only Group D obsidian density, which amounts to about 42 obs./m³, Lopiparo argues that “while not at a scale to suggest intensive production, the relative density of production debitage in this residential zone compared to other areas of the site suggests intra-site specialization for obsidian production” (Lopiparo 2015: 6). She further proposes that Chinikihá might have distributed prismatic blades to surrounding sites (ibid.). This is particularly interesting in the light of Silva de La Mora’s work at Chinikihá’s Group G, where he located a large amount of lithic debitage in association with a group of domestic structures. Based on the location, a series of flat and relatively isolated terraces, and the distribution of lithic debris along the slopes of these terraces, Silva de La Mora (2017) suggests that this area might have functioned as a local workshop.
The sample of 695 obsidian artefacts that underwent EDXRF analysis included materials from the Chinikihá’s field seasons until 2011, therefore this discussion doesn’t include the assemblage recovered by Silva de La Mora in his excavation of Group G in 2011 and 2012. Silva de La Mora also performed a first technological analysis of the sample and, as visible in table 7.15, at both Chinikihá and Boca, the majority of obsidian artefacts were prismatic blades. Specifically, at Chinikihá, 664 (95.5%) obsidian artefacts were prismatic blades, 26 (3.7%) were flakes, 4 (0.5%) cores and 1 (0.1%) was a scraper. The majority of the blades were broken along their longitudinal axis, and the average blade width at Chinikihá is of 10.5 mm. It is further interesting to note that all the cores in the sample (7) came from either Chinikihá (4) or Boca Chinikihá (3).

Similarly, at Boca Chinikihá the majority of obsidian artefacts were prismatic blades, however their percentage is lower than at Chinikihá, about 79% (415 specimens), interestingly, a greater quantity of lithic debitage, namely flakes, were recovered. The sample includes 105 specimens, which make up about 20% of the total assemblage. Three obsidian cores were recovered at the site, of these, one was a whole exhausted core, whereas the other two were core fragments. The average blade width at Boca seems slightly larger than at Chinikihá, about 11.6mm against 10.5 mm. This difference, however, is minimal and by itself it can’t support any argument about raw material acquisition and conservation patterns.

Of the 39 excavations in Chinikihá from which the obsidian artefacts were sampled, 13 were located in the main plaza, and 8 of these comes from the palace (CHK/160) and its midden. A further large sample comes from a residential unit (F150),
extensively excavated. Temporality, at least for these contexts, is firmly anchored in the Ajin phase. Furthermore, considering that only 0.77% of the ceramic materials at Chinikihá date to the Late Preclassic, and that the bulk of the obsidian analyzed comes from a midden, whose materials date confidently to the Ajin phase, it is safe to assume that the obsidian acquisition pattern described for Chinikihá reflect a Late Classic trend.

At Boca Chinikihá, the problem described in the ceramic section, also affects my discussion about the obsidian assemblage. That is, the provenience contexts are constituted mainly of construction and plaza leveling fills, therefore the assumption that the distribution patterns and sources detected actually reflects a Late Classic period is weak, although not completely unlikely.

In terms of provenience, at both Boca and Chinikihá, the majority of obsidian seems to come from El Chayal, both sites present a very similar percentage: 98.4% for Boca, and 98.3% for Chinikihá. Obsidian from San Martin Jilotepeque represents less than 1% at both sites, while Ixtepeque is present only at Chinikihá. Central Mexican sources constitute less than 1% of the total assemblage in both sites, however it is interesting to note that Boca Chinikihá and Chinikihá seem to have had access to different sources: while Chinikihá received Central Mexican obsidian from Zaragoza, Boca Chinikihá had access to Pachuca and Penjamo (Table 7.15).

**Intra-site Distribution of Obsidian at Boca Chinikihá**

As already mentioned, it is difficult to observe patterns of obsidian distribution within Boca Chinikihá since the majority of the contexts pertains mostly to construction
Table 7.15. Comparison of obsidian sources and artifact typologies at Chinikiha and Boca Chinikiha

<table>
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<tr>
<th>SOURCE</th>
<th>PRISM BLADES</th>
<th>FLAKES</th>
<th>CORES</th>
<th>OTHER</th>
<th>TOTAL</th>
<th>TOTAL %</th>
<th>TOTAL/M3</th>
<th>%TOTAL/M3</th>
</tr>
</thead>
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<td>#</td>
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<td>#</td>
<td>g.r.</td>
<td>#</td>
<td>g.r.</td>
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n3 Boca=50.59

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n3 Chinikha=430 (it includes only excavations from PRACH)  * it includes only materials from PRACH

(a)-scraper

Table 7.15. Comparison of obsidian sources and artifact typologies at Chinikiha and Boca Chinikiha
fill, where materials might have been mixed haphazardly. I have no proof to sustain that, as for the ceramics, which constitutes a terminus ante quem for the deposition of pot sherds in the fill, the obsidian artefacts actually pertain to the same Late Classic epoch. The only observation I can make is that the bulk of the construction effort at the site pertains to the Late Classic, as do the majority of the ceramics. As shown in table 7.3, in fact, 3094 (70%) of the 4406 sherds for which it was possible to assign a phase, correspond to the Ajín period. It is possible therefore that the obsidian assemblage reflects patterns of activities carried out during the Late Classic. The sources detected at Boca Chinikihá, furthermore, resemble acquisition patterns already described for other Maya lowland sites in this epoch, therefore it can at least be hypothesized that the model presented above is viable for Boca during the Late Classic. In terms of internal distribution, the majority of obsidian was concentrated around structures 7, 11, and 12 (cf. table 7.16, and figure 7.7.). 540 of the 828 obsidian specimens recovered at Boca came from these three locales, which, together, represent 65% of the total. As described in chapter 5, these structures are low platforms located near the access from the Chinikihá stream to the settlement. It is difficult to discern the role of obsidian in these locales, since there is little evidence of debitage, only few reduction flakes (22 pieces) have been found in these contexts and no cores, too little to consider it a possible workshop. The majority of obsidian was found in contexts related to Structure 7 (Op. 226 and 227), whose operations, combined, resulted in an excavated volume of 7 m³. Obsidian density in this locale would therefore be of 270 obsidian specimens for an excavated volume of 7 m³, resulting in an index of 38.5 ob/m³. However, the lack of abundant artifacts other than
blades, weakens the possibility that this was a workshop\textsuperscript{38}. Considering the position of platforms 7, 11, and 12, a possibility is that obsidian at these locales represents rests of artifacts loaded or unloaded at the site and expected to be transported to other nearby communities.

<table>
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</tbody>
</table>

Table 7.16. Distribution of obsidian by operations at Boca Chínikihá (cf. Chapter 4 for location of operations)

\textsuperscript{38} I rule out the possibility of a domestic activity area, since it has already been observed that this section of the settlement doesn’t show evidence of residential structures.
Fig. 7.7. Map showing internal distribution of obsidian at Boca Chinikihá
This can be safely assumed at least for materials in Operations 217, 220 and 226, which produced the highest density at the site, and whose position adjacent to the perimeter of the platforms and shallow depth might indicate scattered refuse from such structures (see fig. 7.7.). Surprisingly, the areas where I assumed I would have found a large density of obsidian, such as Structure 10 and behind the complex formed by Structures 15, 16 and 17, produced a small amount of it. The surface of Structure 10 (covered by operations 222-225 and 231) was, in general clear of materials, and the few obsidian fragments recovered, in total 79 elements for 8.3 m³ excavated, produced a density of 9.5 obs./m³. By contrast, Operations 206 and 208, located behind the platform’s superstructure, failed to produce evidence of either a midden or abundant obsidian debris. An interesting locus was Operation 213, located between Structures 13 and 14. Here an abundance of artifacts, including obsidian materials (specifically blade fragments and flakes), and other stone tools were distributed on a surface near the west side of Platform 13, suggesting the presence of an activity area. Obsidian density in this narrow space was relatively high, about 36 obs./m³. Other implements included fragments of figurines, grinding stones and concentrations of ceramic sherds.

**Obsidian Discussion**

As a long-lasting, widely distributed, and easy traceable imported good in the Maya Lowlands, obsidian is a valuable tool in assessing the role of a trade port like Boca Chinikihá. Detailed tracking of acquisition and distribution routes, such as the ones described for sites like Tikal, Cancuen, Piedras Negras and Yaxchilán, among others,
helps illuminate the role of specific nodes within such networks. Furthermore, specific typological and technological analyses might explain the stage in which obsidian reached and left individual locations, reconstructing, therefore, patterns of economic and craft specialization. At Boca, obsidian analysis had the objective of determining the role of the settlement as an important node in the regional economic system, and detecting its possible privileged position, as reflected in the abundance and quality of raw and finished products that remained at the site. The point has been assessed in this discussion by comparing the obsidian assemblage and density at Boca with those of Chinikihá and El Lacandón, the only ones for which we have these information. As it appears, Boca presents a higher density of obsidian than both Chinikihá, a Rank 1 site in the regional classification, and El Lacandón, a Rank 2 site, located in the immediate sphere of Palenque. Although still preliminary, this information might be interpreted as Boca receiving more raw material, or crafting more final products than necessary for its population needs, which could not exceed those of a larger and denser inhabited settlement like Chinikihá. Furthermore, although no clear workshop or activity areas, showing all the stages of obsidian processing, have been identified at the site, materials were present in the form of prepared cores, reduction flakes, as well as final prismatic blades, suggesting that some degree of crafting occurred at Boca. Interestingly, in contrast to Chinikihá where different stages of obsidian working have been detected at locales that could be interpreted as workshops or domestic activity areas (Group D and Group G) (cfr.

39 Although obsidian density, as index of trade intensity, is normally calculated through frequency and weight by m³ (Clark and Lee 1984; McKillop 1989; Sidrys 1977), my analysis only took into consideration frequency of specimens, since data on weight were not available for the totality of the samples considered.
Lopiparo 2015; Silva de La Mora 2012, 2017), at Boca obsidian artifacts were clustered mainly near isolated platforms, located near the access routes from the watercourse to the settlement. These locales might represent points in which materials were assembled arriving at or leaving the site via the river.

Future, more specialized analyses, such as blade to core, or cutting-edge to mass ratios, might determine if Boca was producing blades for regional distribution, or if its blade conservation index indicates a concern by its inhabitants about obsidian supply. The current information that Boca’s average blade width is slightly larger than Chinikiha’s is a useful starting point, but not strong enough to support such an argument. These elements together, however, supported by a finer temporal control over the provenience contexts than the one actually available, might provide a stronger buttress to the argument that Boca Chinikihá, as a riverine trade network, played a pivotal role in the crafting and distribution of obsidian artifacts. It is noteworthy that a similar pattern of acquisition has been described for the inland port of Trinidad de Nosotros, on Lake Petén Itzá, during the Late Classic. Here, evidence of a wider obsidian acquisition network for Trinidad, compared to its paramount center Motul de San José, made Matthew Moriarty (2013) suggest that the lake port functioned as distribution center for obsidian blades to smaller satellite sites in the area.

Similarly, thanks to Silva de La Mora’s EDXRF study, what we do know is that Boca received obsidian from the major sources in the Guatemala Highlands, in a percentage and pattern similar to Chinikihá and to other northwestern lowland sites, as well as from Central Mexican sources. It is particularly interesting that the acquisition
sources of Chinikihá and Boca do not overlap completely. In fact, albeit both received the larger amount of materials from El Chayal, Chinikihá also received a smaller amount from both the other Guatemalan sources and from Zaragoza, in Central Mexico, whereas Boca received Guatemalan obsidian only from Jilotepeque, but had a wider network of Central Mexican obsidian, receiving blades from Pachuca and Penjamo. This evidence could indicate that, on the one hand, the two sites had two separate, independent acquisition networks. On the other hand, it is completely possible that this difference in acquisition patterns and routes depend on a chronological inconsistency between the two assemblages rather than reflecting an actual divergence in procurement.

In summary, I feel comfortable to say, based on the available obsidian evidence, that Boca Chinikihá, during its history as a riverine settlement, had privileged access to obsidian and that, thanks to its role, was probably independent in its acquisition from other paramount centers, such as Chinikihá or Palenque, considering the variety of sources present at the site. Such autonomous supply of obsidian was not probably granted to other secondary sites in the Palenque hinterland, such as El Lacandón and Santa Isabel, which at least during the Late Classic – considering their low density -, seem to have depended on Palenque’s redistribution network. Further analyses and better stratigraphic control are necessary, however, to ground these preliminary statements into specific historical trends.

**Summary and Conclusions**

Evidence on assemblage, distribution, and provenience - real or stylistic- of ceramic and obsidian artefacts has been presented in this chapter as a lens through which
understanding the role of Boca Chinikihá as riverine port and trade node within the Usumacinta network.

As it emerged from the above discussion, these data offer a first glimpse into the dynamic history of this community as trade port, but the evidence is still scant, and further targeted analyses are needed to fully reconstruct the circulation of goods, and therefore, the economic role of this Maya community.

For example, lack of INAA analyses to characterize the sources of wares prevented the certain recognition of Petén style wares, as actual imports or local manufactured imitations. At the same time, the similarities between Boca and the wider Usumacinta region, and small differences with Palenque and Chinikihá, such as the unique presence of “Tepeu” style basins at Boca during the Late Classic and a higher percentage of Chicane style materials in the Late Preclassic assemblage at the site, bespeak a wider network of relations for Boca Chinikihá, not limited to its immediate surrounding sites and paramount centers of Palenque and Chinikihá. Its position along the Usumacinta waterway and connection with other riverine settlements might have granted Boca’s inhabitants a degree of freedom in terms of economic and political alliances reflected, for example, in the need for a ball court and extremely wide open spaces and informal plazas. For the same token, although difficult to prove in the absence of stratigraphically secured contexts, it is possible that the large percentage of serving vessels and jars to transport liquids recovered in these sectors of the site, evidently not residential, might be the result of public events and social gatherings occurring at these locales, possibly related to Boca’s commercial nature.
Thanks to the study performed by Silva de La Mora, obsidian assemblages at Boca constitute a firmer proxy for the site’s role as trade port. First, the relatively higher density of obsidian artefacts at Boca, compared to Chinikihá and El Lacandón, for example, suggests that Boca had a preferential access to this imported material. Furthermore, the difference in the provenience sources detected at Chinikihá and Boca Chinikihá might indicate separate and independent acquisition patterns, in which Boca benefitted from its strategic location along a communication route.

No clear evidence of obsidian workshops has been detected at the site, but it is interesting to note that obsidian artefacts tend to cluster around platforms near the river. Structures 7, 11, and 12 present, in fact, the highest density. Operation 226, adjacent to Structure 7, resulted particularly promising. This is the only locale where the whole production sequence has been identified, with the recovery of a high percentage of flakes (43 out of 102 total items), blades and one exhausted core. In spite of the relative high density of obsidian at this locale (53.3 obs/m³), the size and characteristics of the assemblage doesn’t allow one to confidently speak of a workshop, however, the unusual density of obsidian in proximity of such isolated structures, near the river, might suggest a transfer area where these goods arrived at or were assembled to leave Boca Chinikihá.

In conclusion, albeit still incomplete, a picture emerges in which Boca Chinikihá benefited throughout its history by preferential access to foreign materials and possibly from a relatively independent economic status within the region thanks to its privileged role as a simple transshipment point in earlier times, and possibly as a pivotal trade center.

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40 A further interesting element is the location of structure 7 just few meters from Boca’s ball court.
during the increasingly dynamic political landscape of the Usumacinta and Palenque regions during the Late-Terminal Classic.
CHAPTER 8:

TOWARD AN ARCHAEOLOGY OF MAYA MOBILITES

Investigations at Boca Chinikihá aimed at understanding its role as riverine trade community and unpacking its relationship with the surrounding major centers of the Usumacinta and Palenque regions, as reflected through practices of movement at three different scales: regional movement, urban circulation, and local movement of goods.

In chapter 2, I outlined the idea of *movement* as keystone in my argument and I traced its facets within different archaeological approaches. Next, I presented the concept of *mobility*, as a more encompassing alternative in the discussion of the several practices involved with human movement. In chapter 3, I introduced the regional setting of my investigation, and applied the idea of mobility to the political landscape of the Usumacinta basin during the Late Classic. By doing so, I intended to frame in a specific historic context the practices of mobility in place at Boca Chinikihá, and described in subsequent chapters.

The mapping and excavating methodology employed during the two field seasons at Boca Chinikihá, as well as the research strategy that buttressed them, are described in chapter 4.

Chapter 5 assessed urban mobility at Boca Chinikihá, presenting the site’s infrastructure as direct or indirect tool to facilitate, organize and control movement of people and goods. To better ground my interpretation of Boca Chinikihá as a riverine port community and communication node, in chapter 6, I compared Boca with other lowland
Maya riverine settlements, whose location, infrastructure and material culture bespeak their role as inland ports.

In Chapter 7, I presented the analyses of the ceramic and obsidian artefacts retrieved at Boca. The presence, style, distribution, and provenience of these materials were considered clues to understand the nature and intensity of the circulation of goods at the site. Finally, in this chapter I outlined some general considerations that have emerged from this study, highlighting its strengths and, at the same time, I assess its limitations.

**Scales of Riverine Mobility**

In this dissertation I argue that in order to obtain an encompassing understanding of the modes of and reasons for riverine mobility, the latter needs to be approached from different scales. The three scales of analysis used to address archaeological evidence at Boca Chinikihá allowed me to build a strong case for the site to be a riverine port and communication node. This evidence include: its pivotal position along water and inland routes; its architectural layout and function of specific structures; as well as the typology and internal distribution of imported material.

In addressing the circulation of goods at Boca Chinikihá, my argument would have benefited from chemical analyses on ceramic materials, as the ones carried out on obsidian, in order to pinpoint the origin of some pottery items, and strengthen the nature of economic relations at play. Albeit not grounded in firmer chemical analysis, Boca’s ceramic assemblage seems to incorporate more varied styles than those described for Chinikihá and its surroundings, bearing closer similarities with the wider Usumacinta
region. Few elements, like the unique presence of Tepeu-style basins during the Late-Terminal Classic, and the high percentage of Chicanel material in the Late Preclassic/Early Classic, reflect a network of relations for Boca Chinikihá not limited to its immediate neighborhood. Future geochemical characterization of the ceramic wares found at the site will elucidate if the Petén-style materials were actual imports or locally produced imitations, clarifying the nature and extent of Boca’s ceramic circuit.

Obsidian analysis, by contrast, offered a more solid ground for speculating about Boca Chinikihá’s privileged access to obsidian. The amount and variety of sources present at the site suggests that Boca’s community was probably independent from Chinikihá and Palenque in its acquisition. Such autonomous supply of obsidian apparently was not granted to other secondary centers in the Palenque hinterland. Furthermore, the density and typology of obsidian artifacts at Boca hint to its possible role as distributor center for surrounding settlements, since the amount of finished products far exceed its population needs, which could not have surpassed those of a larger and denser populated center like Chinikihá. Future excavation strategies directed toward the identification of lithic workshops, along with a wider sample of clearly stratified contexts will provide a finer chronological detail of the acquisition, production and distribution pattern within and outside the settlement.

At the urban level, the intermediate scale of my study aimed at identifying infrastructure devoted to facilitate, and control movement within and through the site, as well as other functional spaces related to Boca’s role as trade and communication node. Although difficult to prove in the absence of extensive excavation, I suggest that some of
the largest architectural complexes, and the wide, informal plazas at the site were gathering places related to market activities, as well as other social and ceremonial events. Trade activities are usually transient, and leave ephemeral traces, which makes it difficult to detect them. However, as exemplified by other riverine settlements in the Maya region, riverine trade nodes often include transshipment locales, as well as trade infrastructure, such as storage platforms and marketplaces. Targeted excavations at these locales, coupled with soil analyses, might shed light onto their multipurpose functions.

In terms of the possible social organization of these urban spaces, I propose that – as already suggested for other trade-oriented communities, such as Cozumel (Sabloff and Freidel 1975) - elites at Boca did not have the interest, or the authority, to invest in large construction works to reinforce their political authority, as it happened in other major centers. Rather, their main concern or political role was to maintain an efficient system of control, communication and storage facilities for the regional trade system. This seems to me an interesting assumption that needs further investigation.

Finally, at the regional level, my study highlighted how the location and setting of Boca Chinikihá made it one of several riverine nodes that - in the fragmented political landscape of Late Classic Usumacinta - played a pivotal role in regional and interregional trade and communication networks.

By looking at the physicality of movement, its routes and boundaries, political control, as well as the embodied practices of movement that occurred at Boca Chinikihá and how they were related to the wider Usumacinta region, my study offered a new angle
through which to interpret the political dynamics at play in the Usumacinta region, recognizing it as a system of mobility.

**Archaeology at Boca Chinikihá as a Contribution to the Study of Riverine Port Communities**

My three-level investigation had the purpose to unfold the pivotal role played by Boca Chinikihá within the Usumacinta region and, especially, in the immediate Chinikihá hinterland. I suggested that its role as a port community granted Boca a more fluid relation with the paramount center, one in which, albeit politically not independent, the site was economically autonomous and enjoyed some freedom in binding relations with other settlements in the Usumacinta region, as visible in its varied material assemblage. More than that, I believe that my research at Boca contributed to a more encompassing view of what constitutes a port community.

By port community I mean that, aside from presenting the infrastructure to fulfill what I consider the main functions of a port: providing transportation between land and waterway routes; securing control over this movement; and being a commercial node for the distribution of goods; at Boca, communication and port activities were the fulcrum of the daily activities and, possibly, created a sense of shared identity, a sense of community. I argue that analyzing ancient port complexes as disembedded from the whole community falls short of understanding its social and political organization.

Although it is impossible to pinpoint the nature of interactions among community members at Boca, I suggest that most of these activities revolved around communication
and trade enterprises, where different actors with different roles and interests were involved at different scales and with different functions.

Riverine port communities are emerging as key elements in the political landscapes of the Maya lowlands. As for the Usumacinta, Pasión and the other riverine systems presented in this study, these settlements were pivotal for controlling movement and boundaries, forging alliances, and securing flows of goods. Control over overland and riverine routes were crucial in the political dynamics of classic Maya polities. Some of these could well be defined as Riverine Polities, by which I mean a series of Classic period polities whose political strategies bespeak an explicit concern over the organization and regulation of riverine mobility, and for which these strategies were materialized through the managing of physical infrastructure, embodied practices, and political narratives.

Finally, I contend that a mobility approach is a productive lens through which analyzing the dynamic relations at play within these polities, since it can enlighten social and political relations within a riverine mobility system, as well as into other aspects of movement in the Maya world.

**Implications for the Application of a Mobility Approach to Maya Archaeology**

This study presented the “mobility approach” as a new and valuable focus through which analyze the entangled relationship between people and their world through movement. My aim throughout the dissertation was to introduce the idea of *mobility* as a
useful conceptual-metaphor to understand the different practices associated with
circulation of people, things and ideas in the Maya world.

The different angles and scales through which mobility was addressed in the case
of the Usumacinta region during the Classic period, hopefully demonstrated that my idea
of riverine mobility encompasses more than the study of riverine transportation; it
includes all those practices, narratives and politics related to that specific, historically
situated system, or “constellation” of mobility.

By framing my investigation into a mobility approach I aim at promoting a wider
understanding of the politics of movement among the ancient Maya, and suggest that the
capitalization of movement might have figured more prominently than previously thought
among the various strategies and practices through which political authority was
materialized.

I am confident that Maya mobilities, with its many facets, will soon emerge as a
prolific arena of discussion in archaeology.
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