discussion article

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Thinking about stratigraphic sequence in social terms

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Abstract

For archaeologists, stratification is an important character of archaeological deposits. Through it, layering is discerned and cultural and evolutionary interpretations are proposed. Archaeologists possess much implicit knowledge about the social practices that produce stratigraphic sequence and the specific, contextualized manner in which layers were built upon or cut into previous deposits. The aim of this paper is to gather together and formalize this knowledge so as to codify conceptual 'tools to think by' when recording and interpreting stratigraphy. Relevant literature is widely dispersed and here can only be sampled; authors consider stratigraphy in terms of (1) techniques of terraforming, (2) processes enacted and (3) meaning and interpretation. Techniques and processes are discussed within larger social interpretations such as memory, history-building, forgetting, renewing, cleansing and destroying. Examples are drawn from the Turkish Neolithic site of Çatalhöyük and the ancestral Maya site of K'axob in Belize, Central America, to illustrate the applicability of an approach that here is called 'social stratigraphy'. A practice-based history of stratigraphy – the recording and interpretation of strata – within archaeology is problematized in reference to codependence with geology, the deployment of labour and centralized authority within the emergent 19th- to early 20th-century field of archaeology. The contributions of and conflicts between British and American stratigraphic schools are considered in light of a potential rapprochement. Contested issues of cultural heritage – such as preservation of selected strata – suggest that thinking about stratigraphic sequence in social terms is more than an academic exercise.

Keywords

stratigraphy; social theory; Çatalhöyük; K'axob; social memory; geology

During the past few decades, the study of human interaction with the material world has witnessed rapid development of method and theory on macro- and micro-scales. Archaeology has both benefited from and contributed to this emergence. For instance, landscape archaeology (through synergism with geography) has expanded the frame of archaeological inquiry beyond a settlement focus, allowed the inclusion of nonresidential places – such as sacred caves – and encouraged a more daring, phenomenological perspective

on landscape inhabitation (Ashmore 2004; Ashmore and Knapp 1999; Barrett 2001; Brady 1997; Tilley 1994; among others). At the other end of the scale, approaches to artefacts (through synergism with social theory) have taken a decidedly social turn and now frequently entertain interpretive dimensions other than chronology and cultural affiliation. Attention often is focused on the manner in which artefacts encode social memory and biographies, evoke an understanding of human agency, resonate with social and ritual practice and play an active role in social networks and figured worlds (Appadurai 1986; Dobres and Robb 2000; Holland *et al.* 1998; Kopytoff 1986; Latour 2005; Van Dyke and Alcock 2003). But there is a middle ground – the place where landscape and artefacts meet – that remains undertheorized. The interpretation of stratigraphic sequences of depositional and subtractive processes forms a primary constituent of the self-identity of archaeologists and attention to sequence and context quickly separates a responsible investigator from a looter. Despite some notable and thoughtful discussions (considered below), the social meanings of stratigraphy-making tend not to be critically probed or extensively discussed. As Roskams (2001, 267–70) notes, stratigraphy tends to be overdescribed and undertheorized, with awkward articulation between the interpretation of excavated artefacts and the physical matrices in which artefacts are embedded, on the one hand, and, on the other, between the sedimented sequences of social action and the larger experience of landscape. As reviewed by Shott (1998, 312, 317), formation theory itself has been restricted to the debate over approaches to '[artefact] assemblage formation processes', for which Shott maintains there has developed 'an undisciplined plethora' of approaches. In contrast, there has been limited theoretical formulation of the practical engagement of humans with earthly materials that produce stratification. Here, this topic is pursued with the goal of amassing a conceptual toolbox to facilitate archaeological interpretation.

The ways that archaeologists explore stratigraphy derive from geology (see Goldberg and Macphail 2006, among others). The superpositioning of layers allows relative chronologies to be built, and thus the development of forms (fossil species in geology, cultural types in archaeology) to be studied. In modern archaeology, the Harris matrix – although not without its detractors – is a major strut of archaeological method. It allows contexts, units and loci to be arranged into phases and the associations of artefacts to be studied. Thus stratigraphic analysis has come to be seen as a neutral method that underpins the organization of data in research and contract archaeology. By means of a historical discussion, we challenge the neutrality of organizing and presenting stratigraphic information. Stratigraphy produced by human effort has often been labeled 'cultural stratigraphy' to distinguish it from natural stratigraphy studied by geologists. We suggest that the similarities between natural stratigraphic sequences and those created by humans are more apparent than real and here advocate a different framework of interpretation. Specifically, we suggest a reorientation in the interpretation of stratigraphy towards the social meaning of this important variant of materiality that is constituted by the piling up of clay and stones, the processing of limestone to create plaster and mortar, or the intrusive disruption of a constructed space for the purpose

of burying/storing/retrieving objects or deceased group members – the stuff of built environments. Rather than use the blanket term of cultural stratigraphy for these activities (meant to create an artificial partition between culture and nature), we suggest a focus on social practices – the web of human interaction – that results in built stratigraphic sequence. This approach – that of 'social stratigraphy' – helps direct our interpretive efforts towards the agency of those who conceived of and labored to construct the platforms, room complexes, subterranean features and soaring monuments that we so laboriously deconstruct through excavation. As geoarchaeologists Goldberg and Macphail (2006, 24) note, 'occupation deposits are an essential part of the material culture. By ignoring the value of these deposits, archaeologists limit their ability to fully understand their sites.' We advocate attention to the interpretation of 'occupation deposits' in social terms and focus here on sites with demonstrable built environments, although this approach has applicability for deposits of humanly produced materials within what traditionally is called 'natural stratigraphy'.

Below, a brief critical account of the history of stratigraphy in archaeology is followed by a discussion of elements of social stratigraphy that refer both to techniques and to processes inherent in piling up and layering sediments, cutting through existing layers and filling spatial voids. Interpretive points are illustrated by reference to relevant stratigraphies, in particular those of Çatalhöyük, a seventh-millennium BCE Neolithic site in central Turkey (Hodder 2006), and K'axob, a first-millennium BCE and CE ancestral Maya community in Belize, Central America (McAnany 2004). Separated by great time and distance, commonalities are apparent, such as the manner in which burial and pit features were constructed within and beneath the house, while significant and obvious distinctions – such as adobe-walled houses versus platform construction for perishable houses – also existed between the two sites. As such, these two examples are intended to illustrate the general applicability of a concept of social stratigraphy as a kind of sequentially layered contextual analysis.

Historically constrained notions of archaeological stratigraphy

To understand better the contemporary state of stratigraphic recording and interpretation, the historical entanglement between archaeology and geology is considered and the impact of the codependency between the two disciplines discussed. The practice of recording and interpreting strata within archaeology is historicized in reference to the deployment of labour and centralized authority within emergent 19th- and early 20th-century schools of archaeology. The divergence between two principal schools of stratigraphy – British and American – is discussed in relation to the contrast between the Harris matrix and the study of formation processes. Additional, integrative approaches are suggested to have the potential to create a transatlantic rapprochement.

The well-known stratigraphic profile produced by 19th-century French antiquarian Boucher de Perthes served to defend his claim that he had found human-produced stone tools in association with extinct Pleistocene fauna in the Somme river terraces (figure 1). Such documentation represents

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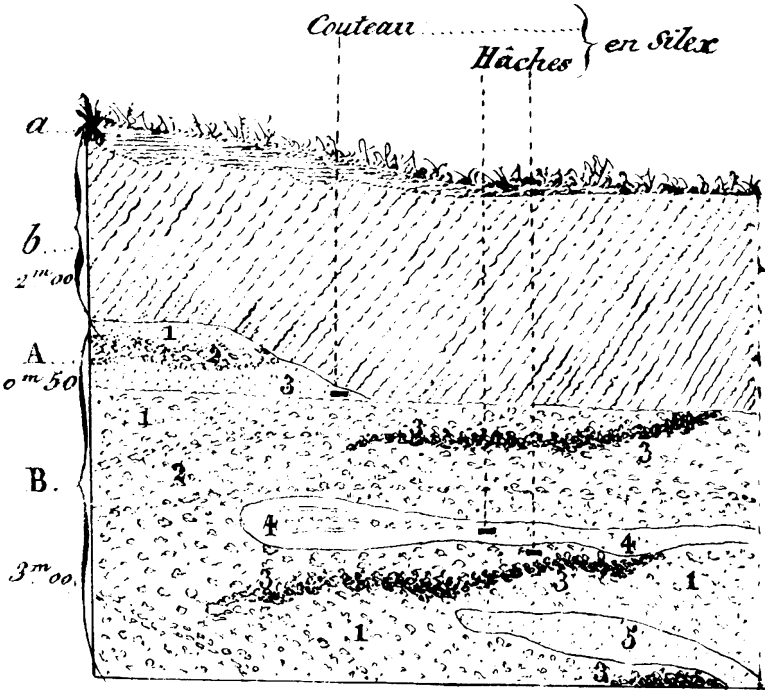

Figure 1 Stratigraphic profile produced by 19th-century French antiquarian Boucher de Perthes to record the presence of human-produced artefacts in Palaeolithic deposits (from Boucher de Perthes 1847, figure 14).

an important milestone in the emergence of a stratigraphically controlled approach to the past. Significantly, scholarly acceptance of the association generally is credited to site visits during 1859 by British geologists John Prestwich and Charles Lyell, as well as antiquarian John Evans, who then defended de Perthes's assertions before British scientific associations such as the Royal Society of London (Trigger 1989, 93–94). Thus the codependence between archaeology and geology in the recognition of the antiquity of humans was established by the mid-19th century.

Throughout the latter half of the 19th century and the first half of the twentieth, the principle of superpositioning – and the implications for artefacts found within sequenced strata – became a key idea within the emergent field of archaeology. Early scientific archaeologists such as Pitt-Rivers (1887–98) emphasized the importance of recording stratigraphy and its associated artefacts; later Mortimer Wheeler (1954, 40–71) institutionalized three-dimensional recording methods and elevated the stratigraphic profile to a fine art. In the Americas Thomas Jefferson noted the presence of stratigraphy in south-eastern burial mounds as early as the 18th century. Stratigraphy was wedded to pottery seriation and formed a major strut of the American culture-historical approach, clearly evident, for example, in the work of Kidder (1924, figure 2). Across Europe and the Americas, this approach (together with stylistic seriation first introduced by Flinders Petrie (1904)) resulted in

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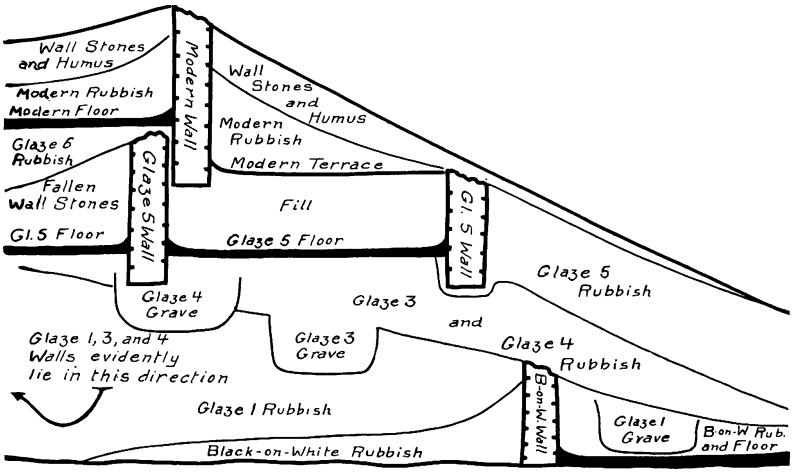

Figure 2 A ceramic-stratigraphic profile from Alfred Kidder's excavation at Pecos Pueblo, New Mexico. Note the referencing of each context in terms of the type of temporally sensitive pottery, e.g. black-on-white and glaze wares (from Kidder 1924, figure 2).

the construction of elaborate, Childean culture-historical time charts long before the advent and certainty of radiocarbon dating, but it also fostered a notion of stratigraphic sequences as neutral 'containers' of temporally sensitive artefacts that bracketed more or less measurable units of time. This approach is clearly shown in figure 2, in which Alfred Kidder illustrated the stratigraphy of the North Terrace at Pecos, New Mexico, by labelling each contextual constituent with the temporally sensitive pottery type contained therein. The social processes scripted upon stratigraphic sequences were not necessarily the subject of investigation, as is still the case in many student guides to archaeological practice (e.g. Balme and Paterson 2000, 14). The culture-historical approach – on both sides of the Atlantic – constituted the original version of an approach to stratigraphy that has been referred to as 'object-based' (Brown and Harris 1993, 9). The objects within strata – in earlier times, the temporally sensitive artefacts – were the subject of study rather than deposit shapes and interfaces. As discussed below, the processual-based Americanist school of behavioural archaeology elaborated upon the object-based method in productive ways but did not significantly deviate from it.

Wheeler's main approach to excavation through the box method was designed to produce stratigraphic sections or profiles (1954, 62–71). This focus on the section/profile was linked to his focus on temporal sequence, but also to the deployment of labour. Unskilled labourers performed the excavations but stratigraphic recording and integration or interpretation of sequence could be reconstructed after the event by the director or supervisor. In colonial contexts, this allowed large excavations to be undertaken with a small number of supervisors – as happened in the Middle East and India/Pakistan. So the stratigraphic section allowed control, either of unskilled

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'native' labourers or unskilled workmen, the unemployed or prison inmates – and later students – in Europe and the United States.

The Harris matrix (Harris 1979) is linked to a different social context – large-scale urban excavations in Britain and the emergence of contract professional archaeology. One aim in the UK was to decentralize the interpretive process and to allow excavators themselves more of a say (see Roskams 2001, 170). In contrast to the monolithic, top-down stratigraphic authority of Wheeler's method, excavators make decisions about the stratigraphical relations of each unit, context or locus. These small decisions are assembled into large overall matrices. The Harris matrix also overcomes a shortcoming of cross-sectional recording, namely the inevitable absence of certain features and floor or construction units that do not extend to the edges of the excavation unit. While the creation of a Harris matrix entails interpretive decisions, the flexibility of this recording method allows the stratigraphy of the site to be reconstructed virtually, reworked and re-examined.

Most significantly, the Harris matrix – for all its resemblance to an electrical diagram – represented a major departure from stratigraphic business as usual on two fronts. First, although Edward Harris established the principles of the matrix based upon geological notions of bedding planes and disconformities (the latter became interfaces within archaeology), the creation and analysis of a Harris matrix stood entirely outside geology and thus loosened the chains of codependency. Especially at sites with complex architectural stratigraphy, the sequence of construction and deconstruction events could be modelled with attention given to every subtle pit feature. No cut or dump pile was too inconsequential to receive a context number and be placed on the chart. The introduction of this independent method did not go unnoticed by geoarchaeologists, some of whom voiced strong opposition to the acceptance of the Harris matrix (see Brown and Harris 1993, 8–10). Within archaeology, others voiced concern that the democracy of deposits or cuts as recorded by the Harris matrix method resulted in a net loss of the analytical perspective afforded by the hegemony of the feature as recorded using traditional methods (Carver 1990; personal communication 2007). More significantly, while the Harris matrix provides an effective method for recording sequence in a democratic fashion, it does not include information on the duration of deposit formation and use (Lucas 2005, 39–40).

Second, as a vehicle for encouraging attention to the shape, form and extent of deposits, the Harris matrix clearly diverged from the object-based method of stratigraphy so prevalent within culture-history approaches. Within the Americanist school of behavioural archaeology, Schiffer (1976; 1987) introduced a significant amplification of the object-based method in calling attention to formation processes within archaeological sequences. Although the terminology of this approach would suggest a focus on the formation of deposits (cutting, filling, adding and so forth), Schiffer and colleagues focus primarily on the ways in which archaeological objects – artefacts, primarily – might be broken, abraded or transported by stipulated cultural behaviours as well as by natural processes. When archaeological pits and structures are discussed, it is primarily in terms of abandonment processes

(Schiffer 1987, 218–30). Critical of the concept of deposit, Schiffer (ibid., 266) maintains that the equifinality inherent in deposit formation renders its study infelicitous for the establishment of general principles that, in contrast, are more readily observable as 'traces' on artefacts – that is, attributes such as size, edge damage, patina and so forth. More recent studies of stratigraphy that follow from the school of behavioural archaeology embrace the term 'deposit-oriented perspective', but generally concern themselves with the interpretation of strata – often suggested to have been the result of ritual practice – based on artefact content (Walker 2002; Walker, LaMotta and Adams 2000). The study of artefact biographies, recycling and disposal (particularly in reference to structure abandonment) represents an important advancement within object-based methods but does not substitute for critically needed attention to stratigraphy-making techniques and processes.

Regardless of whether one builds a Harris matrix or looks for evidence of lateral cycling, the integration of social practice with the interpretation of archaeological stratigraphy has yet to occur (as noted by Mills and Vega-Centeno 2005). Lucas (2005, 43, 120) refers to the variable scales or 'time perspectivism' of episodic and durational time that will need to be cross-calibrated in order to meet this challenge. One approach that has been employed profitably on both sides of the Atlantic is that of structured deposition (Richards and Thomas 1984, among others). This integrates the study of artefact deposition and interpretation with a wider concern to understand social layering; however, the focus remains dominated by an object-oriented approach. We nevertheless argue below that it is possible to take from both the object-oriented and depositional-sequence approaches to create an interpretive method that addresses social strategies of cutting and layering strata.

Suggestions for a conceptual toolkit for social stratigraphy

As the above historical discussion suggests, stratigraphy is usually seen as methodological – a neutral mechanism for ordering data that allows the development of forms to be studied. Different methods for recording sequence (sections in trench sides or baulks or open area excavation and use of the Harris matrix) have been used depending on the scale and social and economic context of excavation. Stratigraphy also structures post-excavation analysis through the creation of temporal 'packages' such as phases or levels. In its most traditional usage, stratigraphy allows archaeology. It defines archaeological context.

Here, we shift from stratigraphy as enabling method to stratigraphy as a social process to be interpreted and to the examination of stratigraphy not as a passive container of temporally sensitive artefacts but as a physical medium for the performance of social practice. Toward this end, we have gathered together concepts for thinking about social stratigraphy that include processes – such as palimpsest creation, raising, entombment, erasure, returning and avoiding – and techniques, such as depositing or adding and cutting into or subtracting from existing sequences. Within our discussion of stratigraphy-making techniques and processes, we refer to interpretive frameworks that are most relevant to the construction of earthly histories,

Techniques →	Depositing (adding)	Cutting (subtracting)	Cutting and depositing	Relocation
Processes →			Continuing inhabitation/use	
			Palimpsest (decoupled sequence)	
	Raising	Lowering		
	Entombment	Scouring		
	Hiding/concealing/hoarding	Retrieving/recutting		
	Copying	Erasing		Avoiding
			Returning/remaking	
Interpretations →	Remembering			Remembering
	Genealogy/history building			
	Memorialization			
	Forgetting	Forgetting		Forgetting
	Purifying/cleansing	Cleaning		
	Renewing			
	Dominating/displaying	Dominating		
		Subverting/destroying		
	Making endure/grow			

Figure 3 Stratigraphy-making techniques, processes and interpretations.

including debates about memory and material memorialization, forgetting, renewal and subversion. For ease of reference, techniques, processes and interpretations under consideration here are presented in figure 3.

By way of introduction, consider the Greek Neolithic tell of Sesklo (Kotsakis 2006). The tell consists of two parts or sub-mounds. In the upper part of the site there is clear superpositioning of buildings on top of buildings with fill layers between. Here, in this higher-status part of the site, the stratigraphy suggests the practice of building house histories and a social concern with breaking and making continuities between generations. Houses were carefully abandoned, filled in, and new houses constructed. Social life was built through the layering of soil on soil. In the lower town, on the other hand, houses were assembled on top of older houses without intervening fill layers, and without any concern to create continuities from house to house through time. The archaeological stratigraphy in the lower-status part of the site looks very different, with much cutting and recutting, and with less build-up of soil. The differences between these two forms of stratigraphy are entirely social in the sense that natural strata-producing processes – such as alluviation and aeolian transport – played a minimal role.

Techniques and tempo of stratigraphy-making

The additive and subtractive calculus of geological process was fundamental to the development of a stratigraphic archaeology yet, in reality, there can be profound differences in tempo and technique between geological and archaeological sequences. Contrary to the epochal time frame of geology or the 200-year-plus time units of most culture-historical sequences, a social approach stresses the decadal or generational time frame of most human-produced strata (even if a wider temporal range of artefacts might be included). Assuredly, there are archaeological deposits – such as middens –

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that accumulate over a long durational span and geological deposits that display fine-grained temporal resolution – such as varves and micro-geostratigraphies, but the majority of strata within built sequences are highly episodic in construction duration. An approach that focuses on the social practices embedded within stratigraphic sequences (e.g. Bracco Baksar 2006) more closely matches the tempo and duration of human construction events than traditional approaches to stratigraphic interpretation modelled on geological methods. Another important distinction between social and natural stratigraphies lies in the formation and layering of natural sequences that have been modelled successfully by geologists as a function of climate, bedrock lithology and so forth, whereas the piling up of layers within a human-generated sequence is the result of human intentionality, the purposeful contouring of the earth's surface with some knowledge of underlying layers. In many contexts the distinction between social and natural stratigraphies needs to be problematized. Many 'natural' deposits may be the result of human intervention in the environment at local, regional or global scales.

Social stratigraphies can be produced using two general techniques – adding and subtracting – that is, depositing or piling up of earth and materials and cutting down to remove earth or materials (see figure 3). A midden occurs when the additive process substantially dominates the subtractive process, while an intrusive pit represents the opposite case. These two techniques form the first categorical distinction of Harris matrix production, whether an archaeological context can be interpreted as an additive or a subtractive event. Both depositing and cutting are involved in the process of 'palimpsest creation', a term that we use here to mean the overlaying of deposits in which there is no interest in creating links with underlying deposits and cuts. In effect, the slate is 'rewritten' with no regard to prior 'signatures' of human occupation. If there are considerable gaps in time between one activity and the next, and if the earlier layers are no longer visible, then residues and deposits may accumulate upon each other without social significance. Examples of such deposits are river gravel palimpsests that exist in many parts of Europe and North America and some extensive lithic scatters and features. Such landscapes and sites often contain cuts that were made without reference to or awareness of previous deposits and cuts. Cuts may involve the digging of pits for human burial and ritual dedication or termination, or storage or defensive ditches. Such cutting often disturbs underlying deposits, with earlier material brought to the surface. Palimpsest-creation sites, therefore, often resulted in knowledge that something existed there before, even if the positioning of a site or feature on top of an earlier one was not originally relational.

In other cases, cultural layers might be placed on top of each other or cut into each other in socially meaningful and active ways. With variable degrees of formality, archaeologists have developed taxonomies of the processes that lie behind stratigraphic technologies of depositing and cutting. Here, we gather together some of the many ways in which stratigraphic deposits and cuts have been understood as social process whilst at the same time expecting that other processes can be identified and that individual cases will need to be understood in their own terms. The notion of layering has been used

metaphorically by archaeologists (e.g. Hawkes 1954) and the archaeological concept of layers has been used to discuss layers of meaning or layers of history outside the discipline (e.g. Giddens 1979, 110; Schmidt 2001; Wachtel 2003). Yet there is value in gathering together these concepts of process and interpretive frames that might constitute a 'toolkit to think by' and thereby encourage further systematization of tacit archaeological knowledge and stimulate theoretical development both within and outside the discipline.

Processes and interpretations of stratigraphy-making

There are stratigraphy-making processes that differ from palimpsest creation in that they involve social practices or performances that are relational to earlier deposits. Still fairly descriptive at this point, these include episodal depositing processes such as raising, entombment, hiding, copying and terminating, and also cutting processes such as lowering, retrieving, scouring (partial removal) and erasing (total removal), as well as long-term processes that might be applied to both depositional and cutting acts such as continuing inhabitation/use of a place and returning, or to neither acts – that is, the process of avoiding (see figure 3). Some of the many interpretive frames that archaeologists have employed or could employ in an effort to understand process within a stratigraphic context can be linked to the construction or deconstruction of memory (remembering, genealogy/history-building, memorializing or forgetting). As one of the most archaeologically visible social processes, stratigraphy-making is highly relevant to the burgeoning literature on the materialization of social memory (e.g. Bradley 2002; Connerton 1989; Hobsbawm and Ranger 1983; Rowlands 1993; Van Dyke and Alcock 2003).

By 'social memory' we mean the construction of links to the past in relation to social collectivities, at whatever scale, and the transmission of those constructions through social means and institutions. The piling up of earth to build a monument serves to inscribe social memories on the landscape that are highly visible. But many forms of social layering with earth involve covering features, for example on a settlement site. If social memory is being built in more mundane spheres of daily practice, the cues to earlier activity may be less visible or may be on a smaller and more intimate scale. In these latter cases memories may be embodied in daily practice rather than consciously inscribed on the landscape (Rowlands 1993; for a related distinction between commemorative and habituated behaviour see below and Connerton 1989).

Stratigraphic process also can be interpreted in terms of religious practice and the performance of rituals of life cycle and life crisis (purifying, renewing, and nurturing) in which the structure on which ritual objects are deposited plays an instrumental role, as shown by Walker (2002) and Mock (1998). The politics of stratigraphy-making (displaying, dominating and destroying) are a contentious but lively realm of interpretation (Pauketat and Alt 2003). Fraught with archaeological problems of equifinality and today entangled with issues of selective conservation within the industry of heritage tourism, this topic deserves far more studied attention than it receives in this exploratory essay. Finally, processes of cutting and depositing can take place as a result of aestheticizing a landscape or of utilitarian terraforming, as in the examples discussed below.

Depositing and cutting (as per Figure 3) may occur as a result of continuity of inhabitation or use through time. For example, if a place has been designated for refuse discard or midden, then there will be a piling up of soil and material in the same locale. At Çatalhöyük, middening may have involved the intentional covering of organic waste with ash in order to bury or burn decaying material. On European later prehistoric and historic sites, field survey has demonstrated that dung and associated material was taken out and deposited on fields as part of manuring (see Bintliff 1997, among others). In the Maya region, broken pottery, lithics and organic midden remains routinely were recycled into construction fill during episodes of platform expansion. Soil chemistry analyses have likewise indicated a range of depositional processes, from the transport of ash and night soil to nearby fields and gardens (Killion, Sabloff and Tourtellot 1989, 288) to the distinct chemical imprint of crafting and ritual practice (Wells 2004).

The continual use of space through time is bounded and conditioned by what is already there. Thus in complex medieval urban sites, existing roads and previous buildings may limit the manner in which space can be used by future inhabitants. There may be relatively little intentionality involved when past structures frame later use of space in this way, although the decision to leave or work around earlier buildings and spaces indicates a relational link between the present and the past. Similar effects are seen on less elaborate sites. At Aşıklı Höyük, a Neolithic aceramic site in central Turkey (Esin and Harmankaya 1999), a street organized the use of space over a very long period. At Çatalhöyük, later houses were built on the walls of earlier houses for a variety of reasons, but at least one reason was that walls of earlier buildings provided a hard foundation for later buildings. Also, since houses were rebuilt individually, the presence of neighbouring buildings limited where new buildings could be placed (Hodder 2006). The relational link between past and present was materialized in strata-forming activities in a way that is analogous to actor-network theory proposed by Latour (2005).

The process of raising the ground level by depositing material can be interpreted as social or political display. For example, in East Africa the height of the dung pile in the central cattle compound amongst the Samburu is an indicator of status and cattle wealth (Hodder 1982). Height often is a significant dimension of monumental architecture – a well-known example is the Templo Mayor complex of the Mexica capital of Tenochtitlan. There the massive, conjoined twin-pyramid complex was rebuilt seven times within a hundred-year span (López Luján 1993, 75), each time to greater height and each time requiring the transport of immense quantities of earth and stone along a causeway that linked the volcanic mainland to the imperial island capital. The obverse, lowering the height of a mound or surface, might again have political goals. Lowering might be related to rebuilding, or flattening the landscape for agriculture, for aesthetic reasons, as in the work of 17th-century British landscape architect Capability Brown, or as a consequence of quarry activities that produced cavities suitable for expansion into water reservoirs as at the Maya city of Tikal (Scarborough 2003).

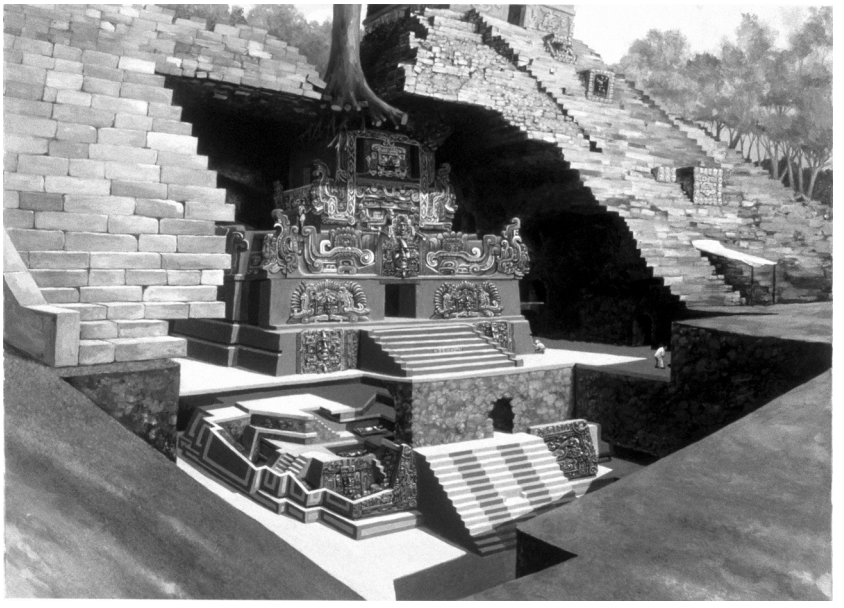

Figure 4 The social practice of entombment at the Classic Maya acropolis of Copán, Honduras. The buried structure, dubbed 'Rosalila', was completely entombed within a subsequent pyramid (courtesy of Christopher Klein/National Geographic Image Collection).

Another general category of stratigraphical process is preservation by covering with earth that might be seen as an active preserving or renewing agent (Hodder 1990). In many cases burial mounds are involved in the preservation of the memory of ancestors buried within them, although many subtle variations have been identified in this social process (Barrett 1994; Bradley 2002). Houses at the Neolithic site of Çatalhöyük were carefully cleaned and filled before rebuilding, thus preserving both the earlier house and those buried within it. The social practice of 'entombment' of earlier structures is featured prominently in the early acropolis of Copán, Honduras, where a structure dubbed 'Rosalila' was buried in a manner that completely preserved its elaborately decorated stucco façade (Agurcia Fasquelle and Fash 2005; figure 4). An anomalous practice within this specific stratigraphic/architectural sequence, the 'entombment' of Rosalila contrasts greatly with the partial or complete 'erasure' of earlier as well as subsequent constructions.

Sometimes, entombment involves the accretional piling up of materials, thus raising a surface. Often, these materials represent a very select subset of available resources and archaeologists puzzle through the possible significance of the selected materials. Within the Americas, the selection, transport and deposit of clay of a particular colour tends to occur in the context of ritual practices that result in the construction of sacred structures of monumental proportions. For instance, olive and blue clays were transported an unknown distance in order to cap the deposition of more than a 1,000 tons of serpentine

axe blanks in the ceremonial core of the first-millennium BCE Olmec site of La Venta (Diehl 2004, 73). Symbolically, the colour green signals fertility and renewal throughout Mesoamerica and the monumentality of the event is certainly redolent of an act of memorializing through burial. More recent in time and farther to the north, the mounds constructed at Mississippian sites (1000–1500 CE) exhibit similar clay sediments carefully chosen by colour and grain size, as at the temple mound of Shiloh in the south-eastern USA (Sherwood 2007). At other times and places, the selection of materials is even more enigmatic, such as when small Neolithic work parties brought turf and topsoil from widely distributed areas to add to a Neolithic burial mound (Evans and Hodder 2006).

Entombment may be associated with a wide range of intentionalities. Covering over may involve remembering – as the Copán structure Rosalila memorialized the founding dynast K'inich Yax K'uk' Mo' – or forgetting, or some complex mixture of both. Covering with soil may be seen as a way of nurturing something or willing it to endure. In some contexts, it may be linked to the construction or perpetuation of divine rulership or the construction of an earth-bound genealogy, as suggested by the interlacing of burial placement and platform entombment at K'axob (figure 5). Discerning which type of interpretation is most appropriate in any particular case ultimately depends on context. In the case of European long burial mounds, the existence of plough marks below the barrow suggests that the mounding might have been related to notions of agricultural productivity (Whittle 1996). In south-eastern Europe, Neolithic houses were often burned on abandonment (Stevanovic 1997) as part of an intentional process of termination.

The interpretive challenges associated with entombment and related processes are considerable. For example, when a house is filled in and another built on top in exactly the same place and with the same internal organization of space, as happened at Çatalhöyük, there is more going on than simply the continuity defined above. In the specific continuities of houses at Çatalhöyük, memory processes were at work. Connerton (1989) makes a distinction between habituated behaviour, involving the repetition of acts, and commemorative events that create specific social memories. In the former case, there may simply have been community practices – which had become routinized and tacitly codified – regarding how houses were to be rebuilt. In the latter case, a link was constructed to specific buildings, events or people. At Çatalhöyük, the similarities through time in the ways that houses were used and reused over time are sometimes very specific. As houses were built on top of filled-in earlier houses, clear continuities were maintained in the ways that internal space was organized. For example, in the 10–44–56–65 sequence of buildings in the South Area of the site, pots were repeatedly inset into the floor by the base of the entry steps, adult burials were placed in the central east platform, infant burials occurred in the south-west corner and collections of groundstone were deposited. In the same sequence, human remains were retrieved from earlier buildings and redeposited in later buildings. This building sequence expressed both habituated practices (in the repeated layout of buildings in the same place) and commemorative memory (in the conscious retrieval and redeposition of human remains).

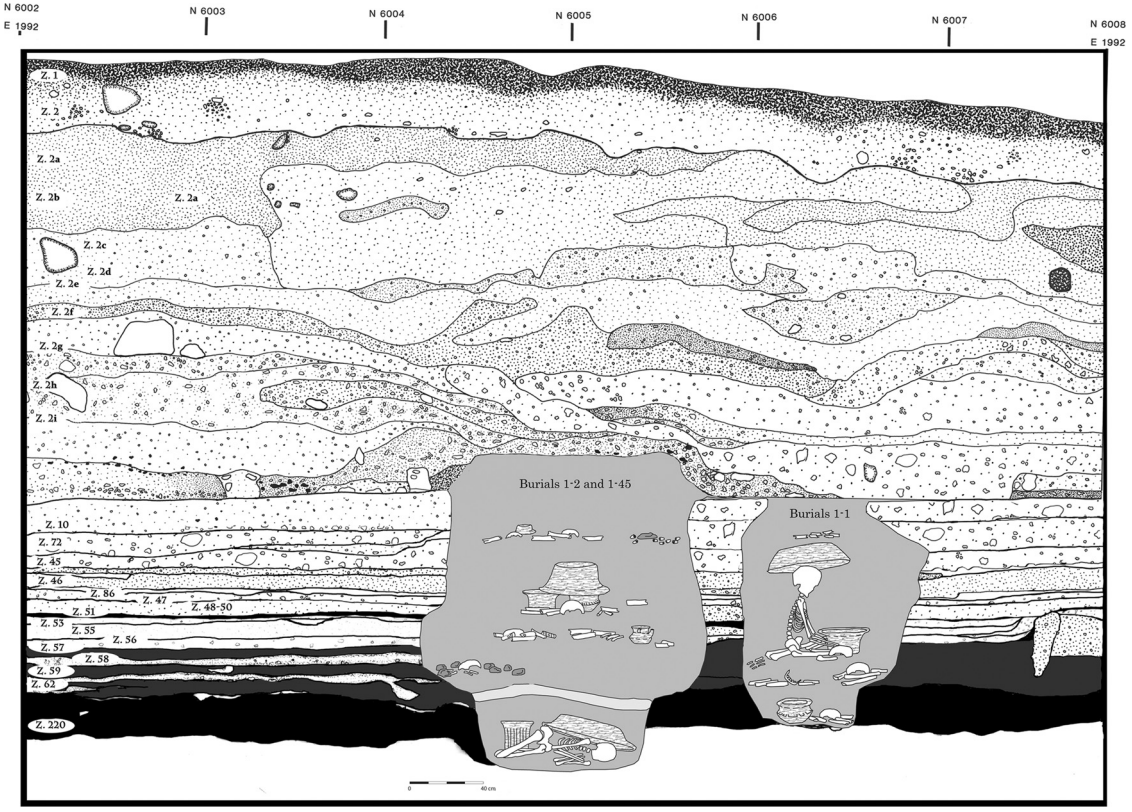

Figure 5 The West Wall of Operation I, K'axob, showing two Preclassic burial pits. The left facility (burials 1-2 and 1-45) was reopened several times to inter additional persons into the mortuary facility that eventually was entombed by the construction fill of a pyramidal shrine (image prepared by Pablo Robles).

Closely related to entombment are processes of hiding, concealing or hoarding (see figure 3). These practices create stratigraphic interfaces, pits and layers, and deposit shape is closely tied artefact emplacement. For European prehistory, Bradley (1990) has discussed the hoarding of materials and the different interpretations that have been offered (conspicuous consumption or destruction, ritual deposition and so on). Within Mesoamerica, and particularly the Maya region, pits that contain sealed deposits of valuable offerings such as jadeite – symbolically charged with notions of fecundity – as well as food remains are thought to have provided nourishment for the animus of the domicile (Harrison-Buck 2004; Mock 1998; Monaghan 2000). Nevertheless, these deposits were hidden away and removed from daily viewing; this fact highlights the dialectic roles of exclusionary knowledge and social memory (Van Dyke and Alcock 2003; Hendon 2000; among others). Maya carved monuments – particularly those containing portraits of rulers – sometimes were mutilated and buried or scattered upon the event of martial conquest, such as happened to the carved stone throne at the Classic Maya site of Piedras Negras. The throne was found broken and scattered near palatial Structure J-6. On the other hand, hiding or burying the portrait of an ancestral ruler can also be a way or preserving and memorializing, as happened at Tikal when a 7th–8th-century CE ruler buried the carved image (Stela 31) of a 5th-century CE ruler named Siyaj Chan K'awiil II within a newly constructed stone structure on the North Acropolis. Thus strata-making activities and object deposition cannot be neatly separated, as Walker, LaMotta and Adams (2000) have noted in reference to kiva abandonment at ancestral Pueblo sites in the US south-west.

When stratigraphic layers can be read across a site, sometimes the most notable pattern is not the stratigraphic layering of floor on top of floor but rather studied avoidance of earlier house remains when building a new house. A prevalent pattern in Linearbandkeramic Neolithic sites in Europe (Whittle 1996), avoidance is a social practice that can occur on at least two scales – the avoidance by later settlers of earlier locales and the avoidance of houses and other features within settlements. At the intra-site domestic scale, avoidance practices may suggest a preference for neolocality at the generational level and a disinclination to build house floor over house floor, to construct the kind of long-term house histories much discussed by Joyce and Gillespie (2000) and much in evidence at both Çatalhöyük and K'axob. However, avoidance in the Linearbandkeramik case may have involved constructing memories in relation to earlier houses left standing, and thus visible, nearby (Bradley 2002). Tringham (2000) has considered the varied options that were followed by Neolithic and Chalcolithic groups in south-eastern Europe. She notes that in some cases, houses were built directly on top of each other, copying an earlier house and reproducing its location and internal furnishings. Such duplication or continuing inhabitation may be central to the maintenance of house lineages and house societies (Joyce and Gillespie 2000). In other cases, Tringham notes that there is use of the same location but slightly offset, or with a different orientation (as at Çayönü in south-eastern Turkey; see Özdogan 1999). Obversely, there is systematic avoidance of previous house localities, as in the Linearbandkeramik case. This work by Tringham and

others begins to systematize the social processes that lead to different types of stratigraphies of continuity and avoidance at a specific place, although any one process (e.g. avoidance) may result from different social strategies (remembering or forgetting).

Avoidance can relate to political motivations or to beliefs regarding continued occupation of a house in which death has occurred. Golden (2002) documents the studied avoidance for over 60 years of construction at the main acropolis of the Classic Maya capital of Piedras Negras following what appears to have been military conquest and burning that was recorded hieroglyphically at a nearby polity. Avoidance can also occur on the scale of the entire site, in which case archaeologists generally refer to site abandonment. Avoidance can indicate respect for that avoided and the construction of a memorial, or fear and a desire to forget.

A truncated stratigraphic sequence is often capped near the surface by a very specific layer indicative of a much more recent return to a place and use of the top of that sedimented sequence for a narrow range of social practices that may or may not include habitation. Examples of this practice come readily to mind: the Late Postclassic reuse of Classic Maya pyramidal structures for ritual practices that resulted in the construction of small shrines and the deposition of Chen Mul incense burners; the 6th-century BCE return to the Bronze Age tumuli of Bin Tepe in central Lydia, Turkey, for the emplacement of burials (Roosevelt 2006); and the return to Çatalhöyük during the Byzantine period, also for the purpose of mortuary interment. This pattern of returning may have been prompted by a number of different intentions. The return may be related to the magnetic effect exerted by places that contain conspicuous sedimented sequences of social practices that are recognized by later inhabitants of a landscape – whether descendant communities or not – as locales possessing special significance, as places where the layered remains of ancients can be trodden upon and opened up by digging. In this case, returning is part of the construction of histories. But in other cases, the placing of a settlement, grave or shrine on an elevated position (tell or mound) may simply be a matter of convenience or the avoidance of water or enemies (as in the case of the Roman use of Bronze Age mounds in the wetlands of eastern England; Evans and Hodder 2006).

The process of scouring is particularly clear at Çatalhöyük, where many floors, bins and ovens were scoured before infilling and just prior to abandonment. The aim does not seem to be erasure, but simply partially to remove oven and bin walls and floors. The purpose may have been to obtain valued clays for reuse, or the scouring may have had more to do with rituals of closure. In other cases, removal may be more complete and here we can talk of erasure. Wall paintings at Çatalhöyük were always painted over in white plaster – an act that both erased and entombed at the same time. These two social processes – entombment as opposed to erasure – stress two different approaches to transforming a built environment, although, as we have seen, they may be closely and subtly related. The first may be used to stress continuity and remembrance, while the second may suggest a break with the past, perhaps the charting of a new course, but it may also suggest protection and regeneration (resurfacing in fresh white

plaster). Again the interpretive challenges must be met with specific contextual data.

We have already noted depositional processes of hiding, concealing or hoarding. As a corollary, cutting may occur in order to retrieve objects, skeletons, even entire buildings. At Çatalhöyük, there is good evidence of excavation pits that were cut through earlier strata in order to retrieve earlier wall reliefs (Hodder 2006; figure 6). The digging of pits for burials and for storage has long been recognized as socially purposeful, but such cutting can also be used as part of the creation of social memories. At both Çatalhöyük and K'axob, some sub-floor burial pits were recut – often several times – in order to place additional house members within the same facility (see figures 5 and 6). If a new floor was lain before another house member was interred, the final stratigraphic pattern becomes a complex layering of floors and cuts that can be read as an earthbound genealogy (McAnany 1995). At Çatalhöyük, recutting into the platform in the north-west corner of the main room in Building 1 is especially clear in the F1–F2 section (see figure 6). Such complex stratigraphies provide a vivid chronicle of the social practices involved when humans actively create and model their social world through cutting, depositing, recutting and redepositing.

The definition of these and other general examples of social stratigraphy still leaves the problem of the interpretation of specific cases (see figure 3). In any particular context, there will be nuanced relationships among the social meanings involved in the material construction of histories. Our understanding of these strategies depends not only on the stratigraphic sequences themselves but also on associated artefacts and depositional practices. Thus termination, dedication and foundational practices, as well as ritual burning of structures and burial placement (Mock 1998; Stevanovic 1997; Stuart 1998), all contribute to understanding the social meaning of stratigraphy and often can be interpreted as acts of remembering, memorializing or genealogy-building. In the Çatalhöyük case, floors were carefully cleaned before houses were infilled, but in some instances objects were left on floors as part of the abandonment process. The social structuring of deposition can also include the placement of human remains, as in an example from K'axob where the body of an older male was carefully placed on the surface of a floor before a new construction layer was added to increase the height of the residential platform.

The term 'structured deposition' has been used to describe the deliberate deposition of cultural material as part of ritual and social acts (Richards and Thomas 1984). This notion has been very influential in the interpretation of sites in Europe as well as Mesoamerica (e.g. Hill 1995; McAnany 2004; Thomas 1996; Barrett 1994; Walker 2002). By extension, discard can be seen as intentional and socially embedded to differing degrees; the notion that refuse deposits could be structured was codified originally by Schiffer (1976; 1987) as primary, secondary and de facto refuse. Understanding specific discard practices can assist in the interpretation of layering practices. For example, at Çatalhöyük, the question of whether the burning of a house was intentional or not depends very much on the interpretation of artefacts and residues found on house floors; that is, whether the artefacts

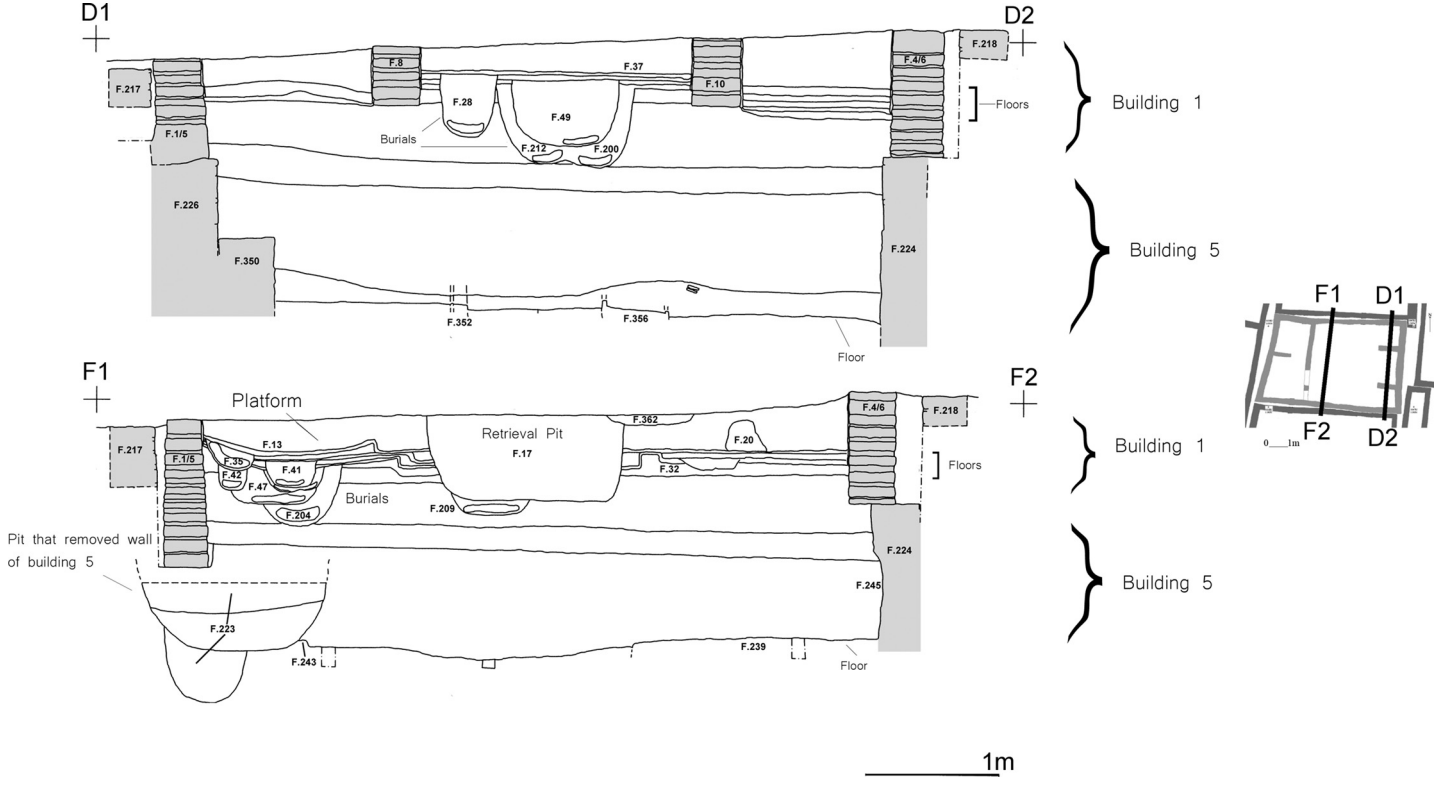

Figure 6 Cross-sectional profiles (D1–D2 and F1–F2) through Building 1 and underlying Building 5 at Çatalhöyük. Features are labelled with 'F' series numbers. Burials located in the main room of Building 1 are labelled with a concentration occurring beneath the raised platform (F.13) as seen in the F1–F2 profile. In the same profile, F.17 is a pit dug through the fill and underlying floors of Building 1 in order to retrieve a relief sculpture (courtesy of Craig Cessford; image adapted by Pablo Robles).

were placed on the floor before intentionally torching the structure (and thus represent primary deposits) or whether they represent de facto refuse from an accidental burning (Cessford and Near 2005). It is often difficult to interpret the intentionality of the occurrence of artefacts on floors at Çatalhöyük. If storage bins have been emptied and rare artefacts occur on floors, then intentional positioning (primary deposition) seems likely. If bins contain food remains, a wide range of everyday artefacts occurs on floors and the house is extensively burned, then an accidental destruction and de facto deposition seem more likely.

The burned structures of the Early Classic Acropolis at the Classic Maya capital of Piedras Negras have been interpreted variously as termination rituals orchestrated by the royal family or the torching of structures by victorious warriors from the site of Pomona (Golden 2002). The first interpretation stresses fire as a cleansing agent of renewal while the other emphasizes the destructive forces of political and martial conquest. The challenges of the social interpretation of stratigraphy-making processes are formidable and perhaps help to explain why this middle ground between landscape and artefact remains an undertheorized frontier within archaeological interpretation. On the other hand, the fundamentality and physicality of this domain mean that other indicators of the social forces that undergird stratigraphic sequences can provide additional lines of evidence.

Augmentative techniques for studying social stratigraphy

Advocating more attention to the social practices of stratigraphy does not entail a rejection of current techniques of studying stratigraphy – such as modified Harris matrices; micromorphology (thin sections of stratigraphic interfaces); analyses of the biological content of physical matrices (such as palynology, archaeobotany and phytoliths, among others); or chemical-residue, isotopic and SEM techniques.

Because of the earth-derived matrix in which stratigraphy occurs, archaeology is permanently wedded to the geosciences in which there exists an elaborated nomenclature for characterizing the natural processes that impinge upon the formation of geostrata. Archaeology lags behind in building a comparable supradescriptive nomenclature or even in applying geoscience approaches to archaeological deposits, as Stein (1992) has noted. Likewise, the modelling of interactivity between social practices and natural formation processes remains an extremely important but underdeveloped area of research. Too often, the modus operandi in this area can be characterized as the 'cultural formation process by default' model. That is, after geoarchaeologists have exhausted all means of characterizing a given deposit as having formed through natural formation processes, the opposite is accepted by default – that the deposit must be cultural. A more serious rapprochement between archaeology and geoscience is needed to fully understand deposit formation and integrity.

Of the current geoscience techniques, micromorphology in particular holds great promise as a technique that can yield very specific, fine-grained information regarding the human or animal actions that produced the texture, composition and inclusions within a particular deposit (Goldberg and

Macphail 2006, 354–61). As with artefacts within layers, micromorphology enhances understanding of the human strategies involved in depositional acts. Thus analysis of a thin section may reveal whether trampling occurred between one layer and another, whether a house was left open without a roof for a time, whether there has been running water on a surface, and so on. This information helps to refine interpretations of social stratigraphy, to firm up a loop within a hermeneutic cycle. At Çatalhöyük, micromorphology has been key to understanding site formation processes such as the use of extramural locales as animal pens, the build-up of plaster layers on floors and walls according to monthly and seasonal periodicity, and the careful and regular renewal of floor surfaces on northern burial platforms within houses (Matthews 2006). In this case, micromorphology is a central element in the interpretation of socially constructed layering at the site. At K'axob, micromorphology of the stratigraphic interfaces in nearby wetland fields and canals has provided crucial information supporting the premise that the fields were constituents of a built environment and not natural hummocks (Berry and McAnany 2007).

Isolating social processes and framing interpretations also can be augmented by digital techniques for revealing patterns and relations. Quantitative approaches – such as correspondence analysis – are relevant here, as well as the perspectival analyses afforded by GIS and 3-D modelling. The power of these approaches to reveal social properties of archaeological stratigraphies could be enhanced by encoding of elements from figure 3 above into databases.

Towards a fuller accounting of human engagement with earthly matters

As Mills and Vega-Centeno (2005, 208) discuss, the notion of time remains central to the interpretation of stratigraphy, and the efficacy of the culture-historical approach (tracking stylistic change in artefacts through stratigraphic sequence) cannot and should not be dismissed. Any approach that facilitates an understanding of the tempo of strata formation provides a useful starting place for understanding social stratigraphy. Lucas (2005) provides an in-depth account of palimpsests, layerings and temporalities that builds on a longer archaeological debate about time and the long term (Bintliff 1991; Hodder 1987; Knapp 1992; Thomas 1996). The goal of this essay is not to supplant culture history but to amplify it in order to reach a fuller accounting of our engagement with earthly matters.

The parentage of the word 'stratigraphy' will always reside within geology, where it refers to the origin, composition and succession of strata that form the sphere on which we live. In this essay, we advocate a break with the epochal framework of geological analysis and we embrace a more fine-grained and nuanced approach to the sedimented histories that define our discipline. We have pointed to some of the ways in which layering can be seen as a construction of genealogies and histories, memories and relationships. But unlike a written history, creating layers of sediments involves practical engagements – with earth, walls, timber, mounds and ditches. In the process of such mundane interactions, social relationships are sedimented in the practices of entombment, erasure, return and so on. The present world is

lived in relation to earlier layers in an active and physical engagement with the social history of place.

As archaeologists are learning from indigenous stakeholders, archaeological sites are places of memory in which the relationship between the present and the past is constructed and played out in the practice of daily life (Colwell-Chanthaphonh and Ferguson 2008). But, as we have discussed above, there is much that is forgotten – perhaps purposively – from one physical stratum to the next. As our examples show, genealogies can be constructed and deconstructed, histories made and erased, and tradition as well as transformation documented in layers of sediment. The past can be hidden, erased, selectively filtered, manipulated and imbued with a positive as well as negative charge. These are complex practices for archaeologists to tackle; nevertheless, we encourage further conceptualization, in social terms, of these very interactions with earthly materials.

Archaeologists themselves are involved in decisions about the production and erasure of layers. In planning to restore, renovate or reconstruct ancient buildings and sites, archaeologists and conservationists make selective judgements that are keyed into social and political processes, contested pasts and contested identities (De la Torre 1997; Kane 2003). In highly charged political areas such as the Middle East, which layers get erased and which get reconstructed (Ottoman, Christian, Jewish, Islamic, prehistoric) is particularly contested, drawing the archaeologists themselves into the processes of social stratigraphy (Abu el Haj 2001). In South Africa the earlier erasure of housing, as in District 6 in Cape Town, can become the focus of healing and restitution (McEachern 1998). In these ways archaeologists become agents in the construction of contemporary meaning ascribed to the cultural layers of deep history.

Acknowledgements

Ideas expressed here about social stratigraphy began to take shape during the 2006 Context in Human Society lecture series delivered by Ian Hodder at Boston University. The authors express appreciation for the discussion engendered by this annual event sponsored by the Department of Archaeology. Illustrations for this paper were greatly improved by the graphics work of Pablo Robles. We wish to thank all those who worked – in the field and the lab – on the K'axob Project and the Çatalhöyük Project; we regret that space does not allow a full listing here. The thoughts expressed in this paper are based on the careful field recording of, and many long discussions about stratigraphic sequence with, project participants. This paper also benefited from insightful comments by anonymous reviewers and the published commentaries. The authors assume full responsibility for any interpretive errors.

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The relevance of stratigraphy *Åsa Berggren*

Not all archaeological remains cause discussions concerning stratigraphy. In Sweden, for example, intense stratigraphy discussions have taken place among archaeologists working mainly with urban sites (see e.g. Larsson 2004), and many of the illustrative examples in the text by McAnany and Hodder are rather well-preserved remains with complex stratigraphic sequences. This is, of course, due to the fact that different remains are stratified to different extents and are thus valued differently regarding this issue. Poorly preserved, sketchy remains scattered in the ground may lack complex stratigraphic relations and are regarded as less relevant for this discussion. However, all archaeological remains have some stratigraphical relation and – as McAnany and Hodder mention – interpretation of stratigraphic sequences is a part of archaeological identity. A greater interest in how stratigraphic sequences are formed in social terms should be relevant for all archaeologists. I believe that archaeologists working with complex stratigraphic sequences, and those who work with less stratified remains, have something to gain from this discussion, but in different ways. McAnany and Hodder state that stratigraphy may be both overdescribed and undertheorized. The problem of overdescription concerns complex stratigraphies, while I think less stratified remains are suffering from a lack of discussion concerning stratigraphy all together.

During an attempt to implement a systematized reflexive field method in a contract archaeology project in Malmö, Sweden, much inspired by the reflexive methodology of Çatalhöyük, we encountered some related problems. As part of a method to encourage and document the process of interpretation, we introduced digital diaries for the field staff for use during fieldwork. The diary did not function the way it was intended to, at least not in all cases. There were several problems and various reasons for this that I will not mention here because of the limited scope of this comment. (These problems are described elsewhere; see Berggren 2009). But one explanation that was discussed stands out as relevant to the topic discussed here. It concerns the nature of the remains and how this affects the method of documentation and interpretation. The project consisted of nine different excavation locations. Two locations had medieval remains that were better preserved and more stratified than the scattered prehistoric remains of the other sites. The use of the diaries varied among the sites. Some diary entries were written in a descriptive manner, rather than reflexive, and contained a repetition of the feature or unit sheet instead of reflections on the interpretive process. These descriptive diary entries were written at most of the sites, but there were more

descriptive entries written at the two excavations with medieval remains. In an article, the site supervisors at one of the medieval sites offer an explanation for this imbalance. Using a single context method for the complex stratigraphies at this site, the archaeologists regularly summarized groups of contexts. It was thought that these summaries contained the information that was supposed to be written in the diary and could replace it. However, the summaries were very detailed and technical, and in most cases lacked the level of reflexivity we wanted in the diary. The site supervisors suggest that this lack of reflexivity was caused by the complex character of the medieval remains that demanded a more detailed investigation at an initial stage. In comparison the prehistoric remains at the other sites were more spread out and allowed a more general perspective which they thought could generate other questions at an initial stage of investigation (Ingwald, Koch and Lövgren 2002). Now, I do not believe that complex remains and complex methods prevent archaeologists from being reflexive. But I do think that Ingwald and his colleagues have identified a part of the problem that McAnany and Hodder are trying to solve. Complex stratigraphic sequences are often meticulously described, resulting in very elaborate and complex matrices and so on, which perhaps are sometimes regarded as final results instead of vehicles to reach interpretations. It is very time-consuming to deal with complex stratigraphies, and at the initial stage the technicality and the details took over at the site of Ingwald and his colleagues, even though they later reached interesting interpretations of their material (Ingwald and Löfgren 2009). I do not think archaeologists regard stratigraphic sequences as socially neutral, but the social formation processes may be overshadowed by the amount of recorded detail. Could other, socially charged terms for describing the stratigraphic sequences at the site of Ingwald and his colleagues have promoted a more reflexive attitude at the initial stage of interpretation? This is a hypothetical question that may not be answered here. But adding terms that are clearly not descriptive, but rather interpretive, to the initial documentation could perhaps augment a reflexive approach to the material.

The other type of remains I would like to mention consists of the more scattered, prehistoric remains typical of the heavily cultivated landscape around the town of Malmö. Most remains that are preserved are dug into the ground underneath the topsoil, consisting of pits of various kinds, postholes and so on. The features are chronologically mixed and only rarely cut each other. So the stratigraphic relations between features are rare, but there are always some stratigraphic relations within the feature, at least one between cut and fill. In many cases there are several fills which add to the stratigraphic sequence.

Remains of these kinds are rarely discussed in debates about stratigraphy. The features themselves are often regarded as the main entities of interpretation and much effort is placed on how they belong together, or not, much like the palimpsest case described by McAnany and Hodder. The features are often seen as stratigraphically uncomplicated, even though they are excavated by layer when possible, and finds are often collected by layer as well. The focus of debates on complex stratigraphy in urban archaeology and other well-preserved sites has left the 'feature archaeology' out of the

discussion. But these pits need to be problematized in this regard as well. Because even though the layers are separated and sampled for macro-fossils and so on, the layers are mainly regarded as carriers of finds, a part of the object-oriented tradition mentioned by McAnany and Hodder. The layers are not in themselves regarded as finds. Perhaps they should be.

Layers in a pit are often just termed 'fills', and they are often not discussed or interpreted further. 'Fill' is thus used as a rather neutral concept. An exception may be the interpretations of burials, where the infilling, as well as the fills, may be discussed as parts of a burial ritual (see e.g. Gansum 2004), but fills in other pits are rarely interpreted with any detail. If we were to regard the fill explicitly as a find in itself, and describe it in social terms at an initial stage of investigation, I believe we would gain a different attitude towards these layers of soil and perhaps even a better understanding of their function, both practical and social.

So far, I agree with McAnany and Hodder that there are some problems of interpretation of stratigraphic sequences. Interpretations of both complex stratigraphies and less-stratified features may gain from additional attention to their social formation processes. But is the suggested terminology the solution, and, if so, how should it be used? My discussion here is hypothetical and theoretical, as is the suggestion by McAnany and Hodder. They suggest that such terms as remembering and forgetting and other socially charged words should be encoded and used in databases. Could this work? Has anyone tried? I am very curious. I think the suggestion by McAnany and Hodder would have benefited from an example where this had actually been implemented, a real case, instead of the more general examples used in their text. I think the success of such a documentation and registration would depend on the level at which these terms were introduced. I have some difficulty seeing every single unit having to be labelled with socially charged terms. As McAnany and Hodder state, the interpretation of these processes is difficult, which perhaps in part is the cause of stratigraphic relations being undertheorized. Above all, the significance of these processes always depends on the context. That is why a greater overview is needed for interpretations like these. There has to be enough information to form a context, and then the social interpretation may be introduced. Radically different social processes – such as referring to something in a positive fashion by affiliating a construction with an older structure, and overtaking something in a negative way by building over older structures – may result in the same material results. We have to know enough of the people we are trying to understand to decide what social principles were at play in each case. This may only be achieved at a more general level than single units or even groups in a matrix.

Another concern is connected to the difference between memory processes, at what the authors, using Connerton's words, call a habituated and a commemorative level. These processes may be at play separately or together. Many practices that build on history or memory in a society may be habituated, as pointed out by McAnany and Hodder, but the terms suggested in figure 3 give the impression of being at the commemorative level, creating specific social memories. If we use them while recording stratigraphic sequences, do we not risk creating an image of the prehistoric people

constantly going round explicitly and intentionally creating memories? We have to find terms that fit the routine and habituated processes as well.

Perhaps a test case would be to study our own society and our own profession using these terms. It could perhaps be useful both to evaluate the functionality of a social stratigraphy, and to look at ourselves through a lens created by concepts we use describing prehistoric societies. In archaeology we find such techniques as depositing, cutting and relocating, such processes as lowering, hiding, hoarding, retrieving, recutting, erasing, returning, remaking and avoiding that may be interpreted as remembering, history-building, memorializing, forgetting, renewing, dominating, displaying, cleaning and destroying. This could tell us something about ourselves as it would illuminate the values behind our decisions to ask certain research questions and not ask others; that is, what would we like to remember and what would we like to forget?

To conclude, do we need a social stratigraphy? Well, I do not think that archaeologists in general regard method as neutral. But some may feel that documentation methods are lacking something, for example the time aspect as pointed out by Lucas. Others mention social agency as something that does not show in our documentation, and that an explicit theory has to be added for this phenomenon to be investigated (Larsson, personal communication). So I believe that McAnany and Hodder have identified a real problem, and that it could be useful to encode the social aspect of our interpretations already in the databases. At what level and with which terms needs to be discussed further, and perhaps tried on a real case.

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What's the news? Thinking about McAnany and Hodder's 'Thinking about stratigraphic sequence in social terms'

Barbara Helwing

New thoughts about the use of archaeological stratigraphies! Is this so? The discussion article by Patricia A. McAnany and Ian Hodder aims at the construction of a theoretical framework to expound and discuss the problems of archaeological stratigraphy. Such a theoretical framework is urgently needed, they feel, and has been largely neglected until now. Reading and interpreting an archaeological stratigraphic record, if carried out according to the guidelines they try to establish, may reveal much more information about past social processes that led to the formation of the specific stratigraphy. In the authors' own words, 'thinking about stratigraphic sequence in social terms is more than an academic exercise' (quoted from abstract). As the record left behind by ancient communities, archaeological stratigraphies, in their view, take a middle place on a scale from micro-records endowed with meaning (artefacts) to macro-records of contextual meaning preserved

in archaeological landscapes. The in-between, the immediate residues of meaningful past human behaviour encapsulated in archaeological sites, remain, in their view, undertheorized.

As someone who has been involved in practical fieldwork for more than 20 years, the authors' statement that archaeological stratigraphy remains largely undertheorized, and that therefore many chances to gain deeper insights into past lives are passed up, comes as a bit of a shock at first. Have we really overlooked so many aspects during the last decades of fieldwork and dug away so many meaningful records unnoticed? And is there indeed the potential to gain a better understanding by using the 'toolkit' proposed by McAnany and Hodder? With the following short contribution, I hope to discuss the authors' request from a perspective of archaeological practice.

The authors set out to scrutinize one of archaeology's most fundamental tools: archaeological stratigraphy, principally meaning the superposition of layer upon layer of human-generated earth (and other) layers within an archaeological site. Practising archaeologists rely on the interpretation of archaeological stratigraphy in order to distinguish meaningful patterns of spatial and sequential order that, necessarily, reflect conscious and unconscious decisions taken by the creators of any archaeological record, intermingled with natural processes. By doing so, they reach reasonable conclusions regarding the development of the archaeological site over time, possible functional and/or social distinctions obvious from patterns of spatial and artefact distribution, and so on.

McAnany and Hodder challenge this valuation of archaeological stratigraphy as a neutral method for unveiling patterns of past behaviour. They instead advocate the view that the formation of an archaeological stratigraphy – which in their words is always a built environment and therefore cannot be compared directly with geological stratigraphy – must in itself be understood as a record of meaningful social behaviour in the past.

McAnany and Hodder examine today's archaeological practice, which relies on archaeological stratigraphy as one of its foremost tools to reflect, at least in part, the logistic necessity of dividing and delegating labour on colonial-type large-scale excavations or under rescue conditions (and thus of delegating and postponing interpretation). With such a hierarchical decision-making chain in practice, archaeological stratigraphy can by no means be a neutral tool to classify and understand the archaeological record.[1] This leads, in their view, to an allegedly currently prevailing archaeological practice of treating archaeological strata as 'containers of artefacts' rather than as units meaningful in themselves. Thus an abundance of information on past behaviour must be lost to us. Instead, they advocate a perspective that regards archaeological stratigraphy as the residues of past social behaviour that they, consequently, call 'social stratigraphy'.[2] In distinguishing and systematizing the various past activities that lead to the formation (or rather, construction) of archaeological stratigraphies, it should become possible to recognize patterns of meaningful and intentional past human behaviour that lend themselves to further interpretation.

The authors base their challenge to the traditional use of archaeological stratigraphy on a survey of current archaeological practice as they understand

it. This perspective is not globally valid, but implies an enormous bias since their brief survey of the history of archaeological stratigraphy is restricted to British and American schools (as is explicitly stated). If the authors were engaged in fieldwork in England or North America, such a narrow perspective would be comprehensible. However, both conduct fieldwork away from their respective countries of residence, in settings where international expeditions are customary and where days off are often spent visiting neighbouring expeditions.[3] Indeed, extending the scope reveals almost immediately that the neglect of archaeological stratigraphy ascribed to practising archaeologists may actually be a chimera. To add a few remarks on the historical survey: the usage of the principles of superposition for the ordering of artefacts from archaeological strata was not only employed by the famous Augustus Pitt-Rivers, but by the German Wilhelm Dörpfeld in the much-taunted Troy excavations of 1882–84 (Dörpfeld 1902) and by the Dane Sophus Muller in his attempt to understand the Danish burial mounds (Muller 1888–95). Along the same line of reasoning, Edward Harris was not the only person to attempt to systematize the analysis of archaeological stratigraphy. Already in the 1970s a series of international workshops tried to establish guidelines for the description of archaeological stratigraphies for west Asian archaeology (for a preliminary summary see Gasche and Tunca 1983). Although there is still a major focus on the possibilities of establishing relative chronology, the preliminary guidelines clearly distinguish anthropic, natural and complex causes behind the formation of various layer units. It should perhaps come as no surprise that the most explicit perception of archaeological stratigraphy as a 'constructed space' is notable in the field of building archaeology (based largely on Hachmann 1969; Echt 1984). In his introduction to the study of the Uruk excavations, Ricardo Eichmann sees archaeological stratigraphy as 'Beschreibung stratigraphischer Phänomene nach ihren Ursachen, als Folge menschlicher Handlungen und geologischer und biologischer Prozesse' (Eichmann 1989, 1). He therein clearly discriminates between anthropogenic and non-anthropogenic causes; also clearly distinguished are depositing (e.g. filling) and cutting (levelling), respectively constructive and destructive, episodes. Cornelius von Pilgrim, in his study of the Middle Kingdom town on Elephantine Island, explicitly criticizes the Harris system for its neglect of processual aspects of stratigraphy formation and its concentration on relative chronology (Pilgrim 1996, 26). To finally return to the anglophone sphere, Marc Verhoeven's study of abandonment patterns in the village of Sabi Abiad goes far beyond Michael Schiffer's artefact-focused formation processes (Verhoeven 1999, esp. 46–60). And among the specific determinates of stratigraphic formation on tell sites discussed by Sharon Steadman were aspects of cutting, retrieval and avoidance that reappear here (Steadman 2000). In brief, many of the thoughts claimed to be new were indeed voiced long ago, possibly in a less explicitly theoretical manner but nevertheless highly systematically, by numerous people engaged in active archaeological fieldwork, and have successfully been applied to the interpretation of archaeological stratigraphic records. The idea suggests itself that the undertheorized archaeological stratigraphy is indeed a straw man.

Nevertheless, the classification presented in the 'toolkit' may be of some use in generalizing about what we understand when we dig. It may, at least, serve as a reminder of all the possible questions we should be asking during documentation. According to the system provided in figure 3, techniques can be divided into depositing, cutting and relocating, and a combination of all these. They are created by past operations (here called processes) of raising or lowering, hoarding or retrieving, continuity of use or avoidance, and more. Possible interpretations presented in the third section of figure 3 are manifold; there is, necessarily, no means of establishing a one-to-one relationship between specific operations and their purpose that can only be approached through interpretation. For example, the intentional collection and burying of a group of artefacts can serve the alternative intentions either of remembering and memorial, or of hiding and forgetting. It can equally relate to a failed purpose of hiding for future retrieval. The possible interpretations are hence mutually exclusive. It is in the nature of archaeology that any convincing interpretation of the record therefore depends as much on the careful 'reading' of the record and on contextual information and pre-existing knowledge.

This said first, let us now put McAnany and Hodder's toolkit to the test. Let us do so by running a virtual excavation in an archaeological site and trying to understand our own doing through the lens of 'social stratigraphy', by using the proposed terminology. Imagine yourself standing in the middle of a small central Anatolian plain assigned to you as a working area. The task is to make a contribution to the better understanding of local (pre)history by carrying out an archaeological investigation, and you have been allotted a comfortable, though not infinite, budget for this purpose. The work ahead of you consists according to traditional practice of three subsequent steps – pre-excavation, excavation and post-excavation.

Pre-excavation: before even setting out to do practical work, you have to make a series of choices – first, where do you decide to work? We take it for granted that, as a responsible scholar, you are aware of the archaeological monuments common in the area so that you can make an informed choice. In the small central Anatolian plain there exist, most probably, visible sites, notably settlement mounds such as are common there; to these may be attached a lower off-site area; equally possible is the existence of flat settlement and activity areas in the vicinity of a visible mound. There may, further, be invisible sites, for example graveyards or flat settlements that can be detected through intensive fieldwalking survey. No matter which site you choose, you will decide on a specific place where you want to work – and the probability is high that this will be a visible place.

Step two in your chain of choices is the specific area of the site that will be investigated. Making an informed choice will require the application of intensive survey, remote-sensing techniques and possibly also the removal of the surface of parts of the site through scraping. Subsequently, you will select a specific area for excavation. Ideally, your choice will be determined by which area promises to yield the best evidence to answer questions posed by your research design. Most probably, factors of feasibility and the hope

of uncovering something 'important' (relative to your research design) will equally contribute to this decision.

Excavation: it is only now that you will begin to organize invasive work. Up to this point, you have not yet applied any technique of cutting or depositing (except for the surface scraping that will, however, hardly leave a recognizable record in the long run). However, your decisions will have been guided by a whole set of operations related to remembering and possibly memorialization (which is what history is all about) as well as a wish to make something to endure. None of these are visible in the earthly history.

The excavation of your chosen area, no matter how this is organized in specific cases, will be a composition of cutting and depositing activities. From the surface down, you will uncover – expose, lay bare – and possibly lift remains of past activities (or will assign helpers to do so). Necessarily, these remains will also be partly or completely destroyed through cutting and excavating. Ironically, your motivation to do so is indeed the wish to retrieve knowledge about past human lives, not the wish to destroy. In this sense, your cutting/excavating/lifting activity is indeed linked to the construction of a historical memory. The material from the archaeological strata or contexts removed during excavation must be deposited, usually after as much data retrieval as is possible: you will extract samples and artefacts, and only a much reduced part of the originally removed earth or other matter will finally be deposited, away from its original place of primary deposit.

Archaeological excavation hence assembles all aspects of cutting and depositing and results in the creation of a palimpsest, the gaps in which can hopefully be bridged by information from the paper and digital excavation records. Additionally, running an excavation in a specific place conforms to the process listed as continuity of space: clearly, your archaeological activity is the result of historical memories about this specific locality being transmitted or retrieved through research.

Post-excavation: the last field covered by a modern archaeological excavation is the conservation and presentation of the archaeological results. The awareness that archaeological excavation necessarily means destruction has prompted increasing measures of counterbalance through programmes of restoration or reconstruction of the excavated archaeological sites. You will hence most probably engage in measures to stabilize selected parts of the excavated archaeological record and protect them against the rigours of further natural and human destruction. Feasible measures include covering the excavated areas temporarily through light and accessible constructions or permanently through complete refilling, stabilizing the archaeological remains through chemical and mechanical conservation, and possibly also the complete reconstruction of selected parts of the site. To this must be added the analysis of samples and the study and restoration of finds, plus their final display (most probably not in their original place but relocated to specifically assigned facilities such as a museum). All these measures conform to the notion of construction of space (and knowledge). At the same time, they are part of your specific ongoing construction of historical memory. How do you decide what to preserve and what to reconstruct (and therefore what to select for transmission and presentation)? Most probably, accidents

of preservation (archaeological stratigraphies tend to be highly selective) and an immanent tendency to present rather the exceptional but the ordinary play their part in this decision. But there may also be constraints originating from the social or political environment,[4] or from politics of fundraising, and other inherent necessities. The relevance that you assign to certain specific parts of the archaeological record above others will be reflected in the (re)constructed archaeological remains. Following all this, the legal protection of the site may finally lead to a pattern of avoidance such that no modern construction will be allowed atop it.

To take this mind game a little further, let us see what evidence for your archaeological activities might finally be found and interpreted by future archaeologists working according to the principles of 'social stratigraphy', provided that there is no direct historical tradition informing them. Would they be able to interpret the record accordingly? We have already seen above that the pre-excavation part of the archaeological process leaves no earthly trace at all. The excavation proper combines processes of cutting and related depositing-cum-relocation that comply with patterns of destroying, outbalanced only through careful recording. Any future archaeologist would probably be able to recognize traces of cutting, erasing and possibly retrieving. However, there is hardly any means of relating this earthly record to the virtual record created alongside it. Future excavators will therefore probably hardly be able to recognize anything beyond the destructive aspect of your work. In identifying your excavation area, they may, however, diagnose a pattern of continuity of space used (although probably not uninterrupted), and intertwined with subsequent avoidance through site protection. Traces attesting the retrieval of finds and samples will, however, most probably be lost. Finally, depositing and construction processes such as, respectively, restoration and reconstruction may hint at your motivation to memorialize selected aspects of an ancient site for future times.

This virtual excavation experience demonstrates that the suggested system is functional as far as the processes described are concerned. Although not at all new, it has the merit of classifying aspects related to the processes responsible for its creation, although the interpretation of it remains unlinked and dependent on the accidents of archaeological transmission. Almost certainly, the careful use of other systems may lead to comparable results. If we decide to cling to this one, a future extension of the toolkit is possible and desirable. The notion that archaeological features often consist rather of the interfaces between deposits than of the deposits themselves deserves further elaboration (Pilgrim 1996, 16). Of equal importance is the recognition of the episodic nature of many archaeological features, an aspect that often may go unnoticed. The toolkit, and possibly future extended versions of it, may help to create a fuller awareness of the fortuitousness of our archaeological sources.

No matter which system is employed, past behaviour encoded in the processes of stratigraphy-making remains open to interpretation. Given the flaws immanent in any archaeological record, we will not overcome the notion that the record in itself is highly selective. Whatever construction of historical memory we aim at can only be a faint shimmer of past *Lebenswelten*. It has, at the same time, the advantage of a long-distance perspective that may

enhance the visibility of patterns of past behaviour. In conclusion, thinking about archaeological stratigraphy allows us possibly to understand better the formation and construction of individual archaeological stratigraphies. In the lucky case of one large or of several related stratigraphies, comparative studies of the individual sequences may allow us to gain some insight into the dynamics behind their formation. Beyond the resolution level of the individual site, however, any gain in historical knowledge remains negligible.

Notes

[1] That archaeological fieldwork, not only interpretation of archaeological stratigraphy, is indeed never neutral and that interpretation begins at the trowel's edge is an aspect much stressed within the Çatalhöyük project. Compare various contributions in Hodder (2000).

[2] Sociological research uses the term 'social stratification' to describe levels of complexity within societies, a term explicitly borrowed from geological terminology. The introduction of the new label 'social stratigraphy' therefore bears an immanent danger of confusion. The established term 'archaeological stratigraphy' includes the view that archaeological contexts are created and constructed intentionally by humans and thus record meaningful past operations.

[3] Further comments on fieldwork will be kept restricted to examples from ancient western Asia, since I am personally not familiar with affairs in Central America.

[4] For example, see Bartu Candan, Sert and Bağdatlı (2007) on the constraints imposed on the educational programme at Çatalhöyük through the ideology of the right-wing MHP party currently governing the magistracy in the provincial town.

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Remembering the basics. Social and stratigraphic debates and biases *Allan L. Maca*

Steve Roskams (2001, 267–70) has challenged archaeologists to theorize excavation practices and Patricia McAnany and Ian Hodder have responded in a cogent manner. They draw the most fundamental of archaeology's field methods – stratigraphy – into the light of social theory. The product is 'social stratigraphy' and the authors offer an array of interpretive schemes and processes through which social stratigraphic approaches might be considered and developed. McAnany and Hodder want us to think beyond the geological facets of stratigraphy, including our section drawings, photographs, matrices, phase designations, chronologies, thin sections and artefacts. They suggest we strive to do more: to discern and interpret social meanings, patterns and practices in every deposit, cut, pit, erasure, concealment, return and episodic rebuilding. The great bulk of their discussion focuses on the study of past contexts, though in closing they address how strata and stratigraphy can be altered or used to influence present-day social and political contexts. It is here – that is, in their concluding comments – that their emphasis on memory (and forgetting), repeated like an incantation throughout the paper, comes full circle.

McAnany and Hodder's discussion will no doubt inspire new explorations of how to wed social theory to fieldwork and field methodologies, and their consideration of augmentative techniques offers vital support for the role of 'science' in these efforts. Many of these new efforts will focus strictly on the relevance of social stratigraphy to interpretations of 'past' contexts. I think the authors recognize this: they provide section drawings from their own excavations, at K'axob and Çatalhöyük, respectively; moreover, the interpretive schemata of their paper are most easily conceived for use in studying ancient patterns and especially stratigraphic configurations related to complex societies (thin or very simple layered strata probably will not respond to their programme without substantial micromorphological analyses). We can even imagine that sets of flexible general laws might emerge from the social concepts they propose, such that the 'rapprochement' they attempt between American and British stratigraphic schools can be more explicitly extended to the processual and postprocessual schools. This could be an important undertaking, in line with other recent efforts to resolve philosophical and practical differences in approaches to historicism and evolutionary change, the social and the cultural, antipositivism and positivism (e.g. McAnany 1995; Yoffee 2005; Trigger 2003; 2006) All this is not to say that that the authors' observations of the intersection between past and present, and of the present context of archaeological stratigraphies, are underdeveloped or unpromising, only that these are discussed briefly and that their implications may be more complex and take longer to explore and substantiate.

In the remainder of my comments I focus on three published debates or exchanges that center on stratigraphy. In discussing these I look more or less simultaneously at two issues that I think might help to encourage further exploration of the intersection between past and present in an emerging social stratigraphy. The first of these involves technical aspects of how we write and read – record, analyse and discuss – stratigraphic data. This has obvious implications for the support of a social stratigraphy geared to past contexts, for there exist biases and differences in training, terminology and research objectives that can hamper even the most basic social interpretations of ancient and prehistoric strata. These biases and tensions also bring us into the present context as we consider how archaeologists engage one another through the medium of stratigraphy-based dialogues and debates, responses and rejoinders. Thus the second issue I want to address regards how we might conceive of the history of archaeology in terms of social (disciplinary) stratigraphies that can be read and studied: precedents practised, manipulated, remembered and forgotten; features of the intellectual and imagined landscape modified, erased and/or deposited in thick layers of varying substances, hues, textures and influences; the results of encounters and conflicts, debates and patterns of attribution, silences; barely visible gravitational-like forces, ideas and impositions that weigh and reflect but may be hard to discern without guidance and tools. What type of trowel can we use to clean and delineate the sections that cut through our disciplinary history? Would this tool respond to a type of use-wear analysis?

The intellectual dynamics and discourses of archaeology are practised, and they transpire linearly (vertically and historically) and diffuse and incorporate

nonlinearly (horizontally and spatially) depending on precedents, goals and purview. The debates I address reflect discursive and field practices and centre on the Americanist tradition in archaeology and, in particular, on Mexico and Mesoamerica. The first debate, from 1960, remains well known and well remembered; it played out in the pages of *American antiquity* between Richard 'Scotty' MacNeish and Walter Taylor. As expressed in his famous book *A study of archeology* (1948), Taylor was the father of the 'conjunctive approach' and a sharp critic of pre-Second World War American archaeology. Scotty MacNeish, when he died accidentally in 2001, was known as one of the most productive and resourceful archaeologists of the 20th century and as someone who single-handedly rewrote the prehistory of the Americas. Among his major contributions was his Tehuacan project (MacNeish 1964) on the origins of agriculture in Mesoamerica; this research alone had made him a household name by the mid-1960s (Flannery 2001, 153).

Years before MacNeish rose to eminence, however, Walter Taylor (1960a) published a review of MacNeish's book on northern Mexico, *Preliminary archaeological investigations in the Sierra de Tamaulipas* (1958). It was not particularly acerbic as reviews go, but it clearly questioned MacNeish's worth as an archaeologist. Wheeler (1954, 59) has declared that 'the digger must learn to read his sections, or he should be constrained from digging'. As if following this tenet, Taylor judged MacNeish based on the latter's skills with stratigraphy and phase designations. Known to this day as the 'MacNeish–Taylor debate', their exchanges were closely read and influenced later research on agriculture and on the development of complex societies. Owing to this wide readership, and also to tenor, the MacNeish–Taylor debate has been memorialized in the annals of American archaeology (e.g. Flannery 2001).

Taylor (1960a) noted that MacNeish had begun his excavations using outdated, New Deal-era (1930s) six-inch arbitrary levels and that he seemed to be giving each level a new phase name or cultural designation. Taylor (1960b) challenged MacNeish to justify his separation of cultural assemblages into so many (seven) different phases and also showed that some of his phases were not, as stated (MacNeish 1958), the results of his own preliminary analyses but rather that MacNeish arrived on-site (at Diablo Cave) with preconceived (borrowed) phases and phase relationships. Taylor also challenged the accuracy of MacNeish's use of terms such as 'phase' and 'complex'. MacNeish was 'appalled' (1960, 593) at the accusations and what he saw as misinterpretations of his methodologies. It was 1948 all over again; Taylor had made another colleague – a rising star – uncomfortable. MacNeish became defensive, claiming that some of the problems with his conclusions were Taylor's fault because he had not answered MacNeish's written requests for comparative information from his (Taylor's) excavations. He also went on the offensive, challenging Taylor to publish his excavations in Coahuila and submit to similar scrutiny. Win, lose or draw for MacNeish, one thing is certain: his exchange with Taylor forced him to clarify his methods and methodologies. Taylor's critique redefined MacNeish's approach to stratigraphic recording and interpretation, and shaped the rest of his career as well as his ability to conduct and interpret archaeological operations (MacNeish 1978, 247; Flannery 2001, 152).

The MacNeish–Taylor debate draws attention to several matters of relevance to my discussion. The first has to do with practices in stratigraphic analysis and how these may vary from individual to individual, from project to project, and/or according to cultural or national tradition. I was trained in the Levant under a British-derived system of excavation techniques and stratigraphic analysis; natural/cultural, as opposed to arbitrary, levels were standard, as were Harris matrices. I was shocked to arrive at Copán, Honduras, for graduate fieldwork and discover that 20-centimetre arbitrary levels were the norm for excavations and had been the basis for virtually all work since the 1970s. Not surprisingly, perhaps, the recent 30-year phase of research there was begun by an archaeologist trained on New Deal-era excavations, namely Gordon Willey. My interests in modifying procedures were met with misgivings by more senior archaeologists, but I nevertheless found a happy – and acceptable – middle ground by excavating natural levels within arbitrary ones. Arbitrary levels, however, endure as a mainstay of many excavations in the Maya area and beyond, yet one has to wonder if it would not be useful for Americanists to discuss more directly why, how and when this practice is appropriate. Sadly, debate and confrontations in Americanist archaeology are still saddled with stigmas, in large part owing to the memory of Walter Taylor (1948; 1960a; 1960b; 1972).

The matter of designating, determining and identifying phases is another problem where we see terrific variation in strategies, everywhere in American archaeology. Especially in the Maya area and along its peripheries, for example, new sites and sequences are appearing every year, yet all too often these are approached with preconceived models and assumptions regarding assemblages, typologies and, of course, excavation techniques. Part of the problem, certainly, is the massive increase in data over the past few decades, while the publishing outlets for site reports have decreased. But there is also a general lack of willingness to engage in spirited debates over the minutiae and the basics of our fieldwork, such as differences in stratigraphic data and interpretations. Journals and their editors are only partially to blame; it also seems that Americanists are trapped in middle-range theorisms and their attending (and varied) epistemologies, with no way out. In sum, before we ask what the implications are of these problems for the social stratigraphy that McAnany and Hodder encourage, we might simply ask what we are missing in terms of more basic data and dialogue.

The second point of relevance to my discussion has to do with the implications of the MacNeish–Taylor debate for the complex social stratigraphy – history, historiography and future – of Americanist archaeology. Scotty MacNeish, partly thanks to Taylor, became a prolific scholar and hero of processual archaeology. His research and publications (his 'deposits') have directed the study of agricultural origins around the world, influenced dramatically the study of complex societies in Mesoamerica and elsewhere, and elaborated Mexico's pivotal role in the history (and future) of the world's maize production. MacNeish left behind a considerable cohort of friends and colleagues and was acknowledged and granted the highest awards by numerous academies and institutions. Walter Taylor (d. 1997), on the other hand, left visible marks that are more localized, read

almost solely within the Americanist field of archaeology. These were in no small part ideological and psychological, and substantially less material than MacNeish's, but they diffused widely and forcefully. Taylor felt that it is an archaeologist's obligation to assail and defend theories and interpretations of data – that this was the sign of a healthy discipline. Few others at that time or since have taken this stance. Due in large measure to his willingness to critique others' work, Taylor has been erased from certain historical profiles, misinterpreted in others, and exploited without attribution (i.e. memory) in yet others (Reyman 1999; Maca 2009). His influence remains visible in some pockets and regions (e.g. Golden and Borgstede 2004; Maca, Reyman and Folan 2009), and his gravitational force endures in the conscience of American archaeology. Taylor's 'profiles', however, look very different from those of MacNeish and their articulation requires different – perhaps as yet unknown – tools and theoretical strategies than we are used to using. The example offered by another debate draws this point out a bit more clearly.

Socially and politically established – that is, anchored and embedded – segments of Maya archaeology have recently begun adopting versions of Walter Taylor's conjunctive approach as a validation for past research and as a guide for future approaches (Marcus 1995; Bell, Canuto and Sharer 2004; Canuto and Fash 2004; Golden and Borgstede 2004; Sabloff 2004; Sharer and Golden 2004). A 1983 article by Joyce Marcus is one of their most-cited general foundations. Therein Marcus offers critiques of research in Maya archaeology as well as recommendations for more effective approaches. These are strikingly similar in tone and content to those of Taylor (1948), yet she never once cites him – Taylor is remembered but erased, or summoned but forgotten. It was years before Maya conjunctivists (re)attached his name to their movement (Marcus 1995). Nevertheless, in a response to Marcus's (1983) paper Norman Hammond (1984) immediately recognized its critical Taylor-like ('outsider') perspective. Hammond's rejoinder was written to express dissatisfaction with Joyce's incomplete knowledge of some of the topics she addressed. In particular, he highlighted her 'lack of appreciation of the nature of archaeological, stratigraphic, evidence and the ambiguities and uncertainties that are part of its nature' (ibid., 821). Hammond in effect 'pulled a Taylor' on Marcus who had 'pulled a Taylor' on Maya archaeology as a whole.

Hammond was especially perplexed by Marcus's understanding of the stratigraphic and radiocarbon evidence in the Maya area for the periods during and subsequent to the transition from the late Archaic period to the Formative or Preclassic, Early Village, period, *ca* 2000 B.C. He opens his corrective by conjuring MacNeish (naturally):

> As Marcus (1983, 457, 459) notes, both the phase limits and the cultural content of MacNeish's six-phase sequence for the preceramic in Belize are estimated, being based on seriation and morphological comparisons with the material from Tehuacan and other highland regions ... While she speaks of 'accumulating stratigraphic evidence,' the published reports do not document this ... the distribution, ecological adaptation and cultural

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> development of this and subsequent preceramic occupation are all uncertain (Hammond 1984, 821; citation in original).

Hammond's subsequent remarks focus mainly on questions of the delineation of phases at Cuello, a site he excavated in Belize, and discuss (almost exclusively) issues related to dates, especially uncalibrated versus calibrated radiocarbon dates from the periods, phases and sites in question. His is a highly technical response, but one that we do not see often enough in the literature (and almost never in the literature on social theory); these are frequently downplayed in favour of seemingly higher-level discussions. While correcting Marcus on the finer points of his own and others' work in Formative-period Maya archaeology, Hammond touches on matters that are fundamental to piecing together complicated stratigraphies from different sites. Ultimately we can ask, what is at stake in this sort of dialogue and what do we learn?

One of the vitally important results that derived from Hammond's (and others') stratigraphic and phase analyses was the evidence for the *in situ* development of Maya civilization: it did not arise from cultural diffusion or immigration from other regions. This has, and has had, implications for living indigenous Maya peoples as well as for the nation states that govern them and their ancient sites. Exploring this development with the care it deserves, however, requires close attention to stratigraphic details and the mechanisms and interpretations we use to derive the absolute chronologies of our sequences. Clearly not all professional archaeologists have a handle on these issues or on the data in their geographical and cultural areas of expertise. One of the better-known examples of this problem can be seen in the debate regarding obsidian hydration dates and the Classic period collapse at Copán (Webster and Freter 1990; Braswell 1992; Manahan 2004). Without a good handle on the absolute (and relative) dates of stratigraphic sequences, we are at a loss piecing together phases and relationships between sites and regions, and an effective social stratigraphy is difficult to muster. On the other hand, when we have good dates and/or corroborating chronological information we can not only construct reasonable local and regional sequences but also identify gaps in our knowledge. A look at one final debate demonstrates this last point fairly well.

The third debate I will mention is more of an ongoing assault on a two-decades-old theory of ancient statecraft and political change at Copán, a UNESCO World Heritage Site in Honduras; analyses of architectural stratigraphy have proved to be key in this regard. Copán is currently the site of the longest-running 'conjunctive approach' anywhere in the world. While Walter Taylor has recently been hailed as the founder of the Copán approach, his general and specific original ideas are present only as vestiges. Today the conjunctive approach in the Maya area largely means multidisciplinary and social-historical research; at least this is the model encouraged at Copán. One of the leading advocates of the conjunctive approach is William Fash (Fash and Sharer 1991; Fash 1994; Canuto and Fash 2004), whose Copán Acropolis Archaeological Project has, among other things, excavated and restored a building on Copán's acropolis known as Structure 22A.

Owing to tunnel excavation into the acropolis, it is known that Structure 22A has no historical or stratigraphic precedent; it appeared anew sometime during the Late Classic period dynastic decline in the 8th century AD. Employing multiple, conjunctive lines of evidence, especially sculptural iconography and epigraphy, the excavators have interpreted Structure 22A as a *popol naah* or council house. Further, on the basis of what appear to be Mayan date glyphs on the building's façade, Structure 22A is thought to have appeared immediately after the death by capture of one of Copán's greatest kings (in AD 738). The presence of the council house, therefore, is thought to represent a shift to council rule during the reign of a subsequent weak king. This has been the standing theory for more than 15 years (Fash 1992; Fash *et al.* 1992; Larios, Stuart and Fash 1994; Stomper 2001). It has been challenged on the basis of iconographic studies of the façade sculpture; these show that the 'council' members' alleged home locales are actually supernatural place names (Wagner 1998). But no one ever thought to check the architectural stratigraphy.

Shannon Plank (2004) finally did this as part of her doctoral work and discovered that there is no secure stratigraphic evidence that the building dates to the time period cited by the excavators. She combined a basic reanalysis of their stratigraphic interpretations with epigraphy, Maya calendrical information, and iconography, and arrived at a very different conclusion regarding the date and function of the building. Plank argues convincingly that it was built three decades after the death of the great king as a shrine or sleeping house for an assemblage of deities. This adds an entirely new dimension to the history of the Copán dynasty and state, but this is not all that is learned through this example.

The *popol naah* theory for Structure 22A has become so pervasive in Copán's museum exhibitions that a replica has been built in the town hall to signify community and democracy. More importantly, its façade images now adorn modern buildings and businesses across Honduras and its symbolism is one of the reasons that Honduran presidents are now inaugurated at Copán. A simple lesson here, following on the heels of the other cases and debates I have cited, is that before exploring social stratigraphic processes, including especially those that intersect with the present, we will have to carefully evaluate our practices of stratigraphic recording and analysis. There is much work to be done. In the case of Copán's Structure 22A, this may simply mean that we return to published accounts and/or drawings of stratigraphic relationships. In other instances, we will need to evaluate the dates, phase designations, terms and definitions, and artefact complexes associated with stratigraphic interpretations. These considerations can serve as the basis of an emerging social stratigraphy, one that includes studies of published evaluations and critiques and the influence these have on our discipline. Other types and forms of analysis may proceed from this that demonstrate how, and the extent to which, present and past intersect at numerous levels of significance.

I will close by citing a line from Patty Jo Watson's review of the book *Social archaeology* (Shanks and Tilley 1987). She writes (Watson 1990, 219),

> *Social Archaeology* is a kind of latter-day analog to Walter Taylor's (1948) *A Study of Archaeology* [*sic*] in that the authors present a critique of much of Anglo-American archaeology, focusing upon prominent recent practitioners. Their discussion does not have as acute an *ad hominem* edge as Taylor's, but they are generous with negative examples and they state their disagreements clearly.

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From the ground up. Depositional history, memory and materiality

Barbara J. Mills

Archaeologists often take stratigraphy for granted, using it for building chronologies, recognizing various natural and cultural formation processes, and understanding relations between features and settlements. But for the last few decades there has been a subtle shift in the way that we approach stratigraphy – in terms of both the kinds of techniques that can be applied (residue analyses, micromorphology, Harris matrices and so on) and the interpretive frameworks that can be employed. Perhaps it is not stratigraphy that we are talking about per se, but rather depositional practices – the many ways in which people make and alter archaeological deposits – in addition to the different interpretive frameworks that we apply to these physical accumulations.

I am quite sympathetic with the overall goal of McAnany and Hodder's article. They are working toward a synthesis that has been building on both sides of the Atlantic that applies social theory to the interpretation of archaeological deposits, including attention to social memory, materiality, identity and personhood. There has been surprisingly little cross-citation of this work in the past despite many common methodological and theoretical goals. It was because of this lack of cross-citation in the face of common goals that William Walker and I decided to bring together a group of scholars to think about the ways in which depositional practices can be interpreted in social terms. Our initial thoughts in organizing this were to look at how deposits could be used to look at ritual practice, but this original idea was modified as we discussed our cases and realized that we were addressing issues of all social practices. Our more final goal was to understand the materiality of depositional histories and the transmission of different kinds of histories, in the ways that people engage with materials of all kinds and especially in how social memory was embedded in the deposits that we study (Mills and Walker 2008).

McAnany and Hodder have similar goals and achieve them by advocating an approach that incorporates scientific field methods for identifying the content and context of deposits with a more interpretive agenda regarding what these deposits can tell us about the social life of past people. This is

a programmatic statement in which these two archaeologists bring different strengths and case studies to the table. They take a 'from-the-ground-up' approach – emphasizing first the history of stratigraphic analyses to point out how past approaches originally concentrated on layers (the geological approach), then on interfaces (the Harris matrix approach), and finally on objects (the behavioural archaeology approach). They suggest that all of these have had their weaknesses because they have not considered the processes by which strata were made in social terms (that is, their meaning and interpretation). McAnany and Hodder offer a new term, 'social stratigraphy', to refer to their approach – one that takes into account the many different social processes responsible for accumulating and cutting into layers, as well as what those activities mean.

The processes of 'stratigraphy-making' that they discuss include rebuilding, middening, remodelling, entombing, hiding and so on – active processes that engage the reader, placing us there at the time that the activity was unfolding. Some of them raise the surface level and some lower it, but they are all ways in which strata are laid down or cut into that relate new 'social practices or performances' with those that came before. They contrast these stratigraphy-making processes with palimpsests – which they define as the accumulation or layering of deposits in which there are 'considerable gaps in time between one activity and the next' and where the 'earlier layers are no longer visible' (p. 9). They imply that palimpsests are not social stratigraphy in that there is an absence of relational practices between what lies above and what lies below. Such a definition, however, belies the ways in which strata can be connected through human experiences, and especially through memory-making. For example, Joyce (2008) talks about how repeated deposits in the same place were made in Honduras where there is a separation of time and of strata between deposits that are so similar that they cannot be coincidental. Similar sets of objects were placed in spaces that were clearly of different times and where the past deposits would not have been visible. How would there be repeated deposition without the transmission of memories of where it was appropriate to place these objects? We repeatedly encounter such persistent places in the archaeological record – the locations of which are not necessarily because of continuous occupation, but because of continuities in the transmission of practices and in the memory work of people connected through their performances and practices.

McAnany and Hodder's use of the general terms for stratigraphy-making could result in a much more comparative understanding of depositional processes – a new social processual archaeology, if you will. Ultimately, however, it is not just the identification of these different activities that is important, but how they are used to understand and interpret the meaning of these processes within different archaeological contexts. Thus I see this as a two-pronged approach that necessarily incorporates a dialectic between process and history, or time's cycle and time's arrow (Gould 1987). To understand the latter, however, one needs to have a strong contextual understanding of the specific historical trajectories of each case study. If the ultimate goal is to use social stratigraphy for interpreting memory, materiality, personhood and so on, then the case studies from K'axob and Çatalhöyük

need to be fleshed out to get a better picture of how these broader social processes were expressed in each society. After reading their brief examples from their own work I was left wanting to hear more about how these practices were played out in each area.

Significantly, then, in order to be able truly to apply the programme of research that is laid out in this article, there needs to be more attention paid to the particulars of a case study. As one of my colleagues, Jane Hill, is fond of saying, 'all meaning is local' (a linguist's version of the oft-cited archaeological phrase 'context is everything'). In other words, without understanding the way that value is constructed in different cases we will not fully be able to apply social stratigraphy.

How do we get at these differences in value? It is here that McAnany and Hodder's concentration on strata over objects could lead to a less complete picture. Although they state that 'it is possible to take from both the object-oriented and depositional-sequence approaches to create an interpretive method that addresses social strategies of cutting and layering strata' (p. 7), much less attention is paid to what is placed in different layers and how. It is for this reason that studies of materiality are important for understanding how social memory as a process connects people in the past (Meskell 2004; Miller 2005; Myers 2001). These may be through connections of place, genealogies of objects, the social transmission of ideas, but they are ways in which we can construct linkages, chains or networks between people, objects and their actions. Thus, although Latour is mentioned briefly in passing, actors (including objects) are connected through their engagement in different practices (Pauketat and Alt 2005). And practices, too, have genealogies (Stahl 2008) – linked by their transmission within different kinds of activities.

Genealogies of practice should lie at the heart of what we are interested in understanding through social stratigraphy – the connectedness and meaning of actions that are inscribed through depositional histories. They need not be deliberate or intentional – a mistake that was made in earlier approaches, including those referred to as 'structured deposits' (Richards and Thomas 1984). As Pollard (2008) points out, all deposits are structured in some way, and the different ways that these deposits are organized can provide insight into the meaning and agency of things. It is what people do with these objects that is of interest, and in how those activities relate to past activities that we can begin to use the programme of social stratigraphy to best advantage. Structured deposition may still be an important way to think about social stratigraphy – as long as we do not force it into dichotomies of ritual/domestic or intentional/nonintentional (Bradley 2003; Brück 1999).

Thus, while I think this article has moved us closer to a synthesis of traditional stratigraphic methods and social interpretations, what I find most intriguing out of the contemporary studies that the authors call 'social stratigraphy' are the ways in which depositional histories are linked through the practices of both memory and materiality. Although the authors talk about social memory, there is much less attention paid to the ways in which materials themselves can be used to understand the networks of people and things – networks that are linked through memory and depositional practice.

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Thinking about archaeological excavation in reflexive terms

Patricia A. McAnany and Ian Hodder

We thank the four commentators – Åsa Berggren, Barbara Helwing, Barbara Mills, and Allan Maca – for their thoughtfully critical comments and cannot help but feel encouraged by the passion displayed in their comments. To an extent underrealized in our initial formulation, the recording and interpretation of stratigraphy forms the jugular vein of archaeological practice. Although accused by some of the commentators of not offering anything new, creating a straw man, or ignoring artefacts, we note that our discussion of social stratigraphy encouraged reflexivity about archaeological practice in all four commentaries. Our initial pulling together of social practices that might be expressed in patterns of depositing and cutting also sparked extremely productive and creative dialogue regarding the documentation and interpretation of stratigraphy, a virtual (and highly successful) simulation that employed our proposed 'toolkit', and worrisome questions regarding the lack of fit between social theory and archaeological technique within the Americanist tradition. We address these topics, particularly in light of commentators' demonstration of the importance of reflexive practices within archaeology.

In relating variable success in implementing digital diaries in which reflexive discussions of stratigraphic interpretation were logged, Åsa Berggren identifies an important and widely appreciated challenge to the implementation of an explicitly interpretive loop in the hermeneutical cycle of documentation and understanding of built stratigraphic sequences, the latter in light of social theory. She relates that excavators in Malmö, Sweden, were far more willing to reflect on stratigraphic interpretation when excavating sites with relatively simple layers but resorted to diary entries of thick description when confronted with the stratigraphic complexity of medieval sites. The challenges of adequately documenting sequence and physical matrix at locales of constructed space often push consideration of the meaning of layers and cuts – and the practices that produced those layers and cuts – into the background. We applaud and second the suggestion by Berggren to 'frontload' the documentation process with interpretive categories for recorded elements of stratigraphy. The process and interpretation schema offered in figure 3 might provide a starting point for such a coding, but as we, and discussants, emphasize, these entries are by no means exhaustive or relevant to all locations. Corollary discussion of interpretive decision-making by excavators, as Berggren indicates, forms a vital part of this method.

Barbara Mills is vested in the notion that social stratigraphy is social memory (whether habitual or explicitly commemorative) but we reiterate that other interpretations – forgetting, cleansing, renewing or dominating – often are equally plausible and should not be overlooked in favour of the flavour of the day. Also, superimposed use of the same locale does not rule out the notion that two episodes may not be relational or linked by an arc

of social memory. Nonrelated reuse of place (we use the term 'palimpsest creation') needs to be considered in stratigraphic interpretation. In this regard, several commentators called for greater attention to the distinction between routinized and commemorative practices in the making of stratigraphic sequence and the parallel need for interpretive concepts with social resonance on a local scale. We are well aware of the tension between local practice and transnational social theory and welcome the proliferation of interpretive schemas with local relevance. This does not mean, as Helwing concludes, that resolution of stratigraphy-making techniques locally will have only negligible impact on historical knowledge in general. The two exist in relational balance.

Mills voices objection to our privileging of strata over objects, but as we tried to convey in our short historiography of stratigraphic interpretation, it is the fascination with objects that has dominated stratigraphic method to the detriment of knowledge advancement regarding techniques of depositing and cutting. We propose that layers and cuts receive as much attention as artefacts and not that artefacts receive less. Attention to the interpretation of artefact deposition is integral to the understanding of soil or matrix layering and cutting. We agree with Mills that stratigraphic sequence can be conceptualized productively as 'genealogies of practice', a term that may be interchangeable with 'processes' as we employ it in figure 3.

Many thanks, Barbara Helwing, for supplying additional citations of those working on issues of stratigraphic interpretation outside of the 'anglophone' world, but note that we did not claim to present a comprehensive but rather an abstracted review of how thinking about stratigraphy has changed within our discipline. The goal of our discussion is not to stake a claim on social stratigraphy but rather to gather together disparate ontological threads of a method in order to further archaeological interpretation. The simulated application – a virtual tour de force – by Helwing of concepts discussed in this paper appears to demonstrate the efficacy of a social-stratigraphy approach. Her application of this interpretive method to archaeological excavation suggests, furthermore, that reflexive ethnography of stratigraphy-making decisions by archaeologists is a fertile field of inquiry and likely a critical strut of increased transparency and sophistication in stratigraphic interpretation.

Allan Maca welcomes the debate that may be generated from our essay and offers three additional stratigraphy-related debates from Mesoamerica. The phantom of Walter Taylor – who never shied from contestation – haunts his discussion. Maca too applies concepts from the interpretive 'toolkit' of a social stratigraphy – erasure, forgetting – to trace disciplinary stratigraphies that pivot on Taylor's influence and its alleged masking. Maca is thinking about the polemics of stratigraphic interpretation in extremely social terms. The debate surrounding the function and construction date of a Late Classic Maya structure from Copán, Honduras – as a council house (*popol naah*) or a shrine dedicated to an assemblage of deities – falls within the broader purview of interpretive methods. But Maca also alludes to deep challenges to a social stratigraphy that hinge upon archaeological technique, from methods employed to reckon with stratigraphy at the trowel's edge to analytic frameworks for handling the durational dimension of stratigraphy. Archaeological technique is foundational to the interpretive enterprise of archaeology; within Mesoamerica, the uneasy fit between archaeological

technique and social theory as described by Maca can be seen as providing an opening for growth that could be facilitated by reflexive recording techniques that would reposition debate within the recording process itself rather than introduce it as acrimonious post-publication discourse.

In summary, we are pleased by the request of the commentators for more, richly textured examples of social stratigraphy from K'axob, Çatalhöyük, and elsewhere; we look forward to satisfying that desire in forthcoming publications.

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