

## HOUSING IN PREMODERN CITIES: Patterns of Social and Spatial Variation

**Michael E. Smith**

*School of Human Evolution & Social Change,  
Arizona State University,  
Tempe, Arizona, United States  
mesmith9@asu.edu*

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### Abstract

*This paper describes a broad comparative perspective on urban housing in cities before the modern era, including the newly-defined category of low-density city. My objective is to promote comparative analysis of premodern urban housing forms. I present a typology of house types that is based on the concepts of dwelling and household. The types are: individual house; house group; contiguous houses; walled compound; and apartment building. Among the many factors that influenced the forms and nature of premodern urban housing, I single out three causal forces: cultural tradition, density, and political dynamics.*

**Keywords:** Housing; Premodern cities; comparative analysis; typology.

### INTRODUCTION

A critical need in urban scholarship today is to explore the similarities and differences among cities around the world to identify patterns, trends, and processes of change. In this task, housing can play an important role. The architectural, spatial, and social aspects of urban housing varied widely among premodern cities, yet this variation remains poorly understood. A major reason is that research on housing in cities before the modern era has tended to focus on individual cities or regions (e.g., Nevett, 1999; Petruccioli, 2006; Schwerdtfeger, 1982), with little concern for cross-cultural comparison or generalization; for an exception, see Crouch and Johnson (2001).

The recent recognition of the prevalence of low-density cities before the modern era (Fletcher, 2009; Isendahl and Smith, 2013) provides a new impetus to analyze urban housing patterns in a comparative fashion. Archaeologist Roland Fletcher (2009) argues that housing and social dynamics in ancient low-density urban societies such as the Maya of Central America or the Khmer of Cambodia have implications for understanding contemporary urban processes. In this paper I bring a comparative and analytical perspective to housing in cities before the modern era.

This paper has three objectives. The first is to explore a range of case studies of urban housing, from the earliest cities uncovered by archaeologists up through the period of European expansion. My second objective is to organize these cases with a spatial-social typology. This typology is designed to promote comparative analysis of urban housing in different urban traditions and through history. I chose to base the typology on the spatial forms of urban dwellings so that it can help archaeologists and architectural historians reconstruct patterns of urban housing from the evidence of the built environment, in contexts where historical documents may be limited or unavailable. A third objective is to briefly review some of the causal factors that determined the types of housing in cities around the world and through history. There is not space for a full analysis of such causes, but I will suggest three of the most important factors that influenced the form of urban housing before the modern era: cultural tradition, density, and political dynamics.

## CONCEPTUAL FRAMEWORK

The literature contains two dominant definitions of city and urban. In the sociological definition (Wirth, 1938), a city is a permanent settlement with a large, dense, and socially heterogeneous population. This definition fits western industrialized cities, but it fails to identify the largest and most influential settlements in many ancient and non-western traditions as “urban.” To better accommodate the diversity of urban expressions around the world, many geographers and anthropologists take a functional perspective (Blanton, 1976; Fox, 1977), defining a city as a settlement whose activities and institutions affect a wider hinterland; these activities and institutions are called “urban functions.”

This paper focuses on “premodern cities.” This category resembles Gideon Sjöberg’s (1955) concept of preindustrial city. Preindustrial cities “have arisen without stimulus from that form of production which we associate with the European industrial revolution” (Sjöberg, 1955:438). Premodern cities are a subset of preindustrial cities, but this category does not include European cities between the Medieval period and the Industrial Revolution (because these cities are very similar to later industrial cities in their forms and functions). A distinctive type of premodern city is the low-density city. Roland Fletcher (1995: 93) defines a low-density city as one whose population density is less than 10 persons per hectare. The urban status of low-density cities is typically denied by scholars employing Wirth’s sociological definition. What the sociological and functional definitions of urban have in common is their emphasis on the role of social interactions in generating urban change and growth (Storper & Venables, 2004). Cities can be described as “social reactors” (Bettencourt, 2013) that amplify interactions among individuals. Where and how these individuals live in cities is thus a crucial variable in urban analysis.

Two fundamental concepts for analyzing the relationships between housing and society are the household and the dwelling (Tippel, Amole, Korboe, & Onyeachole, 1994). In most agrarian societies—that is, societies not heavily industrialized whose subsistence is based on agriculture and not on hunting and gathering—the **household** is the basal social unit. The U. S. Bureau of the Census has defined the household as follows:

...all the persons who occupy a housing unit. A house, an apartment or other group of rooms, or a single room, is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters; that is, when the occupants do not live and deal with any other persons in the structure and there is direct access from the outside through a common hall. A household includes the related family members and all the unrelated persons, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of persons sharing a housing unit as partners, is also counted as a household (quoted in Tippel et al., 1994:439).

In agrarian societies, the household is typically the most important unit of production, distribution, reproduction, socialization, and property transmission, as well as the basic unit of coresidence (Bender, 1967; Netting, Wilk, & Arnould, 1984). Anthropologists have stressed the role of common economic tasks in shaping the size and structure of households; indeed, Netting et al. (1984) refer to the household as a “task-oriented residence unit.” The concept of the household is often contrasted with that of the family, a kin-based group whose members may or may not live together. The dwelling is the unit of housing or shelter where a household resides. According to Tippel et al.:

Among housing specialists, ‘dwelling’ or ‘dwelling unit’ is generally defined as the accommodation occupied by the social unit ‘a household’. It would consist of part or parts of a building, comprising a habitable room or rooms plus any services, ancillary spaces, and storage used exclusively by one household. It would normally have an entrance from a public or semi-public street or area, leading only to itself (Tippel et al., 1994:435).

The U.S. Bureau of the Census uses the term “housing unit” for what Tipple et al. (1994) call the dwelling. A housing unit is:

...a house, an apartment, a mobile home or trailer, a group of rooms or a single room occupied as separate living quarters or, if vacant, intended for occupation as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from outside the building or through a common hall (Tipple et al., 1994:434).

The term “house” most commonly refers to a single built structure that serves as a dwelling—or part of a dwelling—for a single household. The term is useful for low-density housing, but it becomes problematic with respect to higher density housing such as apartment buildings or house compounds. In cases where a single household inhabits several structures (such as the Classic Maya patio groups discussed below), the buildings are sometimes labeled “houses,” but in fact the several structures together constitute a dwelling.

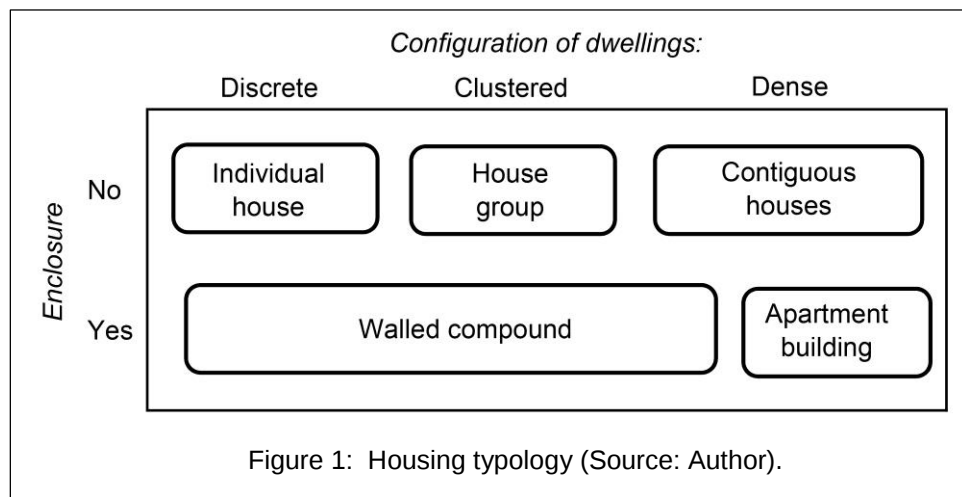
In order to understand housing and its dynamics, it is helpful to focus on spatial contexts that extend beyond the individual dwelling. Amos Rapoport (1969:69-73; 1980; 1990) has promoted this notion most forcefully with his concept of the “house-settlement system.” He notes that,

Many activities which take place within what we call a dwelling may occur in a widely dispersed system of settings in another culture which also, apparently, has dwellings. The units to be compared, therefore, are not the two dwellings but the system of settings within which a particular system of activities takes place (Rapoport, 1980:15).

If domestic activities occur at some distance from the dwelling, they can be difficult or impossible for historians or archaeologists to identify. But in many cases—particularly in rural areas and low-density cities—domestic tasks are carried out in exterior areas close to the dwelling. For this reason, archaeologists who study ancient households typically excavate areas adjacent to the dwelling in order to reconstruct the activities and conditions of the household. They employ the concept of the “household cluster” (Jongsma & Greenfield, 2003; Winter, 1976), which refers to the series of domestic features or facilities used regularly by a household. In ancient Mesoamerica, for example, these include the dwelling and associated storage pits, ovens, trash deposits, and burials (Winter, 1976). In a similar fashion, individual house-lots in many informal settlements today contain extra-dwelling spaces for domestic tasks, work or production, and leisure (Caminos, Turner, & Steffian, 1969).

## HOUSING TYPOLOGY

The typology presented below is based on the relationship between the built environment—the dwelling—and the household. It is designed to be useful for archaeologists and architectural historians who analyze housing based on the spatial patterning of the built environment. I divide housing into five types, differentiated by the spatial configuration of nearby dwellings (discrete, clustered, or dense) and by the presence or absence of a walled enclosure that encompasses one or more dwellings (Figure 1). Most premodern cities had a mix of housing types, although in many cases one type predominated numerically.



### Individual House

An individual house is a single residential structure that is not spatially associated with other dwellings. This is a common form of housing in low-density cities, where houses and neighborhoods resemble those typical of rural areas (Smith, 2011). Addis Ababa in 1897 provides an example (figure 2). Among European visitors, statements like this were common: Addis Ababa “resembles a collection of villages rather than what we understand by a town.” (Powell-Cotton, 1902:80). Yet this was a city of some 50,000 to 100,000 inhabitants and capital of a powerful empire (Giorghis & Gérard, 2007). Like other low-density cities, Addis Ababa was clearly a city according to the functional definition of urban, but not from Wirth’s sociological perspective. In addition to individual houses, many residents of Addis Ababa lived in walled compounds.



Figure 2: Individual houses in the city of Addis Ababa, in 1897. The royal palace is visible at the top of the hill. Reproduced with permission. (Source: Giorghis & Gérard, 2007:55).

### House Group

A house group consists of two or more residential structures located in close proximity to one another. In most cases the houses are arranged around an open patio which is the setting for domestic activities; many authors use the term patio group for these units. In ancient Mesoamerica, patio groups were usually arranged formally, following an orthogonal, symmetrical layout (figure 3), whereas in the Andes, pre-Spanish patio groups were less formally arranged (figure 4). In the language of premodern planning theory (Smith, 2007), the structures in the Mesoamerican groups show a greater degree of coordination and standardization than those in the Andean groups.

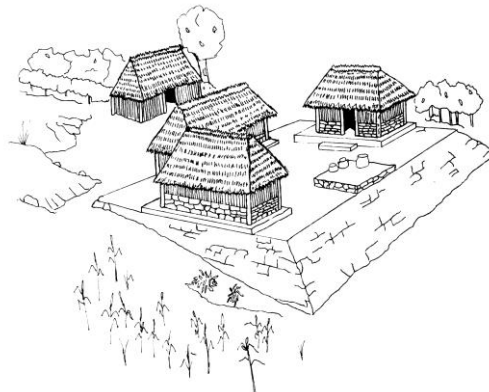


Figure 3: Classic Maya patio group, a formal house group common in both urban and rural settings. Reproduced with permission. (Source: Lohse, 2007:21).

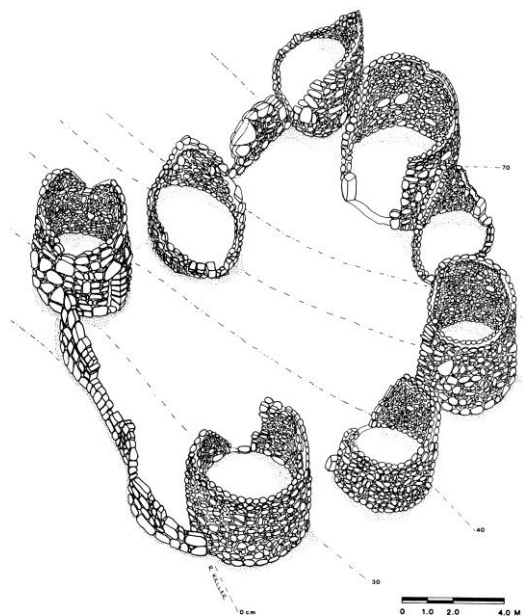


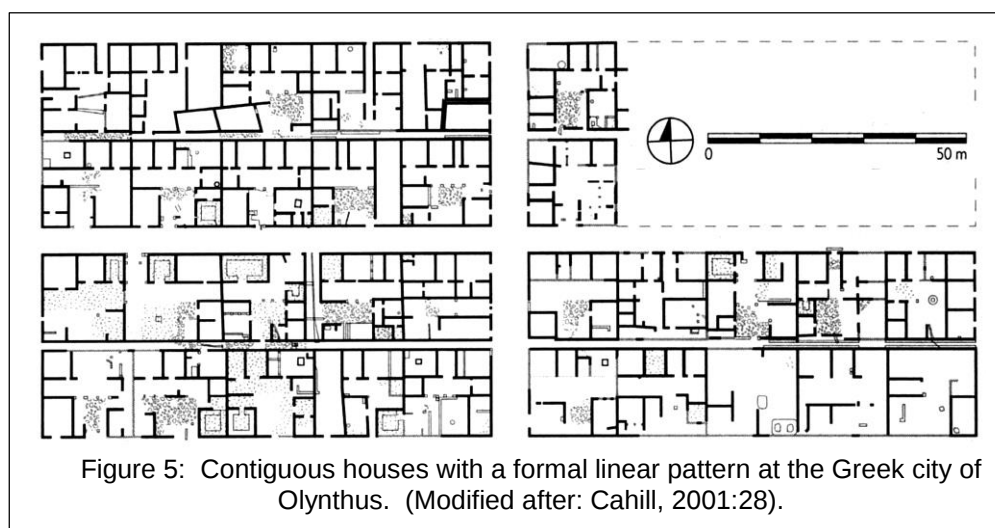
Figure 4: An informal house group at the provincial Inka town of Tunanmarco, Peru. Reproduced with permission. Drawing by Robert Keller. (Source: DeMarrais, 2001:124).

The relationship between the structures of a house group and dwellings is variable. For example, the structures that make up a Classic-period Maya patio group together comprised

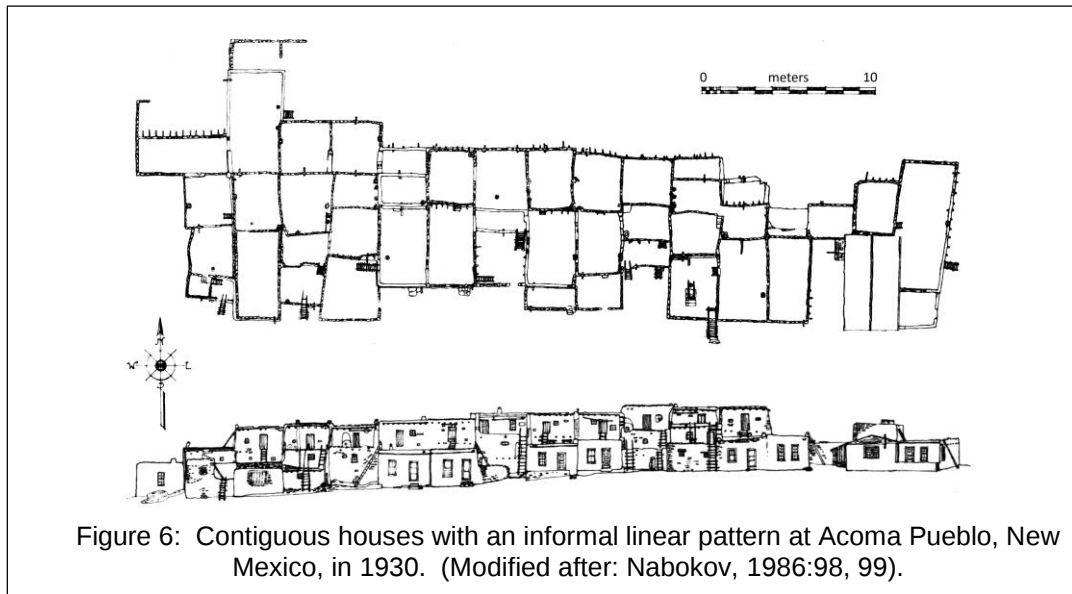
the dwelling of a single household, whether of nuclear-family or extended-family form (Freter, 2004). The structures were functionally specialized, with a kitchen, sleeping quarters, and a shrine (Becker, 2001), as in figure 3. In contrast, Aztec patio groups consisted of two to four dwellings; each household inhabited a single structure (Smith, 1993). The residents of Aztec patio groups made up a social group called “people of a yard” whose significance is not clear from the available sources. These two patterns can be difficult to identify from plans alone, but they are quite clear from archaeological excavations of Maya and Aztec patio groups. In both cultures, patio groups were the dominant form of residence. Formal patio groups are rare in the Old World, although African examples have been described for Ashanti towns in the nineteenth century (Rutter, 1971).

### Contiguous Houses

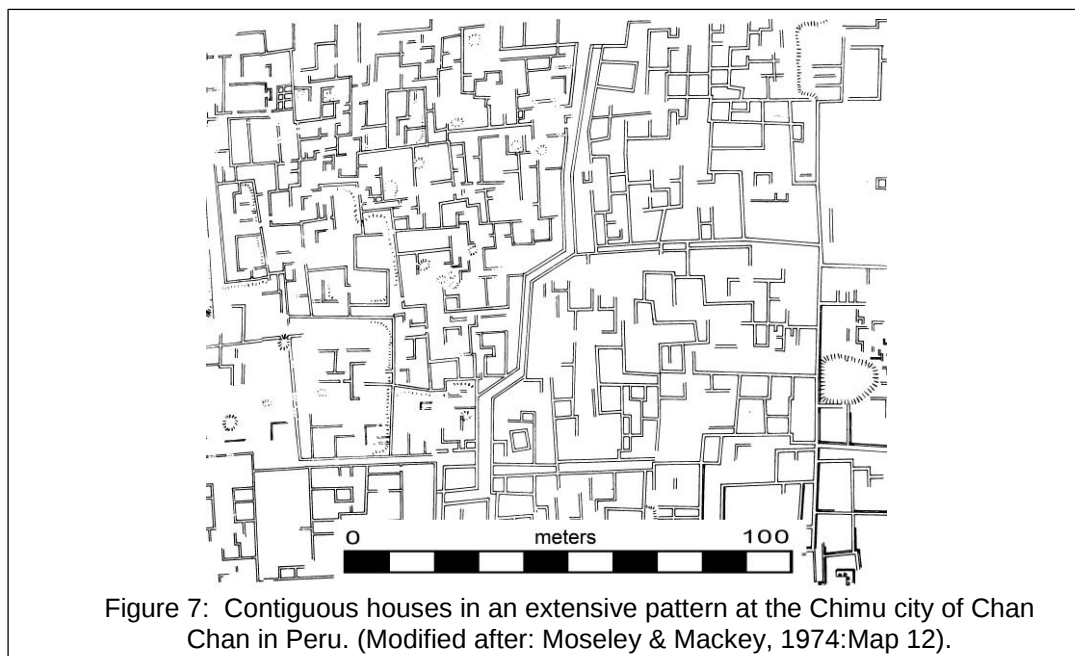
Contiguous houses refers to dwellings that share two or three outer walls with adjoining dwellings, and each has its own entrance to a street or other exterior space (i.e., these are not apartments). I identify two subtypes: linear and extensive. The linear category describes rows of connected or adjacent houses with a depth of one or two rows. Formal linear arrangements are typically laid out following the principles of orthogonal planning. The Classical Greek city of Olynthus (figure 5) is a good example (Cahill, 2001), and this form remains the dominant urban housing form in many cities today.



The historical pueblo villages of northern New Mexico exhibit a less formally planned linear arrangement of houses. Figure 6 shows room block 7 at Acoma Pueblo in New Mexico in the 1930s; this is one of eight linear room blocks, arranged in three parallel lines. Although Acoma and the other New Mexico pueblos do not fit standard definitions of city and urban, they are urban-like in one major sense: population density. The median density of recent (19th and early 20th century) pueblo settlements is 134 persons per hectare (Dohm, 1990:211), a figure higher than the density of European cities in the 14th through 16th century (Bairoch, 1988:23). In 1948 the density of Acoma Pueblo was 148 persons per hectare.



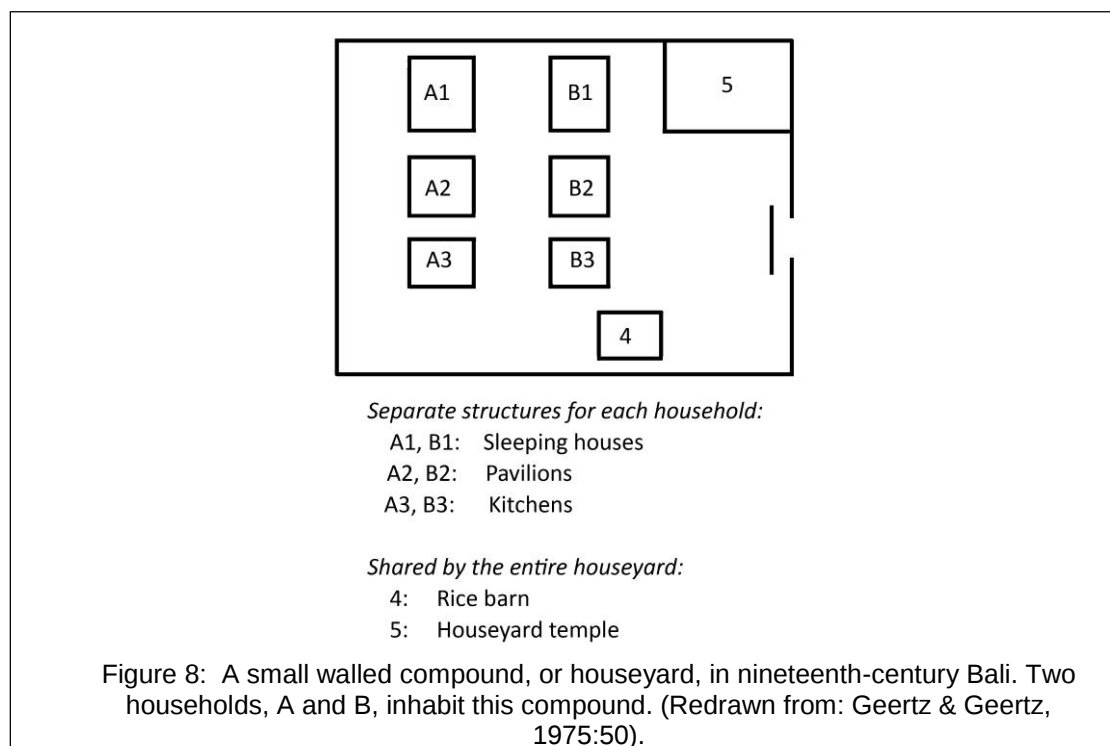
I call the second type of contiguous houses “extensive.” This describes aerially-extensive (non-linear) neighborhoods where the depth of houses from a major street or other open space is greater than two dwellings. In some cases—such as ancient Mohenjo-daro in Parkistan—the layout is close to orthogonal in an arrangement that Smith (2007) calls “semi-orthogonal urban blocks.” In other cases, such as the ancient Peruvian city of Chan Chan (figure 7) and many Ottoman cities, the arrangement of walls and dwellings is more haphazard.



### Walled Compound

A walled compound is an area enclosed by a wall that contains one or more dwellings and associated open space. This is a very common form of housing around the world in both rural and urban areas. In most cases documented by ethnographers, compounds house an extended

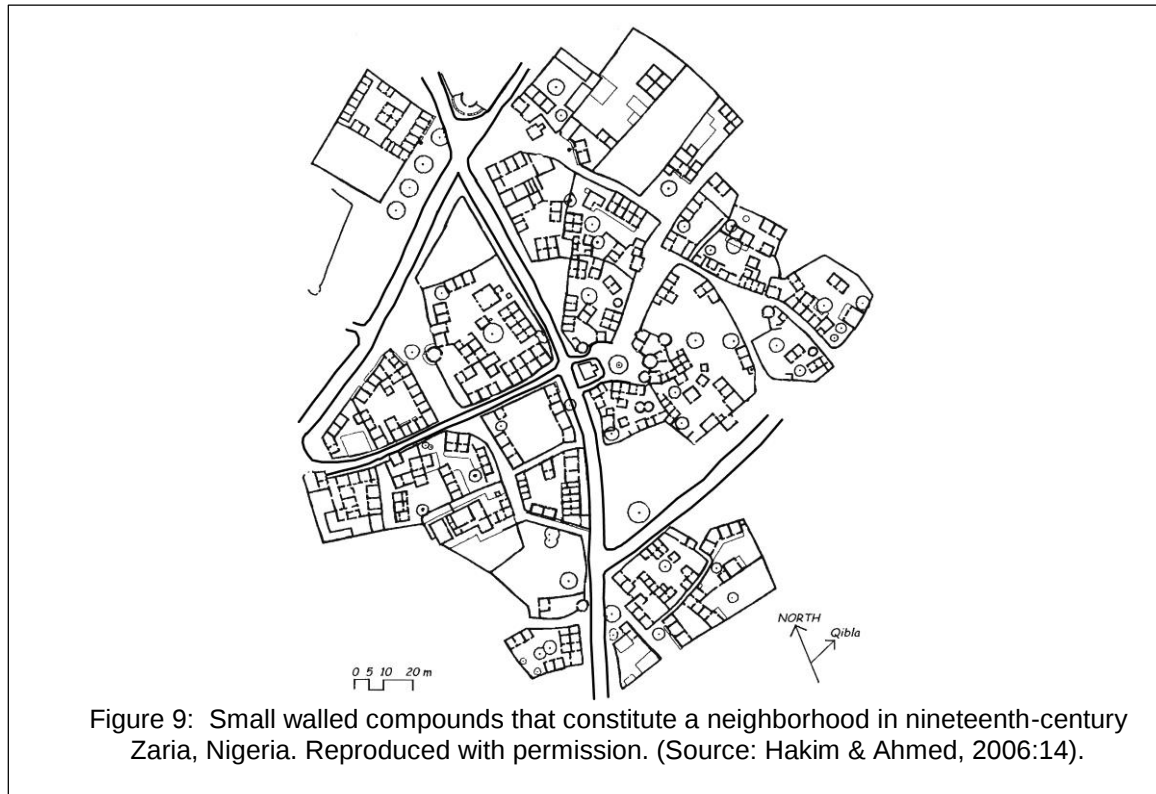
family or a segment of a kin-based lineage. While the walls may have utilitarian functions (e.g., to keep out intruders, or to keep livestock in), they also serve a social role of marking the boundary of an important social group. Traditional Chinese house compounds (Knapp, 2005) fit this category; Freedman (1958:46) describes these as “a single set of buildings housing an extended family.” In Bali, walled compounds are called “houseyards” (figure 8). A houseyard contains the dwellings of several households, usually patrilineally related families. Each household has its own kitchen, sleeping structure, and pavilion, but they share a temple and a granary (H. Geertz & Geertz, 1975:47-52). Royal palaces in traditional Bali were large-scale versions of these houseyards (C. Geertz, 1980).



Walled compounds were the dominant form of residence in West African towns prior to the twentieth century, and they continue to be important in many towns and cities today (Hakim & Ahmed, 2006; Schwerdtfeger, 1982); see figure 9. In cases where a compound housed a man and several wives, the definitions of households and dwellings become complex. Each wife and her children typically occupied either a separate house (or else separate rooms) within the compound, and the husband would eat with each wife in turn. As discussed by Tipple et al. (1994:440), the Ghana census considers the entire compound a single household. Anthropologists and archaeologists, on the other hand, typically use the presence of a hearth for food preparation as a basic marker of a household; from this perspective, the compound would correspond to several dwellings (for several households).

Archaeologists have debated the urban status of the Classic-period settlements of the ancient Hohokam peoples of the U.S. southwest (Fish & Fish, 2008). During this period the walled compound, with six to twenty rooms, was the dominant form of housing at Pueblo Grande and other Hohokam towns. Some archaeologists argue that the entire compound corresponds to a single household (Foster, Mitchell, Dale, & Robinson, 1996:39). These compounds can often be divided in to several “plaza units,” each with two to three rooms plus other features. Following the terminology of this paper—which is based on the ethnographic record of house compounds in Africa and Asia—the Hohokam plaza unit was the dwelling, and the compounds thus contained several individual households. The walled house compound was also common in Inka cities

(Gasparini & Margolies, 1980) and in the Iron Age European towns known as Oppida (Fichtl, 2005). The dwellings within a walled compound can take the form of individual houses, house groups, or even contiguous houses.



### Apartment Building

An apartment building can be defined as a single building that contains multiple dwellings, all of which connect to the outside world through a single exterior doorway. Definitions of apartment buildings designed for contemporary cities are too broad for comparative analysis. Cromley (1999:6), for example, defines apartment building as “a building designed specifically to accommodate the dwelling needs of several (usually three or more) families.” I exclude from consideration large communal houses (e.g., the Iroquois longhouse, or large buildings in Indonesia) where individual dwelling areas are not separated by fixed-feature elements. While these structures may fit my definition of apartment building, no known examples are from urban settings; instead, this form is found in the villages of tribal societies (Coupland & Banning, 1996).

The apartment building was very rare in cities prior to the nineteenth century. The best known ancient examples are those of Imperial Rome (Packer, 1971; Storey, 2004). An insula was a complex group of inter-connected structures that typically included commercial, industrial, and ritual spaces in addition to multistoried residences (figure 10); these latter structures are the apartment buildings. Many were created by subdividing older large houses into apartments (Packer, 1971).

Another early form was the rab, a type of apartment building that originated in early Ottoman Cairo. In the words of Petruccioli, this structure can be seen as,

...the modern version of a middle-class residential apartment complex. It was formally structured and consisted of a series of apartments derived from the qa'a [a residential hall in Mamluk cities], distributed around a courtyard in duplexes or sometimes triplexes. Each apartment included a portion of the terrace, the only external outlet for the residence. (Petruccioli 2006:17); see also Raymond (1980).

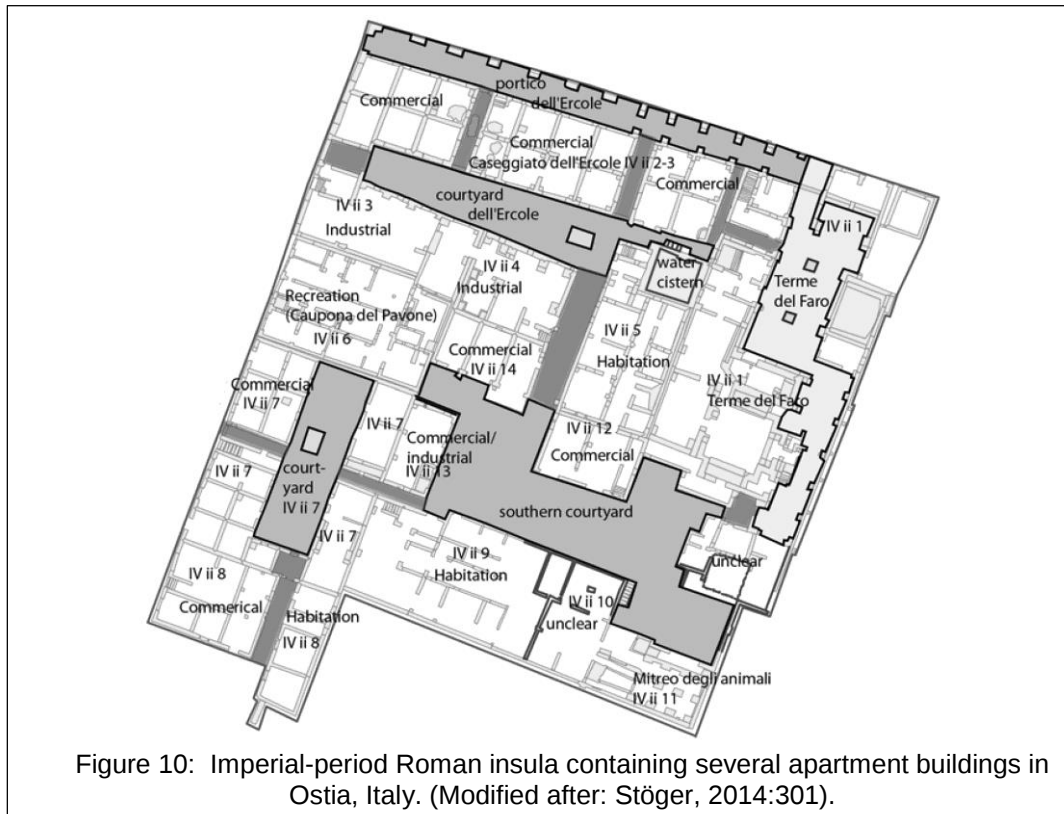


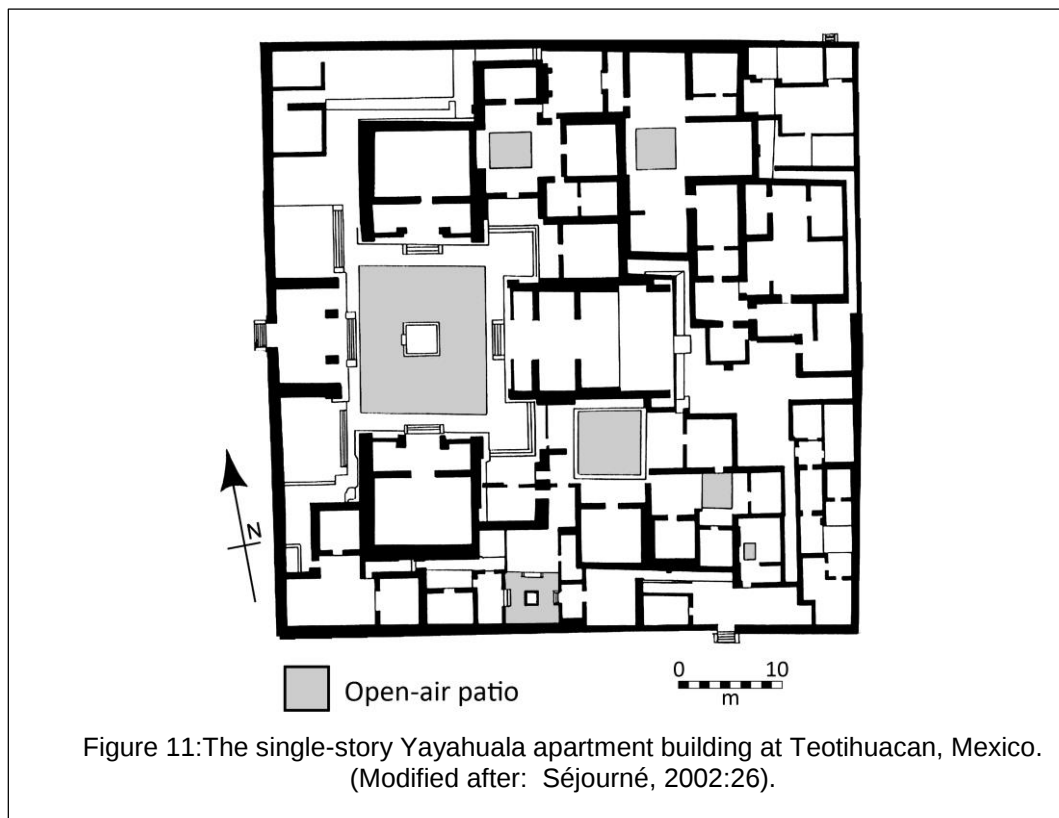
Figure 10: Imperial-period Roman insula containing several apartment buildings in Ostia, Italy. (Modified after: Stöger, 2014:301).

In many cases, a rab was constructed out of a large and spacious courtyard house, much the same way as early tenements in New York City were converted from large single-family houses (Cromley, 1999:32-37); in both cases the subdivision was done to accommodate growing lower-class urban populations. In the case of the rab, an attempt was made to maintain the building's courtyard as a space shared among the apartments.

A very different form of apartment building was built in the ancient Mesoamerican city of Teotihuacan (Millon, 1973; Séjourné, 2002). An "apartment compound" is a single-story building with several dwellings, each with a small open patio surrounded by rooms (figure 11). Many of the compounds also contained communal patios and shrines. Most of the more than 2,000 compounds in Teotihuacan were built in an episode of urban renewal in the third century A.D. when authorities destroyed older, less formal houses as well as irrigated agricultural fields and replaced them with semi-standardized housing. This was a true innovation in ancient Mesoamerica, and the only case of apartment buildings in the New World prior to the nineteenth century. The apartment compound form, however, did not survive the fall of Teotihuacan.

### DETERMINANTS OF URBAN HOUSING FORM

Many conditions and forces influence the spatial, architectural, and social expressions of urban housing. A full analysis is beyond the scope of this paper, but some of the major determinants of premodern housing form can be highlighted. I organize these under the headings of cultural tradition; density; and political dynamics and planning.



### Cultural Tradition

Forms of urban housing usually conform to the norms of the local cultural tradition (Rapoport, 1969). It is easy to distinguish the house compounds of traditional China, West Africa, Bali or Inka Peru, or the courtyard houses of the Mediterranean area, on the basis of their plans alone. In many cases, forms of housing in premodern cities were based on long-standing culturally-based house types.

Housing in the two largest cities of ancient Mesoamerica—Teotihuacan and Tenochtitlan—illustrates the role of cultural tradition in shaping urban house form. These were the only two Mesoamerican cities with populations on the order of 100,000 residents; both were powerful capitals of empires and centers of trade and immigration. Houses in Aztec Tenochtitlan—the larger and denser of the two cities—were slightly modified versions of the standard Aztec house form found throughout the Basin of Mexico (Calnek, 1974; Smith, 2008), which in turn was a local variant of the ancient Mesoamerican pattern of patio group housing. The residents of Tenochtitlan thus adapted local housing forms with little modification.

A millennium earlier, however, the rulers of Teotihuacan had broken with tradition by designing a radical new form of housing—apartment buildings—which were constructed on a massive scale in a single act of urban renewal. Although the individual dwellings were based loosely on the patio group principle (Kubler, 1964), the size, population density, and degree of standardization of these structures make them unique in ancient Mesoamerica. This new form of housing was just one of a series of innovations in political organization, social structure, and urban planning at Teotihuacan (Cowgill, 1997; Pasztory, 1997). When the city collapsed in the sixth century AD, these features were abandoned and subsequent cities returned to ancient Mesoamerican principles of housing, urbanism, and society. The rulers of Teotihuacan had created new cultural forms that did not outlast their city.

### **Density**

The horizontal axis of the housing typology (figure 1) is a rough gradient of population density. Urban density is a complex set of concepts and measures (Dovey & Pafka, 2014), several of which are very relevant for the study of premodern urban housing: dwelling density (number of dwellings per hectare), floor area ratio (ratio of total floor area to site area), and external density (population density at the neighborhood scale). Dovey and Pafka (2014) explore the relationships among these and other density measures and emphasize that “different density measures deliver vastly different results in different morphologies” (p. 66). The vertical axis of the typology (presence of an enclosure) is also related to density. As a city’s population grows, land becomes more valuable, creating pressure toward both denser forms of housing and increased expression of territorial behavior such as demarcating houselots with walls. The nature and extent of open spaces (Al-Hagla, 2008; Stanley, Stark, Johnston, & Smith, 2012) is an important determinant of urban density that is not incorporated into my typology.

Although any given city will likely have a combination of housing types, in general the types at the left side of figure 1 are most common in low-density cities, while the types at the right side are most common in higher-density cities. The early adoption of apartment buildings in Roman and Ottoman cities was clearly a response to city growth (McKay, 1975:83; Raymond, 1980), as was the establishment of apartment compounds in Teotihuacan (Millon, 1981). A parallel process operated in both Yoruba towns (Mabogunje, 1962:60) when increasing urbanization led to the subdivision of urban walled compounds into individual, densely-packed, houses, and in Saudi cities (al-Said, 1992, al-Naim 2008) in which the scattered individual houses inside walled compounds were gradually replaced by house groups and contiguous houses, still inside the walled compound.

### **Political Dynamics and Planning**

The structure of government and its role in urban planning exerted a strong influence on the forms of housing in premodern cities. Current understanding of variation in premodern governments (Blanton & Fargher, 2008) is based on a continuum that runs from despotic to collective or democratic regimes, with examples spread out between the extremes. Collective regimes, which have greater citizen participation, provide more services, which typically include urban planning and infrastructure (Blanton & Fargher, 2011). The Classical Greek city-state is a good illustration of a highly collective polity that engaged in extensive orthogonal urban planning (Wycherly, 1962). More autocratic regimes, on the other hand, provided few services and rarely engaged in the planning of residential zones. Hardoy (1982) and Smith (2007, 2010) have argued that unplanned residential zones were in fact the norm in cities before the modern era. John Bintliff (2014) has chronicled the manner in which house forms changed with different political systems in the Mediterranean from the Iron Age through the Roman Empire.

The extent of planning can be measured from the types and degree of coordination among buildings, and from the degree of standardization among cities (Smith, 2007). Whereas patio groups (figures 3-4) and walled compounds (figures 8-9) typically exhibit planning among the structures within the group (Gabilopoulos, Mather, & Apentiik, 2002), their overall configuration within a city is most commonly irregular and not centrally planned. The distinction between the centrally planned linear housing of Olynthus (figure 5) and the more generative, unplanned linear housing of San Juan Pueblo (figure 6), is striking, a strong signal of the very different political systems of the two settings.

## **DISCUSSION AND CONCLUSIONS**

The great variability among forms of urban housing in premodern cities can be organized for comparative purposes using a five-category typology of housing forms (figure 1). This typology is independent of cultural tradition or historical period, although culture and history are always important influences on urban housing. There is an overall progression of the types from lower to

higher density. Low-density cities, as identified by Roland Fletcher (2009) and others, tend to feature the lower-density housing types at the left side of the typology. Walled compounds and contiguous houses are probably the most common forms of urban housing before modern times, although judgments like this require quantitative comparative research. Only a few cities in the premodern world had populations sufficiently large and dense to generate apartment buildings.

Cultural traditions, density, and political form all exert strong influences on the nature of urban housing. An adequate understanding of causal dynamics will require intensive comparative research with a large sample. The five types of housing have different implications for the closeness or strength of social bonds among households. The households that live in house groups and walled compounds are most commonly linked by kinship or other close social bonds. This is not surprising, given that the social distance between two households is often directly associated with the physical or spatial distance between their dwellings (Gabrilopoulos et al., 2002; Hipp & Perrin, 2009). One reflection of the greater social bonds among households in these housing types is the higher level of coordination and planning among dwellings in these types of housing. At the denser end of the continuum (contiguous houses and apartment buildings), physical proximity is less commonly generated by close social bonds. Extended families or other kin-based groups may inhabit adjacent houses or apartments, but this is not the most common pattern in dense urban housing.

For scholars of past cities, urban housing is a window into ancient patterns of life and society. Knowledge of premodern urban housing can also improve our understanding contemporary processes of urbanization (Smith 2012). Many forms of premodern housing have continued into existence in cities of the contemporary world, and study of the ancient forms can improve efforts to manage urban heritage and improve the quality of modern urban life (Hakim, 2012; Hakim and Ahmed, 2006). Furthermore, the record of premodern housing complements scholarly knowledge of contemporary forms, creating a larger sample of housing forms, which can lead to more comprehensive generalizations and explanations about urban housing. Furthermore, a consideration of premodern housing gives architects and planners more examples to draw on when creating the housing and cities of the future.

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## AUTHOR

### Michael E. Smith

School of Human Evolution & Social Change,  
Arizona State University,  
Tempe, Arizona, United States  
mesmith9@asu.edu