PART I

Theoretical context: the role of the material as behaviour

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Archaeology, settlement growth and the material component of human behaviour

The increasingly rapid growth in the size of human communities and the area of their settlements over the past 15,000 years has been accompanied by a substantial increase in the amount and diversity of the material component of community life. These parallel trends may be unconnected, coincidental or indirectly linked. On the other hand, they may be directly associated because material entities have a consequential effect on the degree to which the stresses of interaction and communication inherent in community life can be managed.

The impact of the material on social life

Verbal communication and familiar social action play an important day-to-day role in community life, but material entities also possess a substantial capacity to regulate interaction and communication. The walls of the buildings in which we live and work create a sensory milieu by restricting the transmission of sound and by delimiting our field of vision. The 'workmen's village' at Harappā in the second millennium BC (Figure 1.1) was a tightly packed occupation area, with buildings close together along narrow, restrictive access routes. A simple, spatial device served to minimise intervisibility. The entry corridor to each residence unit was at an angle to the street (Figure 1.2). Instead of looking directly into the inner room, even people who were intending to enter would have their view obscured by the wall angling across in front of them. Casual passers-by would have found it very difficult to see into the private interior space. The entry corridor, in itself, provided privacy without obstructing physical access, whether or not there was a door. The residence complex had apparently been provided with a deliberately repeated, systematic and parsimonious architectural device which, in Newman's (1973) terms, created a transitional zone between the street and the inner rooms of each residence unit. The gross perceptual effect was the same then as it would be now, restricting the frequency of contact whether the occupants wanted it or not. The patterning and ordering of residential space provides a means of managing interaction and communication. The effects are amenable to systematic analysis and should be of consequence for the long-term operation of social life.

The material context of a community can also have an adverse effect on social life. Once a durable material framework, such as the brick walls of a building, is established it can continue to have an effect for a long time. We are scarcely aware of this long-term, stable context, though we may well be aware of the fact that our material surroundings are not easily changed and can create social problems. A significant

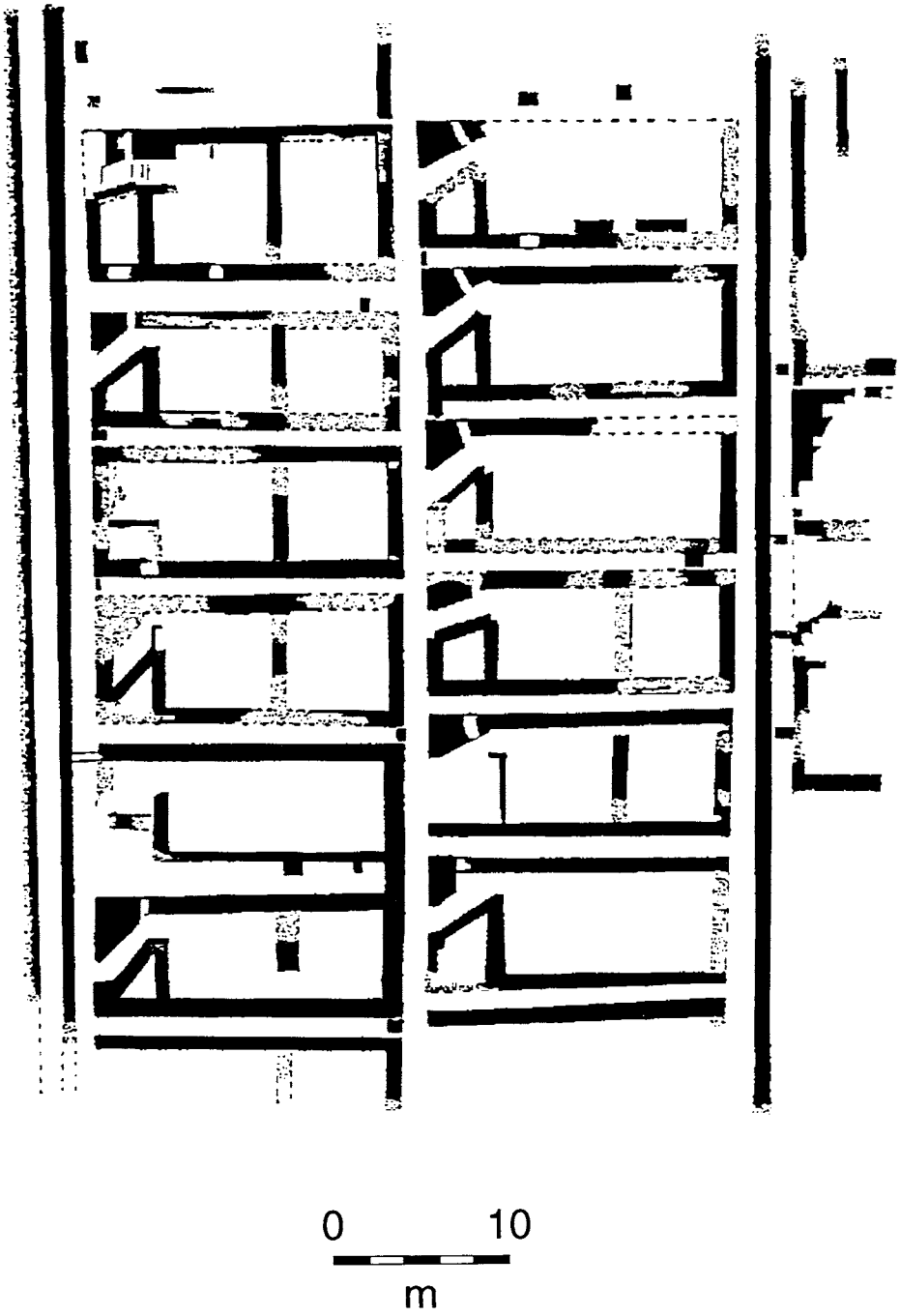

Figure 1.1 'Workmen's village' at Harappā, Pakistan, third–second millennium BC (after Vats 1940)

extant walls presumed wall line

Note: Later additions and alterations deleted

obstacle to social change in the large cities of the late twentieth century is presented by the substantial stock of old housing and utilities. These must either be removed or else renovated at considerable cost, if they are to serve the purposes of a community whose way of life is changing rapidly. Planning does not necessarily resolve the problem. Indeed, planned urban space in the latter part of the twentieth century has itself produced severe obstacles to viable social life. Some material contexts may exacerbate the stress of daily domestic tasks (Sommer 1974), adversely affecting, for instance, women's daily life and freedom of activity (Adams and Conway 1975; Matrix 1984). The difficulties imposed on women with children living in high-rise apartments are well known. Even worse, the overall spatial layout of a housing estate can be socially destructive. Newman's analysis of public housing in the USA emphasised that the absence of transitional zones between public and

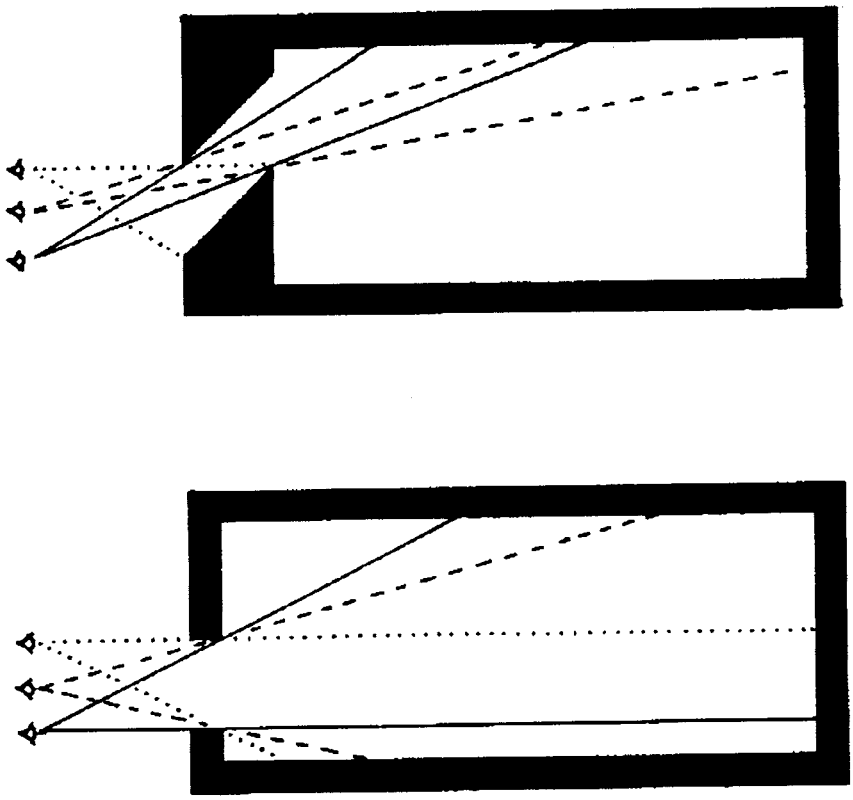

Figure 1.2 Schematic viw of constraints on intervisibility

◁ viewpoint

private space, and the presence of large corridors and spaces that were not under the direct observation of the residents, produced a dangerous and insecure social milieu. (Newman 1973). Such problems might perhaps be contextually unique to industrialised societies; alternatively they may represent the most overt expression of a more general feature of the relationship between human action and its material context.

The material and social action

The material is far from neutral in its effects on the exercising of human intent. Changes in social life may end up at odds with housing stock which, depending on the durability of the material (Donley 1982; Fletcher 1985; Rapoport 1990), constrains action to varying degrees. If such disharmony can exist between action and the material, then we can predict two kinds of outcome. The first and most obvious is that the material may obstruct us in the pursuit of our chosen options. In this case a change in social action may fail to produce the material forms which would sustain its development. It is not, therefore, valid to assume that particular material phenomena are necessarily the result of particular social phenomena, or that there is a consistent relationship between them. In the short term a myriad possible combinations might occur, some advantageous and some deleterious. The implication is that the relationship between the material and the social is not a universal, cross-culturally defined one but is, in the short term at least, particular and contextually defined.

The second kind of outcome resulting from the lack of correlation between the material and the social is a corollary of the first. Although particular kinds of material feature may be essential for some kinds of change in human action to be sustained, they are not necessarily brought into being simply because they are needed. For instance, devices for counting may greatly assist the growth of commerce. But we can neither expect that the beginnings of commerce cause counting devices to be developed, nor can we assume that such devices will not, and cannot, arise in other entirely different contexts, e.g. for divination. If they are absent from a community's cultural repertoire, commerce may start but then falter. However, a society with divination devices that can be used for counting may thereby be 'pre-adapted'[1] to commercial expansion. When the necessary social change occurs, the community would already possess the material means to support it.

The material facilities required for a sustained social change might, then, arise for a variety of reasons. But they can only have large-scale, long-term behavioural consequences in conjunction with a narrow range of specific social systems. The social changes might either precede or follow the development of the requisite material feature, or might not happen at all. The formation of 'advantageous' relationships is neither inevitable nor universal. Cumulatively more lasting material features, which initially play a useful role, may later impede the activities of a community. What ought to be cross-culturally consistent is the potential effect of such associations on the growth and persistence of a community. Therefore, we should not require an answer to the question about why the association came about

in order to pursue the broader issue of whether or not the magnitude and nature of its outcome is cross-culturally consistent. We should look for connections between varying combinations of material assemblages and social change and economic patterns, and the degree to which the communities carrying them survive, persist or fail. Predicting the differing outcomes will require a model which explains the relationship between the varied possible material–'social' associations and the general behavioural parameters which define the limits within which communities are viable.

The behavioural limits to settlement growth

Humans are social animals. We habitually live in residential communities however small or transient. For communities to function individuals have to interact with each other. But interaction involves the strain of dealing with other people, the effort of coping with the products of group activity such as noise and trash, and the energy we must expend to make communication possible. In communities with high residential densities these costs increase markedly as a community size increases. As more people come together, their activity and communication become more and more densely interconnected and more of the derivatives and debris of interaction are generated. Interference between messages tends to occur. Unless more energy and more signal consistency is provided to transmit messages coherently over longer distances, increasing settlement sizes and high information traffic loads would eventually produce a residential pattern in which the community could not viably persist (Johnson 1982; Meier 1962; van der Leeuw 1981).

Personal experience tells us that there are limits to the amount of interaction we can tolerate. Community size and residential density consequently cannot increase infinitely without some critical changes in cultural behaviour. There is a need, for instance, for ways of ensuring that people can avoid meeting while being able to transmit messages more readily. Social life would otherwise become intolerable for the members of a community. The inanimate material component of human behaviour provides a means both of carrying information (Rapoport 1988) and of reducing the impact of the signals produced by community life (e.g. Sanders 1990: 65). Newspapers, for example, both carry information and reduce the interaction needed to obtain it. Walls block direct interaction between people and can cut out distracting noise and activity. The material component of human behaviour should therefore have a crucial role to play in the development of cumulatively larger, densely occupied communities. It is available to act as a regulator of interaction and an aid to communication. Without the assistance of the material, our sensory system could not cope with the inevitably increased demands resulting from increased group size.

The argument might then be made that major change in community size can only be sustained if a new assemblage of material aids to interaction and communication happens to be developed. The new material assemblage would enable change in the active component of social organisation, which could not, in itself, sustain growth. This argument goes further than the view of some social historians (Lloyd 1988), or

the action-oriented social theorists (Giddens 1979) and their archaeologically trained counterparts such as Miller (1987) and Moore (1986), on the predominantly recursive relationship between the social and the material. According to that view the material serves to negotiate relationships within the social milieu. But the role of the material cannot be reduced to a derivative of social action, or a recursive complement of social meaning. The role of the material as a decisive behavioural factor in its own right must continually be taken into account because of its capacity to divert our intended social actions. It can operate both negatively and positively to frustrate or enable change in community life but the effects are not determined by what people say, want, strive for, or need to do. The problems and the possibilities produced by the relationship between the material and human action are inherent in our behaviour. We cannot detach the material from the condition of being human.

The implications are serious both for the future and for our views of the past. According to this view the future, like the past, will be characterised by the intervention of the material. Its serious effects are already manifest in worsening pollution, the increasingly onerous maintenance costs of roads and services, and the apparently intractable problems of garbage disposal. On average each of the 5 million inhabitants of New South Wales in Australia in the early 1990s produced 302 kg of domestic trash per annum. The population of New South Wales, in total, wasted 610,000 tonnes of paper and 249,000 tonnes of glass each year, even with recycling (*SMH* 1990). The impact of our material context raises a central issue in the explanation of human behaviour. A further approach is required, complementary to the more familiar ethnographic or historical scales of enquiry, which will enable us to comprehend the way in which the material component of human behaviour relates to the long-term prospects for viable community life. The purpose of this study is to outline an operational model of the material as an effectively independent form of behaviour which, over the long term, has a distinct regulatory and restrictive role as a manager of community life.

Social theory and the role of the material

An analysis of the long-term role of material assemblages requires an archaeological perspective. No other discipline has the orientation or domain of enquiry that it needs. However, to comprehend the processes of human community life archaeologists have, in general, sought explanations and categories from the shorter term perspectives of the social sciences and history (Chang 1967; Courbin 1988: 150–5; Gibbon 1989; Hodder 1986: 2–17; Kent 1990; Miller 1985, 1987: 11, 215; Orme 1981; Redman *et al.* 1978; Schiffer 1985; Trigger 1978, 1991) as has been noted (Fletcher 1989; Murray 1988, 1991; Smith 1992: 30–1; Wobst 1978). The problem is that anthropology has been narrowly construed in terms of a standard defined by the content and treatment of ethnographic experience. The adage that archaeology is anthropology or it is nothing (Binford 1962; Willey and Phillips 1958: 2) has usually been understood in those terms. This stance has since received vigorous criticism from Binford (1987: 395–8). A single inclusive category of 'culture' is

usual, subsuming the active and the material components of community life. The active, social aspect has been considered to predominate, as is apparent in two substantial overviews with very different perspectives in the mid-1980s (Hodder 1986; Ingold 1986), and in discussions of evolutionary theory and the social sciences (Schmid and Wuketits 1987). The familiar perception of daily life, in which buildings, small objects, speech and actions are a single, synchronic cultural assemblage, dominates our viewpoint. On a day-by-day perspective their differing patterns of endurance and inertia are not markedly apparent, nor do those differences appear to be very significant. What appears to matter in the short term is the role those entities play in the expression of our daily lives (Miller 1987), not their gradual, cumulative impact. The former necessarily requires a contextual, local perspective. The latter only become apparent as longer term general effects, when viewed cross-culturally.

For the past thirty years archaeological theory has been dominated by social reconstructionist approaches derived from the cultural definition of the discipline in the 1920s and 1930s (Childe 1946; Daniel 1981; Meltzer 1979; Murray 1987; Redman 1991; Willey and Sabloff 1980). Both the functional materialists and the historically oriented contextualists, no matter how far divided on epistemology, use social theory and have regarded it as both the beginning and the end of enquiry (Deetz 1970; Hodder 1982; Leone, Potter and Shackel 1987; Miller 1982; Redman 1978). But social theory is neither stable nor paradigmatic. Theorising in archaeology extends across a diverse range of analytic procedures and epistemological premises (Earle and Preucel 1987; Kobylinski, Lenata and Yacabaccio 1987; Washburn 1987). Meticulously segregated views of considerable similarity are mixed with carefully presented positions divided by major logical disagreements (Fletcher 1989; Kohl 1985; Wylie 1989). There is vigorous dispute about the various possible combinations of historical viewpoint and the theories of the social sciences which might be used (Bamforth and Spaulding 1982). Extreme divergence exists on fundamentals of ontology and epistemology (Binford 1987; Crawford 1982; Flannery 1973; Gould R. A. 1980; Hodder 1985, 1987; Miller 1982; South 1977; Spaulding 1988; Trigger 1991; Wylie 1985a, 1985b, 1986a; Wylie and Pinsky 1990). Yet, despite such disagreement, the protagonists, with a few notable exceptions, accept the use of current social theory, as do the philosophers who have contributed to the debate such as Salmon (1982) and Wylie (1982a, 1982b, 1985a), and the archaeologists who discuss philosophy (e.g. Bell 1982; Gibbon 1989; Renfrew 1982; Schiffer 1981; Watson, Redman and LeBlanc 1971, 1984).

Two different views about the relationship between contemporaneous material and social phenomena are prevalent. The still dominant processual, functionalist view regards material entities and patterns of entities as reflections of social phenomena. The material is seen as a by-product of the 'social'. Room size has persistently been regarded as a derivative of numbers of people (Hassan 1982; LeBlanc 1971; Naroll 1962; Sumner 1989), though the risks of doing so have been pointed out (Casselbury 1974; Casteel 1979; and see Fletcher in Kolb 1985). Patterns of residence have been ascribed to the effects of kinship systems (e.g.

Agorsah 1985; Hill 1968; Longacre 1970; O'Connell 1987: 100–2; Whitelaw 1983, 1989). The logical corollary is that social cause is reconstructed from the material product by combining local, contextual particularity with extrapolation from ethnographic and historical cross-cultural associations. Contemporary associations, repeatedly confirmed in different cultural contexts, are treated as sufficient evidence for the same kinds of paired association in the past. Such substantive extrapolations are validated by various logical devices such as specific historical continuity or general analogy from equivalent economic and environmental contexts (Crawford 1982; Gould and Watson 1982; Smith 1977; Stanislawski 1976; Wylie 1985b).

The alternative, social recursive view recognises an interaction between the material and social aspects of a community, as in the work of Bourdieu (1977, 1984), Berger (Berger and Luckmann 1967) and Giddens (1979). In this recursive relationship, things are not merely reflections of a social order. Instead the inanimate entities, such as material symbols and spatial form, play a meaningful role in society (Appadurai 1986; Miller and Tilley 1984; Moore 1986). Actions and material features may acquire contradictory verbal meanings and the relationship between them can serve to express contradictions within the community. Since the late 1970s Hodder has emphasised the complex relationship between people and things (1986: 8, 12) in a restricted, recursive model which retains the conventional predominant, prior status of verbal meaning and human action. The social recursive position logically rules out what it refers to as uniformitarian cross-cultural associations as a basis for reconstructing the past. The importance of an entity depends upon its meaning and that can only be derived from the history of its context in a particular community or society (Hodder 1986: 118–46). A hermeneutic relationship between the observer and the observed (Hodder 1984a, 1987) leads to proposed meanings which are properly to be understood in terms of verbal categories.

Though the social recursive view does not privilege social determinants as completely as is usual in processual, functionalist social reconstruction, the tyranny of the ethnographic and historical record persists in the form of a prior status allocated to social theory (Wobst 1978). This is conspicuously apparent in the views of Shanks and Tilley (1987a, 1987b). The prior status is taken for granted in the social, processualist approach, while it is forcefully articulated in the radical, contextualist view (Fletcher 1989: 66–7). Tilley, for example, has contended that 'Failure to tackle problems within sociology and philosophy can only lead to a blind, unsystematic groping towards an understanding of the past. It is sheer dogmatism to suggest otherwise, to suggest that problems within philosophy and social theory can be neatly circumvented in the actual business of carrying out research' (1982: 36). That the premises of social theory are appropriate for the study of human beings is not in question. They have demonstrated their value in archaeology and continue to do so (Flannery and Marcus 1983; Paynter 1982; Spriggs 1988; Stone 1987; Yoffee 1977). When the required texts, in the form of oral tradition and/or written comment, are available, the social approach transforms the interpretation of the archaeological record. However, the prevalent social and historical approaches are predicated on various combinations of verbal meaning, intentionality, premises of

rationality, and the ethnographic scale of cultural life (Lloyd 1988: 7, 10). The problem with an archaeological ontology founded on these premises is that the material component of community life is logically reduced to an adjunct of human action. It is ascribed a secondary role as an epiphenomenon recruited into the meaning structures of action and verbal expression.

The current paradox of social theory

Archaeology does not, at present, have its own fully effected theories about the nature and role of the material component of human community life. Instead it works through connections to the established theories of other disciplines. But we are not obliged to follow this approach. There are indications that the current use of social and historical perspectives in archaeology is not entirely satisfactory. Members of the donor disciplines of history and social anthropology like Hobsbawm (1979: 249–50) and Leach (1973, 1979: 123–4) have long expressed doubt about the proposed articulation of such divergent ontologies. Outsiders to archaeology, such as Yengoyan, though they regard a social view as appropriate, are critical of the contextualist programme in archaeology and its use of social theory (1985: 329–34). Interdisciplinary discussions have persistently tended to produce a multi-disciplinary *mélange* rather than integration (Bintliff and Gaffney 1986; Burnham and Kingsbury 1979; Green, Haselgrove and Spriggs 1978; Renfrew 1979: 253; Spriggs 1977). Nor has social theory or archaeology produced a cross-culturally consistent model of the relationship between material and 'social' phenomena (Fletcher 1989: 72; Murray 1988). It is therefore unlikely that the current restricted classes of social explanation in archaeology and anthropology are sufficient for studying human behaviour. Nor does the continual change in social theory over the past 150 years suggest that the current position in archaeology is somehow final. As Rapoport has noted (1988: 326), archaeology has only just begun to consider what he calls the 'everyday' behavioural meanings of community life, rather than the higher level meanings of social rank and prestige or ideology and cosmology.

Though there are self-evident connections between archaeology, social processes and the time depth of history and ecological-environmental studies, these connections cannot logically lead to the conclusion that explanations of material items are to be sufficiently understood in terms of theories originally developed to make other classes of information comprehensible. Only a premiss that the material is epiphenomenal can lead to such a conclusion. Although archaeology is anthropology in the sense of studying human beings, anthropology should be defined more widely. It need not be defined by the current practices of the social sciences or the current content or fashions of social theory. Archaeology needs instead to develop additional ways of doing anthropology, complementary to the existing approaches, by introducing a form of explanation specifically appropriate to the longer term, behavioural role of material entities.

A few archaeologists have, for some years, argued that our current theoretical structures are inadequate (Binford 1981; Dunnell 1982; Higgs and Jarman 1975). As had been repeatedly noted over the past thirty years, archaeology lacks an