

ONE

PREMODERN CITIES AND THE WIDE URBAN WORLD

WALKING THROUGH THE RUINS OF A ROMAN CITY SUCH AS OSTIA (Figure 1.1), you are greeted by clear signs of urbanism. Stone walls enclose living spaces that are entered from paved streets, houses are packed tightly together, and residential areas alternate with larger civic buildings such as temples, theaters, and markets. The living city of Ostia may be 2,000 years old, but its remains today are easily interpretable as a city, an urban settlement. But when one walks through the jungle in Angkor, Cambodia (Figure 1.2), it is difficult to identify the traces of urbanism. There are few streets and no surviving areas with standing house walls. In fact, one is hard-pressed to identify any houses at all or, for that matter, any buildings that are not temples. This hardly looks like an urban settlement. It is a jungle with piles of stone and a few temples. Yet Angkor in its day was the largest city (in area) ever to flourish in the ancient world, and its powerful kings ruled an extensive empire. Roman Ostia was a backwoods town in comparison to the glories of Angkor.

Effort is needed to construct a frame of reference that includes both Ostia and Angkor within the category of ancient city. The impressive variety of ancient urban forms makes this a difficult endeavor. Archaeologists often reify these concepts, attributing real existence to something – city or urban – that is a concept, not a brute fact of the real world. But even when archaeologists succeed in creating useful concepts of past urbanism, a yet greater effort is needed to bring ancient settlements and contemporary cities into the same frame of reference and draw meaningful conclusions. Many people assume ancient cities were either



1.1. Houses in the Roman city of Ostia, Domus del Protiro. Photograph by Michael E. Smith.



1.2. Stone bridge in the Khmer city of Angkor. Photograph by Roland Fletcher; reproduced with permission.

radically different from or identical to contemporary cities. Examining this idea rigorously requires archaeologists to step out of their background in anthropology or history and enter the world of contemporary social science, where most research on urbanism currently resides. I use the phrase *wide urban world* to describe this broad realm of cities and settlements, from deep history to the present.

I have been struggling my whole career to achieve these two goals – the creation of a framework to compare all kinds of ancient cities and the development of a means to link this knowledge with research on cities today. This book is a summing-up, an effort to bring together my thoughts and findings on comparative urbanism, in order to answer the questions, “What was life like in premodern cities?” and “What factors shaped urban life in the deep past?” The most important concept for understanding and explaining urban life in the past (and the present) is *energized crowding*. Energized crowding is a process that occurs when large numbers of face-to-face social interactions take place within a settlement. These interactions amplify the results of individual social interactions, resulting in a variety of social and economic changes and outcomes, both positive and negative. Energized crowding is the central concept in this book, and I explore it in detail in Chapters 2 and 3. The phrase originated with architectural historian Spiro Kostof (1991:37).

Cities are important. They concentrate economic and political activities, they influence larger landscapes and societies, and they provide an arena for the creation of institutions and processes that affect whole societies. While cities are centers of creativity and economic productivity, they are also settings for social problems, from pollution to crime and poverty. With increasingly rapid urbanization around the world today, a scientific understanding of cities and urbanism is a critical need (Bettencourt 2021; Ramaswami et al. 2018; Zhou et al. 2021). Some scholars try to achieve urban understanding by searching for power laws, fractals, and other quantitative patterns among cities today (Batty 2013; West 2017). Others focus on the economics, politics, or social processes of contemporary urbanism (Desmond 2016; Glaeser 2011; Kotkin 2006; Sampson 2012). All of these scholars have important things to say, and their work illuminates contemporary urban patterns. But their work lacks a crucial component: a deep historical perspective. When urban scholars do mention early cities, they often get the facts wrong or show a limited or misleading perspective (e.g., Bruegmann 2005; Kotkin 2006).

Archaeology provides crucial pieces of the mosaic that constitutes world patterns of urbanism. Archaeological data can now illuminate many aspects of the urban past. The findings of archaeologists, in turn, can be compared to contemporary cities to improve our understanding of cities and society today and into the future. But how is this possible? How can we know whether it makes sense to view ancient settlements as “urban”? Part of the answer lies in the realm of theories and concepts, and part lies in the findings of archaeology.

THESES ON PREMODERN CITIES

I begin with the concept of *settlement*, which has been defined by archaeologist Kwang-Chih Chang as “the physical locale or cluster of locales where the members of a community lived, ensured their subsistence, and pursued their social functions in a delineable time period” (Chang 1968:3). The focus is on the *place* where a group of people – from a few individuals to several million – lived or dwelt. Settlements last for anywhere from one day to thousands of years. The temporary campsites of mobile hunter-gatherers are settlements, as are cities. Settlements are not only the locations where people live; they are also places that concentrate activities and institutions – social, economic, political, religious – on the landscape. The primary subject matter of this book is the settlements I call *premodern cities*. By *premodern*, I mean settlements dating to the medieval period or earlier in Europe and the Mediterranean, and prior to European conquest and domination in other parts of the world. My basic definition of *city* or *urban* is a settlement where population and activities are concentrated in space (Pumain and Rozenblat 2018). I will leave this definition vague for now and return to it later in the chapter.

My use of premodern cities is quite similar to what Gideon Sjoberg (1960) calls *preindustrial cities*, but I eschew that term for two reasons. First, Sjoberg assumes the existence of a single homogeneous type of preindustrial city and describes its properties in general terms. I see more variability than Sjoberg, and I view the homogeneity or heterogeneity of my primary category as an empirical matter. Second, Sjoberg’s picture of preindustrial cities draws overwhelmingly from a small set of cases (e.g., primarily historical studies of medieval European, Ottoman, Indian, and Chinese cities) that form a poor sample of the entire scope of premodern cities. Scholars after Sjoberg, moreover, have used the term *preindustrial* to refer to what historians call *early modern* – that is, postmedieval, pre-Industrial Revolution (e.g., Abbott 1974).

The following paragraphs present five theses, or fundamental principles, that describe the major outlines of my theoretical and comparative approach to premodern cities.

- (1) Definitions are tools; one’s definition of *city* or *urban* depends on one’s goals and questions.

Scholars of cities today spend little time agonizing over how one defines the terms *city* and *urban*. In fact, they typically use the term *definition* to refer to operationalization: the measures that capture the phenomena scholars want to study. Premodern cities exhibit far more variability than modern cities in their size, form, functions, and activities; in addition, their political and economic contexts are more varied. For example, virtually all cities today exist within nation-states. But premodern cities could be part of a chiefdom, a city-state, an

empire, or a weak state (Chapter 4). Cities today are embedded in a globalized, capitalist world system, whereas premodern cities could be part of a command economy, a small-scale commercial economy, or a far-flung globalized early commercial economy (Chapter 5). Because of this variability, the ways premodern cities may be defined also vary greatly. In the words of Luís Bettencourt (2021:50), “Any definition of a city requires an underlying scientific theory of what a city is and what it does.” Consequently, there is no “best” definition of *city* or *urban*. This principle is often neglected by scholars of ancient cities, who may agonize over the “correct” definition of *urban*, or how to document and study the essence of cities and urbanism, which leads to my next principle.

- (2) Do not reify the concepts of city or urban.

Cities and urbanism – particularly in the premodern domain – are not real things. Settlements, on the other hand, *are* real. They exist in this world. Archaeologists excavate their remains, and it is usually obvious whether a given site was a place where people resided. *City* and *urban* are categories or concepts that we apply to some settlements, when it suits our goals. If we have different goals, we may use different definitions. In the language of philosopher John Searle (1995), settlements are brute facts, while cities are institutional facts. One of Searle’s examples is money. The fact that a piece of paper in my wallet has value and can be exchanged for goods and services is an institutional fact. It depends on the existence of institutions and beliefs that allow particular kinds of pieces of paper to be used to purchase things. But the physical properties of this same dollar bill – its ability to be folded or rolled up, or burned, or marked with a pen – are brute facts. They do not depend on an institutional framework or common beliefs within a community of people. There are no “brute facts” of “citiness” or “urbanity” as intrinsic attributes of a settlement, something waiting to be discovered; these are institutional facts that only make sense from a given perspective, with a given definition. The consequence of this principle is the following:

- (3) The settlement should be the primary unit of analysis, not the city. We should acknowledge that some “urban” attributes and practices apply to nonurban settlements.

If settlements are “brute facts,” then it makes sense to use them as a basic unit of analysis. When our research shows that a given settlement was large and complex, or served as a hub in a regional economy, then we may want to classify it as an urban settlement; in Searle’s framework, this is an institutional judgment. The fact that some key features of cities also characterize smaller, nonurban settlements is a further warning about the dangers of reifying the concept of urban. Settlement scaling research shows that key quantitative

outcomes of social interactions in settlements characterize both urban and nonurban settlement systems (Ortman and Coffey 2017); see Chapter 3. Similarly, comparative work on neighborhoods shows that this urban social-spatial unit is also found in nonurban settlements (Smith et al. 2015; Tuzin 2001); see Chapter 7. These findings suggest that we can proceed with analyzing settlements without agonizing over definitions or worries about whether or not they are urban.¹

- (4) Cities and urban life are structured by the interplay between two sets of processes: centralized, or top-down, processes originate with kings, elites, and central institutions, whereas generative, or bottom-up, processes arise from the grassroots actions of individuals and households, actions that are not under the control or direction of institutions or authorities.

Urban life and organization are made up of a constant interplay of these two kinds of processes of change. My usage is based on common approaches in the social sciences outside archaeology.² I distinguish two types of generative processes: *Grassroots activity* refers to the intentional efforts of people to organize and coordinate their activities in pursuit of a goal (Chapter 7). *Spontaneous organization* describes actions of daily life, including social interactions, that create some kind of order or outcome that was neither planned nor created by authorities (Chapters 3 and 7). My prime example of this is energized crowding.

While both top-down and bottom-up factors are typically in play, some realms are closer to the institutional or upper domain of society, while others lie closer to the generative realm. For example, most premodern urbanites paid taxes, and taxation is primarily an activity of the state, a top-down institution. While the generative actions of individuals and groups may affect tax collection, these are typically of less importance than the top-down demands at play. Political protest, on the other hand, is primarily a generative process; nevertheless, top-down forces may affect the nature and outcomes of protests. My discussion of urban life proper is divided along these lines: Chapter 6 focuses on institutions or top-down processes, and Chapter 7 is about generative processes. This division flows from my basic definition of cities as settlements where population and activities are concentrated.

- (5) Social interactions within cities and other settlements create *energized crowding*, which is one of the fundamental forces of change in urban life.

¹ Perhaps ironically, this caveat has not stopped archaeologists – including me – from arguing about definitions of city and urban; see the later discussion.

² I wish to distinguish my usage of “top-down” and “bottom-up” from a particular archaeological usage in which “top-down” refers to studies of kings and elites, while “bottom-up” denotes studies of households. My usage, in contrast, is based on drivers of change and causal mechanisms (Chapters 3, 6, and 7).

As in the case of thesis 4, this principle also flows from my basic definition of cities. The importance of face-to-face social interaction, in the form of energized crowding, in generating social outcomes is a fundamental component of many theoretical approaches in the social sciences (Brower 2011; Glaeser 2011; Ostrom 1990; Storper and Venables 2004). This perspective has been developed into a set of formal theories with quantitative predictions, known as *settlement scaling theory* (Bettencourt et al. 2007; Pumain et al. 2006; West 2017). I have participated in one branch of this approach, which views cities as “social reactors” (Bettencourt 2013). We have extended research from contemporary cities into the deep past, revealing continuities in the role of settlement size between ancient and modern settlement systems (Chapter 3). In this book, I explore the nature and implications of social interactions for premodern cities.³

One response to these complexities – particularly as implied by theses 2 and 3 – would be to discard the concepts of urban and city altogether. The relevant domain of interest, in fact, is the settlement, and the ways we describe and analyze settlements vary with our goals. But given the importance of cities and urbanism in the modern world, I think it best to retain these concepts for the premodern domain as well. Most of the discussion in this book pertains to cities, towns, and urbanism (defined as follows), and I will try to clarify when the discussion also includes small or nonurban settlements. Similarly, most of the discussion applies to the premodern domain (as defined previously), but I also discuss settlements of the modern era where necessary. In particular, my discussion of voluntary camps (Chapter 3) and practical machine sites (Chapter 4) focuses heavily on modern examples; these settlements are natural experiments that allow specific urban dynamics to be observed clearly. I will discuss how contemporary cities and settlements relate to those of the distant past later in this chapter.

An additional consideration that colors how some archaeologists write about ancient cities is what I call the *urban prestige effect*. As a legacy of rigid and universalist schemes of cultural evolution popular from the 1950s through the 1970s (Service 1975; White 1959), many archaeologists assign a high value, with a high level of prestige, to the categories of cities and urbanism. This signals an unfortunate emotional association with the objects of their study (settlements). Urban sites are seen as “better” than nonurban settlements, resulting in attempts to categorize nonurban settlements as cities. Nonurban villages are not infrequently declared urban by one scholar or another, whether ancient sites like Çatalhöyük (see Case Study 2) or modern Amazonian villages (Heckenberger et al. 2008). It is almost guaranteed that complex early

³ The research and publications of the Social Reactors Project are presented at www.colorado.edu/socialreactors/.

settlements – such as the Trypillia “mega-sites” – will be viewed as urban (Chapman and Gaydarska 2016a; Diachenko and Menotti 2017), regardless of the nature of the evidence; see Chapter 2. This urban prestige effect only muddies the waters of premodern settlement analysis, contributing little to our understanding of the settlements in question or to comparative urban studies.

THE DIMENSIONS OF URBANISM

The issue of defining cities has been a difficult problem for archaeologists, one I discuss at length later in this chapter. As a background to that discussion, I introduce the concept of *dimensions* to organize major attributes of settlements and cities. Dimensions are bundles of related variables. In my framework, three dimensions stand out as most important: size, urban life, and urban functions. Important cross-cutting dimensions include form, meaning, and growth. The importance one gives to particular dimensions over others influences one’s theoretical approach, including one’s definition of cities and urban.

The Primary Dimensions: Cities as Big, Important, and Complicated Places

(1) Big Places – Size. In a causal sense, the size of a city – its population, area, and density – is the most important of the dimensions of urbanism. Size has a major influence on the other primary dimensions, urban life and functions. Although cities today are vastly larger than those in the distant past, the role that population size plays within a given settlement system is quite similar in the present and the past, something revealed by settlement scaling research. Chapter 3 is about the size of premodern cities.

(2) Important Places – Urban Functions. An urban function is an activity or institution located within a settlement that affects life and society beyond the borders of the settlement. The presence of urban functions makes a city an important place within its region. Villages lack urban functions, whereas a political capital – by ruling a polity – has urban functions, at least in the political realm. Urban functions were first articulated by central place theory, a model of the spatial locations and sizes of market centers (discussed later). Urban functions are useful in studying regional and macro-regional social patterns because they deal with the ways a central settlement articulates with its hinterland. In this usage, if an urban shop only serves people in its neighborhood, then its activities do not constitute urban functions. But, if people travel from other settlements to use the shop, then those transactions signal economic urban functions. I discuss political and economic urban functions in Chapters 4 and 5.

(3) *Complicated Places – Urban Life and Society.* This is the broadest domain of urbanism, the realm of social complexity and variation. While aspects of urban life and society are included in Chapters 3–5, Chapters 6 and 7 focus intensively on urban life. The first is concerned with institutions and top-down processes that affect urban life, including social class, wealth inequality, and the role of government in providing services. Chapter 7 then focuses on generative processes in cities – those processes where individuals and households create social patterns and changes through grassroots actions, independent of the role of the state or central institutions. My discussion is organized by households, neighborhoods, occupations, ethnic diversity, and patterns of poverty and prosperity. One way of summarizing the variety of traits that make up this dimension is to note that they are markers of social complexity. Any settlement has houses, but urban settlements tend to have both large and small houses corresponding to wealth or class differences. Any settlement has economic consumption activities, but cities tend also to have markets or shops, specialists, workshops, and other economic institutions above the household level. In short, cities were the settings for social complexity in most premodern societies, as they still are today.

Cross-Cutting Dimensions: Form, Meaning, and Growth

Three additional dimensions of urbanism – urban form, urban meaning, and urban growth – are also important components of premodern urban settlements. They have less causal importance in urban dynamics, however, than the three primary dimensions discussed previously. That is, they have a smaller influence over other aspects of cities and urban life.

(1) *Urban Form.* This dimension includes architecture and the layout and planning of cities. Although I discuss some aspects of urban form in this book – monumentality, planning, and housing – urban form is not given a major emphasis; instead, it is treated in relation to the primary dimensions above. A comparative study of the forms, architecture, spatial layout, and planning of premodern cities is badly needed, but there is no space to address urban form comprehensively here; for a start, see Smith (2007).

(2) *Urban Meaning.* If one looks at the literature on premodern cities, one might get the impression that “meaning” is the most important dimension of urban analysis (Bowser and Zedeño 2009; Parker Pearson and Richards 1994; Rykwert 1988). Apart from the theoretical deficiency of such a stance (Blanton 1995; Smith 2011b), the definition of the term “meaning” employed in that literature almost ensures that archaeologists cannot recover it with confidence from past settlements (Rapoport 1990a; Smith 2007). I discuss this issue in Chapter 4, with respect to Amos Rapoport’s concept of levels of meaning in the built environment.

(3) *Urban Growth and Decline.* Whereas archaeologists can often document the growth and decline of ancient urban settlements, there has been little theoretical or conceptual work on this topic for premodern cities. Recent publications on the persistence of early settlements – how long they lasted – are starting to address the topic systematically (Smith et al. 2021b). Urban economists have long been obsessed with urban growth (Glaeser 2011; O’Sullivan 2011). While much of the work in urban economics is difficult or impossible to apply to premodern cities (where institutions such as money, firms, industrial production, and wage labor may not have existed), specific forays of urban economists into the past have generated some useful results (e.g., de Long and Shleifer 1993; Glaeser 2021).

DEFINING CITIES AND URBANISM

George Cowgill, a leading scholar of comparative early urbanism (and my undergraduate advisor) has noted:

It is notoriously difficult to agree on a cross-culturally applicable definition of ‘the’ city, but we cannot do without definitions altogether No single criterion, such as sheer size or use of writing, is adequate, and it seems best to use a somewhat fuzzy core concept rather than to try to establish criteria that will clearly demarcate all cities from all noncities. (Cowgill 2004:526)

There are innumerable definitions of *city* and *urbanism* in the literature of urban studies. Most of these are not useful for premodern times, for reasons articulated by urban anthropologist Anthony Leeds some time ago:

Most current discussion of ‘urbanism’ and ‘urbanization’ can be shown to be ethno- and tempo-centric and based on a historically particular class of urban phenomena and urban forms of integration . . . Generalizations are then made about ‘urbanism’ and ‘urban society’ based essentially on the urban experience of the past few hundred years, apparently without the realization that all urban phenomena of the past four or five hundred years have been ineluctably affected by the expansion of the capitalist system, in short by the development of what Wallerstein calls the ‘World System.’ The generalizations are, then, in fact not about ‘urbanization’ in general but about a single form of ‘urbanism’ or ‘urbanization,’ its evolution, and its acculturational by-products. (Leeds 1979:227, 228)

Forty years later, the situation has only improved slightly. In this section, I concentrate on the two definitions most commonly used in archaeology (the sociological and functional definitions) as well as two new approaches that may prove useful (the archaeological attributes and the social interactions approaches). For a fuller discussion of urban definitions in archaeology, see

Smith (2020b). While some archaeologists strive to distinguish the city, as a settlement, from urbanism, as the larger context for cities (Graham and Isendahl 2018), my view of definitions as tools allows a more flexible approach. Just as there is no ideal definition of city or urban, there is no a priori distinction between the concepts of city and urban. In other words, I am not making a big distinction between *city* and *urban* in this book. Cities and towns are urban settlements, and my definitions of *city* or *urban* serve also to also define the other member of the pair.

Archaeological Debates on the Sociological and Functional Definitions of Cities

Archaeologists have tended to use two main definitions of cities or urban settlements: the sociological and functional definitions. Many archaeologists have used the *sociological definition* of Louis Wirth: “For sociological purposes a city may be defined as a relatively large, dense, and permanent settlement of socially heterogeneous individuals” (Wirth 1938:8). This is perhaps the most influential definition of *city* in the urban literature beyond archaeology. Emphasizing the dimensions of size and complexity (urban life), this definition fits contemporary cities in the developed world very well. Definitions both depend on and invoke theories and concepts, and the sociological definition works well with many of the approaches to theory and research on contemporary western cities (Parker 2004; Sampson 2009, 2012). These approaches, however, are difficult to apply to premodern cities. Cities were different in the distant past; in particular, they were not embedded in nation-states and the capitalist world system, two of the major forces shaping urbanism today.

While Wirth’s sociological definition of urbanism works well for cities today, it does a poor job of identifying premodern cities. For example, ancient urban settlements of low population density will be excluded from urban status, yet a number of ancient state-level societies – for example, the Classic period Maya and the Khmer of Southeast Asia – were characterized by what has been called “low-density urbanism” (Fletcher 2009, 2012). Should Tikal or Angkor be excluded from urban status because their densities are not high enough?

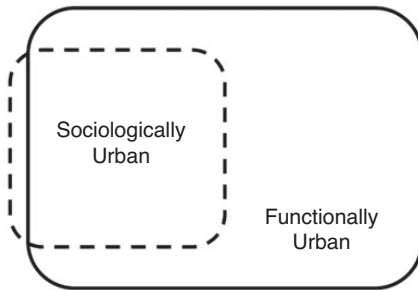
This concern led archaeologists to adopt a second definition of *urban*, the *functional definition*. Bruce Trigger was the first archaeologist to articulate this view: “It is generally agreed that whatever else a city may be it is a unit of settlement which performs specialized functions in relationship to a broad hinterland” (Trigger 1972:577). The urban functions that identify a city can be economic, political, or religious. This definition uses only one of the dimensions of urbanism; size and complexity are left out. While Tikal or Angkor might not have populations that are sufficiently large and dense to satisfy Wirth’s definition, they clearly had monumental buildings that signal past urban functions. These cities had temples larger than other settlements,

suggesting that their religious influence extended beyond the settlement proper, and they had royal palaces with resident kings whose influence extended far beyond the city.

The functional definition of urbanism grew out of central place theory, which provides a group of concepts for analyzing the regional configuration of cities. Central place theory deals with the balance or tradeoff between sellers, who want to locate in common settlements to achieve economies of scale, versus consumers, who want goods and services to be offered nearby; the travel of both buyers and sellers is limited by transportation costs (Christaller 1966; Lloyd and Dicken 1977; Mulligan et al. 2012). There are a number of applications of this approach by archaeologists (Inomata and Aoyama 1996; M. E. Smith 1979). The basic procedure is to examine the size and spacing of market centers in a region, and if they conform to the predictions of the central place models, one can conclude that retail marketing activity was important in structuring the regional settlement system. I return to central place theory in my discussion of urban economies in Chapter 5. To identify a settlement as functionally urban, one must examine the entire settlement system for a region. To identify a settlement as sociologically urban, on the other hand, only requires data on the settlement itself.

In the 1970s, anthropologists broadened the concept of urban function to include features in the domain of politics and religion (Blanton 1976; Fox 1977; Marcus 1983). In the political domain, urban functions are about the control of people or territory outside the boundaries of the city. Cities with political urban functions are either capitals of a polity or else administrative centers within an empire or large polity. The territory controlled by premodern polities has been analyzed spatially using either Thiessen polygons (a model that assigns territory to the closest center) or the X-tent model. The X-tent model allows the territories of larger, more powerful centers to include the territories of lower-ranking settlements (Hare 2004; Renfrew and Level 1979) – a promising approach that should be used more widely.

The functional definition of cities has been used extensively by archaeologists, and it has stimulated more conceptual and methodological development than the sociological definition. Figure 1.3 illustrates the relationship between these two definitions. Almost any city that fits Wirth's definition will also fit the functional definition, but the inverse is not the case. Archaeologists have engaged in contentious debates about the usefulness of these two definitions. My very first publication as a graduate student championed Wirth's approach over the functional definition (Smith 1977); later I converted to the functional approach and – with the fanaticism of a convert – promoted it vigorously in a number of publications (Smith 1989, 2007). While I would like to think we have moved beyond this question, the debate does have important lessons for how archaeologists think about and analyze ancient cities, as my first case study, Tikal, shows.



1.3. Relationship of the sociological and functional definitions of urban. Graphic by Michael E. Smith.

Case Study 1 Tikal: Urban or Not?

As one of the largest and best-studied Maya cities, Tikal has played a major role in debates about the urban status of Classic-period Maya settlements (Figure 1.4). The earliest archaeologists thought Maya settlements were basically large temples in the jungle. J. Eric Thompson (1963:48), an influential early archaeologist, called Maya settlements “ceremonial centers,” empty except “for a small staff for upkeep.” Peasants living in villages in the jungle supposedly came into the centers for periodic rituals, which were staged by a few priests, who were the only residents of the centers. It was assumed that there were no cities, no kings, and no written language beyond symbolic depictions of calendars and gods. This wildly inaccurate view was overturned in the 1950s and 1960s by the Tikal Project, directed by William Coe of the University of Pennsylvania (Sabloff 2003). Ek (2020) is a good overview of these and other changes in archaeological views of the nature of Maya society and urbanism.



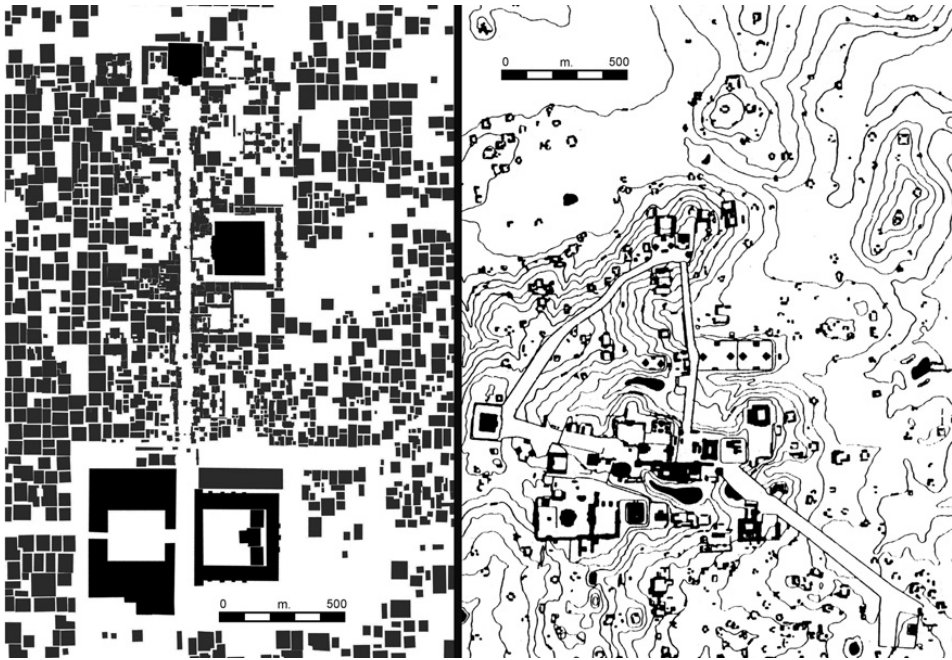
1.4. Photo of the epicenter of Tikal during the University of Pennsylvania excavations in the 1960s. Courtesy of the University Museum, University of Pennsylvania; reproduced with permission.

Case Study I (cont.)

Were Maya Settlements Urban? It Depends on Your Definition. Gordon Willey, long a leading figure in Maya archaeology, declared that the Maya had been a “civilization without cities” (Willey 1962), a term that was also being applied – in error – to dynastic Egypt (Wilson 1960). The Tikal Project was one of the first to look for remains in the jungle beyond the main pyramids. A central area of sixteen square kilometers was mapped intensively, revealing a landscape of many low mounds. When excavated, these “house mounds” were found to be low platforms that supported houses made of perishable materials. In Figure 1.4, we have to assume that the forest surrounding downtown Tikal was filled with houses and house groups.

This finding set off a flurry of fieldwork and analysis at Maya sites. Numerous house mounds pointed to much larger resident populations than archaeologists had imagined. It became clear there were more people living at Tikal than could be supported by slash-and-burn agriculture, a form of traditional farming with relatively low productivity. Archaeologists discovered evidence for various forms of more intensive, productive farming that could feed the Maya populations. Excavation of palaces showed clear social classes, and decipherment of Maya writing revealed powerful kings. Some archaeologists began to talk of Maya “cities,” but then an influential book by William Sanders and Barbara Price claimed these settlements were not cities at all.

Sanders and Price (1968) applied Wirth’s sociological definition of *city* to Mesoamerica to support the idea that Teotihuacan (in central Mexico) was indeed a city, but Tikal and the Maya settlements were not. They published facing plans of the two settlements (at the same scale) to show how downtown Teotihuacan had houses packed closely together whereas downtown Tikal had few houses at all (Figure 1.5).⁴ This conclusion was reiterated in a later article by Sanders and David Webster (1988):



1.5. Central areas of Teotihuacan (left) and Tikal (right), shown at the same scale. Graphic by Michael E. Smith. Teotihuacan map courtesy of the Teotihuacan Mapping Project; Tikal map modified after Coe (1967).

⁴ The population density of Tikal was between five and ten persons per hectare, while the density of Teotihuacan was fifty per hectare (see Chapter 3).

Case Study 1 (cont.)

Teotihuacan was a “typical city” (it fit Wirth’s definition), but Tikal was too empty to be a true city. Two critiques of this paper were published. I argued for the value of the functional definition, which classified Tikal as a city (Smith 1989); Diane Chase, Arlen Chase, and William Haviland (1990) argued that at least two Maya centers were large enough to be considered urban – Tikal and Caracol – because these settlements were denser and more complex than smaller sites in their hinterlands. Arguments for the urban status of Maya cities continue today, and they are couched in terms of “low-density urbanism” (Chase and Chase 2016; Fletcher 1995; Isendahl 2012; Smith 2011a); see Chapter 3.

Comparative Insights. A cynic might think (as I did before my conversion to the functional approach) that the switch to the functional definition was a move by Mayanists to allow them to use the term “urban” for their small, low-density settlements, perhaps a manifestation of the urban prestige effect. But, in reality, the functional definition has two significant advantages over the sociological definition for premodern cities. First, it puts urban settlements into their social and regional contexts; second, it adds a far wider range of ancient societies to the ranks of “urban societies.” This, in turn, allows Tikal and other low-density cities to be analyzed and compared with the broad range of premodern urban systems.

New Approaches

The Physical City and the Social City. A contrast between the physical and social aspects of cities is becoming increasingly popular in the urban literature. This is phrased in various ways, including physical city versus functional city in urban economics (Demographia 2017) and physical city versus socioeconomic city for complexity-based scaling analysis (West 2017:chapter 7). The most concise statement of this contrast – and the version that best fits premodern cities – is that of Bill Hillier (1996b:41): “Physically, cities are stocks of buildings linked by space and infrastructure. Functionally, they support economic, social, cultural, and environmental processes.”

This distinction brings the challenges of urban archaeology to the fore. We excavate physical cities, but we want to reconstruct social cities. While most analyses of urban settlements must include both facets of cities, specific studies and concepts often pertain more to one domain than the other. In this section, I discuss two newer approaches to defining cities, each emphasizing one side of this division. The *archaeological features approach* is a method I devised that uses a list of material features to compare settlements within a given urban tradition.⁵ This is a data-based approach, with limited theoretical significance. The *social interactions approach* defines cities as social networks anchored in the built environment: places where internal social interactions exceed interactions with outside areas. In contrast to the archaeological features approach, this approach has a strong theoretical basis but is difficult to operationalize with archaeological evidence.

⁵ An urban tradition is a group of cities pertaining to a limited areal extent and a limited chronological interval that share key features of their form and organization.

Archaeological Features on the Landscape. For a paper on the identification of cities using archaeological data (Smith 2016b), I devised a simple method to examine urban attributes at settlements within a single urban tradition.⁶ Most of the attributes correspond to the “physical city.” I compiled information on the presence of key urban features and institutions at three Aztec sites I had excavated. I also included the Aztec imperial capital Tenochtitlan (Table 1.1); see the original paper for an earlier version of this table and a parallel table for Iron Age Oppida settlements. The table includes attributes organized into four dimensions: settlement size, social impact (urban functions), features of planning and the built environment, and social-economic features. The attributes are selected using three criteria: (1) each has significance in some theory or concept of urbanism, (2) each can be recovered with archaeological fieldwork, and (3) each has some significance within the particular urban tradition (Aztec settlements, in this case).

I apply crude numerical scales to highlight variation along these dimensions. The Aztec settlements in Table 1.1 illustrate a continuum from village to imperial capital, with all four dimensions – size, urban functions, built environment, and institutions – showing increasing scores at each step along the scale. The “total attribute score” is a numerical approximation of a general urban dimension for Aztec settlements. The biggest gap in the attribute score is the 400 percent jump from the village to the town. Interestingly, the activities and conditions of households at the three excavated sites were quite similar, as measured from the architecture and artifacts at commoner houses (see discussion in Chapter 7). For commoner wealth and lifestyle, the big break in this sequence is between the imperial capital and the other settlements.⁷ Nadine Moeller (2016:15–26) uses a broadly similar approach by defining types of urban (and nonurban) settlements in ancient Egypt and describing the specific archaeological features of each type.

Social Interactions. In the mid-twentieth century, geographers started mapping the movements of goods and people, within and between cities (Haggett and Chorley 1969). Today, many economic geographers and urban economists define cities in terms of the spatial patterns of such interactions. Urban economist Edward Glaeser (2011), for example, provides this informal definition of cities: “Cities are the absence of physical space between people and companies. They are proximity, density, and closeness” (p. 6). He later says, “The central

⁶ One of the tenets of cross-cultural comparative analysis is that variables and measures that make sense and lead to clarity within a cultural tradition may not work across cultural traditions. Although the features in Table 1.1 work for Aztec settlements, they may not work in other urban traditions.

⁷ Unfortunately, there are insufficient excavated domestic contexts at Tenochtitlan to evaluate this idea further.

TABLE 1.1 *Urban attributes of Aztec settlements of varying sizes*

Attribute	Type of variable*	Capilco	Cuexcomate	Yautepec	Tenochtitlan
		(village)	(town)	(city-state capital)	(imperial capital)
Settlement size:					
Population	M	100	800	13,000	210,000
Area (ha.)	M	1	15	210	1,350
Density (persons/ha)	M	100	50	60	155
Social impact (urban functions):					
Royal palace	P/A	-	-	x	x
Royal burials	P/A	-	-		x
Large (high-order) temples	P/A	-	-	x	x
Civic architecture	S	-	1	2	3
Craft production	S	1	1	2	3
Market or shops	S	L	1	2	3
Built environment:					
Connective infrastructure	P/A	-	-	L	x
Intermediate-order temples	P/A	-	x	x	x
Elite residences	P/A	-	x	x	x
Formal public space	P/A	-	x	x	x
Planning of epicenter	P/A	-	x	x	x
Social and economic features:					
Elite burials	P/A	-	-	L	L
Social diversity (nonclass)	P/A	-	-	L	x
Neighborhoods	P/A	-	x	x	x
Agriculture within settlement	P/A	-	x	x	x
Imports	S	2	2	2	3
Total attribute score		4	17	27	35

Note: Table based on Smith (2016b), table 10.1.

* *Type of variable:*

M: quantitative measurement or calculation

P/A: presence/absence

S: measurement scale (1: low; 2: moderate; 3: high)

x: Present (scored as 2)

L: Likely present (scored as 1)

theme of this book is that cities magnify humanity's strengths. Our social species' greatest talent is the ability to learn from each other, and we learn more deeply and thoroughly when we're face-to-face" (p. 250); see also Storper and Venables (2004). One urban economist has defined cities as follows: "Cities are places where a lot of human activity and interaction regularly occurs in a small space" (O'Flaherty 2005:1); he notes that his definition would include Disney World, flea markets, and a race track on race day.

Some scholars have generalized this perspective into the notion that “cities were evolved primarily for the facilitation of human communication” (Meier 1962). For planner Kevin Lynch (1981:187), “Cities may have first been built for symbolic reasons and later for defense, but it soon appeared that one of their special advantages was the improved access they afforded.” He goes on to note that “more than anything else, the city is a communication network” (Lynch 1981:334).

Increases in social interactions produce energized crowding; see Smith (2019a). In urban economics and related fields, social interactions – and concomitant increases with population – are the bases for quantitative models, and the outcomes of those models can be identified and measured, for both contemporary and ancient cities (Chapter 3). Today, patterns of movement and interaction are becoming easier to measure with the availability of “big data” for many cities (Bettencourt 2014; Blei and Smyth 2017). But for archaeologists, social interactions within settlements remain difficult to measure directly.

Urban Definitions Used in This Book

Readers looking for my views on the “best” definition of cities and urbanism will be disappointed. I reiterate my first thesis from earlier in the chapter: “Definitions are tools; one’s definition of city or urban depends on one’s goals and questions.” Here are some of the ways I employ urban definitions in this book. First, my basic definition (cities as settlements where population and activities are concentrated in space) is intended to give an idea of the scope of the book. The other definitions reviewed previously can be viewed as extensions or modifications of this basic definition. Second, I use the *functional definition* to select my sample of case studies. Premodern cities are settlements before the modern era (see the temporal definition given previously) that are the setting for urban functions within their regional and macro-regional contexts. Third, I use the *social interactions* definition for theoretical purposes. I explore this concept more fully in Chapter 2 and discuss its role in settlement scaling theory in Chapter 3. As Kostof noted, cities are places with energized crowding, even if archaeologists cannot isolate the specific activities and episodes of interaction. Fourth, the size of cities in population and/or density – part of the sociological and other urban definitions – runs throughout this book as an important dimension. Finally, I use the *archaeological attributes* approach to identify and analyze urban settlements within a specific region or urban tradition.

Archaeologists not infrequently want to know whether a particular site or group of sites in their region were “urban” or not. This desire is too often a result of the urban prestige effect (see the previous discussion). Instead of

rooting around in the many definitions of urbanism (and I have not covered them all!), I would advise the following procedure: (1) Identify a series of archaeological attributes that measure some kind of complexity at sites in a region. (2) Include a range of sites, from villages to the largest sites, as I have done in Table 7.1. This is the archaeological attributes approach. (3) Finally, compare the largest or most complex of these sites to the functional or sociological definitions to see whether the concept “urban” helps advance understanding.

Rural and Urban

An important dimension of defining cities is to specify the distinction between urban and nonurban – rural – contexts within a given settlement system. Again, my views diverge from current orthodoxy in archaeology and urban studies generally. The standard view is that urban and rural are diametrically opposed contexts. Urbanism is seen as something special and different, something that produces radically new and different urban ways of life (Weber 1958; Wirth 1938). Against this notion, I follow the approach of Anthony Leeds:

Any society which has in it what we commonly call “towns” or “cities” is in all aspects an “urban” society, including its agricultural and extractive domains . . . the terms “urban” and “rural” come to stand to each other not as opposites and equivalents. Rather, the inclusive term describing the whole society is “urban” while the term “rural” refers only to a set of specialties of an urban society characterized by being inherently linked (under any technology known) to specific geographical spaces. (Leeds 1980:6–7)

This viewpoint expands the functional approach to urban definition by examining the functions or activities of all components of an urban landscape, or – as Leeds put it – an urban society. It helps avoid the problems that arise from the reification of the concepts of city and urban, and allows scholars to compare conditions and activities in urban and rural settings without a priori judgments about the nature of “urban-ness.” Such reification is common in archaeological approaches that use social practice theory to identify the essence of “urbanity” as a social condition (e.g., Christophersen 2015). In addition, the more flexible approach of Anthony Leeds acknowledges that the nature and definition of settlement in periurban areas surrounding cities may be in flux, as formerly rural zones are gradually and perhaps haphazardly converted into urban residential areas (Simon 2008). Finally, Leeds’s approach also helps contextualize research on urban life per se, as I explore in Chapters 6 and 7.

EXPANDING THE BOUNDARIES OF URBANISM

How should we think about settlements that show one or two of the features of urbanism but not others? For example, a large village may be high on the size dimension but not have any urban functions or evidence of social complexity. Or, a ritual site might have a strong urban function in the religious domain but lack a resident population. In line with proposition 4 above, such settlements are interesting and relevant to the subject of urbanism. I discuss three examples in this section: ritual centers, agrotowns, and semi-urban settlements. None of these settlements would be classified as urban by the major definitions reviewed above, but all have things to teach us about urbanism.

Not Quite Urban: Ritual Centers and Agrotowns

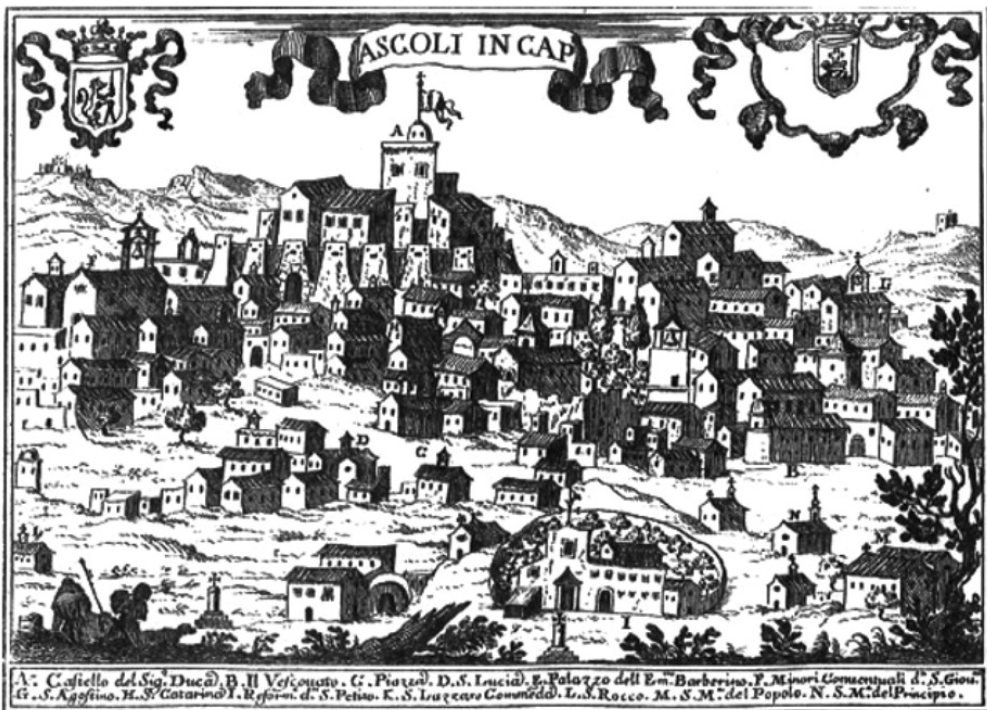
Stonehenge and other megalithic monuments in Europe are impressive places, even today. Ancient people from distant areas certainly knew about places like Stonehenge, and archaeologists assume that people came from near and far to participate in ceremonies or celebrations at these sites. This is another way of saying that Stonehenge had urban functions in the domain of religion. Yet no one would call Stonehenge an urban settlement, largely because there is little evidence for a large settlement around the monument. The nearby site of Durrington Walls (2.8 km from Stonehenge) has typical Neolithic houses, with evidence of feasting activities (Craig et al. 2015; French et al. 2012). There are remains of temporary shelters at Durrington Walls, perhaps to accommodate pilgrims who journeyed to Stonehenge. But, given the distance between Durrington Walls and Stonehenge, it is not clear whether they should be considered parts of the same settlement.

The more recently discovered site of Göbekli Tepe in Turkey appears to be a similar kind of site. It has elaborately carved monumental stone slabs, arranged into a circle (Dietrich et al. 2012). As at Stonehenge, there appears to be little evidence for an associated settlement, although settlement sites do exist in the region. Similarly, Göbekli Tepe was most likely a destination for pilgrimages. These and other similar sites (Artursson et al. 2016) can be called *ritual centers*. Their ritual role clearly affected large areas, but without an associated population, they are not urban centers. In fact, the only way to call them “settlements” at all is to include nearby temporary residential quarters.

Agrotowns are large nucleated villages of farmers that lack urban functions and have low levels of social complexity. My use of this term differs slightly from the predominant definition in the field of social history, where *agrotown* refers primarily to south Italian aggregated settlements (Blok 1969), and definitions include a long list of cultural characteristics, from the sexual division of labor to cultural codes (Colclough 2010:2–3; Curtis 2013). My usage of the term focuses

on aggregated villages of farmers who have to walk out to their fields; this is close to Max Weber's term *ackerbürger* (Hansen 2006a:93–94). Agrotowns are interesting comparatively for two reasons. They are larger and denser than most villages and they can be stable for centuries, showing that processes of nucleation or aggregation do not necessarily lead to urbanization.

The Italian village of Ascoli Satriano around the year 1700 (Figure 1.6) exhibits the main features of agrotowns (Colclough 2010; Curtis 2013). Agriculture and herding were important, houses are closely packed, and the only tall buildings are the churches and an old castle. If, as is likely, the churches served the people of the village and not others, then they do not indicate the presence of urban functions. The status and size of Ascoli waxed and waned over the centuries. Three decades after this image was created, the town had grown and added many occupational specialists (clergy, merchants, and artisans). But after a century, “Ascoli's urban role was transformed from that of ecclesiastical and trading entre to classical agro-town” (Colclough 2010:9). Prominent cases of agrotowns in the distant past are the pueblos of the US Southwest (Chapter 3) and Çatalhöyük. Lawrence and Wilkinson (2015) have used the term *agrotowns* to describe the earliest aggregated settlements in northern Mesopotamia: they are villages or towns of farmers, without urban institutions.

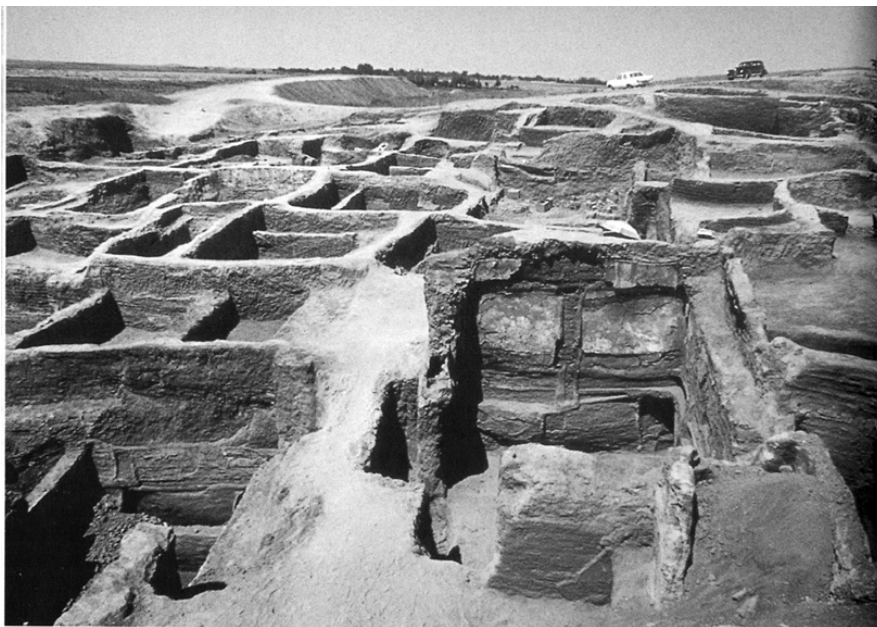


1.6. Ascoli Satriano, Italy, in 1703, an agrotown. From (Pacichelli 1703), public domain.

Case Study 2 Çatalhöyük: An Early Agrotown

When James Mellaart first excavated Çatalhöyük in the 1960s, the densely packed houses of this Neolithic settlement looked like a city neighborhood (Figure 1.7); compare this to Ostia in Figure 1.1. Owing to either a desire for publicity or a lack of comparative understanding, Mellaart made grandiose claims about the urban status of the settlement: “For already Çatal Höyük ranks, with Jericho in Jordan, as one of man’s first essays in the development of town-life. Before 6000 BCE Çatal Höyük was a town, or even a city, of a remarkable and developed kind One need hardly point out that Çatal Höyük was not a village” (Mellaart 1967:15, 71).⁸

In 1993, Ian Hodder began a new project of excavations at the site. This project made heavy use of the scientific methods of “high-definition archaeology” (Chapter 8), including a variety of detailed geoarchaeological methods, cutting-edge digital technologies, and careful attention to a wide range of archaeological materials (Balter 2005; Hodder 2006, 2007). Hodder initially designed this project as a way to apply insights from postprocessual archaeology to a major site. This approach to theory rests heavily on subjective imagination, interpretation, and meaning, and avoids the kind of scientific epistemology on which the present work is built (as discussed later). Although it is too early to evaluate the empirical or theoretical results of this large and complicated long-term field project, Hodder is quite clear about the nonurban character of Çatalhöyük.



1.7. Çatalhöyük, an early agrotown. Photograph by James Mellaart. Copyright James Mellaart, with permission of Alan Mellaart.

⁸ This claim received considerable publicity at the time, leading many subsequent writers (but rarely archaeologists) to parrot the idea that Çatalhöyük was the world’s first city. For discussion, see Smith et al. (2014b). That Mellaart has since been exposed as a forger and fabricator of archaeological finds (Zangger 2018) does not favor continued adherence to his claims.

Case Study 2 (cont.)

Agrotown or City? Ian Hodder clearly describes the urban and nonurban features of Çatalhöyük:

So in terms of size, we might call this settlement a ‘town’. But it has few of the other characteristics that we might mean by that term. Despite careful sampling of the surface of the mound, we have not found public spaces, administrative buildings, elite quarters, or really any specialized functional spaces except those on the edge of the mound (such as lime burning) and animal penning So all there is at Çatalhöyük are houses and middens and pens. There is none of the functional differentiation that we normally associate with the term ‘town’. Çatalhöyük is just a very large village – it pushes the idea of an egalitarian village to its ultimate extremes In a modern town we would expect to identify different functional areas and buildings such as the industrial and residential zones, the church or mosque or temples, and the cemetery. At Çatalhöyük all these separate functions occur in one place, the house. (Hodder 2006:95, 98, 99)

After a long history of urban claims for Çatalhöyük, starting with Mellaart’s excavations and continuing to the present day (Smith et al. 2014b), Hodder’s remarks are the most insightful and judicious comments on its urban status. While its population density was quite high (ca. 200 persons per ha), higher than many cities, the overall population was low; my estimate is 2,800 persons (see Chapter 3 and Appendix A). There are no identifiable urban functions at the site and few traces of social complexity above the household level. This was a nucleated village full of farmers; in other words, an agrotown. I puzzle over the question of why anyone (e.g., Taylor 2012) would claim that this site was urban, after such a clear discussion by Hodder.

Comparative Insights. Although not an “urban” settlement by any of the common definitions, Çatalhöyük is crucially important for our understanding of premodern urbanism. First, it shows that Neolithic villages could be quite densely packed, with closely spaced houses that look urban (compare Figures 1.1 and 1.7). Second, the detailed high-definition approach to fieldwork in Hodder’s project reveals that a nonurban settlement can have complex household organization with elaborate aesthetic and ritual components. And third, Çatalhöyük shows that the press and the public can easily fall for inflated archaeological claims and that such ideas can have a deleterious effect on scholarship for decades (Smith et al. 2014b).

Semi-urban Settlements: Partially Urban Settlements

In 2015, I published a paper with seven students (Smith et al. 2015) that examined a number of what we called “semi-urban settlements” to show that neighborhood organization is an urban universal. We defined *semi-urban settlements* as “places where large number of people come together, whether forcibly or voluntarily, in special-purpose settlements that lack many of the features characteristic of cities” (Smith et al. 2015:173). This is not an ideal definition. The important features of these settlements become clear when they are considered under two separate categories: voluntary camps and practical machine sites.

Voluntary camps are temporary campsites, away from existing settlements, where people stay for short periods for reasons of religion or recreation.

Examples include religious revival camps, protest camps, and festival camps such as the Burning Man festival. Examples from both categories of semi-urban settlements existed in the distant past. Egyptian workers compounds (Kemp 1987) were practical machine sites, parallel to contemporary company towns. Hunter-gatherer aggregation sites can be considered as voluntary camps. Semi-urban settlements provide insights into settlement and urban processes that can be difficult to observe in ongoing urban settlements. For example, how large does an informal settlement have to be before rules and regulations are required to prevent harm and chaos? Perhaps surprisingly, the Burning Man festival provides a specific answer to this question (Case Study 7). I discuss voluntary camps in Chapter 3 as a natural experiment to examine the effects of population density on human gatherings, independent of other urban-like features.

The label *practical machine sites* is taken from the work of Kevin Lynch (1981). They are settlements established by the state or another dominant institution in order to accomplish a specific task; examples include military forts, company towns, and refugee camps. Japanese-American internment camps from World War II show some of the common features of practical machine sites (Figure 1.8). Such settlements are built in a hurry, often with an orthogonal planned layout. They tend to be isolated from existing population centers, often surrounded by a wall or fence. Compared to other cities, they lack urban functions and have a lower degree of social complexity. I discuss these settlements in Chapter 4 as a second natural



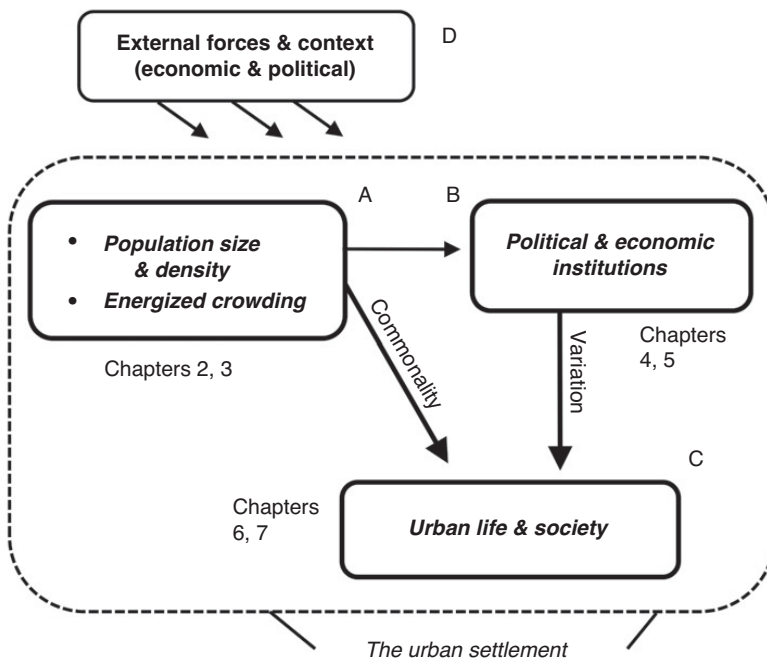
1.8. Japanese internment camp (Camp 2) at Gila River, Arizona. Courtesy National Archives, photo no. 210-G-2040M. Photograph by Francis Stewart, War Relocation Authority. Public domain. Source: Wikimedia Commons https://commons.wikimedia.org/wiki/File:Gila_River_Relocation_Center,_Rivers,_Arizona._A_panorama_of_the_northwest_section_of_Camp_Two_at_t._._._._NARA_-_538649.tif.

experiment, one that analyzes the effects of strong top-down administrative control on settlements.

MY BASIC MODEL

Figure 1.9 shows how these various concepts and processes fit together as an informal model of the forces that shaped urban life in the distant past. Box A contains the most important drivers of early urbanism and urban life: population size, population density, and energized crowding. In Chapter 2, I review the history of human settlements, using energized crowding as a unifying theme, and I examine population size and density in detail in Chapter 3. These forces of demography and interaction generate commonalities among early settlements. That is, they operate in a similar fashion and produce parallel effects, in different settings. The settlement scaling research I review in Chapter 3 presents quantitative evidence for the near-universal effects of energized crowding on systems of settlements.

Box B contains political and social institutions, reviewed in Chapters 4 and 5. Institutions are fundamental drivers of structure and change in premodern cities. Early political and economic systems varied widely around the world, and institutions account for much of this variation and are strong



1.9. The structure of my argument. This diagram outlines some of the important factors that influenced urban life in premodern cities.

forces shaping urban life. Whereas the processes in box A lead to commonalities among cities and urban systems, those in box B generate variation. Roman cities are quite different from, say, Maya cities, largely because the political and economic institutional contexts of these societies were radically different.

Population and institutions determined the nature of urban life in premodern cities (box C). Some of the processes are covered in Chapters 3–5, leading up to a targeted discussion of urban life in Chapters 6 (top-down processes) and 7 (generative, or bottom-up forces). All of the processes and institutions in early settlements were strongly influenced by economic and political conditions and forces outside of the settlement (box D). Indeed, this is a central tenet of the functional approach to urban definition.

THE CONTEXT OF THIS BOOK

A New View of Cities and Urbanism

This book presents a new view of past cities and urbanism. I have been developing this perspective over the past decade and a half in my publications and my blog, *Wide Urban World*.⁹ My perspective includes both an empirical domain (cities around the world, in the past and the present) and a conceptual domain (the realm of social scientific concepts, applied using a rigorous epistemology). I summarize the main principles of my perspective as follows:

1. ***A strongly comparative approach*** that includes premodern cities, contemporary cities, and semi-urban settlements, through deep time and around the world. If comparison is to accomplish anything beyond a simple recognition of similarities or differences, then a rigorous comparative method is required (Smith 2012b; M. E. Smith 2018).
2. ***An analytical focus on settlements and their dimensions***. It is more useful to analyze and compare specific topics or dimensions, rather than settlements as whole entities.
3. ***A scientific epistemology***, as described later.
4. ***A social-science perspective*** that applies current knowledge and advances to better understand and explain past urban life and its determinants (discussed later).
5. ***An emphasis on energized crowding and its generating mechanisms, population size, and processes***.

⁹ The *Wide Urban World* blog is located at <http://wideurbanworld.blogspot.com/>.

Epistemological Context

Given that scholars of ancient cities operate from quite diverse theoretical and epistemological perspectives, I should make my own approach clear. Epistemology refers to the logic of explanation (Tilly 2008); it describes how you know what you know. My own epistemology, which derives from the philosophical approach known as scientific realism, differs greatly from the social constructivist approaches to knowledge that are common in the archaeology of ancient cities. In the words of Justin Cruikshank:

Social constructionism is based on a relativist epistemology, which holds that all knowledge is relative to one's location within a set of social norms. This relativism motivates a radical skepticism towards all knowledge claims, especially from agents in authoritative roles, such as professionals, because social norms are taken to be imbued with power Given this, the task of research is not to uncover new truths about reality but to unmask supposedly objective knowledge claims by exposing them as symptoms of underlying power relations. (Cruikshank 2012:75)

The social-science method associated with social constructivism is known as *interpretivism*. This refers to “evidence-gathering techniques that are focused on the intentions and subjective meanings contained in social actions” (Gerring 2007:69–70). Social constructivism and interpretivism deny the possibility of the scientific study of objective social reality, a position opposite to my own realist views. These non-realist approaches are part of the movement called *postprocessualism* in archaeology, which in turn derives from an epistemological and ontological perspective – postmodernism – that emphasizes identity, meaning, discourse, deconstruction, and a multiplicity of perspectives. Post-humanist theory is one of the most common expressions of this approach among archaeologists today. Some of the prominent scholars of ancient cities who employ a social constructivist approach (often termed *social archaeology*) are Adam T. Smith (2003), Monica Smith (2003b), Christopher Tilley and Wayne Bennett (2004), Arthur Joyce (2009), Cynthia Robin (2013), and Wendy Ashmore (2015). While these works contain useful data and findings, I have not found their conceptual approach helpful in contributing to the scientific scaffolding I build in this book.

The term *science* is a dirty word for many postprocessualists (Martín-Torres and Killick 2013). Some claim that we can never really know what happened in the past. Each city – indeed, each household in each city – was unique, and thus any search for scientific regularities is futile. For me, however, science and scientific realism (Bunge 1993; Little 2010) are the cornerstones of how I approach premodern cities. I will give two definitions of *science*, directed at

different audiences. My first definition of *science* – meant to show non-scientific archaeologists what I mean by *science* – is summarized in three tenets:

1. Science is a method for gathering knowledge about the natural and social world. It gives primacy to reason and observation.
2. Science has a critical spirit. Claims or hypotheses are constantly tested through observation and experiment, and findings are always tentative, incomplete, and open to challenge.
3. Science is complex. It consists of an interconnected network of diverse evidence and theory, and its content and findings are evaluated by communities of scientists.¹⁰

Many scientists from the natural sciences will probably find the above definition wishy-washy. They will be less interested in how science differs from humanities-oriented fields and more interested in defining science in terms of what scientists actually *do*. For them, the following definition from biology illustrates that archaeology is indeed a science:

1. Science seeks to organize knowledge in a systematic way, endeavoring to discover patterns or relationship among phenomena and processes.
2. Science seeks to provide explanations for the occurrence of events.
3. Science proposes explanatory hypotheses that must be testable, that is, accessible to the possibility of rejection (Mayr 1982:23), rephrasing Ayala (1968:207).

A key question in evaluating whether a work is scientific or not is, “How would you know if you are wrong?” (Abbott 2004; Haber 1999; Smith 2015). Scientific theories are open to testing, and hypotheses can be proven wrong. Many postprocessualists, on the other hand, use grand theory. This is a highly abstract theory – concerning things like materiality, agency, and meaning – that can never be wrong (Smith 2017b). This feature is a consequence of the basic scientific epistemological hierarchy. At the bottom of the hierarchy are sites, artifacts, and their physical and social contexts. “Data” consist of descriptions and measurements we make of the real world. Low-level theories concern things like the formation of the archaeological record (Schiffer 1987) or reconstructions of past technological processes (van der Leeuw 2012). Middle-range theory describes theories of how society operates, based on causal mechanisms (Calhoun 2010; Demeulenaere 2011; Merton 1968).¹¹ Much of social science in the past few decades has concerned itself with methods for testing and evaluating middle-range theories.

¹⁰ I base this definition of *science* on sources such as Wylie (2000), Sokal (2006), and Kosso (2009). See Smith (2017b) for discussion.

¹¹ Archaeologists should note that I am not using Lewis Binford’s well-known but idiosyncratic concept of middle-range theory as propositions about formation processes (Kelly 2011).

Grand theory, at the top of the epistemological hierarchy, consists of highly abstract and philosophical propositions about how the social world operates. As a high-level construct, such theory is very comprehensive but has low empirical content. Social theories of structure and agency, for example, are abstract formulations that help scholars understand society (e.g., Giddens 1984). But they are far too abstract to actually explain specific social processes and patterns in society. Such theories are abstract perspectives that color one's interpretations, not specific propositions to be tested. Gabriel Abend's (2008) analysis of the different meanings of theory in sociology puts these claims into perspective. Two features that distinguish scientific research in the social and historical sciences from interpretivism and postprocessualism are a concern with causality and the use of quantitative evidence to make arguments. While formal and rigorous causal models (Pearl and Mackenzie 2018) are difficult to construct for the distant past, understanding is improved when archaeologists try to determine causality whenever possible.

Explicit research questions are crucial for a scientific approach to the past. Questions should be clear and anchored in one or more bodies of theory. They need to be operationalized in archaeological terms such that specific propositions can be tested with our data and found to be supported or rejected. Different research questions call for different definitions (of cities and other phenomena), which helps avoid the problem of reification of cities.

Social Scientific Context

This book presents a comparative and interdisciplinary approach to premodern cities. My interests in urbanism have expanded far beyond my disciplinary training and early professional work in anthropological archaeology. As my reading expanded to include other disciplines, I discovered two things. First, my own field – anthropology – lacked the concepts for an adequate study of cities and urbanism, modern or ancient (Smith 2011c). Second, fields from sociology to economics to urban planning have concepts and models that can help illuminate the nature of ancient cities. Lamentably, I have found that few of my archaeological colleagues – particularly the postprocessualists – even know what the social sciences are. There are claims that archaeologists need to decide whether to affiliate with the natural sciences or with the humanities (Sørensen 2017). This old “two cultures” argument (science versus humanities), popularized in the 1950s by C. P. Snow (1959), still drags on, even though the social sciences established themselves long ago as distinctive disciplines with rigorous yet distinctive epistemologies (Kagan 2009). I question the relevance of the outdated “two cultures” argument to archaeology in Smith (2017b). The present book is positioned squarely within the social sciences and the historical sciences.

I draw upon a number of disciplines to make sense of premodern cities. My theoretical approach aligns with works called “political economy” in archaeology and anthropology (Earle 1997; Feinman and Nicholas 2004; Roseberry 1988; Smith 2004). Under this umbrella, I make use of an eclectic group of theories and models, including collective action theory (Chapter 4), human behavioral ecology (Chapter 2), and complex systems theory (Chapters 6 and 7). Particularly important for this book is settlement scaling theory (Chapters 2 and 3), which is one component of a new approach to the scientific study of urbanism (Bettencourt and Lobo 2019; Lobo et al. 2020). The foundation of my approach is the generative role of social interactions among individuals within the built environment. My use of the concept of “energized crowding” comes from the intersection of settlement scaling theory with other research in the social sciences. One of my overall goals is to investigate a variant of Bruce Trigger’s claim that “the most important issue confronting the social sciences is the extent to which human behavior is shaped by factors that operate cross-culturally as opposed to factors what are unique to particular cultures” (Trigger 2003:3). I would rephrase this statement to ask, to what extent were cities shaped by (1) factors that operate throughout time and around the world; (2) factors that are limited to particular cultures or areas; and (3) unique and idiosyncratic factors?

Answers to questions like this require data from many different cases, and such data need to be analyzed using comparative methods. Comparative analysis is one of three fundamental social science research strategies identified by Ragin and Amoroso (2011); the others are qualitative analysis and quantitative analysis. I have discussed the importance of comparative analysis in archaeology in other publications (Smith 2012b; M. E. Smith 2018; Smith 2020b); see Chapter 8. A key point is that comparison – in archaeology or any other realm – requires simplification (Drennan and Peterson 2012; Healy 2017). This principle is a subset of the basic tenet that “science seeks to organize knowledge in a systematic way, endeavoring to discover patterns or relationship among phenomena and processes” (Mayr 1982:23). This effort only makes sense if one is comparing cases using simplified measures and variables.

PREMODERN CITIES AND URBANISM TODAY

Present to Past: The Use of Analogy

Cities and settlements today are a source of ideas and analogies that archaeologists use to interpret ancient cities. Archaeological remains – bones, potsherds, buildings, soil, pollen, rocks, and such – provide very little *direct* evidence of life in the past. Archaeologists build arguments about ancient life and society using analogies. We start with information about material culture in contemporary or

historical societies – how people use artifacts or spaces – and apply this knowledge to archaeological evidence from ancient societies, using analogical reasoning. Sometimes this has been done in a hasty or haphazard fashion; however, there are in fact clear guidelines for making these arguments more rigorous (M.E. Smith 2018; Smith n.d.; Wylie 1985). Arguments by analogy use what is known as inductive logic.

I will illustrate the use of inductive logic, or analogy, with an example. Archaeologists infer that temporary marketplaces were set up in the plazas in ancient Mesoamerican cities. Here is the basis for that inference in outline form. First, we know from ethnography and history that many modern peasant communities in Mesoamerica have open plazas that spring to life once a week as periodic marketplaces. We start by assembling contextual evidence for similarities and differences between the ancient and modern settings. The more similarities, the stronger the argument. Modern plazas are formal rectangular areas in the center of the settlement, often next to the church; the ancient plazas have a similar form and placement, although they are next to a pyramid, not a church! The modern communities are parts of regional market systems, where merchants travel among communities and set up at each one on its weekly market day. Written evidence from a few pre-Spanish communities describe the presence of similar markets and merchants. Also, analysis of household artifact assemblages from the archaeological sites suggests that goods were obtained through market exchange (Stark and Garraty 2010). Given this series of similarities between the ancient and modern features, we infer that the two sets of features had similar uses – that is, the ancient plazas were likely settings for periodic markets.

This argument began with a hypothesis (the plaza-as-market idea), which was strengthened and supported by assembling contextual and other information on the two settings. Finally, a conclusion was drawn. Inductive arguments are never absolute; they can be proven wrong but not proven correct (Copi 1982). But, such arguments can be judged as strong or weak. The more contextual and supporting evidence we can assemble, the larger the number of cases, the stronger the conclusion will be. This kind of argument by analogy underlies most of the interpretations of ancient cities in this book (M. E. Smith 2018; Wylie 1985). One difficulty in using analogical arguments in research on ancient cities is choosing among modern or historical examples for the analogy. I used twentieth-century peasant villages for the plaza analogy; had I tried to argue for markets in the past by using the architectural features of modern banks, however, the analogy would probably not have been very appropriate or useful.

Past to Present: The Contemporary Relevance of Ancient Cities

The archaeological study of early cities is at a productive stage, with better methods and concepts leading to major advances in understanding past urbanization (Fisher and Creekmore 2014; Marcus and Sabloff 2008). Archaeologists are now assembling data on ancient cities that are sufficiently rigorous and informative to be able to make comparisons with cities of the modern world. I make three arguments for the relevance of these results for scholars of contemporary urbanization: the urban trajectory argument, the sample size argument, and the laboratory argument (Smith 2010b, 2012d).

The urban trajectory argument arises from *the* major advantage of archaeological data for broader realms of scholarship: We have information on cities and societies over quite long periods in the past. Today, urban sustainability is judged by practices that people think might possibly increase sustainability in the future (Pijawka and Gromulat 2012). For archaeologists, sustainability is judged by persistence through time: Did a city last for ten years or ten centuries (Smith et al. 2021b)? If archaeologists can establish the dynamics and causal mechanisms that allowed some cities to thrive for long periods while others were more ephemeral, this knowledge could illuminate key urban issues today. Most urban scholars today, however, either pay no attention at all to premodern cities or discount their potential relevance for their research (Harris and Smith 2011). I return to the topic of urban sustainability later.

The sample size argument is a simple one: by considering ancient cities along with recent and contemporary cities, scholars increase the size of their sample of cities (for whatever purpose). Increased sample size helps distinguish unique or unusual patterns from those that are widespread. If planners are looking for examples of cities with particular traits (wide avenues, or green space, or a particular kind of neighborhood), throwing ancient cities into the mix can only improve our understanding. Most urban planners today would consider a city without streets an impossibility or absurdity. Yet many ancient cities – such as most of the Classic period Maya centers – lacked streets. Perhaps these premodern cities have lessons for the shantytowns that spring up around cities in the developing world today.

The laboratory argument focuses on the role of ancient cities as case studies – laboratories – for the evaluation of scientific hypotheses. Hypotheses devised from the study of contemporary cities can be tested against archaeological evidence if the variables can be operationalized archaeologically. Settlement scaling analysis is a good example. First worked out for contemporary cities, the quantitative predictions of the scaling models (Bettencourt 2013) were then applied to archaeological data on ancient settlement systems (Ortman et al. 2014); see Chapter 3. This exercise revealed that the processes that generate

consistent outcomes in cities today also operated in past systems, thereby extending the scope of the theory – and our understanding of urbanism – considerably. I return to these three arguments in Chapter 8.

Ancient Cities and Urban Sustainability Science

This growing recognition of the relevance of ancient cities to contemporary urban studies comes at an opportune time. The fields of sustainability science (Clark and Harley 2020; Matson et al. 2016) and urban science (Acuto et al. 2018; Ortman et al. 2020a) are merging into a new discipline, urban sustainability science (Lobo et al. 2021; Ramaswami et al. 2018). This development has the potential to incorporate historical and comparative perspectives (Lobo et al. 2021), based on the argument that any general scientific model of cities or urban phenomena must incorporate the entire range of cities, through history and around the world.

One of the pressing issues in urban sustainability science is how cities will adapt to the effects of global warming (Egerer et al. 2021; Revi et al. 2014). Rising sea levels (Siders 2019), declining urban populations (Slach et al. 2019), and growing poverty and inequality (Noble and Huq 2014) are some of the consequences of climate change today. Where can scholars and policy makers find examples of cities that have dealt with shocks, stresses, and environmental changes? The archaeological and historical record is the only source of empirical evidence on how cities have adapted to – or failed to adapt to – serious challenges. The findings on early urban life reported in the chapters that follow can serve as inputs into models of urban adaptations through time.

My use of the phrase *wide urban world* is one way I try to transcend the divide that separates the distant past from the present in order to produce a broader understanding of cities, urbanism, and settlements more generally. But, any such comparisons have to be done with an appreciation of the very real differences between the contexts of ancient and modern cities. In many ways, cities today are very different from cities in the past. However, in other ways, they are quite similar. One of my tasks in this book is to explore this issue. I have written this book in part to exemplify the words of some smart and virtuous people:

“The farther back we look, the farther ahead we can see.” (Winston Churchill)

“It’s very hard to know where you’re going if you don’t know where you’ve been.” (Sandra Day O’Connor)