Kukulkan's Realm

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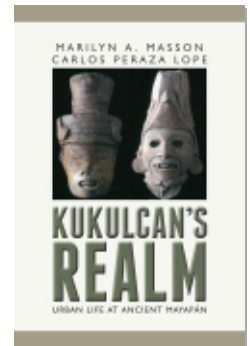Published by University Press of Colorado

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The Social Mosaic

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This chapter assesses dimensions of social organization from the perspective of Mayapán's dwellings. We assess dwelling style and size as well as patterned configurations of dwelling groups, benches, orientation, *albarrada* enclosures, and special function buildings. Data is primarily derived from mapping efforts within the milpa areas studied at Mayapán (figure 1.7), and thus, the patterns reflect surface observations. These findings contribute toward identifying social differences such as wealth, status, and ethnicity across the urban landscape. Wealth and status tend to vary along a continuum in the archaeology of complex societies (chapter 3; M. Smith 1987:318, 327). House size and elaboration are markers of elites (Hirth 1993b:123), and most commoner dwellings at Mayapán are easily identified. Nonetheless, as observed elsewhere, the status of some residences is not obvious, as they fit into the middle of a continuum of variation (Hirth 1993b:122). Greater segmentation and specialization of social space, as well as special function buildings, represents an additional cross-cultural correlate of status (Kent 1990a:137; Hirth 1993b:123), although this is not always the case (Alexander 1999a:89, 92). Ideally, quality, quantity, and diversity of household materials and architecture are evaluated together to assess wealth variation (M. Smith 1987; Hirth 1993b:125). The assessment of surface architecture represents an initial effort to evaluate complexity and variation in the residential zone.

Household artifact and architectural data are often the result of a generation or more of occupation. Cumulative assemblages represent a "household series" (Hirth 1993a:25; M. Smith 1992). At Mayapán, settlement features reflect facilities in use during the city's

maximal occupation in the thirteenth or fourteenth centuries AD. All of the structures examined within the city wall since the Carnegie project of the 1950s date to the Late Postclassic Period. Postclassic Period pottery of the Hocabá/Tases phases forms the vast majority of our test pit (95.4 percent) and surface collection (96 percent) samples (figure 2.3). The ceramic database from surface collections and test pits is large at Mayapán (N = 140,292), as is the sample size of units of analysis. A total of seventy-two test pits (1 × 2 meters or 1 × 1 meter) and a total of seventy-nine surface collections (28.2 square meters) provide samples from a total of 119 houselots or other types of architectural groupings. This count of units is from sample areas within or close to the city wall. Bradley W. Russell (2008a) investigated additional contexts beyond the city wall that are not considered in this chapter. As figure 2.4 indicates, Terminal Classic settlement density was higher around the edges of Mayapán's city wall rather than in the monumental center and the central part of the Postclassic city. As almost no intact Terminal Classic architecture has been found within the city walls (chapter 2), the analysis of surface features within this boundary can be conducted with a high level of certainty that results pertain to the Postclassic Period.

SOCIAL IDENTITY AND HOUSEHOLD ARCHAEOLOGY

Social identity, including ethnicity, class, and wealth, are important considerations for household archaeology at Mesoamerican sites. Diverse social identity at Mayapán has long been surmised, based on documentary accounts of the city's Gulf Coast residents and analyses of Mexican-Mayan artistic elements in the site's central mural and sculptural programs (e.g., chapter 2, chapter 3; Pollock 1962:14; Proskouriakoff 1962a; Milbrath and Peraza Lope 2003a). The search for ethnicity in the archaeological record is fraught with methodological obstacles, and in many cases, evidence for group distinctiveness can be contested or is simply not conclusive (Shennan 1989). It is hard to predict how style will act within a given society, as considerable variation is observed cross-culturally (Dietler and Herbich 1998:242).

Despite these caveats, Mayapán evinces a clear normative dwelling style, to the extent that examples of Mayapán-style houses can be identified at contemporary Postclassic sites (Ruppert and Smith 1957; Rosenswig and Masson 2002; Freidel and Sabloff 1984:181). On a general level, residents adopted city-wide conventions in houses, pottery vessels, and stone tools. The construction of relatively standardized masonry houses may have been a symbol of commitment to community, as argued for Cozumel (Freidel and Sabloff 1984:181).

Closer examination reveals dimensions of idiosyncratic variation even within "typical" Mayapán houses (A. Smith 1962). Builders had leeway to innovate within certain parameters, such as the number and shape of benches, house size, number of houses or ancillary buildings, and houselot size. The dialectic between polity-wide styles on one hand and the more personal expression of hometown (or smaller) social group affiliations on the other is a phenomenon that can be studied for many ancient states (Janusek 2002:54–55). For example, Laura Levi (2002:136) observes evidence at the household scale of efforts to balance authoritarian influences of polity with local choices regarding architectural composition and form. Most of Mayapán's residents would have come from *cahob* in northwest Yucatán, where many descendant towns until recently constructed traditional Yucatecan houses. It may be unreasonable to expect dissimilarity among ancestral families from these towns who lived at Mayapán, as like today, notions of *costumbre* may have been broadly shared across the northwestern part of the peninsula.

Some ethnohistorical sources clearly describe ethnic enclaves, although not at Mayapán. For example, the lord of the Acalan (Gulf Coast) polity had an agent in Nito (Honduras) who occupied a "neighborhood populated with subjects and servants" (Piña Chan 1978:43, 47). Full excavation of dwellings and comprehensive artifact recovery represents the most effective approach for identifying ethnic affiliations at Mayapán, as at other sites (Santley et al. 1987; Stanish 1989; Meskell 1999). Surface architectural features of the type analyzed in this chapter tend to be less diagnostic of social subgroups. Although we identify atypical house plans in this chapter, test pits next to these features did not reveal unusual artifact types (Masson and Peraza Lope 2010). Until more atypical dwellings are fully investigated, their affiliations cannot be fully gauged. Cross-culturally, storerooms, atypical house plans, foreign cult items, and architectural patterns have been particularly useful for identifying the presence of foreigners (Trigger 1968:63; Stanish 1989:12; Tourtellot and Gonzalez 2004:63–64). The lower rooms (including storerooms) of Y-45a may represent an example of such distinctiveness (chapter 3)—unfortunately, they were not visible at the surface, and such details for other structures may be absent in our mapping data. The potential for social distinctiveness at elite houses may be greater than for commoner dwellings.

The social structure of Postclassic Maya society is well described in ethnohistorical accounts (Brown 1999) and is only briefly reviewed here. At Spanish contact, individual identity was strongly rooted in the *cah*, a birthplace settlement, where the majority of social ties were located (chapter 2; Restall 2001). It is probable that this identity has great time depth and that some residents

of Mayapán wrestled with hometown loyalties alongside the influences of living in a large urban place. Maya society at contact had two primary social classes: nobles (*almehen*) and commoners (*macehual*), although wealth varied considerably within these sectors. From our own mapped milpa samples, the identification of elite versus commoner dwellings has been relatively straightforward, but we are doubtful that these distinctions can be made from the Carnegie map made by Morris R. Jones (1962). Matthew Restall (2001) detects eight levels of social status in the Colonial Period that nuance the two-class model—four within the noble sector and four within the commoner sector that may have pre-contact precedents. Social power derived from class, *ch'ibal* (family group) membership, wealth, and also a family's participation in the Contact-era *cabildo*, or community governing council, according to Restall. Slaves (female, *munach*, and male, *pentac*) represent a third social class that dates at least to the Postclassic era, but slave residences are difficult to identify archaeologically given that slaves sometimes lived and worked in the households of their captors (Scholes and Roys 1938). Warfare was often performed for the purpose of raiding for captives, some of whom were sacrificed and others were enslaved (Scholes and Roys 1938). Some were also exported for profit to central Mexico. Restall (2001:359) argues that male slaves were more common and that they labored in agriculture and fishing.

RESIDENTIAL PATTERNS

Some questions of occupational intensity, work specialization, or religious practice can be addressed from surface settlement data. Others are more difficult to answer. The issue of short-term or temporary occupation is significant for the analysis of Mayapán dwellings. Fortunately, test pits and surface collection indirectly reflect occupational intensity, as we discuss later in this chapter. Some houses near the wall were inhabited very briefly.

Another consideration of temporary occupation is the fact that visitors to the site, particularly traders, would have sought temporary shelter. Professional merchants were known as *ppolom* and traveling merchants were *ah ppolom yoc*. Some merchants paid to stay at local inns during their travels (Piña Chan 1978:43, 47), although it is not known whether such establishments would have differed from typical house groups with sleeping huts available for guests. Public buildings might have also been used to house visiting merchants (Freidel and Sabloff 1984:157). Alternatively, merchants may have stayed with family members who resided at the site. At Cozumel, upper-status dwellings were spatially associated with religious, political, and commercial facilities.

David A. Freidel and Jeremy A. Sabloff 1984:136–38, 141) observe that a probable merchant family compound was linked to an agglutinated set of platforms that may have been used for storage or other specialized commercial activities at the household level. Merchant activities were one option for income diversification for large family groups (Freidel and Sabloff 1984:181).

Another important question that has pervaded Postclassic settlement studies concerns the distribution of religious features. Mayapán was generally characterized as having widespread religious practice at the household scale (Pollock 1962:17; Proskouriakoff 1962a:136; J. Thompson 1957:624). This view derived from the fact that dwelling investigations were biased toward more elaborate examples (A. Smith 1962). In the areas that we have mapped, ritual architecture such as oratories or household altars is exceptionally scarce at ordinary Mayapán house groups. Similarly, effigy incense burners are rare in commoner contexts (table 3.3). At Cozumel, religious buildings were located at strategic locations within settlements or between them, suggesting that ideological activities were not strongly associated with households on the island (Freidel and Sabloff 1984:183–84). Freidel and Sabloff suggest that this pattern confirms the statements of documentary sources that priests were responsible for the majority of rituals. The principal deity of merchants was Ek Chuah, and Freidel and Sabloff (1984) argue that shrine pilgrimage was an important aspect of traveling merchant activities. Host communities at Cozumel constructed special shrines at a comfortable distance from settlements for pilgrimage and trade circuits.

The settlement variables analyzed in this chapter follow important prior studies on social organization at the city. Clifford T. Brown (1999:124) defined a useful hierarchy of units for the site, including features, dwellings, groups, houselots, houselot clusters, barrios, and the site. Brown (1999:143) suggests that houselot clusters, consisting of adjacent *solares* (enclosures) that shared albarrada walls, might represent a particularly important socioeconomic unit for Mayapán. Figure 5.1 illustrates a concentration of large clusters of houselots that share albarrada walls in Squares AA and EE of the site, and it was this locality that Brown referred to in defining this pattern. Pedestrian thoroughfares are traced between these clusters (chapter 4). It is not known how closely these residential clusters correspond to emically defined nuclear or extended families. Neighborhoods (*china*) or administrative wards (*cuchteel*) were divisions present in larger towns (Roys 1957:7), but these units were probably larger than the houselot clusters identified by Brown. Clusters of residences are also observed at Cobá, (Kintz 1983:181).

Such nucleation would have had serious implications for sanitation, yet osteological markers reveal that Mayapán infectious disease rates were similar to
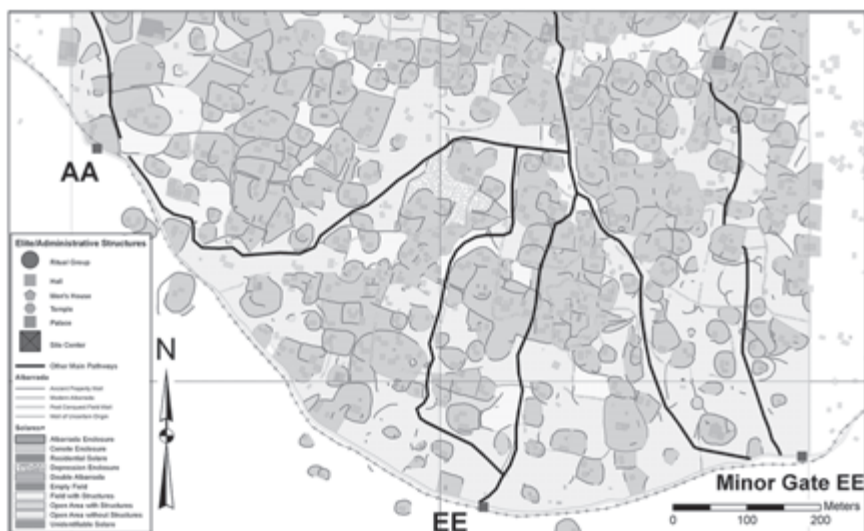
Figure 5.1. *Clusters of houselots in map of Squares AA, Z, and EE of the Mayapán settlement zone. Black lines trace pedestrian pathways through houselot enclosure walls from the city wall toward the center. Also note partly enclosed fields, field walls, and open spaces.*

other, more dispersed Maya cities (Serafin 2010). A. Ledyard Smith (1962:267) also considered the problem of city hygiene, and he pondered the role of buzzards and pigs in eliminating organic debris. But peccaries were not particularly abundant at Mayapán (Masson and Peraza Lope 2008). Some form of composting and burning is implicated by the rich, black earth anthropogenic soil found in the denser residential zones of Mayapán (Brown 1999). In residential solares near the site center, this layer of soil can be 30 centimeters to 1 meter deep. Farmers today covet this soil for its productivity.

We take this opportunity to revisit some of the original questions asked of Mayapán by A. Smith (1962) by considering the frequency and distribution of ten specific attributes of the city's dwellings:

    1) structure density
    2) dwelling form
    3) dwelling group characteristics
    4) house bench shapes
    5) house group orientations
    6) shrines, kitchens, and enclosed bench structures

7) dwelling size

8) domestic solares

9) other enclosed spaces

10) burials

Burials and pottery have been subjected to special studies by our colleagues, and we do not treat them in lengthy detail in this chapter (Serafin 2010; Peraza Lope et al. 2008; Cruz Alvarado et al. 2012).

STRUCTURE DENSITY

The variable relationship between dwelling density and cenotes across the walled settlement zone was described in chapter 4 (figure 4.6). To the south of the site center, densely packed residents lived near multiple water sources, but this benefit was not uniformly enjoyed across the site. Distances to cenotes from most houses were not particularly prohibitive, as water was within 250 meters for many occupants and within 500 meters for nearly everyone inside of the wall (Russell 2008a). It is important to consider the fact that cenotes varied in terms of size, accessibility, and quantity of water (Brown 1999:73, 2005, 2006). Such variables would have inconvenienced certain residents. On the other hand, we have not recorded all of the cenotes and caves at Mayapán, and new examples have been shown to us by landowners during every archaeological season (Brown 2006, 2008; Hare, Ormsby, and Speal 2002). For example, Don Pancho Uc (owner of Itzmal Ch'en) and his fellow ranchers sealed entrances to water-bearing caves during the Carnegie era to protect cattle from bats (A. Smith 1962:211; Don Uc, personal communication to Masson, 2008). Settlement density is also related to factors other than water sources: certain areas of Mayapán that lack known cenotes (e.g., Squares L, M, and R) exhibit a density that approximates that of squares that have cenotes (such as Square Y), and some areas with cenotes (e.g., Square G) are sparsely settled (figure 4.6). As Squares K and R have a concentration of elite residences and features, the lack of numerous nearby cenotes is especially interesting and perhaps attests to nobles' ability to rely on domestic servants for provisioning.

The length of a neighborhood's occupation is one factor that likely influenced settlement density at the city. Family groups that endured beyond one generation had longer developmental cycles (Haviland and Moholy-Nagy 1992), and additional homes would likely have been built within or adjacent to parent solares where space permitted. The quantity of artifacts present provides one reflection of occupational duration. Occupational intensity is another factor that may reflect settlement density. Houselots and other groups that engaged

in specialized activities to a greater degree, such as ritual ceremonies, feasting, market exchange, and certain forms of crafting, might be expected to generate a higher quantity of trash than their contemporaries in other parts of the site. Larger families living under the roofs of single dwellings might also generate more trash than smaller units. Dwelling and house group size are also indicative of larger family groups and may identify more affluent residences (Hirth 1993b). Some dwellings with lower structure and artifact density at Mayapán were occupied for less time—for example, House X-43, adjacent to the southeast portion of the city wall. A radiocarbon date from a burial in this field dates to the latter half of the site's occupation (Peraza Lope et al. 2006:table 1) and House X-43 (figure 5.2) had very low artifact densities. Test pits from similar structures nearer to the site center had ten times more pottery (Masson and Peraza Lope 2005). This structure was not inhabited for long.

We determined that the structure density, structure size, and artifact density of residential groups and surveyed fields are positively spatially autocorrelated, by using a multivariate test of spatial correlation to assess the relationships among the variables. Spatial autocorrelation is an appropriate method with which to analyze these variables (Fotheringham, Brunsdon, and Charlton 2000:202–9; Kaluzny et al. 1998:124–27; Kvamme 1990). It measures the extent to which data values in neighboring spatial units vary together. Performing these tests was deemed necessary before analyzing the spatial distribution of these variables, as they had the potential to independently reflect different patterns within the Mayapán settlement and undermine the validity of many statistical techniques. Positive spatial autocorrelation indicates that similar values are more spatially clustered than predicted by the assumption of randomness and negative spatial autocorrelation indicates that similar values are more dispersed. When spatial autocorrelation is found, the data set contradicts the standard statistical assumption of the independence of observations (Anselin and Bera 1998; Lee and Wong 2001:136). We tested for the presence of spatial autocorrelation using Moran's I, a standard test of spatial autocorrelation (Anselin 2003). The Moran's I statistic for structure density, structure size, and artifact density are 0.1906, 0.3339, and 0.1384, respectively, and all are significant at the 0.05 level. These results indicate that all variables are positively spatially autocorrelated, hence necessitating the use of a spatial measure of correlation between the variables.

The Multivariate Moran is a bivariate measure of spatial correlation that assesses the relationship between the spatial distributions of pairs of variables (Anselin et al. 2002). The Multivariate Moran correlation between artifact density and the density of structures by residential group is 0.2693 and is sig-

Figure 5.2. *House X-43, a typical style, is an isolated commoner house next to the southeast side of the city wall, with two benches and a rear room. Top right: plan drawing. Top left: frontal, southward view. Bottom: X-43 and its neighbors (Milpa 7), with two lane segments (dark gray), walled houselot enclosures (medium gray), enclosed or open fields and small pens (light gray), and sascabera depression (brick shading). House X-43 had low quantities of occupational debris.*

nificant at the 0.01 level. The Multivariate Moran correlation between artifact density and the area of structures by residential group is 0.3142 and is significant at the 0.01 level. These results indicate the artifact density is strongly positively spatially correlated with both structure density and structure area.

Frequency distributions of these variables are graphed separately in our milpa samples in figures 5.3–5.6 using surface collection artifact data. These maps illustrate that there are fewer houses and ceramics toward the wall of the city and that larger houses are more common near the center. These gross level metrics reflect averages for each milpa field, although we reveal in this chapter that variation exists within the city's neighborhoods in terms of structure size and function. Based on these observations, we argue that Mayapán expanded outward from the site center over time; many houselots nearer to the city wall were constructed and occupied for less time than those closer to the monumental zone. This pattern varies according to location. Residential areas close to major cenotes along the eastern part of the city wall illustrate some higher densities, but these are not equivalent to those in the central part of the city. Key resources, like large cenotes, were thus important in settlement decisions through time, even prior to the Postclassic Period (figures 2.4–2.7; Russell 2008a).

DWELLING FORM

The typical Mayapán dwelling form has one or two parallel longitudinal rooms, interior benches, and a frontal patio (A. Smith 1962:217), as observed at Structure X-43 (figure 5.2). The two-room house form fits Diego de Landa's (1941:130) description of houses that had rear sleeping rooms. Mayapán's one- and two-room rectangular houses with benches represent a distinctive pattern that differs from earlier sites in the region, such as those from the Puuc area, Dzibilchaltun, and Chichén Itzá that have alignments of room blocks or apsidal configurations (A. Smith 1962:figure 10; Kurjack 1974). Sleeping facilities other than stone benches are known from the Contact Period—for example, hammocks were in use at Cozumel when the Spanish first visited (Freidel and Sabloff 1984:16). Identifying dwellings for some sites can be difficult without excavation (A. Smith 1962:211; Freidel and Sabloff 1984:9), although benches make this easier at Mayapán. We observe that a frontal stone-lined veranda is not always visible from the surface, even in shallow soils where it should appear. The feature is not present at all of the Mayapán houses. Some verandas may have been constructed from perishable posts. This style of house is rare in the Yucatán Peninsula at earlier sites, and it is only occasionally observed

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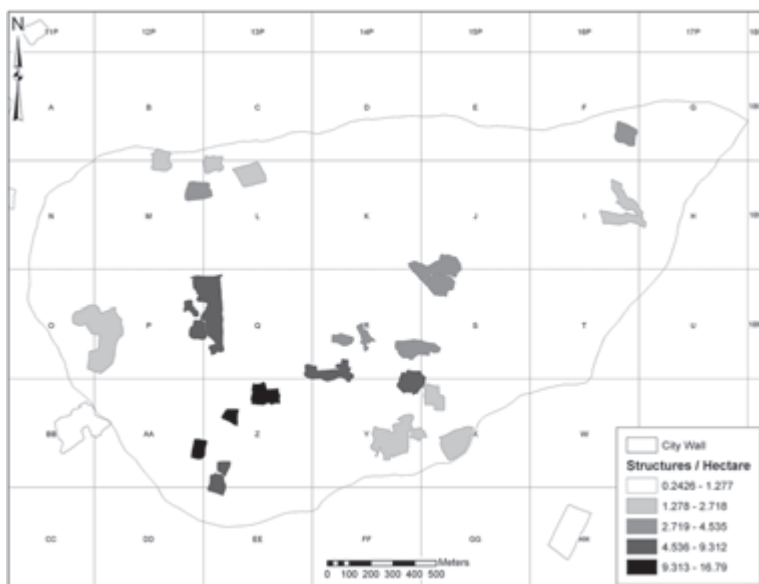
FIGURE 5.3. *Number of structures per hectare in Mayapán milpas surveyed by the PEMY project.*

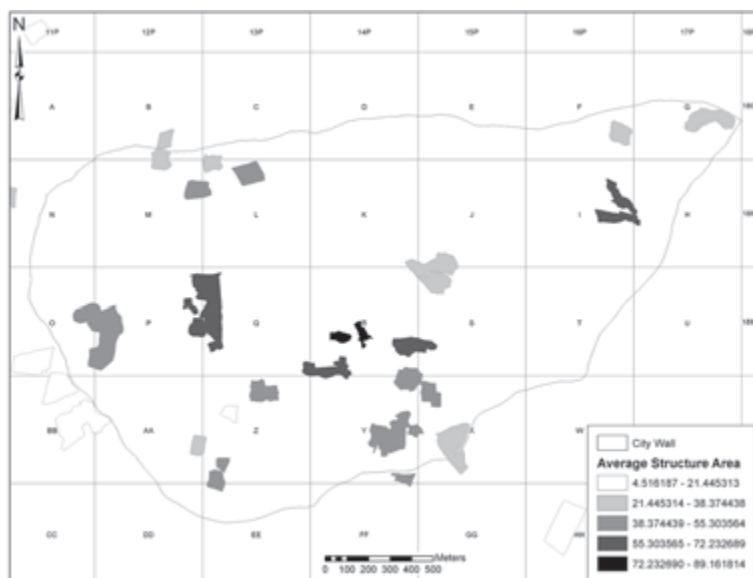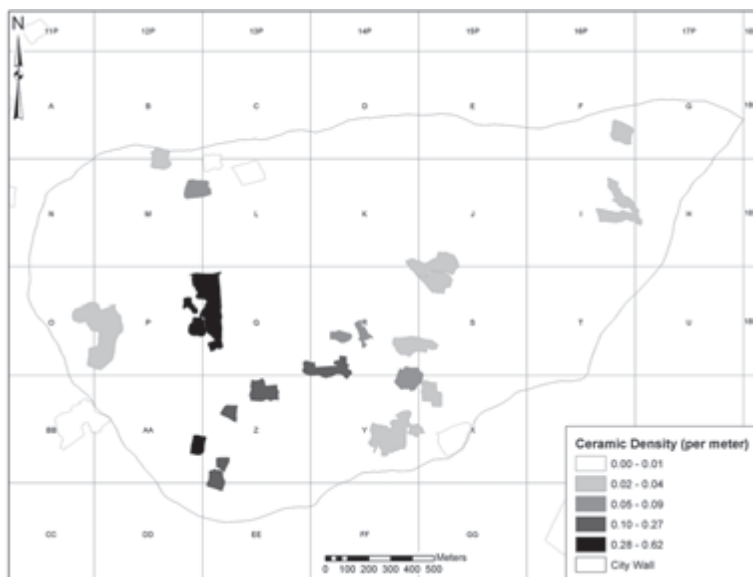**FIGURE 5.4.** *Average structure area in Mayapán milpas surveyed by the PEMY project.*

Figure 5.5. *Density of ceramics by residential group in Mayapán milpas surveyed by the PEMY project.*
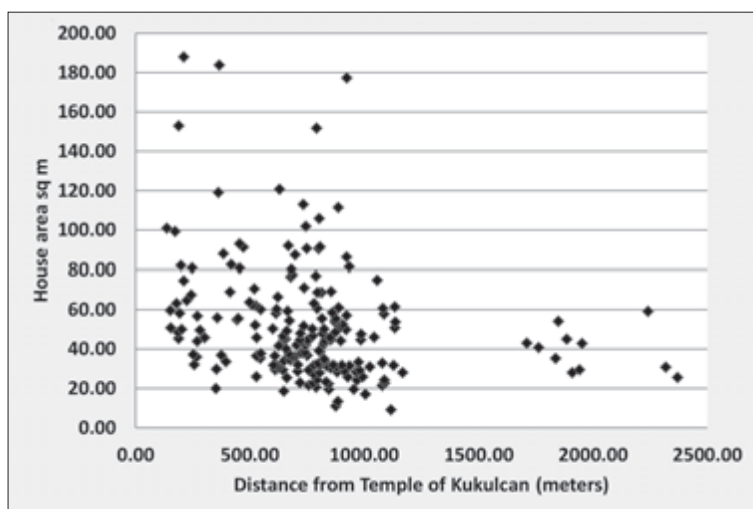

Figure 5.6. *Plot of house sizes against distance from the Temple of Kukulcan indicates that no large houses are beyond 1,000 meters from this monumental center edifice.*

at contemporary settlements such as Tulum and Cozumel (A. Smith 1962:231; Freidel and Sabloff 1984).

Other dwelling forms deviate from this plan. These include large square alignments, rectangular alignments, massive platforms, and bi-directional structures that are described in greater detail in this chapter. Table 5.1 lists additional low-frequency anomalies that may represent dwellings but are not described further in this chapter. These unusual types include long and narrow structures and commoner houses with rear self-standing or bench altars. They are primarily found near the site center, where structure form diversity is higher. Before describing typical and atypical houses, it is worth considering the number of rooms, as this is one diagnostic criteria of the dwelling typology.

The number of rooms can be determined for a total of 197 (of 221) structures in the mapped milpa sample. Of these, 32 percent have one room, 54.8 percent have two rooms, 9.1 percent have three rooms, 3.0 percent have four rooms, 5 percent have six rooms, and .5 percent have eight rooms. Benches are sometimes located so close to the rear wall that a rear room cannot be inferred from surface mapping data. Freidel and Sabloff (1984) point out a contrast between Mayapán and Cozumel: the majority of dwellings at Cozumel are single room structures (Freidel and Sabloff 1984). Our data reveal, however, that single room dwellings are also common at Mayapán. In fact, A. Smith (1962:217) notes that only fifty structures of 2,100 dwellings identified in his survey had two rooms.

Structures that we identified as dwellings in our milpa maps were classified according to the following working typology:

1) elite three or four room houses (N = 11)
2) big versions of typical commoner houses (N = 3)
3) typical commoner houses with one or two rooms and benches (N = 155)
4) a long, narrow structure (N = 1)
5) house-sized alignments of similar size and shape to houses but without benches (N = 19)
6) house-sized alignments with internal room divisions (N = 21)
7) a typical commoner house variant with a long rear bench (N = 1)
8) a typical commoner house with a rear altar (N = 1)
9) houses with front and back entrances (N = 4)
10) large square houses without benches (N = 2)
11) large square houses with benches (N = 3)
12) house-sized platforms (N = 3)

For the purposes of this study, the "typical" commoner house refers to the one- or two-room house with benches described by A. Smith (1962:217).

TABLE 5.1 House types in mapped milpa samples

Milpa	Elite 3–4 room	Big typical com-moner	Typical com-moner	Long house	House–like align-ment	House-like alignment with room divisions	Commoner long rear bench	Commoner rear altar	House front and back entrance	Large square no benches	Large square with benches	Plat-form House size	Total
1	3	1	19	1	3	1	–	–	–	–	–	–	28
2	1	–	1	–	–	–	1	1	–	–	–	–	4
3	–	–	1	–	–	1	–	–	–	–	–	–	2
4	–	–	7	–	2	–	–	–	–	–	–	–	9
5	–	–	4	–	–	1	–	–	–	–	–	–	5
6	2	–	11	–	–	2	–	–	–	–	–	–	15
7	–	–	10	–	–	–	–	–	–	–	–	–	10
8	–	–	–	–	–	2	–	–	–	–	–	–	2
9	–	–	6	–	–	–	–	–	–	–	–	–	6
10	1	1	6	–	–	–	–	–	–	–	–	–	8
11	1	–	4	–	1	1	–	–	1	–	–	–	8
12	–	–	18	–	–	–	–	–	–	2	2	2	24
13	–	–	3	–	–	–	–	–	–	–	–	–	3
14	–	–	1	–	–	–	–	–	–	–	–	–	1
15	1	–	8	–	1	6	–	–	–	–	1	–	17
16	–	–	1	–	–	1	–	–	–	–	–	–	2
17	–	–	4	–	–	–	–	–	–	–	–	–	4

Milpa	Elite 3–4 room	Big typical com-moner	Typical com-moner	Long house	House-like align-ment	House-like alignment with room divisions	Commoner long rear bench	Commoner rear altar	House front and back entrance	Large square no benches	Large square with benches	Plat-form House size	Total
18	–	–	4	–	–	–	–	–	–	–	–	–	4
19	–	–	4	–	–	–	–	–	–	–	–	–	4
20	–	–	–	–	–	–	–	–	–	–	–	1	1
21	–	–	1	–	3	–	–	–	–	–	–	–	4
22	–	–	–	–	1	–	–	–	–	–	–	–	1
23	–	–	–	–	1	–	–	–	–	–	–	–	1
24	–	–	6	–	1	–	–	–	–	–	–	–	7
26	–	–	1	–	–	–	–	–	–	–	–	–	1
28	–	–	–	–	2	1	–	–	–	–	–	–	3
29	–	–	2	–	1	1	–	–	–	–	–	–	4
30	–	–	1	–	–	–	–	–	–	–	–	–	1
31	–	–	2	–	–	–	–	–	–	–	–	–	2
32	1	–	9	–	–	2	–	–	–	–	–	–	12
33	1	1	9	–	2	1	–	–	–	–	–	–	14
34	–	–	3	–	1	–	–	–	–	–	–	–	4
35	–	–	1	–	–	1	–	–	–	–	–	–	1
36	–	–	8	–	–	1	–	–	–	–	–	–	9
Total	11	3	155	1	19	21	1	1	1	2	3	3	221

Typical (large and average size) commoner houses form 71.5 percent of our sample and house-like alignments (with or without discernable room divisions) exhibit considerable specific variation and comprise 18.1 percent of the sample. Atypical house forms, by definition, are rare at the site. House-like alignments could represent unfinished or poorly preserved typical dwellings, although often the internal room divisions varied from typical patterns—for example, by dividing internal space in a direction perpendicular to the long axis. Table 5.1 indicates the distribution of these houses in mapped milpas at the site. More details on selected dwelling forms are provided in subsequent paragraphs.

Typical Commoner Houses

Typical commoner houses form the majority of types (N = 155) recognized in the sample of 221 dwellings (figure 5.7, table 5.1). Many of these houses show little evidence of having had two rooms. Rear exits are also uncommon (A. Smith 1962:217). An examination of some of Smith's (1962: figure 5c, e, f) structure maps suggests that the rear walls of benches were generally assumed to have been masonry walls and to have also served as dividing walls for ambiguously defined front and rear rooms inside of houses, as observed, for example, at Structures S-30b, S-4a, Z-152a (perhaps), and S-26b. At more complex buildings, the rear rooms are more clearly indicated. Notably large typical houses are few in number (N = 3), but they occur in simple solares that suggest commoner status. We do not view these as a separate category from commoner houses. Elite dwellings that are part of large palace compounds can exhibit a typical commoner house plan but are distinguished by size and the addition of transverse rooms or greater internal subdivisions. They also form part of a large patio group and are situated on an elevated platform. Examples of commoner houses "writ large" in elite groups include some dwellings of the Q-41 and Q-42 groups of Milpa 1 (figure 4.8). Big commoner houses, by contrast, only have a two room plan and are not otherwise elaborate, imposing, or linked to complex groups.

Typical commoner houses (one or two room) are present in all milpas located within or immediately exterior to the city wall, and they are absent in five milpas located 250 meters or more outside of the city wall; these distant milpas contain remains of mixed time periods, so it is not surprising that Mayapán-style houses are absent in them. Typical commoner houses form 77 percent or more of the houses in fifteen milpas—eleven of which consist of 100 percent commoner houses and four of which have between 77 and 88

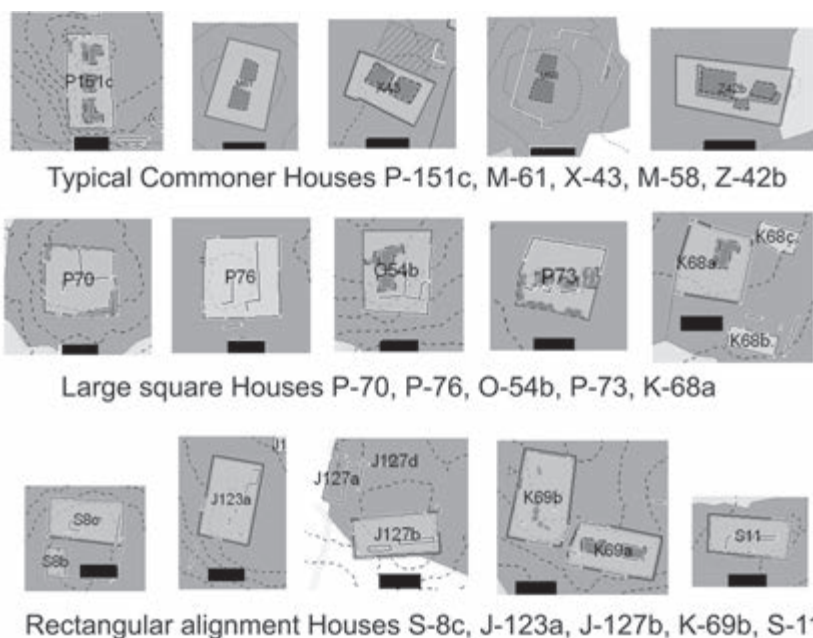MARILYN A. MASSON, TIMOTHY S. HARE, AND CARLOS PERAZA LOPE

FIGURE 5.7. *Commoner house styles at Mayapán. Shown at top are typical houses with benches, the center row illustrates large square house types, including four of five such examples in Milpa 12 and one in Milpa 15 (Str. K–68a). The bottom row illustrates house-sized alignments without benches, including five of seven examples in Milpa 15. Scale (black bar) is 5 meters.*

percent commoner houses (table 5.1). Sample areas around the margins of the city wall have particularly high densities of typical commoner houses (figure 5.8). The term *mid-city* is used for milpas located within at least 500 meters from the epicenter that are not adjacent to the wall. Six areas have between 70 and 75 percent typical commoner houses; these include two milpas adjacent to the monumental zone (1 and 32), one milpa by the north edge of the city wall, and the remaining three are found to the east or southeast of the main group in mid-city locations. Milpas with 57–64 percent typical commoner residences also show no spatial concentration; these include zones near the monumental center—quite distant from it by Itzmal Ch'en—and two mid-city milpas to the east of the epicenter. Two fields with 25 percent typical commoner residences include one located far to the north of the site and another area that is anomalous and likely represents a public access area to two cenotes (Yax-nab
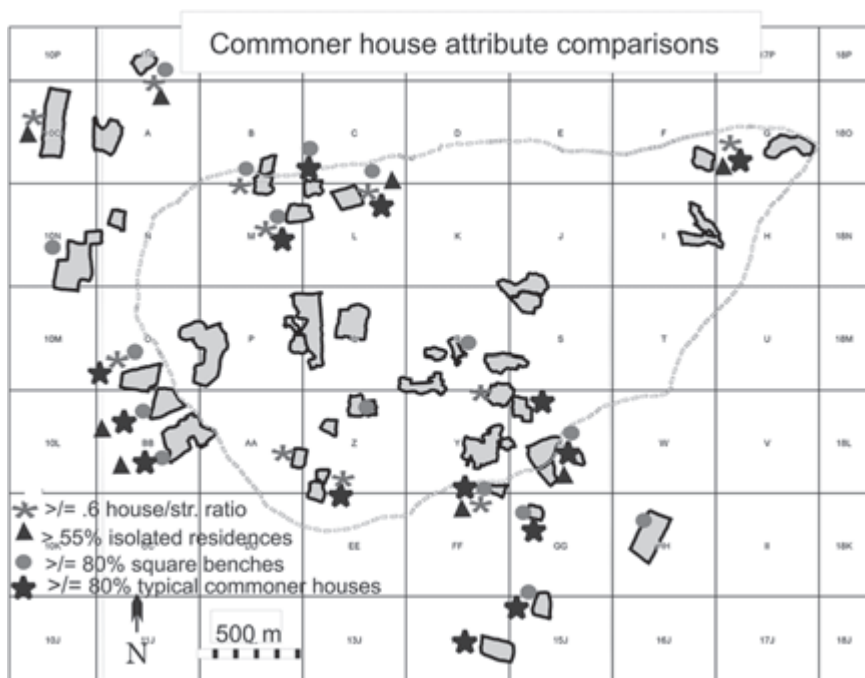
Figure 5.8. *Residential zones (milpa samples) near or beyond the city wall tend to have a higher house to ancillary structure ratio, higher frequencies of isolated residences, and more conservative dwelling styles (square benches, typical house forms). These data suggest shorter occupations and less experimentation in style toward the outskirts, which smaller families probably settled later in the city's history.*

and X-te-Toloc). These distributions indicate that occupants of typical commoner houses were widely distributed across the site.

Large Square House-Sized Alignments

Large square alignments or platforms, with or without benches, fall within the size range of large commoner houses, and some exhibit interior room subdivisions (figures 5.7, 5.9). Five versions of these large square houses are spatially concentrated in one milpa (Milpa 12). Of these five, three lack benches but are otherwise of similar size and shape. These structures are located amidst other typical Mayapán houses in this neighborhood, and they are all located within albarrada-defined solares, like those of other residential groups in

Milpa 12 (figure 5.9). Elsewhere, House K-68a (Milpa 15, Square K) also has benches and is embedded within a traditional solare (figure 5.7). One large rectangular structure that lacks benches, Structure G-17 in Milpa 29, may represent housing for a distinct group within a traditional neighborhood (figure 5.10). It forms a wider rectangle than most houses, is twice the size of the largest house in this area, and is located only 60 meters from far northeast Gate G, at the corner of the city wall (figure 5.10). This structure is not surrounded by albarrada walls as are other house groups in the vicinity. Perhaps G-17 was a sleeping facility for guards appointed to the city's defense in this location (i.e., a "warrior house," as described by Freidel and Sabloff [1984:14]). Russell's (2007) discovery of a colonnaded hall outside of this gate also suggests an administrative presence at this location. Other houses in this milpa are humble, isolated residences.

Rectangular House-Sized Alignments

House-sized rectangular alignments that lack benches may also have been dwellings (figure 5.7). They exhibit the size range of typical Mayapán houses and are positioned within albarrada enclosures. They can be found in isolation, along with typical houses, with other rectangular house-sized alignments, or in a primary position along with smaller outbuildings. These rectangular alignments could represent either unfinished houses that lack benches or simple variants of a Mayapán house style. At Cozumel, single room rectangular dwellings are common. The Mayapán rectangular alignment structures had either one room or two, and the latter were indicated by wall divisions (N = 21) that ran either parallel to or perpendicular to the long axis. A total of forty potential dwellings are represented by rectangular alignments in our sample, including those without visible room divisions. A. Smith (1962:222) classified 1,500 of Mayapán's structures as miscellaneous edifices of unknown function. He suggested their possible use as oratories, men's houses, guesthouses, storage buildings, workshops, toilets, or other unknown purposes. Platforms may have served similar functions, including the support of perishable residences. At Cozumel sites, such rectangular dwellings may predate a period when some Mayapán-style houses were built (Freidel and Sabloff 1984:159–60).

Forty possible house alignments occur in sixteen of our sample areas. Only one or two examples of these structures are present in individual mapped milpas with the exception of three in Milpa 21 and seven in Milpa 15 (Squares J and S, figure 5.7). Milpa 21 is located far to the north of the city wall and was occupied prior to the Postclassic; its rectangular alignments may be earlier. The
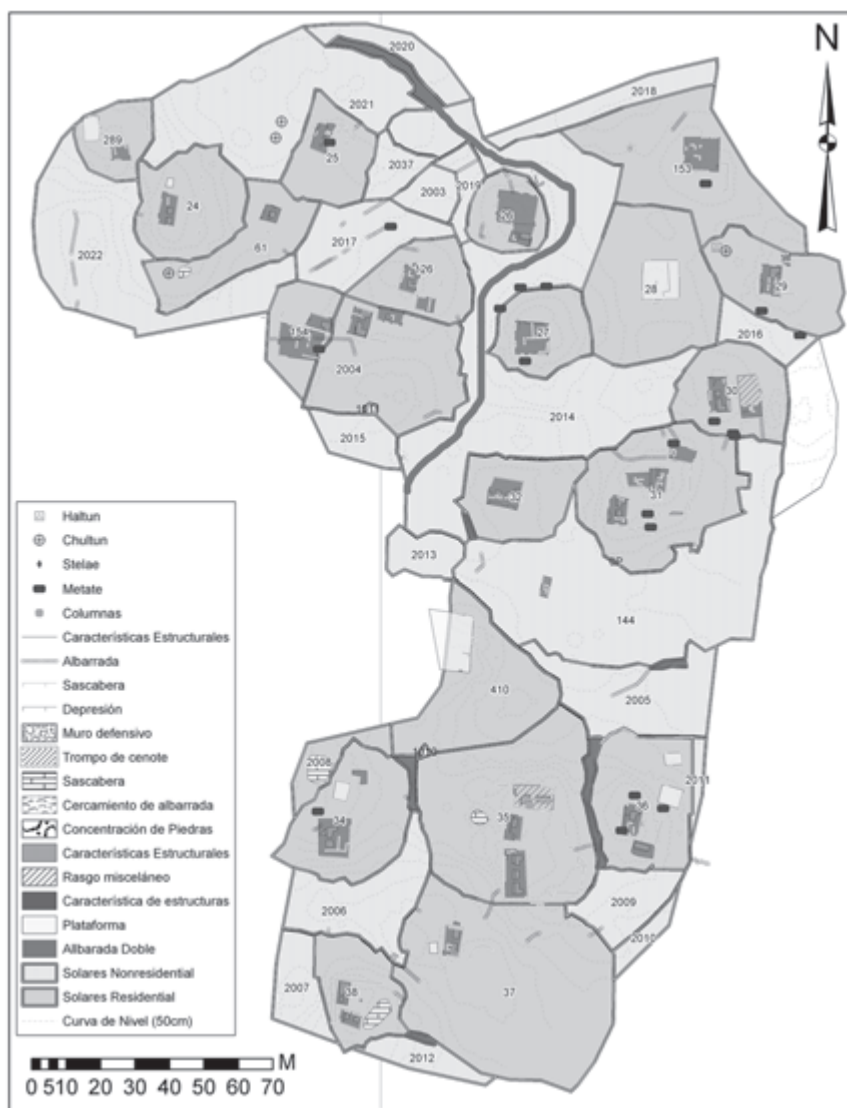
Figure 5.9. *Milpa 12 is located in the western part of the city. This zone has typical commoner bench houses and five large square houses (with or without benches) located within walled houselot enclosures. Note also enclosed nonresidential field spaces and the trajectory of a historical trail that follows flat bedrock pavement through the zone. The trail is marked by ancient stone lanes in the upper portion of the map, where it is thicker.*

Figure 5.10. *G–17 (at far right) is an unusually large rectangular structure compared to other residences in Milpa 29, at the northeast corner of the city wall. G–17 is not enclosed by albarrada. It may represent a guard house, located only 60 meters from Gate G. Note the four enclosed fields in addition to three houselot enclosures in this milpa; two are attached to houselots.*

large number of these structures in Milpa 15, which are within albarrada enclosures, may represent the house style preference of a particular set of families. Only in one case does an alignment house form part of the same patio group as a typical bench house, which further illustrates the distinctiveness of this pattern in Milpa 15. Eight examples of typical commoner houses also exist in Milpa 15. Two other large L- shaped buildings in Milpa 15 are marked by internal wall divisions and could represent additional anomalous dwellings or storage structures (S-4ab, S-5).

Massive Platforms

Massive platforms represent substructures with few alignments that are readily observed on the surface. Massive platforms at Cozumel may represent warehousing facilities (Freidel and Sabloff 1984:145). One such feature is located next to a large open plaza that may have been a market space at Cozumel (Freidel and Sabloff 1984:146), although at other Cozumel sites, houses were sometimes located on these platforms (1984:145). The large, square P-114 platform in Milpa 1A at Mayapán has upper-room block alignments and one possible typical commoner dwelling (figure 5.11). The platform is an
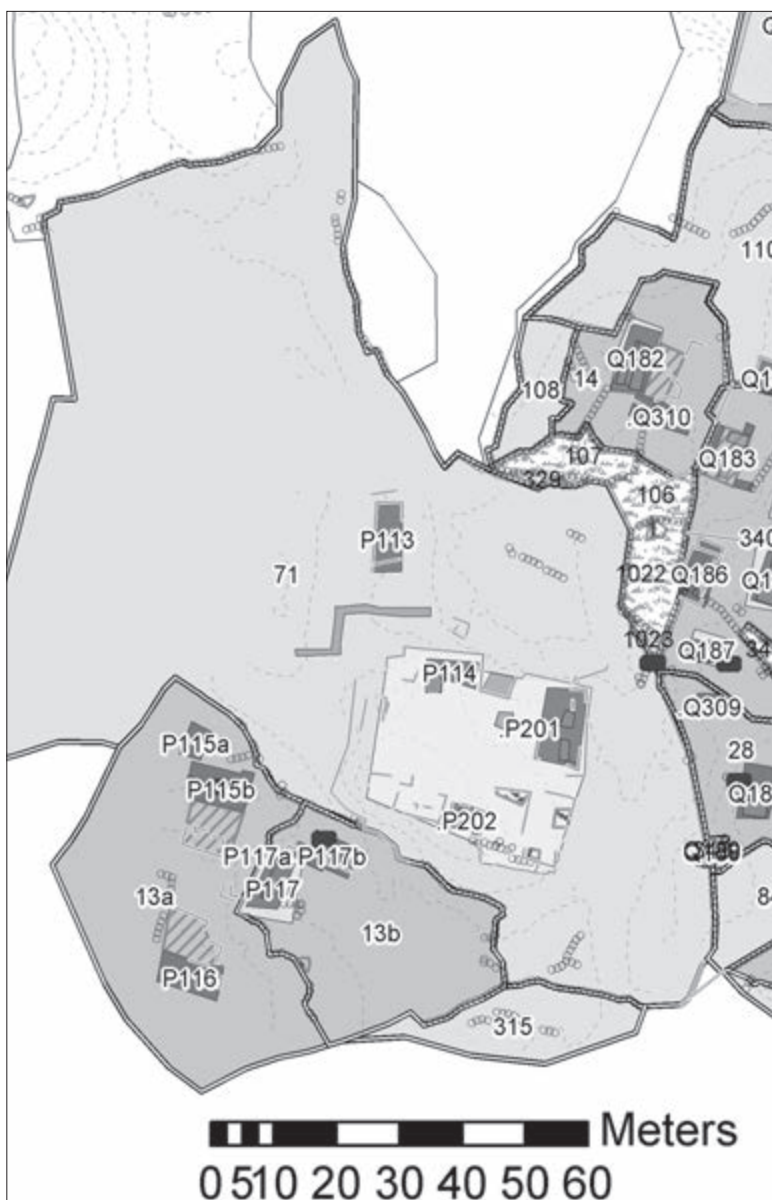
FIGURE 5.11. *Postclassic-era massive platform P-114 (center) is anomalous for Mayapán and may have housed a quadrangle of residential room blocks; midden debris and off-mound burials indicate a domestic function. Note more typical houses and enclosures that border it to the east and west (western edge of Milpa 1).*

atypical residential form for Mayapán. The P-114 platform is embedded in a residential district that includes typical Mayapán houses and excavations and surface collections in soils adjacent to it yielded domestic midden materials and burials. As Freidel and Sabloff suggested for Cozumel, it is possible that the inhabitants were traders who stored merchandise in the room blocks of the platform. Affluent residents of P-114 were indicated by high proportions of obsidian and imported Matillas Fine Orange pottery. They also made surplus chert tools, which attests to diverse sources of residential income (chapter 6). An elongated vacant space in Milpa 1B, just to the north, may have served as a minor market plaza for the city. In chapter 4, we describe a C-shaped massive platform with minimal upper wall alignments in Square K, which may have been a special function (market) feature. Two large U-shaped platforms (Q-240 and Q-243) are observed on Jones's (1962) map of the city. They are unlikely to be residential, but they are located next to dwellings and may have served storage functions. These platforms are positioned on either side of the center of site's principal *sacbe*. Massive platform storage features were tentatively identified near coastal Veracruz, the Bay of Honduras, and at other sites of coastal Quintana Roo, in addition to Zuuk and Cozumel (Freidel and Sabloff 1984:145–46). At Zuuk, they are next to an open plaza, perhaps used as a marketplace, and Freidel and Sabloff (1984:146) suggest that they belonged to merchant families.

Agglutinated substructures were one characteristic of settlement at Cozumel that is not common at Mayapán. Occasionally, conjoined buildings occur, but these are not large or numerous. They may, however, have served similar functions of bulk storage, as proposed for the agglutinated buildings of Cozumel that were probably used in family-level commercial activities at sites like La Expedición (Freidel and Sabloff 1984:137–38, 141, 150, 151). Importantly, agglutinated structures were not associated with elite dwellings at Cozumel (Freidel and Sabloff 1984:142). The P-114 platform is non-elite, in contrast to the Q-240 and Q-243 U-shaped platforms situated in the epicenter, near to major elite dwellings and public buildings.

Bi-Directional Dwellings

One interesting class of dwelling described by A. Smith (1962) is a building that opens in two directions and has two rooms formed by a medial wall. He identified six of these, and all but one (Z-50a) was located within a predominantly residential group. This type may represent a particular house style, as five of them (J-71a, S-70c, Z-39f, Z-37a, and Z-50a) share an identical plan.

Structure S-133b is a variant, as its medial wall lacks a doorway, and it has an end room (figure 5.12). Based on its size, S-133b is an elite house; Z-50a may also be elite, as it is located within the southern terminus of the principal sacbe. Others are smaller and their occupants were probably of commoner status. In Milpa 10 of our study, Structure R-136b also matches this description. Some spatial clustering is noted in this distribution—S-133b and R-136b are located on adjacent *altillos* (elevated knolls), within Milpa 10, and the structures within the Z square are also near one another.

HOUSE GROUPS

The number of houses within a group may serve as an important indicator of domestic growth cycles or labor organization. Family groups expand their residential architecture through time, and additional houses within a patio group reflect this growth (McAnany 1995; Haviland and Moholy-Nagy 1992). Investment in ancillary structures may also be loosely correlated with duration of occupation. Isolated houses imply smaller domestic pools of labor, and they contrast with agricultural households that require much assistance during key periods of the year (McAnany 2004; King 1994). Residents of isolated houses at some sites produced surplus craft goods, as is sometimes observed at Colha (McAnany 1994; King 1994, 2000). Isolated House X-43, not occupied for long, may have been a temporary dwelling for those performing service to the Mayapán state, or alternatively, the house was newly established by a family that was unable to remain at the city. We favor the interpretation that X-43 was occupied by temporary workers, as the house lacks a full domestic assemblage, including grinding stones, or even average levels of faunal remains in the midden. Most of the houselots in Milpa 7, where X-43 is located, are isolated residences (figure 5.2), as are the majority in Milpa 12 (figure 5.9). Gair Tourtellot (1988:339–41) observed that Mayapán has a high proportion of isolated houses, as does Classic Period Dzibilchaltun, compared to Seibal. He suggested that corvée service may explain this phenomenon at both of the northern sites, perhaps for the salt industry at Dzibilichaltun and military duties at Mayapán.

The albarrada group is an important unit for residential settlement analysis, but spatial clustering must also be considered, especially where albarradas only partially enclose a set of houses and pedestrian traffic would have been easily facilitated between groups. Brown's (1999) analytical unit, the houselot cluster, accounts for spatially concentrated houselots that share albarrada walls. Examples of adjacent houselots that share boundary walls can be seen, for
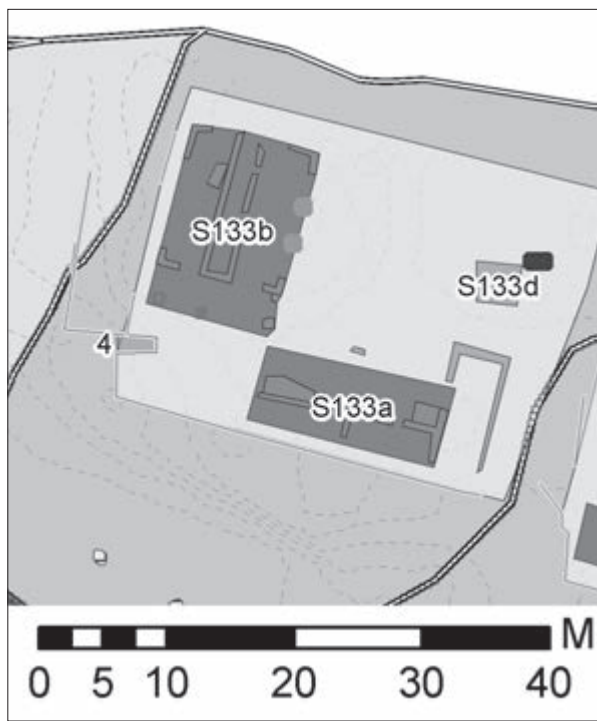
Figure 5.12. *Structure S-133b is an example of atypical structures that have a medial wall and open in two directions. This edifice may be an elite house, but other examples are within commoner house size ranges.*

example, in Milpa 12 (figure 5.9). Full cluster analysis requires comprehensive mapping of broader sections of the city and is more difficult with asymmetrically shaped milpa samples (figure 5.1).

Table 5.2 lists the number of residences within albarrada walls that enclose from one to five distinct structure groups. A complicating factor is that some albarrada walls encircle more than one distinct domestic patio (figures 5.1, 5.2). In addition to houselot walls, boundaries are implied by features such as terrace walls or sascabera quarries (Brown 1999:135). For example, in Milpa 4, a commoner neighborhood located in the southern mid-city area, one houselot enclosure contains five houses. This group is really a cluster of four distinct residential groups, one of which has two houses and the remaining three each have a single house (figure 5.13). One could further lump these groups into

Figure 5.13. *Houses along the eastern edge of Milpa 4 are grouped into four residential groups of one or two houses, with open access between their partially enclosing albarrada walls (enclosures shaded dark gray). Houses AA-75, Z-119, and Z-120 were also linked by large quantities of lithic flakes from surplus stone toolmaking. Small dark gray rectangles indicate metate locations.*

all houses found in Milpa 4, as part of a larger houselot cluster defined by shared enclosure walls. Access between the house groups on the eastern edge of the milpa was open despite differences in elevation and spatial distinctive-

ness. The two house group (AA-75/Z-119) is located atop an altillo, and the isolated house (Z-120) closest to it is located slightly downslope and to the south. These houses specialized in surplus stone toolmaking (chapter 6). The form and size of these five houses in Milpa 4 are otherwise typical for the site. Sets of four (commoner) house groups were also enclosed in Milpas 1 and 32, neighborhoods where additional craft specialists and elites resided. At Mayapán, surplus craft production is not necessarily associated with isolated residences. Other examples of multiple house groups within albarrada enclosures are listed in table 5.2. Nine instances are documented where three houses within an albarrada form two or three spatially separated groups. Three cases are noted where two relatively isolated houses are found within a single albarrada enclosure.

A. Smith reports over 4,000 structures within or near the city wall, including 2,100 dwellings (A. Smith 1962:204–5). Around 2,800 (70 percent) of these structures are located in domestic groups, and those that are not dwellings were probably kitchens or other ancillary buildings and platforms (A. Smith 1962:205). A. Smith (1962:206) observed that over 600 (64 percent) of Mayapán's houses were in single house groups, and over 300 (32 percent) were in two house groups. Fewer houses were located within groups containing three (N = 35) or four (N = 3) dwellings.

Structure groups of the mapped milpa fields in our sample were classified according to how many houses were present in each albarrada group. A total of 146 house groups were located on our maps (table 5.2). These data are improved over those used by A. Smith, who identified groups according to spatial proximity and not houselot boundary walls. But our results generally confirm his findings, with 63.7 percent isolated residences (N = 93), 26.7 percent two house groups (N = 39), 7.5 percent three house groups (N = 11), 1.4 percent in four house groups (N = 2), and 0.7 percent in five house groups (N = 1). The majority of residences in our sample were in single house groups consisting of a single residence, whether or not outbuildings were present.

Spatial Distribution of House Group Types

Three house groups occur more commonly in the central parts of the city, but their distribution is not limited to this zone (table 5.2). They are found twice near the monumental center (Milpa 1), twice in the mid-city zones to the west (Milpa 12), and singly in milpas to the east or southeast (Milpas 6, 9, 15, and 33) of the center. One occurrence is noted near the north (Milpa 24) and east (Milpa 7) edges of the city wall.

TABLE 5.2 Dwelling group types in mapped milpas

Dwelling group type	Milpas (location of occurrences)*	Total
2 house group—commoner	1, 1, 1, 5, 5, 6, 6, 6, 6, 9, 10, 11, 12, 12, 15, 15, 17, 21, 24, 28, 31, 32, 33, 33, 34, 36, 36, 36	28
2 house group—elite	1, 1, 6, 10, 32, 33	6
2 house paired isolated residences in 2 group cluster	1, 4, 15	3
2 house, isolated residence in 4 group cluster	32	1
2 house group, outbuilding, shrine	10	1
3 house in 2 group cluster—elite	2	1
3 house in 2 group cluster	6, 7, 9, 12, 15, 24	6
3 house in 3 group cluster	1, 1	2
3 house, single group	12, 33	2
4 house in 3 group cluster	32	1
4 house in 4 group cluster	1	1
5 house in 4 group cluster	4	1
Isolated residence	1, 1, 3, 3, 6, 6, 6, 7, 7, 11, 12, 12, 12, 12, 13, 15, 15, 15, 15, 17, 18, 18, 18, 18, 19, 21, 21, 24, 26, 29, 29, 33, 33, 33, 35, 36, 36	37
Isolated residence and oratory	1, 32	2
Isolated residence and outbuilding	1, 1, 1, 1, 1, 1, 2, 4, 5, 7, 7, 7, 7, 7, 8, 8, 9, 10, 11, 11, 11, 11, 12, 12, 12, 12, 12, 12, 12, 12, 12, 14, 15, 15, 15, 15, 16, 17, 19, 19, 20, 22, 28, 29, 30, 32, 33, 33, 34, 34, 36,	51
Isolated residence and bench	12, 13	2
Isolated residence, hall, outbuildings	10	1
Grand total (number of dwelling groups)		146

• Figure 1.7 illustrates the location of these milpas.

Two house groups are common and are distributed in eighteen milpas. Milpas 1 and 6 had the greatest numbers of these (N = 5, N = 6, respectively). Like three house groups, they are more common in the central part of the city

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but are also found in a variety of locations (table 5.2). For example, mapped milpas with the greatest proportions of two house groups (25–67 percent of the total groups per milpa) are located adjacent to the center, in the mid-city areas, and toward the north part of the city wall. Ninety-three single residential groups that lack other structures are distributed in thirty-seven milpas in our sample (table 5.2). All zones of the city have milpas where 43–56 percent of the groups per milpa consist of a single dwelling (figure 5.14). While most areas of the site have at least some milpas with over 64 percent single house groups, this pattern is most prevalent in areas at the southeastern or eastern inner (walled) margins of the city, where half of the milpas have from 64 to 78 percent single house groups.

Ninety-three isolated residences are documented; thirty-seven of these are solitary structures and fifty-six are associated with outbuildings (table 5.2). Solitary residences and single dwellings with outbuildings are found in milpas in all parts of the city. Higher proportions of solitary dwellings without outbuildings are present overall in milpas that are exterior to (but near to) the city wall and near the north edge of the wall. The fewest solitary buildings are in the group of milpas adjacent to the monumental center and far outside the city wall. These data may imply shorter term settlement for certain areas.

RATIOS OF DWELLINGS TO OTHER STRUCTURES WITHIN GROUPS

A. Smith (1962:206) compared the quantities of residences and nonresidences within domestic groups. Within our mapped milpa sample, the ratio of houses to total structures within groups (including houses) varies considerably. Some milpas have average ratios of 0.1 that reflect very few houses while others have only houses within domestic groups, with a ratio of 1.0 (figure 5.15, table 5.3). The spatial distribution of these ratios is revealing. Sample areas located far outside of the city wall have the lowest or highest ratios and thus tend to have groups consisting of primarily outbuildings or isolated houses (three and two milpas, respectively). But two distant milpas have ratios similar to areas within the city (table 5.3). Just outside of the wall, two localities exhibit houses without ancillary structures, while four others had ratios ranging from 0.4 to 0.8. The exceptions indicate that there is not a simple correspondence of isolated residences and location beyond the wall. Milpas within the wall tend to have ratios that range from 0.4 to 0.8. Greater numbers of nonresidential structures nearer to the site center are indicated by more milpas with ratios of 0.2 or 0.3 (table 5.3). This characteristic of downtown Mayapán may reflect more specialized activities, greater settlement longevity, or both.
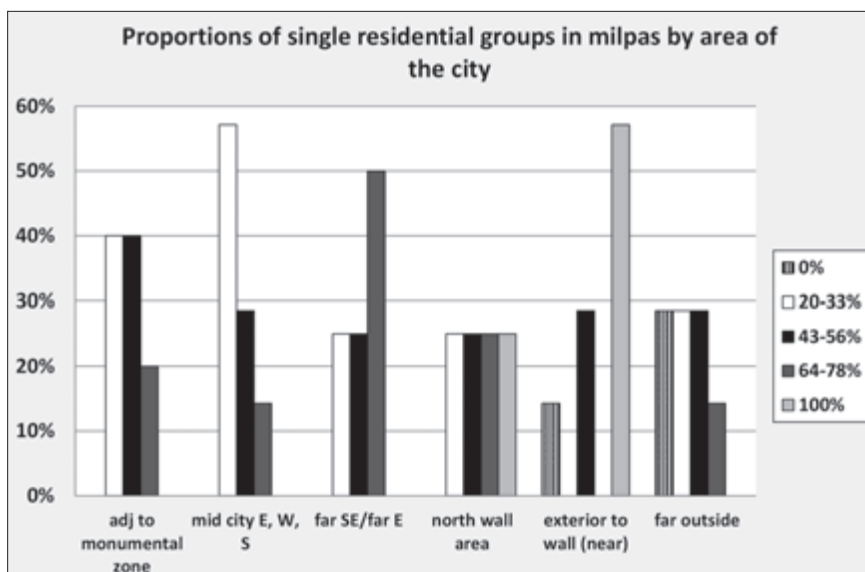
FIGURE 5.14. *Proportions of single residence groups (per interval) distributed in milpas in different portions of the site. Note that areas on the city's periphery (four areas on the right) have more gray bars, indicating greater proportions of single residences.*

HOUSE BENCH PATTERNS

It is generally assumed that benches were used for sleeping, sitting, and a range of other tasks. Bench shapes vary from L-shaped to more square or rectangular forms within Mayapán houses, without any apparent functional differences. Illustrations in figure 5.7 provide examples of houses with square/rectangular benches (M-58, M-61, X-43, and Z-42b) and examples with square and L-shaped forms (O-54b and P-151c). Shapes seem to represent a stylistic choice at the city, and more innovative variation in bench form is observed in the densely inhabited center compared to the more conservative outskirts. As there is no tight clustering of bench forms within specific neighborhoods, these shapes were probably not ethnic markers (table 5.4, figure 5.16). Dwellings with exclusively square/rectangular benches are most numerous in our sample (N = 116), and this convention formed a key part of the typical Mayapán house. Forty-three houses exhibited square/rectangular as well as L-shaped benches, and twenty-one dwellings had the latter exclusively (table 5.4).

Examples with only L-shaped benches tend to be located in residential areas near the site center or toward the south, southeast, or east of the center
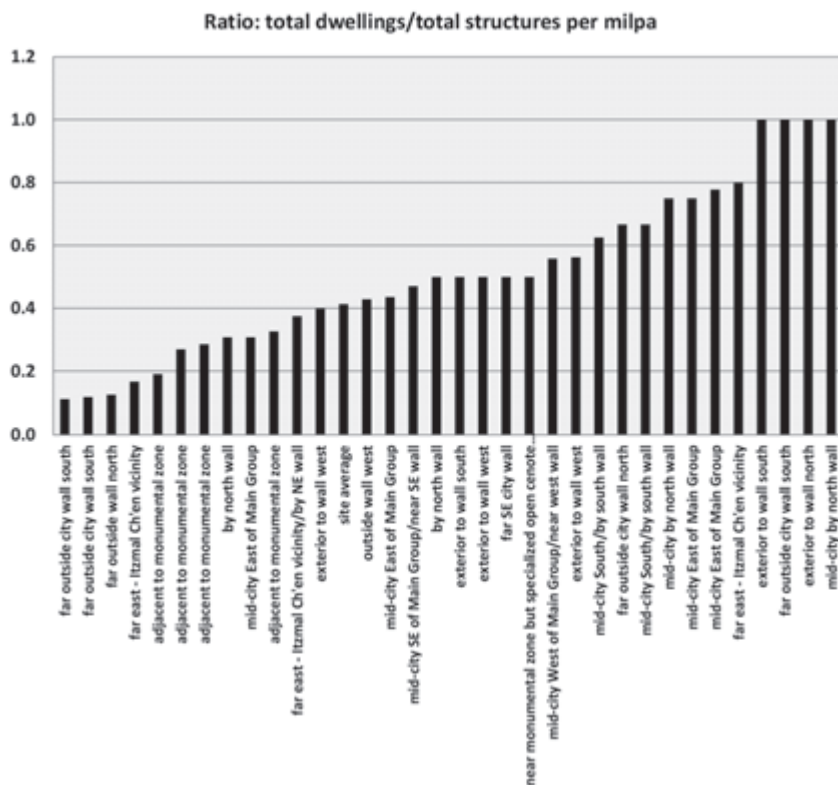
Figure 5.15. *The ratio of dwellings to the total number of structures (including ancillary buildings) is charted above by milpas in different parts of the city. Locations far beyond the city wall had more groups of purely outbuildings or only isolated houses. But results are mixed.*

(Milpas 1, 4, 5, 6, 10, 11, 15, 32, and 33), with one exception: Milpa 12. This shape is absent in areas to the north, far southeast, and exterior to the wall (table 5.4, figures 5.8, 5.16). Mixed bench styles within a dwelling are more widespread, as observed in two western and one extreme northeastern mapped milpa (table 5.4, figure 5.8). Although the absence of L-shaped benches in the northern part of the site may be important, this form was widely used at the city. Locations on the margins of the walled city or beyond it containing greater numbers of houses with only square or rectangular benches include Milpas 8, 13, 14, 18, 19, 20, 26, 28, 30, 34, and 35 (table 5.4, figures 5.8, 5.16). These are zones of

TABLE 5.3 Ratios of number of dwellings to all structures, including dwellings and non-dwellings, for all residential groups within each mapped milpa*.

Milpa	Location in city	Ratio
30	Far outside city wall south	0.1
8	Far outside city wall south	0.1
22	Far outside wall north	0.1
16	East—Itzmal Ch'en vicinity	0.2
2	Adjacent to monumental zone	0.2
11	Adjacent to monumental zone	0.3
32	Adjacent to monumental zone	0.3
34	By north wall	0.3
10	Mid-city east of main group	0.3
1	Adjacent to monumental zone	0.3
29	East—Itzmal Ch'en vicinity	0.4
13	Exterior to wall west	0.4
Mean value		*0.4*
28	Outside wall west	0.4
15	Mid-city east of main group	0.4
6	Mid-city southeast of main group/near wall	0.5
19	By north wall	0.5
35	Exterior to wall south	0.5
14	Exterior to wall west	0.5
7	Far southeast city wall	0.5
3	Near monumental zone	0.5
12	Mid-city west of main group/near west wall	0.6
36	Exterior to wall west	0.6
5	Mid-city south/by south wall	0.6
21	Far outside city wall north	0.7
4	Mid-city south/by south wall	0.7
24	Mid-city by north wall	0.8
9	Mid-city east of main group	0.8

TABLE 5.3—*continued*

Milpa	Location in city	Ratio
33	Mid-city east of main group	0.8
17	East—Itzmal Ch'en vicinity	0.8
26	Exterior to wall south	1.0
31	Far outside city wall south	1.0
20	Far outside wall west	1.0
18	Mid-city by north wall	1.0

• Milpa locations are shown in figure 1.7

low-status houses that are not near to focal monumental architecture. Figure 5.8 marks those mapped milpas where at least 80 percent of the houses have exclusively square benches. This illustration also indicates that higher proportions of isolated residences, typical Mayapán houses, and fewer outbuildings overlap with preferences for square benches. These characteristics are markers for the use of more conservative house attribute styles in residential zones that were generally occupied by fewer people of lesser means for shorter time periods. None of these localities housed craft specialists of any significant degree, nor were levels of affluence high. Closer to the center of the city or to focal groups such as Itzmal Ch'en, it is possible that residents were influenced by greater residential density and diversity that might have prompted experimentation, specialization, and elaboration in dwelling features. As chapter 6 indicates, wealthier commoners and crafting houses are usually found near the site center or outlying architectural nodes within the walled settlement. It is worth noting, however, that houses with exclusively L-shaped benches do not form the majority of any mapped milpa, as they almost always occur in areas with equal or greater proportions of houses with square/rectangular benches or combined square/rectangular and L-shaped bench styles (table 5.4, figure 5.16). The prevalence of square/rectangular benches suggests a high degree of conformity to the normative Mayapán style, although it is also true that this form would have been the most practical and simplest to construct.

STRUCTURE GROUP ORIENTATIONS

Most houses of the Colonial era faced east (Tozzer 1941:n357), the direction from which wind and weather arrives in northern Yucatán. The cardinality

TABLE 5.4 Percentages of dwellings with specific bench shapes within mapped milpas*.

Milpa	Houses with L-shaped bench only	Houses with square/rect-angular and L-shaped benches	Houses with square/rectangu-lar benches only	Total
1	15	30	55	20
2	0	17	83	6
3	0	100	0	1
4	14	43	43	7
5	25	50	25	4
6	8	38	54	13
7	0	20	80	10
8	0	0	100	1
9	0	33	67	6
10	25	38	38	8
11	20	0	80	5
12	17	33	50	18
13	0	0	100	3
14	0	0	100	1
15	30	10	60	10
17	0	25	75	4
18	0	0	100	4
19	0	0	100	4
20	0	0	100	2
24	0	17	83	6
26	0	0	100	1
28	0	0	100	4
29	0	33	67	3
30	0	0	100	1
31	0	50	50	4
32	30	30	40	10
33	25	8	67	12
34	0	0	100	3
35	0	0	100	1
36	0	25	75	8
Total	21	43	116	180

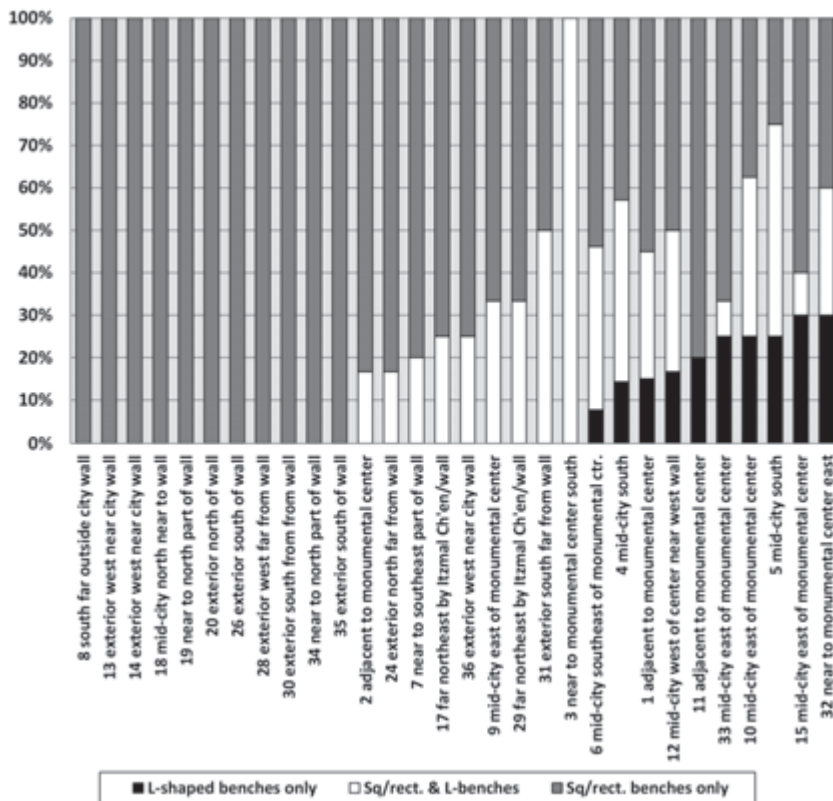*Milpa locations are shown in figure 1.7.

Figure 5.16. *Percentage of houses with exclusively L-shaped or square/rectangular benches and houses with combinations of these shapes per mapped milpa at Mayapán. Milpa zones with the highest proportion of square/rectangular benches tend to be near or beyond the city wall.*

of Mayapán houses tends to be skewed east of north and more southeast of east by 10–14 degrees, perhaps due to the position of the sun most of the year (Carlson 1982). A. Smith (1962:208) also observed a strong preference for eastward orientation among Mayapán dwellings, followed by north, then south-facing dwellings, with very few houses facing west. These observations are significant and contribute to our understanding of normative behavior for dwelling construction at the city. But as for earlier Maya cities, multi-dwelling groups at Mayapán exhibit a preference for orientation around an inner patio that allows for only one house to face generally eastward. As most Mayapán

residential patios are not closed and instead consist of two (sometimes more) structures that define patio space, we observe that patios themselves are open toward patterned directions. Residents chose where to place their additional houses, and this choice opened up lines of sight for these dwellings toward parts of the cityscape. Here we consider these patio group orientations, which are defined as the direction toward which a patio opened when patios were framed by two or more structures.

A total of 129 groups with more than one house are available for tracking this characteristic in our sample of mapped milpas (table 5.5). As is observed for individual houses across the city, dwelling group orientations show a preference for an eastern direction. Most structure groups formed by two edifices are open toward the northeast (N = 45) or toward the southeast (N = 20). There are fewer cases where two structure groups open toward the northwest (N = 11) or southwest (N = 3). Among groups framed by three structures, eastern patio openings are the most common (N = 9), followed by northern (N = 4), with fewer examples of southern (N = 2) or western (N = 1) orientations. Groups with two mutually facing structures were more variable, with three aligned on an east-west axis and five north-south. Group orientations could not be discerned for eight fully enclosed groups or six dispersed groups, defined as those containing multiple residences that do not form a communal patio space. Eleven other groups without clear patios had back-to-back (N = 3) or side-to-side (N = 9) structures. Overall, residential group patio orientations reiterate the preference for house orientations discussed by A. Smith, as 82.3 percent of a sample of seventy-nine two structure (L-shaped patio) groups open to the northeast or southeast, and nine of sixteen three-sided groups face east. Only 13.9 percent of the two structure groups face northwest.

Choices to have patios open toward the northeast versus southeast, or more aberrantly, toward other directions, were probably influenced by residential zone attractions such as pedestrian pathways or lines of sight to nearby focal architecture (table 5.5, figure 5.17). For example, milpas to the north of the site center do not exhibit groups with northeast orientations that would have resulted in a view of the city wall by individuals looking out of the entrance-ways of the buildings. Instead, groups in northern Milpas 19, 20, 24, and 34 exhibit preferences for southeastern arrangements that would have faced toward the city center. This desire to face inward toward the site center is commonly observed. For example, in Milpa 6 there are high proportions of groups that face west, northwest, or southwest (67 percent) toward downtown Mayapán. Although nearby Milpa 7 exhibits more variation, more of its groups face northwest than any other direction (table 5.5).

Exceptions to this pattern are instructive. Groups near to Itzmal Ch'en faced this locality rather than the site center. In Milpa 17, by Itzmal Ch'en, patios opened toward the southeast or east and in Milpa 16 they are oriented toward the northeast—each of these respective orientations afforded a vista of the outlying ceremonial group (figure 5.17). Similarly, in Milpa 15 most groups face toward the civic group J-109/111 and the route that led to Itzmal Ch'en (figure 5.17). Milpas 9 and 33, in the same general part of the city, also follow this pattern, with a majority of eastern orientations toward J-109/111 and the Itzmal Ch'en axis and away from the site center (table 5.5). Residents regularly decided to orient their domestic patio viewsheds toward prominent outlying monuments, which served as focal points that defined and divided the city's neighborhoods. Perhaps the popularity of the northeast orientation for central-east dwellings reflects the prior existence of significant pedestrian thoroughfares from the northern and eastern city gates, with the added benefit of early sunlight and better ventilation from eastern winds. Well beyond the city wall, a northeast or southeast group orientation accounts for 50–100 percent of the patios per milpa (Milpas 8, 13, 20, 28, 30, and 34). These choices resulted in the house groups facing toward the city wall (figure 5.17).

SPECIAL FUNCTION BENCHES

Additional bench type features within edifices share morphological similarities with residential benches. Like house benches, some may have been used as beds, seating, tables, or altars. Context provides the key for proposing functional variation using surface settlement data, and we classify nonresidential bench forms according to the following categories: (1) patio shrines, (2) external benches, and (3) enclosed bench structures (figure 5.18). It is important to note that despite their spatial distinctiveness, these features are generally located within the greater context of residential patio groups.

Patio shrines are small, square or rectangular external platforms of equivalent size and construction technology to dwelling benches. They are usually located centrally within the courtyard of a residential or ritual group, and this placement is the primary criteria for identifying them as shrines. This function is also derived from numerous excavations of such features that revealed burials or offerings (A. Smith 1962).

External benches resemble patio shrines in terms of size and form, but they are located within or outside houselots in places other than the residential courtyard (figure 5.18). Some of these benches may have been part of perishable houses or kitchens, as suggested by their occasional association with ephemeral

TABLE 5.5 Percentages of patio group orientations per mapped milpa.

Milpa	L patio NE	L patio SE	L patio NW	L patio SW	En-closed	Dis-persed	3 side E	3 side N	3 side S	3 side W	Facing EW	Facing NS	Back to back	Side by side	Total
1	39	4	–	–	17	4	4	4	–	–	4	13	4	4	23
2	100	–	–	–	–	–	–	–	–	–	–	–	–	–	2
4	50	25	25	–	–	–	–	–	–	–	–	–	–	–	4
5	100	–	–	–	–	–	–	–	–	–	–	–	–	–	3
6	17	–	33	17	17	–	–	–	–	17	–	–	–	–	6
7	–	14	43	–	–	14	14	–	–	–	14	–	–	–	7
8	50	–	–	–	–	–	–	–	50	–	–	–	–	–	2
9	67	–	–	–	–	–	–	–	–	–	33	–	–	–	3
10	17	17	33	–	17	–	–	–	–	–	–	17	–	–	6
11	17	–	–	17	33	–	–	–	–	–	17	–	–	17	6
12	31	31	13	–	–	–	6	–	6	–	–	–	–	13	16
13	100	–	–	–	–	–	–	–	–	–	–	–	–	–	1
14	–	–	–	–	–	–	–	–	–	–	–	–	–	100	1
15	55	9	–	–	–	–	36	–	–	–	–	–	–	–	11
16	100	–	–	–	–	–	–	–	–	–	–	–	–	–	1
17	–	50	–	–	–	–	50	–	–	–	–	–	–	–	2
19	–	50	–	–	–	50	–	–	–	–	–	–	–	–	2
20	–	100	–	–	–	–	–	–	–	–	–	–	–	–	1
21	–	–	–	–	–	100	–	–	–	–	–	–	–	–	1

Milpa	L patio NE	L patio SE	L patio NW	L patio SW	En-closed	Dis-persed	3 side E	3 side N	3 side S	3 side W	Facing EW	Facing NS	Back to back	Side by side	Total
22	–	–	–	–	–	–	–	–	–	–	–	–	–	100	1
24	–	100	–	–	–	–	–	–	–	–	–	–	–	–	2
28	50	–	–	–	–	–	–	–	–	–	–	–	–	50	2
29	–	–	–	–	–	100	–	–	–	–	–	–	–	–	1
30	100	–	–	–	–	–	–	–	–	–	–	–	–	–	1
31	–	–	–	–	–	–	–	–	–	–	–	100	–	–	1
32	33	11	–	–	–	11	11	33	–	–	–	–	–	–	9
33	80	–	20	–	–	–	–	–	–	–	–	–	–	–	5
34	–	100	–	–	–	–	–	–	–	–	–	–	–	–	3
36	17	17	–	17	–	–	–	–	–	–	–	–	33	17	6
Total	45	20	11	3	8	6	9	4	2	1	4	5	3	8	129
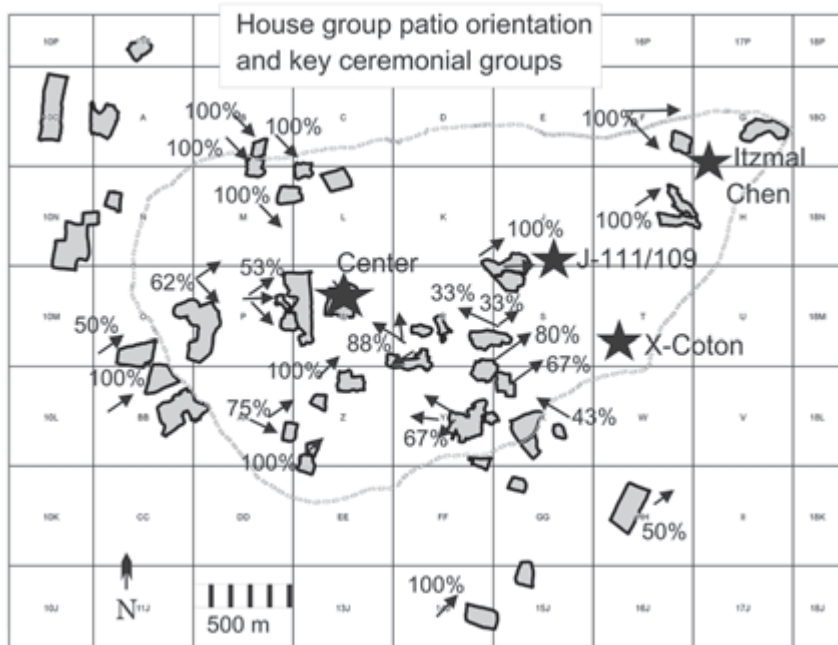
Figure 5.17. *House group patio orientations with respect to monumental foci within the city walls. Percentages indicate the proportion of residential groups (> one house) that formed patios within milpas oriented as the arrows indicate.*

wall alignments. Others appear to have been self-standing, but it is difficult to know whether perishable shelters once enclosed them. Pole and thatch structures would have been common at Mayapán, as they are used widely across the peninsula today for sleeping, food preparation, storage, or other domestic tasks. Remains of such features are reported from Cozumel sites (Freidel and Sabloff 1984:21). A. Smith (1962:220) thought that kitchens were likely represented by exterior platforms or benches that were attached to the ends of houses. Alternatively, he suggests that small separate platforms may have also been used for cooking. Smith observed that more than 260 houses at Mayapán had exterior platforms or benches that could have been part of kitchens.

Enclosed bench structures are small wall foundation edifices in which the majority of interior space is filled by a bench (figure 5.18). These small structures may fully encompass a single bench or allow a limited amount of standing room relative to bench-filled space. Most of these are too small to

FIGURE 5.18. *Illustrations of external benches that are within or near residential groups. External bench structures include freestanding quadrangular edifices not contained within other alignments and bench houses in which the majority of an enclosed space is filled by a bench.*

have been houses. Some may have been shrines or sanctuaries. While they are not centrally placed in patios, they usually frame one side of a domestic patio. Occasionally they are isolated at a short distance from dwellings. These structures closely match descriptions of group shrines identified by A. Smith (1962:222, figure 12a–f, n–t), which are essentially altars enclosed by buildings. One possible function for larger bench houses is that men used them as isolation huts during rites of passage (Freidel and Sabloff 1984). Many kinds of outbuildings are described in documentary accounts, including storage huts, granaries, kitchens, sleeping structures, pigpens, and apiaries (Freidel and Sabloff 1984:11), and all of these edifices, except for pigpens and apiaries, may be represented by enclosed bench structures. There are many kinds of small buildings without benches indicated by whole or partial wall alignments in the domestic groups and enclosed fields of Mayapán. Outbuildings that lack benches are described separately later in this chapter. Excavation is needed to determine the functional variation of outbuildings, including enclosed benches.

The locations of patio shrines (N = 13), external benches (N = 24), and enclosed benches (N = 16) are listed in table 5.6. Eleven shrines or oratories and two houses with rear shrine rooms are also listed, as these represent additional feature types with benches. Of 506 structures recorded in thirty-six milpa samples, these sixty-six features form only 12.8 percent of the sample. If all of the enclosed benches and external benches were shrines—which we doubt—this is a very small proportion of ritual features at the site. When the forty external benches and bench houses are excluded from this calculation, patio shrines, shrine/oratories, and rear shrine rooms represent only 5.1 percent of our sample. Altars were also rare in perishable dwellings at Cozumel sites, and for that study, the presence of two or more shrines was considered to be an indication of a specialized group rather than a normal house compound (Freidel and Sabloff 1984:16, 57). Such a ritual courtyard (group R-142) was identified in Milpa 10, and Milpa 34 has numerous nonresidential bench features that also suggest an anomalous level of specialized activity (figure 5.18).

Two ritual compounds and one elite residential group in our sample housed oratories while other oratories were with unassuming domestic groups (table 5.7). Fifty oratories were identified by A. Smith (1962:220–21:figure 7) at Mayapán; twenty of these had masonry columns, and all but four were single room structures. They often contain mortuary features. Twenty-two of them are described in detail by Tatiana Proskouriakoff (1962a) and A. Smith (1962), most of which were in the monumental zone or in neighborhoods adjacent to it. Mapped milpa residential zones with oratories tend to have at least

TABLE 5.6 A list of structure numbers, contexts with which they are associated, and location (Milpa) of external benches, enclosed bench, and patio shrine structures.

Exterior bench (self standing)			Enclosed bench structures		
Structure	*Context*	*Milpa*	*Structure*	*Context*	*Milpa*
R-178c	Residence	32	Q-184	Residence	1
Y-11c	Residence	32	Z-41a	Outbuilding	2
Q-321 (with Q-46b)	Elite residence	1	Z-200	Outbuilding	2
Q-315	Residence	1	Y-59	Residence	6
P-200	Residence	1	Y-47	Outbuilding	6
Z-47a	Outbuilding	2	X-41b	Isolated residence	7
X-200	Isolated residence	7	X-50	Residence	7
unnumbered	Isolated residence	11	X-54	Outbuilding	7
R-111a	Residence	11	X-47b	Residence	7
R-100a	Elite complex	11	C-200	Isolated residence	19
R-102a	Elite complex	11	R-171c	Isolated residence	32
R-104a	Elite complex	11	R-177a	Residence	32
R-105a	Elite complex	11	B-5	Residence	34
O-29a	Isolated residence	12	M-12a	Residence	34
P-69a	Isolated residence	12	B-7a	Residence	34
BB-206	Isolated residence	13			
J-127d	Isolated residence	15			
14-J-8	Outbuilding	30		Patio shrine	
14-J-9	Outbuilding	30	P-23e	Residence	1
B-200	Bench field/near residence	34	Q-42f	Elite residence	1
B-202	Bench field/near residence	34	Z-191a	Residence	5
B-6	Bench field/near residence	34	HH-1b	Isolated residence	8
B-201	Bench field/near residence	34	X-23d	Isolated residence	9
B-3	Bench field/near residence	34	S-133d	Elite residence	10
			S-130c	Residence	10

TABLE 5.6—*continued*

Exterior bench (self standing)			Enclosed bench structures		
Structure	Context	Milpa	Structure	Context	Milpa
			R-142e, R-142g	Ritual quadrangle	10
			BB-9b	Isolated residence	13
			Q-244e	Elite residence	32
			Y-41c	Residence	33
			Q-41f	Elite residence	1

one major upper-status house or administrative feature (Milpas 1, 6, 10, 11, 15, and 32). The presence of resident elites within a neighborhood seems to have resulted in the construction of more permanent or formal ritual features. Patio shrines are located at a few commoner houses, although they are uncommon (Milpas 5, 8, 9, 10, 13, and 33).

A. Smith (1962:228, 221–22) observed that one hundred dwellings at Mayapán had altars built within them, and another forty had separate shrines or shrine rooms. He notes that eighty more had group altars. Dividing these 220 features by Smith's 2,100 total surveyed dwellings reveals that 10.5 percent of the site's domestic structures had formal ritual features. Commoners at Mayapán likely shared general belief systems and would have participated in household and public religious acts, as in earlier periods (Gossen and Leventhal 1993). But identifying household religious practice does not imply a decentralization of religious power compared to earlier times, as Donald E. Thompson and J. Eric S. Thompson (1955:238–42) suggested. Household shrines are as frequent (or more so) at Tikal (Becker 1999) as they are at Mayapán, and the rulers of both cities invested heavily in public religious buildings and ceremonies.

DWELLING SIZE

A discussion of elite houses as focal nodes in the city's settlement zone is provided in chapter 4. These edifices are defined by their size and number of rooms; ten Tier 1 residences are identified and eleven Tier 2 smaller elite residences have been located (table 4.1). The three most elaborate palaces are located in Square R (groups R-85–91, R-96–98, and R-100–106), just to the east of the monumental center and its portal gate (chapter 3). Two of these palaces have vaulted tunnels that run beneath their supporting platforms, and

TABLE 5.7 List of oratories or related edifices with shrine rooms identified at Mayapán in our mapped milpa sample. More will probably be found in future mapping, and Carnegie investigators reported at least twenty-two other examples (Proskouriakoff 1962a; A. Smith 1962).

PEMY oratories identified
R-142c (ritual group)
P-28b (residence, also identified by the Carnegie project)
P-21b (possible oratory)
P-23c (possible oratory, also identified by the Carnegie project)
S-10a (residence)
S-10b (residence)
R-172b (residence)
R-168b (residence)
P-21b (or house with rear shrine room)
R-202 (ritual group)
S-2b (residence)
Y-45c (elite residence)
R-100 (elite residence, house with rear shrine)

one of these groups forms the northern terminus of the city's principal sacbe (Proskouriakoff and Temple 1955).

SMALLER ELITE OR WEALTHY HOUSES

Some of the elaborate dwellings identified by A. Smith (1962:218) do not exhibit surface evidence of amplified size or elaboration, although they had rich graves. Similarly, House Q-39, next to elite palace group Q-41 in Milpa 1 (west of the monumental center), appeared relatively simple on the surface, although its size is toward the larger end of the continuum of commoner house sizes (figure 4.8). House Q-39 was encircled by its own albarrada and was considered a logical candidate for the home of domestic servants prior to its excavation in 2009 (M. Delgado Kú 2012a). Full horizontal investigation revealed a stone-lined cist with multiple interments and rich grave goods, including greenstone beads, thirty-six copper bells, a monkey effigy copper bell, copper tweezers, a scrollwork copper ring, a shell ring, shell beads, a ceramic effigy urn, miniature pottery vessels, and figurine fragments. This grave rivals the wealthiest found at Mayapán. Such houses may have been

occupied by expanding members of elite families who also occupied adjacent palatial platforms. This example illustrates the problem of identifying secondary elite houses at Mayapán without excavations, especially in cases where surface architecture is of a size that could also represent commoners. While most of the commoner houses at Mayapán lend themselves to more straightforward evaluation using survey data, such efforts must be considered preliminary.

House Size Comparisons

Dwelling size at Cozumel varies considerably and reflects a range of activities performed by occupants of differing size and membership composition (Freidel and Sabloff 1984:181). Cozumel house sizes (40–60 square meters) are at the larger end of the range of ethnographically recorded Maya dwellings (20–60 square meters), which have a mean size of 28 square meters (Freidel and Sabloff 1984:11, table 2). The largest elite dwellings at Mayapán fall within a size range of 81–572 square meters (table 3.1). Palaces are larger than all of the other dwellings (309–572 square meters), except for non-palatial group R-20–23 (413 square meters). Other than the palaces, Tier 1 elite residences are defined as those that range from 152 to 413 square meters and Tier 2 elite residences range from 81.6 to 282 square meters, overlapping with the Tier 1 classification at the upper end. The Tier 1 category is based on architectural elaboration as well as size.

We calculated the size of all probable dwellings from a digitized version of the Carnegie (Jones 1962) map for comparative purposes (figure 5.19). The probable dwelling identification was given to structures exhibiting the rectangular shape, surface characteristics, and association (patio groups) of known domestic architecture for the site. The interval distribution of probable dwellings for the entire site is shown in table 5.8 (figure 5.19); 73.2 percent of these structures fall within 20–70 square meters and 8.5 percent fall within 71–80 square meters. Although the range shown for elite houses on table 4.1 is broad, only 15.9 percent of probable dwelling structures on the comprehensive site map are greater than 80 square meters and only 7.3 percent are larger than 100 square meters. All but two of our elite dwellings on table 4.1 (those 102 square meters or higher) fall within this upper 7.3 percent (figure 5.19). The top eleven values (177 square meters and higher) fall within the upper 1.6 percent of probable dwelling sizes for the entire city. Size appears to be one useful indicator of elite status, and smaller structures such as R-9 and R-100 may merit closer examination for nuancing the concepts of status and wealth at the city.
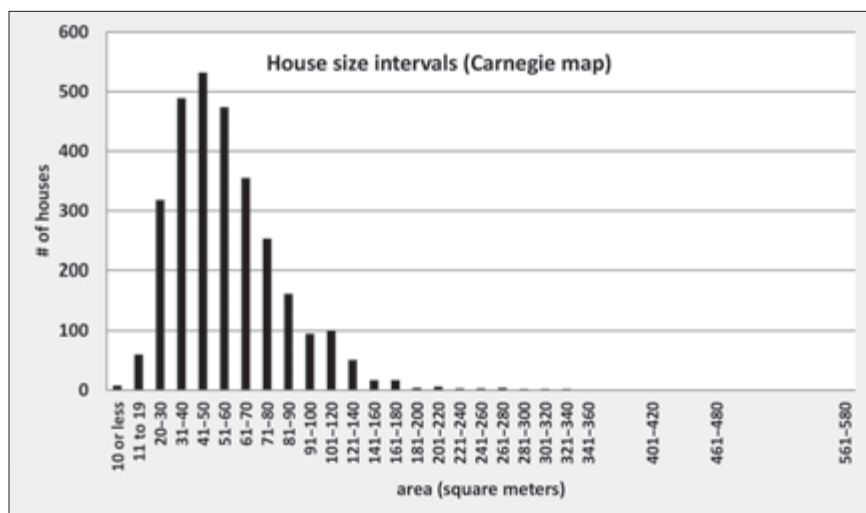
FIGURE 5.19. *House size intervals at Mayapán, as calculated from digitized data from the map by Jones (1962).*

Our probable dwelling calculations described above come from 2,961 structures on the Carnegie map (table 5.8; figure 5.19), although not all have been positively identified as dwellings. The mean for this sample was 58.8 (standard deviation 35.2), with a range of 4.4–572.4 square meters. Only six structures were smaller than 10 square meters (and are unlikely dwellings), and only seventeen edifices in this sample were smaller than 15 square meters. The fact that the sizes of fifty-one houses fall between 15 and 19 square meters suggests that this may have been an important class of small structures—perhaps dwellings—at Mayapán. These small structures were included in the calculations because they share shapes and context types with more average houses. Brown (1999:128) defined a residence as a structure of at least 20 square meters with one or more benches—a reasonable measure given the 28-square-meter average of traditional houses today. Sixty-eight of the structures that we measured from the Carnegie map are less than 20 square meters. If we eliminate those structures, the new mean (60.0) and standard deviation (34.9) are nearly identical to that of the entire sample that originally included them. As discussed previously in this chapter, some houses at Mayapán do not have benches. Most of the probable dwellings (86.9 percent) on the Carnegie map fell within one standard deviation

from the mean (ranging from 23.6 to 94 square meters). This range is generally similar to Brown's (1999:122, table 2) calculations for a set of forty Mayapán residences, although more large houses appeared in our sample. Values within one standard deviation of Brown's mean (46.65) ranged from 22.5 to 70.7 square meters. House sizes from our mapped milpas (196 houses, figure 5.20) also yield a smaller mean (52.01 square meters) and standard deviation (29.5) compared to results from the comprehensive Carnegie map. The majority of the samples fall within one standard deviation above or below the mean (figures 5.19, 5.20).

Location and Household Size

We have previously discussed the fact that while larger houses are more commonly found near the site center, secondary elite houses are also clustered near the Square K plaza and are also dispersed as relative isolates in other neighborhoods (figure 5.6, chapter 3). As also noted, house size is not well correlated with albarrada enclosure size. Two other factors exhibit complex relationships with house size: elevation and the number of houses within a group. As we described in chapter 3, construction activities sometimes substantially modified and amplified altillos at Mayapán. All houses larger than 120 square meters were on altillos, which afford natural elevation and the benefits of better air circulation and views. But altillos were plentiful at the city, and commoners regularly built houses on them (figure 5.21). Some larger houses (80–120 square meters) are present in off-altillo locations, and this suggests that other locational factors were sometimes more important than elevation.

The number of houses within a patio group is sometimes a correlate of extended family size and wealth in Maya archaeology (Tourtellot 1988:339; Hendon 1991). Although this attribute has been previously discussed, it is interesting to consider the relative sizes of houses within groups with various numbers of dwellings (figure 5.22). Groups with more houses than the norm (four or five house groups) at Mayapán seem to have been occupied by commoners, according to house size ranges that fall between 30 and 70 square meters for these groups (figure 5.22). Two house groups may well represent a Mayapán ideal, in part due to their ubiquity, and also because this configuration is found for a wide range of elite and commoner house sizes. Isolated residences, as might be expected, exhibit a greater proportion of smaller houses—76 percent of these houses are smaller than 60 square meters.

Table 5.8 Intervals of probable house mound sizes, calculated from a digitized version of Jones's (1962) Carnegie project map

Square meters	Number	Percent
10 or less	8	0.30
11–19	60	2.00
20–30	318	10.70
31–40	489	16.50
41–50	532	18.00
51–60	474	16.00
61–70	355	12.00
71–80	253	8.50
81–90	162	5.50
91–100	95	3.20
101–120	100	3.40
121–140	51	1.70
141–160	17	0.60
161–180	17	0.60
181–200	4	0.10
201–220	6	0.20
221–240	3	0.10
241–260	3	0.10
261–280	4	0.10
281–300	2	0.10
301–320	2	0.10
321–340	2	0.10
341–360	1	0.03
401–420	1	0.03
461–480	1	0.03
561–580	1	0.03
Total	2,961	
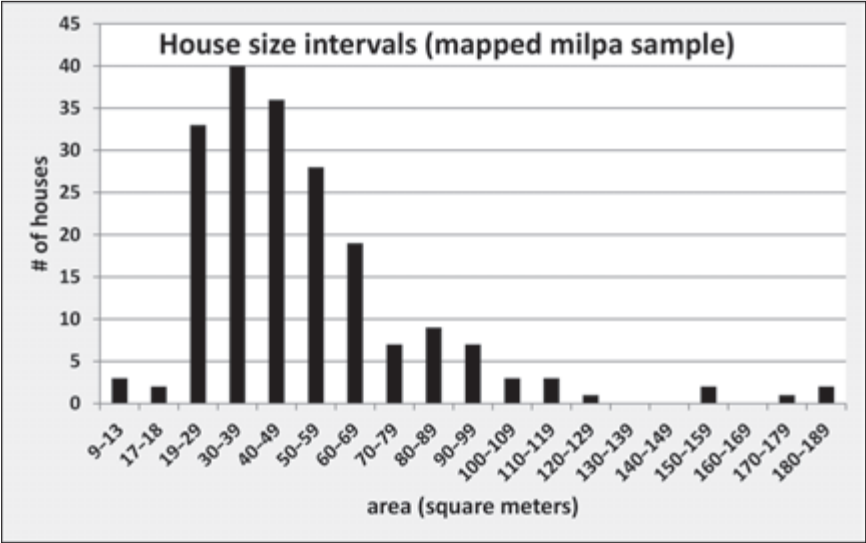
Figure 5.20. *House size intervals at Mayapán, as calculated from mapped milpa samples (PEMY project).*
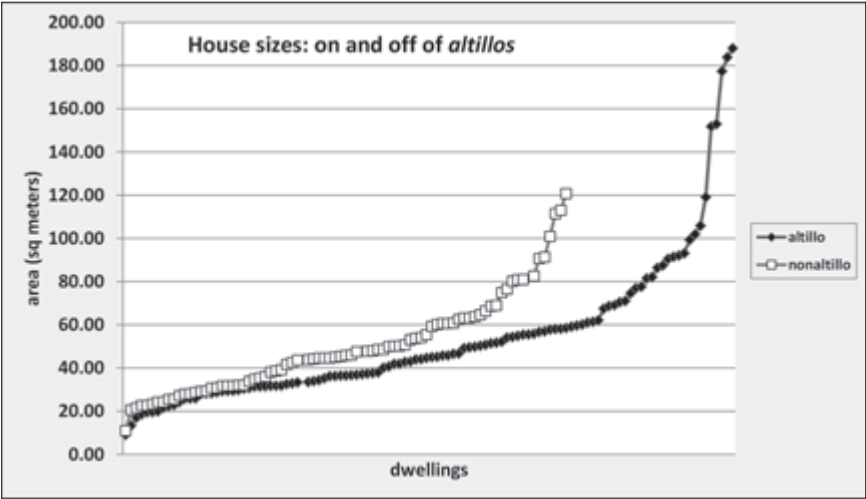
Figure 5.21. *House sizes located on and off altillos (natural knolls). Both large and small houses are regularly found on altillos at Mayapán, though some large houses are not on them.*
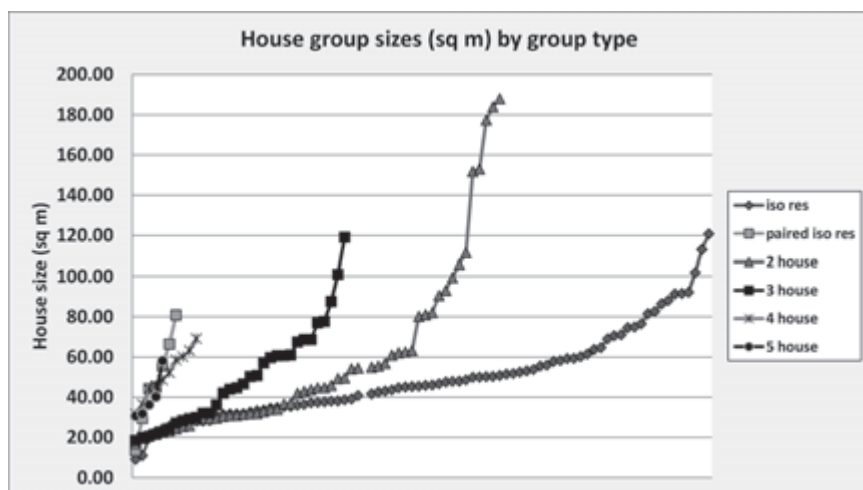
Figure 5.22. *House groups classed according to the number of houses within each albarrada enclosure, graphically displayed by frequency and size (area). The largest houses are arranged in two house groups.*

ALBARRADA ENCLOSURES

Albarrada enclosures reflect residential and nonresidential uses of space across the city. As described in chapter 4, some stone walls delineate lanes between residential and open areas for pedestrian traffic. Stone enclosures also define houselot space, much like the solare enclosures of traditional Yucatecan towns today, which contain dwellings, outbuildings, gardens, and animals. Nonresidential enclosures, as defined here, mark spaces without dwellings, including small pens, garden or orchard spaces, or empty lots where diverse agrarian, animal husbandry, or informal activities may have occurred. Although some houses at Mayapán were not enclosed by albarrada walls (see figure 4.5), in this chapter we confine our analysis to enclosed houselots.

Houselot Size and Dwelling Size

Property walls at Mayapán and other Maya sites have long captured the interests of archaeologists in terms of their implications for land ownership and wealth. Although wealth differences are evident at the site based on other measures, the area enclosed by houselot walls is not a helpful metric for affluence. A. Smith (1962:209) also observed that larger or more important
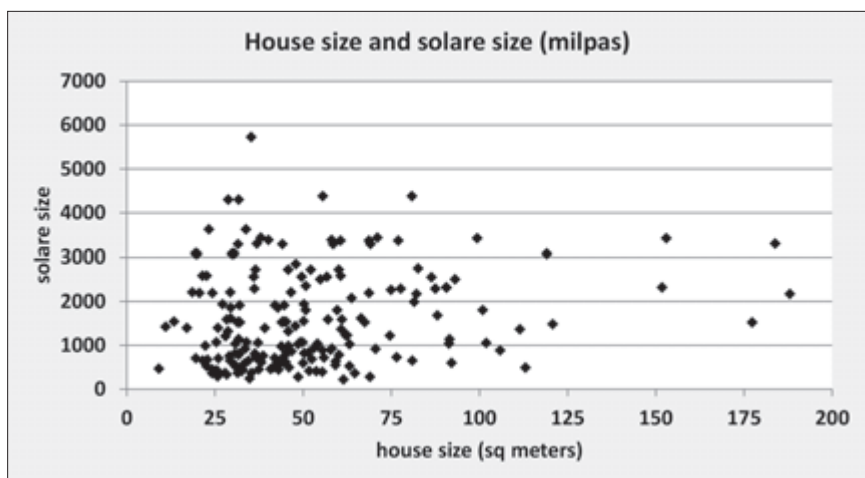
Figure 5.23. *The scatterplot illustrates no clear relationship between house size and solare (enclosure) size (as defined by albarrada wall houselot enclosures) at Mayapán. Larger houses were not situated within larger yards.*

house groups were not necessarily situated within greater domestic enclosures. Oddly, greater occupational density in central Mayapán does not result in more divided, smaller houselot enclosures. While some individual houselots show evidence of such fissioning, there is a considerable range of variation in areas within the heart of the city.

The lack of a good correlation between house size (a proxy for wealth and status) and houselot enclosure size indicates that the relationship of property ownership and domestic social groups was complex. The association of nonresidential walled (or open) field spaces with specific dwelling groups is in some cases difficult to ascertain, and in other instances, like Milpa 29 (figure 5.10), linkages are quite clear. There is currently no way to determine the amount of unoccupied land controlled per dwelling, as some fields were not enclosed. Family ownership of orchards, gardens, and other resources would have been important (McAnany 1995). Open fields may have been used for cultivation or as commons areas for a range of pursuits (Dahlin et al. 2010). It is probable that houselots and enclosed fields were used for fruit trees and other crops as they are today.

Notably, domestic enclosure sizes are not statistically linked according to four key variables: (1) the size of structures contained within the albarrada, (2)

the number of structures contained within the albarrada, (3) proximity to the site center, or (4) proximity to the city wall. Ordinary least squares and spatial regression were used to assess these relationships with albarrada enclosure size as the dependent variable (Drennan 1996; Anselin 2003; Fotheringham, Brunsdon, and Charlton 2000). For example, the number and area of residential structures produce weak results of low significance, with adjusted R-squared values of 0.28 and 0.29, respectively. Tests for spatial dependence indicate no apparent spatial patterning to the relationships among the variables tested. Our findings are different from those of Brown (1999:136), who documented better statistical correlation between domestic enclosure area and the number and size of structures (r values of .68 or higher). But most of the examples used in his study came from Squares H and I, along the eastern periphery of the city wall. Significantly, Brown (1999:138–40, 142) suggested that cultural norms were influential in setting limited ranges for solare sizes, as space was available in this part of the city for larger enclosures, but residents did not expand accordingly. Comparisons between Mayapán, Cobá, and Cozumel reveal a suprising degree of consistency in houselot enclosure sizes (Brown 1999:142).

Some quantitative comparisons help to demonstrate solare size patterns (table 5.9). House sizes in enclosures larger than 3,000 square meters primarily fall within one standard deviation of the mean house size (20–80 square meters), and all houses in solares larger than 4,000 square meters are also within this range (figure 5.23). But extremely large houses are not found in solares of less than 1,000 square meters—five of the seven largest houses (near 120 square meters or larger) are in enclosures of 2,000–3,500 square meters; the other two are in houselots of 1,000 square meters. Houses smaller than 120 square meters are found in solares of all sizes (figure 5.23).

Houselot Size and Location

In Milpa 1, next to the city's epicenter, houselot enclosures range from 215 to 3,421.1 square meters and the mean is 1,006 square meters. Enclosures in other milpas within 500 meters from the site center range from 140 to 5,238 square meters and have a mean of 1,448.3 square meters (table 5.9). Beyond 500 meters from the center (within the wall), enclosures range from 77.2 to 3,623.6 square meters and have a mean of 1,101.1 square meters (table 5.9). Houselot areas outside of the city wall range from 166.4 to 2,365.6 square meters and have a mean of 603.1 square meters (table 5.9). The degree to which these ranges overlap illustrates the fact that location does not easily predict houselot

enclosure size. The mean residential solare area for the total sample of mapped milpas and William R. Bullard, Jr.'s mapped squares (figure 4.3) is 1,084.9 square meters (standard deviation 783.4), with a range of 73.5–6,060.4 square meters. Table 5.9 reveals that the majority of the 587 residential enclosures (87.4 percent) fall within three intervals ranging from 121 to 1,775 square meters in area, with the greatest proportion in the interval of 602–1,189 square meters.

The ranges and means may be less informative than examining aberrant cases in certain parts of the city. For example, solare sizes graphically illustrated in figure 5.24 reveal the existence of a few clusters of larger houselots in the eastern part of the city as well as some clusters of smaller houselots to the south of the site center. The map reveals many solares that are close to the mean value in both areas. The existence of concentrated sets of larger or smaller enclosures may signify special social or economic characteristics for these anomalies.

Comparative information from Laraine A. Fletcher's (1983:table 8.1) study of enclosures at Cobá is provided in table 5.9. The majority of reported Cobá houselot areas fall within the same interval ranges as those of Mayapán, although the greatest proportion of solares from Cobá (30.4 percent) is found in the interval of 120–600 square meters, which is smaller than the most common solare area range for Mayapán. Similarities are revealed by the fact that 60.9 percent of Cobá's solare areas fall within the same three intervals as 87.4 percent of Mayapán's solares, and this suggests that certain size ranges were probably viewed as the most practical by the inhabitants of these sites. Fletcher reported that modern solares around Cobá range from 375 to 2,500 square meters, with a mean of 1,392 square meters, and this value falls within the most common interval ranges for both archaeological sites. Unlike Mayapán, houselot enclosure size is better correlated with residential size and status at Cobá (L. Fletcher 1983:128), although larger solares do not concentrate around the spacious outskirts of either city (Fletcher and Kintz 1983:112).

Hilltop Ring Albarradas

Some houselots are defined by albarrada walls that closely encircle residential and ancillary buildings with little extra space. These ring albarradas reflect a concern with containing architecture rather than the full topographic features on which buildings are placed. Many ring albarradas are on top of altillos, and these are common near to or outside of the city wall (figure 5.25). Hilltop ring albarradas would have afforded good privacy and perhaps a greater sense of defense for those living beyond the wall. Houselots

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TABLE 5.9 Bullard and PEMY (mapped milpa) residential albarrada enclosure area, compared to Cobá (Cobá data from L. Fletcher 1983:table 8.1).

Interval: Enclosure area (square meters)	Bullard/PEMY residential enclosures (number within interval)	Bullard/PEMY residential enclosures (percent within interval)	Cobá residential enclosures (number within interval)	Cobá residential enclosures (percent within interval)
73 or less	2	0.3	2	8.7
92–104	–	–	2	8.7
120–600	147	25.0	7	30.4
602–1189	257	43.8	4	17.4
1205–1775	109	18.6	3	13.0
1803–2379	33	5.6	2	8.7
2437–2861	18	3.1	2	8.7
3297–3577	12	2.0	–	–
3623–4379	6	1.0	–	–
4912–5238	2	0.3	–	–
5884–6060	1	0.2	1	4.3
Total	587	100	23	

E-50 and AA-103 include Mayapán's city wall as part of their enclosures. Of twenty-six ring albarradas identified in the mapped milpa and Bullard survey sample, twenty-three are within 150 meters of the city wall, including nineteen outside of the wall and four at the eastern edge of the site. Three additional examples are near the Square K market plaza. Some tightly ringed enclosures also exist in low-lying areas (e.g., groups AA-107, AA-7, Z-68, Z-162, K-33, and H-9). A concern for privacy or defense in the city's periphery best explains these patterns.

NONRESIDENTIAL ENCLOSURES

The walled field system of Cozumel suggests that Contact Period European claims of communally owned land were inaccurate, or, minimally, oversimplified. While villages or towns may have technically owned land in common, families likely maintained longstanding rights to the fruits of their own labors, including walled areas, orchards, and crops. Developed land was more clearly linked to those who transformed it (McAnany 1995). Freidel and Sabloff
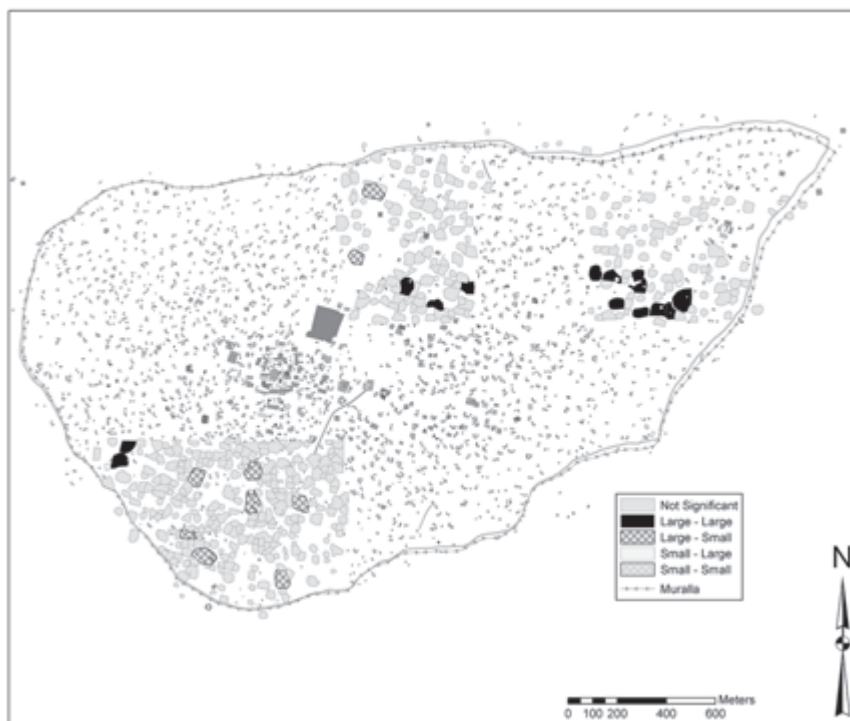
FIGURE 5.24. *The map graphically displays the degree of spatial proximity of larger and smaller albarrada enclosure sizes. The black shaded solares are statistically larger and more clustered together. The crosshatched solares are statistically more dispersed (i.e., larger solares are farther from other, larger, solares and are surrounded by smaller solares). Map by Timothy Hare.*

(1984:183) suggest that nobles probably claimed rights to land and would have wielded political power over rights or obligations to cultivate. As agrarian properties flourished, it is likely that some farmers wielded considerable negotiation power with respect to retaining their holdings. Poorer farmers, newcomers, or enslaved persons would have had less access to resources. Spanish chroniclers had little stake in recognizing property ownership in order to advance their own claims (Kepecs 2003).

Two types of nonresidential walled enclosures at Mayapán include pens and fields. These are working terms that await better evidence with respect to their use. Pens are found in two forms: self-contained units and those that incorporate a portion of a houselot boundary wall for at least one side (figure

FIGURE 5.25. *Location of hilltop ring albarrada houselot enclosures mapped by the PEMY project.*

5.26, other examples in figures 5.2, 5.11). A total of 105 pens have been identified in our mapped milpa samples, and they are widely distributed within and beyond the city wall (figure 5.27). Pens may have been used for storing agricultural products or to contain animals such as deer, turkeys, dogs, or peccary, as illustrated by a modern example in figure 5.28 (Thompson and Thompson 1955:231; A. Smith 1962:224). Faunal analysis suggests that at least one-third of the city's supply of white-tailed deer derived from husbandry activities in Mayapán's houselots (Masson and Peraza Lope 2008). Many of these deer were consumed upon reaching late adolescence or early adulthood, and their age-at-death profiles do not conform to expectations for a hunting pattern, in contrast to peccary and brocket deer. Some older white-tailed deer may have been obtained in the wild, but the high number of full-size subadult white-tailed deer is far beyond levels normally reported for Maya sites (Masson and Peraza Lope 2008). Turkeys were also a vital component of the city's sustenance. While turkey and dog could have ranged free within houselot boundary walls, pens may have been useful for peccary or deer, which could also have been tethered, as Madrid Codex images reveal (Villacorta C. and Villacorta 1976:42c).

Fields are defined in this study as inter-residential spaces that do not contain domestic structures that are defined on at least three sides by walls (figures 5.9–5.11, 5.29). They could have been used for infield agriculture, as suggested for other northern Maya sites (Killion 1992a, 1992b; Hutson et al. 2007), although other uses are possible. Such spaces are under milpa cultivation today (as are ancient houselots), and their productive potential is adequate. Fields, like pedestrian lanes, are often defined by configurations of houselot boundary walls of the domestic clusters that border them, and some fields may not have been consciously planned.

Field area is highly variable, ranging from 77.2 to 3,275.3 square meters, with a mean of 811.3 square meters. Like pens, fields are widely distributed, and this indicates that no part of the walled city was dedicated exclusively to cultivation (figure 5.30). Generally, fields have low artifact densities. Out of 127 mapped fields, only eleven exhibited surface artifact concentrations identified in systematic survey. No evidence for fertilization of enclosed fields has been found, as many of these areas have red (kancab) clays that naturally occur in the area. Some parts of Mayapán exhibit an anthropogenic dark earth soil with a high carbon content, but this soil is deeper within residential enclosures compared to areas (such as fields) outside of them.

Other fields at Mayapán may not have been enclosed. Open spaces are discernible in patches across the city (figures 4.5, 4.6). Such open lots could have been cultivated, used as open thoroughfares for pedestrian traffic or commons areas, or for local markets. Given that some houselots were not enclosed by albarrada walls, it possible that some open field spaces were used for similar purposes as enclosed fields. It is significant that denser portions of central Mayapán persisted in maintaining field spaces for agriculture or other recreational, social, and economic uses, and this characteristic has long been noted for dispersed or low-density Maya cities (L. Fletcher 1983:131; R. Fletcher 2012). Families who lived in the city's interior probably maintained their own orchards and gardens, although they could not have provisioned their families solely from these small plots. Agrarian cultivation beyond the city wall would have been an important component of the city's food supply (Russell 2008a, 2008b), and Mayapán also probably traded for some of its food (chapters 6, 8; Masson and Freidel 2012).

BURIALS AT MAYAPÁN

Mayapán mortuary contexts and human remains have been well described and analyzed in prior works (A. Smith 1962; Serafin 2009, 2010; Serafin and
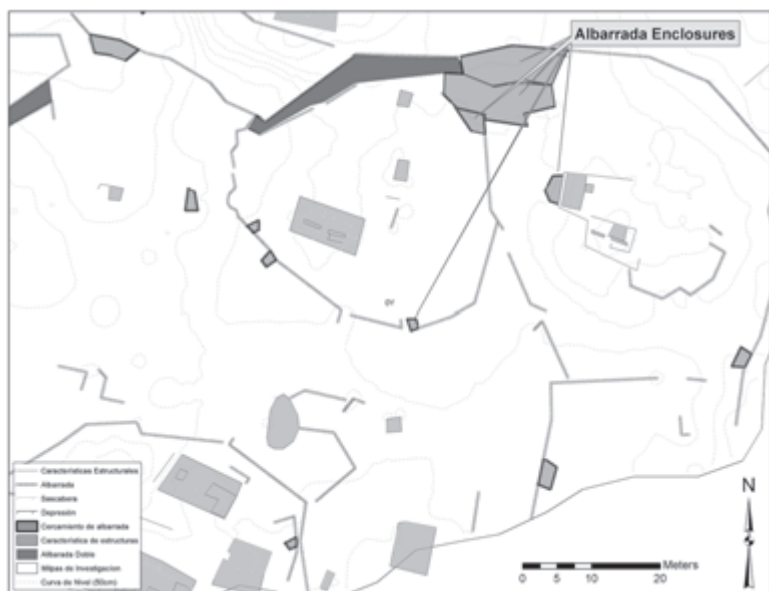
Figure 5.26. *Examples of pen enclosures adjoining houselot albarrada groups.*
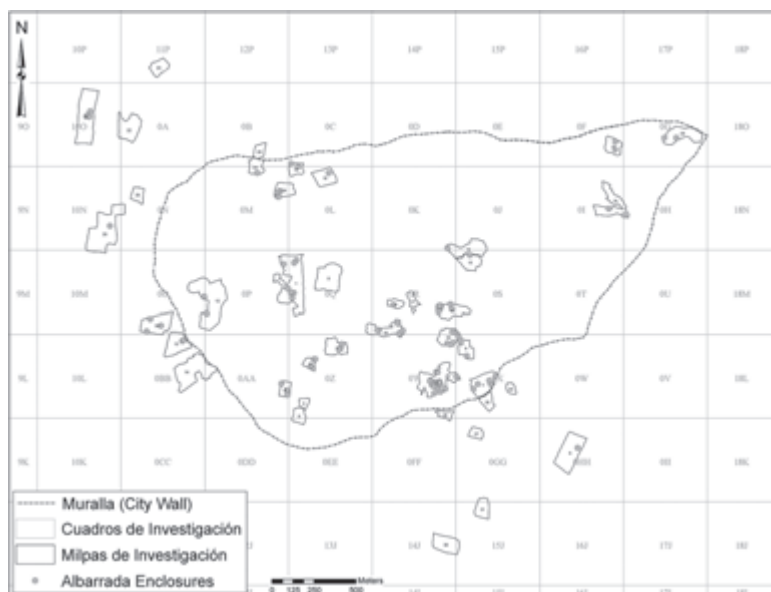

Figure 5.27. *Locations of pen enclosures mapped by the PEMY project.*
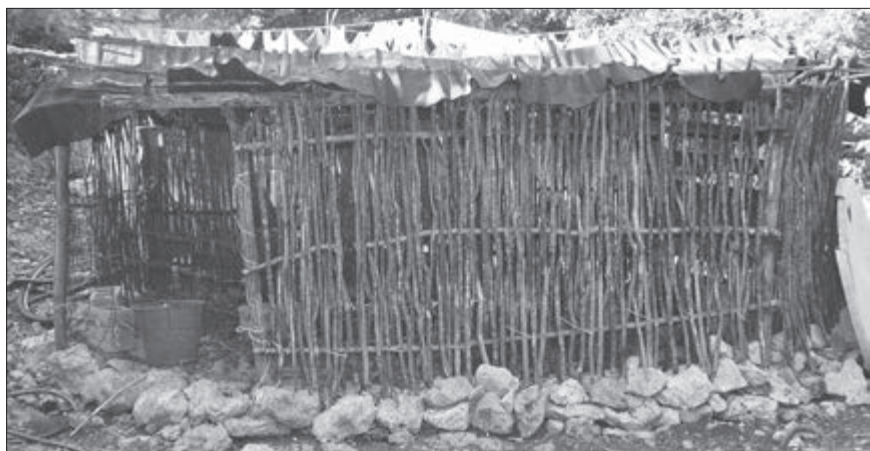
FIGURE 5.28. *Modern animal pen from a houselot in Telchaquillo, Yucatán (2009). Foundation walls resemble those of ancient examples at Mayapán.*

Peraza Lope 2007; Hutchinson 2010). Our excavations in the settlement zone have recovered thirteen burials of Postclassic age in which the remains of at least forty-two individuals were present (table 5.10). Twenty of these individuals were part of a mass grave at the Itzmal Ch'en ceremonial group (chapter 2; Serafin 2010). The remainder of the sample comes from ten residential contexts, including two multi-interment cists within dwellings as well as a variety of off-structure locations. Brown (1999:124) also found three off-structure burials at Mayapán.

As A. Smith (1962:252) aptly stated, mortuary customs at the site followed "no fixed rule." A wide range of patterns reveals individual and group burials, off-structure burials beneath midden soils in bedrock cavities; cist and tomb burials in structures; and primary, secondary, and cremation interments (figures 5.31, 5.32). The frequent use of bedrock depressions for off-structure burials suggests advanced knowledge or exploration of caprock configuration. Graves were probably marked by perishable materials, as burial intrusions have not been observed despite close spacing. Whistles as well as jointed figurines may have been toys, as they occur in high numbers with child burials (Masson and Peraza Lope 2012). Some grave goods may pertain to a person's profession, as Landa (1941:181) claimed. For example, an individual interred at Q-40a had a stucco-covered, plaster-mixing tool, a red pigment stone, a bird figurine whistle, and a copper bell (figure 5.32). This probable artisan lived at a residence where copper bells and effigy censer faces were made; figurines were likely
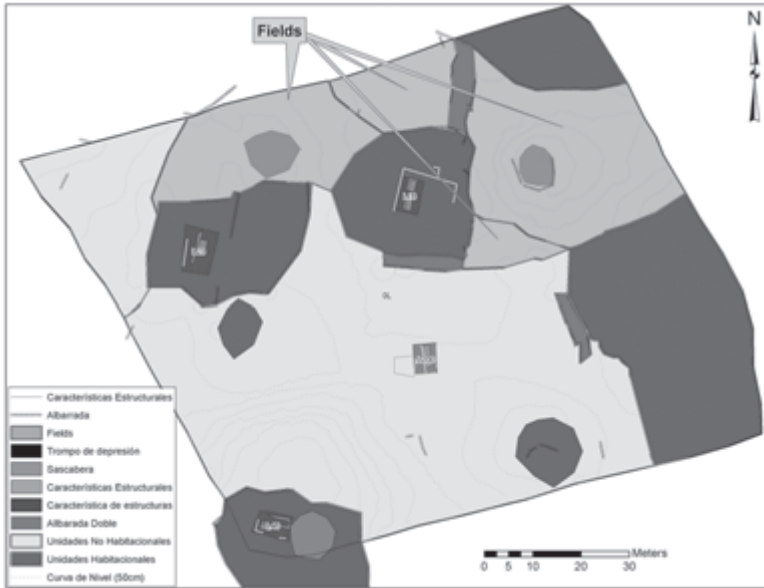
Figure 5.29. *Examples of enclosed fields outside of houselot space.*

Figure 5.30. *Locations of enclosed fields (nonresidential) mapped by the PEMY project.*

manufactured at this locale also. Effigy censer production is indicated at this house by a large number of face molds (Cruz Alvarado et al. 2012). Similarly, an off-structure child burial at House Q-176 included stacked pottery bases that were also used as offerings in the architecture of this dwelling. Russell, Robert H. H. Hutchinson, and Pedro C. Delado Kú (2012) argue compellingly that these anomalous offerings for the site are related to surplus pottery making at this locality (chapter 6).

The rich offerings of the multiple cist burial in Structure Q-39 were described previously in this chapter (figure 5.33). Most other offerings in the settlement zone were humble. Three burials had deer bone offerings. One of two infants buried near domestic platform P-114 had a metapodial awl behind the crania; the awl may have served to pin a textile that had wrapped the infant. Directly beneath this small individual was a single, complete deer cervical vertebra (figure 5.31a). Two whole deer vertebra and a modified antler were also found near a child interment within the Q-39 cist (figure 5.31b). Faunal analysis reveals that deer vertebrae are almost always at least partially fragmented in Mayapán deposits, and the perfect condition of these mortuary examples contrasts with the norm and underscores their use as offerings. Almost no other faunal bone was present in the soils of the burials where the deer vertebrae were found, suggesting that it was unlikely that the bone originated from midden fill. One other Mayapán burial, an adult female next to House R-110a, was buried with a complete left deer radius that was aligned with female's right radius and ulna bones (figure 5.31c). The deer bone was covered with concretion and may have been retrieved from a cenote. Such concretion has not been observed on other Mayapán faunal bone. One other potential female grave good is noteworthy. At House L-28, a 12–16-year-old subadult was found with a *Spondylus* pendant in the pelvic region. Peraza Lope et al. (2008:579) suggest that the teenager was a young woman who was wearing an ornament of purity as described by Landa (1941:106). A similar bivalve pendant was found near a child in the Q-39 cist (figure 5.33). Maxine Oland (2009) also recovered a deer vertebra with a protohistoric Maya burial at Progresso Lagoon, Belize, and deer skulls were included in a Postclassic grave at Caye Coco on this same lagoon. Traci Ardren (2002) argues that the inclusion of deer bone with burials at the Classic-era site of Yaxuna was symbolic of practices of deer raising by women. Our results provide some support for this association in the case of the R-110a female, but the use of deer bone in child burials suggests a broader and more complex meaning that is currently unclear. Possibly, the children were female.

Social identity or occupation is not always expressed explicitly in Mayapán graves. Combinations of interment types and diverse offerings can be found

TABLE 5.10 Burials in Mayapán's settlement zone (PEMY investigations 2002–2009). All were of commoner status except perhaps Q-39.

Burial number	Structure	Age	Offerings, description
03–01	P-114 massive platform	Infant (18–24 months)	Flexed, off-structure Next to Burial 03–02, sherd concentration
03–2	P-114 massive platform	Infant (9–12 months)	Flexed, off-structure Next to Burial 03–01, deer metapodial awl, deer vertebra
03–3	L-28	Child (12–16 years)	Flexed, off-structure Spondylus shell ornament
03–4	F-13a	Adult	Terminal Classic age Off-structure, partly excavated
03–5	L-28	Adult	Secondary (incomplete) burial In sascabera depression
03–6	Milpa 7, Square X, open field	Adult and infant (6 months)	Open field, not near structure Probable mother and child
03–7	R-110a	Adult (50+)	Off structure, side-flexed Female, concretion-encrusted deer radius next to burial's arm, additional half mandible of a 6–7-year-old juvenile human included in grave
03–8	Itzmal Ch'en group	Mass grave 20 individuals	On platform edge near surface by Hall H-15 Mass grave of burned and chopped individuals, mostly adults, effigy censers broken and abundant
none	I-56	Adult	Cavernous pocket of cenote in altillo of I-56 (not excavated) Mama Red jar
03–9	P-115b	Adult	Disarticulated remains Incomplete
08–01	H-11	Adult (50+)	Probable female, Terminal Classic age (pottery sherd offerings) Flexed, next to front structure wall (in patio)

TABLE 5.10—*continued*

Burial number	Structure	Age	Offerings, description
08–02	H-11	Adults (2)	Terminal Classic age (pottery sherd offerings) Side-flexed and tightly flexed, behind structure
09–01	I-55a	Adult	Female, off structure Flexed, time period unknown (possibly Terminal Classic)
09–02	I-55a	Adult	Male, off structure Flexed, time period unknown (possibly Terminal Classic)
09–03	Q-39	Adult (middle-aged)	Female, south end of cist, flexed, shark tooth Same cist as Burials 09–04, 09–05
09–04	Q-39	Mixed adult (at least 3) and infant (2 years)	North end of cist, elaborate, rich offerings of shell, copper, pottery, deer vertebrae, antler tine Same cist as Burials 09–03, 09–05
09–05	Q-39	Child (primarily) (4.5 years)	North end of cist, elaborate, rich offerings of shell, copper, pottery, deer vertebrae, antler tine Same cist as Burials 09–03, 09–04
09–06	Q-176a	Infant (2 years)	Off structure, stacked ceramic plates and small bone awl
09–07	Q-40a	Adult (35 years)	Male, flexed in cist, large sherds, plaster-covered mano Same cist as Burials 09–08, 09–09
09–08	Q-40a	Child (6–9 years)	Large sherds, zoomorphic pottery figurine, copper bell In same cist as Burials 09–07, 09–09
09–09	Q-40a	Adult (35–50 years)	In same cist as Burials 09–07, 09–08

among individuals that are part of a single cist or are among separate burials of the same house group. Mortuary features are not generally a strong indicator of ethnicity or neighborhood affiliation (Masson and Peraza Lope 2010). Three of the Postclassic off-structure graves found by our project did not contain offerings.
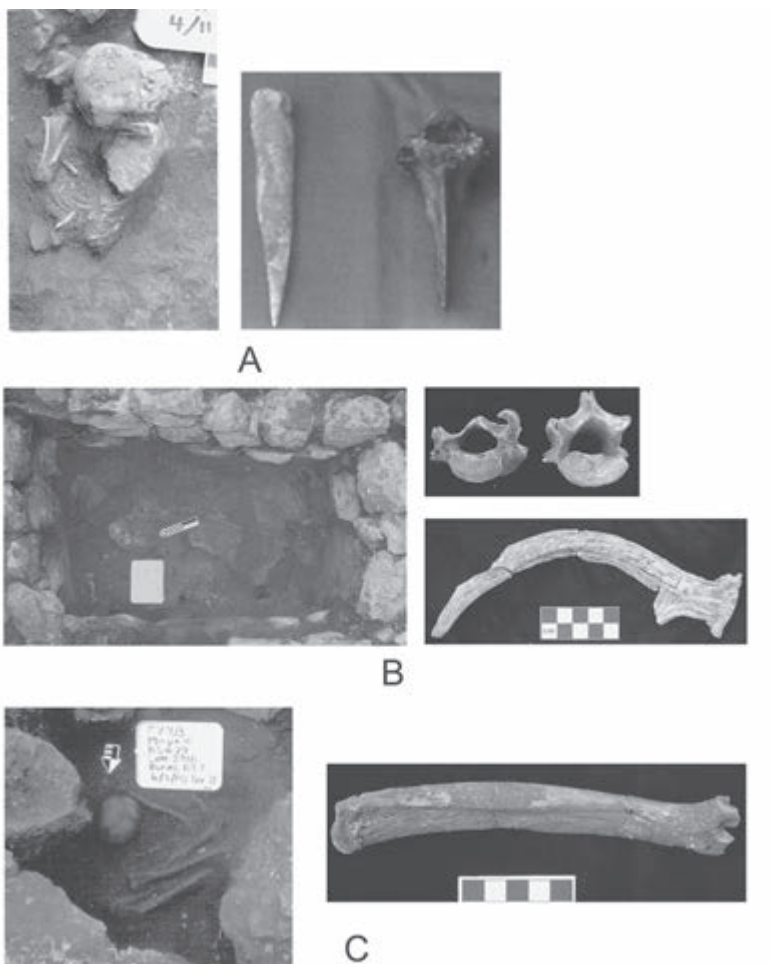
Figure 5.31. *Deer bone mortuary offerings in the PEMY settlement zone study area: (A) infant burial near dwelling P-114, with a metapodial awl and a complete vertebra beneath the infant; (B) a child interment in cist burial of dwelling Q-39, with two deer vertebrae and a modified deer antler; (C) an off-structure adult female near House R-110, with a left deer radius (covered in concretion) placed over her right forearm.*

POTTERY

Pottery from recent Mayapán investigations has been fully classified according to time period, type, form, and modes and yields valuable information regarding chronology and distribution that is presented elsewhere (Cruz
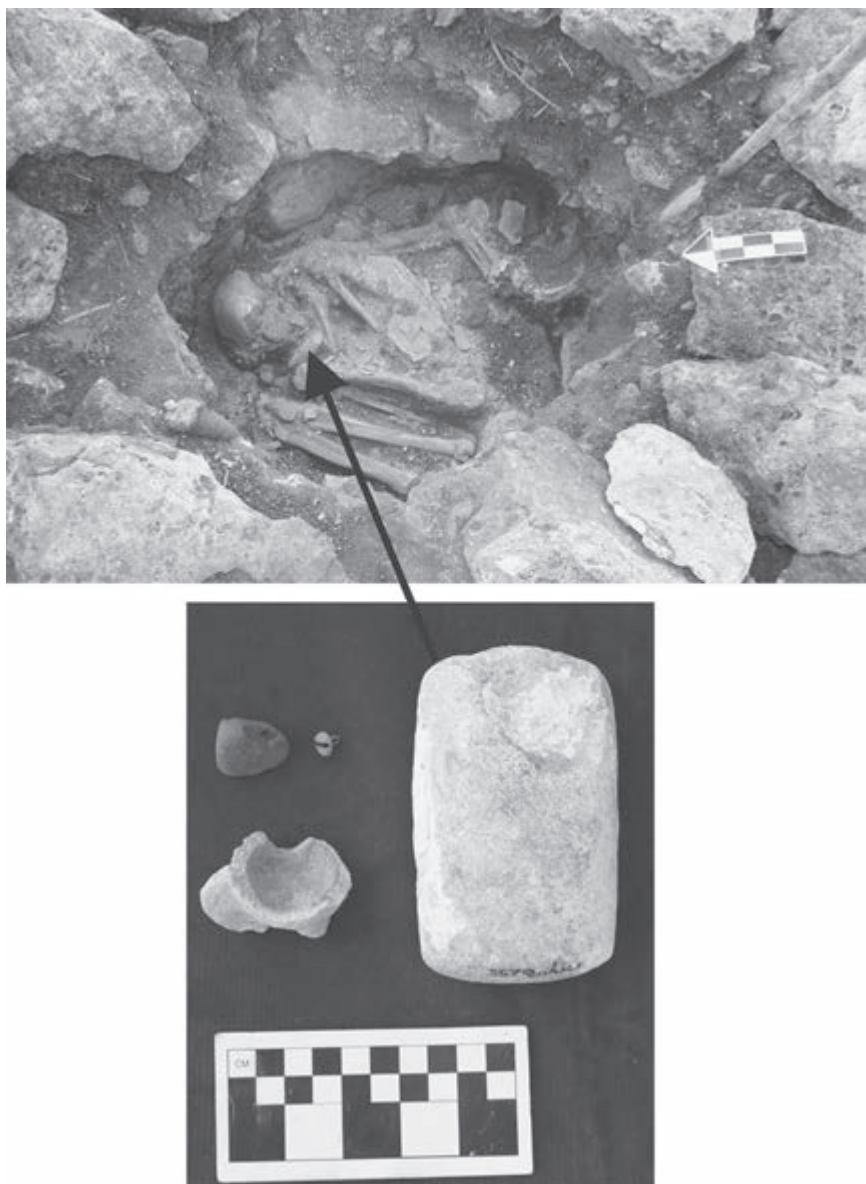
Figure 5.32. *An adult burial in a cist within dwelling Q-40a with tools of artisanry, including a stucco plaster–making tool and a chunk of red pigment. Three other plastering tools, a vase filled with plaster, and numerous effigy censer face molds and effigy censer manufacturing failures were recovered at this crafting house.*

Alvarado 2010, 2012a, 2012b; Cruz Alvarado et al. 2009, 2012; Masson and Peraza Lope 2010; Hare and Masson 2010). Here we summarize the basic findings of these detailed studies. A sample of around 250,000 sherds has been analyzed from the PEMY project alone. Most types of Postclassic pottery are widely distributed across various contexts, including commoner and elite residences or public buildings, among surplus crafting houselots and non-crafting houselots, and across various milpa sample units from city neighborhoods (Masson and Peraza Lope 2010; Hare and Masson 2010). These types include the most common jars and dishes of the Mama Red and Navula Unslipped groups, as well as types that are regularly found but in low frequencies, as Robert E. Smith (1971) initially determined. Lower frequency pottery generally represents fancier serving wares, including Matillas Fine Orange imported from the Gulf Coast region and locally made types such as Tecoh Red-on-Buff, Pelé Polychrome, Sulche Black, and Xcanchankan Black-on-Cream. These less abundant types are present throughout the Postclassic Period occupation of the city (Peraza Lope et al. 2006) and are less diagnostic to phase than originally proposed (R. Smith 1971). Modes and subtle form variations are more sensitive indicators of change through time than are the general types of the type-variety classification system (Cruz Alvarado 2010, 2012a). Based on our study of frequency distributions of sherds, we have determined that fancy or imported serving wares are not concentrated in high-status contexts or in contiguous domestic units that might indicate ethnic enclaves. We have argued that Mayapán's finer serving pottery was widely available in the city's marketplace and that many commoners obtained it in equivalent or greater quantities as elites (Masson and Peraza Lope 2010; Hare and Masson 2010; Masson and Freidel 2013:figure 8.11). These findings and interpretations match those reported by Ann Cyphers and Kenneth G. Hirth (2000) for Xochicalco. In a small number of elite contexts, elaborately painted and/or modeled dishes and jars are sometimes concentrated and may be more specific indicators of social groups (chapter 3). As Hirth (1998) argues, wealthy elites in all types of economic systems may be expected to have greater options to obtain high-value goods, and this is certainly the case for Mayapán. At Tikal, even though most polychrome pottery was widely available and may have been obtained through market exchange, specific, high-quality and low-frequency Imix polychrome pottery was limited in its distribution and may have been acquired through nonmarket means (Culbert 2003).

It is noteworthy that households engaged in surplus crafting at Mayapán often have among the highest quantities of imported Matillas Fine Orange (Hare and Masson 2010; Masson and Freidel 2013:figure 8.11). These contexts

Figure 5.33. *Grave goods from a multiple interment in the cist grave of dwelling Q-39. The copper, shell, jade, effigy urn, and miniature vessels were concentrated near a child burial at the north end of the cist.*

also have higher ratios of other imported valuables, which attests to a pattern of greater relative affluence for crafting commoners compared to other commoner occupants of the city. Widespread but low quantities of valuable pottery indicate more about wealth than social identity at Mayapán. But the limited contexts represented by midden test pit samples may not provide the samples needed to identify anomalies such as the special assemblage found at elite House Y-45a (chapter 3). While midden test pits at Y-45a did reveal higher quantities of Buff Polbox group pottery, full excavation discovered ubiquitous quantities of polychrome and painted pottery that contributed to a robust assessment of the possible ethnic ties of its residents (chapter 3).

Only two surplus pottery-making houselots have been identified thus far at Mayapán—at Structures Q-176 and Q-40a (Russell, Hutchinson, and Delgado Kú 2012; M. Delgado Kú 2012b). A significant level of pottery production was initially suspected at Q-176 during our first season in 2001, as sherd density in its vicinity exceeds that for any other context tested at the city (Masson, Delu, et al. 2008; Masson, Delu, and Peraza Lope 2008). For example, three surface collections (84.78 square meters) from Q-176 in 2001 yielded 9,980 sherds, or 23 percent of the entire surface collection from the city's settlement zone. Of seventy-four other collections, all but one had fewer than 1,651 sherds, and all but seven had fewer than 1,151 sherds. Russell et al.'s (2012) investigations in 2009 fully exposed this house and recovered offerings of stacked jar bases that had been used to store clay pigments. The sherd debris from Q-176 consists of a high proportion of slipped Mama Red vessels (33 percent) and Yacman Striated vessels (51 percent), some of which were probably made at this locality (Cruz Alvarado et al. 2012:table 15.5). In contrast, residents of House Q-40a specialized in making molded and modeled elements of Ch'en Mul effigy censers, as mentioned previously (Cruz Alvarado et al. 2012). Both Q-176 and Q-40a are located within a crafts neighborhood, Milpa 1, where there is a concentration of surplus craft-making houses (shell, pottery, chert and chalcedony, and obsidian industries) just to the west of the monumental center (chapter 6). While House Q-176 is not adjacent to any elite or public buildings, House Q-40a is next to the platform of elite Residence Q-41, and it is within the albarrada enclosure of this group. Residents of Q-176 may have been more independent while occupants of Q-40a probably worked under the auspices of the elite compound to which this house was attached. Wilberth A. Cruz Alvarado (personal communication, 2010) observes that the Q-40a artisans were focused on production and decoration of molded and modeled faces rather than entire censers, as fragments of the attached vase portions were scarce at Q-40a. Clearly, specialization at this locality was focused on the stage

of production that required the greatest skill. It is the only example of a censer workshop found thus far at the city. This context for effigy censer manufacture supports other evidence that the use of this type of ritual paraphernalia was concentrated in the hands of political and religious elites at the city (chapter 3). More censer workshops surely exist at Mayapán. We offer a full analysis of the crafting industries of the Milpa 1 vicinity and other localities in chapter 6.

Unslipped jar and bowl distributions do not indicate discernible social patterns. Undecorated Navula Unslipped vessels are the most common at the city, and Yacman Striated vessels also form major proportions of context assemblages. Together these two types form 37–70 percent of non-ritual pottery in the settlement zone sample (Peraza Lope et al. 2008). Navula Unslipped sherds consist of 59 percent jars and 30 percent bowls, whereas Yacman Striated sherds are made of 90 percent jars in our test pit and surface collection samples. Based on similarities in form, we infer functional overlap among undecorated Navula and Yacman jars, although the former vary more in size than the latter. The striations are on the exterior of Yacman vessels and do not suggest a specific function. Many contexts have abundant quantities of both Navula and Yacman jars (figure 5.34). Although frequencies for these types are affected by the greater size of Navula jars compared to Yacman examples, the sizes of these jars do not vary at different locations. Comparisons of their relative quantities are thus valid. It is interesting, however, that some contexts used more of one type than the other. The six contexts with the most Navula Unslipped sherds (75 percent or more of the houselot sample) come from six different dwellings in six different milpas (Milpas 6, 8, 12, 17, 26, 34). The five contexts with the most Yacman Striated sherds (50 percent or more of the houselot sample) come from three different milpas, including two houses in Milpa 17, two in Milpa 10, and one in Milpa 26. One of the high contexts for Navula is also in Milpa 17. There is little evidence for spatial clustering that might suggest that the use of these vessels was linked to social identity. While some surface collection samples yield similar Navula and Yacman percentages as the test pit samples, other results were quite different for the same context, which suggests that frequencies sometimes vary according to discard location. For example, test pits in the houselot of the P-115 group yielded sherd samples with 13 percent Navula and 47 percent Yacman, whereas surface collections from this group had 42 percent Navula and 19 percent Yacman. For the fully excavated houses from which samples are more complete, six dwellings had higher proportions of Yacman compared to Navula, including Structures H-11, I-55a, Q-176, Q-39, Q-40a, and L-28 (with percentages of Yacman ranging from 25 to 55 percent). Higher frequencies of Navula compared to Yacman are observed at Structures

I-57, Y-45, and X-43 (with percentages of Navula ranging from 30 to 44 percent). Ceramic frequencies for all contexts are reported by Carlos Peraza Lope et al. (2008) and Cruz Alvarado et al. (2012). Higher relative frequencies for both types are found at houses located near the Itzmal Ch'en group and in downtown Mayapán and thus are not tied to a specific residential zones.

A COMPLEX SOCIAL LANDSCAPE AT MAYAPÁN

Our analysis of Mayapán's domestic features adds new layers of complexity to earlier assessments by A. Smith and Karl Ruppert (1953; Ruppert and Smith 1954; A. Smith 1962) and Brown (1999). The influence of normative styles is indicated by choices made in house and bench style construction, the orientation of houses and house groups, the prevalence of houselot boundary walls, and overlapping pottery assemblages. Mortuary patterns are the most idiosyncratic features at the city. A majority of Mayapán's residents dwelled in single house compounds, reflecting a preference for the establishment of nuclear household units upon marriage. But clusters of houselot enclosures reveal that single dwellings were often nested within a matrix of other similar units. Kin members would have lived near to one another in these clusters, and single dwelling enclosures do not necessarily imply socioeconomic isolation and its disadvantages (Brown 1999). Houselots that are not enclosed by walls tend to closely mimic the composition of those with albarradas.

As might be expected for any socially diverse urban setting, variation is tracked in the details. Individual domestic features may have been constructed in response to multiple and even conflicting influences and purposes. Atypical houses are sometimes clustered in small groups in zones like Milpas 12 and 15, and in other instances they are dispersed among more ordinary dwellings. The influence of a state- or citywide emblematic style may have resulted in normative practices, but experimentation was clearly tolerated. The orientation of patio groups implies the symbolic pull of focal architecture or key avenues within the city, as patios frequently open toward and face the site's monumental center or other nodes such as the Itzmal Ch'en group. Most residents preferred some variant of an easterly patio orientation—a direction from which the wind, rain, and sun arrived—but some oriented their houses to the west, toward the site center. Greater diversity is observed in dwelling features in downtown Mayapán, where more elaborate L-shaped benches are present. This zone seems to have attracted socially diverse crafting families and traders (chapter 6). In contrast, toward the city wall, the tendency to construct more square or rectangular benches reflects conservative preferences.
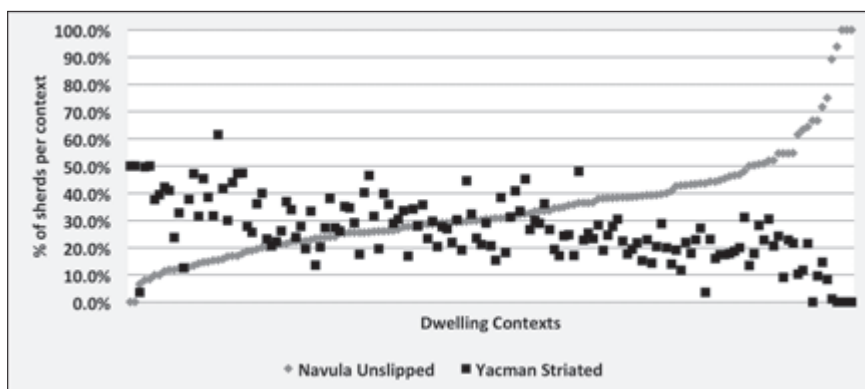
Figure 5.34. *Relative percentages of Navula Unslipped and Yacman Striated sherds per surface collections and test pit samples from the settlement zone. The majority of the samples have ample quantities of both of these types of pottery, mainly jars.*

The form and size of pens was largely left to the improvisational whim of individual families, although the significance of these features is clear from their ubiquity. It is probable that these small enclosures served many purposes, as did the larger nonresidential enclosed fields and open spaces between houses. Nonresidential structures in domestic contexts also vary greatly. The identification of enclosed bench edifices may point to key activities of food preparation, storage, or perhaps ritual.

Status differences are reflected in the distribution of Mayapán house sizes, with considerable variation observed for commoner dwellings. Houselot enclosure size does not correlate neatly with status, wealth, or location within the city despite the fact that residential zones near the city wall were less crowded. The construction of Mayapán's wall for defensive purposes (Russell 2008a, 2013), and the fact that peripheral houses were often situated within nucleated, small hilltop albarradas, suggests that privacy and protection were important considerations within and beyond the city wall.

Burials reveal especially diverse social practices. Individual families employed a range of funerary conventions, some more popular than others. Interments were placed in locations that included off-mound, shallow bedrock depressions beneath midden soils; oratories; rectangular or square cists within houses; sascabera depressions; cavernous chambers of cenotes; and in what appear to be open fields. Cremations were rare. Some individuals were buried with deer bones, some with pottery, some with riches, some with the

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tools of their trade, others with nothing at all. The importance of status and wealth is strongly expressed in mortuary offerings, but this class of data is so variable that it is a poor indicator of specific ethnic groups at Mayapán (Hutchinson 2010).

Pottery distributions attest to a well-stocked city market and the desire of the majority of commoners to own imported or fancy serving vessels. Ceramic types and forms were widely shared among Mayapán's residents, and common types are identical across the northern and eastern parts of the peninsula (Masson 2001b). Regional overlap in common slipped and unslipped pottery has been explained in terms of far-ranging exchange networks that tied the city to its allied polities, especially along the Caribbean side of the peninsula (Connor 1984; Sabloff and Rathje 1975; Masson 2001b; Masson and Rosenswig 2005). Even if ordinary pottery vessels were not exchanged over great distances, trade disseminated normative pottery styles that local potters and consumers chose to adopt. This relative homogeneity means that most domestic sherd assemblages are not useful for identifying social differences. Specialized types and forms that are not commonly distributed represent an exception—as we have demonstrated in chapter 3—including effigy incense burners and Pelé Polychrome pottery. Large samples from extensive excavations are more likely to track anomalous assemblages than small test pit or surface collection samples. Political and religious elites administered the production and use of ritual pottery, as indicated by the top-down distribution of Ch'en Mul effigy censers (chapter 3) and the attached context of their production next to elite House Q-41. Only three contexts in all of the work performed at Mayapán—each representing elite residential or public buildings—have revealed concentrations of Pelé Polychrome vessels (Peraza Lope et al. 2006; chapter 3).

It is interesting that despite Mayapán's status as one of the most densely occupied Maya cities, it can in many ways be characterized as a garden city because of the presence of ample space for cultivation in the vicinity of dwellings. The garden city model has been adapted to the Maya area by colleagues working at Classic Period sites (e.g., Killion et al. 1989; Tourtellot 1993:222; Chase and Chase 1998). This model of mixed and varied agrarian activities, including inner city spaces, is helpful for explaining the general condition of low-density urbanism that characterizes Maya sites. This pattern is largely explained by a commitment to combine urban life with some degree of agrarian production (Chase and Chase 1998; R. Fletcher 2012). Urban cities and capitals of this sort are distinguished from dispersed villages by the sheer numbers of their populations that are distributed over an extensive landscape and the political or military power that they exert. M. Smith (2011b) illustrates these points with case

studies taken from Colonial history, including the cities of Addis Ababa and Ouagadougou, which he compares to larger Classic Maya settlements.

Despite Mayapán's cultivation space, its residential density better approximates the character of more traditional expectations of urban places. Like many ancient cities, density varied across the landscape at Mayapán. Even late medieval towns of northern Europe (north of the Alps), which tend to be the archetype for crowded urban living, were not uniform in terms of residential density. Some devoted "considerable areas" to gardening, and marketplaces and church properties could be substantial within walled cities (Pounds 1973:344). Nonetheless, as Norman J. G. Pounds observed, density was much lower outside of city walls in fourteenth-century Europe, as was the case for Mayapán (Russell 2008a). While the characteristics of a site as a whole can be informative, it is clear that housing density varied according to where one resided within a city (figure 4.6). The walled occupational density of Mayapán is 33 people per hectare (pph), which is much higher than southern lowland Maya cities of the Petén (5–10 pph, Rice and Culbert 1990). Mean ranges of 20–23 pph are calculated for the northern Classic-era sites of Sayil and Chunchucmil, as well as for the site of Palenque, and these are closer to the overall density at Mayapán. These pph estimates are loosely based on a calculation of 5 persons per structure from published works (Barnhart 2001:76, derived from Rice and Culbert 1990). Mayapán's average was smaller than that of provincial Aztec centers (50 pph, M. Smith 2011b:58) and significantly lower than northern European towns of the 1300s (110 pph, Hansen 2006:62), But six (500 × 500 meter) squares at Mayapán exhibit pph densities that approximate those of late medieval Europe, with densities of 77–126 pph, although some squares have much lower densities (figure 5.35). It is noteworthy that Mayapán was more populous than most of the European cities and Aztec provincial centers. Only 1 percent of northern late medieval towns reached Mayapán's size of 15,000–17,000, and few medieval cities enclosed more than 100 hectares (Pounds 1973:table 6.5), a small area compared to Mayapán's enclosure of 450 hectares. Provincial Aztec city-state capitals also tended to be about one-half to one-third the size of Mayapán's population (M. Smith 2005:table 4).

The settlement patterns outlined in this chapter indicate a dynamic, growing urban environment throughout Mayapán's Postclassic occupation. The 15,000 or so occupants probably arrived at various intervals as diverse constituents of hometowns of the confederacy, and perhaps from allied localities further afield. The influence of citywide norms on residential architecture is apparent. Although Colonial-era documents are largely silent on the matter of Mayapán's effort to symbolically impose or encourage state style or identity on
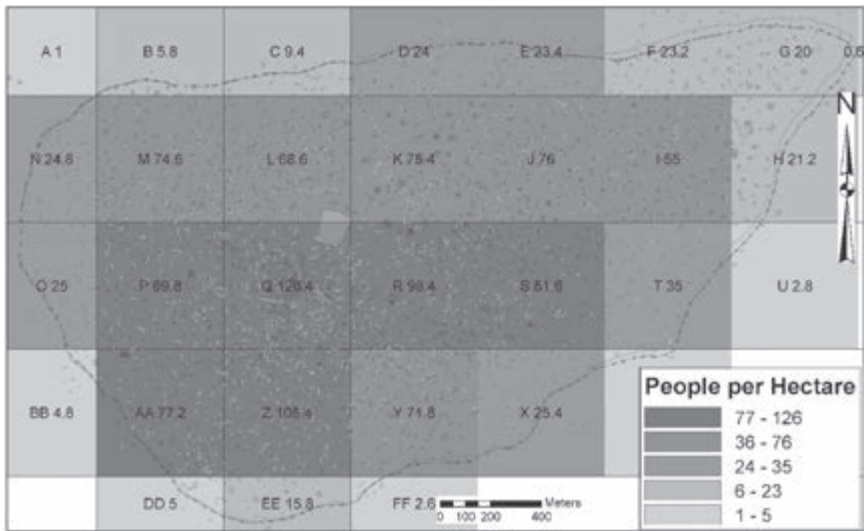
FIGURE 5.35. *Comparisons of variable densities of people per hectare for 500 × 500 meter grid squares within Mayapán's walled enclosure, based on an estimate of five persons per dwelling.*

its subjects in the realm of domestic architecture style and organization, such policies would be in line with Mayapán's other integrative strategies of religious proselytization (chapter 2; Landa 1941:27; Masson 2000), forced resettlement (Landa 1941:23–26), replication of public buildings in the epicenter and nodal locations (chapters 3, 4), state terror (chapter 2), and unitary, propagandistic declarations (Landa 1941:26). The institutionalization of a transformative strategy to promote cohesion, or urban ethnogenesis (e.g., Oudijk 2002; Pohl 2003b; Attarian 2003; Janusek 2004), seems to have influenced norms of the built environment and assemblages of household goods at Mayapán. The promotion of state unity may have been incomplete, which would explain aberrant house types that crop up in Mayapán's residential zones. Bottom-up influences are sometimes important factors that affect neighborhood architecture, and these are occasionally evident in our sample (M. Smith 2010a:151). Hostility as well as friendship can characterize neighborhood relationships (M. Smith 2010a:140), and the construction of albarrada walls may have sometimes represented a useful way to separate one's nuclear family from neighbors or relatives. From a bottom-up perspective, the amplified urban opportunities for interaction may have also contributed to the spread of normative conven-

tions for domestic life (Attarian 2003), although this process may have been coeval with top-down efforts. In adjusting to urban life, families may have weakened their ties to their original familial roots in confederated towns as the relative importance of an urban social identity took hold. Exceptions are known at some ancient states where familes maintained diverse ties to city and countryside (Janusek and Blom 2006:248). This chapter builds new layers of evidence pointing to the complexity of urban life and landscape at Mayapán, although many lingering questions remain. The next chapter outlines the evidence for a high degree of economic heterogeneity among the houselots of the city.