Summary. This article reviews a number of research methodologies used to record household and settlement architecture and assesses their value in the investigation of the human use of prehistoric built space. It exemplifies, through case studies, five broad approaches to, and research techniques associated with, the investigation of such architecture. These approaches are: architectural form; the spatial distribution of activities; continuity and standardization; the relationship between built and non-built space; and human patterns of movement. Then, drawing mainly on Near Eastern, and particularly Anatolian, material, it shows how a sixth approach, the use of ethnographic observation and analogy, provides insights into functional and seasonal variations in spatial use, patterns of movement and social organization. It identifies seven categories of data collection and nine observations drawn from the ethnographic material which together provide an investigative and interpretative framework for the study of early farming communities in the Near East and elsewhere.

INTRODUCTION: THE STUDY OF HOUSEHOLD AND SETTLEMENT SPACE

There is no one single and immediately obvious way of studying the walls, rooms, buildings and open spaces that typify prehistoric archaeological remains. Many disciplines such as archaeobotany or archaeozoology have standardized their methodologies but no given methodology exists for the study of architecture. As a result, descriptive qualities such as construction methods, design and decoration are often used by themselves to compare different sites. Such comparisons, however, usually reveal very little about the way the individuals who built those houses used their space or how their society operated. Investigating such questions requires methodologies and techniques that go beyond mere description.

The various methodological approaches to the study of the human use of space, though inevitably overlapping, can be grouped under six headings: architectural form; the spatial distribution of activities; continuity and standardization; the relationship between built and non-built space; human patterns of movement; and ethnographic observation and analogy. These approaches are considered in turn below. Each approach is illustrated by just a few of the many published studies about the use of built and non-built space. The concluding discussion
demonstrates how these approaches, individually or jointly, have been used to explore issues to do with the functional use of space, seasonal variation in the use of space, patterns of movement, and social organization. It introduces material and ideas about household and village life, drawing upon the considerable amount of ethnographic material about small rural communities in the Near East. Finally, it lists the seven categories of data and nine ethnographic observations that, together, will enhance the study of early farming societies.

**ARCHITECTURAL FORM**

The general description of architectural form as defined by building and room sizes and shapes, and construction materials and methods, features prominently within most archaeological site reports. At the very least, such descriptions provide an important introduction to the general characteristics of the settlement architecture. Occasionally, they provide useful insights into issues of wider relevance to archaeology. Duru’s work on the use of mud brick or stone to construct buildings in various parts of Anatolia is a notable example because it draws on simple and incontestable facts (the relationship between the types of building materials and readily available natural resources) to develop new insights into the origin of the settlers of central Anatolia (Duru 2002).

A number of studies (for example Banning and Byrd 1984; 1987; Blanton 1994; Davis 1998; English 1966; Goodman 1999; Horne 1980; Richards 1990; Rollefson 1997; Romanou unpublished; Saunders 1990; Steadman 2000) record building size, arrangement and/or building internal configuration more systematically in order to gain insights into various aspects of social organization. Four examples demonstrate how different techniques have been used to produce different kinds of interpretation.

**Case-study 1**

The extensively excavated architecture of Ain Ghazal, an Early Neolithic site in Jordan, has been studied by Banning and Byrd (1987). Banning and Byrd recorded the histories of individual buildings in terms of alterations and renovations to their internal room arrangements over time. They used both qualitative and quantitative methods to collect and analyse their data. They began by identifying ‘standard house types’ and described individual rooms and buildings in terms of construction stages, decoration and features. They also recorded room and building measurements and plotted the hypothetical flow of traffic and circulation patterns within and between houses. This information, combined with a simplified access analysis (see below), enabled them to identify both individual house histories and the ‘dynamics of house groups’ (ibid., 340). They found evidence to suggest three stages in house plans: an open plan system, suitable for a couple soon after marriage; an expansion stage when the arrival of dependent children necessitated the addition of screen walls and more storage areas; and a fusion stage when children had left home and the house gave up some of its space. Although such explanations of family life patterns can perhaps be criticized for being ethnocentric, they serve as a reminder that houses, particularly those built of mud brick walls, are often altered to suit the changing spatial needs of their occupants.

**Case-study 2**

In a second example, Romanou studied the architectural configuration, form and decoration in the buildings around the Minoan palace of Mallia, Crete (Romanou unpublished).
Her data consisted of a number of large multi-roomed buildings excavated through several distinct phases so that changes could be charted within and between buildings over time. By focusing on entrances and on internal communications between the rooms, features and ground and upper storeys, Romanou was able to identify remarkably consistent and standardized ‘sets’ of rooms within each building. By making a distinction between vestibules that offered no choice in movement (i.e. that led in only one direction) and those that offered a choice of directions (i.e. that served as a transitional space within which was situated a staircase leading to the upper level) she was able to discover ‘sets’ of rooms within each house that had equal access to the transitional space. Her methodology was both qualitative and quantitative. She systematically recorded building textures, decorations and features and measured rooms and buildings. She tracked the spatial configuration of internal rooms and outside spaces by mapping their patterns of interconnectivity and concluded that each house initially sheltered a ‘primary co-residential group’ and then accommodated new groups as additional ‘sets’ of rooms were constructed.

Case-study 3

In the third example, Byrd studied 20 sites in the southern Levant dating between 20,000 and 8,500 bp in order to investigate whether the basic household unit consisted of nuclear or extended families (Byrd 2000). He chose to record only those buildings that had been completely excavated. He identified three categories of buildings (domestic, storage and non-domestic) and used a number of characteristics (building size, the pattern of construction and morphology, the presence of in situ artefacts and methods of building abandonment) to distinguish the domestic from the non-domestic. He used both qualitative and quantitative methods, combining descriptions about the form and distribution of hearths, bins and non-portable artefacts with measurements of the buildings, recording their internal usable floor areas (i.e. excluding any walls). He drew on a wide range of ethnographic evidence and archaeological research to produce an estimated minimum area of roofed living space needed per person and concluded that none of the buildings would have been large enough to have housed extended families. Throughout this long period, he argued, buildings were occupied by nuclear families. However, by noting and measuring the number of ‘formalized’ (i.e. partitioned by walls) spaces within buildings and their syntax, and the place of storage bins, he was able to suggest (using evidence mainly from Beidha) that changes took place in household organization and autonomy over time.

Case-study 4

The fourth example (Steadman 2000) refers specifically to Anatolian tell sites. Steadman’s methodology purported to be both qualitative and quantitative. She claimed to use three ‘types of spatial patterning analysis: increasingly complex task performance and the associated architectural partitioning of structures; access analysis; and issues of privacy and territoriality’ (ibid., 164). In the event, her analysis appeared far more descriptive than quantitative in that she made broad assertions about changes in building sizes and numbers of rooms per building, and construction techniques, without necessarily backing them up with supporting quantitative data. Her use of access analysis was limited to general comments about the degree of accessibility between outside ‘public’ areas and ‘domestic’ interiors. She concluded that on tell sites social complexity would not be signalled by internal segmentation, as Kent had
argued (Kent 1990), but rather by the construction of upper storeys. Her conclusions, however, were based upon assumptions (about upper storeys, ideas of privacy and definitions of complexity) rather than precise data (see Cutting 2005).

The above four examples show how different inferences about the family can be drawn from the study of buildings, rooms and entrances. In the first two cases, the data were clear (unambiguous entrances and in situ features recorded in detail by occupation phase as well as by level) and site-specific. Inferences about architectural configuration and family history were drawn at the micro rather than the macro scale. The third and fourth studies were more generalized in that they drew on a number of sites spread across a wide region and over time in order to draw conclusions at a macro scale rather than the micro, site-specific, scale. The first three successfully combined qualitative with quantitative data. The fourth study, that by Steadman, however, lacked rigour because it failed to use systematically collected quantitative data; its conclusions were pitched at a broad macro scale that did not stand up to close scrutiny at the micro site-specific level.

THE SPATIAL DISTRIBUTION OF ACTIVITIES

Most archaeological research into household and settlement architecture seeks to establish the kind of activities that took place within each room, building or open space (see, for example, Binford 1981; Glassie 1975; Hingley 1999; Manzanilla 1988; Meskell 1988; Samuel 1999; Verhoeven 1999; Whitelaw 1994; Wilson 1994; Wright 2000; Yon 1992). This kind of information is useful for all kinds of reasons, not least because it provides a necessary first step in any analysis as to how people organized their daily routine activities, moved around their settlement or related to each other. It can thereby provide information about social difference and social organization, leading eventually to tentative suggestions about meaning and the use of space (see, for example, Hingley’s reconstruction of a Romano-British house in Hampshire (Hingley 1999, 140; Hoffman 1999)). Such analyses usually rely upon the use of detailed contextual information. Five examples are discussed below.

Case-study 1

The first example, Verhoeven’s study of the burnt Neolithic level at the Syrian site of Tell Sabi Abyad, provides an unusually detailed study of artefact distribution patterns and architectural configuration (Verhoeven 1999). Verhoeven combined a detailed record of the artefacts found by room with microstratigraphic analysis to suggest a distinction between rectangular and round buildings, domestic and storage areas, and areas associated with nomads and settled villagers (ibid., 219) (but see also Fewster’s study of round and rectangular buildings in Botswana (Fewster 1999)). He concluded that the settlement structure at Sabi Abyad remained unaltered but that the function of structural units within the settlement changed, with rectangular buildings perhaps serving as houses as well as storage units so that ‘...the meaning of space was altered by social practice’ (ibid., 218). It is noteworthy, however, that despite the quality and quantity of artefacts recovered, Verhoeven’s assignment of particular activities to particular rooms was often inconclusive: ‘It is stressed here that the functional reconstructions should be regarded as “best-case scenarios”...the most likely options among a range of possibilities’ (ibid., 107).
Case-study 2

The second example concerns the workmen’s village of Amarna, in Egypt (Samuel 1999). Architectural configuration and the spatial distribution of selected features and artefacts were used to investigate the organization of bread-making activities and the light that that organization might shed on societal organization. The presence of ovens, mortar and quern emplacements and other food processing tools were recorded within 42 completely excavated houses and a clearly defined street system (ibid., 136). By mapping the spatial distribution of these features and artefacts within and between the houses and combining this analysis with information gained from modern experimentation in cereal processing and storage, Samuel was able to investigate whether households undertook decisions and actions independently of community ties or whether they shared resources. Her results suggested a mixture of both kinds of social interaction within the village (ibid., 129).

Case-study 3

Meskell’s study of the relationship between architecture, decoration and spatial use at Deir el Medina in Egypt provides the third example of the use of architecture and feature/artefact distribution (Meskell 1988). Meskell had a large architectural sample (64 houses within an enclosure wall) with a rich assemblage of contextual detail (wall paintings, decorations, ritual and domestic features, associated finds and textual information). Her analysis of colour and imagery and their association with architectural configuration produced a complex but somewhat inconclusive picture of the dynamics of spatial organization. Although Meskell claimed an association between room use, gender and colour (ibid., 228) she was unable to find standardized patterns of public, private and service areas within the houses. Many rooms were multi-functional, with ‘ritual’ activities taking place alongside the more mundane (ibid., 216 and 238).

Case-study 4

Wright’s study of social organization and gender issues in the early villages of the Levant provides the fourth example of the methodological approaches that can be used to map the spatial distribution of activities (Wright 2000). Wright recorded the distribution of hearths and food processing tools in relation to the insides of houses, their entrance areas and the outside spaces. She sought to establish the extent to which food preparation activities were conducted on a household or communal basis and to investigate ideas of privacy in the context of early farming. She suggested that open food areas were replaced over time by more structured open and private spaces with larger more enclosed houses and more elaborate storage arrangements. She linked these changes to the development of large-scale male hunting activities at a time when food preparation (the work of women) became more restricted. It is noteworthy, however, that she failed to take into account the effect that seasonal variations in the use of space (see below) might have on her analysis.

Case-study 5

The final study (Matthews 1998; 2005) demonstrates how the microstratigraphic analysis of floor and other surfaces can be used to provide insights into the kind of activities that
once took place in open areas, rooms and buildings. Using this technique, Matthews was able, for example, to show that animals were penned close to, or within, the Anatolian settlements of Aşıklı Höyük and Çatalhöyük (both Neolithic sites) and that the walls of the buildings at Çatalhöyük were regularly replastered and their decoration changed (Matthews 1998; 2005). Matthews was also able to demonstrate the distinctions at Çatalhöyük between ‘domestic’ areas (often lower, poorly plastered and dirty) and ‘ritual’ areas (higher, cleaner and more frequently replastered and decorated), and associated different floor coverings or finishes with particular activities (food preparation and storage, for example). However, her most convincing results in terms of establishing the spatial distribution of activities were obtained when her samples were taken from areas already architecturally defined (for example small rooms bounded by walls or areas within larger rooms distinguished by platforms) where there was evidence for repeated and consistent activity (Matthews 2006). Whether microstratigraphic analysis can produce similarly useful results when applied to architecturally simpler dwellings is more debatable. In many rural communities, women skim their floors almost daily, using mud scooped up from outside the house, as an alternative to sweeping away debris; and young children regularly move around objects, often bringing outside material into the houses. In such circumstances, all kinds of debris from a multitude of activities carried on both inside and outside the houses might find its way into the floor plaster.

The above first four studies about the relationship between architecture, features and artefacts in many ways mirror the four examples about rooms, buildings and entrances discussed in the previous section. All sought to establish something about social interaction. The first three (studies by Verhoeven, Samuel and Meskell) operated at the micro site-specific scale. Their data were rich – large samples of clearly defined architecture and a wealth of contextual information. The fourth study, by Wright, was wider ranging using less clearly defined material from a large number of sites to make broad generalizations about gender, privacy and societal change over time. The fifth and final study (by Matthews) demonstrated the wealth of additional detail that might be obtained from microstratigraphic analysis – although such a technique might be less useful in defining how space had been used when internal activity areas were not physically demarcated. This observation is all the more interesting given that both Meskell’s and Samuel’s studies suggested that rooms were multi-functional. If this is so, the places where a range of domestic and other activities took place would not be distinguishable within the archaeological record. In such circumstances, it would be pointless to elaborate ideas about ‘public versus private’ associated with particular activities.

CONTINUITY AND STANDARDIZATION

Architectural continuity over time within individual sites has been studied in order to identify socio-economic change over time. The methodology usually involves placing the plans for one level or phase directly above those of another in order to record similarities in wall alignments. Bailey used this method to show continuity of floor plans between two horizons at the Chalcolithic site of Ovcarovo, in Bulgaria (Bailey 1990). He contrasted the architectural continuity in form at some levels with its absence in other levels to suggest the presence or absence of competition for land (ibid., 34). Pfälzner repeated the technique at the third millennium BC site of Tell Bederi in north-east Syria (Pfälzner 1996, 92) and reconstructed social and household organization on the basis of changes in internal building configuration.
Standardization within sites has been measured by studying the repetition of particular building plans within sites. Kohlmeyer, for example, highlighted the plans of specific buildings to show that similar type plans existed at the Late Uruk site of Habuba-South, in Syria (Kohlmeyer 1996, 92). Watkins made models of the same house over time during four sequences at Qermez Dere in northern Iraq and, by imposing one upon another, showed that although changes took place between phases in the building’s internal configuration, its main walls stayed the same, suggesting continuity over time (Watkins 1996, 83).

Others have used stylized representations of buildings rather than actual building plans to demonstrate the existence of standardized building units. Scott, for example, used the recurring ‘standard unit’ or rooms in Romano-British _mansiones_ to detect the presence of a rising bureaucracy as trade was conducted on a wider scale (Scott 1990). Most access analysis studies, too, use the identification of spatial building genotypes as one of their main units of analysis (see Cutting 2003).

The examples cited above used site-specific continuity and standardization in building configuration to draw conclusions about societal organization. In all cases, the architecture from more than one superimposed level or phases had been excavated, allowing change over time to be studied, or buildings were sufficient in number to allow standardization, if it were present, to be detected. In all cases except that of Scott’s, data were collected from specific sites and the inferences drawn were at a micro rather than a macro level.

**THE RELATIONSHIP BETWEEN BUILT AND NON-BUILT SPACE**

An archaeological site belonging to an early farming community represents a part (usually only a very small part) of a hamlet, village or small town where people, both young and old, once lived and worked. It is therefore important to try to ‘people’ the sites because the arrangement of domestic and shared/public architecture is likely to differ between, say, a settlement that is no more than a few grouped dwellings and a large village housing perhaps as many as 3 or 4000 people. Clearly, estimating population size is difficult, depending as it does on assumptions about two ‘unknowables’: the number of buildings occupied at any one point in time within the settlement; and the average number of people living in each building. The first figure is particularly difficult to calculate on tell sites, where complex stratigraphy (Rosen 1986) may obscure diachronic settlement growth. The second calculation, that of number of people per building, is perhaps easier to estimate using ethnographic analogy. Byrd has provided a useful summary and discussion of the evidence relating to the amount of floor space required by individuals (Byrd 2000). He pointed out that if calculations from Naroll’s 1962 study (calculations used by Flannery in 1972 and refined by Casselberry in 1974) were accepted, his figure of 10 sq m per individual would have rendered even the middle PPNB southern Levantine houses too small to have sheltered more than two adults, and therefore too small for even the smallest typical nuclear family comprising two adults with children. Byrd, therefore, favoured a lower minimum floor space per individual, perhaps of around 8 sq m, derived from ethnographic evidence of hunter-gatherers and their semi-sedentary and early sedentary lifestyles (ibid., 82). This figure would allow even the small Levantine houses he studied to have housed nuclear families – but not extended families who would typically have required much larger (perhaps a mean interior area not less than 75 sq m, ibid., 83) and more multi-roomed houses with more main living areas containing more hearths.
Kuijt favoured a figure of between 9 and 10 sq m per individual for his estimates of Neolithic demographic change in the Levant (Kuijt 2000). His study of the ratio of built to non-built space in the Levant provides an interesting example both of technique and of inference. Like Banning (Banning 1996), Kuijt included the measurements of a hypothetical second storey or roofed area in his calculations of built space. He suggested a total population size for each settlement based on the area excavated, the depth of the cultural deposits and evidence from ethnographic studies suggesting the number of people likely to have lived per hectare. He was able to show not only that settlement population sizes fluctuated over time but that rises and falls in those sizes were marked by corresponding architectural changes. He linked increases in the internal compartmentalization of buildings and decreases in the amount of open space relative to built space to the consequences of population stress (Kuijt 2000, 92).

**HUMAN PATTERNS OF MOVEMENT**

Architectural configuration, the spatial distribution of different activities and patterns of movement are of course inextricably linked. Studies that focus on movement inevitably attach great importance to the position of buildings and wall openings, and links between spaces, open spaces and features (for example Bustard 1997; Chapman 1990; Cooper 1997; Dawson 2002; Düring 2001; Fairclough 1992; Gilchrist 1994; Hamer 1999; Hanson 1998; Shapiro 1997). All these examples use one form or another of access analysis (often called ‘space syntax’) to recreate patterns of movement in order to derive social meaning from those patterns. Space syntax has something to offer archaeologists provided it is used judiciously, as the three examples below show.

The first example illustrates how access analysis has been used successfully to study the architecture of past societies. Romanou used the integration values of various rooms within a number of Minoan residential structures to identify both the type of residential groups for which these buildings were designed and the way their inhabitants adapted the buildings to meet household changes (Romanou forthcoming). Her use of access analysis enabled her to develop an analytical methodology additional to those she had already applied in an earlier study of these same well-preserved and recorded buildings (Romanou unpublished, already discussed). She constructed a plan for each house showing the integration value (a computer-calculated value of how well connected any given space is in comparison with all the other spaces within the same structure) of each room. By correlating these integration values with room function (established using a wealth of in situ artefacts) and relative room size and position, Romanou was able to construct a model that could be used to suggest room function in structures that were less well preserved and/or had fewer surviving in situ artefacts. This allowed her to develop ideas about social organization based on the changing household structures that she had identified through variations in the configuration of the buildings.

The second, very different, example demonstrates how space syntax can be used to shed light on the archaeological record of the Thule culture in the Canadian Arctic (Dawson 2002). Dawson applied access analysis to the ground plans of snow house complexes built and used by three Inuit groups with very different social organization. Each group’s use of their differently configured structures prior to the 1950s had fortunately been recorded by early explorers, missionaries and ethnographers so that the data existed whereby particular forms of spatial organization could be associated with societies organized primarily around the nuclear family, kinship ties or a kin-based hierarchy. Dawson was able to show not only that there was a
relationship between the snow houses’ spatial configuration and differences in social structure
but that an understanding of that relationship could be used to tease out ideas about the Thule
cultures that had flourished some 1000 years earlier. He concluded that early Thule households
were generally smaller and less socially integrated than later Thule households (ibid., 478).

Both Romanou and Dawson used space syntax techniques to explore the relationship
between architectural configuration and society. In both studies, they were able to do so
successfully because their architectural data – walls, rooms, entrances and interconnecting
spaces – were supplemented and enriched by additional information. In Romanou’s case this
information consisted of data about room functionality derived from the analysis of in situ
artefacts while Dawson was able to draw upon written accounts of both room use and social
structure. Without supplementary data of this kind, space syntax would have been far less
useful.

The third and last example illustrates one of the principal problems with applying space
syntax to archaeological material: access analysis relies upon spatial configuration and is
therefore likely to be of limited value where structures are incompletely preserved. An
application of access analysis to the Anatolian tell sites of Hacılar (Neolithic and Early
Chalcolithic) and Çatalhöyük (Neolithic) has shown that access analysis only works well as a
quantitative technique when two conditions are met (Cutting 2003). Firstly, the architectural
configuration has to be unambiguous with clear links between rooms within multi-roomed
buildings and clear entrances between those buildings and bounded outside spaces. Secondly, the
configuration of an upper storey must be known. Her study showed that the absence of
unambiguous architectural configuration and information about upper storeys at most, if not all,
prehistoric sites precluded the use of access analysis as a quantitative tool. Nevertheless, she
concluded that space syntax still had a useful part to play as a more qualitative ‘tool-to-think-
with’ provided buildings had ground-floor entrances and the general layout of at least part of the
settlement was understood.

ETHNOGRAPHIC OBSERVATION AND ANALOGY

Many archaeological studies use ethnographic observations to inform their
methodological approach and interpretation. ‘In a strict epistemological sense, we cannot
understand the past except via our knowledge of processes and events operating in the present’
(Watson 1979, 1). In a useful discussion on the uses and limitations of ethnographic material, and
the need for ethnoarchaeology (ibid., 1–9), Watson pointed out that archaeologists must often
undertake their own ethnographic research in order to identify and utilize ‘knowledge of the
existing behavioural correlates of archaeological or material remains’ (ibid., 1) so that ‘the
careful use of ethnographic analogy does not result in forcing the past into a mould derived from
knowledge of the present’ (ibid., 6). In short, knowing how people who live in small rural villages
today organize their use of space may shed light on the archaeological remains of similarly sized
settlements in the past, particularly if both the modern village and the archaeological settlement
appear to share a similar subsistence pattern and environmental constraints. That knowledge will
also serve as a useful reminder that societies organize their lives differently: Faegre’s recording
of the spatial arrangement of activities inside nomad tents, for example, alerted researchers to the
possibility that daily activities can be distinctly separated within living areas despite the absence
of fixed walls or partitions (Faegre 1979).
Ethnographic studies can also be used to shed light on building construction and design. Bıçakçı, for example, combined archaeological material with modern ethnographic material to reconstruct a building from the Neolithic site of Çayönü, in south-west Anatolia (Bıçakçı 1998, 125) and local skills were harnessed to build a mud brick building designed to imitate, in so far as is possible, the Neolithic buildings excavated at that site (author’s observation).

It is still possible, moreover, to find village buildings in use that appear sufficiently similar to Neolithic buildings so as to provide ideas about design and function. Figures 1 and 2 show two buildings at the partially abandoned mud brick village of Turkmencamili, near to the Neolithic site of Çatalhöyük in central Anatolia.

The substantially built mud brick building in Figure 1 is used for storage on the ground floor and has an external staircase leading from the ground to the upper living quarters; its staircase may be similar in design to those found at Neolithic Hacılar in south-west Anatolia (Cutting 2005). The window in the south wall has been temporarily bricked up to provide insulation from the summer heat.

In Figure 2, the room interior contains features reminiscent of many of the Neolithic buildings at nearby Çatalhöyük (Cutting 2005). It has wall niches, supports for a sleeping platform and the outline of an oven set within the wall. Also noteworthy is the change in room use: the oven has at some stage been levelled with the wall and blocked in to accommodate changes in living arrangements.

In addition to these general insights into the construction and design of rural households, ethnographic analogy specifically enhances three areas of archaeological investigation: the functional use of space and seasonal variation in that use; patterns of movement; and social organization. These three areas are considered in turn below.
The functional use of space and seasonal variation

Ethnographic analogy can be used to suggest how different spaces within buildings and settlements might once have been used. Hall et al.’s example from Aşvan in central Anatolia showed the use of indoor and outdoor living space and noted the importance of flat roof space (Hall et al. 1973, 254). Kramer’s small house plan in Shahabad, in north-western Iran, outlined a living room, two small storage areas and an open space reminiscent of small partitioned Neolithic buildings and showed that both the living room and the outside yard were multi-functional (Kramer 1979, 145).

Many studies demonstrate the importance in the hot months of the flat roof spaces that are used for drying plants and meat, food processing and cooking, weaving, washing and drying clothes, and sleeping (see, for example, Ertuğ-Yaras 1997; Green 1979; Hall et al. 1973; Kamp 2000). Observation of village life today in the Near East clearly shows that patterns in the use of space often differ according to the season, with routine daily living activities more likely to take place inside substantial buildings in the winter and outside those buildings in the summer. They also suggest that many rooms and areas are multi-functional.

Food preparation features strongly in ethnographic observation. Ovens of various kinds are found inside and outside buildings. In the central Anatolian village of Kızılkaya, just a few hundred yards from the early Neolithic site of Aşıklı Höyük, ovens are found both in open areas and in specially constructed buildings set some distance away from the main dwellings (Ertuğ-Yaras 1997, pls. 16, 17 and 18a). Local village women come together to help the owner of the oven to bake large amounts of bread for her family (ibid., pl. 65b). Fire installations often have distinctive uses, with one devoted entirely to boiling grapes to make pekmek (ibid., pl. 122a). The collection of agglutinative buildings found at Kızılkaya is reminiscent in many respects of the architecture found at the nearby site of Aşıklı Höyük, thus providing insights into how the buildings at that site might once have been used (Cutting 2005; 2006b).
Some essential subsistence activities take up more room than others. Preparing and storing dung fuel, for example, require plenty of open space at ground- or roof-top level (Anderson and Ertuğ-Yaras 1998), as does threshing cereals or drying fruit. Animals as well as humans require shelter from both the heat and the cold, as the extensive and substantially built stone animal pens at Binbir Kilise, in central Anatolia, show (Fig. 3).

An example from Küçükköy, a village near the Anatolian Neolithic site of Çatalhöyük, illustrates seasonal variation in the use of space. In the village houses, the cooking and food preparation that take place in the open air during the summer partly take place inside the buildings during the winter. In many houses, two ovens with distinctly different purposes (the flat-topped open oca for daily cooking and the tandur for making bread) exist side by side in a walled courtyard that has carefully demarcated areas for cooking, eating, the kitchen garden, storage and chicken husbandry (Fig. 4). In this village, many open spaces are used in the summer for the preparation of dung fuel and at other times for threshing or drying fruit.

Three published ethnographic studies further highlight the importance of seasonal variation in the use of space. Watson’s study of villages in western Iran, for example, noted that the hearth and the household water were kept inside the building in the winter and outside in a courtyard during the summer (Watson 1979). Animals were stabled underground in the winter and outside in the summer (ibid., 132 and 160). Horne’s study of a village in north-eastern Iran recorded the fact that the same rooms were used differently during the summer and winter months with the summer store rooms becoming the winter living rooms (Horne 1994, 93). In northern Syria, Aurenche found simple two-roomed dwellings used during the summer months by groups from a nearby more elaborately constructed village that was occupied all the year round (Aurenche 1998, 40).

In some villages, the main living area is a larger and more elaborately decorated area with higher ceilings than the distinct and spatially separate cooking area. Kamp’s study of
30 mud brick compounds at Darnaj, a village with 1500 inhabitants in northern Syria, suggested, however, that buildings and rooms were always in a state of flux (Kamp 2000): ‘Rooms were built, remodelled, or torn down. Outmoded living rooms become animal rooms; dilapidated kitchens become hay rooms. In general, changes in room function are predictable. There is a hierarchy of room functions, and changes in room use usually involve a functional degradation. Thus, while a living room can become a kitchen, a kitchen can never become a living room’ (ibid., 91). In short, both inside and outside spaces are used for a whole variety of purposes and room use can change not only according to the season but also over time.

Patterns of movement

Ethnographic observation also provides useful insights into patterns of movement, particularly in relation to the use of roof-top space to reach buildings built closely together. Mumtaz’s study of the agglutinative architecture of Seripe, in Ghana, for example, has provided a clear example of how internal courtyards enclosed by buildings were systematically accessed by ladders descending from strong flat roofs that were used for public circulation and as a meeting place (Mumtaz 1976, 87). In effect, the flat roof spaces at Seripe served the same purpose as an open communal courtyard area at other settlements. Rapoport observed patterns of activity and access at the Taos Pueblo (Rapoport 1976, 69) and Cushing the use of roof-top patrons.
entrances at a Zuñi settlement in the south-west United States (Green 1979, 55 and 128). At Pular, in central Anatolia, ladders facilitated movement across different roof levels (Koşay 1977, 121). The Iranian film director Kiarostami’s film ‘The Wind will Carry us’ (Kiarostami 1999), set in a Kurdistan village, vividly demonstrated how easy it could be to move across roofs and up and down staircases and ladders to reach buildings that had no ground-floor entrances. Finally, the use of roof-top space and partially second-storeyed buildings with ground- and upper-level doorways is illustrated in the semi-agglomerated architecture of some African villages (www.dogon-lobi).

Social organization

In addition to highlighting ideas about the use of space, seasonal variation and patterns of movement, ethnographic observation can enhance an understanding of how social organization, particular in relation to the size and composition of household units within settlements, may be reflected in architecture. Many examples of such observations exist (see, for example, Ertuğ-ı-Yaras 1997; Hanson 1998; Kamp 1987; 2000; Kramer 1979; 1982; Stirling 1965; Watson 1979). Kamp’s work at the Syrian village of Darnaj (see above) is of particular interest in three respects. Firstly, she suggested that a pattern of dispersed buildings surrounded by open spaces signified an early stage in village development when land was not at a premium (Kamp 2000, 84). Secondly, she investigated the relationship between architectural configuration, possessions and household wealth and size. At Darnaj, individual living units were composed of compounds consisting of individual rooms arranged around an open courtyard. Kamp noted that notions of privacy did not exist between family members and that inside space was supplemented by outside space so that buildings and rooms did not need to be large in order to accommodate large families. The amount of living space (inside and outside) varied between 6 and 58 sq m per person and although there was some correlation between building size, wealth and family size, it was difficult to predict either family size or wealth on the basis of building size alone (ibid., 86). Wealth, moreover, was demonstrated not so much by the kind of artefacts that might survive within the archaeological record but by the family’s possession of land, animals and other capital property (for which evidence would not have survived within the archaeological record (ibid., 89)). Thirdly, and perhaps most interestingly, Kamp discovered that each wife had her own living room in the compound that housed her extended family (Fig. 5). Each living room within the compound, therefore, signalled the existence of one conjugal unit.

The significance of living rooms in representing individual conjugal units has also been demonstrated elsewhere. House plans from Baghestan, in north-eastern Iran, for example, illustrate this point clearly (Horne 1994, 200–208). In one of these, each of three households is shown to have had its own living room with storage rooms, an outside hearth and animal pens (Fig. 6).

Watson’s comprehensive study of Hasanabad, again in northern Iran, recorded the presence of a sitting room within each set of conjugal rooms (Watson 1979). She found, moreover, a hearth within every one of the 21 living rooms she was able to visit (ibid., 127). Other examples of the presence of one living room per conjugal unit have been recorded (for example in Ertuğ-ı-Yaras 1997, and the author’s personal observations of Berber compounds in southern Morocco).

These studies demonstrate that the relationship between building size, wealth and family size is not a simple one (see, for example, the discussion in Cutting 2006a). Kamp found that...
building and room size *per se* corresponded neither to family size nor family wealth (Kamp 2000, 85–86). Furthermore, Kramer and Watson, in their studies of Shahabad and Hasanabad, observed that variations in household size rather than wealth correlated with the amount of roofed dwelling space per household unit (Kramer 1979, 154–5; Watson 1979, 133–7).

So far, numerous examples of analysis and observation at both archaeological sites and modern rural communities have been used to demonstrate the broad range of methodological approaches and research techniques that have been used to study how people, past and present, have used their household and village space.

The case studies described above used a variety of methods to collect and analyse data about the use of architectural space. Most combined a qualitative with a quantitative approach that recorded combinations of building measurements, configuration, continuity and decoration and artefact distribution, depending on the type of archaeological information available (Banning and Byrd 1987; Byrd 2000; Kohlmeyer 1996; Kuijt 2000; Meskell 1988; Pfälzner 1996; Romanou unpublished; Samuel 1999; Scott 1990; Verhoeven 1999; Watkins 1996; Wright 2000). Some studies (for example Wright 2000) veered towards the qualitative and others (for example Verhoeven 1999) towards the quantitative, but the most convincing allowed the two approaches to interact seamlessly. Romanou’s quantitative methodology, for example, was derived from a sound understanding of the ‘shape’ of the building and settlement architecture and a realization that people once lived in the buildings she was studying (Romanou unpublished). Thus she...
collected measurements and recorded probable patterns of everyday movement that were likely to reveal something about how real people organized their daily lives.

These studies used a range of data that included the size of buildings and their internal configuration, the distribution of selected features and artefacts, the relationship between inside and outside spaces, and building design and decoration. A number of techniques were used to record the architecture ranging from the descriptive to the quantitative. Building and room sizes, the numbers of rooms per building, the changing external and internal wall alignments of buildings through time, the measurement of open spaces and the identification of spatial genotypes were recorded.

Taken together, these studies suggest that a comprehensive dataset for the study of prehistoric household and settlement architecture should include the following:

(i) Palaeoenvironmental data about the extent of any seasonal climatic variability that might encourage the differential use of inside and outside space.
(ii) General site information about construction material, material culture and subsistence patterns.
(iii) The internal floor measurements of buildings and rooms.
(iv) The location of ovens, hearths and storage facilities.
(v) The presence of main living spaces (‘sitting rooms’).
(vi) The measurement of built and non-built space.
Evidence (direct or circumstantial) for the existence of upper storeys.

The identification, where possible, of one or more ‘standard’ buildings for each site.

These data should be analysed both at a site-specific and inter-site level wherever sufficient data are available.

The majority of the archaeological studies discussed above drew conclusions at a micro scale level of interpretation with, occasionally, observations made at a more general, macro level. This is because these studies were, for the most part, based on site-specific material, with only a few able to use architectural data from a number of sites to produce more general conclusions about the use of space at regional level.

Examples of ethnographic observation drawn from small rural communities in the Near East demonstrate that ethnographic analogy also has a part to play in teasing out the relationship between architectural configuration and social organization. While ethnographic analogy must always be used cautiously, a number of conclusions can be drawn from that material which inform both the methodology for data collection and analysis and, particularly, the type of interpretation and inference that can be drawn from that analysis. The main points can be summarized as follows.

(i) Both inside and outside spaces can be multi-functional (Kamp 2000; Kramer 1979; Meskell 1988; Samuel 1999).

(ii) Spaces can change their use both on a seasonal basis and over time (Aurenche 1998; Green 1979; Hall et al. 1973; Horne 1994; Kamp 2000; Watson 1979; author’s observations from Kücükköy village).

(iii) Outside areas, including ground-level courtyards and flat roof-tops, are used as extensions of interior living areas during the summer months (Ertuğ-Yaras 1997; Green 1979; Hall et al. 1973; Kamp 2000; author’s observations from Kücükköy village).

(iv) Shelters for animals and humans are often close together (Hall et al. 1973; Kamp 2000; author’s observations from Binbir Kilise village).

(v) Ovens are often separated from the main dwelling areas and sometimes have specific private or communal uses (Ertuğ-Yaras 1997; author’s observations from Kücükköy village).

(vi) Building size does not necessarily indicate family wealth. Instead, it may more accurately reflect household size (Byrd 2000; Kamp 2000; Kramer 1979; Watson 1979). Building decoration is sometimes used to reflect wealth. However, household wealth is also often demonstrated through property (buildings, land, crops and animals), the evidence for which does not survive within the archaeological record (Kamp 2000).

(vii) The presence and number of living rooms may indicate conjugal units (Ertuğ-Yaras 1997; Horne 1994; Kamp 2000; author’s observations of Berber compounds in Morocco).

(viii) Buildings housing small nuclear families can have internal usable floor areas as low as 8 sq m; houses sheltering extended families are likely to be multi-roomed, with more than one main living area, and with average internal usable floor areas totalling at least 75 sq m (Byrd 2000). The use, however, of inside as well as outside space is relevant (Kamp 2000).

(ix) Mud brick buildings sometimes have a partial second storey (Hall et al. 1973); movement between roofs at different levels and the presence of roof-top entrances do not prevent easy movement across open roofed areas and between agglutinative buildings (Banning and Byrd 1987; Ertuğ-Yaras 1997; Horne 1994; Kuijt 2000).
Nearly all the archaeological and ethnographic case studies cited in this article concern social relationships in one form or another, whether they are within the household or at the wider community level. Researchers seek to identify changes in family histories in terms of the family and/or extended family unit, and to see these changes as signatures of population stress, economic change and the like. Continuity and discontinuity in architectural form are used to suggest socio-economic patterns and the spatial organization of essential subsistence activities to signal private or public activities.

It comes as no surprise that archaeologists study the family unit, food, the growth of wealth and population, and notions of privacy and communality, for it is through such means that inert mud bricks, stone and hearth remains may reveal a little of their story. Systematically collected qualitative and quantitative data combined with the judicious use of ethnographic analogy will promote such endeavours.

**Acknowledgements**

This article is based in part on doctorate research completed at the Institute of Archaeology, University College London and funded by a grant from the Arts and Humanities Board of the British Academy. I would particularly like to thank: Dr James Conolly for his encouragement and for his helpful comments on my first draft; the Institute of Archaeology, University College London for giving me permission to cite Romanou’s unpublished Master’s dissertation; and Dorella Romanou for allowing me to cite her forthcoming publication.

**Institute of Archaeology**
**University College London**
**31–34 Gordon Square**
**London WC1H 0PY**

**REFERENCES**


ENGLISH, P.W. 1966: City and Village in Iran: Settlement and Economy in the Kirman Basin (Madison).


MORE THAN ONE WAY TO STUDY A BUILDING

GREEN, J. 1979: Zuñi: Selected Writings of Frank Hamilton Cushing (Lincoln/London).


SAMUEL, D. 1999: Bread making and social interactions at the Amarna Workmen’s village, Egypt. World Archaeology 31, 121–44.


STIRLING, P. 1965: Turkish Village (London).


WATSON, P.J. 1979: Archaeological ethnography in Western Iran (Tucson).


MORE THAN ONE WAY TO STUDY A BUILDING


*Film*

KIAROSTAMI, A. (Director) 1999: *The Wind Will Carry Us* (Iran–France) (Farsi with subtitles).