

**PRE-CLASSICAL ACTIVITY IN THE BASALT LANDSCAPE OF THE HOMS
REGION, SYRIA, THE IMPLICATIONS OF THE DEVELOPMENT OF ‘SUB-
OPTIMAL’ ZONES IN THE LEVANT DURING THE CHALCOLITHIC-EARLY
BRONZE AGE**

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The article presents new evidence for activity of 4th and 3rd millennium BC date, from the basaltic landscape west of the Orontes River, near modern Homs, which provides an indication of the nature and extent of human activity at this time outside the main riverine basins. Through a consideration of the potential of the landscape, an analysis of the form, distribution and function of the main categories of structural evidence, and of the associated material culture, the article seeks to understand the nature of the activity undertaken in the area at this time. The material culture evidence is used to investigate the probable connections linking the communities exploiting this landscape with those in other parts of the Levant, including those occupying the marl landscape on the east side of the Orontes River. A consideration of contemporary activity in the Hauran, Jaulan and Negev, sets activity in the Homs basalts in the context of a region-wide increase in the exploitation of ‘sub-optimal’ landscapes, which lay beyond the prime agricultural areas.

Keywords:

1. Introduction: themes and context [A]

[B] *The project*

Settlement and Landscape Development in the Homs Region, Syria (SHR) is a multidisciplinary, multi-period regional survey project that is run jointly between the University of Durham and the Directorate General of Antiquities and Museums (DGAM). It seeks to understand settlement organization in a sample area of western Syria over a long time-span, and across varied environments. Work has focused upon two study areas (Fig. 1). The Southern Study Area (SSA) covers around 400 km² mostly composed of lacustrine marls. The Northern Study Area (NSA) extends to approximately 120 km² and consists of an area of basaltic upland to the west of the river, and a stretch of marl terrain east of the Orontes (see Philip *et al.* 2002, 3–6). While aspects of settlement in the marl landscape during the Bronze and Iron Ages have been discussed elsewhere (Philip *et al.* 2005, Philip 2007), the present article presents for the first time a systematic account of pre-classical activity in the basaltic region of the NSA. For the sake of brevity, the term NSA when used in this account without further qualification refers only to the basalt landscape west of the Orontes River.

A. *Research context* [B]

In a previous article (Philip *et al.* 2005, 30) we noted that the datasets currently available contain significant incompatibilities between the archaeological record as currently documented in the ‘upland’ and ‘lowland’ landscapes of the Middle East. This has constrained efforts to gain a coherent understanding of the long-term development of human activity across different landscape categories (Banning 1996; Wilkinson *et al.* 2004, 202–4). In practice, as generally used, the terms ‘upland’ and ‘lowland’ do not refer strictly to altitude. Rather, ‘upland’ landscapes are generally rockier, and are those wherein stone is the

prime building material. 'Lowland' landscapes are generally those where mud brick is preferred, generally the river basins and rolling plains of Mesopotamia and the Levant. When the terms are used in this sense, the marl and basalt landscapes described above constitute good examples of 'lowland' and 'upland' landscapes respectively.

Traditional extensive survey methods have proved quite effective in locating the nucleated tell sites which characterize much settlement of the Bronze and Iron Ages in 'lowland' regions. However, they have been rather less successful in recognizing the smaller, dispersed settlements that mark the presence of later occupation. In contrast, research on 'upland' areas has focused on settlements of Graeco-Roman date, which are frequently characterized by standing stone architecture (e.g. Tchalenko 1953–58; Tate 1992). Evidence for activity in earlier periods has often proven elusive in these areas, and it is not always clear whether this reflects a genuine absence of pre-classical activity in these landscapes, or results from a scholarly focus upon settlements characterized by large-scale architectural remains of the kind generally characteristic of the classical world.

The first interpretation finds support in recent survey work in the Amanus Mountains and the Jebel el-Aqra regions located to the west and south of the Amuq Plain respectively. As in the case of SHR, these surveys, made extensive use of satellite imagery as a prospection tool, but have 'produced little evidence for occupation post-dating the Neolithic and predating the Hellenistic period' (Casana 2004, 110), a view that has been modified only very slightly in more recent statements (Casana 2007, 199, 204). That said, it is not clear how this view relates to reports of stone-built megalithic structures in these areas (e.g. Yükmén 2000; 2003). While the latter are often hard to date with certainty, they are most likely to relate to activity falling within Casana's posited post-Neolithic, pre-Hellenistic 'gap'. Moreover, the presence of both Graeco-Roman and earlier activity in the Hauran is suggestive (e.g. Dentzer 1985; Braemer 1984; 1988; 1993).

An additional pointer might be taken from parts of the southern Levant such as the basaltic uplands of the Jaulan and the arid-zone of the Negev, which have been surveyed rather more intensively than has most of Syria. While these regions cannot really be considered as prime agricultural zones, work there is generating an ever-growing corpus of evidence for activity in the Neolithic, Chalcolithic and Bronze Ages (Avner and Carmi 2001; Epstein; 1985, 1998; Mizrachi *et al.* 1996; Rosen 2008), much of which does not take the form of traditional tell sites.

In line with these developments, initial work in the Homs basalts identified a range of site morphologies, at least some of which were suspected as being of pre-classical date (Philip *et al.* 2005, 36–37), and thus supporting evidence for the second of these interpretations. The range of dating evidence obtained during this initial phase of fieldwork was limited. However, as a result of fieldwork undertaken between 2007 and 2009 in the basaltic area of the NSA, our project is now able to contribute to a discussion of the nature of pre-classical activity in what we have termed ‘sub-optimal’ zones. While admittedly an inelegant term, we find it useful for application to regions that, while by no means constituting prime agricultural land, offer a rather broader range of economic possibilities than the so-called marginal landscapes such as the arid steppe edge territories, which are situated between the fertile zone and the Arabian desert (Geyer 2001; Jaubert and Geyer 2006). In short, ‘sub-optimal’ regions may offer considerable economic *potential*, but there are often factors that tend to hinder its realization. As a result, the intensity with which these landscapes were used, and thus the nature of their relationships with ‘core’ areas, differed markedly over time, with the periods of most marked development generally resulting from quite specific circumstances.

B. Key aims [B]

We seek below to present new evidence regarding the nature, dating, and distribution of pre-classical structures identified through survey, and to view these in relation to both other aspects of the archaeology, and to natural landscape affordances. These will be placed in a wider context through a consideration of patterns of association, facilitating a discussion of the nature of activity in those landscapes in which tell sites are sparse. In doing so, we hope to highlight the importance of these areas for our understanding of wider political and economic developments.

The presentation is of interest from several perspectives. **[list style]**

1. Prior to recent land clearance strategies, this area represented what Wilkinson (2003, 41–42) terms a landscape of survival. However, the local archaeological record is now being rapidly destroyed by bulldozing, as part of a de-rocking programme that has eliminated around 60% of the archaeological structures that could be identified using 1960s Corona satellite imagery. The aim of this process is to remove surface rock cover by bulldozing, to create large, stone-free rectilinear fields that are suitable for more intensive agriculture. For an explanation of this method of land reclamation in Syria and its anticipated economic benefits see IFAD 2010. A description of the archaeological record in these areas, will underscore its unobtrusive character, especially in comparison with large tell sites, or the standing architecture of the Graceo-Roman period. It will also highlight the difficulty of locating sites without access to aerial photographs or satellite imagery, and thus the ease with which such evidence can be omitted from conventional archaeological inventories. When these two points are combined it becomes clear why we believe that this particular part of the regional archaeological record is that which is at most serious risk of wholesale destruction.

2. It will provide an indication of the kind of material that appears to be associated with later prehistoric and Early Bronze Age activity in regions where evidence for these periods is poorly known. It will thus provide a starting point for the re-examination of the evidence from other parts of the Middle East, and thus for a fuller assessment of the nature and distribution of past populations.
 3. It will allow us to characterize a set of human-landscape relationships, and an associated material culture assemblage, that appears to have differed in significant ways from those of the better-documented tell landscapes.
 4. By clarifying the extent and temporality of activity in hitherto under-emphasized regions, we will be required to reconsider aspects of our current understanding of human activity on a regional scale, and thus to view the development of settlement landscapes characterized by the familiar tell sites, as but one part of a wider dynamic.
- [end list]**

2. The Homs basalt: landscape and traditional agriculture **[A]**

In geological terms, the area under study forms part of the Homs basalts which are dated between 6.5 and 2.0 million years ago (Chorowicz *et al.* 2005, 261). The part of this formation which lies with the NSA (Figs 1 and 2, basalt located west of the Orontes River), consists of a series of low ridges, valleys, and depressions which range in elevation between 400 and 600 m above sea level. The area receives an average annual precipitation in the range 400–600 mm, with rainfall concentrated between the months of November and April. During

the dry season, which lasts from May to October, the landscape can appear barren and forbidding (Fish and Dubertret 1945–48, 120, fig. 3; Na‘aman 1951, 25–26; Wolfart 1967, fig. 10), a point reflected in its popular name—the *wa‘ar*. Unlike the arid steppe zone, however, the Homs basalt receives sufficient precipitation to support reliable rain-fed agriculture, and the region is dissected by several seasonal *wadis*, which flow from the beginning of the rains until as late as June (Na‘aman 1951, 25). It also features a large number of small seasonal pools and a few larger internal depressions, which capture both rainfall and underground flows, and can retain water well into spring. However, water scarcity during the summer is a problem, with recent populations using cisterns, stone-lined pools (*birqat*) and natural basins, to retain water (Wirth 1971, 252–54).

As the NSA, represents only a sample area of a larger landscape, it is important to understand that traditionally the larger villages in the region, such as Tell Daou, Kafr Laha and Tell Zahab, all of which were situated atop ancient tells, were concentrated in a lowland basin known as the Houleh (Na‘aman 1951, 55). The latter is fed by a number of east-flowing wadis which drain the eastern slopes of the volcanic Jebel Hilou (Fig. 2A), and pass through the Houleh en-route to join the Wadi Harb Nasfe (Fig. 2E), and ultimately the Orontes. While the centre of the Houleh is located over 5 km to the north-west of, and thus outside, the NSA, the concentration of soil, water and settlement in this region is likely to have a bearing on our overall understanding of the *wa‘ar*.

The more upland parts of the NSA might best be viewed as an area of relatively low population density, located between more heavily settled areas, namely the Orontes Valley to east and the Houleh to the north-west. However, a second focus of settlement was located in the region of the villages of Ghour al-Gharbiyah and Tilil (Fig. 2) where there exists a smaller lowland basin which Na‘aman (1951, 30–31) viewed as a southern extension of the Houleh. This small lowland basin lies at the end of the Wadi al-Qasab, one of the main wadi systems

running through the NSA, and the importance of which is discussed below. Both of these basins are partially inundated in winter, and thus of limited value for winter cultivation, although the alluvial fills (which are not typical of all valley bottom areas in the *wa'ar*) were used for the cultivation of summer crops such as sorghum in recent centuries.

Within the NSA, there are two main drainage systems both of which trend south-west to north-east. The first and most important in terms of settlement is the Wadi al-Qasab (Fig. 2D), which runs in a long broad valley extending eastwards from the Ghour-Tlil basin, running close to the village of Samalil (SHR 860), before tuning northwards where it passes close to SHR 49. Beyond this point the wadi turns eastwards to run through a narrow valley, passing several abandoned settlements of Roman through Islamic date, before finally turning north and widening out as it leaves the NSA to join the Wadi Nafsi, a tributary of the Orontes which now flows into the south side of the Rastan Lake.

The second is much shorter, and drains eastwards towards the Orontes in a relatively uninterrupted fashion (Fig. 2F). There are only two significant settlements along its 6 km length, the village of Refayn which is located close to the start of the stream, and a small tell (SHR 81) located at the point where the stream enters the Orontes Valley proper. The large number of ancient settlements located along the Wadi al-Qasab, and the presence of check-dams along its course observed during fieldwork in 2009, suggests that it carried a reliable seasonal flow and offered better valley-bottom lands for agricultural purposes. Moreover, whilst early 20th century maps of the region highlight the importance of the Houleh basin and Orontes Valley as occupational foci in recent centuries, the evidence for Chalcolithic-Early Bronze Age (Chalco-EB) activity along this wadi course suggests a rather different, perhaps more multi-focal, distribution of population in the more distant past.

Within the NSA itself, the terrain includes rocky ridges and outcrops with little soil, but also patches of cultivable lands along valley bottoms, and depressions which may retain water or support marsh vegetation depending on the season (Na‘aman 1951, 19–21). The presence of numerous fissures within the rock has increased the permeability of the basalt (Weulersse 1940, 31), although the high clay content of the soil hinders drainage during the winter months. The resulting accumulation of water in planted furrows can impede the development of vegetation, while the presence of sticky, wet clay hinders movement across the landscape (Na‘aman 1951, 24). Conversely, during the dry season the soils can form a crust and thus restrict plants from gaining moisture (ibid.). Even allowing for the possibilities presented by soils and precipitation, the high concentration of stone scattered across the surface of the soil, this the result of the decomposition of the original basalt pavement, is such that a significant labour input would have been required to create productive agricultural land. Moreover, the rocky and dissected nature of the terrain hinders communications, both internally and with other regions. As a result, while the Homs basalt should not be classed as a ‘marginal’ area, it fits the definition given above for a ‘sub-optimal’ landscape, in that it has genuine potential as an agricultural resource, but considerable effort is required if this is to be realized. Despite these potential limitations this landscape has clearly been utilized over many thousands of years, although its name, the *wa‘ar*, captures the difficulty that it presents to human populations.

The basalt landscape presents a range of territories, each with markedly different potential. For example, Na‘aman (1951, 40) observes that in the earlier 20th century, the relative proportion of the key cereal crops grown in the region (wheat, barley and sorghum) varied significantly between villages, according to localized differences in topography and soil moisture retention. In the absence of sorghum, which did not appear in Syria until well after the Bronze Age (Zohary and Hopf 2000, 88–90), the potential of this landscape as a summer

resource would have been considerably reduced, with agriculture presumably focused on the winter crops such as wheat and barley, with barley perhaps favoured on the less attractive soils, and the basin perhaps used to provide fodder crops over the summer.

In terms of livestock raising Na‘aman (1951, 46–48) observes that in pre-modern times, animals were raised exclusively on pasture from March through May when the landscape is green, and that in the 19th and early 20th centuries AD local communities would take additional animals from areas to the east in years when grazing was particularly abundant. However, while caprines could live on the available pasture, the local sheep were generally small and thin, and levels of milk production per animal were low compared to some other parts of Syria. Cattle required fodder in winter, and this was obtained from grasses growing in the fallow areas and could be stored in walled enclosures. It is worth noting that the population often had to depend upon wild plant foods from February onwards as the harvest stockpile was exhausted (Na‘aman 1951, 54).

3. The Archaeology of the Homs basalt [A]

The basalt region west of Homs, represents a palimpsest of archaeological activity dating from the Neolithic to the 18th–19th centuries AD (Philip *et al.* 2002; Philip *et al.* 2005). This has been untangled through a combination of image analysis and fieldwork, with more than 200 sites identified within the NSA since 2002. One of the most striking facets of this data is the sheer range of forms existing in the area, and we are now in a position to outline the nature, and offer an interpretation of the archaeological evidence for pre-classical activity in the region. As Graeco-Roman material is so conspicuous, however, it makes sense to discuss this briefly, before turning to those elements that we believe to be rather earlier.

The discussion of sites presented below supersedes the preliminary classification presented in our previous report (Philip *et al.* 2005, 35–38, tabs 3–4). The latter drew very largely upon

the analysis of image data supported by a limited number of field visits. As a result of fieldwork undertaken between 2007 and 2009 we feel that we now have a much better idea of the main site-types, and a better understanding of the associated material, and can thus determine the major temporal and spatial associations.

*A. The archaeology of the Homs basalts in the Roman and later periods***[B]**

Within the NSA, the project has recorded a number of small tells occupied by present-day settlements, at which pottery of forms characteristic of the Graeco-Roman and/or the Islamic periods is prominent. These attest to occupation on a significant scale during the Roman and Byzantine periods, although the ceramics suggest that this was preceded by some activity of Hellenistic date.

However, the tells are supplemented by a number of additional sites, generally of a form that we have termed *Grouped rectilinear structures*. A number of such sites are associated on the Syrian 1:50,000 map series with the place name *khirba* (حربا), a toponym which appears to have continued in use up to the present (for discussion see Philip *et al.* 2010). In many cases a basic orthogonal plan can be identified either on the ground and/or from satellite imagery, although the details are frequently obscured by rubble (Fig. 3, SHR 885 an example of the site-class *Grouped rectilinear structures*). Sites of this category tend to occur along watercourses, or in areas of relatively low-lying terrain, and are often associated with features such as water storage pools (*birkat*) and field systems. There is clear evidence, through surface ceramics, and architectural fragments, such as lintels with inscriptions and shaped basalt columns, that many are of Roman-Byzantine date, with occupation continuing into the Islamic periods. These sites we interpret as agricultural settlements, predominantly occupied

in the Roman and later periods, and which either did not form tells, or were not founded upon earlier tells.

A second category of site, which we have termed *Single rectilinear structures*, includes a range of free-standing individual architectural units, including built stone tombs and mausolea, agricultural structures such as mills and storage buildings, and perhaps even public buildings of some kind (Philip *et al.* 2010). The majority of these occur in or around settlements with good evidence for Graeco-Roman or later occupation and the surface indicators point to activity in the Roman, Byzantine or Islamic periods. An extensive cadastration, as a result of which the entire landscape was criss-crossed by field walls, is also likely to belong to this period. However, the walls themselves are likely to represent a palimpsest, and more work needs to be done to establish the sequence and dates of the various components. For a more detailed account of Roman and later activity see Newson *et al.* (in press).

B. The pre-classical archaeology of the Homs basalts: tells, grouped enclosures and cairns [B]

On present evidence the archaeological record of the Homs basalt in pre-classical times is evident in three main forms: tell sites, grouped enclosures and cairns. The term *cairn* is preferred to *tumulus* because the latter is almost universally used in association with mortuary activity, something which should not be assumed in the case of all cairns in the NSA.

Tell sites in the Homs basalt [C]

In comparison with those of the marl landscape, tell sites in the NSA are fewer and are generally smaller. The majority of tells within the NSA are located in valley bottoms, usually

close to a seasonal water course, a distribution that contrasts with that of the irregular and sub-circular structures discussed below (Fig. 4).

In this area, architectural units were traditionally constructed using undressed basalt blocks, collected from the land surface (Na'aman 1951, 49, confirmed by field observation). As a result, site formation processes are not directly comparable with those that shaped tells in areas where mud brick architecture was the norm. Tells in the basalt are not formed by the successive demolition, packing-down and rebuilding of mud brick architecture as described by Rosen (1986), but by the repeated reuse of stone masonry, both in the form of individual blocks and through the reincorporation of parts of earlier structures within later buildings. These differences are brought to the fore by the use of massive blocks of masonry to form what we interpret as a major defensive wall, of uncertain date, on SHR 49 (Fig. 5). This sort of construction was presumably the local alternative to the type of layered earthen ramparts which are documented at several sites in the marl zone.

In contrast to the situation in the marl landscape (Philip 2007), occupation on many tells in the basalt extends beyond the Hellenistic and into the Roman/Byzantine period. As a result, much of the earlier material from these sites is potentially obscured by later remains. This situation is exacerbated by the fact that more than 70% of the tells are occupied by present-day settlements. For example, two of the tells with identified Chalco-EB activity currently lie beneath modern settlements (SHR 860 and 888). Fortunately, occupation at SHR 49, the largest example in the area (0.3 ha), appears to have ceased around the end of the Hellenistic period, and while much of the surface material from the tell itself is of Hellenistic date, Chalco-EB material was also present (see Section 5 for discussion of dating), rendering SHR 49 a key source for an understanding of earlier occupation at the tell sites. However, surface collections undertaken in transects collected around the foot of the tell also produced Chalco-EB material. The fact that (Fig. 6) Chalco-EB activity was not necessarily confined to the area

occupied by the later tell—in fact the tell may not have existed at this point—raises important questions regarding the nature of Chalco-EB activity at this and, we suspect, other subsequent tell locations, and their relationship with the more dispersed types of activity described below.

Clearly, in local terms, the valley bottom land around SHR 49 should have represented prime agricultural land. Although, SHR 49 represents the site with the clearest evidence for 4th–3rd millennium BC occupation, we should not ignore other potential locations (Fig. 4). A case in point is the present-day village of Samalil (SHR 860), which is located 2 km south-west of SHR 49, along the same wadi course. Samalil, which remains under occupation, has revealed evidence for water mills and other agricultural activities of Roman-Byzantine date. However, it has also produced small quantities of Chalco-EB pottery, and is surrounded by a range of cairns and grouped enclosures, and so is likely to have also been of importance during earlier periods. Another currently occupied tell (SHR 888) producing small quantities of Chalco-EB material, has been identified along this same wadi to the south of SHR 860, while analysis of satellite imagery has identified a further tell, Tell Kissine (Fig. 2), to the north of the NSA, located near the junction of the Wadi al-Qasab and Wadi Harb Nafseh. Whilst, presently undated it is possible that the latter site represents the northern-most outlier of a system of occupation locales centred on the Wadi al-Qasab.

Another site of interest is the Roman-Byzantine settlement of Dar es-Salaam, SHR 358 (Fig. 4). The site is comprised of a central tell, surrounded by rubble mounds, which have been identified as structures such as mausolea and agricultural buildings (Newson *et al.* in press). While material from this site is predominantly of Roman-Byzantine date, the tell has produced a few basalt tempered sherds of a kind associated with Chalco-EB activity, while transects around the site have revealed a good number of cairns. On the basis of the evidence from these three sites, we suspect that most, if not all, of the tells in the NSA were foci of

activity during the Chalco-EB, but that in most cases the evidence has been masked by the great quantity of later overburden.

Grouped irregular structures [C]

Sites assigned to this category appear as clusters of structures, generally of sub-circular or irregular shape. Within the NSA, 75 examples of this site category have been identified, of which 20 have been visited in the field and have revealed evidence of Chalcolithic-EB activity. The members of this type vary in size and density. Many take the form of tight clusters, which may be composed of between 12 and 40 individual units. The individual units often range between 5 and 20 m in diameter and are usually quite tightly packed. There is little evidence to suggest that the units were arranged around a central open area. While the overall impression is that the structures are laid-out in an irregular manner, a number appear to show a rough linear arrangement (Fig. 7). SHR 64, for example, encompasses around 40 individual units and occupies an area of around 1.3 ha which is considerably larger than most others of this type. In many instances the plans of sites of this type have been confused by later activity, making detailed ground plans hard to establish. For example, fieldwork has demonstrated that many of these features have later field walls built on top of, or running within and between, what appear to be earlier structures.

SHR 666, represents one of the best examples of this site-type within the NSA area (Fig. 7). While it has recently been badly damaged by bulldozing, the Ikonos imagery from 2002 (Fig. 8) shows that the site consisted of a series of small irregular/sub-circular enclosures, which range between 5 to 20 m in diameter. Detailed planning using a differential GPS highlighted a complex range of features in this area, with many of the walls visible at the site, possibly post-dating the irregular structures. Survey has demonstrated that there is a clear association between structures of this type and cairns (see Fig. 7, where cairns are visible as ‘dots’

around SHR 63, 913 and 914). In fact, analysis of satellite imagery has shown that more than 80% of irregular structures have cairns located within a 100 m radius, while many have cairns built within them. While the contemporaneity of irregular structures and cairns can rarely be demonstrated by field survey, the close physical relationship between the two types of feature is highly suggestive. That said, small-scale soundings undertaken in 2008 demonstrated that relationships could be ascertained in some cases, but that their elucidation would require excavation on a larger scale. In the absence of the latter, dating is based upon surface finds, and so caution is required when attempting to assign categories of site to particular periods. However, while pottery of Roman-Byzantine date provides a kind of low-level ‘background noise’ across much of the basalt landscape, all of the grouped enclosures examined to date (27% of the total identified), have shown a predominance of Chalco-EB types within their surface ceramics.

While the few tells in this region are located in valley bottoms, close to the main watercourses, the evidence from the NSA indicates that grouped enclosures tend to be located on ridges or slopes above seasonal wadis, or close to seasonal lakes and pools (Fig. 4). The sites are not evenly distributed across the terrain, and there is a clear tendency for examples to occur in clusters, with sites sometimes located less than one kilometre apart. This distribution has interesting implications for the nature of the activities with which such sites were associated. The ridge-top locations would appear to argue against an agricultural association, perhaps even the deliberate avoidance of areas that were likely to be heavily cultivated. Moreover, the connections to seasonal pools and wadis would indicate that reasonable access to water was important. These facts, in combination with the nature of the sites themselves—groups of walled enclosures—would seem to point to an association with livestock herding, presumably intended to exploit the extensive availability of water and

pasture during the late winter and spring which has traditionally characterized the basalt landscape (Na'aman 1951, 47).

Analysis of 1960s Corona satellite imagery and Russian aerial photographs from the 1950s has demonstrated that structures of the kinds identified within the NSA, are distributed elsewhere, across the area of basaltic geology. The morphology of structures outside the NSA suggests that they are comparable in form and function to those discussed here, and might be understood as a related phenomenon. However, it is important to point out that while the density of cairns within the wider area is comparable to that observed in the NSA (see below), the density of built stone 'structures' is much lower outside the NSA. The difference may be in-part attributable to the use of differential datasets, with a limited number of images of differing resolution being available for the wider region, in contrast to the NSA where a range of high resolution imagery has been consulted. However, this does not fully explain the differing densities of structures within the NSA and wider study region. Moreover, research in the basalt terrain to the south and west of the NSA has identified a range of tumuli and cairn monuments, but the reports available make no mention of enclosure-type structures akin to those seen in the NSA (Ibanez *et al.* 2004–8). We suspect, therefore, that there is a genuine regional difference in the distributions of built stone structures.

No sites resembling the grouped enclosures can be seen within the Houleh depression, although a number of possible structures can be identified on the higher ground at the edge of the depression. Such a distribution is consistent with observations from the NSA, where the sites are preferentially located above valley bottoms and areas of likely prime cultivation.

***Cairns* [C]**

As these monuments have been discussed in detail elsewhere (Bradbury and Philip in press) only a short summary is provided here. Over 30,000 potential cairns have been identified

within the NSA through image data. Of these, a sample, 525, have been recorded in the field. Preliminary analysis has shown that these monuments vary considerably in terms of morphology and associated features. Ranging between 2 m and 20 m in diameter/length and between 0.2 m and 2 m in height, cairns also display clear variation in shape, building material and associated features. The distribution of similar monuments extends across large parts of the Levant from Turkey in the North to the Negev and Sinai in the South (Epstein 1975; 1985; Haiman 1993; Prag 1995; Steimer-Herbet 2004; Steimer-Herbet and Braemer 1999; Yükmén 2003; Zohar 1992).

While these issues are studied in more detail elsewhere, it is timely to mention that a spatial association can be demonstrated between a number of cairns and grouped sub-circular/irregular structures. Moreover, the cairns that have been found in association with these structures often possess clear evidence for internal chambers and cists (Fig. 9). Even if this may not always have meant that the chambers were actually used for the interment of the dead, it may still point to a symbolic connection with mortuary practice. Many cairns reveal an association with features such as walls and small enclosures. In some cases the walls appear either to connect one cairn with another, an attribute which has been observed elsewhere in the Levant (Bradbury and Philip in press; Thuesen 2004), or to demarcate or ‘enclose’ groups of cairns.

While it has been traditional to date the majority of cairns to the 4th and 3rd millennia BC (e.g. Steimer-Herbet 2004), research in areas such as the Negev has revealed evidence for monuments dating to the 6th millennium BC (e.g. Avner 1984, 117; Avner and Carmi 2001, 1215–16). The evidence from the NSA suggests that the practice of constructing, using and reusing cairns, may range in date from the Chalco-EB right through to the 18th–19th centuries AD (Bradbury and Philip in press). That said, no cairns have produced good *in situ* material, and most have been looted. However, the association of some cairns with enclosures

dated to the 4th–3rd millennium BC, the presence of Chalco-EB pottery at 14% of the cairns around which surface collections were undertaken (the majority produced no ceramics at all), and the presence of chipped stone fragments of probable Chalco-EB date around 63% of the cairns surveyed, suggests that a good proportion of these monuments were first constructed during the Chalco-EB. In contrast to the apparent association between cairns and grouped sub-enclosures, the paucity of cairns in valley bottom locations appears to dissociate the distribution of cairns from that of the tells. Examination of wadi sections in the vicinity of SHR 49, suggests that sedimentation is generally of insufficient depth (1 m maximum, often much less) to render burial by colluvium a satisfactory explanation for their absence. Nor does the wholesale clearance of cairns from valley bottom locations during later periods (e.g. Roman-Byzantine) appear very likely: given the very stony nature of the landscape, the benefit of such a process appears unlikely to have compensated for the labour cost of doing so. We therefore conclude, for the present, that cairns were simply not constructed in valley bottom locations in any significant numbers. The simplest way to interpret this is that their construction was focused upon areas other than the primary agricultural zones.

The large-scale distribution of cairns extends beyond NSA, and they are widely documented across the basalt *wa'ar* both to the north and west, where around 170,000 potential cairns have been mapped using Corona imagery (see Section 5). In fact, the NSA may be unique not for the presence of these monuments, but for the extent to which they had, at least until very recently, been preserved. While the full implications of this distribution cannot be considered here, their presence must be borne in mind when trying to interpret Chalco-EB activity within the region. Unfortunately at least 60% of the cairns within the NSA that were identified using satellite imagery dating to the late 1960s, have been destroyed by bulldozing activity within the past decade, a process which is greatly impeding our ability to understand the context of past activity in the region.

4. SHR 362: a unique circular enclosure [A]

We feel it useful to publish a substantial description of SHR 362 now, rather wait for the final survey report. The site was recently badly damaged, in part because the value of such low-visibility, stone-walled enclosures as ‘heritage’ is not yet fully appreciated by local communities. Moreover a site like SHR 362 is very hard to recognize on the ground, and is, in fact, unlikely to have been identified, except by researchers using some form of remote sensing. When these factors are combined with the clear economic incentive for de-rocking operations, it is not difficult to see why such sites are readily destroyed by local farmers and landowners. Thus, its rapid publication is intended to alert colleagues to the possible existence of similar sites in other regions of the Middle East, and to encourage their identification, reporting and protection. A second reason is quite simply that the site is currently unique in Syria, although similar sites are known elsewhere in the Levant and Arabia: these are currently dated to a range of different periods (e.g. Braemer and Sapin 2001, 73–80, figs 1–3).

A. Landscape context [B]

SHR 362 is a circular enclosure formed by a stone wall of variable construction that encloses an area 300 m in diameter (Fig. 10, Ikonos Image February 2002). Field examination revealed that the structure not only had a complex structural history, but that it could best be understood as part of a wider landscape embracing both natural and anthropogenic elements. In the late 1960s, SHR 362 was surrounded by an area of relict landscape, including a large number of cairns, visible as small dots on the image (Fig. 11 Corona Image 1108, December 1969 showing contours). However, the areas to the east and south of the site had been cleared by 2002, as attested by the presence of long rectangular fields (compare Figs 10 and 11).

When viewed in its full topographic context, it is apparent that the enclosure was positioned on a short spur of slightly elevated ground, projecting eastwards from the hills to the west. The northern boundary of the enclosure is positioned close to the break of the slope and thus affords a panoramic view over the Ghour-Samalil basin to the north, which was noted above as a potentially significant focus for local agricultural activity (Fig. 11). We suspect that this position, overlooking the basin and the Wadi al-Qasab, both important locations for ancient settlement, may have played an important part in the location of the enclosure.

B. Parallels and dating [B]

Although preserved as recently as 2007, the site has now been substantially destroyed by bulldozing (Fig. 12). This is particularly unfortunate as the site is currently unique within this part of Syria. Nor has any comparable feature been identified through the analysis of Corona imagery covering the region between El-Hermel in the South and Hama in the North, although more extensive analysis of satellite imagery covering central Syria may reveal hitherto unknown examples. However, roughly circular enclosures have been documented within areas of southern Syria and the steppe-edge regions of North Jordan where they have been assigned to the EBA and identified as animal enclosures (Braemer and Sapin 2001, 73–80, figs 1–3). However, these are all noticeably smaller than SHR 362, which would only have been appropriate for the collection of rather large groups of livestock, and other explanations may be better. Megalithic circles, associated with burial tumuli and dating to the 18th–19th centuries AD were identified by Conder in the Dead Sea region and interpreted as important locales for tribal gatherings (Conder 1889, 134; Prag 1995, 80–81 and further references therein). In addition, the megalithic circles and associated features at al-Murayghât have been recognized for hundreds of years (Savage 2010, 33–35). However, again these constructions are much smaller than SHR 362. In terms of size, similar structures exist in Arabia and have been interpreted as ‘sacred enclaves’ and tribal gathering places, known

within literature as ‘*hautā*’, ‘*hīma*’ and ‘*haram*’. These structures range in date, based on archaeological evidence, from the 6th–8th centuries BC, although others have suggested that they show the influence of earlier traditions (Doe 1971, 76–77; Doe 1983, 124–25, 160–65; Gawlikowski 1982, 301). Clearly none of these examples can be used as a direct analogy for SHR 362, although their identification as central locales may be more in line with possible utilizations of SHR 362 than interpretations suggesting its use as an animal enclosure.

Figure 10 reveals that the north-eastern part of the enclosure was disrupted by the later construction of a series of small rectilinear fields. While these cannot be dated on field evidence, the 1969 Corona imagery (Fig. 11), reveals that the field walls which obliterate the north side of 362 are similar in size, shape and alignment to those located immediately below the north and west sides of the present-day settlement of Heissa. It seems reasonable to suggest the walls are contemporary with periods of peak activity at Heissa. Unfortunately, the surface material from Heissa embraces quantities of material of Roman-Byzantine and Islamic date, and so the field walls can provide only very broad *terminus ante quem* for the construction of the circular enclosure.

Two small soundings made in 2008, whilst highlighting the nature of construction used for the enclosure wall, produced no artefactual remains, and surface collection produced only occasional small abraded sherds with little potential for dating. However, surface collection undertaken in 2009, in recently bulldozed areas of the site, produced a single sherd of chaff tempered pottery in Fabric 5 (see Section 4), along with one or two highly abraded sherds of probable Roman-Byzantine date: sporadic examples of the latter are relatively common across the basalt landscape. While one chaff-tempered sherd cannot provide firm dating evidence for the structure, it does raise the possibility that its construction and use might best be understood in the context of the expansion of human activity in the NSA during the

Chalco-EB, that is broadly contemporary with activity associated with the grouped enclosures and cairns.

C. The nature of the structural elements [B]

As a large part of the central area had already been bulldozed by 2002, this account will focus upon the main features of the enclosure wall. All points discussed in this section are marked on Figure 10, in the form 362_1_XXX. The circuit begins at Point 362_1_247 (henceforth the term '362_1-' will be omitted in this discussion), the start of a stretch of low curving wall, of width 5 m and which is composed of two distinct faces each visible as a single course of stones separated by a core of loosely-packed rubble, and proceeds around the enclosure in a clockwise direction. The wall continues in this form to Point 202, where for a distance of some 5 m the wall line is set noticeably closer to the ground surface, giving the appearance of an entrance or threshold-like feature. From Point 204 the wall as preserved on the surface takes the form of a single row of stones (Fig. 13) sitting within a scatter of smaller rubble: this stretch of the wall is 3 m in width and it is no longer easy to identify a clear wall-face. An area of basalt paving of 5 m in diameter, and located just outside the wall was observed at Point 205. While the 'paving' may simply represent the outcropping of natural basalt slabs, the possibility that this represented some kind of deliberate arrangement should not be overlooked.

An unusual feature appears at Point 217 where two stones were set vertically to form low pillars between which two slabs were laid horizontally to form a gap of width 3.5 m (Fig. 14). From the interior of the circle the gap appears to 'frame' a large cairn of diameter c. 30 m located at Point 220 and which has a rectilinear enclosure on its north-eastern side. While it is impossible to be certain without excavation, it seems rather unlikely that such an arrangement

is the result of natural processes. In fact, the extent to which features of SHR 362 appear to continue below the current ground level is clearly indicated by the cairn in [Figure 15](#).

Beyond this point, the circuit presents not one but two walls, forming an inner and an outer circuit. Moreover, in clear contrast to that part of the line discussed previously, both the inner and outer walls incorporate cairns, with the wall appearing to run between and connect them. The complexity of the situation is exemplified by a break in the inner wall-line located immediately south of a cairn at Point 223, and which appears to be aligned with a corresponding break in the outer wall-line. The wall then resumes as a low rubble mound of width 3 m. Between Points 236 and 237 the curve of the wall changes direction, and despite the presence of a number of cairns in this area, the wall appears to navigate *through* the spaces between them, rather than to link them—an interesting variation. It is also in this area that the vista over the depression to the north discussed above, is most apparent ([Fig. 16](#)).

By Point 237, the wall has become very difficult to follow, presumably because much of the stone was reused in the construction of the later field walls. The wall can be identified again at Point 238 where it appears to combine large stones and smaller rubble forming a long heap of stones 4 m in width. The wall can clearly be seen to join three pre-existing cairns at Points 239–41: two of the cairns have sub-rectilinear enclosures attached to their eastern sides. Another instance of a large stone block positioned horizontally along the wall exists at Point 242, where it provides a framing device for a group of cairns beyond the enclosure ([Fig. 17](#)). A large wall running from the exterior abuts the enclosure wall at Point 246 ([Fig. 18](#)), and from this point onwards the wall is double-faced with a ‘hollow’ core. In effect, the enclosure wall appears to have assumed the form of the large abutting wall, and the main perimeter wall continues in its double faced form, as far as Point 247 where this account began.

SHR 362 is a complicated entity that was almost certainly constructed and modified over an extended period. The close relationship between the wall and the cairns is clear. In some areas the wall links groups of cairns together, and must therefore be later than the building of the cairns. In other cases, it appears to specifically avoid cairns, unless those all post-date the construction of the wall. In some areas gaps in the wall, some emphasized by quite specific arrangements of stone, appear to be aligned with cairns suggesting that the two elements were intimately connected, while the presence of cairns within the enclosure, and occasional circular arrangements of orthostats projecting out of the ground, all point to a complex, if somewhat enigmatic, structure.

It is clear that care had been taken with regard to its location in terms of local landscape features, a point noted above. Equally the rectilinear field systems which have removed, or in some cases adapted, the northern section of the wall line appear to represent a change in the importance and use of this structure at some point during the Roman through to the Islamic period. Thus, the complexity of this site appears to extend beyond that of its construction to its placement within the landscape and association with potentially later and earlier features.

5. The nature of activity in the basalt (tells, cairns and enclosures) [A]

A. *Material culture and chronology* (Figs 19 and 20) [B]

The distribution of chipped stone forms, which have to date provided the sole convincing evidence for the exploitation of the basalt landscape during the Neolithic, suggests that activity was focused upon a limited number of areas, in particular in the vicinity of seasonal lakes. Given the obvious attraction of such features to wildlife, this is not unexpected. The

evidence for Neolithic occupation is therefore limited, in terms of both quantity and its distribution

However, surface collections from the grouped enclosures and collection units walked in their immediate vicinity, suggest a focus of activity of Chalco-EB date. As these sites consist mainly of concentrations of stone, they have remained largely unploughed. As a result, surface finds are few and consist of small heavily abraded sherds, and occasional fragments of chipped stone: diagnostic forms are all but absent. Ironically, the destruction of surface remains by bulldozing tends to produce a richer and more diverse artefactual assemblage, and thus offers greater possibilities for its characterization.

Ceramic collections from grouped enclosures revealed the existence of two main fabric classes: basalt-tempered and chaff-tempered. While we recognize the problems inherent in attempting to identify distinct fabrics within a database made up of small numbers of sherds collected from a number of different sites, and which may cover a considerable period of time, we believe that some basic distinctions can be made within the material (Table 1, Fig. 19).

| Fabric No. | Characteristics |
|------------|---|
| 1 | Dark red-brown mineral tempered has large, angular, basalt inclusions |
| 2 | Dark red-brown mineral tempered with smaller, gritty basalt (and other) inclusions |
| 3 | Similar to Fabric 2 but contains an appreciable quantity of chaff temper, examples often have a reddish orange exterior and a dark core |
| 4 | Similar to Fabric 3 but contains both basalt and chaff temper and reveals evidence |

| | |
|---|---|
| | of either smoothing or burnishing of the vessel exterior |
| 5 | Buff-orange, chaff tempered, with distinctive grey core. It is unlikely that these vessels could have been produced using clays that were readily available within the basalt landscape |

Table 1. The main pre-classical Fabrics from the NSA.

| Rim Form | Fabric 1 | Fabric 2 | Fabric 3 | Fabric 4 | Fabric 5 | Total |
|---------------|----------|----------|----------|----------|----------|-------|
| Everted Rim | 0 | 5 | 1 | 0 | 2 | 8 |
| Holemouth Jar | 10 | 1 | 2 | 3 | 3 | 19 |
| Inverted Rim | 0 | 0 | 0 | 0 | 1 | 1 |
| Unclassified | 1 | 4 | 0 | 5 | 1 | 11 |
| Totals | 11 | 10 | 3 | 8 | 7 | 39 |

Table 2. Diagnostic rim forms from 2008 NSA surface collections.

Basalt-tempered pottery is predominant, and is most probably a local product. Table 2 shows that Fabric 1, the coarsest form, shows a strong association with the holemouth vessel form, while the finer basalt-tempered fabrics (Fabrics 2–4 might best be understood as variants on a common theme) appear in both holemouth and everted-rim forms. We assume that the vessels concerned were jars of some kind. Moreover, as only one fragment of a flat-base has been

identified, we believe that most of these jars were round-based forms. Overall, the evidence attests to a rather limited range of vessel-forms: no fine-wares have been identified.

In the absence of published Chalco-EB ceramic assemblages from the areas immediately to the north, west and south of the NSA, the closest excavated comparison comes from Trench VIII at Tell Nebi Mend (Matthias 2000). However, neither the basaltic fabrics, nor the holemouth form, have ready parallels there. Nor have examples been identified from surface collections undertaken by the current project at sites in the marl zone to the east of the Orontes.

While holemouth forms are present among the chaff-faced ware forms reported from the Amuq (Braidwood and Braidwood 1960, 235–36, fig. 176. 1–4), they are specifically noted as being infrequent. They are also present in Phase K at Hama where they are classed as Shape VI (Thuesen 1988, 118, fig. 59) and are described as ‘uncharacteristic for Period K’ (Thuesen 1988, 118, fig. 59), and are associated with globular jar forms produced in coarse fabrics. Holemouth cooking pots, in this case with a ridged rim, are documented at Tell Afis, where they are believed to be of EB IV date (Mazzoni and Giannessi 1998, 31, fig. 16.7–8).

In contrast, the holemouth jar is one of the most distinctive features of 4th and 3rd millennium BC ceramic assemblages from the southern Levant, where these vessels served both cooking and storage functions. In this area holemouths are seen in both early Chalcolithic (5th millennium) and late Neolithic contexts (e.g. Lovell 2002, 112, 115, 132–37, figs 4.4–5, 4.14–16). Examples are also documented in EB I and II contexts in the Jordan valley (Fischer 2008, 281–84), EB III in west-central Jordan (Harrison 2000, 355, fig. 19.6) and right through the EB I–III sequence at Khirbet Kerak, where examples are present from Local Strata 15 (EB IB), through to Phase 6 (Final EB) of the Bar Adon excavations in Area BS (Greenberg and Eisenberg 2006). The form also occurs at sites in southern Syria (Braemer

and Échallier *et al.* 2004, 298, figs 546–50) and the Beq'a Valley (Marfoe 1995, fig. 45, 46.4, 6) during the EBA.

Jars with a simple everted rim have general parallels in Trench VIII at Tell Nebi Mend, although here they are mostly made using the gritty Fabric A which is not basalt-tempered (Matthias 2000, 419, fig. 23.2. 1–8). Round-based jars with everted rims have parallels in the mineral tempered 'Cooking Pot wares' of Amuq F (Braidwood and Braidwood 1960, 241–42, fig. 175. 2–4, fig. 182. 2–9) and the form is common in the Phase K sequence at Hama, where it is termed Shape VA1 (Thuesen 1988, 117–18, fig. 59). It is generally produced in coarse ware, and was 'the most common pottery shape in the inventory' (Thuesen 1988, 117–18, fig. 59), present in all but Phase K1. Everted-rim jars are also well-documented in Late Chalcolithic Level 18 at Tell Afis (Mazzoni and Giannessi 1998, 17, figs 4–5), which they view as broadly equivalent to Amuq F (Mazzoni and Giannessi 1998, 23–25, tab. 19). To summarize, the combination of both the holemouth and everted rim jar forms would be consistent with a date within the broad span of the 4th and 3rd millennia BC.

Fabric 5 as described here, resembles very closely what is termed Fabric C in the Trench VIII sequence at Tell Nebi Mend (Matthias 2000, 419). At Nebi Mend, Fabric C was used mainly for bowls, although it was also used for the production of thick-walled ovoid or globular jars with a short-everted neck (Matthias 2000, 419–22, fig. 23.3.15–32). In wider terms this material is best understood as a local manifestation of the chaff-tempered tradition characteristic of Amuq F, and which is documented in the northern Levant from the end of the 5th and through much of the 4th millennium BC calibrated (Schwartz 2001, 237–41, 245).

At TNM, Fabric 5 is first documented in Phase 6 of the Trench VIII sequence, which recent radiometric dates would place in the early part of the 4th millennium BC calibrated

(information courtesy of Mr Peter Parr). However, the ware continues to appear as late as Phase 16, that is just prior to the appearance of classic EB IV ceramic forms. In this case, too, a date in the 4th or earlier 3rd millennia BC calibrated would be indicated.

While a few examples of probable EB IV ceramic forms have been identified at sites in the basalt, thus far these have been restricted to occupations on or around the tell sites (e.g. SHR 49, 860). Unequivocal EB IV material has not yet been recorded from the grouped enclosures, suggesting that the associated activity had ceased by the mid-3rd millennium BC calibrated. Admittedly the sample remains small, and it might be argued that the users of the grouped enclosures practiced a lifestyle that did not require the use of an EB IV ceramic repertory. However, the very clear presence of EB IV forms at sites in the marl landscape east of the Orontes in the Hauran (Braemer and Échallier *et al.* 2004, 305, 326 fig. 552, 584), in the Beq'a (Marfoe 1995, 54 and 55), and in the steppe margins east of Homs and Hama (Castel 2007; Geyer 2007), renders this view hard to accept. We conclude, therefore, that activity associated with the grouped enclosures should be dated to the 4th and/or earlier 3rd millennia BC. At present, we cannot be certain whether, within this broad period, the various grouped enclosures were used contemporaneously or in succession. However, as a working hypothesis, we are inclined to suggest that individual locations are likely to have witnessed numerous occupations over an extended period.

B. Towards an interpretation [B]

While the ceramic collections from tell sites in the basalt are modest, it is worth noting that the material, from these, and in particular from SHR 49 and the transects immediately below this site, are broadly comparable in terms of shapes and fabrics with that from the grouped enclosures (Table 3). In other words, this material is characteristic of activity in the basalt

landscape generally, leading to the conclusions that the tells and enclosures form part of a coherent system of landscape use.

| Major ID | Sub ID | Sqr ID | Site Type | Holemouths | Jars (Upright rims) | Everted/Outflaring Rim Jars | Everted/Outflaring Rim Bowl/Platter forms | Upright rim bowl forms | Bases | Ledge Handle | Strap Handle | Lid? |
|----------|--------|--------|-----------|------------|---------------------|-----------------------------|---|------------------------|-------|--------------|--------------|------|
| 7 | 1 | 100 | E | 14 | | | | | | | | |
| 49 | 1 | 100 | T | 2 | | | 4 | 1 | | | | |
| 62 | 1 | 100 | E | | | 1 | 1 | | | | | |
| 64 | 1 | 100 | E | | | 1 | 1 | | | | | |
| 358 | 1 | 762 | T | | | | | | | 1 | | |
| 362 | 1 | 100 | Circle | 1 | | | | | | | | |
| 666 | 1 | 100 | E | 4 | | | 3 | | | | | |
| 666 | 1 | 200 | | 1 | 1 | | 2 | 2 | | | | |
| 666 | 1 | 1200 | | 1 | | 1 | | | | | | |
| 850 | 1 | 100 | E | | | | | | | | 1 | |
| 866 | 1 | 100 | T | 1 | | | | | | | | |
| 914 | 1 | 100 | E | | | 1 | | | | | | |
| 915 | 1 | 100 | E | | | | | | | 1 | | |
| 920 | 1 | 100 | Tr | | | | 1 | | 1 | | | |
| 991 | 1 | 100 | Tr | 1 | 1 | 1 | 1 | | | | | |
| 1179 | 1 | 100 | Tr | 1 | | 1 | | | | | | |
| 1184 | 1 | 100 | Tr | 4 | | 1 | | | | | | |
| 1197 | 1 | 100 | Tr | 1 | | 1 | | | | | | 1 |

Table 3. Diagnostic forms from basalt sites preliminarily dated to the Chalcolithic-EBA period (see map for locations) E=enclosure T=tell, Tr=Transect immediately below tell.

If the concentration of tells sites in the wadi bottom locations indicates an association between these communities and cereal cultivation in wadi bottom landscapes, then the location of the grouped enclosures, around seasonal lakes, and along the slopes of wadi systems, and thus away from the prime agricultural zones, suggests an association with livestock herding. This interpretation is consistent with Na'aman's (1951, 46–48) comment on the importance of pasture within this landscape during March–May. As this period would have coincided with the vital pre-harvest phase for cereal crops planted in wadi bottom agricultural zones, the strategy of removing livestock to rich upland pastures would make good sense. Were this combined with harvesting of grasses to serve as winter fodder, the value of this strategy would have been further enhanced. The possibility that local communities might have taken additional animals from areas to the east in years when grazing was particularly abundant (Na'aman 1951, 46–47) should be borne in mind, but cannot, at present be demonstrated.

Thus we believe that we have delineated, not simply evidence for pastoralists, but rather an integrated settlement system which underpinned the effective exploitation of the subsistence possibilities offered by the basalt landscape. As the indications for activity in earlier periods are limited, and focused upon seasonal water bodies, the evidence suggests that the basalt region witnessed a substantial increase in both the scale and intensity of human activity in the 4th millennium BC. It is tempting to see this as involving both a greater intensity of cultivation in the wadi bottoms, and an increase in the scale of livestock herding, to such an extent as to encourage their removal from the agricultural zones at a critical point in the growing season.

C. Material culture connections [B]

There are some similarities between the ceramic assemblage from the sites in the basalt and that of contemporary settlements in the marl zone, in particular Tell Nebi Mend and SHR 94 (located on the east bank of the Orontes close north of Homs), both of which have produced good assemblages of 4th and 3rd millennium BC material. These include: the predominance of round-based vessels; the occurrence of jars with an everted rim (Matthias 2000, s 23.2.1–14, 22.3.15–22) and the presence of chaff-tempered Fabric C, which resembles Fabric 5 from the basalt sites. Thus the ceramics documented in the basalt region resemble to some extent those from 4th and early 3rd millennium BC assemblages in the marl zone immediately east of the Orontes. However, there are differences. Firstly the distinctive holemouth jar form, which is so characteristic of the basalt zone, has not been recorded at either TNM or SHR 94, despite large collections in each case. Secondly, there is little or no evidence at either site for the presence of the distinctive basalt-tempered fabrics. In fact, the ceramic connections of the basalt sites might be seen as related as much to a ‘generic’ 4th millennium BC north Levant repertory, as documented in the Amuq (Braidwood and Braidwood 1960), and at Hama (Thuesen 1988) and Tell Afis (Mazzoni and Giannessi 1998) as to the sites east of the Orontes specifically.

On present evidence, despite the occasional occurrences in the Orontes Valley region listed above, the holemouth jar form finds its best parallels in the southern Levant. Direct comparisons based upon rim-morphology, however, can be misleading, as the holemouth jar form most characteristic of the EBA in the southern Levant is a flat-based vessel. However, Greenberg (2006, 40–41, fig. 1.1–4, 9–10) has observed that EBA sites in the inland valleys of northern Palestine have produced examples of round-based cooking pots with both holemouth and everted rims: both rim forms are documented in the Homs basalts. He further suggests (Greenberg 2006, 42–43), that in northern Palestine at least, these vessels reflect the

existence of a manufacturing tradition which existed separately from the main regional ceramic industry. Such a distinction might support the suggestion that there existed, among communities using the basalt landscape west of the Orontes, a ceramic tradition which differed in key respects from that documented in the main regional centres in the adjacent marl zone. In light of their locations at the northern and southern ends of the Beq'a valley respectively, the parallels between the situations in the Homs basalts and in the inland valleys of northern Palestine (Greenberg 2006) is intriguing, although it would be premature to suggest a direct connection between these two phenomena on present evidence. That said, it is by no means clear that all of the holemouth jars from the enclosure sites were cooking as opposed to storage vessels. In fact, the storage of dry-goods, in damp-proof vessels as opposed to sacks or baskets, might have been an important element in the maintenance of members of a community in the upland stretches of the Homs basalt during the potentially rainy spring season.

6. Connectivity, mobility and local trajectories: the development of 'sub-optimal' zones in the Levant during the 4th and 3rd millennia BC [A]

A useful way in which to approach the place of regions and their relationships within a wider landscape, is through the work of Horden and Purcell (2000, 54) who emphasize that they must be understood not just in their own ecological terms, but also within the relevant political, social and economic contexts, and through an understanding of the interdependence of local and more distant developments. The Homs basalts are particularly well-suited for such a study as they are located close to a region which witnessed a significant expansion of tell-based settlement during the 3rd millennium BC, and the development of major polities such as Qatna and Kadesh during the 2nd millennium BC (Klengel 1992). However, there is currently no evidence to indicate that grouped enclosure sites were used during the Middle or

Late Bronze Ages or the Iron Age. In fact, the evidence for activity in the Homs basalt during these periods is restricted to a handful of tell sites. (We do not propose to discuss this in detail here, but simply make the point in order to highlight the overall pattern.)

Thus the basalt landscape appears to have witnessed two main pulses of activity. The second was during the Roman-Byzantine period (Newson *et al.* in press), the explanation for which should be in the context of wider developments in the Graeco-Roman world, and the first in the 4th–early 3rd millennium BC. The marked difference between the nature of the human activity described here, and the stone-built villages and cereal-based economy, that is documented for the Roman-Byzantine period, highlights the very different ways in which a single landscape can be exploited, depending upon the nature of the wider political and economic developments which are driving change.

It is therefore interesting to ask why we see periodic expansions and contractions, rather than simply a sustained, low-level of activity, as the latter would certainly appear consistent with the potential of the landscape. This is probably best understood if we view the Homs basalt as a ‘microregion’, the diachronic trajectory of which can only be understood ‘through the invocation of a full political, social or economic context’ (Horden and Purcell 2000, 53–54). Thus, the changes detectable in the local archaeological record are best understood in terms of its ‘connectivity’, i.e. the region’s linkages to social and economic developments on a larger spatial scale (Horden and Purcell 2000, 5).

While Horden and Purcell (2000) focus in their discussion of ‘connectivity’ around the Mediterranean upon maritime transport, this mechanism is probably inappropriate for the Orontes Valley in the 4th millennium BC. However, there are changes documented at this time, which are more directly relevant, and in the context of livestock herding and the

maintenance of communities over dispersed locations, two particular developments seem important.

Both the production and distribution of woollen textiles were of vital importance to the political economy of Mesopotamia by the later 4th millennium BC (Algaze 2008, 77–81; Breniquet 2008, 208–19 with further references). One might surmise therefore that this would have created both an increased demand for wool at a regional scale, but also a growing awareness of its significance as a potential source of wealth, even beyond those areas that were influenced directly by Mesopotamian demand. This appears to be confirmed by the iconographic and archaeofaunal data which also point to a growing emphasis upon wool-bearing sheep and textile production during the later 4th millennium BC (McCorriston 1997, 517ff; Redding 1993; Vila 1998, 111–12). The marked increase in the proportion of caprines within the faunal assemblage associated with the appearance of elements of Uruk-type material culture at Hacinebi Tepe in south-east Anatolia (Stein 2002, 152, fig. 15), may be part of this trend. The first indirect result of the growing importance of wool production may have been to alert the populations across a wide swathe of the Near East to the new economic opportunities, and thus incentivize the development of opportunities for grazing in areas that had hitherto been only modestly exploited. The second is the limited, but now expanding, body of evidence for the use of donkeys as transport-animals during the 4th millennia BC calibrated in the Near East (Grigson 2006, 224, 233; Vila 1998, 46, both with further references) and Egypt (Rossel *et al.* 2008). While equids are well-known from earlier contexts, their use as beasts of burden is predominantly viewed as a 4th millennium BC development (Grigson 1995, 258; Grigson 2006, 233). While the sheep raising provides a sound economic reason for the exploitation of the grazing opportunities offered by the basalt landscape, the growing availability of transport animals would have considerably facilitated the movement of equipment, such as ceramic cooking and storage vessels, and other supplies,

to those members of the community who were using the grouped enclosure sites as part of a seasonal herding strategy. Thus we suggest that the domestication of the donkey would have played a key role in making such a new economic strategy viable.

In such a situation, access to good grazing land would have become increasingly important, and thus the appearance of a large number of stone burial cairns across a prime grazing landscape might be understood as evidence of a growing desire to assert a tangible connection with specific tracts of land. Following this line of argument, the absence of cairns from the valley bottoms could be read as an indication that the presence of living settlements such as SHR 49 and 860, and the associated cultivated land represented, in themselves, a clear and tangible demonstration of rights of access, and that no further marking was required. However, in a seasonally occupied landscape, and in a situation where pressure upon grazing was growing, the construction of cairns may have become a way of demonstrating rights to a type of landscape which had hitherto been of limited interest, but which was now undergoing a process of revaluation as a result of new economic opportunities. Equally the location of SHR 362, overlooking a key wadi basin, and the complex relationship that appears to exist between the cairns, walls, uprights and 'framing devices' from which the structure as a whole is composed, appears consistent with the more general use of stone structural elements in the development of a sense of 'place' and 'presence'.

One might initially tend to view the Homs basalt as a hinterland, an area which could be brought into use as and when required to serve the needs of a prime consumer zone. One possibility is that this region was being used by inhabitants of the southern marls. However, if this was the case, for example with livestock from the southern marls being grazed within the basalt west of the Orontes on a regular basis, we might have expected evidence of cultural affinity between the pottery repertoires to have been rather greater than presently appears to

be the case. In fact, the ceramic parallels with southern Syria, the Beq'a, and northern Palestine suggest that we need to look beyond ideas of a simple one to one relationship with the area east of the Orontes. One possible explanation for this is found in the hypothesis that activity in the Homs basalt during the 4th–3rd millennium BC merely represented an amplification of activity, which had already been taking place within the region, albeit at a much lower level of intensity. However, the very mention of ‘sound economic reasons’ requires us to address contemporary developments at a regional scale.

A. The importance of timing [B]

In many parts of the near east, the 4th millennium BC is characterized by growing, and very tangible, inter-regional connections and an increase in the scale and complexity of communities ‘economic and political organizations’ some of this clearly driven by developments in southern Mesopotamian (Algaze 2005, Rothman 2001; Stein 1999). However, evidence for Mesopotamian connections in the upper Orontes Valley remains limited (Philip 2002; Schwartz 2001), and it is unlikely that the expansion documented in Homs can be directly linked to this process.

As far as the Levant goes, the Beq'a Valley witnessed a significant expansion in the settled area during the 4th and 3rd millennia (Marfoe 1995, Late Chalcolithic/Early Bronze I and EB II–III phases) and a growing degree of settlement agglomeration in the EB II–III (Marfoe 1995, 119–24, figs 26–28). The Amuq underwent a major period of settlement agglomeration and the development of substantial tell-sites in the earlier part of the 3rd millennium BC (Casana 2007, 199). Equally, preliminary analysis of the evidence from the SHR project suggest that the 4th millennium BC witnessed a noticeable increase in the scale of settlement in the marl zone east of the Orontes, and that this was followed by a degree of settlement agglomeration during the earlier 3rd millennium BC. In contrast, there is considerably less

evidence for activity during these periods in more easterly regions, closer to the edge of the steppe (Geyer 2007; Morandi Bonacossi 2007), where clear evidence for a major expansion of settlement comes only from the middle of the 3rd millennium BC, the EB IV period in particular. The latter process, therefore, appears to represent a phase of expansion that is quite separate from that documented in the Homs basalts. In fact, the limited evidence for later occupation in the basalt may be because of the development of steppe herding strategies from the late 3rd millennium onwards, with the basalt landscape being simply superseded, and reverting to a pattern of small sedentary villages in lowland locations, as typified by SHR 49.

In contrast, the later part of the 4th millennium BC witnessed significant expansion of settlement in the northern valleys of the southern Levant. In the north Jordan Valley, the late 4th millennium BC (late EB I) occupations at Khirbet Kerak and Tell esh-Shuna attained around 20 ha in size in each case (Greenberg *et al.* 2006, 12–13, plan 1.1, tab. 1.2; Philip 2008, 187). In the Jezreel Valley, recent surveys indicate the presence of a late EB I artefact scatter covering some 60 ha at ‘Ain al-Assawir at the western end of the Wadi ‘Arah (Yannai 2006, 280), while the settled area of contemporary Megiddo has been estimated at some 50 ha (Finkelstein *et al.* 2006a; 2006b, 845). (Note, though, that the Megiddo Hinterland Project appears to report 12 ha for the total area of the EB I occupation at Tell Megiddo [Finkelstein *et al.* 2006b, 721–22, sites 30–35].) In fact, a large swathe of north-central Palestine and Transjordan witnessed the development of extensive, but apparently unfortified settlements, at key points in the landscape during the late 4th millennium BC, although the rather different situation documented in southern Syria highlights the importance of quite local trajectories (Braemer in press). Although we do not suggest that there was a direct link between these sites and expansion in the Homs basalts, the data is indicative of the scale of developments that were taking place within even those regions of the Levant located well outside the economic impact zone of the Uruk phenomenon.

B. Chalco-EB activity in ‘sub-optimal’ landscapes: an alternative to pastoral nomadism [B]

As the patterns outlined from the Homs region seem to suggest, we appear to have a two-tiered system of settlement consisting of valley based ‘tell’ settlements and upland ‘grouped enclosures’. However, contrary to recent archaeological interpretations which highlight the role of ‘nomadic pastoralists’ in the construction of settlements and monuments in ‘sub-optimal’ regions, there is little evidence to suggest the presence of two distinct population/social groups within the Homs region during this 4th–3rd millennium BC period. Despite the richness of resources, such as the Mari texts, which pertain to nomad-sedentary relations during 2nd millennium BC and beyond (e.g. Kupper 1957; Anbar 1991; Matthews 2002; Buccellati 2008), we know relatively little about the ways in which pastoralism may have operated during the 4th–3rd millennium BC. Moreover, given the major changes in the exploitation of the steppe zone detectable during the later 3rd millennium (e.g. Castel 2007; Castel and Peltenburg 2007; Geyer 2007), which were almost certainly shaped by broader political and economic developments, we should be cautious of assuming too great a degree of similarity.

The seasonal and variable nature of resources and environmental conditions in the Homs region as outlined by Na’aman (1951), fits well with evidence from other regions, which highlight the need for groups to be able to move their emphasis between a range of subsistence strategies within a single annual round. Indeed, this flexibility may have been a key factor in enabling groups to operate within such ‘sub-optimal’ landscapes (e.g. Dyson-Hudson and Dyson-Hudson 1980, 17; Lancaster and Lancaster 1991, 128, 136; Braemer 1999, 191; Braemer and Échallier *et al.* 2004, 158). If, as suggested above, we are dealing with a period when changing notions of land rights arose to reflect new opportunities arising

from a growing emphasis on woollen textiles, and the availability of donkey transport, it is clear that these changes would also be linked into new concepts of location, and to the revaluation of both products and resources. The resulting changed patterns of activity and seasonality would thus have shaped a rather different engagement with the landscape (see Philip 2003 for a related example).

Within the Homs region, rather than representing a complete departure from previous subsistence strategies and a clear separation between nomadic and sedentary populations, we suggest that this process represented an intensification of subsistence practices that were already in place, albeit at a much lower level of activity. As such, we can perhaps suggest that a similar pattern of activity would have occurred in areas such as the Hauran, where both agricultural and pastoralist activities appear to be occurring alongside one another (Braemer and Échallier *et al.* 2004, 282–83). Thus, the key to gaining a deeper understanding of the nature of 4th–3rd millennium BC period activity within the Homs basalts and other ‘sub-optimal’ zones may be to challenge the distinction between the notions of sedentary and nomadic activity during this point in time, and suggest that multi-resource strategies were operating within these regions.

It is worth considering at this point the extent to which activity and occupation within ‘sub-optimal’ regions can be seen as representative of a single process. In order to do this we will briefly review current evidence within the Levant for nomad-sedentary interaction, before turning to a consideration of the nature of subsistence activity and society within a number of other ‘sub-optimal’/marginal regions within the Levant.

One of the key issues to negotiate when interpreting the settlement patterns within the Homs basalt is our ability to distinguish between a ‘permanent’ and ‘semi-permanent’ settlement within the archaeological record (e.g. Alizadeh 2008, 84). Research by Alizadeh within the

highlands of Iran has emphasized the potentially multi-faceted nature of many subsistence strategies, with mobile pastoralist tribes relying on dry farming and taking advantage of arable lands in both summer and winter pastures. In these cases members of the tribe often remain behind to harvest the crops, or alternatively local workers can be hired by the tribes to carry out the harvesting (2008, 89). Studies in this region examining the Qashqaaii tribe have also revealed that whilst this group practices vertical transhumance, they own villages, with permanent solid architecture, in both their summer and winter pasture areas (Alizadeh 2008, 83). Clearly we cannot use this as a direct analogy to activity within the Homs basalt during the 4th–3rd millennia BC, however it serves as a good example of how both agricultural and pastoralist activities can be carried out by the same population group.

Moreover, as research by Simms (1988, 199) has highlighted, clear variation in settlement stability can be seen across groups, and also from year to year and season to season a variability that clearly should not be underestimated in relation to the past. This variability can also be seen to extend to the movement of livestock, with groups within a single designation of a tribal group moving in highly contrasting ways (Dyson-Hudson and Dyson-Hudson 1980, 18). Despite this modern variation there are still a number of investigators who interpret ‘nomadic pastoralism’ as a distinct cultural trajectory, occurring within the periphery of the settled heartland (Rosen 1988, 499; Rosen 1997; Rosen 2002; Rosen 2008). Indeed, investigations within parts of the Negev, for example, do provide evidence for specialist pastoralist subsistence activities from the end of the 6th millennium BC (Rosen 2008, 120). Despite evidence for specialization, the degree to which groups can be classified as either ‘pastoralists’ or ‘agriculturalists’, especially given arguments for the close interaction between the ‘settled heartland’ and ‘marginal peripheries’ (Rosen 2008, 123), is debatable.

What is apparent is that the nature of pastoralist occupation and subsistence throughout history is likely to have differed greatly, varying across regions and between groups. Moreover, there is no evidence, especially within the Homs region, to suggest animal husbandry activities within the 4th and 3rd millennium in this region were similar in either organization or scale to those of the 2nd millennium BC. As such, it is likely that the development of large settlements, such as Mari (e.g. Charpin and Durand 1986; Anbar 1991; Matthews 2002) and Ebla (e.g. Archi 1991; Mazzoni 1991), and their role as centres of consumption and as major political entities, would have had a profound effect upon pastoralist practices. Given the above variability of evidence, it is clear that interpretations which attempt to attribute a single phase of activity or morphology of settlement/monuments to a single definable subsistence group are problematic.

Our analysis of settlement patterns within the Homs region has suggested that the contrasting location of tell and enclosure sites indicates that these sites were associated with different types of subsistence practice. On the basis of their location it has been suggested that whilst the tell settlements were predominantly associated with cereal crops within the wadi bottoms, the grouped structure sites were predominantly linked with seasonal grazing in areas away from the wadis at higher elevations. This would facilitate the exploitation of cereals and vegetables, some of which could be dried and stored for lean months. Animal products, such as milk, meat and yoghurt, could again be dried, stored and transported facilitating the adaptation and successful negotiation of dynamics of resource growth and decline. This is not to suggest, however, that we were dealing with different populations, trading and exchanging their goods and products. Instead, what is apparent from the shared material culture at both tell and enclosure sites, is that we are dealing with a continuum of activity by the same population who were adapting to and exploiting the Homs basalt during a period of heightened connectivity between 'sub-optimal' and fertile regions. With this in mind it is

worth briefly considering the nature of subsistence and settlement activity within regions outside the NSA.

C. Comparison with other 'sub-optimal' zones [B]

The Hauran [C]

Such a hypothesis has also been recently suggested in relation to the Hauran region, with Braemer and others arguing that a continuum of 4th–3rd millennium BC activity can be identified within this region, centred around the main settlement of Khirbet al-Umbashi, which may have acted as central site for the gathering of different groups employed in different aspects of subsistence (Braemer and Sapin 2001; Braemer and Échallier *et al.* 2004). Of particular interest, in terms of local strategies, is the clear emphasis upon cattle raising at the site of Umbashi (Braemer and Échallier *et al.* 2004, 282–83). In contrast, the paucity of remains of wild species such as gazelle at the site (Braemer and Échallier *et al.* 2004, 282), despite the evidence for structures such as jellyfish and kites traditionally interpreted as relating to hunting activities within the area (Braemer and Échallier *et al.* 2004, 266–67), suggests that Umbashi, rather than being related to hunting activities, was predominantly associated with pastoral and agricultural activities (*ibid.*, 282–83). The presence of cereal grains from the southern sector of the site, which have been dated to Early Bronze Age (*ibid.*, 282) indicate that not only pastoralist activities were being undertaken in the region. Moreover, Schumacher in the 19th century referred to the area as wheat country, '*Belad el-Kameh*' (Schumacher 1886, 25). On the basis of the presence of evidence for both pastoral activities and cereal production, it has been suggested by the investigators that pastoralists and agriculturalist may have been in competition for resources (*ibid.*, 282–83). However, as suggested in relation to the Homs region it may be that we are witnessing a period when both

pastoral and agricultural activities are being carried out by the same population group at different times of year.

In contrast to Khirbet Umbashi, there is at present no evidence within the NSA for features, such as ramparts or obvious major centres. Instead, the settlement pattern is more dispersed. This more widespread distribution of settlements may have been facilitated by the ubiquity of seasonal pools and wadis within this region, in contrast to the region around Umbashi, where management of seasonal flow in the local wadi system provided the key to success (e.g. Braemer and Échallier *et al.* 2004, 41). In the NSA, the one site which hints at some sort of central function is the enclosure SHR 362. However, SHR 362 apart, current evidence indicates that within the Homs basalts no dichotomy can be seen between those occupying the tells and those utilizing the enclosures sites, thus a central site, such as represented by Khirbet al-Umbashi may not have been necessary—or it may have been located outside the NSA. Indeed, we can hypothesize that the same population was using both tells and enclosures but possibly at different times of the year. From the above discussion it appears that while complementary elements of subsistence, architecture and material culture can be found in both the NSA and Umbashi region, the two areas display quite distinct local trajectories, albeit with common elements in relation to wider developments occurring during the 4th–3rd millennium BC.

The Jaulan [C]

The Jaulan is a further area, where similar forms of architecture and material culture to those documented within the NSA occur. Like the NSA, and in contrast to the Umbashi region, the Jaulan Chalcolithic appears to be characterized by dispersed village based settlement, with no evidence for a centralized agglomeration of population (Epstein 1998, 6–8). Due to the humid and basaltic nature of the soil within the region, relatively little faunal or botanical evidence

has been recovered. Studies of the material from the Chalcolithic settlement sites investigated by Epstein have suggested the presence of a mixed economy based on the cultivation of grains, pulses and olives in association with the grazing of caprines (Davis and Grigson 1998, 341–42; Lipschitz *et al.* 1998, 339–40).

However, the limited amount of material from the Chalcolithic period, when combined with our basic lack of knowledge of Bronze Age settlement patterns within the region, renders it difficult to make general statements concerning subsistence practices during the 4th–3rd millennium BC. Moreover, whilst the domestication of the olive is now dated to the Chalcolithic (Meadows 2001; 2005; Lovell 2002b, 96; 2008, 742), the nature of olive cultivation during this period is less clear, and it remains uncertain whether widespread, large-scale cultivation of olives occurred within the Chalcolithic or the Early Bronze Age (e.g. Finkelstein and Gophna 1993, 11–13; Lovell 2002b, 97). The settlement architecture of the Jaulan during the Chalcolithic is characterized by rectilinear structures (Epstein 1998, 8–9), while little is known about settlement architecture in the succeeding Early Bronze Age, with researchers having focused on the presence of cairn and dolmen monuments, which they have generally linked to nomadic pastoralists (e.g. Epstein 1985; Zohar 1992). This is not the place to debate the problems with simple associations between nomads and monuments, such as dolmens and cairns (for which see *inter alia* Prag [1995, 79]; Philip [2003; 2008, 194–95]). Given the different dating of the comparative evidence in these areas, 5th–4th millennium BC in the Jaulan and 4th–3rd millennium BC in the NSA and Hauran, it is possible that some of the differences between the regions might simply be chronological. However, Na‘aman (1951) makes no mention of olive cultivation in the NSA during the 19th–20th centuries AD, while the presence of olives and associated products within the archaeological record of the Jaulan suggests that communities in the two regions drew upon a rather different set of subsistence elements. Moreover, the presence in the Jaulan of large storage pithoi and basalt

vessels, which are entirely absent from the Homs region, is indicative of a distinct regional adaption to the local ‘sub-optimal’ environment. Thus, the evidence from the Jaulan also indicates a regional and localized development, which cannot easily be fitted into a single subsistence or cultural identity associated with either nomadic pastoralism or agriculture.

***The Negev* [C]**

Despite, its different geology, environmental attributes (Evenari *et al.* 1971, 51; Zohary 1973, 46–48) and economic patterns (Rosen 2002, 755–56; Abadi-Reiss and Rosen 2008), the Negev provides perhaps the best architectural parallels for the enclosure sites of the Homs basalt (compare Fig. 7 here with Haiman 1992, 32, fig. 8 and Haiman 1996, 7, fig. 4). Investigation of sites within the Negev has revealed the presence of clusters of round and elliptical structures built using limestone, which range from around 5–10 m in diameter and have been found associated with a range of cairn-type structures (Cohen and Dever 1978, 32–33, Haiman 1994, 24–29). As in the Homs region, the round and elliptical structures occur in clusters ranging in number from around a dozen, up to densities of around 75 at sites such as Be’er Resisim (Cohen and Dever 1978, 32–33). In contrast to the preliminary dates suggested for the Homs NSA, excavation at the Negev sites has suggested that the remains predominantly date to the Early Bronze IV period (Cohen and Dever 1979, 253–54). However, as with the Homs region, interpreting the palimpsest of activity within this area presents a challenge.

It is clear from the location of the majority of this region beyond the 150 mm isohyet (Evenari *et al.* 1971, 8–9), that subsistence opportunities within the area would have been profoundly different from those afforded by the NSA of the Homs region. Indeed, it has been argued, in relation to the Negev, that subsistence, mining/resource exploitation and trade activities within this region during EB I–II would have been impossible without the presence

of the large settlement of Arad located to the north, at the transition between ‘settled heartland’ and ‘marginal desert’ (Rosen 2008, 123, but see Avner and Carmi 2001 and references therein for new dating, which may challenge this interpretation). The presence of structures, such as those from Be’er Resisim, which represent a combination of storage areas, animal enclosures and human habitations, provide a useful strong analogy for similar remains found at the enclosure sites in the NSA. However, given the evidence for strong inter-regional trade and activities, such as metal production and stone quarrying at certain sites within the region (e.g. Adams 2002, 24–25; Rosen 2002, 755–56; Abadi-Reiss and Rosen 2008) it is apparent that populations during the 4th–3rd millennium BC were utilizing the resources within the Negev in a wide variety of ways. In short, the Negev provides yet another example of the population of a ‘sub-optimal’ region adapting and exploiting the wider connectivity developing during the 4th–3rd millennium BC, but in a manner that reflects local affordances and connections. Moreover, when compared to the NSA, it offers an important example of how similar material culture signatures may relate to rather different interactions between animals, humans and the environment.

This brief overview of current evidence from neighbouring ‘sub-optimal’ regions has been designed to underscore the fact that despite some formal similarities in the archaeological record and in environmental possibilities between the Homs basalts, the Hauran, the Jaulan and the Negev, no single solution to the exploitation of ‘sub-optimal’ landscapes was adopted. Rather, we appear to be witnessing a period that saw more intensive exploitation of such zones by human groups, but in which solutions were developed that were appropriate to each specific case. Thus, whilst development in these regions may have been initially facilitated by processes of heightened ‘connectivity’, an awareness of new economic opportunities, perhaps arising from quite distant developments, and also by the growth of larger communities within lowland basins, it is clear that populations in the ‘sub-optimal’

regions were embracing new possibilities selectively, and adopting only those which allowed the potential of the particular regions to be realized.

7. The way ahead [A]

In the foregoing account we have sought to make clear the nature of the archaeological record that is to be associated with Chalcolithic and EBA activity in the basalt landscape west of the Orontes River, near modern Homs. This is an important step towards understanding the archaeological record in an area of Syria typical of those regions outside the main river basins, and where mud brick construction and large tells are not to be expected. This we have done by establishing criteria which permit a clear distinction to be drawn between remains relating to the Graeco-Roman period or later, and those which pertain to earlier activity. By doing so we have been able both to highlight the unobtrusive nature of the latter, and the key role played by satellite imagery in prospection for archaeological remains of this kind. We have also sought to make apparent the severity of the threat that it now faces. We now hope that researchers will seek to re-evaluate the nature of the evidence for pre-Classical activity in other 'upland' zones, and thus improve our understanding of the wider context within which the familiar tell landscapes were situated.

Having identified the archaeology of the Chalco-EB, we have then sought to suggest the probable nature of the activities with which such remains might have been associated. This we have done through a combination of ethnographic accounts, with a locational analysis of the different categories of archaeological remains. The resulting analysis views the small valley bottom tells, the upland cairns and enclosures, and the enigmatic circular enclosure of SHR 362, as forming part of a coherent landscape, for which a date in the 4th or earlier 3rd millennia BC is indicated by the associated material evidence.

Having outlined the nature of this occupation, we argue that this phenomenon is distinct both spatially and chronologically from the now well-documented expansion of settlement into the steppe margins during the EB IV period. Rather, we argue that the process detectable in the Homs basalt relates to an earlier phase of activity, and is but one element in a region-wide, but locally quite distinct, expansion of human activity into regions that had hitherto been regarded as of limited interest, but which are of considerable value when managed appropriately. This we attribute to both push and pull factors. The latter are mostly orientated around changes in the demand for material goods arising from region-wide socio-political developments. The former embrace a range of new ‘things’, in particular products arising from a coming together of new technologies and new forms of animal and crop management. Some of these, including woollen textiles and olive oil in particular, are likely to have impacted upon the perceived value of different tracts of land, and thus to have reshaped the way in which local populations engaged with, valued, and in due course would inscribe themselves upon, the landscape.

A growing body of evidence suggests that that ‘sub-optimal’ zones across a wide swathe of the Middle East made a significant contribution to the development of regional economies during the 4th and 3rd millennia. In fact, resources extracted from these areas may have been an important element in facilitating the expansion of settlement that has been identified in a number of regions—mainly lowland tell-landscapes. While there is more that could be said, in the absence of excavation data, and in particular reliable radiometric, artefactual and environmental evidence, we are reluctant to take analysis further at the present time. Given the scale of the threat to this particular aspect of the regional archaeological record, and the potential it offers to shed light on developments across the region, it should be a very high priority indeed for excavation.

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[hdg] Bibliography

- Abadi-Reiss, Y. and Rosen, S. A. (2008) A chip off the old millstone: Grinding stone production and distribution in the Early Bronze Age of the Negev. Pp. 99–115 in Y. M. Rowan and J. R. Ebeling (eds), *New Approaches to Old Stones: Recent Studies of Ground Stone Artifacts*. London: Equinox Publishing Ltd.
- Adams, R. B. (2002) From farms to factories: the development of copper production at Faynan, Southern Jordan, during the Early Bronze Age. Pp. 21–33 in B. S. Ottaway and E. C. Wager (eds), *Metals and Society*. Oxford: Archaeopress.
- Algaze, G. (2005) *The Uruk World System: The Dynamics of Early Mesopotamian Civilization*. Chicago: University of Chicago Press.
- Alizadeh, A. (2008) Archaeology and the question of mobile pastoralism in late prehistory. Pp. 78–114 in H. Barnard and W. Wendrich (eds), *The Archaeology of Mobility: Old World and New World Nomadism*. Los Angeles: Cotsen Institute of Archaeology.
- Anbar, M. (1991) *Les tribus amurrites de Mari*. Universitätsverlag Freiburg Schweiz Vandenhoeck and Ruprecht Gottingen.
- Archi, A. (1991) Ebla. La formazione di uno stato del III millennio AC. *Parola del Passato* 46, 195–219.
- Avner, U. (1984) Ancient cult sites in the Negev and Sinai deserts. *Tel Aviv* 11, 115–31.
- and Carmi, I. (2001) Settlement patterns in the Southern Levant deserts during the 6th–3rd millennia BC: a revision based on ¹⁴C dating. *Radiocarbon* 43, 1203–16.
- Banning, E. B. (1996) Highlands and Lowlands: problems and survey frameworks for rural archaeology in the Near East. *Bulletin of the American Schools of Oriental Research* 301, 25–46.
- Bradbury, J. and Philip, G. (in press) The world beyond tells: pre-classical activity in the basalt landscape of the Homs region, Syria. In T. Steimer-Herbet (eds), *Pierres dressées et stèles anthropomorphes. Aspects culturels des 4e et 3e millénaires en Arabie et au Levant sud*. Lyon/Oxford: Maison de l’Orient/British Archaeological Reports.
- Braemer, F. (1984) Prospections Archeologiques dans le Hauran (Syrie) I. *Syria* 61, 219–50.
- (1988) Prospections Archéologiques dans le Hawran (Syrie) II. *Syria* 35, 99–137.
- (1993) Prospections Archéologiques dans le Hawran (Syrie) III. *Syria* 70, 117–70.
- (1999) Le changement dans les habitats de la steppe du Proche-Orient au IIIe millénaire. Pp. 181–99 in F. Braemer, S. Cleuziou and A. Coudart (eds), *Habitat et Societe XIXe Recontres Internationales d'Archeologie et d'histoire d'Antibes: Actes des Recontres 22–23–24 Octobre 1998*. Antibes: Editions APDCA.
- (in press) *Badia and Maamoura, the Jawlan/Hawran regions during the Bronze Age*.

—, Échallier, J.-C., *et al.* (eds) (2004) *Khirbet Al Umbashi*. Bibliothèque Archéologique et Historique. Beyrouth: Institut Français du Proche-Orient.

— and Sapin J. (2001) Modes d'occupation de la Steppe dans le Levant Sud-Est au Bronze Ancien. Pp. 69–88 in Geyer 2001.

Braidwood, R. J. B. and Braidwood, L. S. (1960) *Excavations in the Plain of Antioch I: The Earlier Assemblages, Phases A–J*. Chicago: Chicago University Press.

Breniquet, C. (2008) *Essai sur le tissage en Mésopotamie: Des premières communautés sédentaires au milieu du III^e millénaire avant J.-C.* Paris: De Boccard.

Buccellati, G. (2008) The Origin of the Tribe and of 'Industrial' Agropastoralism in Syro-Mesopotamia. Pp. 141–59 in H. Barnard and W. Wendrich (eds), *The Archaeology of Mobility: Old World and New World Nomadism*. Los Angeles: Cotsen Archaeological Institute.

Casana, J. (2004) The archaeological landscape of Late Roman Antioch. Pp. 102–25 in J. A. R. Hoskinson and B. Sandwell (eds), *Culture and society in Later Roman Antioch*. Oxford: Oxbow.

— (2007) Structural transformations in settlement systems of the Northern Levant. *American Journal of Archaeology* 111(2), 195–222.

Castel, C. (2007) Stratégies de subsistance et modes d'occupation de l'espace dans la micro-région d'Al-Rawda au Bronze ancien final (Shamiyeh). Pp. 283–94 in D. Morandi Bonacossi (ed.), *Urban and Natural Landscapes of an Ancient Syrian Capital. Settlement and Environment at Tell Mishrifeh/Qatna and in Central-Western Syria. Proceedings of the International Conference held in Udine, 9–11 December 2004*. Udine: Forum Editrice.

— and Peltenburg, E. (2007) Urbanism on the margins: third millennium BC Al-Rawda in the arid zone of Syria. *Antiquity* 81, 601–16.

Charpin, D. and Durand, J. M. (1986) 'Fils de Sim'al': les origines tribales des rois de Mari. *Revue d'assyriologie et d'archéologie orientale* 80, 141–83.

Chorowicz, J., Dhont, D., *et al.* (2005) Tectonics of the Pliocene Homs basalts (Syria) and implications for the Dead Sea Fault Zone activity. *Journal of the Geological Society* 162(2), 259–71.

Cohen, R. (1979) Rescue Excavations in the Negev, Notes and News. *Israel Exploration Journal* 29, 251–54.

— and Dever, W. G. (1978) Preliminary Report of the Pilot Season of the 'Central Negev Highlands Project'. *Bulletin of the American Schools of Oriental Research* 232, 29–46.

Conder, C. R. (1889) *The Survey of Eastern Palestine, vol 1: The Adwan Country*. London: Palestine Exploration Fund.

Davis, S. D. and Grigson, C. (1998) Faunal remains from Golan Chalcolithic sites. Pp. 341–42 in Epstein 1998.

Dentzer, J.-M. (ed.) (1985) *Hauran I. Recherches sur la Syrie du sud a l'époque hellénistique et romaine*. Institut Français d'archéologie du Proche-Orient, Bibliothèque archéologique et historique Tome 124. Damascus: Institut Français d'archéologie du Proche-Orient.

Doe [initial] (1971) *Southern Arabia*. London: Thames and Hudson.

— (1983) *Monuments of South Arabia*. Naples and Cambridge: Falcon/Oleander.

Dyson-Hudson, R. and Dyson-Hudson, N. (1980) Nomadic Pastoralism. *Annual Review of Anthropology* 9, 15–61.

Epstein, C. (1975) The Dolmen Problem in the Light of Recent Excavations. *Eretz Israel* 12, 1–8.

— (1985) Dolmens Excavated in the Golan. *Atiqot* 17, 20–58.

— (1998) *The Chalcolithic Culture of the Golan*. Jerusalem: Israel Antiquities Authority.

Evenari, M., Shanan, L., *et al.* (1971) *The Negev: The Challenge of a Desert*. Cambridge: Harvard University Press.

Finkelstein, I. and Gophna, R. (1993) Settlement, demographic and economic patterns in the highlands of Palestine in the Chalcolithic and Early Bronze Periods and the beginning of urbanism. *Bulletin of American Schools of Oriental Research* 289, 1–22.

Finkelstein, I., Ussishkin, D. and Halpern, B. (2006a) Archaeological and historical conclusions. Pp. 843–58 in I. Finkelstein, D. Ussishkin and B. Halpern (eds), *Megiddo IV: the 1998–2002 seasons*. Tel Aviv: Institute of Archaeology, Tel Aviv University.

Finkelstein, I., Halpern, B., Lehmann, G. and Niemann, H. M. (2006b) The Megiddo Hinterland Project. Pp. 705–76 in I. Finkelstein, D. Ussishkin and B. Halpern (eds), *Megiddo IV: the 1998–2002 seasons*. Tel Aviv: Institute of Archaeology, Tel Aviv University.

Fischer, P. M. (2008) *Tell Abu Al-Kharaz in the Jordan Valley. Volume 1 The Early Bronze Age*. Wien: Verlag der Österreichischen Akademie der Wissenschaften.

Fish, W. B. and Dubertret, M. L. (1945–48) Carte Pluviométrique. Pp. 115–21 in M. L. Dubertret (ed.), *Etudes Géologiques et Géographiques*. Beyrouth: Direction Générale des Relations Culturelles.

Gawlikowski [initial] (1982) The sacred space in ancient Arab religions. In A. Hadidi (ed.), *Studies in the History and Archaeology of Jordan I*. Amman: Department of Antiquities of Jordan.

Geyer, B. (ed.) (2001) *Conquête de la steppe et appropriation des terres sur les marges arides du Croissant fertile*. Travaux de la Maison de l'Orient Vol. 36. Lyon: Maison de l'orient et de la Méditerranée—Jean Pouilloux..

— (2007) The arid margins of Northern Syria: occupation of the land and modes of exploitation in the Bronze Age. Pp. 269–81 in D. Morandi Bonacossi (ed.), *Urban and Natural Landscapes of an Ancient Syrian Capital. Settlement and Environment at Tell Mishrifeh/Qatna and in Central-Western Syria. Proceedings of the International Conference held in Udine, 9–11 December 2004*. Udine: Forum Editrice.

Greenberg, R. (2006) What's cooking in Early Bronze Age II? 'I will speak the riddle of ancient times'. Pp. 39–47 in A. M. Maier and P. de Miroschedji (ed.), *Archaeological and historical studies in honor of Amihai Mazar on the occasion of his sixtieth birthday*. Winona Lake: Eisenbrauns.

—, Eisenberg, E., et al. (2006) *Bet Yerah. The Early Bronze Age Mound. Volume I. Excavation Reports, 1933–1986* Jerusalem: Israel Antiquities Authority.

Grigson, C. (1995) Plough and pasture in the early economy of the Southern Levant. Pp. 245–68 in T. E. Levy (ed.), *The Archaeology of Society in the Holy Land*. Leicester: Leicester University Press.

— (2006) Farming? Feasting? Herding? Large mammals from the Chalcolithic of Gilat. Pp. 215–319 in T. E. Levy (ed.), *Archaeology, Anthropology and Cult: The Sanctuary at Gilat, Israel*. London: Equinox.

Haiman, M. (1992) Cairn burials and cairn fields in the Negev. *Bulletin of the American Schools of Oriental Research* 287, 25–46.

— (1993) An Early Bronze Age cairn field at Nahal Mitnan. *Atiqot* 22, 49–61.

— (1994) The Early Bronze Age Site of Ramat Matred 3 in the Negev Highlands. *Atiqot* 25, 23–32.

— (1996) Early Bronze Age IV settlement pattern of the Negev and Sinai deserts: view from small marginal temporary sites. *BASOR* 303, 1–32.

Harrison, T. (2000) The Early Bronze III Ceramic Horizon for Highland Central Jordan. Pp. 347–64 in D. Baird and G. Philip (eds), *Breaking with the Past: Ceramics and Change in the Early Bronze Age of the Southern Levant*. Sheffield: Sheffield Academic Press.

Horden, P. and Purcell, N. (2000) *The corrupting sea: a study of Mediterranean history*. Oxford: Blackwell.

Ibanez, J., et al. (2004–8) Mission conjointe Syro-Libano-Espagnole de prospections archéologiques à l'ouest de la ville de Homs, Campagnes 2004–2008.

http://www.imf.csic.es/esp/dptos/proyectos/siria/en/fieldwork_reports.html, consulted April 2010.

IFAD (2010) *Syrian Arab Republic: Thematic Study on land reclamation through de-rocking*. International Fund for Agricultural Development, Near East and North Africa Division, Programme Management Department. www.ifad.org/pub/pn/syria.pdf, consulted April 2010

Jaubert, R. and Geyer, B. (eds) (2006) *Les marges arides du croissant fertile. Peuplements, exploitation et contrôle des ressources en Syrie du Nord*. Travaux de la Maison de l'orient et de la Méditerranée. Lyon: Maison de l'orient et de la Méditerranée—Jean Pouilloux.

Klengel, H. (1992) *Syria, 3000 to 300 BC: a handbook of political history*. Berlin: Akademie Verlag.

Kupper, J. R. (1957) *Les Nomades en Mésopotamie au temps des rois de Mari*. Paris: Bibliothèque de la Faculté de philosophie et lettres de l'Université de Liège, fasc. 142.

Lancaster, F. and Lancaster, W. (1991) Limitations on Sheep and Goat Herding. *Levant* 23, 125–38.

Lipschitz, N., Waisel, Y., *et al.* (1998) Analysis of charred wood samples and seeds from Chalcolithic Sites in Golan. Pp. 339–40 in Epstein 1998.

Lovell, J. (2002a) *The Late Neolithic and Chalcolithic Periods in the Southern Levant: New Data from the Site of Teleilat Ghassul, Jordan*. Oxford: Oxford University Press.

— (2002b) Shifting Subsistence Patterns : some Ideas about the End of the Chalcolithic in the southern Levant. *Paleorient* 28(1), 89–102.

— (2008) Horticulture, status and long-range trade in Chalcolithic Southern Levant: early connections with Egypt. Pp. 741–62 in B. Midant-Reynes and M. Y. Tristant (eds), *Origins II: L'Égypte pré- et protodynastique. Les origines de l'État*. Leuven: Peeters, Orientalia Lovaniensia Analecta.

Marfoe, L. (1995) *Kamid el-Loz 13. The Prehistoric and Early Historic Context of the Site*. Bonn: Rudolf Habelt.

Matthews, V. H. (2002) *Pastoral nomadism in the Mari Kingdom*. American School of Oriental Research.

Matthias, V. T. (2000) The Early Bronze Age pottery of Tell Nebi Mend in its regional setting. Pp. 411–27 in G. Philip and D. Baird (eds), *Ceramics and Change in the Early Bronze Age of the Southern Levant*. Sheffield: Sheffield Academic Press.

Mazzoni, S. (1991) Ebla e la formazione della cultura urbana in Siria. *Parola del Passato* 46, 163–94.

— and Gianessi, D. (1998) Area E1—Late Chalcolithic, Early, Middle and Late Bronze I Ages. Pp. 9–121 in S. M. Cecchini and S. Mazzoni (eds), *Tell Afis (Siria) Scavi sull'acropoli 1988–1992. The 1988–92 Excavations on the Acropolis*. Pisa: Edizioni ETS.

McCorriston, J. (1997) The Fiber Revolution: Textile Extensification, Alienation, and Social Stratification in Ancient Mesopotamia. *Current Anthropology* 38(4), 517–49.

Meadows, J. (2001) Olive domestication at Teleilat Ghassul. Pp. 13–18 in A. Parker and E. Hopkins (eds), *Archaeology of the Near East: An Australian perspective*. Sydney.

— (2005) Early farmers and their environment: Archaeobotanical studies of Neolithic and Chalcolithic sites in Jordan. Unpublished Ph.D Thesis, La Trobe University, Melbourne, Appendix F.

Mizrachi, Y., Zohar, M., Kochavi, M., Murphy, V. and Lev-Yadun, S. (1996) The 1988–1991 excavations at Rogem Hiri, Golan Heights. *Israel Exploration Journal* 46, 167–207.

Morandi Bonacossi, D. (2007) Qatna and its hinterland during the Bronze and Iron Ages. A preliminary reconstruction of urbanism and settlement in the Mishrifeh region. Pp. 65–93 in D. Morandi Bonacossi (ed.), *Urban and Natural Landscapes of an Ancient Syrian Capital. Settlement and Environment at Tell Mishrifeh/Qatna and in Central-Western Syria. Proceedings of the International Conference held in Udine, 9–11 December 2004*. Udine: Forum Editrice.

Na'aman, A. (1951) *Le Pays de Homs: Etude de Régime agraire et d'Economie rural*.

Newson, P., Abdulkarim, M., McPhillips, S., Mills, P., Reynolds, P. and Philip, G. (in press) Landscape Study of Dar es-Salaam and the Wa'ar basalt region north-west of Homs, Syria. Report on work undertaken during 2005–2007. *Berytus*.

Philip, G. (2002) Contacts between the 'Uruk' world and the Levant during the fourth millennium BC: evidence and interpretation. Pp. 207–35 in J. N. Postgate (ed.), *Artefacts of Complexity. Tracking the Uruk in the Near East*. Warminster: Aris and Phillips.

— (2003) The Early Bronze Age of the Southern Levant: A Landscape Approach. *Journal of Mediterranean Archaeology* 16, 103–31.

— (2007) Natural and cultural aspects of the development of the marl landscape east of Lake Qatna during the Bronze and Iron Ages. Pp. 218–26 in D. Morandi Bonacossi (ed.), *Urban and Natural Landscapes of an Ancient Syrian Capital. Settlement and Environment at Tell Mishrifeh/Qatna and in Central-Western Syria. Proceedings of the International Conference held in Udine, 9–11 December 2004*. Udine: Forum Editrice.

— (2008) The Early Bronze I–III Age. Pp. 161–226 in R. Adams (ed.), *The Archaeology of Jordan: a Reader*. London: Equinox.

—, Jabour, F., et al. (2002) Settlement and landscape development in the Homs region, Syria: Research questions, preliminary results 1999–2000 and future potential. *Levant* 34, 1–23.

- , Abdulkarim, M., *et al.* (2005) Settlement and Landscape Development in the Homs Region, Syria. Report on work undertaken during 2001–3. *Levant* 37, 1–43.
- , Bradbury J. and Jabbur, F. (2010) The Archaeology of the Homs Basalt, Syria: the main site types. *Studia Orontica*.
- Prag, K. (1995) The Dead Sea Dolmens: Death and the Landscape. Pp. 75–84 in S. Campbell and A. Green (eds), *The Archaeology of Death in the Ancient Near East*. Oxford: Oxbow.
- Rosen, A. (1986) *Cities of Clay: The Geoarchaeology of Tells*. Chicago: University of Chicago.
- Rosen, S. A. (1988) Notes on the origins of pastoral nomadism: a case study from the Negev and Sinai. *Current Anthropology* 29(3), 498–506.
- (1997) Beyond milk and meat: lithic evidence for economic specialization in the Early Bronze Age pastoral periphery in the Levant. *Lithic Technology* 22, 105–15.
- (2002) The evolution of pastoral nomadic systems in the Southern Levantine periphery. In E. C. M. Van den Brink and E. Yannai (eds), *Quest of Ancient Settlement and Landscapes*. Tel Aviv: Ramot Publishing.
- (2008) Desert pastoral nomadism in the Longue Durée. Pp. 115–40 in H. Barnard and W. Wendrich (eds), *The Archaeology of Mobility: Old World and New World Nomadism*. Los Angeles, Cotsen Archaeological Institute.
- Rossel, S. F, Marshall, J., Peters, T., Pilgram, M. A. and O'Connor, D. (2008) Domestication of the donkey: timing, processes, and indicators. *Proceedings of the National Academy of Sciences* 105, 3715–20.
- Rothman, M. S. (ed.) (2001) *Uruk Mesopotamia and its neighbours: cross-cultural interactions and their consequences in the era of state formation*. SAR advanced seminar series. Santa Fe, NM and Oxford: School of American Research Press.
- Savage, S. H. (2010) Jordan's Stonehenge: the endangered Chalcolithic/Early Bronze Age site at al-Murayghât-Hajr al-Mansûb. *Near Eastern Archaeology* 73 (1), 32–46.
- Schumacher, G. C. E. (1886) *Across the Jordan (with additions by Laurence Oliphant and Guy Le Strange)*. London: Richard Bentley & Son.
- Schwartz, G. M. (2001) Syria and the Uruk Expansion. Pp. 233–64 in Rothman 2001.
- Simms, S. R. (1988) The Archaeological Structure of a Bedouin Camp. *Journal of Archaeological Science* 15, 197–211.
- Steimer-Herbet, T. (2004) *Classification des sépultures à superstructure lithique dans le Levant et l'Arabie occidentale (IVe et IIIe millénaires avant J.-C.)*. Oxford: Archaeopress.
- and Braemer, F. (1999) Monuments funéraires mégalithiques au proche-orient. In J. Guilaine (ed.), *Mégalithisme*. Paris: Editions Errance.

Stein, G. J. (1999) *Rethinking world-systems: diasporas, colonies, and interaction in Uruk Mesopotamia*. Tucson: University of Arizona Press.

— (2002) The Uruk expansion in Anatolia: a Mesopotamian colony and its indigenous host community at Hacinebi, Turkey. Pp. 149–71 in J. N. Postgate (ed.), *Artefacts of Complexity. Tracking the Uruk in the Near East*. Warminster: Aris and Phillips.

Tate, G. (1992) *Les campagnes de la Syrie du Nord du II^e au VII^e siècle: un exemple d'expansion démographique et économique à la fin de l'antiquité*. Paris: Geuthner.

Tchalenko, G. (1953–58) *Villages antiques de la Syrie du Nord: le massif du Bélus à l'époque romaine*. Vols 1–3. Paris: P. Geuthner.

Thuesen, I. (1988) *Hama: fouilles et recherches 1931–1938. 1, The pre- and protohistoric periods*. Copenhagen: Nationalmuseet.

— (2004) Messages in stone: the megaliths of the Nebo Region in Jordan. Pp. 105–17 in K. von Folsach, H. Thrane and I. Thuesen (eds), *From Handaxe to Khan*. Aarhus: Aarhus University Press.

Vila, E. (1998) *L'exploitation des animaux en Mésopotamie aux IV^e et III^e millénaires avant J.-C.* Paris: CNRS.

Weulersse, J. (1940) *L'Oronte étude de fleuve*. Tours: Arrault.

Wilkinson, T. J. (2003) *Archaeological Landscapes of the Near East*. Tucson: University of Arizona Press.

—, Ur, J. and Casana, J. (2004) From nucleation to dispersal: trends in settlement pattern in the northern fertile crescent. Pp. 189–205 in S. E. Alcock and J. F. Cherry (eds), *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*. Oxford: Oxbow.

Wirth, E. (1971) *Syrien: Eine Geographische Landeskunde*. Darmstadt: Wissenschaftliche Buchgesellschaft.

Wolfart, R. (1967) *Syria und Libanon: Beiträge zur regionalen geologie der erde*. Berlin: Gebrüder Borntraeger.

Yannai, E. (2006) *'En Esur ('Ein Asawir) 1: Excavations at a Protohistoric Site in the Coastal Plain of Israel*. Jerusalem: Israel Antiquities Authority.

Yükmen, B. (2000) Hatay Dolmenleri. *Arkeoloji ve Sanat* 96, 81–21.

— (2003) *Anadolu Megalitleri The Megaliths of Anatolia A new survey revealing the significance of the Dolmen in Eastern Anatolia*. Istanbul: Arkeoloji ve Sanat Yayinlari.

Zohar, M. (1992) Megalithic cemeteries in the Levant. Pp. 43–63 in O. Bar-Yosef and A. M. Khazanov (eds), *Pastoralism in the Levant: Archaeological Materials in Anthropological Perspectives*. Madison: Prehistory Press.

Zohary, M. (1973) *Geobotanical Foundations of the Middle East*. Stuttgart: Gustav-Fisher Verlag.

— and Hopf, M. (2000) *Domestication of plants in the old world: the origin and spread of cultivated plants in west Asia, Europe, and the Nile Valley*, 3rd ed. Oxford: Oxford University Press.