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Building an Archaeology of Maya Urbanism

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After decades of debate, most scholars accept Classic Maya centers as the hearts of spatially expansive, low-density urban settlements. The recent incorporation of models derived from comparative urban research is a positive step for Maya archaeology, since it confronts the view that Maya cities were not only political capitals but also true urban phenomena, and must be treated as such. This volume seeks to explore the dynamics of Maya cities primarily as socioeconomic agglomerations that emerged out of politico-religious centers.

   Although a worn-out paradox, the now largely acknowledged existence of numerous Preclassic (400 BCE–150 CE) and Classic (150–950 CE) cities and towns of remarkable size was not expected in the forested tropical lowlands, an environment considered by several generations of scholars to be unfit for supporting large population concentrations. Nor can one deny that most Classic cities in the southern and northern lowlands were indeed abandoned in perhaps less than one hundred years during the ninth and tenth centuries CE. This "extraordinary" occurrence of Classic urbanization deserves wide-ranging, yet tightly focused research efforts to elucidate this paradox and its seemingly logical

outcome, the Terminal Classic (800–950 CE) urban collapse. However much attention has been directed to the emergence of Classic Maya civilization, its sociopolitical hierarchy, sacred kingship, and monumental elite architecture, less has been given to the formation and disintegration of their urban context. For decades many, if not most, Classic Maya cities and towns were investigated, one by one, as individual archaeological sites, frequently with little consideration for their hinterlands and the hierarchized settlement systems from which they emerged. Although now acknowledged for some of its formal aspects, Classic Maya urbanization as a process is still poorly understood. This, in turn, has inhibited an accurate perception of the post-collapse, Postclassic (950–1520 CE) city systems that developed in the lowlands and that proved remarkably resilient until the sixteenth-century Spanish conquest and beyond.

The emerging paradigm views the lowland Maya as an urbanized society that created and re-created monumental urban cores and settlement forms within its tropical environment. The present volume aims at expanding the limited knowledge of Maya lowland urbanization processes. It explains how religious, political, and socioeconomic processes continued to modify multiple interdependencies among settlements of diverse sizes located in particular regional contexts. The evolutive history of ancient Maya cities combined diverse modes of land-use, sedentarizing mechanisms, and mobility practices. Various community services and constraints emerged, were managed, and consolidated at distinct levels.

Over the years, discussion of lowland Maya urbanism has shifted from a focus on largely demographic factors to one that examines the design and planning that underpinned Maya urban layouts. Although a welcome advance for the field, the application of urban design theories to the Maya Lowlands has tended to emphasize top-down processes of dynastic intent and meaning within monumental cores to the near exclusion of bottom-up processes of settlement and community adaptation (see Murtha, Walker, this volume). Maya cities and towns were not only central places created by "place-making" regal policies but were also urban settlements with a range of variable socioeconomic activities and interactions that developed alongside their primordial political and religious functions.

The emphasis on epicentral planning versus "generative planning" (M. E. Smith 2011b:179) and patterning is problematic for several reasons. Not all formally shaped complexes with nucleated populations should necessarily be thought of as "fully" urban, beyond belonging to a broadly urbanized society. Some were simple population clusters around elite compounds, which did not necessarily result in true urbanization—that is, multiscalar socioeconomic interactions developed beyond localized elite-subordinate relationships. Urbanizing entities had more than formally planned cores; they also depended on scale (quantity and density of population) and qualities of urban life. Another reason is that even the most "planned" urban environments in Mesoamerica and

beyond (e.g., Teotihuacan, Indus cities, or even Brasilia) had city dwellers who continued to modify urban spaces to meet their changing domestic and community needs. By ignoring the impact of the daily practices and mobility of urban and hinterland inhabitants on the ultimate layout and design of Maya cities, investigators risk misinterpreting the remains they recover and their diachronic evolution. Urban design theorists long ago recognized that city dwellers often ignore the intent behind institutional planning when they transform designed urban spaces through their use, or non-use, and inscribe them with new meanings and functions (e.g., Kostof 1991, 1992; Whyte 1980). "We now know that informal neighborhoods were the norm for ancient cities, where the predominant planning policy was one of neglect by the authorities" (Smith et al. 2012:7619; see also York et al. 2011).

The chapters in this volume are intended to advance an urban archaeology of the Classic Maya that embraces the generative role long-term demographic and adaptive inertia (shaping and shaped by individual and communal household choices) in creating place. Authors offer a broadened perspective of Maya urban patterns by viewing bottom-up and self-organizing processes as integral to the form, development, and dissolution of Classic lowland cities vis-a-vis centralized civic design and planning. By exploring the diverse, yet intertwined, agents and processes that modified Maya urban landscapes, this volume highlights the adaptive flexibility of urbanization in the tropical Maya Lowlands. It calls for the importance of applying multiple scalar perspectives to better explore the diverse aspects of Maya cities in their entirety, viewing their hinterlands and cores as sectors within an urbanized regional settlement system. Such approaches emphasize that urbanism (most easily identified by its physical remains, the architectural forms that spatially circumscribed social spaces and interactions) is primarily a feature of society, not of individual settlements (M. E. Smith 2008a:5). This viewpoint enables more empirical and regionally grounded comparative settlement analyses (Canuto et al. 2018; Drennan et al. 2015; Drennan and Peterson 2004; M. E. Smith 2011b:182). While informing comparative discussions of tropical, non-Western cities worldwide, assessment of the urban flexibility of Classic Maya societies improves interpretations of lowland Maya culture history and political organization. The diverse volume chapters demonstrate that although Classic Maya cities did share certain common settlement, architectural, and even developmental trajectories, individual cities and towns were often unique in their ecological setting, history, composition, and, ultimately, spatial organization. Appreciating and embracing this variability is imperative for the contribution of Maya urban studies to discussions of modern urban issues.

To build a better archaeology of Maya urbanism, this introduction offers a brief review of past and present perspectives on lowland cities within the context of recent theoretical developments in the archaeological study of ancient

urban and tropical landscapes. Next, we propose a conceptual framework for collecting, organizing, and interpreting the variable lines of archaeological evidence available to study long-term regional urban traditions. Recognizing that most archaeological assemblages can inform multiple dimensions of urbanism, we then point to four key processes in urbanization that too often remain underexamined when interpreting past urban forms and designs. A brief outline of the chapters also appears. Overall, the cases encompass the span of lowland Maya urbanism, though a majority of chapters focus on cities and regions that witnessed their "heights" during the Classic period. Nevertheless, the volume assembles an impressive regional ensemble of Classic Maya cities and towns, from Chichen Itza and Mayapán in Yucatán to Uxbenká and Caracol in Belize, Tikal and Naachtun in Petén, and Palenque in the west (figure 1.1).

PAST AND PRESENT PERSPECTIVES

For much of the twentieth century, Mayanists conceived of lowland Maya centers as sites with clearly defined epicenters and limits. The University of Pennsylvania maps of Tikal best exemplify this concept by depicting how the monumental epicenter was surrounded by an extensive residential area bounded by earthworks to the north and south with large wetlands to the east and west (Carr and Hazard 1961; Culbert et al. 1990; Haviland 2008:259, figure 1.1). Driven to test Childe's (1950) characterizations of Maya centers as barely urban, early surveyors emphasized concentrations of monuments and attempted to define settlement limits. Primarily focusing beyond the city centers, Gordon Willey's settlement archaeology approach built upon earlier observations by the Ricketsons and Robert Wauchope at Uaxactun and helped define and divvy up what was later to become the three characteristics of "Maya urbanism":

1. An expansive, low-density settlement pattern, a feature that necessitated a broad, regional survey outside of monumental centers (Willey 1965)
2. Multiple tiered networks of "centers" (Bullard 1960)
3. High numbers of small, visible mounds, arranged to form patio/*plazuela* group and quadrangle compounds, which—by virtue of the principle of abundance—were thought to constitute "residential areas" (Ashmore 1981)

Early surveyors noted that the settlement surrounding lowland Maya monumental centers was dispersed, had a low overall density of dwellings, and lacked many streets, which gave the impression of an unpatterned configuration of residential zones. This perception sparked a controversy over the existence of true cities in the Maya Lowlands (e.g., Marcus 1983; Sanders and Webster 1988).

Most famously outlined by Louis Wirth (1938), demographic definitions have been widely and effectively applied to ancient and modern cities across the globe. Their applicability to Western and most Asian forms of urbanism

FIGURE 1.1. *Map of the Maya Area showing major Maya cities and centers mentioned in the text.*

has unfortunately led to their reification as the only means of identifying a city, which resulted in the long exclusion of Maya centers from the category. Based on the archaeological data available at the time, Maya centers simply lacked the requisite overall populations and densities—combined with the perceived

TABLE 1.1. Chronological chart of the Maya Lowlands indicating the time units used by the chapter contributors (drawn by Sylvie Eliès, CNRS/ArchAm). In the case of some sites, more precise placement of subphases are given in the corresponding chapter.

	CEIBAL	EL ZOTZ	WAKA'	CHICHEN ITZA	RIO BEC	GENERAL MAYA LOWLANDS	SOUTHERN BELIZE	NAACHTUN	MAYAPAN	TIKAL	CARACOL	PALENQUE
1550–1250		CHOC		TASES		LATE POSTCLASSIC	POSTCLASSIC		POSTCLASSIC HOCABA/TASES			
1200				HOCABA				MUUCH II		CABAN		
1100–1000	SAMAT		RAX	SOTUTA		EARLY POSTCLASSIC						
950–800	BAYAL	CUCUL	MORAI	YABNAL	XPUHUK 3 / XPUHUK 2 / XPUHUK 1	TERMINAL CLASSIC	Terminal Classic	MUUCH I		EZNAB	TERMINAL CLASSIC	HUIPALE / BALUNTE
750–600	TEPEJILOTE-TEPEU 3 / TEPEJILOTE-TEPEU 2 / TEPEJILOTE-TEPEU 1	CAAL / MO	Late Q'EQ Early		MAKAN 2 / MAKAN 1 / KANLOL 2 / KANLOL 1	LATE CLASSIC	LateClassic	MA'AX III / MA'AX II / MA'AX I		IMIX / IK	LATE CLASSIC II / LATE CLASSIC I	MURCIELAGOS / OTULUM / TRANSITION
550–250	JUNCO-TZAKOL 4 / JUNCO-TZAKOL 3 / JUNCO-TZAKOL 2 / JUNCO-TZAKOL 1	SAQUIJ late / SAQUIJ early / POP	TRANSITION / Late SAQ Early		IXIMCHE / GUAYACAN	EARLY CLASSIC	Early Classic II / Early Classic I	BALAM III / BALAM II / BALAM I		MANIK 3 / MANIK 2 / MANIK 1 / CIMI	EARLY CLASSIC II / EARLY CLASSIC I	MOTIEPA / TRANSITION / PICOTA / TRANSITION
200–50	XATE 3 / XATE 2 / XATE 1	CHUB	Q'AN			LATE PRECLASSIC	Late Preclassic	KUTS'		CAUAC	PRECLASSIC	PRECLASSIC
1–300	CANTUTSE-CHICANEL3 / CANTUTSE-CHICANEL2 / CANTUTSE-CHICANEL1		Late KAQ Early							CHUEN		
350–600	ESCOBA-MAMOM 3 / ESCOBA-MAMOM 2 / ESCOBA-MAMOM 1	CHE				MIDDLE PRECLASSIC				TZEC		
650–750		UNNAMED EB-like								EB		
800–1050	REAL-XE 3 / REAL-XE 2 / REAL-XE 1					EARLY PRECLASSIC						

inability of tropical environments to support large populations (Meggers 1954)—to be considered true cities by many scholars (e.g., Sanders and Webster 1988).

Since then, however, the assumed low productivity of tropical environments has been largely refuted. The "semitropical" forested lowlands are now defined by high ecological diversity, low individual species density (Fedick 1996; Gomez Pompa et al. 2003; Scarborough 2005; Scarborough and Burnside 2010:335–46), and high potential for varied agroecosystems (e.g., Beach and Dunning 1997; Beach, Luzzadder-Beach, Guderjan et al. 2015; Dunning 1996; Killion 1992a). Tropical forest ecosystems are extremely heterogeneous per surface unit with high species diversity, which induces cultivators to reproduce this same heterogeneity in multiple ways. Even though maize was (and still is) the basic staple, maize monoculture (a specialized cultivation) would have been an undesirable option. This is not to say that varied cultivation strategies could only sustain sparse populations, but it means that, in ways not yet fully determined, they necessarily constrained the population density aspect of urban scale.

Beginning in the late 1970s, some archaeologists began to recognize the inadequacy of strict demographic definitions of urbanism. Derived from earlier central-place and core-periphery economic models, functional definitions of urbanism recognized that cities need to be defined in terms of their regional context (Blanton 1976; Fox 1977; Hirth 2003; Marcus 1983; M. E. Smith 1990; Trigger 1972; Webster and Sanders 2001). Several Mayanists accordingly borrowed urban models from the Chicago School of Urban Sociology (Burgess 1925) to depict the spatial organization of lowland Maya settlement (Chase and Chase 1987; Marcus 1983). These idealized "concentric ring" models were subsequently modified to fit documented settlement distributions and topography, features still familiar in the site maps used today. The rings could then be assigned demographic or functional attributes, which tended to "flatten" lowland Maya urban diversity. Wirth (1938:1) himself admitted that "the urban mode of life is not confined to cities." Cities do not exist in isolation; they are part of larger settlement systems that also include towns, villages, and hamlets, as well as vast tracks of agricultural lands and other resources. Thus, there is no "urban" without the "rural" or "rural" without the "urban" (M. E. Smith 2008b:457). This aspect of early functional definitions in Maya archaeology was bolstered by ambitious and, by the early 1990s, systematic completion of terrestrial settlement surveys at Copan (Baudez 1983; Willey and Leventhal 1979), Caracol (Chase and Chase 1987), and, later, Chunchucmil (Hutson et al. 2008).

The demographic/functional distinction, in a sense, resolves the debate over the "authenticity" of Maya cities. In the words of Michael Smith (2007:3), "This functional definition allows the classification of a wider range of nonwestern settlements as urban than does the more common demographic definition of urban settlements as large, dense, socially heterogeneous settlements." It nevertheless leaves us with very broad functional categories—religious, political, and economic, more or less equivalent to the "regal-ritual," "administrative," and "mercantile" categories of Fox (1977; see Marcus 1983; Sanders and Webster 1988), in which a number of Classic Maya examples can be placed. Some debate has arisen concerning the degree of entrepreneurial activity and spirit (thought typical of European medieval cities) that existed in ancient administrative or regal-ritual cities (Cowgill 2003:6–7). Recent evidence tends to reflect a more significant degree of economic activity than previously acknowledged (Cap 2015; Carrasco Vargas et al. 2009; Demarest 2013; Foias and Emery 2012a; King 2015; Masson and Freidel 2012), suggesting the "economic" nature of many Classic Maya "political" centers or cities (a dichotomy highlighted by M. E. Smith [2016]). Nevertheless, most, if not all Maya cities were primarily *agrarian cities* (Arnauld 2008; Arnauld and Michelet 2004; Chase and Chase 1998; Graham 1999; Isendahl and Smith 2013; Stark 2003).

Two decades before Roland Fletcher (2009, 2012) defined low-density agrarian urbanism, Robert Drennan (1988:284–85) proposed that the dispersed nature

of lowland Maya settlement patterns should be correlated to intrasettlement *intensive* agricultural activities. This view is strongly supported by recent large-scale lowland lidar surveys in Belize, Guatemala, and Mexico (Canuto et al. 2018; Chase and Chase 2017; Chase et al. 2014; Golden et al. 2016). In both large and small agglomerations, most Maya were farmers primarily involved in staple crop production in their infields, as well as their *milpa* outfields (Killion 1992b; Murtha 2015; Netting 1993; Wilk 1991; Wilk and Netting 1984), even as they were simultaneously engaged in crafting and trade activities. Three decades ago, Marcus (1983:206–7) remarked that scholars paid insufficient attention to emic Mesoamerican conceptions of cities, particularly the absence of the urban/rural dichotomy so central to Western concepts of urbanism (Marken and Fitzsimmons 2015b:5–6; see also M. E. Smith 2008b:457, n2, commenting on Nahuatl terms for city and town). We will return to this topic of rurality versus urbanity, but it is important to posit that Classic Maya societies were as rural as they were urbanized (e.g., Garrison et al. 2019), meaning that they were "characterized by being inherently linked, under any technology known, to specific geographical spaces" (Leeds 1980, cited by M. E. Smith 2008b:477).

Recent models of ancient urbanism tend to emphasize the spatial diversity and organizational complexity of the city and its hinterlands. It is the urban fabric generated by the countless simultaneous and heterogeneous daily activities, interactions, and identities that give cities their life and uniqueness (Jacobs 1969; M. L. Smith 2003b, 2019). In the first collective synthesis published on the archaeology of Mesoamerican urban entities (Mastache et al. 2008; Sanders et al. 2003), a similar perspective on "scale" combined with "socioeconomic heterogeneity" emerged in several case studies apart from considerations of "planning," "morphology," and "configuration" in other chapters of these volumes.

In Maya archaeology, such views were supported by the florescence of household archaeology from the 1980s to the present, which continues to demonstrate the economic, political, religious, and social complexity of life across lowland settlements (Robin 2003). Household-scale studies did not, however, hinder simultaneous in-depth research in epicentral monumentality and functional complexity (Fash and Lopez Luján 2009; Inomata and Houston 2001), leading to the detection of multipolarity in some cities with several distinct civic-religious complexes, often described as "multiple nuclei" (Bazy 2013; Fitzsimmons 2015; Marcus 1983:203–306; Martin 2001). Attention to the internal divisions of urban settlements led to defining "neighborhoods and districts" (Arnauld et al. 2012; Cowgill 2003:9; M. E. Smith 2010b, 2011a; York et al. 2011) that recognized the influence of land-use factors, given that the extent of lowland cities could not be defined on form alone (Lemonnier 2009). Vacant or "empty" spaces also earned consideration, with a dual focus on agricultural dynamics (Beach, Luzzadder-Beach, Cook et al. 2015; Beach, Luzzadder-Beach, Guderjan et al. 2015; Dunning

1996; Dunning and Beach 1994, 2010; Dunning et al. 2018; Dunning, McCane et al. 2015; Dunning, Griffin et al. 2015; Dunning et al. 2006) and visibly "built" epicentral open spaces—plazas, reservoirs, and markets (e.g., Cap 2008, 2015; Dahlin et al. 2007; Inomata 2006; Scarborough and Gallopin 1991; Scarborough et al. 2012; Tsukamoto and Inomata 2014). Monica Smith (2008:217) reminds us how "empty spaces are created just as deliberately as the architecture itself."

In order to adapt to the effects of past land use, as well as to the consequences of earlier economic and political decisions (e.g., Webster and Murtha 2015), lowland Maya urbanism had to be highly flexible. Like cities elsewhere, lowland Maya cities were always in flux and continually evolving. As the urban designers Maurice Mitchell and Bo Tang (2018:4) remind us, cities "are never finished in the sense that they will not change. They are subjected to partial demolition and extension over and over again, then copied and reinterpreted."

One of the goals of this volume is to begin the construction of a "middle-range" analytical framework for an archaeology of Maya urbanism that links the empirical data collected by researchers in the field and lab to the higher-order interpretations of political, economic, and religious meaning and change. As the collected chapters illustrate, such an endeavor must be multifaceted, while also requiring close attention to baseline parameters such as size, density, scale, chronology, ecology, and place. We consider these as "baseline" because they provide a vital context for the study, interpretation, and comparison of individual urban function and development, whether from the top down or bottom up. In addition, as several chapters in this volume discuss, Maya cities also had degrees of accessibility and connectivity. They promoted diversity and interaction, what Hutson (2016:21) calls "multiplicity," and hence were developing some functions of socioeconomic agglomeration (Gyucha 2019) beyond their well-established roles as political and religious centers and, not least, as marketplaces (e.g., King 2015; Masson and Freidel 2012). Building from this general recognition, the following section outlines a framework for the study of Maya urban flexibility.

THE DIMENSIONS OF MAYA URBANISM

Urban theorists can describe and contextualize the dynamics of contemporary inter- and intraurban experiences in ways that archaeologists can only envy (e.g., Hubbard 2006; Parker 2010). Nevertheless, over the past few decades several archaeologists have developed theoretical concepts that enrich scholarly conceptions of ancient cities (Cowgill 2004; M. E. Smith 2007; M. L. Smith 2003a). While some of this literature attempts to modernize neoevolutionary perceptions of the link between urbanism and statehood (Marcus and Sabloff 2008; Marken 2011; Trigger 2003), much of it aims to bridge the limits of earlier single-variate definitions of urbanism, described previously, to create a more encompassing comparative archaeological urban theory. For instance, Monica Smith (2006:107)

distinguishes between quantitative and qualitative measures to employ "a combination of demographic, Childean (internally specialized), and functional (externally specialized) criteria" to evaluate whether a settlement should be considered "urban." Expanding on Smith's criteria, Hutson (2016:9–15) identifies seven "components of cities" that also span the demographic, functional, and experiential aspects of urban landscapes. In a separate vein of ongoing research, inspired by complexity theory (Bettencourt 2013; Bettencourt and West 2010; Bettencourt et al. 2010), preindustrial urban scaling studies have identified patterned cross-cultural correlations between demographic and social variables across entire synchronic regional settlement systems (Cesaretti et al. 2016; Gyucha 2019; Ortman et al. 2013; Ortman et al. 2014; Ortman et al. 2015; Ortman et al. 2016; M. E. Smith 2017, 2019; Smith et al. 2020).

One of the most prolific current writers on the archaeology of urbanism, Michael Smith (2008a:8–10; 2008b) identifies four "dimensions" of Mesoamerican urbanism—urban form, urban life, urban function, and urban meaning—which we view as an excellent foundation upon which to build a theoretical framework to study the processes of lowland Maya urbanization. Although derived from functional perspectives, Smith's dimensions "cross-cut the physical functional and communal roles of cities" (Marken 2011:73) to incorporate consideration of demographic factors, such as size, density (urban form), and heterogeneity (urban life), as well as potential economic and politico-religious variables (urban function and meaning). Each dimension can be potentially informed by both quantitative and qualitative measures and thus enable rather nuanced inter-settlement comparisons even in the face of uneven data sets. Smith's dimensions of urbanism are recursive analytical comparative categories, in that new data or interpretations informing one dimension often have implications for the other dimensions.

We suggest two modifications to the framework originally outlined by Smith (2008a, 2008b). First, like many functional perspectives, Smith's dimensions are overly urban-centric, reducing urban hinterlands and rural areas either to zones of resource extraction or to passive recipients of urban benevolence since "urban settlements" are defined as "centers whose activities and institutions affect a larger hinterland" (M. E. Smith 2008a:4; see also M. L. Smith 2003b:10). As chapters within this volume illustrate, a "multidimensional city" perspective benefits from a spatial expansion that recognizes hinterland areas as important loci for urban change (Marken 2011:79). There is empirical justification for including a rural facet to interpretations of urban form, life, function, and meaning. As mentioned, ethnohistoric accounts from Mesoamerica (as well as sub-Saharan Africa) indicate that Indigenous ideologies did not make the same conceptual distinctions between the urban and rural environment as Western European sociological models (Ferguson and Mansbach 1996; Marcus 1983:207–8; M. L.
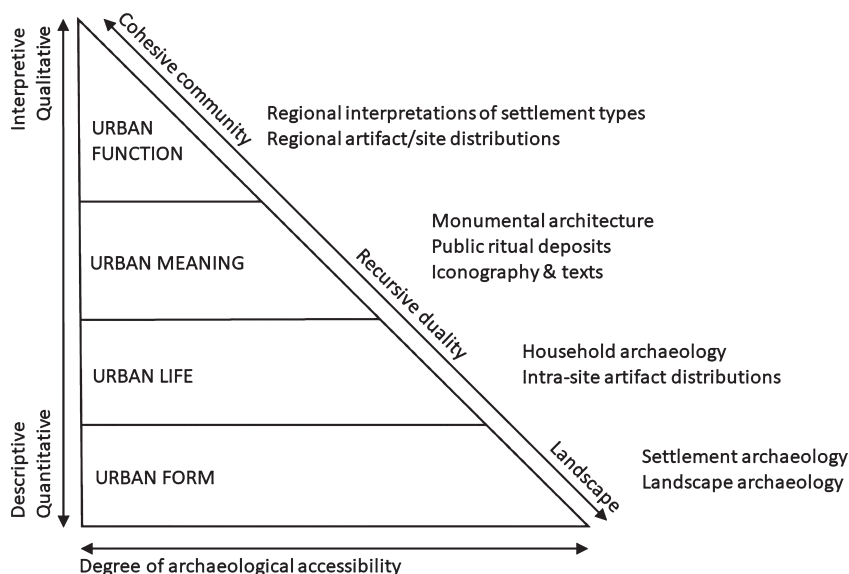
Marken and Arnauld

FIGURE 1.2. *Hierarchical analytical methodology of urban dimensions based on M. E. Smith 2008a, 2008b.*

Smith 2003b:4; see also Berdan 2008; Fletcher 1995; Krapf-Askari 1969; Kusimba et al. 2006; Redfield and Singer 1954; M. E. Smith 2008a; Trigger 2003; Tozzer 1941; Wheatley 1971). With this spatial expansion in scope, the dimensions of urbanism gain the potential to encompass all aspects of urbanized regional settlement systems more fully.

The second modification we advocate is a rearrangement of the four dimensions for analytical purposes. It accounts for the archaeological accessibility of data typically collected to inform each dimension as well as the recursive nature of the data. Such a reconfiguration is justified by the fact that while the four dimensions of urbanism are nominally analytical equals, when it comes to field data recovery and interpretations, they often are not. It may seem redundant, but within any functional definition of urbanism, where cities are large settlements with many urban functions and towns are smaller urban settlements with fewer functions (as noted by M. E. Smith 2008a:6), the dimension of urban function is or should be privileged. Our reframing is thus both hierarchical and recursive, with the privileging of urban function made explicit. Urban form contextualizes urban life but is also re-created and modified by urban life, which, in turn, creates and reinforces urban meanings. Those meanings and the forms and life that generate them define urban functions (figure 1.2). Physical changes in the urban landscape can lead to new social configurations of the urban community and vice

versa. With this rearrangement, these new dimensions better capture what Spiro Kostof (1991:52) calls the "urban process," the recursive duality of ancient cities as fluid, yet cohesive social communities, along with the physical landscapes that underwent alteration. The following sections briefly summarize the features of each urban dimension to highlight their recursive nature and interpretive interdependence, as well as to identify the methods often employed for their study.

Urban Form

The archaeological study of a particular city begins by documenting its urban form, typically accomplished through a terrestrial or remote sensing survey. One goal is to answer basic questions about the size of the city, the location of its buildings, and the way they are arranged in relation to each other to create urban spaces and direct or restrict access to those spaces.

Archaeological investigation of urban form is descriptive in nature, often with its focus on the built and nonbuilt environment in its final form. Excavation is usually necessary to add a diachronic aspect to the study of urban form. Michael Smith (2008a:8) cites urban form as the most archaeologically accessible urban dimension, one that includes the overt physical characteristics of a city: its size, population, density, traffic systems, and the size and distribution of residential and public architecture (see also Kostof 1991, 1992). Regionally, it also includes standardization in urban layout and monumentality, along with coordination between buildings and space (M. E. Smith 2007:6–8). Despite its apparent accessibility, even these baseline parameters can be difficult to assess archaeologically, as ongoing debates over lowland Maya population estimates and densities illustrate (Canuto et al. 2018; Culbert and Rice 1990; Webster 2018).

Even defining the absolute limits of many Maya cities remains problematic considering the extended nature of lowland urban landscapes (Fletcher 2009:12; Wilkinson 2014). This raises the issue of the definitional breadth of urban form. Size, density, layout, and scale receive considerable attention from scholars studying ancient urban form, yet local geological, topographic, hydrological, as well as historical conditions are equally fundamental to understanding the opportunities and challenges to urbanization for individual cities (Castanet et al. 2016; Marken and Murtha 2017). Urban ecologists have long understood the central role of resource distributions (soils, potable water, extractable raw materials) and land-use practices (including "landesque" modifications or capital) in framing the development of urban form not just within the city proper, but across its hinterlands (e.g., McHarg 1971; Steiner et al. 2016). By incorporating ecology and hinterland development as fundamental components of urbanization, urban form becomes embedded within a greater regional landscape that materializes the environment/settlement and rural/urban relational link. Moreover, recognizing that regional settlement and land-use patterns were vital to processes of

Maya urbanization significantly augments the comparative value of the investigation of lowland urban forms.

Although a consensus had been building for years (e.g., Arnauld 2008; Arnauld and Michelet 2004; Chase and Chase 1998; Graham 1999; Roland Fletcher 2009), defining low-density agrarian urbanism as a comparative type marked a turning point in scholarly opinion regarding the urbanity of Classic Maya society. This urban type, formally labeled "tropical low-density, agrarian-based urbanism," highlights specificities of precisely the rural/urban link across the tropical belt, even though its parameters appear oversimplified for the needs of a worldwide comparison (Fletcher 2012; Isendahl and Smith 2013; Lucero et al. 2015; Marken, Ricker et al. 2019; see comments by Wilkinson 2014). The timing of Fletcher's publication coincided with the expanding acceptance of functional definitions of urbanism and the introduction of lidar surveys in the Maya area (e.g., Chase et al. 2011). In many ways, this volume, with its emphasis on the physical and social foundations of Maya urbanization, is a product of these three research advances.

A recent trend in analyzing Classic Maya urban form is an emphasis on "planning" as the deliberate actions of the builders, particularly dynastic rulers (e.g., Houk 2015; Rice and Pugh 2017). But the degree to which Maya rulers were able to direct the residential patterns of urban inhabitants remains unknown. The possibility does exist that they could direct the location of individual households or neighborhoods, but certainly not the housing, that is, the form and structure of physical residences that evolved in a bottom-up fashion as an answer to the needs of residents, particularly in terms of their beliefs and prospects (Sion 2016). This process in turn gradually produced patterns, including planning on the household/neighborhood scale, often referred to as "generative planning" (M. E. Smith 2011b:179). In a related yet distinct vein, several scholars draw upon architectural communication theory to examine city layouts and designs more broadly (see M. E. Smith 2007, 2011b; Smith and Hein 2017; see also Kostof 1991; Moore 1996; Rapoport 1988; Vis 2014, 2016). By incorporating the full range of urban architecture, these studies recognize

> the fact . . . that no city, however arbitrary its form may appear to us, can be said to be "unplanned." Beneath the strangest twist of lane or alley, behind the most fitfully bounded public place, lies an order beholden to prior occupation, to the features of the land, to long established conventions of the social contract, to a string of compromises between individual rights and the common will. (Kostof 1991:52)

While the search for intent in urban design is more appropriately encompassed by the dimension of urban meaning, it is only through the recursive intersection of form with the dimension of life that places and spaces become inscribed with meaning through which archaeologists can perhaps ascertain design intent.

Considering the potential of archaeological evidence, we are content with the task assigned by our broad definition of the dimension of urban form concerning landscaping and planning. As mentioned, landscaping refers to the spatial boundaries of urban entities, which entails not only settlement patterns and land use but also the circulation and mobility of people, whereas planning involves people's decisions reflected in their housing patterns and community design. These issues are sufficiently complex that only an empirical intersection of urban form and life offers the best approach.

Urban Life

If urban form describes a city's physical make-up, urban life seeks to capture the dynamic social mosaic that is the city, the interactions and obligations that divide and/or integrate individuals, households, civic communities, and institutions (M. L. Smith 2019). Form and life, however, are intrinsically related since "urban form is never innocent of social content: it is the matrix within which we organize daily life" (Kostof 1992:8). Urban life itself refers more broadly to the parameters influencing the overlapping spatial and social divisions within a city. Intersectional topics of investigation include social diversity within urban environments (ethnicity, class, gender, and occupation); social organization (household and neighborhood composition); and the economic, religious, and public life of urban residents (M. E. Smith 2008a:8–9; M. L. Smith 2003b).

Archaeological data informing urban life are best accessed through excavation programs that sample multiple households within a city at diverse socio-spatial scales, coupled with comparative analyses of their artifactual and architectural inventories (e.g., Keith 2003). While this facet of urban life studies necessitates a descriptive inventory of urban social diversity—Wirth's (1938) third demographic variable of social heterogeneity—interactions within and between differing social groups are what generate the types of intersecting identities and activities commonly associated with city living (e.g., Jacobs 1969; M. L. Smith 2019). This is what recent settlement scaling studies refer to as "energized crowding" or a "social reactor" (Bettencourt 2013; M. E. Smith et al. 2021). Agency perspectives (Dornan 2002) are thus most useful at this analytical level through quantitative interpretation of variations in several parameters of urban form and life, such as scale, social inventories, and spatial distributions, as well as stratigraphic and construction sequences through the lens of "structured deposition" (Joyce and Pollard 2010) and "social stratigraphy" (McAnany and Hodder 2009; see Arnauld et al. 2017). Interactions are not easily accessible to archaeologists, yet at least concrete conditions for cooperation (or lack of) in urban construction, craft, circulation, regular meetings, and other activities can be assessed. And beyond the spatial frame the city components provided, practices and use of urban spaces created the social memories that imbued those spaces with meaning.

Urban Meaning

Amos Rapoport (1988:318) suggests that the relationship between meaning and the urban landscape is regulated by three interrelated topics: "the human propensity to impose meaning on the world; the built environment as influencing behavior through meaning; meaning as an important mechanism linking environments and people." The study of urban meaning seeks to provide rationales for the expression of the previous dimensions of form and life—how cities are organized, constructed, and experienced, while concurrently creating the conditions and traditions regulating social behavior. In this sense, urban meanings imbued into the built environment are generated through urban life and experience, while simultaneously tying social memories to place (Rapoport 1993; A. Smith 2003). For Rapoport (1988:325; see also M. E. Smith 2008a:10–15), meaning is communicated at three distinct levels: (1) "high-level" meanings encoded in the symbolism of buildings and cities within religious or cultural traditions; (2) "middle-level" meanings that signal messages of identity, status, and power; and (3) "low-level" everyday meanings that concern the influence of the built environment on individual thought and behavior.

A popular tendency in archaeology is to equate urban meaning with "the symbolic role of cities as human replications of the cosmos" (Fash and López Luján 2009:3), Rapoport's "high-level" meaning. This "cosmovision" or "cosmogram" approach attempts to interpret the symbolic and religious meaning and intent expressed in the arrangement, orientation, and layout of monumental and public urban spaces (Ashmore 1991; Ashmore and Sabloff 2002; Carrasco 1990; Houk 2017; Malville and Gurjal 2000; Schele and Mathews 1998; Wheatley 1971). Critiques of Maya "cosmograms" are numerous (e.g., M. E. Smith 2008a:9; see also M. E. Smith 2003; Smith and Schreiber 2006:14, 21–22), with little need for their reevaluation here beyond suggesting that for nearly all urban centers the meaning(s) behind urban form was/were contingent upon local and historical circumstances. Even if their specific messages may be difficult for us to assess today in the absence of written records or extensively documented sculptural programs, we must not downplay or devalue the importance of institutionalized conflation and materialization of ideology, tradition, ritual, and authority in the integration of many early urban societies.

In the Maya Lowlands, even though rarely acknowledged, Rapoport's middle-level meaning approach has perhaps gained greater acceptance due to the preponderance of epigraphic and iconographic studies of inscriptions, sculptures, and paintings revealed by archaeological excavations of certain monumental building types. This "conjunctive research" is applied less to entire city layouts than to specific public units, plazas, and/or configurations, such as E-Group complexes (e.g., Freidel et al. 2017). Each of them is correlated with particular historical moments or circumstances in the epicenter's developmental trajectory—usually

dynastic events materialized in architecture (Bazy 2013; Jones 1991; Webster and Houston 2003), though astronomical events as well (Aveni 2003). Planning is thus often attributed to the conscious strategies of dynastic rulers from what appears to be a historical perspective (Hiquet 2019). Thus, the developed form of each city is commonly qualified as "organic," not "planned" (Fash 2008:203; Haviland 2008:273; see Kostof 1991 and M. E. Smith 2007 on both terms).

A more institutional perspective might be emerging out of this conjunctive approach when complemented by Rapoport's lower-level meaning. Based on his behavioral-environmental theory, this level considers messages conveyed by buildings through their monumentality, accessibility, and visibility in a way that affects the senses of participants in performances held in such settings (Inomata 2006; Liendo Stuardo 2003; see also Ossa et al. 2017). Considering specific inventories of buildings (e.g., types of temple-pyramids, palaces, ballcourts) and their public assemblages in terms of durable institutions set in urban contexts—beyond individualistic, legitimizing royal strategies—probably improves our knowledge of Maya political structures.

The Classic Maya were part of a true interconnected urbanized society at a wide spatial scale articulating many settlement systems across the Yucatán peninsula and beyond. The concept of a "city-state culture" (Hansen 2000; Grube 2000; Lacadena and Ciudad-Ruiz 1998; M. E. Smith 2008b) supposes that epicenters were planned in a complex balance of top-down strategies and shared ideological institutions driven by higher-rank dynasties but also under pressure from local supporting social groups (Schortman 1989; see also Marken et al. 2017).

Urban Function

At the top of the analytical hierarchy, the dimension of urban function incorporates the basic characteristics that define the functional city: a central place where activities and institutions cluster that affect a wider hinterland (Kostof 1991:38; M. E. Smith 2008a:4; M. G. Smith 1972; Trigger 1972; Wheatley 1972). Rooted in central place theories borrowed from the "New Geography" (Lösch 1954; Wallerstein 2004), urban function integrates recursive interpretations of urban form, life, and meaning to identify the potential administrative, economic, ritual, and ideological (e.g., religious) services cities provided populations within a regional settlement hierarchy (Blanton 1976). The materialization of these functions through regional settlement hierarchies and distributions of material culture is also often seen as indicative of political structure (Marcus and Feinman 1998; Marken 2015:145–46). Interpretation of urban function(s), however, should emphasize what Monica Smith (2003b:7) calls the "cognitive formulation of urban centers," the social relations and networks that integrate urban and hinterland residents and institutions.

As argued earlier, urbanization is not a process that only affects urban dwellers; "rural" folks are equally affected. Rural areas were not simply the recipients

of urban services and administration; they too were functional parts of the "urban-rural community" (cf. Marken 2015:145). Hinterland functions had to be adapted to fluctuating subsistence and social requirements of local populations while mitigating potential demands on localized labor and production by civic institutions. The variable extent to which urban institutions were involved in inter-rural settlement interactions informs the hierarchical and heterarchical arrangement of local and regional social networks and enables more comprehensive understanding of how cities operated. Gaining a better handle on the functional role of rural areas in urban development is a significant step to identifying alternate sources of urban integration and degrees of flexibility.

At this point, it should be clear that the four dimensions of the proposed theoretical framework intersect in several ways that lead to structured empirical correlations appropriate to resolve issues of growth/decline and organization in cities and towns. To be more precise, the bottom-up perspective we advocate tends to center on the recursive intersection(s) between urban form and urban life, due to the direct accessibility of corresponding archaeological evidence, as well as the fact that both dimensions more significantly reflect the bottom-up agency of commoners as participants in the communities that constitute the social building blocks of polities (Marken 2015). This is not to say that meaning (civic design and layout) and function (urban "central places") were out of reach for ancient commoner agents. Indeed, the paradigm we offer and advocate for, with its emphasis on bottom-up and rural/urban perspectives, promises a fresh approach to Maya urban meaning and function. However, advances along those lines will only be possible through robust analyses of contexts, conditions, and chronologies at the analytical levels of urban form and life, as we have broadly defined them, and particularly at their intersections.

LOWLAND MAYA BOTTOM-UP AGENCY IN URBAN CONTEXTS

In building an urban archaeology of the lowland Maya, we have proposed a hierarchical analytical framework derived from functional approaches to urbanism that pays close attention to demographic and ecological factors such as size, density, scale, diversity, and place. Specifically, we have argued that the actions and experiences of individuals and local groups, both within and outside urban centers, create and re-create urban form and meanings through daily practice and community-level events vital to understanding processes of urbanization on a regional scale (see figure 1.2). This perspective owes considerable debt to several bodies of urban theory (or aspects of them), primarily generative planning (Kostof 1991, 1992; M. E. Smith 2011b), tropical low-density agrarian-based urbanism (Fletcher 2009, 2012), and structured deposits/social stratigraphy (Joyce and Pollard 2010; McAnany and Hodder 2009). What is generally lacking in Maya scholarship, however, is a developed body of "middle-range theories"

that connect the higher-order dimensions of urbanism to the quantitative and qualitative patterns in our archaeological data sets (cf. Hutson 2016:71–90; Isendahl 2012; Masson and Peraza Lope 2014; M. E. Smith 2011a; Webster and Murtha 2015).

In this volume, chapters contribute methods and case studies that help elucidate and reconstruct the impact of four cross-culturally recognized settlement processes upon the temporal and regional flexibility of Maya urbanization: dynamics in housing, mobility across rural/urban landscapes, local community organization and diversity, and resource management (table 1.2). Data informing these various factors fortunately often overlap, or are at least complementary, and therefore can often be collected simultaneously. They not only focus on the "city" as a physical entity but also investigate the relations between the regional settlement system, its environmental and technological context, and the types of politico-religious and socioeconomic institutions (if possible, with their practices) present in the city under study (Cowgill 2004). Required by the data that reflect them, these relationships ought to be examined at multiple analytical and spatial-temporal scales in order to track their dynamics and evaluate diachronic or even historical trends.

Household Decisions

The potential variety in individual household decision-making best epitomizes the fact that bottom-up urban organization "is not chaotic," but planned "at the household or neighborhood level" (M. E. Smith 2011b:179). Wilk and Ashmore (1988) long ago suggested that basic Maya kinship and nonkinship groups were autonomous, in that they made their own decisions about their degree of sedentariness, mobility across hinterlands (temporally, socially, spatially), in situ growth, desertion, or involvement in broader social networks (see also Arnauld, Beekman and Pereira 2021; Inomata 2004). It is important to remember that "even in the most advanced states and empires . . . most decisions about quotidian events continued to be made at the individual and household level, away from the control—or even perception—of elites" (M. L. Smith 2011:57).

In the Maya Lowlands, "settlement pattern archaeology," along with "household archaeology," comprises enormous bodies of data at this planning scale (e.g., Robin 2003; Sheets 2006; Willey et al. 1965). At their simplest, individual household decisions are either proactive or reactive, though in reality they are much more complex because members weigh an array of internal and external challenges and opportunities, such as changes in family structure, available economic strategies, and/or community and ritual obligations against social and ecological circumstances that factor in their determinations (Robin et al. 2015; Yaeger 2003). In terms of their archaeology, household decisions become most easily detectable through modifications in domestic architecture and layout,

TABLE 1.2. Bottom-up urbanization processes emphasized in this volume with specific archaeological correlates for the Maya Lowlands. For a treatment of units (household, neighborhood, district, polity, and settlement system), see table 7.1. Numbers in urban dimension columns represent chapters in this volume.

General Process	Broad Socio-Material Impact(s) of Each Process	Material and Semantic Data Sets Informing Urban Dimensions			
		Urban Form	Urban Life	Urban Meaning	Urban Function
Resource Management	Local and urban-scale public/private infrastructure	Resource distribution; local and centralized management features; landesque features (fixed plots) 10, 11, 12, 13	Settlement clustering near local and regional resources and management features; Residential inventories of resource-specific artifacts; Landscape planning (10, 11, 12)	Exports; Epigraphic toponyms; Dynastic records; Court architecture and ritual; High-level planning (3, 5)	Local and/or centralized management/provisioning of the polity (11, 13); Regional settlement system and hierarchy; Public services and goods (3, 11, 12, 13)
Community Dynamics, Organizational Definition	Regional, urban, and neighborhood-scales of attraction, clustering, dispersal; Contraction into new housing; Local and civic identity creation	Settlement density analyses; Neighborhood histories; Size and distribution of local public spaces; Monumental chronologies (2, 3, 5, 6, 7, 8)	Household provisioning; Spatial distribution of household artifact styles/traditions; Intra-neighborhood variation; Area/volume of neighborhood centers and city epicenter (4, 7)	Multiple nuclei; Factional negotiation/competition; Household related to districts (2, 4, 5, 6, 8)	Civic institutions; Regional public, ritual and market space distributions; Public services and goods (2, 3, 5, 11);
Mobility, Circulation, Connectivity	Internal and core-hinterland relationships; Boundary definition; Social/ecological/economic/political push-pull factors	Household occupational chronologies; Inter and intra settlement pathways; Settlement density analyses (3, 4, 6, 8, 9, 11, 12, 13)	Access patterns; Household cycling; Field housing/urban housing (6, 7, 8, 9, 11, 12)	Local provisioning networks; Marketplaces; Raw/finished crafts; Traffic; (7, 9)	Freedom of movement; Periodical congregation; Trade and craft specialization (11, 12)
Household Decision-Making	Residential-scale building and rebuilding; growth/stasis, temporary/definitive abandonment	Vernacular construction modes; Rates of construction; Demographic cycling; Diachronic settlement distributions (4, 6, 8)	Diachronic settlement distribution; Changes in housing styles; Comparative and spatial analyses of household inventories (6, 8)	Middle- and low-level symbolism; Treatment of the dead; Aggregation degree and forms; Social stratigraphy (6, 8);	Location options regarding travel/transportation, water, land; Constrictions on population growth/settlement expansion (4, 7)

such as opening or dividing preexisting spaces and architectural expansion or abandonment, as well as through intrasettlement comparisons of household artifact inventories that may indicate the principle economic and social activities in which members engaged.

Over the long term, decisions made by individual family units gradually create the global patterning of the city (form), as households configure their residential architecture, houselot orientation, and layout; modify access patterns and the visibility of buildings; and select particular plants and trees to cultivate (Hanks 1990). Across tropical lowland landscapes, fixed plots were a prominent feature of intrasettlement agricultural intensification (made possible by soils composted with domestic refuse) that allowed for multigenerational investments in household gardens (Chase and Chase 2016; Killion 1992b; Lemonnier and Vannière 2013; Murtha 2015).

Mobility, Circulation, Connectivity

Distinct from "social mobility" as a diachronic index of socioeconomic inequality, residential mobility processes across city hinterlands and settlement systems have received less attention due to the archaeological difficulties in tracking prehistoric population movements. The recent proliferation of new isotopic proxies, however, now enable more detailed exploration of subsistence mobility in relation to urban sedentary ways of life (Arnauld et al. 2021; see also Cucina 2015; Hodell et al. 2004; Inomata et al. 2015; Price et al. 2014; M. E. Smith 2014). Inner circulation within cities has also been the subject of innovative research in Copan and elsewhere (Richards-Rissetto and Landau 2014; see also Hare et al. 2014; Hare and Masson, this volume; Liendo 2003). Lidar images informing field surveys can now detect many connective features, not only causeways but also nonbuilt pathways and streets (Canuto et al. 2018:13; see also Robin 2002). Nonetheless, limitations of transport technology across low-density urban landscapes severely constrained the rapidity and intensity of both local and long-distance interactions (Smith et al. 2021). Worthy of deeper analyses, city life, mobility, inner circulation, and connectivity processes may have induced specific variations in vernacular architecture (field housing versus urban housing) and yielded particular domestic microstratigraphies (i.e., on exterior floors less disturbed by rebuilding episodes), including refuse disposal, storage, burial patterns, and resource curation, against the possible backdrop of neighborhood planning (Hutson 2016). To those who are reluctant to view sedentism as the only popular settlement option well into the Classic period, one only has to recognize mobility as a key attribute of lowland Maya urbanism (e.g., most essays in this volume). Remaining doubters need to recall the mobility patterns that emptied most cities by the end of the Classic period and match that with the well-known mobility of Maya farmers in colonial times.

Communities and Neighborhoods

Due to demographic conditions, community formation and reproduction were mainly the result of population movements—urban in-migration related to hinterland mobility. Once in the city, people with a shared origin either tended to cluster or disperse among local inhabitants, creating specific spatial arrangements of people with distinct perceptions of their alterity or commonalities to other urban groups. Artifact distributions, with their visible / invisible attributes reflecting communities of practice in production, distribution, and / or consumption (full- or part-time crafting, marketplaces), are also indicative of urban composition and internal interaction.

As new housing styles (vaulted multiroom residences) developed in cities, spatial contraction appears to have transformed some neighborhoods as dependent people opted to (or were forced to) move into more prestigious palace-type residences. Other investigated aspects of co-residence are specialization in economic activities, social heterogeneity, and hierarchy, including potential presence of administrative delegates directed by epicentral authorities.

Resource Management and Infrastructure

Maya central authorities created ceremonial plazas, causeways, ballgame courts, and assembly buildings, all built spaces in which they featured as the main protagonists of ceremonies, parades, games and assemblies. They may have also commandeered water reservoirs and marketplaces, even though it has been demonstrated that nonelites were able to reproduce like infrastructures for themselves (e.g., Chase 2016). Their respective role is now debated concerning intrasettlement agricultural terrace systems (Murtha 2009; Wyatt 2008), as well as intra-*bajo* canals, drainage, and field systems—all landscape features now more widely detected through large-scale lidar surveys. These infrastructural components of Classic Maya cities help define their functions within each settlement system and raise the issue of whether some notion of public goods existed in the Maya Lowlands. Moreover, there is no reason to discard the same notion of public goods on the neighborhood scale in an approach that would firmly distinguish divergent strategies of political centralization in an urban capital from those of urban integration modes on different scales of the settlement system. Several of the chapters that follow attempt to deal with this complicated divergence.

BUILDING AN ARCHAEOLOGY OF LOWLAND MAYA URBANISM

After this introduction, the volume comprises four parts. Chapters have been grouped according to the particular general process they best exemplify. However, it must be stressed that all the contributions demonstrate the interconnected and simultaneous nature of each. In other words, since the four processes already described overlap in a variety of potential means, each chapter

incorporates aspects of them to inform each of the four dimensions of urbanism. Ultimately, the goal of this volume is to begin an interdisciplinary journey that explores the richness of Maya urban built form, social life, cultural meanings, and regional functions more thoroughly.

Part I: Community Formation

The four case studies in part I, chapters 2–5, collectively encompass nearly two thousand years of urban community formation and transformation across the Maya Lowlands. Starting that comprehensively is intentional, as these cases do not purport to be fully representative. A robust research tradition has revealed the localized nature of numerous aspects of collective and institutional community formation processes, even if not often from an explicit urban perspective (e.g., Fash and López Luján 2009; Marken and Fitzsimmons 2015; Martin and Grube 2008; Tokovinine 2013; Walden et al. 2019). Still, a common theme of the chapters in part I is a consideration of factors that either attracted or drove people either to aggregate at or disperse from particular locations on the landscape.

Triadan and Inomata, with chapter 2, open part I by exploring the beginnings of lowland urbanism, the Preclassic practices and settlement decisions of the semisedentary groups that first built and joined the inchoate spaces and communities that became Classic Maya cities. As is true for Ceibal, Guatemala, many Maya urban traditions were established in these early stages. Their excavations of deeply buried public spaces and monuments, in particular, highlight the foundational role of collective ritual action in building the physical and social spaces of an unfinished and incomplete urban community. As Triadan and Inomata demonstrate, the collective repetition of these practices built upon contemporary (and earlier) Mesoamerican traditions, while also engaging these broad regional forms to create localized urban meanings. Although not a focus of this chapter, the dispersed and semisedentary nature of early regional populations also demonstrates the considerable time depth of settlement mobility as a viable adaptive strategy in the lowlands (see Inomata et al. 2015).

The next two chapters (chapter 3 by Garrison and chapter 4 by Eppich, Marken, and Menéndez) build upon the extensive literature on Classic Maya sociopolitical organization mentioned so as to develop novel approaches for assessing the development of lowland urban communities. El Zotz and El Perú-Waka', near-adjacent subregions of the Central Petén, illustrate how differences in circumstance can lead to distinct processes of urbanization. Despite their differences (and in many ways because of them), these case studies demonstrate the persistence of mobility and aggregation as complementary lowland adaptive strategies, even when subregional processes and their outcomes differ. Whereas the Buenavista Valley experienced a series of subregional shifts

in political centers influenced by the potential military threat of neighboring Tikal, the ceremonial center of El Perú-Waka' was rather stable once established. Nevertheless, urban form at El Perú-Waka' was also in constant flux, changing as hinterland life adapted to the dynamics of ecology and history. These cases serve as reminders of the importance of place and history to understanding the dynamics of form and mobility that created the landscapes archaeologists investigate today. Local and extralocal resources and social memories are rarely evenly distributed, often leading to variable developmental trajectories for individual cities within an urban tradition.

Chapter 5, the final chapter of part I, considers external influences in the evolution of Maya urbanism, which built upon earlier Maya traditions, after the ninth-century "collapse" of the highly urbanized southern lowlands. In this chapter, Stanton and his colleagues argue that in the wake of the turmoil marking the end of the Classic, Early Postclassic lowland cities underwent a profound reorganization in urban meaning and function, most clearly represented at Chichen Itza. There, they argue, this change manifests itself in the reinterpretation of established Maya symbols and ideologies to support a more corporate Central Mexican style of governance (see also Carballo 2013). This recombination of familiar Maya ideologies and newish institutions central to the constitution of communities led to both a reconfiguration and a reinterpretation of Chichen Itza's urban landscape.

Traditionally, questions about how communities are formed, maintained, and transformed have been central to nearly all investigations of ancient urbanism. That said, the chapters here are not to be taken as fully representative of studies treating this topic. What sets these four chapters apart is that they each take fresh approaches to traditional neoevolutionary questions, backed by robust and unique combinations of diverse data. Maybe most important, they collectively demonstrate the disciplinary benefits of building diachronic datasets not only to compare regional urban traditions but also to interpret individual urban settlement system dynamics.

Part II: Household Decisions, Mobility, and Connectivity

In building an archaeology of Maya urbanism as advocated in this introduction, the chapters in part II in many ways form the foundation. In contrast to themes of dynastic design, planning, and community creation, explicit investigation of the interplay between urban form and life as expressed through diachronic analyses of settlement decisions in housing, location, and mobility have tended to be underrepresented in assessments of Classic Maya cities. While the contributions here incorporate the potential impacts of localized top-down processes, they center the dynamics and choices of local households and communities as driving forces in the continual evolution of urban form, life, meaning, and function.

As seen throughout this volume, these bottom-up generative processes are at the heart of what an archaeology of Maya urbanism must become.

Arnauld and Dzul Góngora, in chapter 6, examine spatial, social, and morphological changes in housing systems during the Late-Terminal Classic in the Río Bec region to model the decisions and mobility of local populations within a process of "residential contraction." Their findings bolster arguments that the Terminal Classic collapse was not uniformly experienced across the Maya Lowlands. The rhythm of urban abandonment in fact could, and often did, play out differently for different cities, with hinterland mobility providing lesser groups with an adaptive buffer that centrally located households lacked—even though contraction in large residences may have created resilience for those social groups even in the moment of their final relocation.

In chapter 7, Thompson and Prufer explore internal inequality within spatially defined neighborhoods at the small Classic period centers of Uxbenká and Ix Kuku'il, Belize. Whereas Arnauld and Dzul Góngora focus on the last periods leading to abandonment to examine household decisions and mobility, Thompson and Prufer track the size and longevity of individual settlements from their foundation dates to assess the degree of inequality both within and between neighborhoods, as well as between the two contemporary centers. Their results demonstrate that, as seen across cities then and now, urban residential neighborhoods, even at relatively small centers such as Uxbenká and Ix Kuku'il, were not, as is often assumed, monolithic. The authors make a valuable contribution by proposing a simple terminology, "local dominants" as inhabitants of "district seats," also inhabitants of "neighborhood seats," both forming "intermediate elites"—which easily blend into the concepts of other authors (e.g., "neighborhood central compound" in Liendo and Campiani, this volume).

Hiquet, Sion, and Perla-Barrera, in chapter 8, compare the chronological histories of rather large samples of residential units from two sectors of Naachtun, Guatemala's urban core. Based on detailed stratigraphic and ceramic analyses, these sequences are then examined within the context of the historical trajectory of the Naachtun polity. Comparing the settlement trends of these two sectors, the relatively dispersed residential zone and the compact Group B, the authors argue that the distinct patterns of contraction and expansion of each sector reflect more than simple changes in urban form—as they more accurately signify the distinct dynamics in life, meaning, and function. In this way, their study highlights the multiplicity of both individual and collective actors within lowland Maya cities, the myriad residents and local social groups.

In the final chapter of part II, chapter 9, Hare and Masson expand the volume's chronological and interpretive breadth by examining how household decisions and their impact on movement was a fundamental factor in processes

of urbanization at Late Postclassic Mayapán. Unlike most of the urban landscapes described in this volume, Mayapán was one of a number of northern lowland cities where many households were rather clearly delimited by low limestone walls, called *albarradas*, to form houselots. As Hare and Masson detail, the diachronic aggregation of houselot walls created an internal "maze" directing the traffic of Mayapán urban life. Even as it describes city-scale planned features such as city walls, gates, monumental sectors, markets, and the large thoroughfares that linked them, their chapter also recognizes that much of the experience of urban life occurs and is internalized as residents navigate smaller neighborhood streets and alleys.

Part III: City-Scale Resource Use and Management

The increasing availability of lidar survey data has revolutionized how archaeologists can investigate and interpret regional land use and resource management across the lowlands, as well as how it has led to the overdue recognition that the ancient Maya thoroughly modified the lowlands. It is tempting to automatically equate highly visible (in lidar bare-earth models) large-scale "landesque" features—particularly those associated with intensive agriculture—with centralized political and economic control of the hinterlands. Yet it is worthwhile to remind ourselves that in reconstructing these regional landscapes, what we are often witnessing is the cumulative effect of localized adaptive management practices that are not always spurred by top-down managerial imperatives (e.g., Robin et al. 2015). Moreover, surface identification alone will not be sufficient to understand how diachronic development and urban infrastructural potential possibly contributed to the reorganization of urban life, meaning, and function across an urbanizing landscape. A more dynamic perspective acknowledges the power of dynasts and elites, while drawing inspiration from recent theoretical explorations into the social dimensions of infrastructure that emphasize the necessity of effective, yet flexible local personnel and knowledge for civic initiatives to function and succeed (Ertsen 2010; Halperin, LeMoine, and Pérez 2019; Yoffee 2016). The chapters in part III reflect this tension between bottom-up and top-down perspectives of lowland Maya resource management.

Introducing this section, Murtha, in chapter 10, advocates for Maya land-use and resource management studies to center the agrarian nature and tropical environment of lowland urbanism more explicitly. To that end, ecological and settlement data from the region of Tikal, Guatemala, are presented through a lens of landscape urbanism. Among other things, this perspective requires a regional interpretive scope, while recognizing the often-localized nature of intervention, management, and resource distribution (Waldheim 2010). This approach to the broader Tikal data highlights the fact that extensive urban landscapes, such as those of the lowland Maya, were quite internally varied,

the combined result of centralized civic programs and localized management opportunities and challenges, along with ecological factors, all potentially operating at different scales and rates. Urban ecology was anything but static; people modified their landscaping in response to imminent challenges/opportunities, though not always in ways that considered the long-term consequences their actions would have on the landscapes their descendants would inherit.

Chase, in chapter 11, also considers the interplay between urban landscape processes operating at different scales on Caracol, Belize, where he measures the success of neighborhood and city-level urban servicing strategies in attracting and maintaining residents. Building from the implications of the Preclassic beginnings of Caracol's integrative causeway system, he examines the use of causeway nodes and termini by civic and neighborhood leaders to extend access to particular urban services across the city. Diachronic intrahousehold and neighborhood comparison of excavation data demonstrates that at individual nodes/termini, and their associated households, the fortunes of neither elites nor commoners were static—or even entirely entangled. This fruitful blending of top-down and bottom-up data and analyses highlights the rich potential long-term, systematic archaeological investigations of an urban settlement landscape can offer.

Shifting to the lowlands' western periphery, Liendo and Campiani, in chapter 12, differentiate infrastructural works (resource management features and landscape modifications that make collective life possible and attractive within an aggregated settlement) from political and ideological agendas more directly related to dynastic fortunes, even as they readily admit that both endeavors were intricately entangled. Infrastructure is described on the city scale in relation to urban accessibility, inner circulation, and the availability and control of water resources. The specific Palencano layout of immense stepped terraces above the floodplain (not dissimilar from Tonina, another western site) does favor this approach. On the other hand, purposeful archaeological investigations in Group IV have patiently discovered the sectorization of Palenque neighborhoods, where local life depended on the relation of the group's "central compound" and its dominant family to the rulers. How this particular affiliation transmitted through generations of neighbors becomes vividly patent through the *local* treatment of the dead interred in the central compound of Group IV.

Rounding out part III, Nondédéo, Lemonnier, and colleagues, in chapter 13, return to Naachtun in the Petén, where recent lidar surveys document a heavily populated and managed regional landscape. Combined with a decade of on-the-ground archaeological and paleoenvironmental investigations, they are able to reconstruct the development of Naachtun as an agrarian city embedded within a broader "micro-regional" settlement and land-use system parallel to the urban core occupational sequence (see Hiquet et al., this volume). The abundant data

from Naachtun reveal a diverse and complex agrosystem that endured for centuries. According to Nondédéo and colleagues, intensification of land-use and resource management practices in the Naachtun region began early in the Early Classic period, establishing the basic socioeconomic parameters for later land-use decisions and urban planning. Capitalizing on these early modifications to the landscape, the agrosystem was sufficiently flexible to adapt a variety of cultivation strategies that were extended into new resource zones as populations increased and the political fortunes of the Naachtun dynasty waxed and waned throughout the Classic period.

Part IV: Agrarian Urbanism in the American Tropics

The final chapter of the volume, chapter 14, ventures outside the Maya Lowlands to Amazonia in search of broader patterns of urbanization in the American neotropics. Highlighting the immensity of greater "Amazonia," Walker argues archaeology in the region has only recently overcome similar interpretive and logistical challenges that hindered the study of Maya urbanism. Scholars now recognize Amazonia "as a place where populations were higher, agriculture was older," and occupations were more diverse than many thought possible less than a generation ago. Moreover, despite obvious differences in culture and environment, settlement aggregation across both regions was agrarian in nature, even sharing several domesticates and cultivation practices. Although Amazonian archaeology is still in its relative infancy, Walker provides an illuminating review of agrarian development and settlement aggregation for four Amazonian regions. More often than not, recent advances in documenting agricultural (and aquacultural) innovations and infrastructure have generated more questions regarding regional settlement mobility and sociopolitical organization. Nevertheless, the implications of these discoveries are profound for better understanding tropical urbanism in the Americas and beyond. In this way, Walker's concluding chapter is an important reminder to scholars of Amazonia and the Maya of what can be gained from greater communication and cross-pollination.

FINAL THOUGHTS

Characterizing the "nature" of any one city, much less long-abandoned cities such as those of Maya Lowlands, is not really possible. Any characterization of a city, even one where you personally grew up and lived your entire life, suffers inherent limitations. The experiences of countless individuals and communities are inevitably excluded or downplayed in any attempt at universal generalization (e.g., Scott 1998). Nevertheless, comparative urban studies can potentially reveal cross-cultural and cross-temporal patterns in human settlement decisions and organization (e.g., Bettencourt and West 2010; Bettencourt et al. 2013; Ortman et al. 2013; Smith et al. 2021, concerning demographic size

and connectivity; see also Lucero et al. 2015, concerning tropical low-density urbanism).

Recent large-scale lidar surveys of the Maya Lowlands have stimulated an ongoing empirical and theoretical revolution in Maya archaeology (Canuto et al. 2018; Chase et al. 2011; Garrison et al. 2019; Inomata et al. 2018). All current and future archaeological investigations of bottom-up urban processes will greatly benefit from lidar data (when available), due to its ability to "pick-up" large-scale landscape features that only present low-surface visibility, such as causeways, terraces, reservoirs, canals, paths, and fence-type structures. Critical for the relative evaluation of baseline estimations of Late Classic demographics is increased residential excavation across Classic urban landscapes, and, for that reason, we should be prepared to design bold residential sampling programs to complement lidar survey data (e.g., Chase and Chase 2017; Inomata et al. 2018). Tracking "household action sequences" across neighborhoods and their correlated landscapes is also needed. This will be a massive endeavor, but if we want to understand the temporal and spatial particulars of Classic Maya urbanization in its tropical forested environment, it is the price we must pay. Monica Smith (2014:315) warns:

> Some of the most heavily urbanized areas in antiquity, such as Mesopotamia, continually cycled through periods of population dispersals and coalescence such that their inhabitants were likely to have conceptualized cities as *fluid entities* in both space and time. Although archaeologists tend to assess urban centers as places of steady occupation because they produce such large sites, it might be more appropriate to see the agglomeration of urban architecture and infrastructure as an accretionary but staccato process in which some decades saw relatively low population densities within the urban shell. (emphasis added)

In other words, urban spaces, architecture, and layout were never finished. Rather, they were subject to constant physical modification and social reinterpretation by their inhabitants. In that spirit, we should refrain from labeling Maya urbanism prematurely as so much remains to be done and documented. With the broadened view *Building an Archaeology of Mayan Urbanism* advances, we can begin to more fully uncover the temporal and regional dynamics of lowland Maya urban landscapes as key comparative examples of tropical, agrarian urbanism.

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