Neighborhood formation in semi-urban settlements

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Semi-urban settlements are places where large numbers of people come together, whether forcibly or voluntarily, in special-purpose settlements that lack many of the features characteristic of cities. This exploratory study examines 11 different types of semi-urban settlement from the present and the past and finds that neighborhoods are present as important social and spatial units in 10 of the types. This finding supports the notion that neighborhoods are fundamental and perhaps universal features of cities and semi-urban settlements. The following social drivers for neighborhood creation are identified in both formal and informal semi-urban settlements: defense, group preservation, sociality, convenience, administration, and control/surveillance. The results have implications for understanding urban and neighborhood dynamics in a wide range of cities and other settlements.

Keywords: neighborhoods; comparative; semi-urban settlements

When people assemble to live in large numbers for periods of a week or more they create a social environment that shares many of the interactions and social processes characteristic of cities and urban settlements. In this paper we call such settlements ‘semi-urban’; they include refugee camps, shantytowns, military camps, internment camps, religious camp meetings, and other types of settlement. Because these semi-urban settlements tend to form quickly, they can reveal the operation of urban social processes that are more difficult to observe in longer-established, more permanent cities.

Neighborhood organization is a widespread, perhaps universal, feature of urban life across the ages (Smith 2010). Scholars working on contemporary cities typically define the neighborhood as follows: ‘A neighborhood is a subsection of a larger community – a collection of people and institutions occupying a spatially defined area influenced by ecological, cultural, and sometimes political forces’ (Sampson 2003, 973); or, ‘a spatial construction denoting a geographical unit in which residents share proximity and the circumstances that come with it. The neighborhood is a subunit of a larger area and is usually seen as primarily, if not exclusively, as residential’ (Chaskin 1997, 522–523). In a study of neighborhoods at ancient cities, Smith emphasizes face-to-face interaction to a greater extent than these scholars: ‘A neighborhood is a residential zone that has considerable face-to-face interaction and is distinctive on the basis of physical and/or social characteristics’ (Smith 2010, 139). These definitions are related to the concept of community in the social sciences, which is typically defined from two elements: social interaction and...
common characteristics (e.g., Brower 2011). Bowles and Gintis (2002, 5) review definitions of community in the planning and social science literature and suggest that when a community is spatially localized in a city, it is called a neighborhood.

This paper has two goals. First, it explores some of the urban social dynamics operating in semi-urban settlements. This is a rich area for urban analysis, and we argue that greater comparative and conceptual attention to these settlements will contribute to a broader understanding of urbanization processes in general. Second, the identification of neighborhood organization in all but one type of semi-urban settlement adds empirical support to the notion that neighborhoods are a universal feature of urban life. While much research focuses on the importance of neighborhoods today (Forrest 2008; Brower 2011; Sampson 2012), the exploration of the variety of neighborhood expressions over time and space is still in its infancy.

This study suggests that neighborhoods form in most types of semi-urban settlements, through either top-down processes, bottom-up processes, or a combination of the two. This finding not only contributes to an understanding of social processes in these settlements, but also underscores the fundamental importance of neighborhoods in human settlements. This is an exploratory study and we suggest that additional comparative research on semi-urban settlements has the potential to illuminate many urban social processes.

**Semi-urban settlements**

Although many definitions of city and urbanism are found in the literature, nearly all emphasize some combination or subset of three features: demography, complexity, and centrality. Cities are often defined as places: (1) with large populations and/or high population densities; and/or (2) with social complexity or heterogeneity of residents; and/or (3) with central activities and institutions that affect a larger area outside their boundaries. Louis Wirth’s influential definition of city as a permanent settlement with a large population, high density, and social complexity (Wirth 1938) emphasizes the first two of these features, whereas Richard Fox’s (Fox 1977) functional definition of urbanism gives primary emphasis to the third factor. The concept of semi-urban settlement focuses on the first factor, population.

Because this is an exploratory study of a topic – semi-urban settlements – that has seen little comparative research, we employ a somewhat loose definition. As research in this field progresses, more precise definitions and categories can be devised. We define semi-urban settlements as places where large numbers of people come together, whether forcibly or voluntarily, in special-purpose settlements that lack many of the features characteristic of cities. Most of the settlement types we consider have large populations and high population densities, and some may exhibit social complexity or heterogeneity. Few serve as central hubs for a broader settlement system (i.e., they have limited urban functions), although some cases may develop into more permanent urban settlements over time. It is their high population that makes them comparable with urban settlements with respect to many social dynamics.

We divide semi-urban settlements into three categories: voluntary camps, shantytowns, and formal settlements. We consider settlements in the first two categories as informal in nature. Douglas Uzzell’s (Uzzell 1990) discussion of these concepts is useful:

‘Formal’ activities in this discussion are those that are required, enabled, implied, or sanctioned by law. In the broadest sense, in the present discussion, ‘informal’ activities are everything else. (116)
Implementation of formal plans requires coercive power in one form or another. Generative planning, by contrast, is based on operational information, and the power required for its implementation may be minimal. (114)

Uzzell’s use of the term ‘generative planning’ to label informal processes differs from the usage of the term generative by scholars such as Christopher Alexander and Besim Hakim, for whom a key component of the concept is the adherence to long-lasting community-level cultural traditions (Mehaffy 2008). In contrast, the informal dynamics of some of the semi-urban settlements we discuss cannot be based on such cultural traditions because of their rapid formation and/or the cultural heterogeneity of the people involved. These settlements were established largely through processes of volunteer actions, in contrast to the formal settlements, which were established largely by force or necessity. The formal semi-urban settlements conform to Kevin Lynch’s (Lynch 1981, 81–88) concept of ‘The city as a practical machine.’

Table 1 identifies 17 types of semi-urban settlement. Most were formed rapidly by large numbers of people. Table 1 does not exhaust the list of settlement types that fit the definition of semi-urban settlement, but presents those that were investigated for the possi-

Table 1. Types of semi-urban settlements.

<table>
<thead>
<tr>
<th>Settlement type</th>
<th>Functional category</th>
<th>Creation</th>
<th>Form</th>
<th>Permanence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voluntary camps</strong></td>
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<tr>
<td>Pilgrimage site</td>
<td>Religious site</td>
<td>Volunteer</td>
<td>Customary</td>
<td>Periodic</td>
</tr>
<tr>
<td>Religious camp</td>
<td>Religious site</td>
<td>Volunteer</td>
<td>Other planned</td>
<td>Periodic</td>
</tr>
<tr>
<td>Festival</td>
<td>Recreational</td>
<td>Volunteer</td>
<td>Varied</td>
<td>Periodic</td>
</tr>
<tr>
<td>RV camp</td>
<td>Nomadic aggregation site</td>
<td>Volunteer</td>
<td>Irregular</td>
<td>Periodic</td>
</tr>
<tr>
<td>Protest camp</td>
<td>Other campsite</td>
<td>Volunteer</td>
<td>Irregular</td>
<td>Temporary</td>
</tr>
<tr>
<td>Plains Indian aggregation site</td>
<td>Special occasion</td>
<td>Volunteer</td>
<td>Customary</td>
<td>Periodic</td>
</tr>
<tr>
<td><strong>Shantytowns</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Planned invasion settlement</td>
<td>Neighborhood</td>
<td>Necessity; volunteer</td>
<td>Regular</td>
<td>Permanent</td>
</tr>
<tr>
<td>* Generative settlement</td>
<td>Neighborhood</td>
<td>Necessity; volunteer</td>
<td>Irregular</td>
<td>Permanent</td>
</tr>
<tr>
<td><strong>Formal (‘practical machine’) sites</strong></td>
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<tr>
<td>Military camp</td>
<td>Military camp</td>
<td>Force</td>
<td>Orthogonal</td>
<td>Temporary</td>
</tr>
<tr>
<td>* Internment camp</td>
<td>Detention center</td>
<td>Force</td>
<td>Orthogonal</td>
<td>Temporary</td>
</tr>
<tr>
<td>Concentration camp</td>
<td>Detention center</td>
<td>Force</td>
<td>Orthogonal</td>
<td>Temporary</td>
</tr>
<tr>
<td>Company town</td>
<td>Labor settlement</td>
<td>Necessity; volunteer</td>
<td>Orthogonal</td>
<td>Permanent</td>
</tr>
<tr>
<td>* Worker compound</td>
<td>Labor settlement</td>
<td>Force; necessity</td>
<td>Orthogonal</td>
<td>Permanent</td>
</tr>
<tr>
<td>Mining and lumber camp</td>
<td>Labor settlement</td>
<td>Volunteer</td>
<td>Orthogonal</td>
<td>Permanent</td>
</tr>
<tr>
<td>Slave settlement</td>
<td>Labor settlement</td>
<td>Force</td>
<td>Varied</td>
<td>Permanent</td>
</tr>
<tr>
<td>* Refugee camp</td>
<td>Displaced persons camp</td>
<td>Necessity</td>
<td>Other planned</td>
<td>Enduring</td>
</tr>
<tr>
<td>* Disaster camp</td>
<td>Displaced persons camp</td>
<td>Necessity</td>
<td>Other planned</td>
<td>Temporary</td>
</tr>
</tbody>
</table>
ble presence of neighborhoods in the first stage of the research. Types marked with an asterisk are described in this paper; for the other types, we could not find reliable data on the presence or absence of neighborhoods. It is likely that more intensive research by specialists will turn up data on neighborhood and community organization at some of the settlement types (such as religious camps and slave settlements) that we omit from this paper. While all of these 17 settlement types (and others) do have published literatures, we found the number of works that considered the spatial parameters of social processes to be much smaller.

Why do neighborhoods form? Ultimate causes

The literature on urban neighborhoods tends to take their existence for granted, and questions about how or why neighborhoods form initially are rarely considered. The why questions (e.g. why do neighborhoods exist? or, why are they universal features of cities?) concern distal or ultimate causes (Mayr 1961) while questions of how neighborhoods form involve proximate causes, also known as drivers or causal mechanisms (Gerring 2012, chs 8–9). We consider the why question briefly, and then concentrate the analysis on specific drivers responsible for the creation of neighborhoods.

A number of anthropologists have identified scaling factors in the population size of individual communities. John Bodley (Bodley 2003, 54–78) summarizes research by a number of scholars suggesting that the largest community in which people can maintain face-to-face relationships has around 500 ± 100 individuals. Beyond this threshold people cannot keep track of individuals and social stress becomes a problem. In another approach to the issue, Robin Dunbar has examined the sizes of a variety of types of social networks. He suggests that 150 is a maximal size of networks of stable interpersonal relationships, a more restrictive criterion than Bodley’s face-to-face interactions (Hill and Dunbar 2003; Dunbar 2011; also Feinman 2011). Archeologist Roland Fletcher (Fletcher 1995) approaches the question in terms of both the population size and the density of settlements, assembling a large array of comparative data showing a series of thresholds in settlement size and density.

Most explanations for these community size thresholds focus on one or both of two cognitive factors: constraints in human memory and psychological stress from crowding. We are not concerned here with the actual population size thresholds or with the specific mechanisms that create and maintain such thresholds. Rather, the important point is that cognitive and other forces act to limit the sizes of effective human communities. When settlements – cities – become significantly larger than these thresholds, either the settlements must fission, or else residents must find ways to form smaller units within the city; these smaller units are neighborhoods. This observation fits well with Fletcher’s (1995) hypothesis that the stress-based limits to settlement size and density can only be transcended when societies develop the means for the spatial segregation of activities, as well as innovations in communications or transport. The urban neighborhood is an example of this segregation of activities.

How do neighborhoods form? Drivers or proximate causes

Although the scholarly literature on neighborhoods has little to say about how they form initially, that literature can be used to identify likely drivers of neighborhood formation. We single out six such drivers that seem to account for the formation and persistence of neighborhoods, both in cities and in semi-urban settlements. Four are bottom-up processes
Defense, group preservation, sociality, and convenience — in that they arise from the actions of people independent of the state, local authorities, or other controlling institutions. Two are top-down processes — administration and control/surveillance — that are accomplished by some level of formal institutional control.

Table 2 provides subjective judgments about the individual drivers that are responsible for the creation of neighborhoods in each of the types of semi-urban settlement considered here. These identifications are based on a reading of the literature on each settlement type; the sources used in the research described in this paper go beyond the specific works referenced in this paper. Here we describe the six main drivers of neighborhood formation in semi-urban settlements.

**Defense**

The need for protection by minority groups is a major driver in creating neighborhoods in cities new and old (Rapoport 1980–81; York et al. 2011). One of the categories in Gerald Suttles’s influential typology of neighborhoods is the defended neighborhood, defined as a “small subsection of the city that constitutes a “safe haven” for its members” (Suttles 1972, 57–58); for modern cities he lists racial ghettos and housing projects as examples (see also Chaskin 1997, 535–536). Defended neighborhoods were also prevalent in pre-modern cities (Rapoport 1980–81).

We have identified one clear example of defense as a major driver of neighborhood formation: refugee camps, where conflicts along ethnic, national, and religious lines are a problem. The controlling authorities make an effort to separate groups to avoid conflict, and residents typically fortify their communities against attack or intrusion (Agier 2011, 135).

**Group preservation**

Group preservation operates in a similar fashion to defense, but with less emphasis on security from physical assault. In long-lasting cities, this driver is often called ‘mutual support’ (Knox and Pinch 2006, 175; York et al. 2011). Residents create self-help networks in various realms of life. These support networks may take time to develop, and thus they might not have time to influence neighborhood formation in rapidly forming settlements. On the other hand, if pre-existing groups arrive in a semi-urban settlement, their desire to interact and support one another can lead directly to neighborhood formation. This can be seen as the structural equivalent of chain migration (in which successive groups of immigrants move into the same area), a major driver of social clustering in urban neighborhoods (Greenshields 1980). The force of group preservation can lead to the reproduction of rural forms of settlement within the city (Rapoport 1983, 264).

**Sociality**

As noted by Carmon (2001, 10488), ‘the term neighborhood is rooted in the verb neighbor,’ and ‘to neighbor’ means both living near one another and engaging in practices of friendliness and sociality. The exercise of sociality is one factor in the creation of community in general, and neighborhoods can be viewed as spatially localized communities within larger settlements (Wellman 1999; Jabareen and Carmon 2010). Political economy models of community dynamics (e.g. Ostrom 2000; Bowles and Gintis 2002) emphasize social interaction and peer monitoring as the primary forces creating and maintaining successful communities, and the driver sociality is an expression of these dynamics.
Sociality appears to have been the major driver in the formation of most of the informal semi-urban settlements in the sample. The various first-hand descriptions of these settlements show the importance of social interaction, both as an explicit process as expressed by residents and as an abstract analytical explanation of behavior. Among the formal settlements, sociality quickly developed among residents of imposed neighborhoods in the two cases where we have detailed ethnographic data (internment camps and refugee camps),

Convenience
In cities before the development of the automobile and powered transport, places of work were often located within the home or very close by. Low-order services (retail and other) were frequently available throughout a city. Place-based patterns of interaction developed into neighborhoods for reasons of convenience and efficiency (least-cost forces), factors which then helped maintain neighborhoods as important social and spatial units. The driver ‘convenience’ refers to the formation of local networks or neighborhoods through custom and the practices of everyday life. As stated by Chaskin (1997, 531), the neighborhood provides ‘a forum for relationships through which information, aid, services, and connection to broader networks and systems are shared’ (see also Bowles and Gintis 2002).

Table 2. Major drivers of neighborhood formation.

<table>
<thead>
<tr>
<th>Type</th>
<th>Defense</th>
<th>Group preservation</th>
<th>Sociality</th>
<th>Convenience</th>
<th>Administration</th>
<th>Control and surveillance</th>
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<tbody>
<tr>
<td><strong>Voluntary camps</strong></td>
<td></td>
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<tr>
<td>Plains Indians aggregations</td>
<td>1?</td>
<td>1</td>
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<td>1</td>
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<tr>
<td>Festivals</td>
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<td>RV camp: Quartzsite</td>
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<td>Protest camps</td>
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<td><strong>Other informal settlements</strong></td>
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<td>Shantytowns</td>
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<td>1</td>
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<tr>
<td><strong>Formal (‘practical machine’) sites</strong></td>
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<tr>
<td>Military camps</td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Interment camps</td>
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<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Company towns</td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Workers’ compounds</td>
<td>1?</td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
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<tr>
<td>Refugee camps</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
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<tr>
<td>Disaster camps</td>
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</table>

Notes: 1, Driver in initial neighborhood formation; 2, driver in the establishment of feeling of community after initial neighborhood formation; and ? significance of the driver is uncertain.
It can be difficult to draw a firm distinction between sociality and convenience in the dynamics of existing neighborhoods, since the former is often transformed into the kind of convenience described above by Chaskin. But as a driver of initial neighborhood formation, convenience seems to operate strongly only in shantytowns. This unique situation highlights two differences between shantytowns and the 10 other kinds of semi-urban settlements: shantytowns are the only type of semi-urban settlement shown in Table 1 that are neither temporary/periodic nor dedicated to a limited purpose.

**Administration**

This driver describes the creation of spatial units for the administration and control of people, and the establishment of services and features in those units by the actions of officials. Suttles has two categories of neighborhood that fit here: the artificial neighborhood that is designed by planners (Suttles 1972, 41–43) and the community of limited liability, a unit imposed by outsiders – whether government or commercial – for purposes of administration (58–64). In both cases, neighborhoods are created, and often maintained, by top-down administrative actions, not by the actions of residents.

In the sample, administration was a major driver in neighborhood creation in all of the formal settlements. The relevant authorities – whether the state, the military, commercial enterprises, or non-governmental organizations – seek efficiency and effectiveness for whatever special purpose the semi-urban settlement serves (Lynch 1981, 81–88).

**Control and surveillance**

Control and surveillance as drivers of neighborhood formation go beyond administration in their greater intrusiveness into the lives of residents. They were important drivers of neighborhood creation in all of the formal settlements except disaster camps. Authorities evidently believe that the efficiency and effectiveness they seek can only be accomplished by close supervision of residents. At least two of the four functions of surveillance in Victorian architecture discussed by Andrzejewski (2008) – discipline and efficiency – operated in most of the formal semi-urban settlements.

**Methods**

We examined the published literature on the 17 types of semi-urban settlements listed in Table 1, looking specifically for evidence of the spatial patterning of residences and the nature of social interactions within settlements. For five settlement types we could not find sufficient information to determine whether spatial clusters existed or not (pilgrimage sites, religious camps, concentration camps, mining/lumber camps, and slave settlements). For one settlement type – disaster camps – we located some spatial information but no evidence for the formation of clusters or neighborhoods. For each of the remaining 10 settlement types we found at least one case study documenting the presence of neighborhoods.

The initial plan was to select a sample of several cases for each settlement type to explore the presence and nature of neighborhoods. This idea was soon abandoned due to the rarity of studies that include spatial data. Few researchers on semi-urban settlements provide maps, and the numerous available photographs of these settlements rarely provide information on spatial clustering. Also rare are ethnographic descriptions that indicate the spatial configuration of social interactions among residents. As a result the quality of the data is extremely uneven, ranging from rigorous fieldwork with abundant empirical
documentation (e.g. shantytowns) to anecdotal accounts of spatial clustering or neighborhoods (e.g. festivals and recreational vehicle (RV) camps). For many of the types we located only one example with sufficient data, and the discussion here focuses on these cases. An obvious limitation of the sample is that it is difficult to determine the extent to which our admittedly exploratory findings can be generalized.

**Informal semi-urban settlements: voluntary camps**

We have located some level of empirical data indicating the presence of neighborhoods in four types of semi-urban settlements established largely through volunteer processes, sometimes aided by factors of practical necessity: Plains Indians aggregation campsites, RV camps, festival sites, and protest camps. In these informal settlements neighborhoods are created by the actions of residents with little or no direction from law or authorities.

**Plains Indians aggregation campsites**

We begin with a rather specialized kind of pre-modern non-urban settlement, the aggregation campsites of North American Plains Indians in the 19th century. Within a century of the introduction of horses into the North American Plains (in the late 17th century), a distinctive horse-based bison hunting adaptation had developed among a linguistically diverse group of cultures (Oliver 1962). These were nomadic peoples whose typical social group was a band of 50–100 people, a size related to the needs of bison hunting. Their regular settlements were camps with several tipis that Banks and Snortland (1995) call *group camps*.

Ethnographers have identified two forms of temporary settlements that formed periodically through the aggregation of several individual bands. For present purposes, these aggregation sites are important because subgroups (the basic bands) formed clusters of tipis that correspond to neighborhoods. The first type of aggregation site was the *cluster camp*, defined as ‘an irregular arrangement of tipis clustered in groups’ (Banks and Snortland 1995, 130); these had a mean size of 27.3 tipis. Royal Hassrick describes these settlements as follows:

‘The village plan was an informal assemblage of lodges, with the location of tipis determined by family relationship, position in the previous village site [group camp], and geographical configuration’ (Hassrick 1964, 153). The clusters of tipis within the cluster camps can be considered neighborhoods.

The second form of aggregation site for the Plains Indians was the *circular camp*. These settlements (mean of 39.3 tipis) were carefully arranged in a circular configuration, with the tipis of each constituent group or ‘tribe’ in clusters around the periphery. In Figure 1 each of the tipis stands for one of these spatial clusters. This arrangement facilitated the activities of the Sun Dance, a major four-day ceremonial event (Spier 1921). Again, the clusters (numbers 1–10 in Figure 1) can be considered neighborhoods.

The occurrence of these large aggregations was constrained by the seasonal patterns of the bison herds. They had to take place while the herds were in their large congregating season to provide sufficient food, but before the rutting season began. Alice Kehoe compares the aggregation sites with urban settlements as follows:

Nomad peoples were constrained to adapt social affairs to ecological cycles: most of the business that in towns [in other cultures] occurred over the year had to be compressed by the
Thus it is not at all surprising that the residents of these large temporary settlements arranged their tipis and their social life into clusters or neighborhoods. The same phenomenon also occurred on an even larger spatial scale at the battle of Little Bighorn, where a coalition of tribes (the most numerous were the Lakota, Northern Cheyenne, and Arapaho) defeated Gen. George Armstrong Custer. Although we lack detailed plans, the first-hand descriptions and archeological remains suggest that each tribal group created its own campsite or cluster within a large sprawling agglomeration of tipis on the west bank of the Little Bighorn River (Graham 1953; Fletcher 1991; Fox 1993).

The Plains Indian societies were tribal groups lacking both formal leaders and administrative institutions with social power over people. Sociality and group preservation appear to have been the primary drivers of neighborhood formation in these groups, and perhaps defense played a role in the larger aggregations such as at the Little Bighorn battle.

Figure 1. Cheyenne camp circle from a Sun Dance aggregation camp (Grinnell 1928, 90). The numbered tribal units are the neighborhoods. Reproduced with permission.
RV Camp at Quartzsite, Arizona

Contemporary nomads – primarily retirees in recreational vehicles (RVs) – also create seasonal aggregation sites. The largest and best documented example is Quartzsite, Arizona. Each winter this town is transformed from a small sleepy highway stop into a bustling and sprawling city of RVs. On the periphery of the town people have considerable freedom to locate their RVs on extensive plots of land administered by the Bureau of Land Management. Some people form spatial clusters with friends and acquaintances, and many of these clusters are reformed each year. Some appear to be informal arrangements, while others show the hand of planning and coordination. Some of the clusters have informal names. Figure 2 shows one such cluster in January 2013.

Accounts of life at Quartzite (Berg 2010) describe friends interacting and spending time in common activities, but the spatial configurations of vehicles is not always clear. An ethnographic study of RV life in general discusses how community is created at RV camps through reciprocity, common ideology, and the use of space and symbols (Counts and Counts 1996, ch. 8). Unfortunately, these authors fail to provide the spatial information necessary to identify clusters or neighborhoods at the RV sites studied. The forces leading to aggregation are similar to the case of the Plains Indians campsites: environment (the Arizona climate) and economics (the availability of inexpensive parking places from the Bureau of Land Management). Several urban scholars have written about Quartzsite; Nate Berg (Berg 2010) calls Quartzsite an ‘improptu city’ and Deane Simpson (Simpson 2007) places Quartzsite into the larger context of what he calls ‘RV urbanism.’

Festival sites

We could identify only a single festival with sufficient social and spatial data to address the question of neighborhoods: the Burning Man festival held each summer in the Nevada desert. This celebration of art and free expression has grown from a small gathering of friends around a bonfire in San Francisco in 1986 to a thriving week-long urban settlement of over 50,000 in 2012. At the completion of each festival the entire campsite and physical infrastructure are dismantled, to be resurveyed and rebuilt the following year. Although several scholarly monographs have been published on the festival (e.g. Chen 2009; Gilmore 2010), its urban qualities have only started to be explored (Zancan 2006; Berg 2011).

The Burning Man settlement is called ‘Black Rock City.’ For the first few years of the festival there were few rules and little coordinated planning. As the festival grew in size, however, chaos and dangerous activities posed problems, threatening the festival’s use permits from the Bureau of Land Management. In 1993 a series of rules was established, and a coordinated urban plan was applied. Information on neighborhoods at Burning Man comes from Rod Garrett, the primary designer and planner of Black Rock City, and Harvey DuBois, its ‘City Manager,’ in the form of interviews and blogs. In the words of DuBois (2010):

Because Black Rock City has grown from such a small organic center to its current size and shape in a relatively short period of time (one week a year for 20 years on the Black Rock Desert equals 20 weeks), it’s easy to examine how everything comes together to make a successful neighborhood. We’ve learned that: 1) friends and family camp in an area because they liked it and can find each other easily year after year, 2) people come to parts of the city due to a concept or association (like ‘4:20’ [a marijuana-centered group]) or a rumor (like the amount of dust present) and tend to stay there, their numbers growing every year until a sense of that place becomes identifiable, and 3) the curatorial nature of theme camp placement helped to foster a sense of ‘there’ in an area.
It seems clear the neighborhoods in Black Rock City initially developed informally through social networks and common interests, factors that correspond to the driver of sociality. As planning became a significant part of the festival’s spatial framework, efforts were made to reinforce and encourage neighborhood formation:

We began zoning space within our city in 1997 because of the need to locate theme camps [neighborhoods] in some coherent way. (Garrett 2010)

While the intent of placement and zoning was (and still is) to provide the citizens of Black Rock City with an amazing experience, zoning is also used to help facilitate harmony while allowing for divergent interests within a city. It’s the Placement Team’s job to meet the demands of particular elements of the city who have developed different needs and different tolerances. (DuBois 2010)

The relationship between population size and the formation of neighborhoods was explicitly acknowledged by Garrett in an interview with Roberto Zancan:

We are redefining our zoning to break the city down into smaller, more humanly scaled neighbourhoods. This becomes increasingly necessary as our population continues to grow while still using the old camp centric model. Populations, in their desire for that human scale, are driven to choose divisive ways to break the population into smaller units, resulting in grouping through the exclusion of others. By visually suggesting smaller areas, we can create divisions of a size the mind can wrap itself around. (Zancan 2006)

The interplay between the Burning Man ethos (free expression, communal effort, and immediacy) and the growing needs for planning and urban services as the festival grew is a fascinating topic, and further research from an urban perspective is called for (for a start, see Berg 2011).
Protest camps

The ‘Occupy Wall Street’ movement of 2011 and its allies in other US cities were explicitly and normatively leaderless and non-hierarchical, and the concept of social anarchy (Graeber 2004) is often invoked in describing these social phenomena (van Gelder 2011). Their campsites are thus good examples of informal semi-urban settlements. Here, we discuss neighborhood organization at one such camp – the ‘Occupy Portland’ movement – based on an ethnographic study of the camp by Katrina Johnston (Johnston 2011). This camp was established on October 6, 2011, in adjacent square-block parks (Chapman and Lownsdale Square Parks) in downtown Portland, and dismantled on November 13. Johnston carried out ethnographic research during the entire period of occupation (Figure 3).

In the absence of any initial restrictions on where to place personal tents, the first residents set up tents at will and newcomers simply filled in the gaps wherever they could find a space. The emphasis was on locations in the interior areas of the pre-separated grassy triangles of the parks (Figure 4). As individuals spent time with those who happened to set up personal tents nearby, social bonds were formed and clusters of nearby residents took on a name (e.g. ‘A-Camp,’ ‘The Aquarium,’ and ‘Time-travelers’). The members of the named clusters called themselves tribes. Neighbors (fellow tribe members) would then rearrange the space to create common areas under tarps complete with tables, chairs, hay barrels, and pillows. The clusters of adjacent tents thus became neighborhoods, identified by their tribal label. Alleys and courtyards were also given names.

The spatial organization of the camp – features like neighborhood structure, central facilities, and the separation between public and private spaces – was generated and modified over time by bottom-up processes. Once established, top-down planning efforts were consistently resisted by the residents. For example, as the parks filled up, plans were made to reorganize the campsite into neat rows of tents with straight alleys, but this idea was rejected by the participants.

Informal semi-urban settlements: shantytowns

Shantytowns, or squatters settlements, are prominent features of many cities in the developing world today (UNCHS/Habitat 2003). Most studies that discuss ‘neighborhoods’ in shantytowns treat the neighborhood as a pre-existing spatial unit, i.e. the shantytown settlements are considered neighborhoods within their larger urban configuration (e.g. Aparicio 2008; Clerc 2008). At this level, the enormous literature on the dynamics of formation of shantytowns (e.g. UNCHS/Habitat 1982; Cymet 1992; Huchzermeyer 2004) is relevant to the generation of neighborhoods. The focus here, however, is on the development of neighborhoods as social–spatial divisions within shantytowns. This topic has not been extensively studied because research requires detailed spatial and social data; shantytowns typically have patterns of social order that are not obvious from their spatial configurations (Lomnitz 1975, 39; Carvajal 2011; Smit 2006).

For the case study, we draw on a monograph by Schlyter and Schlyter (1979) on the shantytown known as George in Lusaka, Zambia. These scholars combined ethnographic and historical research with ample use of mapping and photography to produce the most detailed publication of the spatial and social organization of a shantytown settlement. They document this settlement over several decades of expansion and densification. The most explicit data on neighborhoods is from their fieldwork in 1973:

On the aerial photos of George the lay-out of the houses seems to be random. However, when walking around in the area, observing the way in which land and houses are used, we
experienced a pattern of houses clustered together in groups. The houses in the groups faced each other as their entrances and the swept areas in front of them were visually connected. Together with the space in between, the whole areas constituted what we called a ‘socially open space.’ (Schlyter and Schlyter 1979, 89)

Figure 5 shows these groups or clusters in one part of the settlement. Most clusters are oriented around a path or a well that serves the constituent households, whose members typically interact on a regular basis. These clusters can be considered mini-neighborhoods.
Although Schlyter and Schlyter do not map or describe formal neighborhood-like spatial units on a scale larger than these clusters, they do map the spatial extent of social interactions for several individual households (Schlyter and Schlyter 1979, 100), and these interaction fields cover a larger area than the clusters. Although spatially based, the social clusters identified by Schlyter and Schlyter would be difficult or impossible to identify by spatial clustering methods alone.

Our research on George and other shantytowns (e.g. Carvajal 2011) indicates that sociality and convenience are the main drivers of neighborhood formation. Some shantytowns are formed by invasion and not accretion (Cymet 1992; Smit 2006). These are often settled initially by several groups from distinct places of origin, and group preservation is probably an important driver of clustering within such settlements.

**Formal (‘practical machine’) settlements**

Formal settlements are those established by some kind of institution, typically either through force or in reaction to practical necessity. We have found evidence for neighbor-
hood organization at several types of formal settlements: military camps, internment camps, company towns, workers’ compounds, and refugee camps. As in the case of informal settlements, these types include both contemporary special-purpose examples and premodern examples. The first four types share a set of spatial attributes: highly planned layouts, standardized housing, largely self-contained settlements, and physical separation from other neighborhoods and settlements. These relate to the practical, regimented, and administratively controlled nature of these ‘cities as practical machines’ (Lynch 1981, 81–88). We also examined disaster camps, but could find no evidence for the presence of neighborhood organization.

**Military camps**

We begin the discussion of neighborhoods in formal settlements with the most regimented and controlled example: the military camp. We focus here on Roman fortresses in Britain, the best documented category of ancient military camp (Breeze 1983; Davison 1989). These are known from both historical documents and archeological excavations.

Although no two Roman forts were identical in form, they shared certain features and spatial principles. Within the walls, each fort had a headquarters structure, a commanding officers house, a set of granaries, and groups of barracks called strigae. A striga was composed of two parallel rows of facing rooms (or tents) known as hemistrigae (Figure 6). The striga is the unit that corresponds most closely to a neighborhood. Each of the two rows (hemistrigae) were divided into 10 residential units called contubernia. These could be tents, or – as in the fort at Fendoch (Figure 6) – two-room units, each with a front room for storage of gear and weapons and a back room for living quarters shared by eight soldiers. The 80 soldiers in a hemistriga formed a unit called a century, which was under the command of an officer called a centurium, who resided in the large residence at the end of each row. Six centuries formed a cohort of 480 soldiers; at Fendoch, the three strigae in the northeast portion of the fort (the right side in Figure 6) comprised a cohort.

The open area between the two hemistrigae provided space for games, gambling, and other social interactions, activities that were in time moved outside the fort if the local population set up establishments such as taverns, shops, gambling dens, and brothels. While cooking took place behind the ramparts, meals were usually eaten in the men’s rooms or in the open space of the strigae (Breeze 1983, 54–56). Unlike the informal settlements described above, neighborhood organization in military camps was created from the top-down drivers of administration and control/surveillance. Once a fort was occupied, the spatial and social dynamics of sociality contributed to the creation of community within the striga. While it may seem odd at first glance to call these administratively defined spatial units ‘neighborhoods,’ they do fit the definitions of neighborhood stated above (‘a subsection of a larger community – a collection of people and institutions occupying a spatially defined area influenced by ecological, cultural, and sometimes political forces’; Sampson 2003, 973). This example illustrates how the spatial expression of the social dynamics of neighborhoods dovetails with the administrative needs of administratively planned formal settlements.

**Internment camps**

Internment camps are facilities for the confinement of people for political purposes. The best-known examples are from World War II: German concentration camps (Kogon 1950) and US internment camps for Japanese-Americans. The latter camps have a higher level
of documentation, including ethnographic research during the war (Arensberg 1942; Provinse and Kimball 1946; Spicer et al. 1969) and recent fieldwork by historical archeologists (Burton et al. 2002; Myers and Moshenska 2011). For this reason, we focus on the Japanese-American internment camps here.

Unlike cases where pre-existing settlements and structures are modified for use as internment centers (Vilches 2011), the Japanese-American camps were specifically designed and built to be used as internment camps. Their layouts can be summarized as follows:

[The camps] were designed to be self-contained communities, complete with hospitals, post offices, schools, warehouses, offices, factories and residential areas, all surrounded by barbed wire and guard towers. [...] Plans were based on a grid system of blocks. Block size varied in the non-residential areas such as the administrative area, warehouses, and hospital. The remainder of the central cores was made up of residential blocks separated by empty fire breaks. Each residential block consisted of ten to fourteen barracks, a mess hall, latrines for men and women, a laundry, and a recreation hall. (Burton et al. 2002, 40, 41)

These ‘blocks’ are the units that correspond to neighborhoods; individual camps usually had thirty or more blocks. Figure 7 shows a typical block layout. One target of fieldwork by government-sponsored ethnographers was the question of community. Blocks were filled as people arrived at the camp, and most residents did not know one another prior to arrival. All the ethnographers remarked on the emergence of social interaction and feelings of community within the blocks:

Thus it was that on the basis of the definition and acceptance of the status of ‘evacuee’ combined with widespread opposition and suspicion of the administration and its officials, that the evacuee group achieved a basis for common action and the eventual achievement of
A number of specific factors promoted the development of community within the blocks. Camp managers set up the outlines of a program of block leadership, but left the details to individual blocks, which stimulated collective action. Provinse and Kimball (1946, 405) state that ‘block loyalties developed quickly, soon followed by inter-block competition.’ Everyday practices that promoted unity and cohesion included decorating mess halls, scouting and gardening programs, theater productions, community newspapers, and many other neighborhood-scale activities. These studies of internment camps provide important details for a process that can only be inferred for Roman military camps: the
development of community through the driver of sociality once a formal system of neighborhoods has been established by authorities.

Company towns
Company towns are settlements planned and constructed by a single institution (whether state or commercial) for a specific economic activity. From the large literature on the planning and architecture of company towns (e.g. Garner 1992; Crawford 1995), we select the city of Abadan, Iran, because of the distinctive nature of neighborhood creation. The Anglo Persian Oil Company (later British Petroleum) built a refinery in Abadan before World War I, and expanded its size in the 1940s. Workers were recruited from throughout the Near East, and the company designed a series of neighborhoods to keep groups of workers separated from one another (Figure 8). In the words of Kaveh Ehsani:

It is self-evident that if different city neighborhoods are constructed adjacent to each other, the provision of common services and infrastructure would be far cheaper due to the economies of scale. In fact, Abadan’s neighborhoods were built apart and separated by wide stretches of empty terrain, wide roads, pipelines, administrative and industrial facilities and, of course, the enormous bulk of the refinery itself. This imposed separation prevents easy intermingling and routine pedestrian interaction, as well as potentially dangerous collective congregation between separate city sections. (Ehsani 2003, 390)

According to documents in the archives of the Anglo Persian Oil Company, this was the intention of the settlement’s planners. The design called for construction of:

nuclei of small townships in several (four or five) distinct areas, well separated from one another, and on Company leased in preference to State ground. A small township is one more easily and efficiently controlled than a large one. [...] Being far removed from the present town, [political] activities within the latter will gradually wither. (company document published in Crinson 2003, 65)

Figure 8. Residential neighborhoods at the British Petroleum company town of Abadan, Iran (Seccombe and Lawless 1987, 50). Reproduced with permission.
The plan of Abadan (Figure 8) shows a ring of residential neighborhoods distributed around the periphery of the refinery and tank farm, hemmed in by natural and built features (Vieille 1964). The greatest separation is between the neighborhood of largely European managers (Braim) and the remainder of the neighborhoods. But in contrast to many European colonial cities, where planning and zoning were used primarily to separate European and native residential zones (King 1976; Stanley 2012), segregation-based planning in Abadan extended to individual non-European parts of the city.

**Workers’ compounds**

We use the term ‘workers’ compound’ to describe a distinctive type of walled residential neighborhood in ancient Egyptian cities. These settlements are typically called ‘workers’ villages’ in the Egyptological literature (e.g. Kemp 1987), but since most are associated with urban settlements, the label village seems misleading. They are better viewed as residential neighborhoods, planned and built by the state to house specialized workers dedicated to particular economic tasks (Kemp 2006). Some are separated from their urban cores by open ground, a typical pattern of neighborhood placement in low-density cities (Smith 2011). The highly regular walled form of these workers neighborhoods stands out in contrast to other Egyptian housing (Figure 9). The best-known examples of workers’ compounds are those at Amarna, Deir el-Medina, Kahun, and Giza.

As pointed out by Gilliland (2011), these settlements share spatial and architectural attributes with company towns in the United States and Latin America, including their walled perimeter, spatial isolation from other settlements, orthogonal planning, standardized housing, and rapid construction by an overarching authority. The ancient Egyptian economy was strongly centralized. The state managed large-scale economic tasks, from mining to the construction and maintenance of pyramids and other civic structures (Kemp 2006). Because of the importance of large groups of specialized workers in the Egyptian economy, the state built and maintained these workers’ compounds. In contrast, other residential zones at Amarna (the most completely mapped ancient Egyptian city) show little or no central planning (Lacovara 1997).

Whereas ancient Egyptian workers’ compounds could be considered as pre-capitalist versions of company towns (Gilliland 2011), we single them out because of their distinctive spatial expressions and their radical economic and political context compared to company towns. The drivers of their formation are the same as company towns, with the addition of defense as a possible driver (Table 2).

**Refugee camps**

Refugee camps are among the most numerous and populous types of semi-urban settlement today (Agier 2011; Corsellis and Vitale 2005). To deal with the logistics and scale of these settlements, several relief organizations – including the United Nations High Commission on Refugees (UNHCR) and Oxfam – have created hierarchical spatial plans for camp layouts. The goals are to supply necessities, use the land efficiently, and maintain social control of the camp. A manual on planning the layout and organization of refugee camps produced by Oxfam International (Corsellis and Vitale 2005) describes four spatial–social levels (Figure 10):

- **Camps** hold up to 20,000 residents; they are divided into four sectors. The administrative center is located in the center of the camp.
Sectors have 5000 residents and are divided into four blocks. Each sector should contain recreational and commercial spaces.

Blocks have 1250 residents and are divided into 16 communities.

Communities contain 80 residents. They are arranged in 16 plots, each with a shelter or dwelling.

In this ideal spatial hierarchy, the communities correspond to neighborhoods. Unfortunately, few studies of refugee camps have focused on spatial and social issues. The major exception is ethnographer Michel Agier (Agier 2002, 2008, 2011), who has conducted fieldwork in UN refugee camps in Kenya. Agier describes the nature of blocks and sections at these camps. Blocks cover 2–3 hectares and have 100–150 shelters housing some 300–600 refugees. They are separated by fences of barbed wire and thorns. Agier notes: ‘The refugees have been grouped in the various blocks according to their place of origin, ethnicity and sometimes their clan of origin’ (Agier 2002, 325). Several studies of Palestinian refugee camps mention the existence of neighborhoods (Tuastad 1997; Doraï 2008), but they provide neither spatial data nor descriptions of interaction patterns. In some Palestinian refugee camps re-housing development projects are underway (Murillo 2007), and these projects are attempting to organize neighborhood units and city blocks according to tribal, business, solidarity, and friendship relationships.

Refugee camps are complex, multifaceted settlements, and their spatial and social patterns are generated by the broadest collection of drivers of any of the semi-urban settlements. Where possible, they are planned and laid out for administration and control, as are the other formal settlements. But fieldwork by Agier and others shows that defense and
group preservation are also important factors in structuring the camps after their initial establishment. And as in other cases, social interaction (sociality) plays a significant role once people are established and living in the camp.

**Disaster camps**

Disaster camps resemble refugee camps in several ways: they are established very rapidly by displaced people, they consist of temporary shelters, and their construction and management are typically under the direction of a central authority (Quarantelli 1995; Solnit 2009). The two kinds of settlement can be difficult to distinguish in photographs. We can find no indication, however, that neighborhoods exist in disaster camps. In contrast to the literature on refugee camps (e.g. Corsellis and Vitale 2005), none of the works on disaster housing mentions planning for neighborhoods (Johnson 2007; Lizarralde 2010; Quarantelli 1995), and none of the descriptions of camps that we have seen mentions the occurrence of neighborhood-like spatial or social clustering (Solnit 2009; Kamel 2010).

We suggest several reasons for the lack of neighborhood organization in disaster camps, most of which focus on the temporal dimension. First, there is rarely time to plan the layouts of these camps effectively, and we could not locate any published guidelines similar to those produced by the UN and Oxfam International for the planning of refugee

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Figure 10. Oxfam spatial planning scheme for refugee camps showing four spatial–social levels of settlement. The ‘community’ is the neighborhood (modified after Corsellis and Vitale 2005, 380). Reproduced with permission.
camps. The fact that ethnic conflict is not anticipated may reduce the need to establish plans for these camps ahead of time. Second, people generally spend far less time in disaster camps than in refugee camps, and residents are often focused on a quick return home. It may be that disaster camps are simply not occupied for enough time for neighborhoods to develop through informal patterns.

Conclusions
The research described in this paper has identified the existence of neighborhoods in a wide variety of semi-urban settlements. These findings emphasize the fundamental importance of neighborhood organization in human societies. Not only do all known cities have some form of neighborhoods (Smith 2010), but also a diverse group of semi-urban settlements exhibit neighborhood organization. Neighborhoods develop both through informal, bottom-up, social forces and through formal, top-down decisions. For a number of settlement types we could not locate sufficient information to determine the presence or absence of neighborhoods (Table 1). Disaster camps, on the other hand, are relatively well documented but no one has suggested the existence of neighborhoods.

The distinctions we have drawn between informal and formal settlements, and between bottom-up and top-down drivers, should not be reified. These are useful analytical distinctions whose expression in real settlements is often nuanced and blended. In two cases – the Burning Man festival site and the Occupy Portland site – population growth in informal settlements stimulated increased central planning and administration. In Burning Man, planning and administration were embraced as means to preserve other informal aspects of the festival experience, whereas the residents of the Occupy Portland camp rejected such initiatives. And just as informal settlements can lead to top-down actions, formal settlements can display important bottom-up processes. The clearest example of this are the Japanese-American internment camps, where the administratively designed and regulated blocks were soon transformed into neighborhood communities through the activities and interactions of the residents.

In conclusion, we echo the call of scholars such as Agier (2002, 2011), Berg (2010, 2011), and Fletcher (1991, 1995) for greater scholarly attention to semi-urban settlements. Such research can help scholars uncover the structure and dynamics of cities and urbanization around the world.

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