A Living Landscape : Bronze Age settlement sites in the Dutch river area (c. 2000-800 BC)

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8 Synthesis: a living landscape

8.1 Introduction

This chapter provides a synthesis of the data and interpretations offered in this study. It aims to answer the question why the Dutch river area – particularly during the (Middle) Bronze Age(-B) – should be labelled a 'living landscape'. This calls for a narrative in which data on geological properties of the river area (Chapter 2), known settlements (Chapter 4) and specific analyses of the general nature (Chapters 5-6) and dynamics (Chapter 7) of Bronze Age occupation is recombined. This involves analyses focussed on understanding the interplay of the various different arguments put forward in this study, but now at an interpretative scale surpassing that of the preceding chapters. Instead of targeting particular settlement site elements, their interplay or long-term settlement dynamics, in this chapter I aim to characterize the essential elements of the Bronze Age cultural landscape in the Dutch river area and the communities present in it.

This entails a narrative in which technical observations on – physical properties – of the Bronze Age cultural landscape are supplemented by more interpretative comments on the societies at hand. I will argue that the essential property of the Bronze Age cultural landscape is (the process of) categorization. Taking examples from the structuring of house-sites and settlement site space, I will show that landscape parcelling may have been instrumental in achieving a physical compartmentalization of space. However, I will also show that while such landscape structuring may seem extensive and uniform, Bronze Age societies by no means cloned pre-defined 'templates' onto blank landscape canvasses . Rather they were knowledgeable landscape 'readers' that incorporated or sometimes even copied landscape traits in the (archaeologically visible parts of their) cultural landscape. Moreover, I will argue that the process of categorisation may have played a significant part in the spatial separation of the domestic, funerary and ritual domains of Bronze Age societies. Monumental burials, long-term deposition zones and settlements seem to have occupied distinctly different places in the cultural (dynamic) landscape.

The study of object deposition may help to identify and map the distribution of such spatial domains. Therefore, in this chapter attention is paid to patterns of object deposition. In this, not only the often studied metalwork from 'wet' places in the landscape is discussed, but particular attention is given to the evidence for depositional activities within settlement sites and the categories of material culture that figure most prominently in them (*i.e.* pottery, querns and animal skulls).

At the close of this study, I will finally deal explicitly with the characterisation of the Dutch river area as a Bronze Age 'living landscape' and discuss some directions for future research. In these final sections, comments and suggestions are provided that may help academics, field archaeologists as well as heritage professionals to better identify, protect and study Bronze Age settlement sites from the Dutch river area.

8.2 The Bronze Age cultural landscape

The essence of the (Middle) Bronze Age(-B) cultural landscape is in the new ways and scales in which landscape use was compartmentalized. However, there is eminent risk in assigning inappropriate significance to the most (archaeologically) visible parts of the cultural landscape. Nonetheless, it is clear that the extent and ways in which the areas around Bronze Age settlement sites were parcelled and integrated into settlement site space, differed distinctly from preceding periods.

8.2.1 A man-made landscape: the role of fences

The excavations executed at Meteren - De Bogen, Rumpt - Eigenblok and Zijderveld have all provided vivid examples of the extent to which space in and around settlement sites was parcelled with fences (*cf.* figs. 4.19, 5.45-5.46). The nature of these fence-systems has been labeled bi-axial, as the majority of fence-lines are generally orientated parallel or perpendicular to a dominant axis of landscape structuring. Natural phenomena, such as the orientation of residual gullies or levee deposits, may have determined or influenced the orientation of such dominant axes of orientation. Generally, the lack of datable material and limited spatial extents of the excavations, do not allow investigation of whether such systems started as a single-axis (*i.e.* strip) parceling, to which sub-divisions by perpendicular fence-lines were later added, or whether they were bi-axial from the start. The fluidity of such systems should also be

stressed, and at all sites various fence-lines can be reconstructed that, because of their deviating orientation or curvilinear trajectory, cannot be interpreted as evidently belonging to a single bi-axial system. In addition, it is generally difficult to recognize individual plots within such systems of fences.

This near absence of identifiable plots is an important observation. First, it may indicate that in the processes of creating and defining settlement site space, confining plots seems not to have been the primary aim. Only very rarely do curvilinear trajectories of fences suggest that they were intended to enclose a particular plot from the start (*cf.* fig. 5.47). In this aspect, Middle Bronze Age parceling strategies differ markedly from later prehistoric 'celtic field' systems, in which there appears to be a more rigid and uniform strategy of creating roughly square *c.* 20 to 40 m plots.[1] Moreover, this implies that delimiting house-sites was not the reason for the creation of such systems in the first place (section 6.5). Second, another reason why no identifiable plots can readily be recognized may be the fact that the parceling systems are multi-phased. Especially at De Bogen (fig. 4.19) and Zijderveld (figs. 6.26-6.27), it is clear that fence-systems were reconstructed over time. While the limited durability of exposed small-diameter softwood stakes may have necessitated upkeep (table 3.8), it seems that rebuilding rather than repair was the common solution. The nature of the systems (*i.e.* a bi-axial system of fences using both single- and double stake types of fences) does not appear to change between phases, although the orientation is sometimes (slightly) different and the location can be off-set by several meters. The presence of such reconstruction phases explains the close (*e.g.* at 10 m or less) proximity of parallel fences, such as at Zijderveld (fig. 8.1), which – if considered contemporaneous – seem to be placed impractically close to each other for agricultural uses. Moreover, repeated rebuilding of fences may have led to dense bundles of fences like those present in parts of the Zijderveld (fig. 8.1) or Enspijk (fig. 7.14) excavations.

Although Middle Bronze Age fence-systems may have defined particular plots for agricultural use and have *de facto* delimited some Middle Bronze Age-B house-sites, I have argued that such functionality was not the prime or sole reason for their construction. Evidently, considerable effort was made by Bronze Age communities to create and maintain very extensive fence-systems (spanning areas of several hundreds of meters) that physically connected to, and shared orientation with house-site elements. Such systems may have been primarily about integrating the wider environment into settlement site space. Had only purely practical motives to fence-off areas been at play, a system in which – piece by piece – different plots were fenced and used could have functioned just as well. However, this option was not chosen. Rather, a tangible mark was made on an extensive area, presumably from the very start of habitation. These fence-systems were presumably not constructed as claims of ownership or functional (pre)destination, although both may very well have been conveyed after construction.

Probably, such fence-systems were essentially about the domestication of space. From the very start of landscape occupation, Middle Bronze Age communities deemed it necessary to leave a human mark on an area that was much more extensive than that of individual farmsteads (*cf.* section 6.5). It may hint at the fact that these communities strived to render physical an ambitious aspiration to acculturate space (*cf.* Lovell 1998, 72; Field 2001, 59). Possibly, Bronze Age communities considered it important to convey to 'others', that the former (if any) human use of the landscape was to change, and that this change was to be carried out by their hands, in agricultural modes. Such 'others' are more likely to have been supernatural entities encountered in – and bound to – the yet 'wild' land, or mythical and ancestral entities, rather than humans. If in Bronze Age agricultural communities any anxiety existed over perceived boundaries at the border of settlement site space (as often documented in non-industrial societies, *cf.* section 5.5), they seem to have been keen on placing such boundaries at considerable distances from their houses. The fence-systems may have legitimized (change of) use of the landscape in non-legislative ways: they may have been used to carve-out a domain in which humans were to be the dominant and authoritative dwellers, as opposed to areas outside settlement site space where non-human, mythical or ancestral beings may have been perceived as being more prominently represented. If interpreted along such lines, the parceling of space was a necessary element

1 Spek 2004, 142; *infra*. See Bakker (*et al*. 1977, 194 fig. 7; 214-222); Reichman (1982, 438 fig. 2); Hagers (*et al*. 1992, 73 fig. 5b); Harding (2000, 162 fig. 4.15); Van der Velde (2008, 162 fig. 2) for examples of the shapes (often rectangular, possibly with rounded corners) of possible Bronze Age fields, often of uncertain age. Sizes of Bronze Age fields range between *c.* 0.07 ha (Noordwijk, EBA; Van der Velde 2008, 162 fig. 2) and *c.* 4-6 ha (Hoogkarspel, LBA; Bakker *et al.* 1977, 218), but surface areas of *c.* 0.10 to 0.17 ha seem more common (*cf.* Reichmann 1982, 438 fig. 2; Harding 2000, 162 fig. 4.15 on LBA(-EIA?) fields).

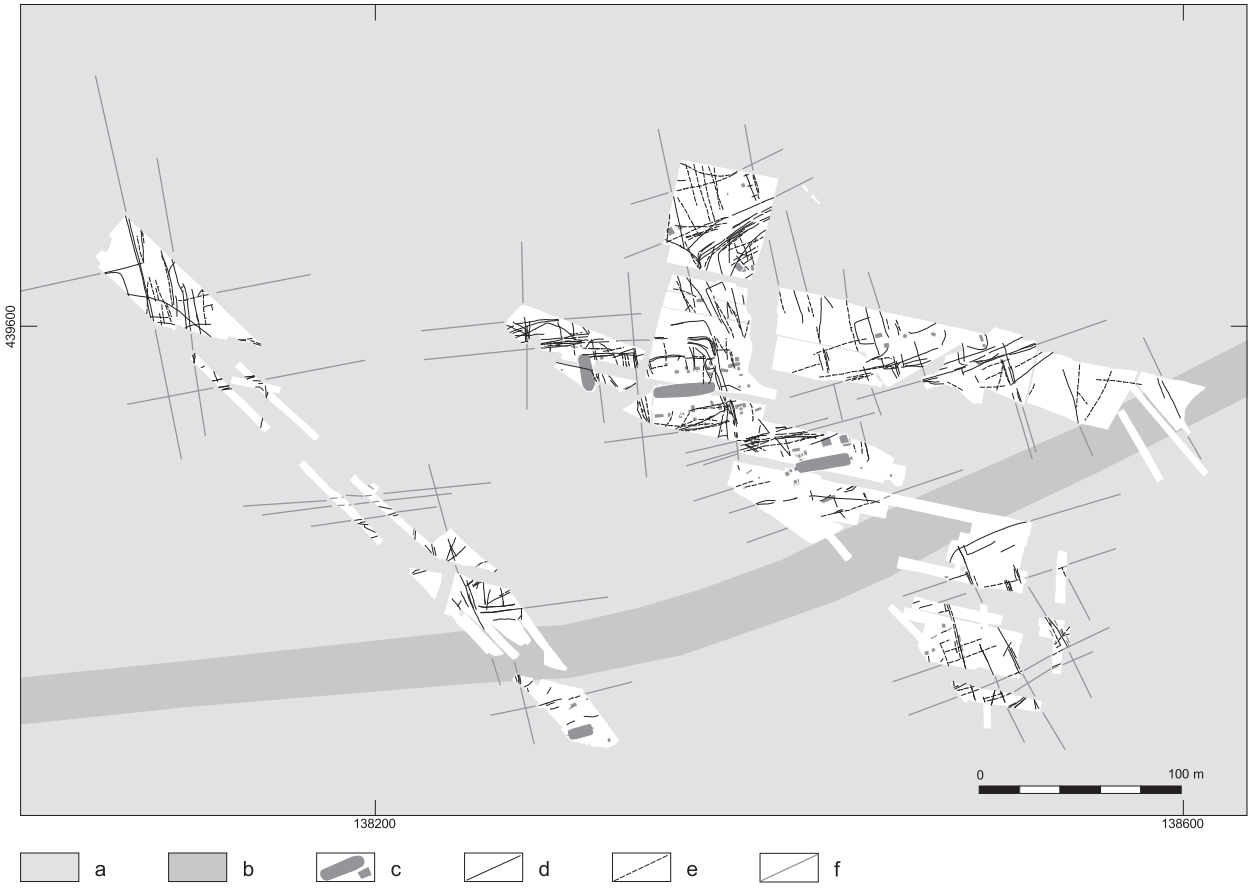

Fig. 8.1 Fence lines and hypothetical continued trajectories and Middle Bronze Age houses and outbuildings at Zijderveld.
a: not excavated, b: location of Zijderveld fluvial system's residual gully, c: Middle Bronze Age houses and outbuildings, d: single stake-type fence, e: double stake-type fence, f: hypothetical fence trajectories.

or prerequisite of the agricultural strategy, as it was crucial to the well-being and fertility of crops, people and livestock confined within it. The functional purposes of such systems, such as the definition of plots for cattle to be penned, as field boundaries or to ward-off livestock, were complementary to such more ideational reasons for their construction.

Unfortunately, several aspects of such Bronze Age parceling systems are still poorly understood. The evolution and internal chronology of these systems are particularly in need of detailed study, but preservation conditions rarely allow for extensive campaigns of absolute dating. For example, it is unknown whether certain stretches of fence were constructed first, or relatively early (prior to houses?) and to what extent they may have guided later filling-in or expansion of the fence-line systems. Even extensive excavations such as at Eigenblok or Zijderveld have not been successful in mapping the limits of such systems. In any case, they appear to span areas over 300 to 400 m in size. If the orientation of houses and fence-systems is anything to go by (section 6.4.3), the different orientation of houses at Eigenblok and at De Bogen (fig. 6.15) suggests that such systems did not bridge the four kilometers that separates these sites.[2] I have suggested that this need not be a consequence of feasibility, but that the orientation of fences – and the houses and outbuildings within it – may have been deliberate community (boundary) markers during the Middle Bronze Age-B (*cf.* fig. 6.30). Another comparatively unknown property is

2 *Cf.* Field (2001, 59), who argues that individual Bronze Age field systems in the United Kingdom usually cover areas of 4 km length by 2-4 km width.

the density of house-sites and other settlement site elements within such systems (*cf.* fig. 8.4). Due to the frequently confined or fragmentary extent of the excavation trenches, it is often clear that fence-systems continue, but unclear whether house-sites were present there as well (*e.g.* in the western trenches at Zijderveld; fig. 8.1). This can only be investigated by more extensive excavations in areas with adequate preservation conditions.

To conclude, it should be emphasized that the nature of this land-division system is something that appears to be typical of the Middle Bronze Age(-B) cultural landscape in the Netherlands. While fences and fence-line enclosures from the Neolithic are known (Waterbolk 1960; Hamburg & Louwe Kooijmans 2006), they are distinctly different from those of the Middle Bronze Age. The Neolithic use of fences may have been predominantly about delimiting and defining small parts within the (cultural) landscape. Neolithic fence trajectories are frequently rounded to curved and sometimes correspond to the distribution of finds. They are thus more about 'encircling' and 'setting apart' a (domestic) site. The Middle Bronze Age fence-systems, by contrast, convey notions of 'division' and 'integration'. Thus, while technically comparable, this may be a contrast between an inward and an outward perspective. To relate such different perspectives to different agricultural uses of (*e.g.* manuring), and/or perspectives on, the vicinity of domestic sites is difficult (Arnoldussen & Fontijn 2006) and in need of more detailed study. A discussion of when exactly such fence-systems came into being is complicated by the low numbers of settlement sites known for the Early Bronze Age and Middle Bronze Age-A (sections 5.2.1-5.2.2; 7.2.3-7.2.4). A comparable problem occurs with the Late Bronze Age, for which again comparatively few settlement sites are known (sections 5.2.4; 7.4.2). No comparable fence-systems have been uncovered on Late Bronze Age sites thus far. The closest parallels in space and time may be the 'celtic field' systems known from the Pleistocene areas, whose exact chronologies are as yet still poorly understood (Spek *et al.* 2003; Gerritsen 2003, 167).[3] In short, while the fence-systems described above are typical for the Middle Bronze Age-B cultural landscape,[4] one should be hesitant to altogether dismiss their presence beforehand in directly preceding and ensuing periods.

8.2.2 The nature and distribution of Middle Bronze Age-B house-sites

One of the main goals of the present study was to investigate the nature of Middle Bronze Age house-sites. I have argued that using an ill-defined 'farmstead' concept (*i.e.* using it as shorthand or catch-all terminology for settlement site remains) leads to a hollowing-out of its associated meanings (section 3.2.2). In addition, I have suggested that archaeological conceptions of prehistoric farmsteads may partly have been derived from inordinate analogies with (sub-)modern farmsteads (section 1.2; *cf.* Brück 1999a, 64). As a way out, the technique of 'Visual Analysis of Spatial Overlays' was forwarded as a tool to compare Middle Bronze Age house-sites and test specific hypotheses based on established notions of what the nature and dynamics of such house-sites were (presumably) like (Chapter 6). While this technique (VASO) facilitates comparability and does answer certain – as yet poorly investigated – properties of prehistoric house-sites, it also has several limitations.

To start, the chronological resolution is often poor, which means that the data set is prone to distortion in the case of multi-period sites. Consequently, it is also hardly informative on the internal evolution of house-sites. For example, questions like 'Which elements were first established, and in what order were repairs and replacements undertaken?' cannot be answered. The VASO results do, however, clearly show distinct spatial patterning (*e.g.* the preferred placement of features or structures, conformity of orientation within and between house-sites) and frequency of occurrence (*i.e.* correlation) of specific settlement site elements on house-sites. Yet by and large, the

3 In any comparison of (Middle) Bronze Age fence-systems to the 'celtic fields', it is important to stress the differences in intentionality and causality. Whereas Bronze Age fence-systems appear to have been structures that were principally intended as landscape parcelling features (*i.e.* literally *landscaping*) and for which the delineation of plots for agricultural use presumably was a complementary or secondary aspect, the form and extents of 'celtic fields' boundaries are presumably more intrinsically – *e.g.* by cycles of crop-rotation and regeneration, manuring and gradual extension (Gerritsen 2003, 172-178 and references therein) or a combination of such factors – related to their function as crop-fields. This is a again a contrast between an outward (*i.e.* landscaping, integrative) versus an inward (*i.e.* enclosing, agricultural function) perspective.

4 *Cf.* Harding 2000, 151; Evans & Knight 2001, 85; 91 and references therein; Yates 2007 (and references therein), esp. (dating) evidence discussed for fences on pages 16; 25; 38; 61; 70; 93; 98; 112; Marcigny & Ghesquière 2003. See also Clay (2006, 16) for a fence-line field system in the United Kingdom dated to *c.* 1390-1040 cal BC. Older (*e.g.* Late Neolithic; Britnell 1982; Johnston 2005, 8) fence-systems are found in the United Kingdom as well (but see Yates 2007, 141).

way in which house-sites functioned in the wider agrarian economy of the Middle Bronze Age communities remains poorly understood. Nonetheless, some important observations can be made.

First of all, this study has shown that delimiting structures such as surrounding ditches and fences that are typical to (sub)modern house-sites, are generally absent from Middle Bronze Age house-sites in the Dutch river area. Only in incidental cases (fig. 5.47), have fences been used to deliberately gird house-sites. For the ditches encountered at some Middle Bronze Age house-sites in the study area, their drainage function was most important and they seem to have been *placed on* – rather than to have *defined* – house-sites (section 5.6). In this aspect, the Middle Bronze Age occupation in the river area differs from that on the creek-ridge landscapes of West-Friesland. There, particularly at the end of the Middle Bronze Age-B and start of the Late Bronze Age, ditches are more common and ditch-systems seem to be present between and around individual house-sites (section 5.6, *cf.* figs. 5.53; 7.8). Considering the fact that in the river area preservation conditions were adequate, it is evident that archaeologically visible boundaries of house-sites, were not part of the Bronze Age mental template of 'what house-sites should look like'. But what does this mean?

In any case, discussions of property and ownership are moot points. To infer communal ownership of (settlement) land from the absence of parceling structures is myopic. Not only may such boundaries very well have been present but not archaeologically visible, but I have also given several examples of boundaries (in non-industrial societies) which are enforced, yet partly to fully notional.[5] Conversely, from the documented fence-systems (*supra*), no private land-ownership can be inferred. Essentially, ideas on ownership of land are hardly archaeologically visible and may have ranged (in scale) from personal, household, kin group, local community to ancestral ownership, and may be expressed differently depending on the context.[6] The absence of individual house-site delimiting structures and the integrative and extensive nature of the fence-systems that incorporate multiple house-sites, suggests that land was not owned, used or worked by single households. I would argue that life at Middle Bronze Age settlements was not so much *focused at*, but certainly *based on*, coping with the risks inherent to the agricultural strategies and the landscapes in which they were played out. Such risks were perhaps best shared.

This is no nutritional determinism, but simply it stresses the fact that risks were minimized and solutions sought to maintain living in specific landscapes in the long run, and to facilitate the execution of tasks and activities that Bronze Age communities may themselves have considered more important or pleasurable than the ongoing work of mixed-farming. Moreover, I have argued that the proximity of helping hands, whether related by blood or not, may have been vital to the success of (particularly starting) agricultural households. For example, without the initial sowing grain, exchanges of breeding stock or extra hands offered during harvesting or house construction, coping would have been much harder to impossible (*cf.* section 3.4.1). The fact that in the Dutch river area (and in West-Friesland) during the Middle Bronze Age-B agglomerations of house-sites develop (Chapter 4, *cf.* fig. 7.9) presents a conundrum. If we assume that the areas around houses were put to agricultural use (be it as gardens, fields or pastures) there is less surface area available at close proximity in the case of house-site aggregation. Ergo, was the proximity of helping neighbours a prerequisite for sustained (agglomerated, nucleated) occupation, or conversely, were the agricultural yields sufficient to allow for such agglomeration? The truth is presumably situated midway between such extremes of sociological and ecological determinism. Moreover, I have argued that the distribution of clustered house-sites need not be confined to the river area and West-Friesland. Several sites in other geogentic regions yielded multiple house plans of comparable type and orientation within a single settlement site, which may suggest contemporaneity (section 7.3.6, esp. note 144).[7] But are such agglomerations from different regions comparable?

The agglomerations in the river area stand out in analyses of the house-site use-histories (as do those in West-Friesland and the coastal area; table 7.2). Houses on Middle Bronze Age-B house-sites in the river area were rebuilt quite frequently (*c.* 10-17 %; table 7.2). As I have shown that wood-decay need not have necessitated rebuilding during at least two (to three?) human generations of use (section 3.4.2), this rebuilding reflects intentions

5 See this study page 251, note 267; 329 note 96.

6 Bloch 1975; Fokkens 1999, 34; Gerritsen 2003, 114; 179-180, *cf.* Roymans & Kortlang 1999, 40; Brück 2000, 282; Earle 2002, 326-327.

7 Due to poorer preservation conditions in the other regions, it is frequently unclear whether systems of fences were present there that may have steered or bound properties (*e.g.* orientation or placement) of house-sites like in the river area.

to prolong occupation of particular house-sites in the long-term. This attitude of 'we are here to stay' is vividly illustrated by the house rebuilt three times at De Bogen site 30 (fig. 7.7, *cf.* Van Regteren Altena, Buurman & IJzereef 1980, 30). Moreover, I have argued that the sedimentological (*e.g.* nutrient composition and drainage; sections 2.5 and 3.4.4) and topographic (*e.g.* mosaic and gradient-rich; section 7.3.4) properties of the fluvial landscapes that these communities settled, may have been ideal for the combined and interdependent crop-cultivation and livestock herding that formed the core subsistence strategy (fig. 7.11; Louwe Kooijmans 1993a, 104). It is this close proximity of active water courses, excellent pastures and crop-field locations that may have been the main factor attracting Middle Bronze Age occupation in the central Dutch river area. The rebuilding of houses (and other arguments for the long-term use of house-sites; sections 3.4.2, 6.4.2 and 7.3.2) and possibly also the agglomerations of house-sites indicate that a successful agricultural strategy must have been in place.

But what about the other regions? For example, what does the much less frequent occurrence of rebuilt houses and larger distances in-between houses in the southern coversand areas indicate? It is tempting to interpret this as reflecting a different system of settlement dynamics, related to differences in subsoil. Put provocatively: are some of these house-sites on the Pleistocene soils attempts at bringing a landscape under cultivation that could (locally?) not sustain (prolonged?) clustered occupation? A mode of exploitation in which after a single occupation phase the house-site was relocated beyond the depleted soils, would indeed result in a pattern of more widely spaced, single phased house-sites. Here I verge upon ecological determinism and there are various points that have to be kept in mind. First, such interpretations assume that some of the social or agricultural pillars upkeeping everyday life could not be maintained in the long run. Soil depletion is commonly forwarded as a possible culprit, but the local severity and applicability of this phenomenon is in need of further study (section 3.4.4). Alternative, or complementary, factors like the absence of suitable meadows, nearby farmhands or difficult exchange of breeding stock may also have been more problematic. Perhaps it is thus no coincidence that in the very extensively excavated (over 50 ha) coversand area north of the town of Oss, the (single-phased) Middle Bronze Age house-sites are all confined to a zone directly bordering the river clay area (fig. 8.2; Jansen & Arnoldussen 2007). This was a zone that (like the levee- and crevasse deposits of the central river area) was graded and thus offered different vegetation types close-by, with grazing grounds near the Meuse precursor and with possibilities for crop-cultivation on the higher sandy parts at close distances.

Yet, some more pitfalls remain. Not only is the subsistence strategy known for (and from) wetland areas extrapolated to include the upland areas,[8] but Bronze Age local communities are also robbed beforehand of the flexibility to adapt subsistence strategies. While the subsistence strategies within the river area (and from other wetland areas; Clason 1999; Arnoldussen & Fontijn 2006) are reasonably uniform, direct data from upland sites are much needed. In addition, it should not be overlooked that the wider inter-house distances and smaller numbers of multi-phased house-sites may just be the result of regionally different settlement dynamics. For comparison, the extension of houses like that which occurred at the end of the Middle Bronze Age-B in the north-eastern Netherlands, is also regionally specific (table 7.2). Possibly, future research will also show the dominance of multi-phased house-sites in the (near-)coastal areas to be an equally regionally specific pattern (*ibid.*). In such regional variations of what proper house-site use-life was (*e.g.* single phased, houses extended or rebuilt), cultural traditions are reflected. House-site processes such as relocation or rebuilding may have been valued cultural (community) traits, rather than compulsory reactions to technical limitations posed (*e.g.* soil depletion, wood decay). This may serve as a warning against overly (mis)interpreting the river area (and West-Friesland), where rebuilding of houses was frequent, as a 'Garden of Eden' whilst characterizing the Pleistocene regions as areas where only single-phased experiments in marginal locations took place. For example, the rebuilt houses of Sittard-Hoogveld (Tol & Schabbink 2004, 23 fig. 13), Venray (fig. 5.19, D) or Colmschate house 8 (Verlinde 1991, 34 fig. 3) show that outside the Holocene areas, particular locations were also used for sufficient time and/or with sufficient success to warrant the rebuilding of the farmhouses.

Having discussed in somewhat more detail the regional differences in the use-life and spatial proximity of house-sites above, let us now return to another fundamental question: can Bronze Age farmsteads be identified and if so, what was their essence? I have already made clear above that, as far as the physical aspects of Middle Bronze Age

8 For which little direct evidence on, for instance, livestock spectra is known, *cf.* Arnoldussen & Fontijn 2006, 308.

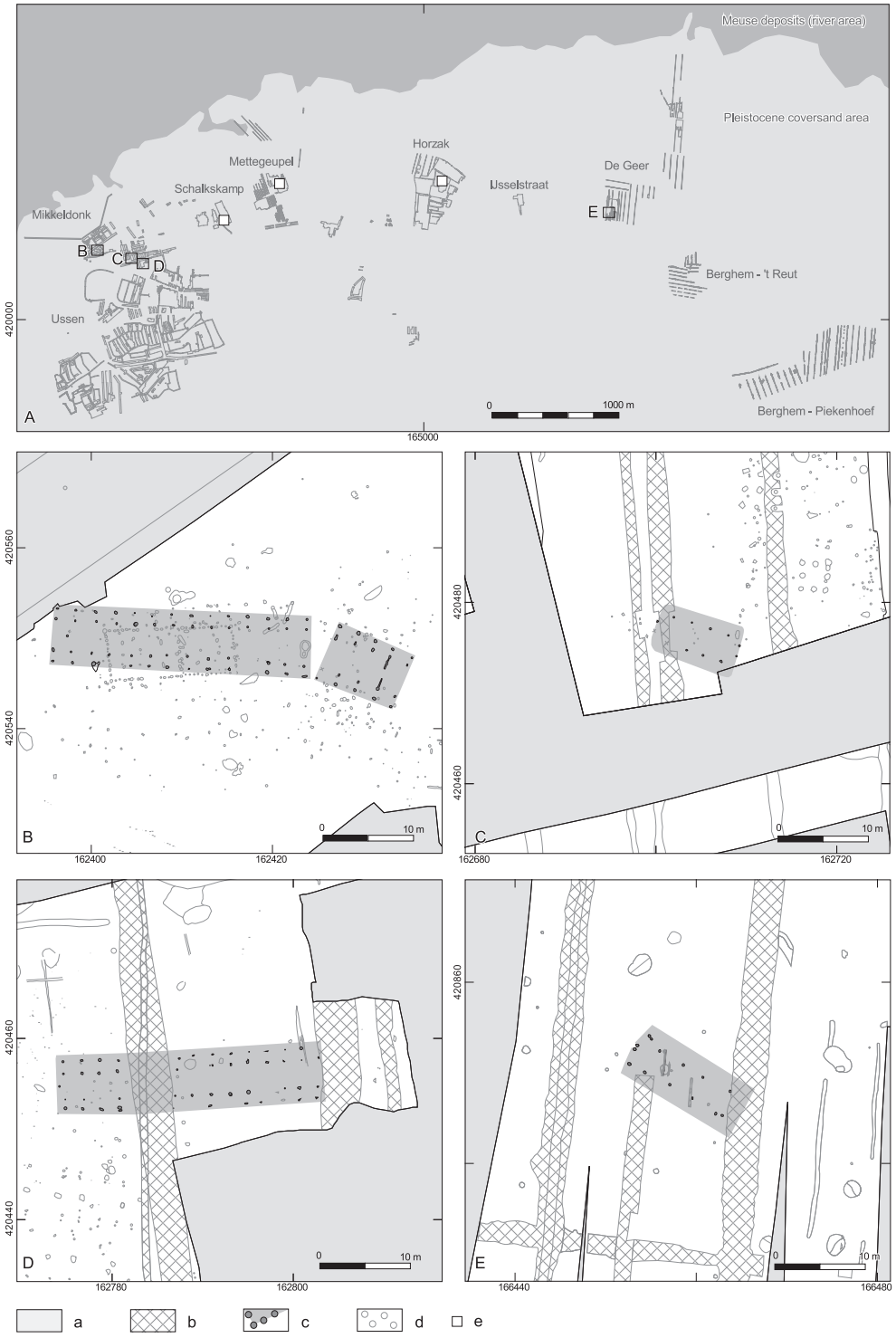

Fig. 8.2 Overview (A) of the location of Middle Bronze Age house-sites to the north of Oss in relation to the physical landscape and detailed views of the house-sites (B-E), after Jansen & Arnoldussen 2007, 31 fig 7.

a: not excavated, b: recent disturbances, c: Bronze Age structures, d: other features, e: concentrations of Bronze Age features and/or finds.

house-sites are concerned, delimiting features were presumably not a constituent part of them. Under the scrutiny of VASO, disappointingly few typical elements of Middle Bronze Age house-sites in the Dutch river area could be outlined. I have shown that besides their defining houses, only the granary-type outbuildings can be understood as being constituent parts of the house-site (section 6.4.2). Such outbuildings are generally found at short distances from the houses (fig. 6.20), conform to them in orientation (fig. 6.37-6.56) and retain their type of ground plan, placement and orientation in relation to the house if rebuilt (fig. 6.17). There is sometimes correspondence in placement of outbuildings in relation to houses between different house-sites within a settlement site (fig. 6.12), but the variation is considerable. If compared for all house-sites between different settlement sites, this variation remains. Yet still, it is far from arbitrary: granary-type outbuildings were commonly placed next to the long sides of farmhouses and somewhat distant from the farmhouse's 'corners' (fig. 6.14; outbuildings). Whereas the exact placement of outbuildings may have initially (*i.e.* upon house-site construction) been open to individual (*i.e.* household) choice, this was no longer the case when rebuilding, nor was it considered appropriate to place them at large (> 35 m; fig. 6.22) distances from the farmhouses. This latter norm was apparently shared between settlement sites (in the river area), whereas the rules of exact placement on the house-site, were open to manipulation at settlement site and household level.

No other settlement site elements are as strongly associated with Middle Bronze Age farmhouses in the river area as are the granary-type outbuildings. The presence of larger (barn/shed) types of outbuildings is infrequent, and they show much internal variation and no evident structural or spatial relations to the houses (section 5.3). Pits, which are frequently claimed to have been used (secondarily) for the disposal of rubbish near the houses, generally contain few finds (sections 5.7 and 6.4.4). Moreover, their distribution is generally bound to settlement site space rather than to individual house-sites (*ibid.*, *cf.* fig. 6.10). Within this broad distribution, the density of pits appears somewhat higher on the highest parts of the micro-topographic landscape (*e.g.* section 6.3.9; figs. 6.31-6.32), which may have resulted from an initial use that required dryer soil conditions (*e.g.* storage, processing of organic materials?). Only in incidental cases, do pits occur in a spatial association to farmhouses that allows us to postulate that they were once part of the house-site (*e.g.* fig. 4.24). Wells too did not prove to be principle Middle Bronze Age house-site elements. While some evidently did occur on house-sites, wells are also frequently found in clusters beyond them.[9] As such clusters can span from the Late Neolithic to the Bronze Age in date, either oral traditions or above-ground phenomena (such as visible depressions of the surface and – more probably – vegetation) must have given clues to the occupants as to where good accessible aquifers were located. Such recurrent placement of wells in particular parts of the landscape illustrates that Bronze Age communities did not simply force mental templates of 'proper' house-site or settlement site structuring onto blank landscape canvasses, but rather that landscapes were 'read' by knowledgeable readers.

Some other examples of possible landscape reading and referencing have been brought to the fore in this study, such as the corresponding orientation of fences (and houses) at Zijderveld and Enspijk to nearby residual gullies (figs. 7.13-7.14) or the trajectory of the possible Middle Bronze Age ditch south of Wijk bij Duurstede - De Horden (fig. 5.55). Here too, the options for manipulation of placement are specific for different elements: pits and wells may have been more bound to (different) specific landscape locations, and this relation (largely for practical reasons?) overruled any benefits or preferences of having such features on every house-site. Yet, by contrast, similar 'reading' of the micro-topographic landscape *could* have been used to place houses along landscape gradients or aligned to the shape of the highest parts of the micro-topographic landscape, but this was almost never the case (section 6.4.1). Clearly, in general, house orientation was bound by rules that outweighed 'practical' or landscape (morphology) conforming placement, and the conformity of the dominant axes of fence-systems to those of the houses at some sites suggests that this set of rules applied (by cross-referencing?) to both. One can assume that the construction of the first 'correctly' orientated fence-line or house on a settlement site would have been a highly conspicuous event, presumably involving specialists, rituals and criteria beyond the reach of direct archaeological observation.

9 Wells on house-sites; *e.g.* fig. 6.38, B; D; fig. 6.40, D; fig. 6.44, D, wells beyond house-sites; *e.g.* fig. 4.16, F-G and at Tiel - Medel 8; De Leeuwe & Van Hoof 2007.

By arguing that fences, barns, pits and wells were presumably *not* constituent elements of house-sites,[10] have we perhaps reduced the contents of Bronze Age farmsteads to something which bears little meaning? To put it more simply: should we not speak of 'house and granary' interrelations, rather than of 'farmsteads'? I feel that the former may be too analytical and not in line with Bronze Age notions, but direct evidence is limited. Yet, the correspondences between the distributions of outbuildings (fig. 6.22), that of finds in cases of adequate preservation (fig. 6.36) and the distances between farmhouses (table 6.3), suggest that a zone of 10 to 40 m around the farmhouses was used differently from other areas within the settlement site (section 6.5). But does this zone classify as a farmstead?

For analytical purposes, I have forwarded a definition of farmsteads as an interpretative label for structured farmhouse environments.[11] While Middle Bronze Age house-sites were placed *within* a structured environment (section 8.1), the placement of granary-type outbuildings on house-sites seem to be the single ubiquitous structuring *on* house-sites detectable archaeologically. It is for archaeologists among themselves to debate whether such structuring is enough to legitimize the use of interpretative labels such as 'farmsteads'.

Moreover, to what extent are prehistoric structured house-sites comparable to (sub)modern farmsteads? The literature on historical and modern farmsteads is extensive, diverse and regionally specific (Chapter 6, note 3). Much attention is devoted to (the regional specifics of) construction histories and types of buildings, the (changes in) garden usages and the spatial distribution of gender-specific activities and functionalities (*ibid*.). These are aspects that can only be studied from an archaeological perspective with great difficulty. Nonetheless, they all relate to the essence of historic and (sub-)modern farmsteads as activity areas for domestic and agricultural tasks. This is one of the key problems with the 'farmstead' as an archaeological term. Archaeology has taken a concept that not only derived from a domain of knowledge which is based on observative and historic research, but moreover a concept that *within* that domain is concerned with relations between architecture and the spatial distribution of human behavior, both of which are topics rather than data sets in archaeological research. Therefore, the functional logic that steered the placement and functions of buildings, vegetation and open areas on historic farmsteads (*cf.* section 6.3.1) can only be used as a tentative analogy for prehistoric farmsteads. The premises underlying, and the specific applicability of, such analogies warrant caution and more detailed study. Agricultural strategies, household composition (*cf.* section 3.4.1) and domestic tasks may have differed significantly.

In particular the farmstead boundaries typical to (sub-)modern farmsteads must be understood within a modern system of inheritance and land ownership, which I have argued above is unlikely to apply to prehistoric notions of tenure.[12] It is no coincidence that the word 'farmstead' and its Dutch counterpart *erf*, both have an etymology referring to legislative aspects of property taxation or transmission.[13] Archaeology is perhaps better off using concepts that tie-in with and spring from the data sets available, such as the house-site concept (section 3.2.2), instead of cross-disciplinary cherry-picking of a concept that differs so much in research methodology, research aims and connotations. For archaeologists the question should not be: 'Were Bronze Age house-sites like (sub-)modern farmsteads?', but 'What were Bronze Age house-sites like?'.

In this review of the nature and distribution of Middle Bronze Age house-sites, one final point needs (again) to be emphasized. The patterns of house-site structuring have nearly exclusively been investigated for the Middle Bronze Age-B. To argue that this is a consequence of the more difficult recognition of houses during preceding and ensuing periods (sections 5.2.1, 5.2.2 and 5.2.4) – while true – would be to miss the point. Although for the preceding Early Bronze Age and Middle Bronze Age-A the number of known settlement sites is indeed low, they nonetheless show a different form of settlement site structuring. Standardization of house construction seems not to have mattered, human and animal burials on settlement sites were more common and the extensive bi-axial fence-systems, regular houses and associated outbuildings typical to the Middle Bronze Age-B, are absent (*cf.* Arnoldussen & Fontijn 2006). The role of settlement sites within the cultural landscape will have been different (*e.g.* more nodal,

10 Which is not the same as stating that they were never house-site elements, but rather that these were not *constituent* elements (*i.e.* a *condicio sine qua non*).

11 *Cf.* section 3.2.2, see section 6.2 for a comment on the concepts of 'structure' and 'order' in this context.

12 See also Johnston (2001, esp. 100-103) for an anthropologically informed view on tenure in Bronze Age contexts.

13 Oxford English Dictionary Online 2007, 'farm'; Philippa, Debrabandere & Quak 2003, '*erf*', *cf.* Kotchemidova 2003; Huijbers 2007, 89-91.

Fig. 8.3 Overview of the barrow, houses and outbuildings at Elp (after Waterbolk 1964, pl. 1; 1987).
a: not excavated, b: recent disturbances, c: postholes associated to houses, d: pits associated to houses, e: other features, f: graves.

i.e. a stronger spatial contraction of agricultural and domestic tasks) but the timing and sequences of how this changed into the later Middle Bronze Age-B cultural landscape (*infra*) is ill-understood and deserves further study.

For the Late Bronze Age period as well, some changes in the nature of the house-sites can be observed, despite the comparatively poor data set. The discovery of a settlement site used in both the Middle Bronze Age-B and the Late Bronze Age at Tiel - Medel 8 (Van Hoof & Jongste 2007), offered the rare opportunity to compare house-site structuring between these periods, without the problems of comparison otherwise posed by geographic differences and distances, a different excavation methodology or different preservation conditions. Essentially, the *elements* of Late Bronze Age house-sites are from an archaeological perspective comparable to those of preceding periods. The observed reasonably long, mostly three-aisled houses, granary-type outbuildings, pits and wells all compare well to those of the Middle Bronze Age-B. Their *interrelations*, however, are markedly different.

The formerly relatively strict spatial proximity and conformity in orientation between farmhouses and nearby outbuildings is lost (*cf.* fig. 6.55 versus fig. 6.58). In addition, a much larger number of outbuildings in relation to the number of houses can be observed, which are more widely distributed across settlement site space (*e.g.* fig. 7.15, *cf.* section 6.4.2). Moreover, the orientation of houses and rules of spatial avoidance within a single settlement site were possibly more open to manipulation (*cf.* fig. 7.15). While comparable type-1a fences (and palisades) are still found, they are no longer part of extensive, bi-axial systems comprising comparatively straight fence-lines. Type-2 fences do no longer occur (section 5.5). When (and why) exactly these aspects changed is again ill-understood, but data from sites where similar patterns occur,[14] such as at Elp (fig. 8.3), may lead to speculations whether these changes may have already started during the last (two?) centuries of the Middle Bronze Age-B.

8.2.3 Separate domains? Categorization in the Middle Bronze Age cultural landscape

In the sections above, much attention has been paid to the structure of Middle Bronze Age-B settlement sites and the house-sites within them. At this point, the role of settlements within the wider cultural landscape is addressed. Such a discussion must first deal with a fundamental problem: where to situate the boundaries of Bronze Age settlement sites.

8.2.3.1 Settlements; their boundaries and occupants

While I have argued in favour of the contemporaneity of a number of Middle Bronze Age-B houses at settlement sites in the river area (*supra*), I have also shown that the fence-systems within which they are placed, extend over hundreds of meters (figs. 4.19, 7.12 and 8.1). As the areas more distant from the houses have generally not been excavated in full, it remains unclear whether any house-sites are present there. Therefore, two scenarios can be forwarded. Either extensive fence-systems are present, within which (in some parts) house-sites were accommodated (fig. 8.4, A), or alternatively, the presence of fence-systems is bound by the distribution of house-sites (fig. 8.4, B).

The current data on this topic, because of the limited spatial scale of most excavation, is inconclusive. On the one hand, the absence of house(-site)s in the western- and easternmost parts of the Zijderveld excavations suggests the former scenario (fig. 8.1), while on the other hand, the high density of house(-site)s and extensive fence-systems at De Bogen (fig. 4.19) possibly ties in better with the latter scenario. The continued in-filling (*i.e.* compartmentalization), extending and adaptation of the initial (long?) axes of orientation of the reaves at Dartmoor, may provide an analogy for the former scenario.[15] In any case, the boundaries of fence-systems around Middle Bronze Age houses need not to be found within several hundreds of meters from the farmhouses. Arbitrary choices where exactly 'the settlement' ended may be made by distance from the houses, by the presence, absence or densities of features or structures (*e.g.* no more outbuildings), but such approaches perhaps bear little relevance to past behaviour, or are prone to error in palimpsest situations.

Particularly fields, livestock enclosures and pastures may have been perceived as ambiguous areas. There, human impact – as far as archaeologically visible (*i.e.* the subsoil penetrating activities) – may have been limited, save

14 *E.g.* more and spatially less strictly related outbuildings, overbuilding of houses.

15 Johnston 2005 and references therein; *cf.* Harding (2000, 153) who states that '…there is little indication that Bronze Age fields were ever laid out with any kind of master plan in mind.'. He also (*loc. cit.*) states that strip-cultivation is a logical mode for oxen-ploughed fields (yet see *op. cit*, 156; 158).

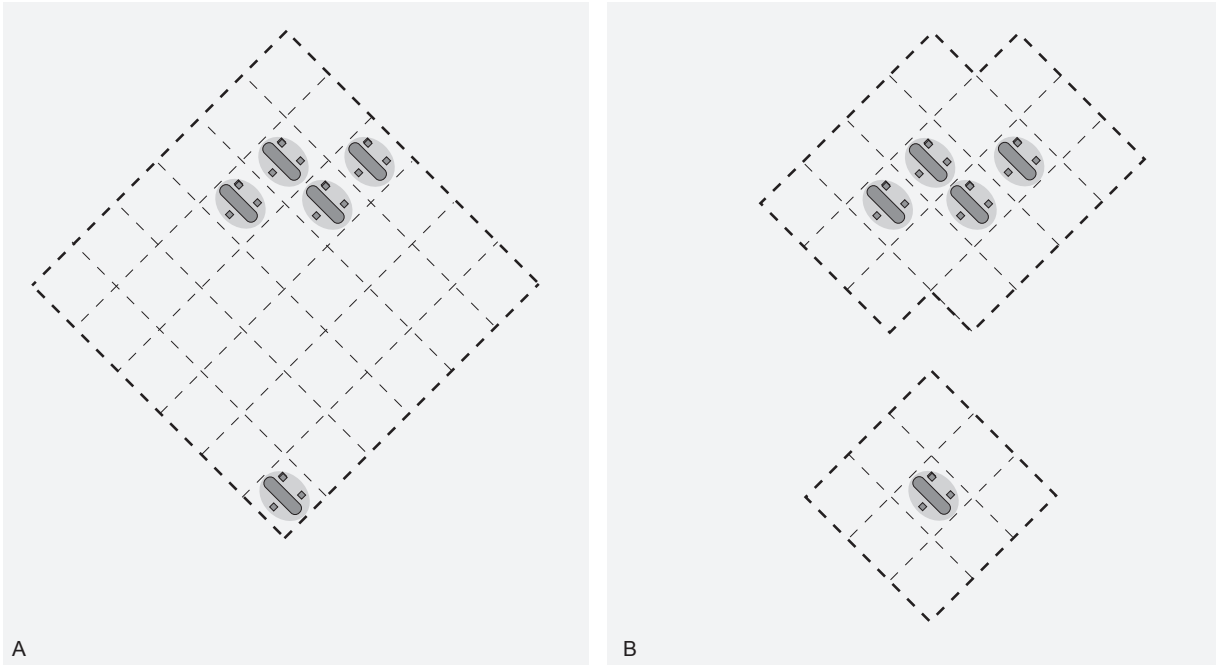

Fig. 8.4 Schematic interpretation of the possible causal relations between the distributions of house-sites and fence-systems during the Middle Bronze Age-B in the Dutch central river area. The houses may be situated within a singe encompassing fence-system (A, limits set by fences) or the distribution of fences may be steered by that of the houses (B).

for fence-lines and ard marks in places with adequate preservation. Were these locations conceived as a separate zone in the cultural landscape, set apart from settlement sites and uncultivated and relatively unaltered lands? Presumably this was indeed the case, but direct evidence is absent. However it seems probable that the different uses of these plots merited a different classification in the minds of the Bronze Age dwellers.[16] The functions and perceptions of different plots may moreover have been fluid and convertible. Perhaps the extensive fence-systems were instrumental in maintaining or facilitating such fluidity and changeability. While in one sense a classificatory problem (*i.e.* where to draw a boundary?), I have argued that it is exactly this integrative nature of the built-up part of settlements, and the fluidity of boundaries that it implies, that characterizes Middle Bronze Age settlement sites in the river area. However, even such extensive systems will have had limits, and possibly ditches served as community boundaries at the scale of several hundreds of meters (*supra*; figs. 5.54-5.55; fig. 7.8). But how was such communality expressed?

Although I have argued that co-existing Middle Bronze Age-B farmsteads may have been present in the Dutch river area, the joint participation in social and agricultural tasks that frequently underlie definitions of 'villages' (section 3.2.1) or 'local communities' (section 3.3.3), is hard to substantiate archaeologically. Nonetheless, the fact that five different axes were involved in the woodworking of a single nine-post granary-type outbuilding at Zijderveld (Knippenberg & Jongste 2005, 123) may suggest the involvement of more than a single household.[17] Again, I have already suggested earlier that cooperation may have been one of the pillars of fully autarkic small-scale agricultural communities (section 3.4.1). One might even suspect that socio-economic inequalities may be evened-out or suppressed in such communities with high degrees of interdependency.

16 *Cf.* Field 2001, 60. In addition to purely practical usage, one may wonder whether these locations were also considered to be different from house-sites or settlement sites in cosmological frames of references, for example due to the presence of (other?) entities or deities affecting cycles of fertility and regeneration. Considering that cattle skulls may have carried particular ritual significance (*infra*; section 8.2.3.10; fig. 8.10; table 8.2), it is at least valid to consider whether the locations in the landscape where the livestock was brought to (*e.g.* pens, fields, pastures) may also have held a ritual significance considered to be different from other locations.

17 The uncertainty of household composition (section 3.4.1, *cf.* Huijbers 2007, 249-257) and the possibility that a single person could possess five different axes, need of course to be taken into account.

Bronze Age societal structure

It is therefore remarkable, that for the southern Scandinavian Bronze Age settlement sites – which are comparable in nature, dynamics as well as in the scale and methodology of their archaeological investigation to those of the Low Countries[18] – a distinctly hierarchical structure is thought to be reflected in settlement sites.[19] There, a framework of interpretation centered on the presence of chiefly elites has been elaborated on since the nineteen-eighties, particularly by Kristiansen and Earle.[20] For instance, from such a perspective, size differences in farms are interpreted as directly reflecting a hierarchical society (Earle 1997, 29; 2001, 114; Kristiansen & Larsson 2005, 279). For example, Earle states that: 'We can assume that the larger houses were warrior and chiefly farms and smaller ones were commoner or perhaps cottager farms.' (Earle 2002, 305). Considering the similarities in Bronze Age settlement site data, does this mean that Dutch archaeology has failed to recognize clues for social stratification, or might it be that approaches to settlement site data and social structures are fundamentally different for both regions? I will argue below that the latter scenario is the more probable of the two.

8.2.3.2 Chiefs, farmers or farming chiefs?

In order to explore the potential of the Dutch Bronze Age settlement site data for information on social stratification, the arguments (and data sets) underlying the conclusions for the – particularly Danish – data must be understood. To start, several interpretations are seen as being in support of the interpretative framework of "chiefly warriors", or in more general terms, Bronze Age social stratification. The first is the observation by Kristiansen (1984) that the associations and use-wear patterns on flange-hilted and solid-hilted swords in funerary contexts may reflect two social categories; that of chiefs (whose solid-hilted swords were more fragile, lavishly decorated and hardly used) and warriors (whose flange-hilted swords appear more battered and sturdy; Kristiansen 1984). Second, the large farmhouses uncovered at Bjerre in the context of the Thy project, at Bdrd. Gram and Legård are – because of their larger than normal size and the presence of stalls – interpreted as chiefly halls.[21] Third, it is assumed that by intensifying livestock rearing – which created surplus available for bartering – chiefs could rise to power and extend access to, and control, the import and skillful production of bronzes (especially swords), the redistribution of which sustained warrior retinues.[22] Fourth, this social stratification is reflected in mortuary rituals, in which (warrior)chiefs have more, and more lavish grave gifts (which are, or reference, supra-regional symbols of elite rulership) than warriors, yet both were entitled to interment in (larger) barrows.[23] I shall now discuss some of these points in somewhat more detail and consider whether they also apply to Dutch Bronze Age societies.

Considering the different contextual associations and artefactual evidence such as resharpening traces, it may very well be that full- and flange-hilted swords underwent different life-trajectories. The lavish decoration of full-hilted examples suggests that they figured more prominently as items of display and may have been prestigious possessions, although they too often show traces of more bellicose use (Kristiansen 1984, 195; 198). The crucial distinction is whether this difference should be interpreted as reflecting two distinct social *rôles* of chiefs and warriors, as Kristiansen (*op. cit.*, 198) proposes. Starting from the archaeological dictum that the dead do not bury themselves, grave good assemblages reflect a culmination of actions by the bereaved that illustrate, or are determined by, their relations to the deceased as well as by actions intended to reflect or communicate a (real, ascribed or fictitious) identity of the deceased (*e.g.* Parker Pearson 1999, 83-94). Consequently, caution is warranted in interpreting grave goods, like swords, as invariably and directly reflecting personal ownership and social categories. Even *if* certain grave goods may hint at distinct social roles such as that of warriors, it does not inform us on whether this role was indeed fulfilled by the deceased during life, or whether this role was desirably stressed or ascribed to that individual

18 *E.g.* Jensen 1993; 2002, 104-124; Bertelsen *et al.* 1996; Fabech & Ringtved 1999; Borna-Ahlkvist 2002; Gröhn 2004; Streiffert 2005; Lagerås & Strömberg 2005; Arturrson 2005a-b.

19 *E.g.* Earle 1997, 29-32; 2001; 114; Kristiansen & Larsson 2005, 225; 277-279.

20 Earle 1997; 2002; 2004; Kristiansen 1984; 1998b; 2001; Kristiansen & Larson 2005. The concept of 'chiefs' originates from a description of southern Amazon (*Mbayá/Guaná*) groups (Heckenberger 2005, 349; references to Oberg 1949; 1955).

21 Earle 1997, 30 fig. 2.5; 2001, 114; 2002, 305; Kristiansen & Larsson 2005, 226. For Bjerre see Earle *et al.* 1998; Bech 1997, for Bdrd. Gram see Ethelberg 1995 and see Mikkelsen & Kristiansen 1997 on Legård.

22 Earle 1997, 14; 21; 32; 100; 102; 2002, 365; Kristiansen 1984, 203; Kristiansen & Larsson 2005, 10; 41.

23 Earle 1997, 32; 101; 157; 2002, 363; Kristiansen 1984, 198-202; Kristiansen & Larsson 2005, 212-213; 226.

during funerary rituals. For instance, the traditionality in grave good assemblages observed by Kristiansen, or in the case of graves of the Sögel-Wohlde types also found in the Netherlands,[24] may have been part of a long-term tradition – starting in the Beaker period – of graves with restrictive, traditional grave-good sets in which specific (supra-regional) identities were stressed (*e.g.* Fontijn 2003, 80-82; Van der Beek 2004). It should not be overlooked that, as an alternative to grave goods invariably reflecting social roles in life, certain deceased member of society were chosen to represent specific social roles, such as those interpreted in archaeology as 'smiths', 'chiefs' or 'warriors'. For reasons that escape us, it may have been appropriate, necessary or desired, for local communities to create 'specific' types of ancestors, who possibly fulfilled specific roles or duties in the afterlife. Grave good assemblages in which martial attitudes are stressed, therefore can – but need not – correspond to actual behavioral modes while alive. Thus, to interpret all those buried with swords as '(chiefly) warriors', who were part of a ruling elite (Earle 1997, 122; Kristiansen 1984, 201) may be overstating their martial importance during life. Aspects of partibility and complementarity of social roles may thus be understated.[25]

In short, there are no solid archaeological arguments why, for this period, martial values should be a full-time concern for certain persons (Kristiansen & Larsson 2005, 266), although it is claimed that "…the professional warrior, well trained and organized, was introduced." (*op. cit.*, 213) and that – by analogy to historically known chiefdoms – this "…involved a rather high proportion of the male population...' (*op. cit.*, 248). The duty, privilege and responsibility part of martial social roles may just as well have been part-time, [26] and have affected or have applied to a very restricted (age?) set of people within a local community.[27] Indeed, Fontijn (2003, 226-236; *in prep.*) has argued a convincing case that for the Netherlands, Bronze Age warriorhood is best considered to be an ambiguous, temporary identity. Possibly, in addition to membership of other communities (Gerritsen 2003), membership of martial communities was a property restricted by descent, age, sex or (most likely) a combination of these factors. The display of arms during life may have been a signal of the bearer's *potential* to fulfill a martial role – which, however, may have been infrequent to never – and was presumably rule-bound by social and ideological aspects. Phenomena such as mass-graves (*e.g.* Louwe Kooijmans 1993c) and blade notches in any case suggest that weapons such as swords were not for display only. It is therefore not the martial association or values expressed in weapon graves that should be nuanced, but rather the interpretation that this reflects full-time warriorhood for the specific person with whom such objects are interred.

For the Dutch situation, the overall number of Bronze Age weapon graves is low and they occur most prominent in the northern Netherlands (note 59). The number of known swords is significantly higher, yet they originate mostly from the main rivers (*cf.* fig. 8.7).[28] They are interpreted by Fontijn as deposits made at important transitions of social roles for those who used them, which could be related to age of the bearer (*e.g.* upon being considered an elder), or to use (*e.g.* after specific raids or battles) of the weapons proper (Fontijn 2003, 230). In his words:

> *'(...) we could think of situations in which warrior identities required only a temporary shift in identity, adopted by a group by means of a collective ritual, involving special dress and bodily adornment, before a raid took place. The special fighting regalia and weapons were then laid down (deposited) after the battle was over, transforming warriors back into ordinary men. The latter option is particularly known from ethnographies on tribal warfare in the Sepik region in Papua New Guinea (...).'* (Fontijn 2003, 230).[29]

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24 Butler 1990; Treherne 1995; Vandkilde 1996, 152-56. Traditionality in this context is mainly about the consistency in selections and associations of types of grave goods.

25 See the references in Chapter 3, note 39.

26 *Cf.* Kristiansen & Larsson 2005, 266.

27 Possibly, the use of early historic documents such as Beowulf (Earle 1997, 21; 2002, 287; Kristiansen & Larsson 2005, 20-24; 249) has provided unreliable analogies. This is al the more salient as the latter two authors start their study by scolding traditional archaeology for having been misled by false analogies presented by historical farming communities in viewing Bronze Age societies as fixed, immobile, communities (*op. cit.*, 23; 367).

28 Fontijn 2003, 213; 228 fig. 11.2.

29 Reference to Harrison 1995, 85-87, *cf.* Bloch 1999, 176.

Now, let us consider the evidence for 'chiefly halls'. The 'chiefly house' of Bjerre I measures 21 by 7.8 m (Earle 1997, 31), of which only the width forms an extreme of the normal Dansih size distribution (*cf.* Mikkelsen 1996, 40 fig. 5). The houses of Gram (50 by 10.6 m) and Legård (34.8 by 8.5; Nielsen 1999, 162 fig. 11) are clearly beyond the normal size distributions, yet in their composition present physically up-scaled versions of modal houses, with living areas and byre-sections. Both houses may reflect a compartmentalized construction, as the house from Gram may have been extended in both directions,[30] and the skewed placement of easternmost section of the Legård house could also represent an addition. The extremely long house of Bruatorp (*c.* 54.7 by 7.6 m) also shows differences in spacing and span of the roof-bearing posts that may indicate a compartmentalized construction history.[31] While the extreme length of such houses may thus in part be related to extension, or compartmentalized construction of the farmhouses (*cf.* figs 5.22; 5.23), their width may still indicate that they were perhaps intended to be different from other houses. They are however, not without parallels. In Artursson's 2005 overview of southern Swedish settlement sites several examples of similarly wide Bronze Age houses are listed.[32] The presence of pits, hearths and stalls like those commonly found in other houses, suggests that their function need not have differed significantly from less wide examples. Thus, while it is evident that the farmhouses of Gram and Legård present physically up-scaled versions of modal houses, it is undecided whether they are simply the extremes of a more continuous distribution, or whether they are best considered a wholly different class.

More importantly, there is no conclusive evidence for why the occupant(s) of these larger houses should have been of higher (chiefly, chiefly warrior) social rank. Size can, but need not be, a reflection of social hierarchy.[33] While they were presumably *special* houses, their larger size may be a consequence of a plethora of reasons and the outcome of desires by groups much larger than solely the (chiefly?) household head.[34] An analogy may be the consolidation and beautification of ancestral houses as seen among the Zafimaniry of Madagascar, where descendents of the original founding couple continue to elaborate their ancestral 'holy' house long after this couple has died (Bloch 1995, *cf.* Gerritsen 2003, 37). In such ways, structural properties of houses may change without the prestige or influence of resident household heads (or chiefs) being involved.

With the Dutch settlements, there is considerable variation in house-size, yet – like in the Danish case – these differences are gradual rather than categorical. For seven Middle Bronze Age settlement sites in the Dutch river area, there is reasonable variation in house-sizes *within* settlement sites, yet they still form a continuum,[35] and compare well to that of other sites (fig. 8.5). From a comparison with a larger data set of Bronze Age houses from other areas of The Netherlands (fig. 5.26), it is clear that a continuum rather than bimodal distribution is represented, and I have argued that houses above 30-35 m are unlikely to represent single house-phases. Additionally, there is little variation in (reconstructed) width (fig. 5.26, B; fig. 5.27), indicating that farmhouse length is a good proxy for available surface area. To me, this suggests that variations in house size attributable to distinct social stratification cannot be indicated in the Dutch data set (*contra* Earle 2002, 305).[36] While differences in house-size may reflect social *differentiation*, the causes, effects, ranking and duration of such differentiation remains unknown and should therefore not be interpreted as social *stratification*.

Additionally, there are no acceptable clues available to suggest that occupants of longer houses had in any way more status,[37] nor is it evident that larger household or livestock sizes were in play (although both may have

30 As is suggested by the former rounded short sides and off-set posthole placement in the eastern part (Nielsen 1999, 162 fig. 11).
31 Artursson 2005b, 73 fig. 27; Kristiansen & Larsson 2005, 279 fig. 125.
32 *E.g.* Västra Karaby, house 10 (16.1 by 8.2 m; Artursson 2005, 61 fig. 11), Köpinge B26, house 1 (16 by 8 m; Artursson 200b5, 67 fig. 20), Hunneberget, house 6 (46 by 9.6 m; Artursson 2005b, 70 fig. 23), Grødbygård, house S (35 by 8.2 m; Artursson 2005b, 61 fig. 11).
33 *Contra* Early 1997, 29; 2002, 290; 305; Larson & Kristiansen 2005, 279.
34 See Chapter 6, notes 49 and 50 for a discussion and references to anthropological examples.
35 The single outlier with Meteren - De Bogen (house 28-1AH) has been extended at least once (section 4.4.3; Hielkema, Brokke & Meijlink 2002, 251; Appendix III, fig. III.22).
36 In other words: no bi-modal distribution of farmhouse surface area can be outlined for Middle Bronze Age(-B) farms in the Dutch river area (or beyond, for that matter), which suggests that it is unlikely that social classes such as wealthier ('chiefly') and poorer ('cottager') farming households may be inferred from house-lengths or surface areas.
37 Although there may be some association between house-size and numbers of granary-type outbuildings (Chapter 6, section 6.4.2 note 48). This association is however difficult to interpret.

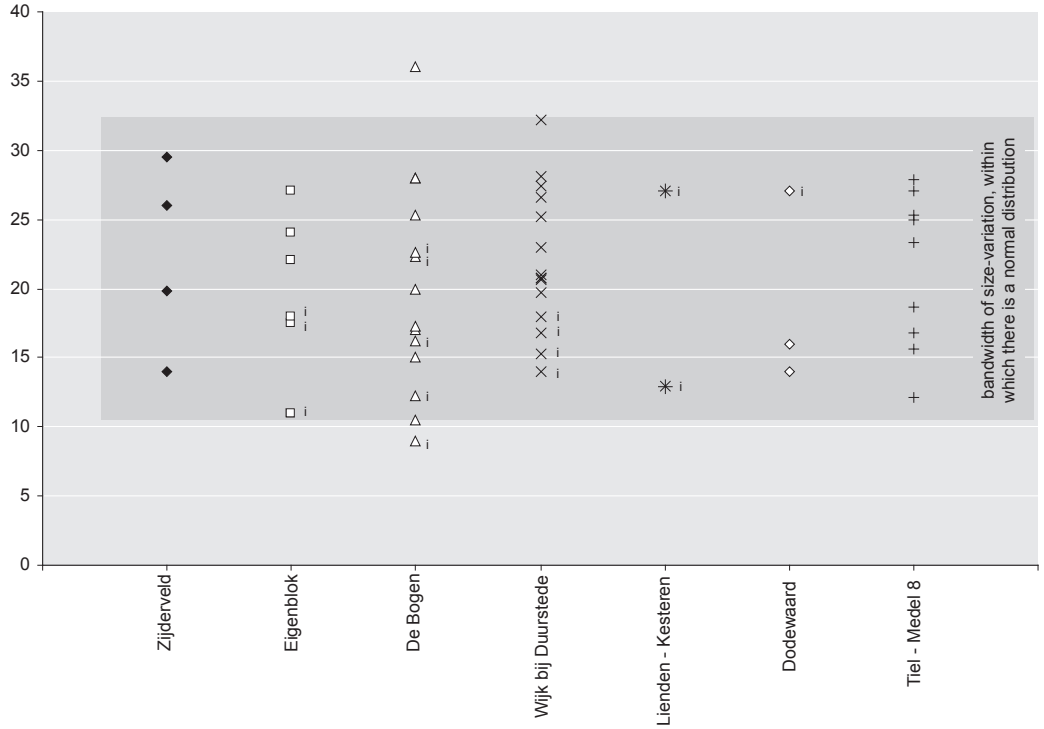


Fig. 8.5 Diagram showing the (minimal) house length (y-axis, in meters) for the Middle Bronze Age houses at seven settlement sites. An 'i' signals an incompletely excavated house-plan and the recorded length is thus a minimum length.

been the case). As I have argued earlier that archaeologically visible stalls may have been an element confined to the Nordic sphere of influence during the Bronze Age (section 5.2.3.3, *cf.* fig. 5.17), traces of stalls are generally absent beyond the north(east)ernmost regions of The Netherlands. In discussions of farmhouse usage (*i.e.* byre sections versus living areas), this scarcity of visible stalls becomes crucial. The fact that stalls can only be identified with *c.* 3(-11)% of the Dutch Middle Bronze Age houses, indicates that for the majority of the houses, we can not estimate how much space was used for the living area and the byre sections respectively.[38] For the 29 B2b-type farmhouses from the Northern Netherlands that are dated to the Middle Bronze Age/Late Bronze Age transition (*cf.* fig. 5.24) and that *do* have identifiably byre sections, the ratio of the living area to total length (*i.e* living area and byre sections) is very variable (*c.* 58-25 %, *cf.* fig. 5.23).[39] Moreover, the particularly late Middle Bronze Age-B age and confined regional distribution of farms of this type, indicates that these ratios are best not carelessly extrapolated to other regions.

As the livestock composition appears to be relatively uniform for Bronze Age settlements within the Dutch river area (fig. 7.11) as well as beyond (Arnoldussen & Fontijn 2006, 299 fig. 8), there appear to be no grounds to identify an intensification of livestock breeding, which Earle (2002, 100; 102) reconstructs to have facilitated the obtaining of 'foreign metal wealth'. Therefore, while cattle may have been of key importance in a number of fields (*e.g.* agricultural gain as draught animals and producers of manure, ideological (*cf.* section 8.2.4.5) or exchange items),[40] their numerical presence is difficult to reconstruct. Consequently, (estimated) byre-sizes cannot be used

38 See Chapter 5, note 96 (n = 8) versus table 7.2 (n = 308/350, 11 % if 29 B2b-type farmhouses are included).

39 The ratio of reconstructed living area to total length is 0.44 mean, with a 0.09 standard deviation, based on a quantification of the assumed byre sections versus complete length of the house for 11 B2b (Elp-type) houses where such a distinction could be made (Waterbolk 1964; Huijts 1992; Kooi & De Wit 2005; Kooi 2008). Living areas range between 6.5 and 16 m (mean 11.5 m, 3.2 m standard deviation), byre sections range from 9 to 19 m (mean 14.7 m, standard deviation 3 m). Quantification is rendered difficult by the fact that many farms show rebuilding phases (section 5.2.3.3; Kooi 2005).

40 Kristiansen & Larsson (2005, 277) denote cattle as '…the most costly prestige good…', *cf.* Roymans 1999; Barker 1999; Rasmussen 1999; Zimmermann 1999; Fokkens 2003).

as a proxy for potential exchange capacity as Earle suggests, and on more fundamental grounds, there are no direct indications why such exchanges should have predominantly or solely focused on acquiring metalwork.

In short, while it is probable that house properties (like dimensions, but also decoration, wood species used *et cetera*) communicated important messages on the social status of its founders as well as on that of (later) occupying household(s), a direct relation between farm size (*i.e.* length or surface area) and social hierarchy (*e.g.* chiefly farms) is in my view untenable for the Dutch situation. A similar stance may in the future also be shown to apply to (part of) the southern Scandinavian data, as Kristiansen and Larsson (2005, 279) themselves state that "The social and economic structure of society was truly hierarchical, although dominated by well-built medium-sized farms." Rather than interpreting this as the 'normal' size variation present with self-sufficient agricultural societies and settlements, they opt for the explanation that: "This suggests a large and wealthy class of medium-ranked members of the chiefly lineages." (*loc. cit.*). For the Dutch situation, such an interpretation cannot meaningfully be upheld. No probable bimodal or otherwise discontinuous distribution can be indicated within the house-sizes, nor can it be argued in an archaeological context that size variation should be correlated to social status.

To conclude, I must stress that by no means I intend to downplay the importance of (metalwork) exchange systems during the Bronze Age, nor that I fundamentally disagree with ideas on social stratification for this period as such. However, I strongly disagree with the idea that social classes such as 'chiefs' or 'warriors',[41] can be indicated archaeologically for this period. This is by no means a romantic plea for idyllic, peaceful autarkic communities. Violence and the martial tools, ornaments and techniques this entailed, may very well have been a common aspect of life of Bronze Age communities. However, I argue that this is only a (minor, possibly brief and) complementary aspect of Bronze Age personae, whose other constituent *rôles* like those of being a farmer, artisan, parent and community member will have outweighed in importance the more belligerent activities during most days and years of their life(-cycle)s.[42] Bronze Age people did revert to armed violence, just as much as leadership may have taken on characteristics in retrospect best described as 'chiefly'. It may even have been the case that (control) over metalwork procurement or production and livestock exchange were crucial elements in Bronze Age strategies to acquire and/or maintain such leadership. However, I strongly feel that archaeologists should not overly entwine the interpretations of available data sets within a single interpretative framework, without persistent and detailed attention to establishing whether they indeed were linked. In short, the person in control of the metalwork distribution need not have had anything to say on livestock breeding, need not have lived in the biggest house, need not have supported retinues of warriors and need not be buried in a larger barrow with his or her weaponry. If the Bronze Age was indeed "… a world of chiefdoms." as Earle (2002, 363) would have it, the interrelations between agricultural production, architecture, exchange systems and (the basis, duration and intra-personal exclusivity of) social *rôles* should form the topics of studies, rather than be considered as given.

8.2.3.3 The living and the dead

After having dealt with the problems of defining the spatial and conceptual limits of settlement sites and the social structure of those living in it, I now turn my attention to the dead. While the details of mortuary rituals during the Bronze Age are idiosyncratic and changing,[43] the construction of inhumation graves, as a rule of thumb, did not take place within Middle Bronze Age-B settlement sites. Even if settlement sites dated to this period in The Netherlands beyond the present study area are included, there is only one single clear-cut (double) inhumation known of two teenagers in a ditch at Bovenkarpel (IJzereef 1981, 209-211). Considering the number of people that may have lived (and died) at Middle Bronze Age settlement sites in the river area (*cf.* table 8.4), we may wonder where their bodies are. Barrowless graves among settlement features, which was an option practised during the Late Neolithic,[44] were evidently considered inappropriate during the Middle Bronze Age-B.

41 *I.e.* carrying connotations of (full-time) *rôles* with some degree of permanency of office.
42 *Cf.* Brück (2001, 654-655; 2006, 306-309) on the dividual, complementary and contextual nature of social roles and concepts of personhood.
43 For an introduction see Lohof 1991a-b; Theunissen 1999, 35-108; Drenth & Lohof 2005; Bourgeois *in prep.*
44 Possibly during the Early Bronze Age as well; Louwe Kooijmans 1974, 239-260; 312; Wassink 1981, 82; Van der Beek 2004, 167-175.

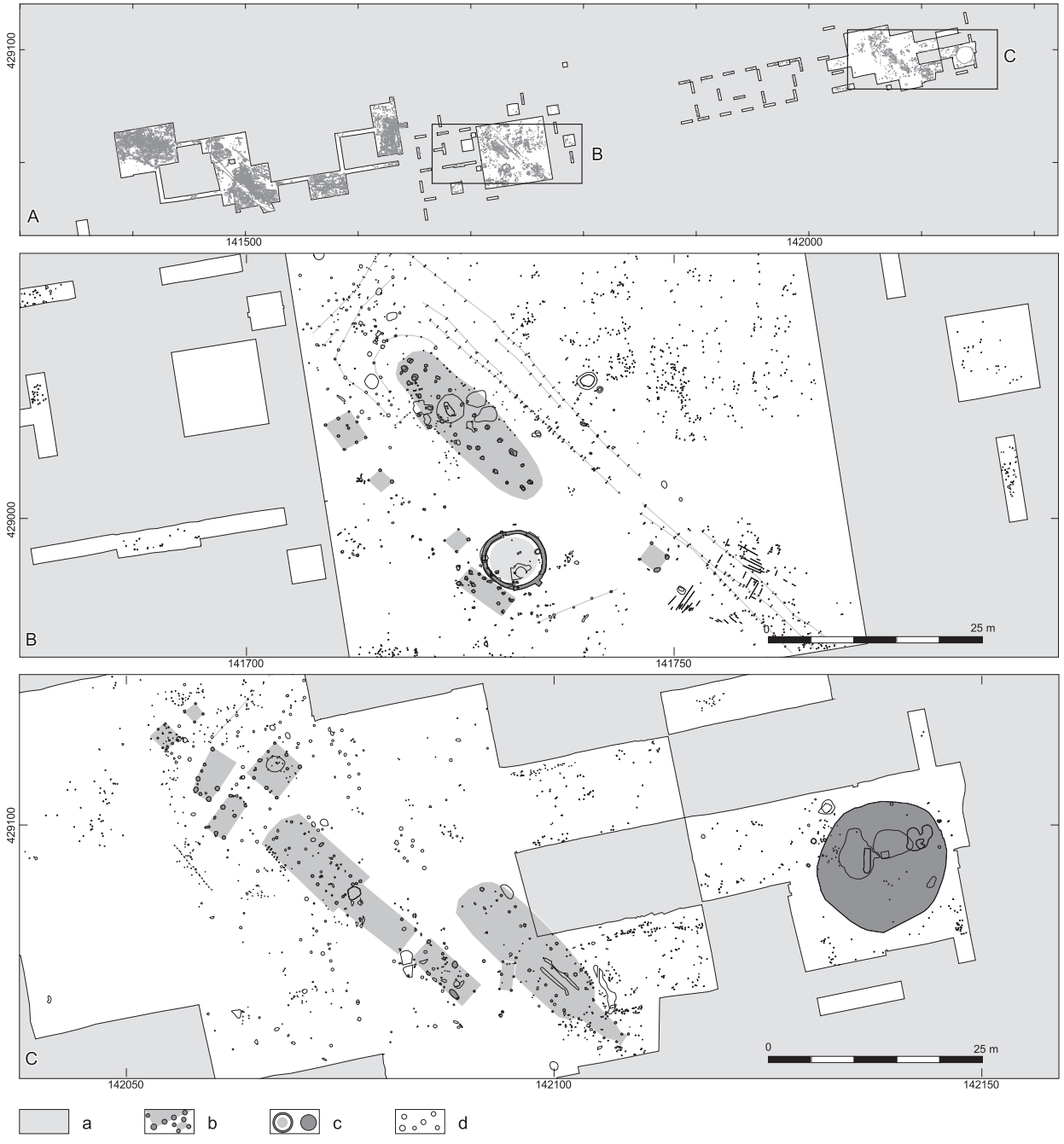


Fig. 8.6 Overview (A) and locations of the possible barrow at Eigenblok site 5 (B) and the barrow at site 6 (C).
a: not excavated, b: features associated with houses or structures, c: barrow ring-ditch or mound body, d: other features.

The established view is that formal burial in monumental barrows was the dominant mode of interment during the Middle Bronze Age.[45] Barrow ring-ditches have indeed been discovered at three sites in the river area (fig. 6.14, graves). For the barrow at Wijk bij Duurstede - De Horden (fig. 4.28) no direct dating evidence is available and those

45 *E.g.* Lohof 1991a; 1994, Theunissen 1999; Drenth & Lohof 2005.

of Eigenblok sites 5 and 6 appear to pre-date the Middle Bronze Age-B occupation phase (fig. 8.6).[46] At De Bogen, the initial use of the barrow at site 45 may have started during the Middle Bronze Age-A (fig. 4.13, C).[47] This renders it unlikely that these barrows were constructed by the occupants of Middle Bronze Age-B house-sites, into which they may nonetheless have been incorporated.

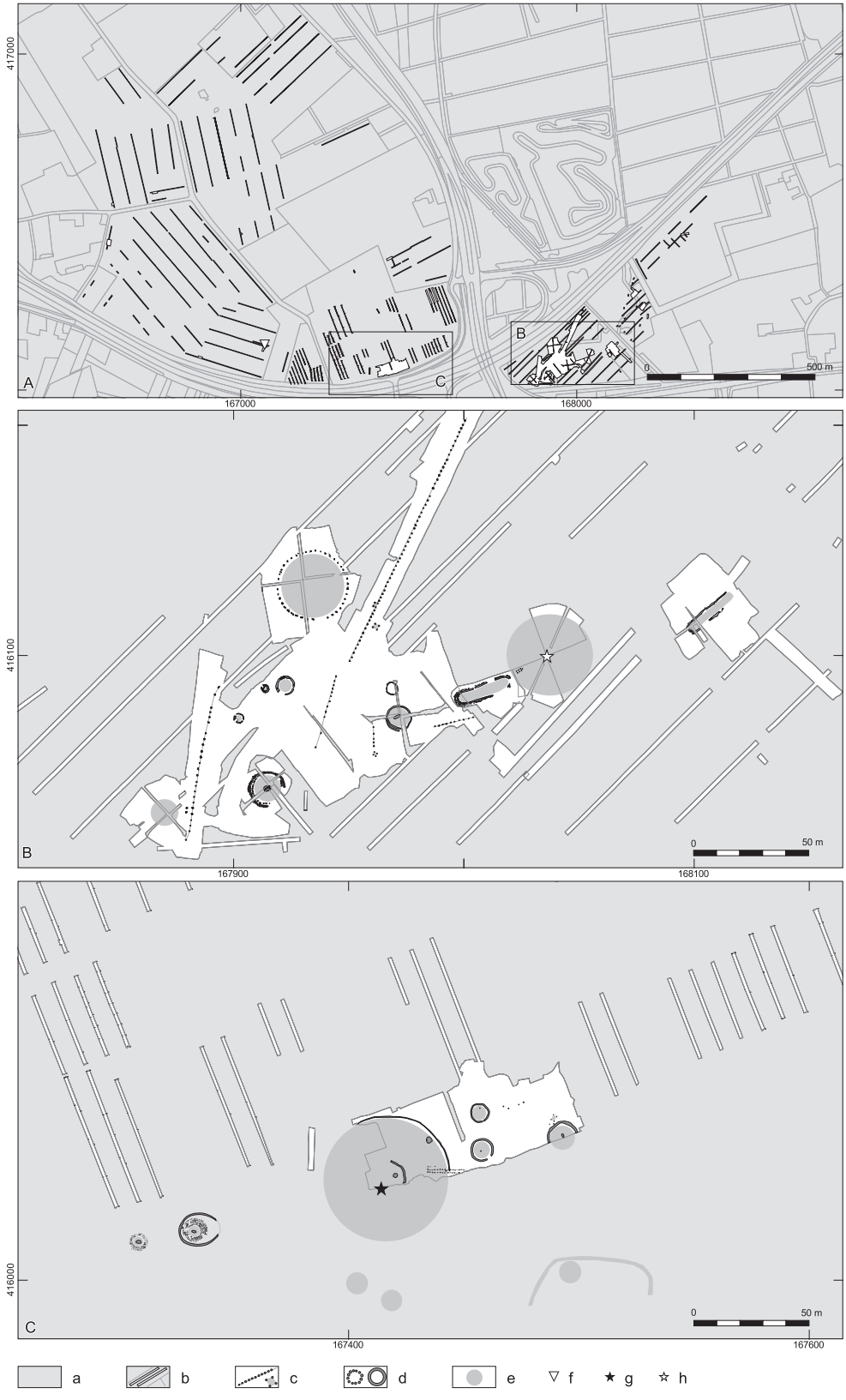
This pattern of barrows pre-dating nearby Middle Bronze Age-B house(-site)s is not unique to the river area, and has been documented for a larger number of settlements beyond it (Bourgeois & Arnoldussen 2006; Bourgeois & Fontijn 2008). Based on a critical evaluation of dating criteria and available absolute dates by Bourgeois (*in prep.*), it is now clear that the majority of initial Bronze Age barrow construction phases must be dated to the Middle Bronze Age-A. Thus, the Middle Bronze Age sees a remarkable reversal from the Middle Bronze Age-A, with numerous barrows and no recognizable houses, to the Middle Bronze Age-B, when fewer new barrows are constructed yet many houses are known. This observation also has severe implications for some models of settlement dynamics, in which barrows accompany Middle Bronze Age(-B) houses (section 3.3.3-3.3.4).

Following others, I have argued that older barrows (but also other older remains), may have been important sources of (claimed) ancestral legitimacy, fertility and societal well-being, and that it may have seemed favourable to Middle Bronze Age-B households to settle next to them.[48] This indicates that, under certain circumstances, it was appropriate to bring the domain of the living into that of the dead. In future cases, re-use of such older barrows on house-sites may illustrate that the reverse situation (leaving the dead near the living) was also an, albeit rarely used, option. A possible example of the latter domain intercalation is offered by the complex construction sequences at the barrow of De Bogen site 45 (figs. 4.13; 4.15; 4.21).

At the barrow of De Bogen, funerary and domestic domains seem almost intentionally to have been entwined. Overlapping with the location of a barrow insecurely dated to the Middle Bronze Age-A, two inhumations took place between the 16th and 14th century BC (fig. 4.21, D; Meijlink 2008; Bourgeois & Fontijn 2008). A large ring-ditch was possibly constructed for one of these graves. During the Middle Bronze Age-B a house was built that overlapped with the reconstructed location of the mound body (figs. 4.13; 4.15). As no intersection with the large ring-ditch could be documented, the exact phasing of this house and the large ring-ditch remains unclear (*ibid.*; Appendix III). At the very end of the Middle Bronze Age-B or at the start of the Late Bronze Age, another interment of an adult with a bronze rapier occurred (fig. 4.21, E). It is also possible that the large ring-ditch belonged to this phase. Nonetheless, presumably for this burial a structure was erected that – unlike other mortuary houses known[49] – mimicked 'real' Middle Bronze Age-B houses in post-placement and dimensioning (fig. 4.15). I have already argued earlier that the differences between a house for the dead and one for the living could hardly have been smaller (section 6.3.7) and this will not have been coincidental. Presumably, it may have been this highly unusual sequence of interments mixed with occupation traces that either allowed, or necessitated, the creation of tangible links between otherwise separated domains. In this case, the adequate means for such linkage was provided by using the constructional scheme normally reserved to houses, for a mortuary structure.

Nonetheless, during the Middle Bronze Age-B the norm seems to have been to spatially separate the living from the formal interments of the dead in barrows. Whereas this study has dealt extensively with the location in the landscape of the living (section 7.3), what can be said on the location of the dead? In a cogent article on barrow and settlement site interrelations, Bourgeois and Fontijn (2008) have argued that the Middle Bronze Age tradition of barrow construction may have been about the creation of deliberate links to earlier (possibly perceived as ancestral) acts of barrow construction by striving for spatial proximity to older barrows and by re-using older barrows (Bourgeois & Fontijn 2008, esp. 48 fig. 5). This behavior may explain why, at locations quite distant from the settlement sites, clusters of barrows – sometimes in linear alignments – could evolve. However, the internal chronology of such barrow clusters is largely poorly understood and the choice for their respective locations speculative. Such clusters and alignments of barrows are frequently situated on the highest parts of the micro-topographic landscape, but often somewhat inland of slope edges. This suggests that it may have been the commanding vistas *from* them, rather than

46 Hielkema, Prangsma & Jongste 2002, 137; 157-159; Appendix II.
47 Meijlink 2008; Appendix III; Bourgeois & Fontijn 2008.
48 See section 7.3.2, *cf.* Field 2001, 59.
49 See Chapter 4, note 101 for references.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the (inter)visibility *of* these barrows, that were important parameters in their topographic placement (Fontijn 2007). The data from the river area relate to these broader patterns. The barrows at De Bogen and Wijk bij Duurstede - De Horden were both constructed at the highest parts of their micro-topographic landscapes, and I have speculated whether the 'barrow-shaped' local morphology may not have led people to (mis- or re-)interpret these natural heights as older barrows (section 5.9).

The preferential avoidance of monumental burials and settlement sites can also be illustrated with the result of some excavated barrow clusters. To the southeast of the town of Oss, an extensive (*c.* 65 ha) area has been test-trenched and partly excavated. There, a barrow landscape was uncovered that has its roots in the Middle Bronze Age, but it is primarily known for the presence of two rich Hallstatt-period graves (fig. 8.7).[50] To the north of the westernmost part of this barrow landscape (known as Oss - Vorstengraf) a surface area of *c.* 56 ha has been test-trenched without yielding traces of Bronze- or Iron Age habitation, although a possible deposition site was found.[51] The easternmost part of the barrow cluster, known as Oss - Zevenbergen, was also test-trenched and partly excavated (Fokkens, Jansen & Van Wijk *in prep.*). Here too, no traces of Bronze Age occupation were encountered. That this cannot be explained by inadequate feature preservation is suggested by the post-alignments that are found in both parts. A similar situation was encountered at the excavation of a Middle Bronze Age to Early Iron Age barrow cluster at Uden - Slabroek (Van Wijk & Jansen *in prep.*). There, an area of *c.* 4.3 ha was test-trenched and partly excavated, only to reveal traces of barrows and post-alignments (*ibid.*). Although theoretically Middle Bronze Age house(-site)s may have been situated just outside the excavation extents, both examples convey the notion that for Middle Bronze Age communities, living among barrows was not common to say the least (Bourgeois & Fontijn 2008).

Analyses of Bronze Age barrow clusters have furthermore shown that it was presumably only a limited, yet varied, selection of the population that was buried in barrows. The percentage of 10-15 % quoted by Theunissen (1999, 105, *cf.* Lohof 1991a, 254-255) may be somewhat low, yet it seems improbable that the majority of the people received a barrow burial.[52] So where are the remainder? I have argued that some deceased may have been present, even if fragmentary, on or near settlement sites (section 5.9). Burials of cremated remains, sometimes in urns, are known in very small numbers from Bronze Age settlement sites and unburned human remains have also been found at some sites.[53] Therefore, while the majority of the deceased may have been disposed of in archaeologically invisible ways (*e.g.* river 'burials' or surface exposure), I have argued that some (parts of) selected departed may have figured above-ground in settlements as items in meaningful social, magical or ritual acts (section 5.9).[54] Such retention of human remains for ceremonial or ideological purposes also occurred in the United Kingdom during the Bronze Age, for example as the token cremation deposits discussed by Brück or the composite Bronze Age mummy of Cladh Hallan.[55] To conclude, it should be stressed that while there are several ways in which (parts of) the dead may have continued to reside in settlement site space (*e.g.* cremations, stray remains; *supra*, possibly even flat graves (*cf.* Van den Broeke 2006)), the majority will have been brought elsewhere and only a part of them were entitled to monumental burial in or under barrows. Presumably, the ideological as well the physical shifts of bodies between realms of the living and the dead were extremely conspicuous events, in which proper execution of rituals were vital to the proper transformation of deceased into (mythical) ancestors. As in, and directly around, such barrow clusters generally no evident habitation took place, it is confirmed that the living and the dead were indeed intended to occupy different domains.

Fig. 8.7 (overleaf) Overview of the excavated areas (A) and details of the barrow clusters at Oss- Zevenbergen (B) and Oss- Vorstengraf (C).

a: not excavated, b: trenches on topographic map, c: post alignments and possible mortuary structures, d: post-circles and ring-ditches, e: reconstructed locations of barrows, f: location of axe deposition, g: 'princely' grave of Oss (Ha. C-D), h: grave of the 'princess' of Oss (Ha. D?).

50 Fokkens & Jansen 2004; Fokkens, Jansen & Van Wijk *in prep.,* Fontijn & Jansen, *in prep.*

51 Jansen & Fokkens 2007, for the deposition site (of a type Oldendorf high-flanged bronze axe; Fontijn 2003, 88-91), see Fontijn, Jansen & Fokkens 2004.

52 *Cf.* Bourgeois & Fontijn 2008, esp. 43; Bourgeois *in prep.*, chapter 4.

53 See examples in section 5.9.

54 See for some anthropological examples Chapter 5, note 330.

55 Brück 1995; 2004, 31-311; 2006, 309. For Cladh Hallan see Parker Pearson 2007. See also Nowakowski 2001, 143.

8.2.3.4 Where good objects go to die? Patterns of object deposition

I have argued above that the spatial separation of the formal barrow burials and the settlements suggests a strong case of landscape compartmentalization. It is clear that landscape zones which had a funerary or domestic purpose, were preferably not to overlap during the Middle Bronze Age-B. A similar attitude of landscape categorization can be identified by the patterns of object deposition in the landscape.

Object deposition is one of the most studied aspects of Bronze Age societies. While traditionally the focus has been on deposition of bronze items,[56] now also more attention is drawn to the deposition of organic goods.[57] This is not the place to put object deposition in proper long-term perspective,[58] or to do justice to the intricacies and regional variation in the specific objects and zones selected for deposition (*e.g.* Fontijn 2003). Consequently, only some key elements will be discussed here.

Metal object depositions at Bronze Age settlement sites

The first salient feature is the observation by Fontijn (2003) that the deposition of bronze items is steered by a system of selective deposition; the deposition of specific types of tools or ornaments in specific contexts (Fontijn 2003, 210-220). For the southern Netherlands, for example, bronze weaponry was absent in graves and non-local ornaments were deposited in major rivers and never near settlement sites (fig. 8.8; Fontijn 2003, 262 fig. 14.2). Within settlements, only local ornaments and sickles appear to have been deposited on settlement sites (Fontijn 2003, 144-147). How do the data from the river area compare to this?

First, it should be stressed that the intentionality of bronze deposition on Bronze Age settlement sites in the river area is hard to ascertain. While bronze objects have been found at several sites (section 5.9, esp. note 321) they are frequently recovered from finds-layers where they occur mixed with settlement debris. For example, a Late Bronze Age socketed axe was recovered from the find-layer at Tiel - Medel 8, which – while found close to Late Bronze Age structures (fig. 7.15, e) – cannot be proven to represent a deliberate deposit. Lack of detailed contextual information renders it difficult to assign an *a priori* intentionality to the presence of such objects. This problem was already recognized by Fontijn, who – save for incidental finds from pits – had to start from the premise that their mere presence on a site indicates that they were spared the melting pot and as such most probably reflect

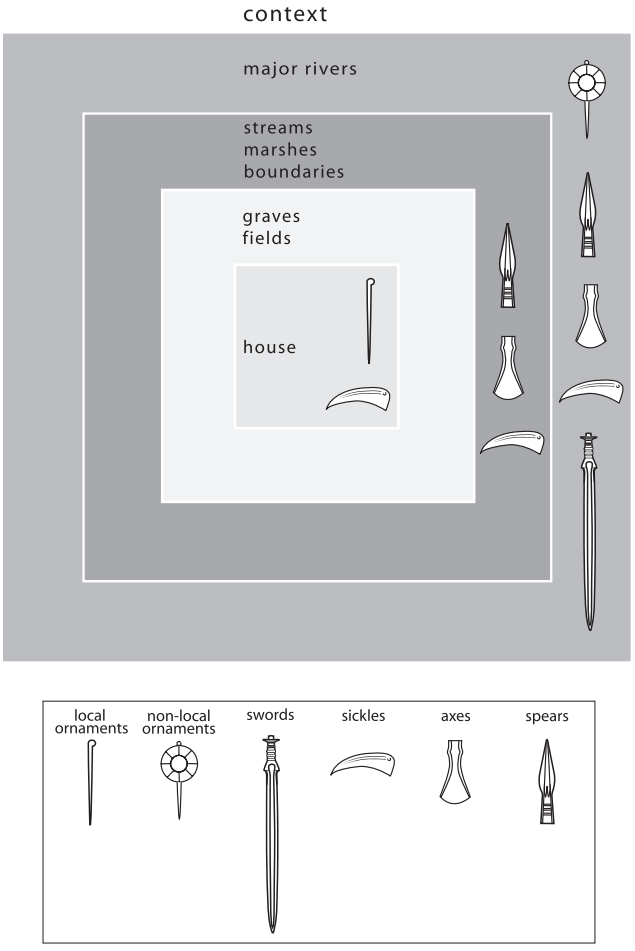

Fig. 8.8 Schematic interpretation of bronze object deposition in the southern Netherlands by type and origin of objects and their context of deposition (adapted from Fontijn 2003, 262 fig. 14.2).

56 *E.g.* Bradley 1990; Butler 1963; 1990; 1995-96; Butler & Steegstra 1997-98; Verlaeckt 1995; Essink & Hielkema 1997-98; Needham 1989; 1996; Fontijn 2003.

57 Verlinde 1979; Van der Sanden, 1990; 1992a; 1995a-b; 1997; 1998; Prummel & Van der Sanden 1995; Hielkema, Brokke & Meijlink 2002, 225-226; Therkorn 2008; Kok *in press*, esp. sections 3.5.1; 4.2.1.3.

58 *Cf.* Ter Wal 1995-96; Koch 1998; Fontijn 2003, 59; Wentink 2006.

intentional acts (Fontijn 2003, 144-147). Allowing for chance losses, such argumentation can only be upheld for larger bronze objects (*e.g.* sickles, axes, spearheads).

Metal-detecting during the excavations of Bronze Age settlement sites in the river area has yielded smaller (*e.g.* strips, ornaments, arrowheads) as well as bigger bronze objects (*e.g.* daggers, a sickle, spearhead and a socketed axe; see section 5.9 for references). The presence of weapons is striking, as they are generally absent from Middle Bronze Age settlements from the southern Netherlands. The wear on the dagger and sickle from Eigenblok (Hielkema 2002a, 327-328; Jongste 2002c, 102), suggests that they had seen a long use-life, prior to entering the ground. By contrast, the dagger found at Dodewaard - site 20, was in pristine condition (Jongste 1997, 14; Fontijn 2003, 146), suggesting that it had not seen a similar long use-life. At the location of this find, no more extensive excavations took place, so that its interpretation is limited to 'presumably located within a possible settlement site' (Appendix VI). For the various bronze objects from Eigenblok, an interpretation as representing abandonment deposits has been forwarded (Jongste 2002c), but this remains contestable. Neither in the spatial distribution of the items, nor in their contextual associations, are there any clues to substantiate deliberate deposition during the abandonment of the site, be it as single items or combinedly (Hielkema 2002a). The claim that they were 'generally situated on top of the former surface and have not been trampled down' (Jongste 2002c, 104, my translation), which could support the fact that they were part of the 'closing ritual' of a house- or settlement site, is not backed-up by detailed stratigraphic analyses. Moreover, possible dislocation by subsequent ploughing that occurred on sites 5 and 6 (Hielkema, Prangsma & Jongste 2002, 142; 156), may not have been given due consideration. Chance loss and intentional deposition must therefore remain equally speculative interpretations for the Eigenblok bronzes.

The metal objects from the De Bogen excavation also merit separate discussion. In addition to a small number of tin and bronze strips, wire fragments and non-identifiable (presumably ornament) fragments found in the finds-layer and a number of features (Butler & Hielkema 2002, 542-543), several graves from the barrow at De Bogen site 45 contained metalwork (*op. cit.*). The finds associated with grave 3 (fig. 4.21, E) stand out. In and near this grave, two bronze arrowheads, a rapier, a bronze pellet and a wire fragment were recovered (Butler & Hielkema 2002, 539-542) for which combined a Hallstatt-A1 date has been suggested (Bourgeois & Fontijn 2008). The presence of weapons in funerary context is very infrequent to almost absent in the southern Netherlands (Roymans & Kortlang 1999, 56; Fontijn 2003, 148; 172), but is documented in some numbers for the Middle Bronze Age in the Netherlands north of the river area.[59]

At Wijk bij Duurstede - De Horden, a slag droplet, a bronze sheet arrowhead and spearhead were found while at the nearby site De Geer another spearhead, a knobbed sickle and a chisel were found.[60] Here as well, bronze items and weaponry were left at settlement sites. Possibly, the more prominent presence of weaponry on sites as well as their incorporation into graves reflects that – as far as these traditions are concerned – the river area was more related to the areas to the north, than to the south of it. It is therefore no surprise that at Rhenen, as close-by as several kilometers north of the river area proper, a spearhead may have been intentionally deposited in a posthole of a house (fig. 3.11, B). Again, the river area appears to have been a boundary zone between these two culture areas (*cf.* sections 1.6; 7.2.1).

After having discussed the types and context of the metalwork on Middle Bronze Age sites from the Dutch river area in somewhat more detail, we must now return to the main point. Have any of these sites provided indisputable evidence of metalwork deposition? At present, the answer must be negative. The amount of uncertainty on the original context of the metalwork discovered (outside graves), does not allow to interpret them as deliberate depositions.[61]

This should not be taken to indicate that metalwork deposition did not occur in the river area. Quite the opposite may have been the case. Assuming that the general pattern of objects to be placed in wet zones in the

59 *E.g.* Garderen (Van Giffen 1937), Laren (Modderman 1954, 16), Hilversum (*ibid.*), Schuilingsoord (Butler, Lanting & Van der Waals 1972); Eext (Modderman 1954, 16), Hijken (Butler 1995-96, 64-68), Drouwen (Butler 1995-96, 71-73), Zeijen (Van Giffen 1920, 124-34, Butler 1969, 42), Zwaagdijk (Modderman 1964b; Butler 1995-96, 102-103), Velsen (Bosman & Soonius 1990; Butler & Steegstra 1997-98, 102-103).

60 Letterlé 1985, 342; Drenth 1996, 33; Appendix IV.

61 The two bronze sickles found in the Dodewaard macro-region (Modderman & Montforts 1991, 149; Appendix VI) may (through their association; *cf.* Brunsting 1962) be the best candidates, but here again contextual information is limited.

landscape, such as marshes, streams and rivers (fig. 8.8; Fontijn 2003, 264-268) also applied to the river area, the highly compartmentalized and gradient-rich landscapes of the river area,[62] may have offered various suitable locations. The study by Fontijn (2003) shows that indeed several metalwork depositions are known from the Dutch river area, and that they include very special objects such as the aggrandized 'Ploughrescant-Ommerschans'-type dirk from Jutphaas (Fontijn 2001). It is not bronze deposition *as such* that is absent, but bronze deposition in the places used for habitation cannot be proven yet (although it may have been present). Once more, a separation of domains within the physical landscape seems to have been important to Middle Bronze Age communities: there were various places suitable and utilized for the deposition of bronze metalwork, but settlements do not seem to have prominently figured among them. Parallel to the situation described above where settlement site traces proved absent from barrow sites, the few excavations presently carried out at depositional sites outside (Fontijn, Jansen & Fokkens 2004) or within the river area (Theunissen, Müller & Van Bergeijk *in prep.*) have shown that they too were not settled. Rather, these were zones of the landscape presumably marked only by depressions and vegetation types indicative of relatively wetter locations.

To conclude, the inconclusive stance on metalwork deposition at Bronze Age sites in the river area should not be taken to mean that no depositions occurred at settlement sites at all. Quite the contrary may have been the case. After acknowledging the observation that in many non-industrial societies depositional acts frequently involve organic and immaterial components,[63] several examples of presumably intentional deposition of (non-metallic) objects at Bronze Age settlement sites can be discussed.

8.2.3.5 Settlement sites as locations for non-metal object deposition

I have argued above that there is insufficient evidence to reliably assume the intentional deposition of metalwork on Bronze Age settlement sites in the river area. However, metalwork was certainly not the only category of material culture available, preferred, or selected for intentional deposition, and I will argue below that – albeit not for metalwork – settlement sites may very well have been important locations for object deposition.

Intentional deposition of objects on Bronze Age settlement sites in The Netherlands may have involved a wide range of items, yet three categories stand out. These are ceramic vessels, animal bones and querns. Possible depositional acts on settlement sites involving these categories have taken place both within the river area, as in other areas.

Pottery deposition

Intentional deposition is often assumed for vessels which are recovered intact or nearly intact.[64] Few examples of intact Bronze Age vessels outside funerary contexts are known from the Netherlands, but the Hilversum-style decorated pot from Hapert (Beex 1954) and two examples from a pit at Boekel (Arts & De Jong 2004) show that intact vessels were left or buried incidentally. More frequently, deposits of (intentionally?) fragmented pottery are found in small pits or postholes (table 8.1). In such cases, the fact that the sherds belong to a single vessel and that the features are relatively small renders it unlikely that their association is coincidental. The deposition of several sherds of a Hilversum-style decorated pot at Cuijk - De Nielt presents a remarkable case (fig. 8.9; Ball, Arnoldussen & Van Hoof 2001, 18-19). There, from a small pit (40 cm diameter, remaining depth 15 cm) over 3 kg of Bronze Age pottery was recovered. While a handful of pots may be identified by fabric or rim morphology, the majority of the sherds originated from a single, 25 cm diameter pot decorated in Hilversum-style (fig. 8.9, B). This pot was deliberately fragmented and the largest sherds were stacked lying horizontally in the pit. The intentionality of fragmentation is clear from two observations. First, the position of the rim sherds underneath wall sherds, indicates that the rim sherds were placed in first and wall sherds directly on top (fig. 8.9, A). Second, a hæmatite (or maghemite)-rich fluid or paste had been poured over the fragmented sherds, as drops and stains of this fluid were found on both the outer surfaces and on the breaks of the sherds (Ball & Eimermann 2002, 29). While it is unclear whether this fluid was applied

62 Chapter 2; fig. 7.12; Appendices I-VI.

63 See section 3.4.3, esp. note 87.

64 There is some evidence that from the (Middle Bronze Age-B to) Late Bronze Age (transition) onwards, vessels may have been buried intact to serve as storage containers (*e.g.* Slofstra 1991a, 144; Berkvens 2004, 102; Van Hoof & Meurkens 2007, 59 fig. 5.9).

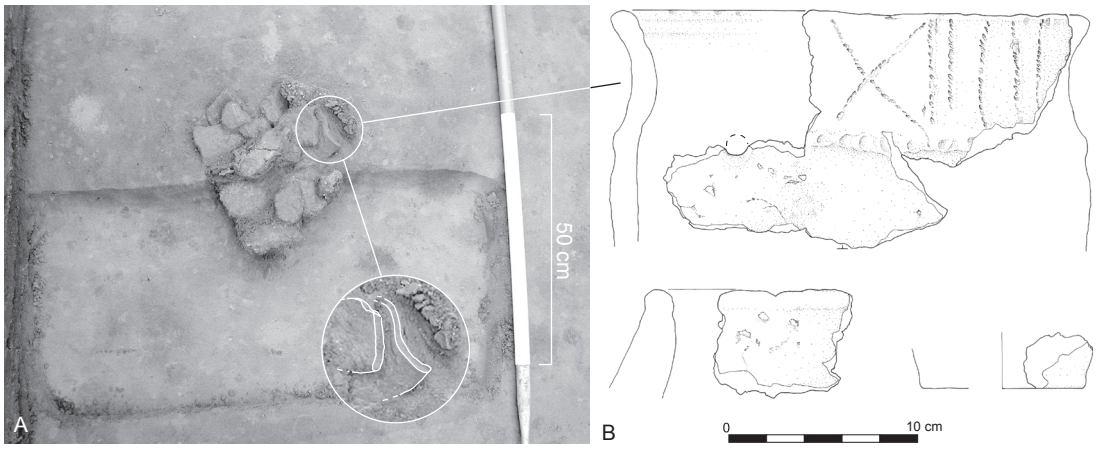

Fig. 8.9 Excavation in progress of the pit at Cuijk - De Nielt with the stacked sherds (A; top view), note the position of the rim. A selection of the pottery recovered is shown to the right (B, after Ball & Arnoldussen 2002, 8 fig. 2).

prior to, or after placing the sherds in the pit, this assemblage seems a clear example of a depositional act, and not the incidental discard of domestic refuse. As this was found during a campaign of test-trenching, it is not clear whether this pit was situated within a settlement site (Ball, Arnoldussen & Van Hoof 2001),[65] but as the ceramics date to the Middle Bronze Age-A, the chances of recognizing settlement sites for this period in the first place are notably poor (*cf.* sections 5.2.2; 7.2.4).

Several other examples of possible Bronze Age pottery depositions are listed in table 8.1.[66] It is frequently difficult to decide whether such complexes do indeed represent intentional depositions. Cracked or broken pots may have been discarded and can present themselves as tight clusters of sherds (further fragmented by soil compaction and weathering). Additional arguments, such as the ochre-like fluid on the Cuijk sherds (fig. 8.9), are necessary to postulate intentional deposition instead of discard. For example, the find-circumstances of sherds may indicate that they were not fragmented and deposited like this by accident or by natural causes. The stacked sherds of Cuijk, the vertically placed sherds of Oldenzaal and especially inverted pots like those of Boekel, Nistelrode, Harderberg and Breda - Steenakker all suggest intentional deposition (table 8.1). In other cases, it is the sheer quantity of ceramics representing a limited number of pots or a single vessel, and absence of other settlement debris that suggests deliberate selection and deposition.[67] It is striking that frequently such pots bear decoration. While most depositions are found in larger and smaller pits that cannot be interpreted as belonging to structures, some pottery deposits are associated with possible outbuildings (*e.g.* Enspijk, Well-Aaijen) and houses (*e.g.* Apeldoorn, De Bogen; table 8.1). Fragmented loom weights may also be part of normal domestic debris, but when they occur as the only finds from pits (*e.g.* Molenaarsgraaf) or with possible deposited pottery (*e.g.* Oss-Horzak, Lienden), in post-pipes or in great numbers (Tubbergen; De Bogen; table 8.1) the option of intentional deposition should be seriously considered.

Depositions of animal bones

Animals or parts of animals may also have figured in Bronze Age depositional acts. In addition to the cattle horns (Prummel & Van der Sanden 1995, 113) and antler fragments (Verlinde 1979; Ufkes 1997, 164) that may have been deposited during the Bronze Age in 'wet parts of the landscape', deposition of animal bones may also have taken place at settlement sites.[68] Distinguishing between intentional deposition and the discard of (butchering) waste

65 During 2007 more extensive exactions were carried out at this site, but the results await final publication.

66 For completeness and comparability, some possible pottery depositions from funerary contexts are also added to table 8.1.

67 *E.g.* Tiel - Medel 5, Cuijk - Heeswijkse Kampen, Rhenen - Remmerden, Breda - Bierensweg; table 8.1, possibly also Mooren & Van Nuenen 2008, 26; 37 (331 sherds of a single vessel from a pit).

68 Here as well, some possible depositions within funerary contexts are added to table 8.2 for sake of completeness and comparability.

Site	Content	Context	References
De Bogen	279 g of sherds of one pot with fingertip decoration (LNEO or EBA), also a cattle horn core	Pit at De Bogen site 30, 50 cm deep, 60 cm diameter	Hielkema, Brokke & Meijlink 2002, 159
Tiel - Medel 5	924 sherds (*c.* 2.7 kg) of a single pot with fingertip impressions, cordons and pierced rim (EBA *riesenbecher*) Also 219 g bones of different animals	Pit, 70 cm diam., unknown depth	Ufkes 2005, 23; 44
Rolde	Large part of an incomplete Barbed Wire-stamp decorated pot; 31 cm high	In possible refuse pit	Van der Sanden 1992b, 71
Herike	Large part of a fragmented Barbed Wire -stamp decorated pot, *c.* 37 cm high	In shallow pit, sherds lined bottom of pit	Verlinde pers. comm. Aug. 2004; Verlinde 1978b, 89
Oosterhout - Van Boetzelaestraat	Large part of a fragmented Barbed Wire stamp decorated pot, all parts of pot (rim to bottom) present	In pit with some charcoal and possibly stone. In relative isolation.	Van den Broeke 2002a, 12; pers. comm. June 2007
Oldenzaal-Schipleidelaan	Sherds of very incomplete Barbed Wire stamp decorated pot (*c.* 24 cm high) sherds placed vertically in tight cluster	In small pit, within LNEO or EBA flint scatter	Verlinde pers. comm. Aug. 2004; Verlinde 1999, 163-164
Colmschate - 't Bramelt	Sherds of ¾ complete Barbed Wire-stamp decorated pot, presumably placed upright in pit	In small pit, within EBA posthole cluster in EIA urnfield	Verlinde pers. comm. Aug. 2004; Verlinde & Buisman 1989, 50
Oss - Horzak	Large part (bottom to rim) of fingertip decorated small vessel with pierced rim (*c.* 12 high), also fragments of two loom-weights and BWB sherd (EBA).	In pit (65 cm diam., 35 cm deep), lying on its side in middle fill	Jansen & Arnoldussen 2007, 24-25
Cuijk - Heeswijkse Kampen	*C.* 2.8 kg of pottery, mostly of a single pot decorated with 'maggots' (*i.e.* short rope stamps (EBA or MBA-A))	In small and shallow pit in test-trench	Ball & Heirbaut 2005, 71-73
Rhenen - Remmerden	58 sherds (2.1 kg) of large (27 cm; diam. 29 cm) pot with hollow round impressions, cord impressions and lug handles (EBA or MBA-A)	Large (1.1 m diam., 40 cm deep) pit at BA settlement site. Sherds stacked at the bottom of the pit	Jongste 2001, 12; 43-44 Jongste & Bloo 2002
Hapert - Castersche Dijk	Complete intact Hilversum-style pot 15 cm high.	Unknown, stray find	Beex 1954, 66-67
Cuijk - De Nielt	*C.* 3 kg of pottery, mostly of a single HVS-style pot. Sherds covered with hæmatite paste after fragmentation. Also a few (44 g) stones found	In small pit in test-trench, possibly former settlement site. Context unclear	Ball, Arnoldusssen & Van Hoof 2001, 18-19; Ball & Eimermann 2002, 27-30
Nistelrode	A Hilversum-style decorated vessel standing on its rim, top part destroyed	Large and shallow pit, some other possible MBA features nearby	Jansen *in prep.*
Boekel (1)	A Hilversum-style decorated vessel standing on its rim, top part destroyed	Posthole at possible MBA -A settlement site? 20 m from pit with two more HVS pots	Arts & De Jong 2004, 3
Boekel (2)	Two Hilversum-style decorated pots, One upright, one on its side (deposition or storage pit?)	Excavation, large pit at possible MBA-A settlement site, 20 m from posthole with inverted HVS pot	Arts & De Jong 2004, 3
De Bogen	613 g of sherds of mainly one BA pot with hollow round impressions	Large (1 m diameter, 30 cm deep) pit at De Bogen site 28-1	Hielkema, Brokke & Meijlink 2002, 245; Ufkes & Bloo 2002, 350 fig. 4.73
Enspijk - A2	Upper part of barrel-shaped BA pot (radiocarbon dated MBA-B)	In posthole of four-post granary-type outbuilding	Ter Wal 2005b, 32
Well-Aijen	> 100 sherds, presumably of single cylindrical pot (upper part only?)	In posthole of irregular structure, possibly four-post outbuilding	Williams & Tichelman 2005, 89

Table 8.1 Possible pottery depositions.

Site	Content	Context	References
Cuijk - De Beijerd (1)	66 sherds of mostly one Bronze Age pot, parts of rim, wall and bottom preserved, pos. standing upright?	In very large (*c.* 2 by 1.3 m, 40 cm deep pit)	Heirbaut 2006, 35
Cuijk - De Beijerd (2)	7 sherds (*c.* 1.3 kg) of top half barrel-shaped Bronze Age pot,	In large (*c.* 1.5 m diam, 17 cm deep pit)	Arnoldussen 2005, 76 fig. 6.2; 77
Lienden (Kesteren - De Woerd)	15 sherds (289 g) of top part of single pot, decorated with finger-tip impressions 4 cm under rim	In deep (1.6 m) and wide (2 m) deep possible refuse pit; context, date and other contents unclear	Ufkes 2002a, 109
Gennep - De Smele	331 sherds of all parts of BA pot decorated with row of finger-tip impressions 6 cm below rim	In large pit near possible BA structure	Mooren & Van Nuenen *in prep*.
Breda - Bierensweg	Near-complete barrel shaped pot with pierced lug handle, (*c.* 2 kg, 28 cm high) also 34 sherds of same pot (MBA-B, radiocarbon dated)	Oval pit (1.3 by 0.7 m, 36 cm deep), pot in fragments in middle fill	Meijlink 2006, 197-198
Breda - Vinkenburg	Near-complete low (8 cm high) cup or bowl, fragmented into 18 sherds no decoration (BA?)	Rectangular pit (1.6 by 0.8 m, 32 cm deep). Shape may indicate funerary function?	Meijlink 2006, 199
Rosmalen - Site 8	26 sherds of an undecorated BA pot	Clustered in large (*c.* 2 m diam., 1 m deep) pit (or (drinking pool/well?) on (BA to?) EIA settlement site	De Koning & Vaars 2003, 24; 33
Apeldoorn	320 sherds, mostly of a single undecorated pot. High (*c.* 30 cm) vessel of (final MBA-B or) LBA date	In large (75 cm diam.) pit possibly associated with house plan	Bloo 2007, 29
Harderberg-Marienberg	Inverted (MBA-B or LBA) pot placed on bottom of pit	Rectangular (1 m) pit in LBA urnfield (cenotaph?)	Verlinde 1978a, 124
Tubbergen - Mander III (1)	Four LBA accessory vessels on bottom of pit	Rectangular (0.9 by 0.45 m, 34 cm deep pit in LBA urn-field (cenotaph?)	Verlinde 2001, 171
Tubbergen - Mander III (2)	Near-complete LBA accessory vessels (*c.* 7-21 cm high)	Three postholes of four-post 2.5 by 1.5 m structure, mid-way in feature fill. 9 m from pit described above	Verlinde 2001, 171
Breda - Steenakker (1)	Parts of two barrel-shaped pots, one decorated with cordon and fingertips on rim, MBA (or LBA *Grobkeramik?*)	In pit in isolated position on extensively excavated area (dimensions pit unclear)	Berkvens, Brandenburgh & Koot 2004, 60; 76; 82
Breda - Steenakker (2)	32 sherds of 1 inverted placed BA pot (interpreted as grave, yet no crem.)	In pit in isolated position on extensively excavated area (pit 1 by 0.6 m, 6 cm deep)	Berkvens, Brandenburgh & Koot 2004, 73-75
Breda - Steenakker (3)	46 sherds of 1 BA pot, chamotte temper (interpreted as grave, yet no crem., LBA (?))	In pit in isolated position on extensively excavated area (40 cm diam., 15 cm deep)	Berkvens, Brandenburgh & Koot 2004, 73-75
Molenaarsgraaf	Fragments of large (14 cm diam) loom-weight with two vertical perforations also lump of potting clay, nothing else	In pit on LNEO-EBA settlement site	Louwe Kooijmans 1974, 228-229
De Bogen	54 pieces (4.9 kg) of over 10 loom-weights (pre-dating MBA house)	Pit (*c.* 55 cm diam, 8 cm deep), cross-cut by house 28-1AH	Hielkema, Brokke & Meijlink 2002, 264
De Bogen	Pieces (132 g) of loom-weight (dating house MBA-B?)	Post-pipe of posthole house 45AH	Hielkema, Brokke & Meijlink 2002, 179
Lienden	Fragment (*c.* 600 g) of a large (16 cm diam.) loom-weight, with 1 kg of pottery	In posthole (30 cm diam., 20 cm deep), possibly of structure?	Ufkes 2002a, 106

Table 8.1 (continued) Possible pottery depositions.

is sometimes difficult.[69] Here as well, articulation of skeletal elements (such as the lower limbs of De Bogen or Zwaagdijk, the half piglet of Lienden or rump of Velsen; table 8.2) and exclusivity (what else is present?) may be important criteria. I propose that during the Bronze Age, especially skulls (of cattle) and animal horns of a number of species, may have been of special importance and may have figured more prominently in depositions. Several examples of (near-)complete cattle skulls placed in pits are known from De Bogen, Lienden and Velsen (table 8.2).

At Tiel - Medel 8, skulls are present in three wells. For example, over 2.4 kg of a (nearly) complete horned cattle skull was found together with smaller quantities of wood, Bronze Age pottery and an antler fragment midway up the shaft of a possibly lined well (Van Hoof & Jongste 2007, 66 fig. 5.7.1). The contents (almost exclusively cranial fragments) and the high position within the well's fill indicates that this is: (a) no arbitrary selection of settlement debris and (b) that this must have been deposited at a (the?) time when the well was taken out of function. Possibly, a partial cattle skull from another Middle Bronze Age well should be interpreted along similar lines (table 8.2). That cattle skulls were of special significance to the Bronze Age occupant of Tiel - Medel 8 is suggested by yet another skull originating from the lowermost part of another well (De Leeuwe & Van Hoof 2007, 63). This presumable bull skull had two holes punched in it, to allow two straps to be passed through (Cavallo & Van Groenesteijn 2007, 139 fig. 6.19). The polishing caused by these straps suggests that this skull was once suspended from some construction that still allowed for some lateral motion (fig. 8.10). Possibly, it was suspended from a well-covering structure, a granary or a house.[70]

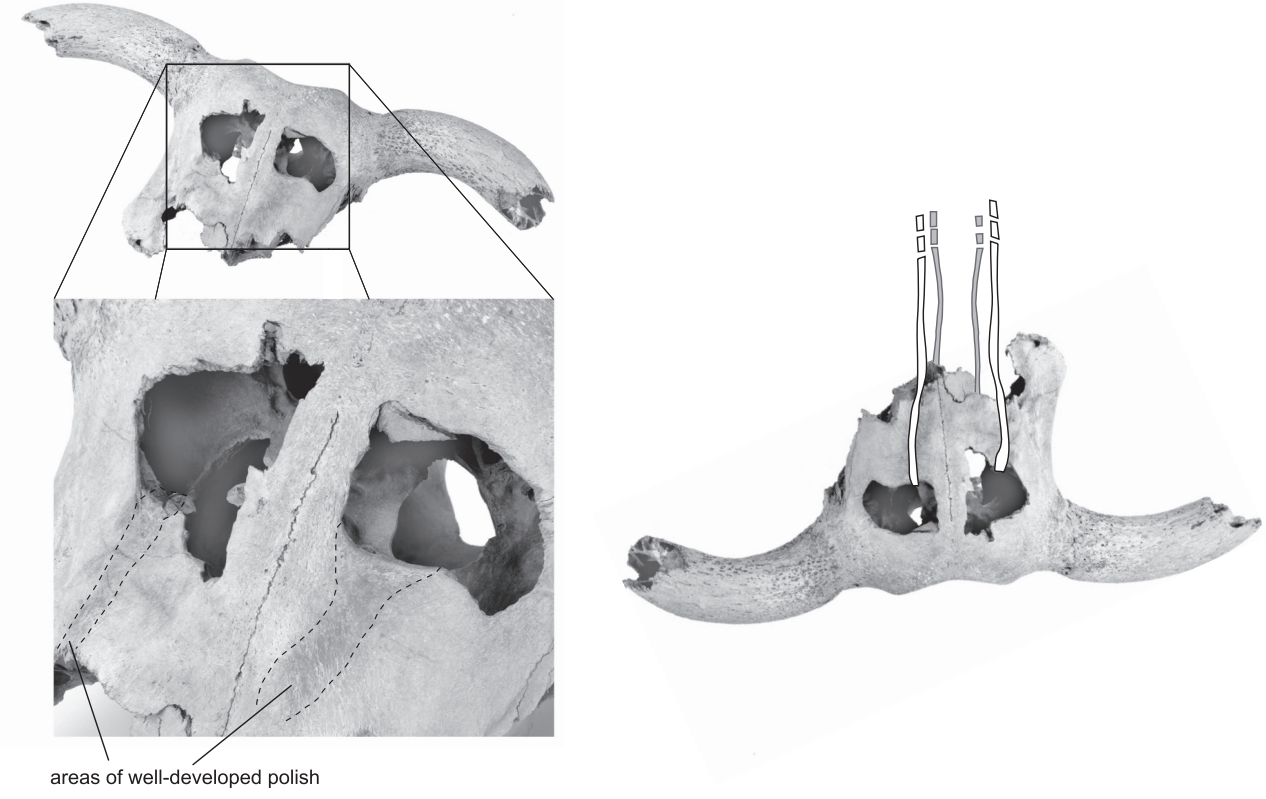

Fig. 8.10 Cattle skull with added holes through which straps have been passed. From the bottom of a Middle- or Late Bronze Age well at Tiel - Medel 8 (after Cavallo & Van Groenesteijn 2007, 139 fig. 6.19).

69 In addition, animal graves may be present on (Early) Bronze Age sites (*cf.* Louwe Kooijmans 1974, 264-267; Yates 2007, 41). While these (in the strictest sense) are intentional depositions, I will not concern myself with animal interments here.
70 *Cf.* Peeters 2007, 202.

Site	Content	Context	References
Eigenblok	Cattle horn core	In small posthole (s3.227) at house-site 5	Original fieldwork documentation
De Bogen	Cattle horn cores in two postholes and bone fragments in two others	Postholes of four-post granary type outbuilding at De Bogen site 30	Hielkema, Brokke & Meijlink 2002, 155-156
De Bogen	Skull fragments of one, possibly two young bulls (*c.* 1 kg), mixed with other cattle bones and a sheep/ goat's tooth (total weight 2.5 kg)	Pit (70 cm diameter, 30 cm deep) at 3 m from granary type outbuilding with horn cores at site 30.	Hielkema, Brokke & Meijlink 2002, 159
De Bogen	Two complete right sheep horn cores and three BA sherds	Three-post row next to palisade at site 29	Hielkema, Brokke & Meijlink 2002, 178
De Bogen	Aurochs skull in pit with other bone fragments (tot. 4.2 kg), a few stones dating unclear (LNEO-BA?)	Large (1.3 m diam.) and deep (1 m) pit west of house 29B2/3H	Hielkema, Brokke & Meijlink 2002, 186
Velsen - Velserbroek	Bull skull with a bark-and-willow basket (dated EBA-MBA-A) or container placed on right horn, also other bones recovered	Large pit in pit cluster at 30 m from possible contemporary barrow	Therkorn 2008, 150-151
Velsen - Velserbroek	Cattle skeleton, without the skull and limbs	Large pit in pit cluster at 30 m from barrow	Therkorn 2008, 150; 2003, 18
Velsen - Velserbroek	Two cattle skulls and complete calf	Rectangular pit in BA house at extension or partition wall	Bloemers & Therkorn 2003, 18; fig. 3.11, C
Lienden	Near complete cattle skull with horn(s), *c.* 500 g, two small stones	In 30 cm deep large (70 cm diameter pit	Buitenhuis 2002, 219
Lienden	1.2 kg of bones: 7 *astragali* 28 cattle teeth and 3 swine teeth also 300 g pottery and 100 g stones	In 20 cm deep large (1 m diam.) pit near four-post outbuilding	Buitenhuis 2002, 219
Tiel - Medel 8	Cattle skull with horn(s?), together with some BA sherds, wood and antler fragments midway in infill	MBA well, possibly lined	De Leeuwe & Van Hoof 2007, 65-66
Tiel - Medel 8	Part of a cattle skull with horn(s?), *c.* 1 kg, with some BA sherds, and some stones and pig bones	MBA-B well, with dated notched log ladder, possible LBA intrusion by overlying LBA house plan	De Leeuwe & Van Hoof 2007, 66
Tiel - Medel 8	Near-complete cattle skull with horns, two holes punched with traces of suspension straps.	MBA or LBA well, from lowermost fill, near cluster of LBA structures	De Leeuwe & Van Hoof 2007, 66; Cavallo & Van Groenesteijn 2007, 139
Hoogkarspel - Bullenland	Complete cattle skull and two horn cores	Skull in third, cores in second period barrow (MBA-A?) ditch	Modderman 1974, 257
Wervershoof - De Ark / XIII	Complete cow skull and fragments of other skulls	From ring-ditch of multi-phased (MBA?) barrow	Van der Waals 1961, 101
De Bogen	Cattle lower limb (articulated) in pit with other (mostly cattle) bones (*c.* 2 kg, a.o. horn core and cranial fragments) also barbed wire-stamp decorated sherd, some burned clay and few other stones and flints	Pit (1 m diam., 34 cm deep), west of house 28-1AH (EBA *t.p.q.*)	Hielkema, Brokke & Meijlink 2002, 263-264
Zwaagdijk - Oost	Lower limbs of cattle (articulated) in bone-rich (refuse?) pit	Pit (1.7 by 1.15 m diam., 38, cm deep), on MBA-B-LBA settlement site	Ufkes & Veldhuis 2003, 76
De Bogen	Remains (10 g) of burnt neonate piglet, different body parts	Posthole of house 28-1AH, possible entrance portal	Hielkema, Brokke & Meijlink 2002, 252
Lienden	Back half of 3 months old piglet, different body parts	Pit (60 cm diam., 30 cm deep) next to outbuilding	Buitenhuis 2002, 219

Table 8.2 Possible depositions of animal bones.

It is plausible that (cattle) horns too had special significance to Bronze Age communities. This may be assumed based on the horn-like protrusions of the Bargeroosterveld cult building,[71] the deposition of cattle horns in the peat,[72] and – outside the Netherlands – the presence of horned helmets in metalwork and iconography and enigmatic horn-shaped clay objects.[73] Horns may also have figured in depositional acts within settlements. The presence of cattle horn cores in a stray posthole at Eigenblok and from two postholes of a granary-type outbuilding at De Bogen may be examples of this. At 3 m to the south of the latter outbuilding, in a pit with other livestock bones, remains of one or two skulls of young bulls were found (Hielkema, Brokke & Meijlink 2002, 159) and one may speculate whether the two deposits were related. Two right horn cores of sheep from a small posthole at De Bogen may also have been an intentional deposit. Additionally, some assemblages of animal bones are so distinct in composition that an interpretation as refuse can be refuted. Examples are the pit with *astragali* and teeth at Lienden or the two skulls interred with a young calf at Velsen (table 8.2).[74]

Quern and other stone depositions

Worked stone, and querns in particular, form a third category of material culture that may have been a focus of intentional deposition during the Bronze Age. Quern depositions are known from funerary contexts (*e.g.* Hoogkarspel, Exloo, Angelslo, Lent),[75] as well as from the 'wet parts of the landscape' (*e.g.* Exlooërmond, Oosterhout; table 8.3),[76] but querns are also frequently found at settlement sites. Arguing for ritual rather than pragmatic backgrounds to their incorporation into the archaeological record at settlements, is again difficult. Grinding stones may have been discarded if broken (when re-roughening or dropped) or eroded to a point beyond that which was considered acceptable.[77] Nonetheless, in cases when both handstone (runner) and grinding slab (quern) have been interred,[78] simple discard may be excluded. In some other cases, the context of the querns recovered (such as in the well at Tiel - Medel 8) or the fact that they have been (deliberately?) fragmented such as at Rhenen - Remmerden (table 8.3) suggests intentional deposition. In cases where querns are found mixed with other finds (*e.g.* Zwolle, Elp, Boxmeer; table 8.3) or only quern fragments are recovered, such an interpretation is difficult to substantiate.

For example, at Eigenblok site 5, an amphibolite anvil may have been deliberately fragmented and spread across the house-site (Jongste 2002b, 595). While the distribution of these fragments is interpreted as clustering near the house entrance (Van Gijssel *et al.* 2002, 288), this 'cluster' weighs only 10 g (with a reconstructed anvil weight of over 280 g) and the distribution of amphibolite fragments appears to be much wider and – more importantly – is similar in shape and size to that of the other settlement debris, such as the pottery.[79] This indicates that the fragments need not have been deliberately spread across the house-site as part of abandonment rituals (*contra* Jongste 2002b, 625). Nonetheless, the observable fine fragmentation of such durable worked stone did not occur naturally, indicating that here intentional fragmentation, rather than intentional deposition may be at play.

In addition, there are examples of stones other than querns being deposited. The two depositions at Heiloo and Buren involving flint sickles are good examples (table 8.3). Collections of unworked stones may also have been buried intentionally. At Molenaarsgraaf, a concentration of 79 quartz and quartzite stones may have been deposited

71 Van Zeist & Waterbolk 1960; Van der Sanden 2000.

72 Prummel & Van der Sanden 1995, 113.

73 *E.g.* Briard, 1987, 100, 124; Osgood, Monks & Toms 2001, 28; Kristiansen & Larsson 2005, 330-334. For examples of the horn-shaped clay objects see Briard 1987, 26-27.

74 Additional examples of the possible special or ritual importance of cattle teeth are the deposit of a (Late Neolithic to Early Bronze Age) porphyry axe and cattle teeth at Uitgeest - Achterloet (Kok *in press*., section 4.2.1.1) or the teeth in the hand of the teenager buried in the De Bogen barrow during the (Middle) Iron Age (Hielkema, Brokke & Meijlink 2002, 211).

75 See Lohof 1991b, nos. 071-1/2 (Bronnegerstraat - II), 086-0 (Emmerdennen - I), 123-1/2 (Koningskamp - II), 172-0 (Noordseveld - 34) and 256-1/2 (Drouwenerstraat - VII) for other examples of possible quern (fragment) depositions in barrows.

76 See also Kok (*in press*, section 4.2.1.2) for a possible Late Neolithic/Early Bronze Age quern deposit from the beach barrier near Limmen.

77 In more mobile modes of subsistence, such as that of the Australian aboriginals, querns may be buried for future use and are thus protected from the elements (Holmberg 1998, 134). See Holmberg (1998, 133-134) for some other ethnographic examples of grinding stone production and use.

78 *E.g.* Rosmalen, Helden, Angelslo, Apeldoorn, Hoogkarspel; table 8.3.

79 Compare Van Gijssel *et al.* 2002, 298 fig. 5.11 versus Chapter 6, fig. 6.36.

Site	Content	Context	References
Tiel - Medel 8	Diorite quern of 1.7 kg, possibly used on two sides	In topmost fill of LBA well	Van Hoof & Jongste 2007, 124 fig. 6.12e
Rolde	Saddle quern and fossil urchin (BA date based on ceramics)	In possible refuse pit	Van der Sanden 1992b, 71
Zwolle - Ittersumerbroek	Granite quern and 63 bronze age sherds, also some stones and flint	Pit, overlaps with older pit, in EBA-LBA possible settlement site	Van Beek & Wevers 1994 , 54-57
Rosmalen - Site 8	Complete saddle quern and runner stone. Quern inverted over runner stone	In pit (70 cm diam., 35 cm deep) at intersection of Fence lines at (BA to?) EIA settlement site	De Koning & Vaars 2003, 32; 35
Helden-Panningen	Complete quartzite saddle quern and runner stone (normal positions)	Surface level, no feature visible, possible BA site?	Kenemans & Goosens 2002, 14 fig. 9
Angelslo	Complete saddle quern and runner stone.	Precise context unclear, at MBA-LBA settlement site	Harsema 1979a, 15-16
Elp	(near-) Complete quern and other stone (quern?) fragments	Pits north of house 12, settlement site datable to the MBA-B/LBA transition	Waterbolk 1964, 110; 128, fig. 22
Boxmeer	Complete quartzite quern (possibly with few MBA sherds)	In pit of pit-cluster at 10 m from a MBA-B house	Van der Velde 1998, 32 Hiddink 2000
Oosterhout - Rustwat	Complete quartzite saddle quern	In residual gully. Traces of burning and ditch structures and bronze dagger on levee (possible deposition site)	Van den Broeke 2002a, 20
1e Exlooërmond - Markiezenveen	Complete saddle quern and runner stone.	Precise context unclear, found during peat-cutting	Harsema 1979a, 15-16 Van der Sanden 1998, 115
Apeldoorn	Complete granite saddle quern and runner stone.	Precise context unclear, near Uddelermeer, stray find (ploughed up)	Hulst 1990, 187; 189
Apeldoorn - Solsche Berg	Complete granite quern (unpublished inventory list Bursch)	Found during barrow excavations (tum. VI)	Bursch 1933, 75-76; Q. Bourgeois, pers. comm. June 2007
Hoogkarspel - Bullenland	Complete quern and runner stone, quern inverted (work face down)	Just outside ring-ditch of third barrow (MBA-A?) phase	Modderman 1974, 255-258
Exloo-Paasberg	Complete saddle quern	In stone lining in EBA barrow	Harsema 1979a, 15; Harsema & Ruiter 1966
Angelslo - Emmerhout - Tum. II	Complete saddle quern	In stone packing in or on top of (MBA-A?) barrow	Van der Waals 1963b, 251-252
Lent - Smitjesland A	Complete quern	In cluster of urned cremation graves dated to the final two centuries of the MBA-B	Van den Broeke 2002a, 21
Eigenblok	Fragmented amphibolite anvil, deliberately smashed?	Spread across surface area of house-site 5	Jongste 2002b, 595
Rhenen - Remmerden	Three fragments of complete granite quern (7.2 kg), (burned and broken) Fragment (3.9 kg) of second granite quern. Also some (443 g) BA sherds	In pit (86 cm diam., 16 cm deep) in pit cluster of EBA to (M?)BA date	Jongste 2001, 43; 44 Kars 2001, 44-45
Buren	Surface finds of several fragments of five flint sickles (LBA-EIA)	Unclear, stray finds (possibly deposition)	Hulst 1987, 207-208

Table 8.3 Possible quern and stone depositions.

Site	Content	Context	References
Heiloo	Four flint sickles and a bronze sickle planted straight up, bronze one in the middle	Unclear, stray find	Brunsting 1962
Molenaarsgraaf	Concentration of 79 quarts and quartzite pebbles, one clay-stone	At Bell Beaker to EBA settlement site (pit not visible?)	Louwe Kooijmans 1974, 236
Meerlo - Meerloërheide	Concentration of 40-60 quarts pebbles	At LNEO to MBA-A possible settlement site? (pit not visible?)	Verlinde 1971, 44
Zwolle - Ittersumerbroek	White quartz pebbles, nothing else	In a few (possible storage) pits on EBA-LBA possible settlement site	Verlinde 1993, 46
Den Haag - Bronovo	Pit with many fire cracked stones and pit with ring of stone	At possible MBA-A settlement site: pits or postholes?	Waasdorp 1991, 229-230; Bulten *in prep.*

Table 8.3 (continued) Possible quern and stone depositions.

(Louwe Kooijmans 1974, 236).[80] From Meerlo and Zwolle, similar depositions of quartzite pebbles are known (table 8.3). It is important to realize that these collections of pebbles are the raw material with which, after fragmentation, pottery was commonly tempered. Such pebble clusters may have been collections of tempering materials, or may have been perceived as being representative thereof.[81] Generally, however, clusters of stones are not commonly found on Bronze Age settlement sites. For a collection of fire-cracked (cooking?) stones at Den Haag - Bronovo, it is not clear whether these stones once served as post packing, or whether they were intentionally deposited in a posthole or small pit (Waasdorp 1991, 329).

Non-metal object depositions at Bronze Age settlement sites: a conclusion

The examples discussed above indicate that while depositional acts can only seldomly be associated with structures such as houses or outbuildings,[82] object deposition *per se* was not uncommon at (possible) settlement sites. The object categories involved in such depositional acts can be characterized as domestic, transitory or transformative, and the process of fragmentation may have been one of the key elements. To start, all object categories are strongly connected to food production or food processing. Pottery served to store and prepare foodstuffs, livestock may have provided dairy products as well as meat, and querns were presumably also related to the daily task of the preparation of cereals and possibly other foodstuffs. Querns may have actually been used by the household for food preparation prior to deposition, or may have symbolized such activities.

Nonetheless, while outspokenly domestic, in the spatial patterning of such deposits no evident structural proximity to houses can be argued for. Rather, settlement sites as a whole appear to be suitable arenas for such depositions. For instance, while pottery deposition may have been more dominant on (possible) settlement sites, it is not altogether absent in other domains of the cultural landscape.[83] For example, pottery that cannot evidently be interpreted as grave goods may have been deliberately fragmented and placed in Early Bronze Age barrows.[84] Moreover, the presence of both grinding stones and skulls in barrow ring-ditches has been documented (tables 8.2-8.3). Similarly, the quern from the residual channel at Oosterhout (Van den Broeke 2002a, 20) and a radiocarbon dated cattle horn from a peat bog (Prummel & Van der Sanden 1995, 133), indicate that 'domestic' items were part of the depositional traditions that, in 'wetter' locations, seem otherwise to be predominantly focused on metalwork

80 A comparable find was discovered at Meerlo - Meerloërheide, but there the dating of the pit with pebbles is indeterminate, but presumably Late Neolithic to Early Bronze Age (Verlinde 1971, 44). See also the Iron Age pot with 586 pebbles placed in the posthole of a possible structure at Boekel (Arts & De Jong 2004, 4).

81 See also Darvill (2002, esp. 76-84) on the use and possible significances of white quartz in Neolithic societies.

82 They thus do not represent foundation deposits or abandonment deposits related to structures, *cf.* section 3.4.3.

83 See examples in tables 8.1-8.3.

84 *E.g.* Lanting 1973, 224; 226; Bourgeois & Fontijn 2007, 9.

deposition. I should stress the use of the word 'seem', as for organic materials such as horns, antlers, hair or wool, chances of preservation and recovery (during former peat-cutting campaigns or dredging) are lower, and their age can only be assessed by expensive absolute dating techniques, which means that their presence is presumably underrepresented. Having said this, settlement sites may remain more prominent arenas for the deposition of items related to domestic tasks.

Second, the presence of such items – rich in domestic connotations – in domains otherwise kept more discretely separate is remarkable.[85] For some reason, these items were part of wider conceptual schemes that allowed them to be transferred meaningfully between the different domains. Possibly, their associated meanings and even practical functions changed significantly upon such shifts of domain. For example, Brück (2005, 152; 2006, 302; 305) has suggested that querns and grinders which are found in Bronze Age funerary contexts in the United Kingdom, may have been used to further fragment cremated human remains. Such interpretations are plausible and it is, for instance, debatable whether a deposition of an animal skull in a pit on a settlement site carried similar connotations, or served similar purposes, to the deposition of a skull in a funerary ring-ditch. In any case, for domestic elements such as pottery, grinding tools and animal parts it was considered appropriate to transgress domain boundaries. I have argued earlier that for other domain constituents, such as metalwork deposition and monumental burials, segregation may have been much stronger. Why these items figured in comparable ways in depositional acts in the different domains is unknown, but some suggestions may be made.

Livestock, herded and grazed in locations distant from the houses, need not have been perceived as being conceptually bound to settlement sites. To use their skulls, feet and horns in other parts of the landscape rather than only those with domestic uses, may therefore have been considered unproblematic.[86] As for pottery, it is possible that the range of associations was much wider than expressing solely domestic affinities.[87] During the Bronze Age, a transition took place from ceramic vessels being interred as grave goods, to being used as cremation containers. This suggests that their functions and connotations depended on type, contents and context. In any case, the Early Bronze Age tradition of depositing sherds in, or under, barrows rather than using vessels as grave gifts (or urns), indicates that a long tradition of pottery use in funerary contexts changed radically at the start of the Bronze Age.[88] Nonetheless, most pottery depositions appear to take place on, or near, possible settlements.

The querns are the most outspoken example of domain crossing depositions. Whilst found mostly on possible settlement sites, they are also found at funerary sites and in 'wet' depositional locations. Although the presence of grinding stones in a stone barrow capping may be unintentional re-use of (previously) discarded stones, the examples from Lent and Hoogkarspel show that in most cases it may have been their (potential) grinding (*i.e.* fragmentation) capacities rather than basic material properties that mattered. While the querns at funerary sites could have been discarded after being tabooed by specific funerary acts (*e.g.* food-preparation or even the crushing of human bones), the presence of querns in residual gullies or other peaty environments remains enigmatic. It seems improbable that they served any functional purpose in these locations prior to being deposited there. Rather, these are cases of placing a domestic element *par excellence*, the quern, in locations that were perceived as suitable for object depositions but in which generally other categories of items (predominantly metalwork and particularly weapons) were placed (*cf.* Fontijn 2007). Therefore, although the intentions and emotions behind such individual depositional acts cannot be retraced, it seems improbable that Bronze Age communities were not aware of the domain-crossing aspect of such acts. Querns were not simply left behind in – or near – houses, but ended their life-paths in bogs, residual gullies or incidentally near barrows, and most frequently buried in pits. Similarly, in specific circumstances pots (frequently decorated) were broken and placed in small pits. The fact that some are inverted or that sherds are carefully stacked or placed vertically, excludes the possibility of casual discard. These were deliberate acts in which the use-life of specific pots was put to an end by fragmenting them and placing (part of) the fragments into the ground.

85 For example, there is no clear-cut tradition of metalwork deposition or the construction of monumental graves on settlement sites.
86 Like the role of the fences, which I have argued integrated wider areas into settlement site space, the movements of livestock may be perceived as integrating domestic (*i.e.* literally domesticated) elements and connotations into the wider environment.
87 *Cf.* Yates 2007, 39, who discusses a deposit in a disused well dated to the Late Bronze Age (*c.* 1050-780 cal BC) at Radley (UK), in which all three main categories of non-metallic depositions (pottery, skulls and stone) figure combinedly (an inverted cattle skull placed on a tripartite bowl and a horse tibia, with a large piece of quartz and quartzite pebbles nearby.
88 Sometimes complete beakers may have been interred; *e.g.* Modderman 1959b.

It may be that this deliberate fragmentation (pots into sherds, live animals into skulls, horns and feet) and the tools of fragmentation (querns) were related to notions of regeneration and fertility. For the English Bronze Age, Brück has cogently argued that such fragmentation may have been perceived as being analogous to the processing of cereals, ore-processing or the use of stone tempering, in which generative forces of raw materials are activated through fragmentation (Brück 2001b, 153-155; 2006). As such, depositional acts involving the three categories described above may have been related to, or may have been perceived of, as directly ensuring or affecting, the fertility and well-being of the associated households.

8.2.3.6 Everything in its right place: the essence of the Middle Bronze Age(-B) cultural landscape

At the start of the Middle Bronze Age-B, a period of significant categorization of landscape use became manifest. Separate domains for monumental burials, (metalwork) deposition in 'wet locations' and domestic and agricultural activities were created and maintained over long times in different parts of the landscape: everything had its right place. In particular, the extensive manner in which the environment around the houses was structured in the river area, presents a clear-cut break with preceding periods. Bi-axial fence-systems (and in some regions ditch-systems) compartmentalized and integrated large areas into settlement space. Above-ground constructions left a human mark on the landscape at an unprecedented scale.[89] Next to practical functions (*e.g.* setting apart plots for crop cultivation or grazing, the accommodation of house-sites or livestock management) such fence-systems may have served as boundary markers both *within* and *between* communities. Within such fence-systems, areas around the Middle Bronze Age-B houses can be identified that were chiefly used for domestic activities, as is indicated by the distributions of finds and outbuildings, which are both centered on the houses. Areas of hundreds of meters around Middle Bronze Age-B houses may have been fenced, but fences were generally not constructed with the intent to gird house-sites. Within this built-up part of the cultural landscape, the majority of domestic and some of the agricultural tasks of Bronze Age households were undertaken.

The processing of foodstuffs, hide and textile production and various other tasks may have been undertaken near houses, although probably not exclusively near houses. There are almost no indications that artisanal activities which required larger open or controlled fires, such as pottery production or metalworking, took place at close distances to the houses. While much of the time of the household occupants will have been determined and occupied by tasks related to crop-cultivation and livestock breeding, households and communities were invariably parts of wider social networks, to which also time and resources were devoted. At the level of the neighbourhood, close contacts ensured that help was offered when agricultural tasks (harvesting, exchange of breeding stock), illnesses or threats of violence –such as raids – called for it. At the level of wider (local and regional) communities, contacts were maintained that allowed special goods to be acquired and (relationship) partners to be found. In such more large-scale networks, the dissemination of both practical (*e.g.* house building) and esoteric (*e.g.* cosmological) knowledge presumable took place as well.

With respect to burial customs, we must conclude that settlement sites were not the places for disposal of most of the dead. There are a few cremations known at Bronze Age settlement sites, but unmarked (*i.e.* 'flat' or inhumation) graves and barrows were as a rule not constructed there. It seems that the majority of the dead from this period have disappeared without a trace. Excarnation, surface level graves, or riverine disposal may all be valid, albeit unproven, explanations. Of the segment that *was* archaeologically visibly interred in the monumental barrows, it is difficult to ascertain what percentage of the living population they represent. Such barrows were mostly constructed during the Middle Bronze Age-A, which is a period during which the archaeological visibility of houses is very low. Consequently, it remains unclear how domestic sites and monumental funerary sites interrelated directly prior to the Middle Bronze Age-B. In any case, during the Middle Bronze Age-B the distribution of barrows – which were by then less frequently constructed and tended to cluster near and on top of older barrows – is more or less exclusive to that of the now clearly recognizable houses. Barrows cluster in the higher or highest parts of the micro-topographic landscape, possibly because of the commanding views from them, or due to other cultural preferences for an elevated

89 For an example of an approximation of the scale of landscape usage by single households in the northern Netherlands see Fokkens (1998, section 9.4), who argues that a 5 to 15 person household (assuming 1:10 crop yield factor) would use between 2 to 5.6 ha of arable, while for the house-site only 0.5-1 ha was used (*ibid.*, esp. 142 table 25).

position. Extensively excavated barrow clusters do not yield contemporary habitation traces, indicating that the living had no place in the realm of the dead. From their elevated locations, deceased turned into – or appropriated as (mythical) – ancestors may have been considered to overlook, legitimize or steer the locations of the domestic sites and the agricultural use of the lands around such monumental burials.

Object deposition took place in all parts of the (cultural) landscape, but the types of objects involved and the contexts within which such depositions were placed, again reflect a strong categorization of (cultural) landscape zones. Within and around the settlement sites, depositions of fragmented (decorated) pottery, skulls and sometimes querns in pits occurred. Metalwork is generally scarce on settlement sites, but there are slight indications that weaponry may have been intentionally left at Bronze Age settlement (and funerary) sites in the river area and in the regions to the north of it. Nonetheless, to the south of the river area this is no common pattern, as there most bronze items (including weaponry) have been recovered from streams, marshes and other 'wet zones' in the landscape. These 'wet zones' are the opposite of the Middle Bronze Age-B settlement sites, in the sense that no built structures are present there and that human impact on the appearance of the natural environment may have been minimal. The fact that some such locations have nonetheless yielded significant numbers of deposited items that date from different periods, suggests that the system of classification or landscape 'reading' that determined the 'proper' locations for object depositions in the unaltered wetter zones of the landscape, was similar over long periods.

To sum up, for several centuries after the start of the Middle Bronze Age-B, a cultural landscape was maintained in which properties of regularity and categorization appear to have been of chief importance. Settlements were foci for the interactions of people with each other. They were situated in gradient-rich locations near active river courses or streams. Thus, areas for crop-cultivation, livestock grazing and active river channels (used for riparian resources and contacts) could all be easily accessed from the settlements. The absence of monumental burials may indicate that those deceased for which such a funerary ritual was appropriate (*e.g.* those ceremonially converted into – specific – ancestors?) had no place amongst the living. Instead, isolated barrows and barrow clusters were constructed in slightly higher locations (which could comprise the highest parts of fluvial deposits, coversand ridges or the ice-pushed hill deposits). Thus, the proper location for ceremonial interactions of people with the ancestors, may have been one that was distant from the settlement, and preferably situated at an elevated location. While older monumental graves may have been incorporated into settlements, it appears that new ones were only very rarely constructed on or near house-sites during the Middle Bronze Age-B. Depositions seem to have occupied a distinct spatial domain within the wider (cultural) landscape as well. While some categories of items, such as querns, pottery and cattle skulls – which may all have carried domestic connotations – were deposited in a wide range of locations (settlements, funerary sites, natural wet areas), deposition of metalwork is again concentrated in specific landscape zones. Confluences of rivers, streams and marshy locations in particular were places where metalwork was repeatedly deposited. Weaponry seems to have been preferably placed in larger rivers, as this category of metalwork is rare (but not completely absent) from graves and settlements. A schematic representation of the different geographical distribution of such depositional, funerary and domestic domains in the physical landscape of the Dutch (eastern) central river area is offered by figure 8.11.

Settlements with some numbers of houses are found on levee and crevasse deposits of inactive fluvial systems as well as on crevasse splay deposits of inactive rivers of different types. Around such occupation clusters, extensive systems of landscape structuring executed in fences were present, which may have linked-up, or may have deviated purposely in orientation between settlements. Within and around such fence-systems, the higher sandy to silty parts of the landscape could be used as crop-fields, while the grazing of livestock could take place in the lower-lying areas near and in the floodbasins. The main rivers around such habitation clusters were used for contacts, fishing and (metalwork) deposition. Residual gullies and areas of (floodbasin) peat were presumably considered favoured locations for object deposition.

Possibly, parts of this strict categorization started to deteriorate during the last two centuries of the Middle Bronze Age-B. Rules of post-placement that had dictated the construction of houses for two to three centuries seem no longer to have (been) applied as strictly. Additionally, the outbuildings that were (particularly in the river area) closely bound to houses and shared the orientation of them, seem no longer to have been strictly placed in close proximity and with corresponding orientations. The concept of a structured house-site like that current in the river area during the Middle Bronze Age-B seems to have waned. Extensive fence- or ditch-systems, from which

an integrative attitude to landscape structuring of the settlement site environment may be inferred, were no longer present. For reasons yet ill-understood, rules of regularity and categorization that were more rigidly applied during the Middle Bronze Age-B, were more open to manipulation at smaller spatial scales during the Late Bronze Age. This signaled the end of the typical Middle Bronze Age-B structuring of the wider (cultural) landscape, and that of the agricultural habitation clusters situated within it.

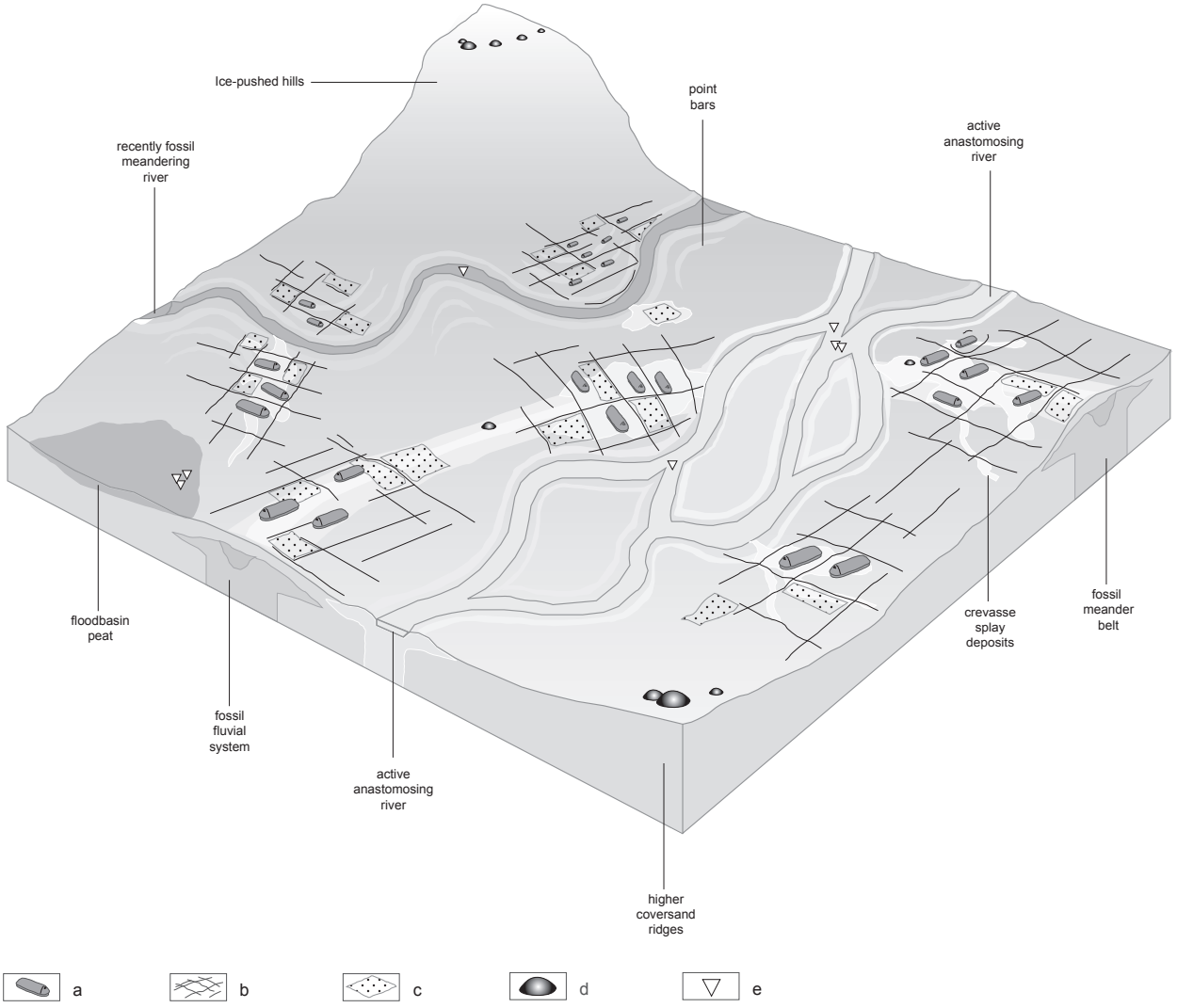

Fig. 8.11 Schematic simplefied representation of the Middle Bronze Age-B cultural landscape elements and their distribution in relation to simplified geogenetical units in the Dutch (eastern) central river area.

a: house-sites, b: fence systems, c: crop fields, d: barrows (mostly pre-MBA-B), e: metalwork deposition.

8.3 A LIVING LANDSCAPE: EPILOGUE AND WAYS FORWARD

In the previous sections of this chapter, I have tried to characterize the essence of the Middle Bronze Age(-B) cultural landscape and the communities present within it. Although several of the examples presented originated from the Dutch river area, the sections above did not focus on the river area in particular. However, I have argued throughout this study that the Dutch river area deservedly can be studied as a region on its own for its particular cultural and landscape dynamics. Therefore, in the section below I will summarize and combine the results from the previous chapters and the discussions above into a narrative that deals with the Dutch river area in particular. Here, it will be

clarified why above all, the Dutch river area during the Middle Bronze Age was a 'Living Landscape', as the title of this study suggests.

8.3.1 Living landscapes and landscapes for living

In this study, I have shown that Bronze Age occupation in the Dutch (eastern) central river area was widespread, clustered and possibly dense, even in locations where nearby active fluvial systems may have affected occupation. This is a period of successful agricultural living in a landscape very much alive. Most probably, Bronze Age communities in the Dutch river area were intricately acquainted with the effects and periodicities of fluvial dynamics. They monitored the rising and lowering of river and floodbasin water tables and tailored the locations, types and planting seasons of crops, and execution of other agricultural tasks accordingly. They were fully aware of the possibility that floodbasins which in one year were extensive and excellent pastures, could be fully submerged for months in the next.

The proximity of all sites to active main water courses (within an hour walking distance, but frequently shorter) confirms that settlements were preferably situated not too distant from active rivers. Conversely, the present absence of Middle Bronze Age-B habitation on the levees proper of active systems indicates that (prolonged) annual flooding was not reconcilable with a truly home-based (if they were indeed byre-houses) mixed-farming strategy. Most likely, the increased risks of crop-failure and general health hazards to animals and people alike posed by stagnant water, rendered the levees of active anastomosing fluvial systems unfavorable habitation locations. With rivers of the meandering type, the swale and point-bar landscapes in the concave meanders may have been inhabited, although there too, flooding will have posed risks to crop-cultivation and health. However, near the end of a river's life-time – which may last for a mean of eight centuries, but often much longer – the process of avulsion could lead to a period of reduced fluvial activity in the last two to three centuries of its existence. This suggests that in these final centuries, flooding may have been much less frequent and that levee deposits may have been settled. At present, however, there is no conclusive proof of such swift occupation. Rather, it seems that mainly crevasse splay deposits originating from, or situated near, meandering as well as anastomosing active fluvial systems were occupied. Crevasse formation may have occurred somewhat more frequently at the end of an anastomosing river's life. After initial formation (which could take anywhere between a single season to several centuries) crevasse splay inlet channels may have become blocked. This means that sedimentation by such crevasses ended and that an (frequently extensive) area of sandy to silty deposits, nutrient-rich and well drained, became available for human occupation. If crevasse splay formation had occurred relatively quick, these were mostly treeless areas which did not needed to be cleared but could be used for occupation and crop-cultivation instantly.

Living on a crevasse splay deposit near an active fluvial system implies that incidental severe flooding may have occurred and that annual flooding of the lowermost areas of the surrounding floodbasins continued annually. Such continued floodbasin sedimentation was a consequence of rivers keeping up with sea-level rise and the superelevation of rivers relative to their floodplains by vertical (levee) aggradation. Because of the graded morphology in locations where levees and crevasse splay deposits merge into floodbasins, continued sedimentation and water table rise will have led to lateral spatial shifts of vegetation zones and spatial shifts of the (potential) usage of areas in the vicinity of the house-sites. Presumably, such shifts were perceptible on a human time-scale and Bronze Age children may have been told by their (grand)parents how much wider pastures were in the past. This gradual 'drowning', or more aptly, shrinkage or contraction of micro-topographic landscapes is documented at Eigenblok and De Bogen, but need not (solely) have been a reason for such sites to be abandoned.

Here, it should be stressed again that normal floodbasin inundation was not the only factor determining the net effect of sedimentation for Bronze Age occupants. Local subsidence will also have played an important part. When crevasse splay deposits form, taking sediment from the levees into the floodbasin, the energy level drops with distance from the main watercourse. This means that most of the crevasse splay deposits did not scour the underlying Pleistocene base. Therefore, such crevasse splays are prone to subsidence through compaction and oxidation of their underlying deposits. Consequently, save for locations where crevasse splay deposits overlie older levee or crevasse deposits that *have* a compaction-free (sandy) connection to the Pleistocene base, crevasse splays are more prone to subsidence and are therefore relatively more severely affected by subsidence and sedimentation than well-founded levee deposits. In locations where crevasse splay deposits from different phases (and/or systems) overlap, a locally

very varied mosaic and compartmentalized landscape can develop in which the severity of processes of subsidence and sedimentation was locally distinctly different at short distances.

The observed strong correlation between the height of the micro-topographic landscape and feature density, such as for example at Eigenblok and De Bogen, indicates that such crevasse splay locations were not simply abandoned when processes of subsidence and sedimentation induced lateral shifts of landscape zones. Rather, they seem to have been used to the fullest, although possibly structures other than houses may have replaced farmhouses at the end. This suggests an exploitative or expansionist system of habitation, wherein all available locations were put to their best use. Where possible, house-sites seem to have been placed at *c.* 55 m mean intervals. This is a considerably smaller distance than can be observed for some sites in the Pleistocene regions of The Netherlands (Theunissen 1999, 113; 212-213; Fokkens 2003, 19). This could indicate that in the Dutch river area, the density of occupation may have been much higher than in some areas to the south and north of it (*cf.* table 8.4). Moreover, from the rebuilding of houses (up to three times) on the same house-sites, as well as from the available direct dates, the point is clear that once established, Middle Bronze Age-B house-sites were 'there to stay'. Individual houses may have sequentially sheltered multi-generational households over a time period of at least two to three human generations. Evidently, chosen locations were not given up easily. Consequently, it was presumably not just such gradual landscape 'drowning' that ended occupation, but rather the start of (renewed) more frequent on-site sedimentation. Such sedimentation could result from two fluvial processes, that frequently occurred combinedly.

The first process is the reactivation of residual gullies. Upstream of the inhabited areas, crevasse splay propagation or other processes may have resulted in the incorporation of previously inactive (and partly silted-in) residual gullies back into active fluvial networks. For example, the Eigenblok fluvial system's residual gully was reactivated at the end of the Middle Bronze Age-B, which resulted in the on-site sedimentation that presumably ended occupation there. At Zijderveld as well, the Zijderveld fluvial system's residual gully may have been reactivated as many as three times, of which the final one – at the end of the Middle Bronze Age-B – introduced a period of renewed sedimentation, that may also have necessitated the cessation of Middle Bronze Age-B occupation here.

The second process that could, through increased sedimentation, have complicated or ended occupation is new crevasse splay formation. For example, at the sites of Wijk bij Duurstede - De Horden and De Bogen, new crevasse splay deposits overlie the Middle Bronze Age occupation remains. Indirect arguments at both sites suggest that this period of crevasse splay formation should be dated to the Late Bronze Age and may therefore have ended previously established habitation.

It is striking that at nearly all sites, habitation seems to have ceased around or at the Late Bronze Age. I have indicated that at that time, a period of major restructuring of the fluvial architecture of the Rhine-Meuse delta as a whole took place (Stouthamer 2001). This involved an increased rate of avulsion and presumably increased crevasse splay formation. To put it more simply: more channels were formed in areas that had previously not seen nearby active sedimentation, while simultaneously new crevasse splays more frequently formed from existing systems. It is tempting to use this increased fluvial dynamics at (and after) the end of the Middle Bronze Age-B as an explanation for why only so few Late Bronze Age settlement sites are known, but this is only half the story.

I have argued that during the Late Bronze Age, the strict regularities that applied to houses and house-sites in the preceding (Middle Bronze Age-B) period no longer seem to apply. Neither do extensive fence-systems like those of earlier periods seem to be present.[90] In addition, the visibility of such sites may furthermore be hampered by: (a) an (initially, *c.* 12-11th century BC) low diagnostic character of the pottery in this region, (b) the fact that various settlement site elements (excluding the houses) are comparable in nature to those of preceding and ensuing periods and generally yield few datable finds, and (c) the fact that these sites are stratigraphically situated higher and are therefore more prone to disturbance by (sub)recent (agricultural) activities such as ploughing.

Nonetheless, the excavations at Tiel - Medel 8 have shown that in locations where no significant change in the fluvial depositional regime occurred, occupation may have spanned both the Middle Bronze Age-B and the

90 The available evidence on the subsistence strategies during the Late Bronze Age is limited, but suggests that the true mixed-farming system – although with a possibly somewhat decreased importance of cattle – continued (*cf.* Fokkens 1997, 366 and references; Brinkkemper & Van Wijngaarden-Bakker 2005; Arnoldussen & Fontijn 2006, 299 fig. 8).

Late Bronze Age.[91] At this site, the loss of several settlement site properties that characterize Middle Bronze Age-B occupation can be observed. For unknown reasons, the internal placement of the roof-bearing posts of houses was no longer as strictly rule-bound. Outbuildings were no longer placed in the direct vicinity of houses, nor did outbuildings conform to nearby houses in orientation. Additionally, much wider ranges of orientation for settlement site elements (comprising houses, outbuildings and fences) were allowed. It is unclear whether such wider ranges of orientation should be interpreted as reflecting a larger time-depth (*i.e.* consecutive habitation, not conforming in orientation) or whether they were (partly) contemporary and it was simply their orientation that was much less important. The communality that may be reflected in the uniform bi-axial orientation of houses and fence-systems in the Middle Bronze Age-B, cannot be recognized for the settlement sites from the Late Bronze Age in the river area. Possibly, urnfields rather than the settlement sites became the foci for expression of such feelings of communal belonging.[92] There, in locations that were often linked to older funerary monuments, a now much larger segment of the population may have been buried. The contents of the funerary rituals also changed significantly, as urned cremations become dominant and sets of grave-goods explicitly referring to social personae are rare to absent.

While essentially individual graves, the construction of urnfield graves was possibly still a task undertaken or witnessed by a local community above the level of the individual households. Participation and offers of support may have cemented bonds which I have argued to be crucial in self-sufficient small-scale agricultural communities. Possibly, such ties were created through communal involvement in the construction of fence-systems, settlement site boundaries,[93] and presumably the construction of houses in the preceding Middle Bronze Age-B. The long, regular, three-aisled Middle Bronze Age-B houses are (from an etic archaeological perspective) indeed the most ubiquitous, visible and durable monumental elements of the cultural landscape constructed by these communities.[94]

Larger work-forces than minimally necessary may have been involved in erecting the timber house skeletons and in providing them with wattle and thatch skins. The communal labour of house-construction, and the festivities that may have accompanied it, created and solved reciprocal debts and provided arenas for social contacts and shows of (household and/or community) prowess. Houses were built with the aid of those who – in the near future – would call for help whenever needed, for instance at harvesting. In such situations of frequent, and vital, inter-household interaction, it can be understood that information – such as the proper ceremonial and technological means to place the roof-bearing posts of houses – was quickly and widely spread amongst different communities. For some reason, the body of information on the proper placements of farmhouse posts was less open to manipulation during the Middle Bronze Age-B. I have suggested that house construction may have been placed in cosmological schemes of reference in which analogies between the house structure and ancestral anatomy or genealogy were applied. In non-industrial agricultural societies, ancestral approval and blessings are often considered vital to the fertility of animal and human household members and that of the lands they work and use. Whatever the exact cosmological backgrounds to house-construction in the Middle Bronze Age-B were, they were not open to alteration for several centuries.

Perhaps during the Bronze Age, shifts in the preferred domain for architecturally elaborate (or monumental) timber constructions can be outlined. In the Middle Bronze Age-A, the barrows with elaborate and multiple post-circles upstage (in any case in archaeological terms) the (visibility of the) houses. During the Middle Bronze Age-B, a reversed situation occurred, when long, regular, and architecturally elaborate houses dotted the landscape and barrows less frequently had timber structures. Around the 12th century again a reversal took place, when long elongated (first oval, later rectangular) barrows with post-settings were built that may have metaphorically referred to houses in their shapes and post-placements (*e.g.* Roymans & Kortlang 1999, 49). At this time, the normal houses were constructed in a much less rule-bound manner (*i.e.* open to more local and regional variation). Unfortunately, the number of extensively excavated Late Bronze Age settlement sites is low, which means that comparisons between

91 Van Hoof & Jongste 2007; Van Zijverden 2007; Van Zijverden, Jongste & Zuidhof *in prep.*

92 Gerritsen 2003, *cf.* Lovell 1998.

93 See also Yates 2007, 129 on the possibilities of communal construction of the Dartmoor reaves (*cf. op. cit.*, 135).

94 The extensive fence-systems may with equal validity be regarded as 'monumental', but their use-life seems to have been much shorter. Houses may have 'outlived' several phases of landscape structuring with bi-axial fence-systems. Barrows and barrow clusters can rightly be called visible and monumental elements in the landscape as well, but the available evidence suggests that these often pre-date the Middle Bronze Age-B. Barrows from this period are thus presumably not as common and not as widespread.

regions are difficult to make. The typical urnfields of the Late Bronze Age are consequently known in much larger numbers than the settlements of those who constructed them. However, despite these changes, the differences in categorisation between the Late Bronze Age and the Middle Bronze Age-B cultural landscapes are presumably more gradual, than categorical in nature. In the Late Bronze Age, the construction of funerary monuments (now smaller and in larger numbers) was as a rule still undertaken away from settlement sites. The deposition of metalwork in specific (wet) zones of the landscape not only continues, but intensifies (Fontijn 2003; *cf.* fig. 8.13). The special significance previously assigned to regularity of the house, the house-site and the systems of fences within which they were placed, are now however lost.[95]

To sum it up, this study has shown that the Dutch central river area may have been a favourable region for occupation throughout the entire Bronze Age (*cf.* fig. 7.10). The nature of the occupation differed however markedly between the sub-phases of the Bronze Age. For the Early Bronze Age and Middle Bronze Age-A, settlement sites have been shown to be difficult to recognize. The different settlement site elements are not standardised and frequently human presence can only be traced archaeologically by radiocarbon dates and typologically dated pottery. A more varied residential mobility and broader range of site types is generally seen as causing the poor recognizability of settlement sites in these periods. I have argued that this need not have been the case. Special activity sites have been shown to be a category of sites that is archaeologically difficult to identify, while for the few excavated sites no evident indications of discontinuous (seasonal, intermittent) use could be outlined. These sites could have been just as permanently settled as those from later periods. They differ however in several other aspects. Only with the start of Middle Bronze Age-B does an extensive and compartmentalized landscape emerge around the location of the now much more standardized houses. These houses may have lasted for several generations and presumably formed the conceptual and spatially central nodes for the execution and distribution of both agricultural and domestic tasks and outbuildings. Between and beyond the houses, extensive fence-systems were constructed. Away from the land parcelled for domestic and agricultural use, deposition sites and funerary landscapes developed. While some of this categorisation of the wider cultural landscape may have lasted into the Late Bronze Age, houses and house-sites then no longer reflect the concepts of regularity and consistent placement innate to the cultural landscape of the Middle Bronze Age-B.

Moreover, I have shown that the river area was by no means a marginal, risky or unfavourable landscape to settle. Quite to the contrary, I have argued that the mosaic, graded character of the various very fertile deposits provided important benefits to Bronze Age occupants. While there were evidently risks of catastrophic fluvial events occurring, such events were rare and furthermore may have had only very local effects. I have argued that Bronze Age farmers were adequate landscape 'readers', who were aware of the fluvial dynamics at hand and how they (both positively and negatively) affected local agriculture. Moreover, any risks present were further reduced by living close to one's neighbours, who could be counted upon in times of need. Under normal conditions, both livestock breeding and crop-cultivation was prolific in the river area. To Bronze Age farmers, this living landscape was a landscape of good living.

8.3.2 Ways forward: knowledge gaps and potential fields of study

At the close of this study, I feel it is important to specifically identify a number of lines for further research and to briefly comment upon the wider implications of some of the conclusions reached in this study. They concern both purely academic issues, recommendations for archaeology as a fieldwork discipline and some issues related to heritage approaches in archaeology. Frequently they are closely interrelated, as academic research questions spring from what is presently known (affected by heritage and fieldwork strategies), while simultaneously questions raised in academic studies can often only be answered in the field and should steer heritage decisions. Consequently, in the sections below it is generally not possible (nor desirable) to discuss the arguments separately by field of relevance.

Concepts and models

To start, I have argued that the 'farmstead' concept cannot easily be used in the context of prehistoric settlement

95 In any case, this significance cannot be detected archaeologically.

archaeology. The word originated within a historical context of farm taxation (*i.e.* a tenure system of private ownership and inheritance) and the various publications on 'rural farmsteads' (Dutch: *boerenerven*) of the last decade mostly aim at describing (gender-divided) usage and garden structure of the farmhouse vicinity and the (regional specifics of the) vernacular architecture present during the last five to ten decades. Thus, the origin (and original implications), means (historic data, interviews) and end-goal of present-day farmstead studies bear little relevance to archaeological situations. This point is, however, rarely recognized. Archaeological reports are littered with the use of the word 'farmstead' (Dutch: *erf*), carrying a wide range of meanings. Sometimes, a structured house environment is implied, but more often the term stands as shorthand to indicate that the remains uncovered possibly, or presumably, indicate the vicinity of a later prehistoric farmhouse. The latter use is particularly faulty, as it does not aid in understanding or characterizing the remains uncovered and leads to a hollowing-out of the farmstead as an archaeologically applicable concept. Archaeologists should refrain from using the label 'farmstead' (*erf*) in such a manner. With the former usage, some links between the historical and archaeological house-sites studied can be made. Both seek to understand the composition and meaningful interrelations of the different elements present in the vicinity of a farmhouse as part of the wider agricultural and social systems. In archaeological publications, the content of 'farmsteads' presented in this manner should be made explicit: What house-site ordering is suspected to be present and why? Which elements are assumed to be interrelated and on what spatial scales is such interrelation played out (and best studied)? From such a point of departure, specific hypotheses can be put forward and tested. To put it more succinctly; the structuring of prehistoric house-sites should be a topic of research, rather than a framework of interpretation based on (false) analogies.

Second, I hope to have shown that the model most popular in describing the settlement dynamics of later prehistoric communities, the 'wandering farmsteads'-model – which assumes the periodical relocation of house-sites within a wider territory – cannot be uncritically applied to Bronze Age settlements. Foremost, I have shown that the single-phased house-sites predicted by such a model are in reality supplemented by house-sites that are clearly multi-phased. Moreover, I have shown that significant regional variation exists in the ways in which multi-phased house-sites evolved. For example, the repeated extension of houses is a typical property of house-sites in the north(east)ern Netherlands, while rebuilding of houses was more common in West-Friesland and the river area. Equally important, I have demonstrated that the assumed duration between, and motivations behind, such shifts are essentially ill-understood. If house(-site)s were indeed periodically relocated, what is the periodicity of such a system? For nearly all archaeological periods to which the 'wandering farmsteads' model is applied, this duration is in fact unknown. This is partly understandable, as solving this question calls for extensive excavations and detailed means of dating (be it pottery typology or absolute techniques).[96] However, archaeologists have also partly been overly confident in the validity of the commonly assumed motivations for such shifts (*e.g.* soil depletion, limited wood-durability and household dynamics). I have argued that even *if* soil depletion was problematic, this would only need to involve relocation of fields and/or the use of countering strategies (longer fallow, manuring) and need not have forced relocation of the houses *per se* (section 3.4.4). Moreover, there is actually only very limited data on the location, size, usage and depletion of later prehistoric agricultural fields.[97] Consequently, narratives that use soil depletion as a motivation for settlement dynamics or agricultural intensification (for instance the emergence of celtic-field systems), often lack empirical data that substantiates the locally variable susceptibility of soils to depletion, as well as detailed knowledge on the agricultural strategies (*e.g.* crop species, field size, fallow period, type and frequency of manuring) applied to them.[98] This gap in the archaeological knowledge of later prehistoric communities merits detailed attention to the study of prehistoric fields. As for the limited durability of timber constructions, the frequently quoted figures of 25-30 years may be a severe underestimation. I have indicated that based on field-tests, analyses of historic earthfast wooden constructions and direct radiocarbon dates for Bronze Age construction wood, life-spans of 50 to 100 years may have been common for Bronze Age house(-site)s (section 3.4.2). As this 25-30 year life-span estimate is also frequently used for domestic structures from the periods preceding and

96 I would argue that wherever possible, such extensive and high-resolution dating campaigns should be undertaken at future excavations of later prehistoric settlements.

97 This calls for future additional detailed studies on the properties of prehistoric fields and field systems.

98 *E.g.* Gerritsen 2003, 172-178; 226-231.

following the Bronze Age, archaeologists of those periods as well should invest considerable energy in determining directly the use-life of structures for their period and the relevance those observations have for settlement dynamics. This presumable life-span of five to ten decades also complicates the frequently assumed relation between house and household life-histories (*e.g.* houses being built for new couples and being abandoned upon the household head's death). Rather, it seems that houses may have sheltered various generations of households, rather than a multi-generational household (*i.e.* an extended family) only once. In addition, I have argued that the societal and biological composition of Bronze Age households is essentially unknown. Consequently, the claimed shift from extended-families in the Middle Bronze Age to nuclear families in the Later Bronze Age is essentially based on house length.[99] Establishing more refined estimates for household composition(al changes) in the Bronze Age and preceding and ensuing periods will be a daunting, but much needed challenge.[100]

The scientific potential of the Dutch river area

The long-term approach to the occupation histories of the six macro-regions (Appendices I-VI) allows for some important observations and new lines of research. To start, nearly all macro-regions have yielded evidence for human activities on levee or crevasse splay deposits during the Middle Neolithic (*c.* 4200-2900 cal BC). However, typological identifications of flint artefacts and sherds were often uncertain because of the low diagnostic nature of most of the material culture from this period, if fragmented. Only at Dodewaard, the interpretation was unambiguous, as pottery and cereals could be recovered from a Middle Neolithic feature (Bulten 1998b; Appendix VI). Combined, the observations from the different macro-regions suggest that there is an enormous unexplored potential of information on Middle Neolithic societies preserved in the central river area. For this period, most of the excavated sites are situated on the coastal and river dunes in the western peat district and the river area.[101] Clearly, the central river area holds the potential to add important information to the existing data sets. What activities were undertaken by these communities in the river area at the locations more distant from the river dunes? Presumably, the river area will yield site types complementary to those known from the coastal barriers and river dunes, but comparable domestic sites may also very well be present (*cf.* Janssen 1989). It is important that this potential is realised and exploited (*i.e.* excavated) as well as preserved (*i.e.* heritage status).

A similar plea for additional research and heritage protection can be put forward for the Late Neolithic period, which is represented in several macro-regions by finds of ceramics. For the Late Neolithic-A (*i.e.* the Single Grave Culture period; 2900-2500 cal BC) find-spots are not yet known from the macro-regions.[102] I have argued that this is partly a problem of typology and taphonomy (complete pot-profiles are necessary for identification), but this may also be partly the result of real boundaries for the distributions of cultural traits. It is not improbable that the typical Single Grave Culture period traditions of decoration were not current in the river area at the same time.[103] With the Late Neolithic-B period (*i.e.* the Bell Beaker period, *c.* 2500-2000 cal BC), the river area is part of the west-European Bell Beaker sphere of influence and many Bell Beaker period find-spots are known. The Bell Beaker period thus presents (both within and outside the river area) a remarkable paradox. Despite the multitudes of find-spots that *have* yielded finds datable to this period, single-phased settlement sites datable to the Bell Beaker period *exclusively* are not known. While several excavations in the western part of the river area have unearthed settlement

99 *E.g.* Fokkens 1997, 73; 2005f, 468, *cf.* Roymans & Fokkens 1991, 10; Roymans 1991, 15.

100 There are however, few direct archaeological data sets that apply. While 'pompeian' situations can be present in the archaeological record (see Chapter 5, note 231, *cf.* Albore Levadie 2002a-b; *et al.* 2005) it may take decades for one to be discovered. Until that time, we must contend ourselves with refining previous lines of research (*i.e.* (1) more detailed attention to the size, lay-out and possible usage of prehistoric farmhouse(-section)s in diachronic perspective, (2) establishing more specifically tailored cross-cultural comparisons of households dynamics for societies with comparable subsistence strategies and (3) approximations of household sizes through study of the size of local communities in large scale excavations in which such data may be inferred from more precise extrapolation of funerary data. Quite realistically, this matter is likely to remain unsolved.

101 *E.g.* Louwe Kooijmans 1974; 1976a; 1993b; 2001a; b; 2005; 2006, 487-516; Van Beek 1990; Van Gijn & Bakker 2005; Diependaele *in prep.*; Goossens *in prep.*

102 Hopefully the excavations at Hazerswoude - Spookverlaat undertaken in 2007, will when published provide some insight into the nature of Late Neolithic-A sites more distant from the (near-)coastal areas (Diependaele *in prep.*).

103 A detailed supra-regional study of technological and iconographic properties of Dutch Late Neolithic-A pottery, may indicate whether such regional differences indeed existed or whether these are archaeological constructs caused by different research intensities.

sites presumably datable to the Late Neolithic-B,[104] they have all seen later Bronze Age occupation. Meteren - De Bogen presents a similar situation, as here remains from the Bell Beaker period have been found in such quantities and diversity that the interpretation as one or more settlement site(s) datable to the Late Neolithic-B is plausible, but where all structures may have been masked by later Bronze Age occupation. In short, 'clean' Bell Beaker period sites are unknown, although they in particular may offer vital clues to the nature and dynamics of settlement sites for this period. Moreover, I have argued that targeted archaeological campaigns can indicate the locations of such short-lived and well-preserved sites in parts of the central Dutch river area. It is vital that the presence of such sites is – in the not too distant future – confirmed by fieldwork and that they are partly excavated and partly preserved for their enormous scientific potential.

It is necessary to assign a similar role to the river area as a treasury for the ensuing periods; the Early Bronze Age (*c.* 2000-1800 cal BC) and the Middle Bronze Age-A (*c.* 1800-1500 cal BC). For these periods too, I have argued that only very few (possible) settlement sites are known in the Netherlands, mainly because of the poor recognizability of their houses (sections 5.2.1-5.2.2). Yet for these periods too, well-preserved domestic sites dated to either period may be preserved in the river area. Campaigns of archaeological coring and test-pitting specifically targeted at fluvial systems that may have hosted habitation from these periods can yield the locations and preservation conditions for such sites. Because of the scarcity of 'clean' (*i.e.* short term occupancy) sites known for both the Early Bronze Age and the Middle Bronze Age-A, they are – whether uncovered by accident or through targeted research – of major scientific importance. Excavations at specifically targeted sites may uncover immensely valuable keys to understanding settlement site nature and dynamics for these two periods.

For the Middle Bronze Age-B (*c.* 1500-1000 cal BC), the data set on settlements is comparatively extensive and more specific research questions can be brought to the fore. On the level of the individual houses, I have shown that plans adequately preserved to gain insight into the functional usage(s) *within* the house are very rare. The former surface level has invariably been eroded or disturbed, which means that no surface level finds-distribution can be studied and that the location of structural features such as stalls, hearths or ovens is mostly unknown. Therefore, fieldwork campaigns must anticipate and accommodate the detailed (*e.g.* grid collecting, sifting, geochemical) analysis of possible well-preserved ground plans. An intact finds-distribution (detectable by intensive coring campaigns) suggesting the presence of a house-site (*cf.* fig. 6.36) and low feature density in nearby (test-)trenches may help to identify such locations of well-preserved houses. At the level of the house-site, I have shown that aspects of internal (house-site) chronology are particularly ill-understood. Wherever possible, intensive campaigns of absolute dating of the various possible house-site elements in relation to the farmhouse should be undertaken. Such dates will be crucial prerequisites for the compilation of house-site biographies. Whereas the present study has focussed on the final (palimpsest) appearance (Chapter 6) of house-sites, the study of their respective life-histories will be much more informative on inhabitant behaviour. Moreover, the method of 'Visual Analysis of Spatial Overlays' (VASO) may be used to investigate the nature of house-sites from a range of periods besides that of the Bronze Age. For the level above that of individual house-sites, several important gaps in our knowledge must now be briefly addressed.

First, the contemporaneity of close-by house-sites assumed on the basis of similar house type and orientation is in need of supporting direct dating evidence. Second, it remains very poorly understood why in some regions the distances between Middle Bronze Age house-sites – whether contemporary or not – are larger or smaller than in other areas. This is essentially a question into the validity, preconditions and consequences of Middle Bronze Age house-site nucleation. Under what conditions was it possible, considered appropriate or necessary to live close to neighbouring households? Third, how can possible differences in the balance between isolated house-sites and nucleated house-site grouping within and between different regions be explained? As a fourth and final point, it should be emphasized that both 'settlements' as an archaeological concept and settlement boundaries are very ill-understood. What (archaeologically operationalizable) criteria can be used to detect the feelings of belonging, communality or the joint participation in tasks which are part of most interpretative (*i.e.* social) definitions of 'settlements'? Was it considered important for (all) Bronze Age co-resident households to physically mark a communal outer limit, and if so, where in the cultural landscape are such structures situated? The present excavations in the river area have shown that at several hundreds of meters from the individual house(-site)s, fence-systems continue. I have argued that these

104 *E.g.* Louwe Kooijmans 1974; Wassink 1981; Deunhouwer 1986.

fence-systems may have served practical as well as more ideational functions and that both may have been related to the preparation of land for different (future) uses. It is fully unclear, where and why such systems come to a stop in the landscape, and what significance was attributed to the limits of such systems by Bronze Age communities. Both the spatial characteristics (*e.g.* distribution, landscape conformity, limits) and internal chronology of such fence-systems is in need of further study. Large scale excavation and absolute dating strategies will be essential tools in such studies. The relation of fence-systems to field-systems in other areas and time periods – as part of a wider study into the nature of later prehistoric agricultural field systems – is another promising topic for future research.

The Middle Bronze Age to Late Bronze Age transition

During the final centuries of the Middle Bronze Age-B, important changes affecting the structure of settlement sites and the nature of funerary traditions occurred. It is remarkable that morphological changes in pottery traditions, changes in the structure of houses, house-sites and settlement sites as well as in funerary traditions already seem to occur several centuries prior to the start of the Late Bronze Age, which according to the traditional periodsiation is at *c.* 1100/1050 cal BC (*cf.* fig. 8.13). As the detailed chronologies of these three main developments appear unrelated, no clear-cut decisive point or short trajectory of crucial change can be outlined as an alternative starting point for the Late Bronze Age. This also complicates the interpretation of the backgrounds to these different changes. Why and when exactly did aspects of regularity no longer seem to apply to the built-up structure of houses and their direct vicinity? I have argued that the known overall number of settlement sites datable to the traditional Late Bronze Age period (*c.* 1100/1050-800 cal BC) is very low. In the northern Netherlands, the dating of sites with B2b ('Elp'; fig. 5.14) types of houses may overlap this time-frame, but in other regions no evident Late Bronze Age house-types can be outlined. This suggests that these aspects of settlement sites were (from the 12th century onwards?) open to more regional or even local variation. This possibly implies that the contact networks within which such knowledge was previously shared changed in composition (*i.e.* who were attending), orientation (*i.e.* what supra-local connections were sought for) or both. The backgrounds to such a suggested fragmentation of the cultural traditions of settlement site structuring are in need of much more detailed study. In any case, the two main existing frameworks for interpreting the various changes taking place around the transition to the Late Bronze Age period, do not seem to be adequately based on relevant data sets.

According to one theory, the Late Bronze Age was a period of demographic expansion, which necessitated agricultural intensification such as the 'celtic field'-system.[105] This line of interpretation is complicated by the fact that the demographic trends reconstructed are based primarily on urnfield data and not on that of settlements, which means that the representativeness of the funerary population as reflecting the living population becomes of chief importance and can be an important distorting factor (*cf.* Gerritsen 2003, 139). Additionally, the Late Bronze Age assumed dating for the start of the celtic field systems is far from certain.[106] In any case, a demographic expansion (within landscapes that could sustain denser habitation) need not lead to pressure on land, and Gerritsen has rightly stressed that for the start of the transition to 'urnfield culture' the – direct (*i.e.* settlement) and indirect (*i.e.* funerary) – evidence on demographic trends is limited (Gerritsen 2003, 239). His suggested alternative that "The establishment of fixed burial places and stable local communities at the beginning of the Late Bronze Age can thus be understood as the effect of the progressive mythical ordering of the landscape and the decreasing residential mobility that accompanied this" (Gerritsen 2003, 240-241), however is also problematic. His reconstructed gradual 'in-filling of the landscape' and the 'closer association of social groups with parts of the landscape and the ancestral monuments in it' that underlie his interpretation (*op. cit.*, 240), is as much based on indirect evidence and may also be said to partly apply to the Middle Bronze Age-B. For example, his population densities range between 1.7 and 8 persons/sq km for the urnfield period (Gerritsen 2003, 212; 215-216).

Crude calculations for population densities in the river area, suggest that here population densities may have been much higher. For example, even if we assume that no contemporary farmsteads occurred in the river area and we use arbitrary figures (of 5 and 15 persons; table 3.5) as a possible range for Bronze Age farmhouse occupant numbers, the number of possible occupants divided by the excavated area yields figures of 475 to 1427 persons/km^2

105 Roymans & Kortlang 1999, 36-40; Gerritsen 2003, 167 and references there.
106 Spek *et al.* 2003; Gerritsen 2003, 167-178.

site	area (sq m)	area (sq km)	houses	household min	household max	min pop sq km	max pop sq km	poss. contemp. houses	household min	household max	min pop sq km	max pop sq km
Zijderveld	24000	0.024	1	5	15	208	625	4	5	15	833	2500
Eigenblok	17790	0.01779	1	5	15	281	843	5	5	15	1405	4216
Enspijk	5218	0.005218	1	5	15	958	2875	2	5	15	1916	5749
Bogen	32041	0.032041	1	5	15	156	468	9	5	15	1404	4213
Wijk bij Duurstede	140000	0.14	1	5	15	36	107	10	5	15	357	1071
Tiel - Medel 8	19952	0.019952	1	5	15	250	751	4	5	15	1002	3007
Kesteren	7500	0.0075	1	5	15	667	2000	2	5	15	1333	4000
Dodewaard	4000	0.004	1	5	15	1250	3750	2	5	15	2500	7500
mean	*31312*	*0.031*	*1*	*5*	*15*	*475*	*1427*	*4.75*	*5*	*15*	*1344*	*4032*

Table 8.4 Approximations of possible maximum population densities for Middle Bronze Age settlement sites in the Dutch river area, using arbitrary (5 to 15 persons) figures for household size and assuming single farms (white) or several contemporary farms (grey). These figures still need to be corrected for the unrepresentativeness of the excavated areas and the suitability of the landscape for habitation at larger scales (see body text).

(table 8.4) These are figures comparable to and exceeding the present-day population density of the Netherlands (484 persons/km^2).[107] To explain this, we should take into account that in many of the excavations, mostly house-sites (through their better detectability and through heritage management policies) have been selected for excavation. Therefore, the site of Wijk bij Duurstede may provide the most realistic figures, as here excavation extents were not determined based on the distribution of Bronze Age remains and additionally, for its large excavated surface area. But even then, figures are at least a factor four higher than those used by Gerritsen (*loc. cit.*).[108] Moreover, densities increase again several factors if one assumes (as has been argued in this study) that several house-sites may have been contemporaneous.

Nonetheless, the figures of table 8.4 must also be corrected for the unrepresentativeness of landscape use they reflect.[109] For example, in the river area mainly the levee deposits and crevasse splay deposits will have been used for occupation, and not the floodbasin areas. Assuming that – for the sake of providing an example – only 5 % of the available area was suitable and/or selected for habitation, and assuming single farms, this would result in mean population densities of 23 to 71 persons/km^2.[110] As establishing more reliable population densities is difficult, the examples shown here serve mainly to illustrate that in the river area, population densities may already have been relatively high and that narratives assuming demographic expansion into the Late Bronze Age need not apply. It is clear that during the Middle Bronze Age-B, the population density in parts of the river area may already have been a number of factors higher than those reconstructed for the Late Bronze Age in the southern Netherlands. This weakens the interpretation that demographic expansion was one of the main causes behind the changes occurring around the Middle- to Late Bronze Age transition.

The second line of interpretation sees the Late Bronze Age as a period in which the dissolution of the former extended-family households into nuclear families – identified by their shorter houses – explains the larger number of farmsteads, the increased individual nature of funerary rituals and increased competition in exchange networks (Fokkens 1997; 2003, 23-31). With this argumentation, two important weaknesses should be pointed out. First, the size and composition of the households is ill-understood for both the Middle and the Late Bronze Age (*supra*; section 3.4.1). This means that interpreting decreased house-size as an indication of a decreased household size is

107 Figures taken from http://statline.cbs.nl/, 'bevolking' for the year 2007.

108 Taking Wijk bij Duurstede as the best example and 5 persons for a household, a minimum of 36 persons/km^2 is still a factor 4.5 (36 / 8) higher. Using Gerritsen's 1.7 persons/km^2 would yield a factor of 22.

109 *I.e.* at larger scales, the areas used for habitation are presumably smaller; not all parts of the landscapes could or were used for habitation

110 Based on the mean value for the minimum and maximum population densities for one house only in table 8.4, multiplied by 0.05. Using only the figures for Wijk bij Duurstede, 1.8 to 5.35 persons/km^2 (for single houses) to 17.85 to 35.55 persons/km^2 (assuming ten contemporary houses) are the results of a 5 % correction. Perhaps this lower range (of 1.8 to 5.35) multiplied by the number of houses assumed to be contemporary (*e.g.* 3 to 5) may be the best approximation presently available for the occupation density on the levee and crevasse splay deposits of the Dutch river area during the Middle Bronze Age(-B). This calculation may be refined more realistically by quantifying the percentage of suitable landscapes for habitation at larger spatial scales (which is now for sake of the argument put at 5 %).

speculative. Moreover, some Bronze Age houses of the B2b (Elp-type) like Emmerhout house 8 may have had a living area in only a 6 to 7 m long segment of the house (Huijts 1992, 49). The length of this living area compares well to those presumed with some Early Iron Age houses.[111] This indicates that the size of the living area is a complicated proxy for comparing household sizes between these periods.[112] If these relatively smaller Middle Bronze Age living sections sheltered extended-family households,[113] there is no reason to assume why similar household could not have been sheltered by Late Bronze Age or even Iron Age farmhouses (*cf.* figs. 5.26, A; 5.32, A). If these houses were byre-houses, the fact that stalls generally cannot be recognized beyond the northern Netherlands, further complicates such interpretations (*cf.* Gerritsen 2003, 242). Second, the various changes thought to take place during the urnfield period (*i.e.* emergence of urnfields, shorter houses, increased competition in exchange networks) are considered as being related and contemporary (but see Fokkens 2003, 28). In reality, such changes may have different and possibly unrelated chronologies (fig. 8.13). For example, the start of the urnfields around the so-called 'long bed' barrows may date to the 13th and 12th centuries BC (fig. 8.13; Lanting & Van der Plicht 2003, 222-223). At that time, in the northern Netherlands the Elp (B2b) type of house came into being which had a mean length *above* that of the 'normal' Middle Bronze Age-B house (26.1 m versus 20.6 m). Even for some other regions in the Netherlands, house-length seems not to shorten drastically near or during the Late Bronze Age (*cf.* fig. 8.12; section 5.2.4). This means that even *if* correlations between house size and household size can be legitimately made, no evident correlation to other fields and trajectories of change (during the Late Bronze Age) should be implied. It is not until in, or after, the 9th century BC that houses are mostly shorter than 15 m (fig. 8.12; fig. 5.32).

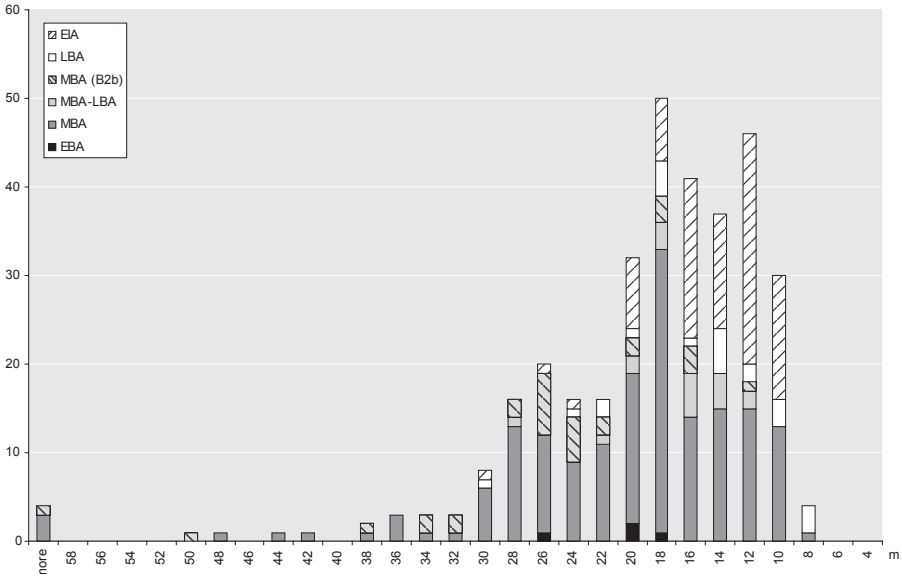

Fig. 8.12 Diagram showing the farmhouse length by 2 m classes for Early Bronze Age, Middle Bronze Age(-B) houses, Middle or Late Bronze Age houses, Elp-type (B2b) houses, Late Bronze Age houses and Early Iron Age houses. The mean farmhouse length for these groups is 21, 20.6, 16.8, 26.1, 15 and 14.5 m respectively (the y-axis lists numbers, the x-axis length in meters in reversed order).

This digression on the current explanations for Late Bronze Age changes serves two purposes. First, it outlines that our understanding of the different fields of cultural change and their interrelations in the Late Bronze Age needs to be expanded. There are serious problems with the two dominant lines of interpretation. New narratives should be based more on the actual direct data and be more cautious in assuming interrelations. Therefore, the changes of the Middle Bronze Age-B to 'urnfield culture' period traditions should be the topic of additional in-depth archaeological research. Such research should be based on detailed chronological studies and take regional particularities into account. It should also stay well clear of interpretations in which one set of archaeological data is used to explain

111 Chapter 5, fig. 5.32, but not the overall length of this farm (*c.* 26.6 m; Huijts 1992, 48).
112 See also Emmerhout house 22 (byre; 15 m, living area; 8.7 m (or 6.2 m and 2.4 m hall segment) in Kooi (2008, 63 fig. 6).
113 Or (multi-generational?) households of other, assumedly larger, composition.

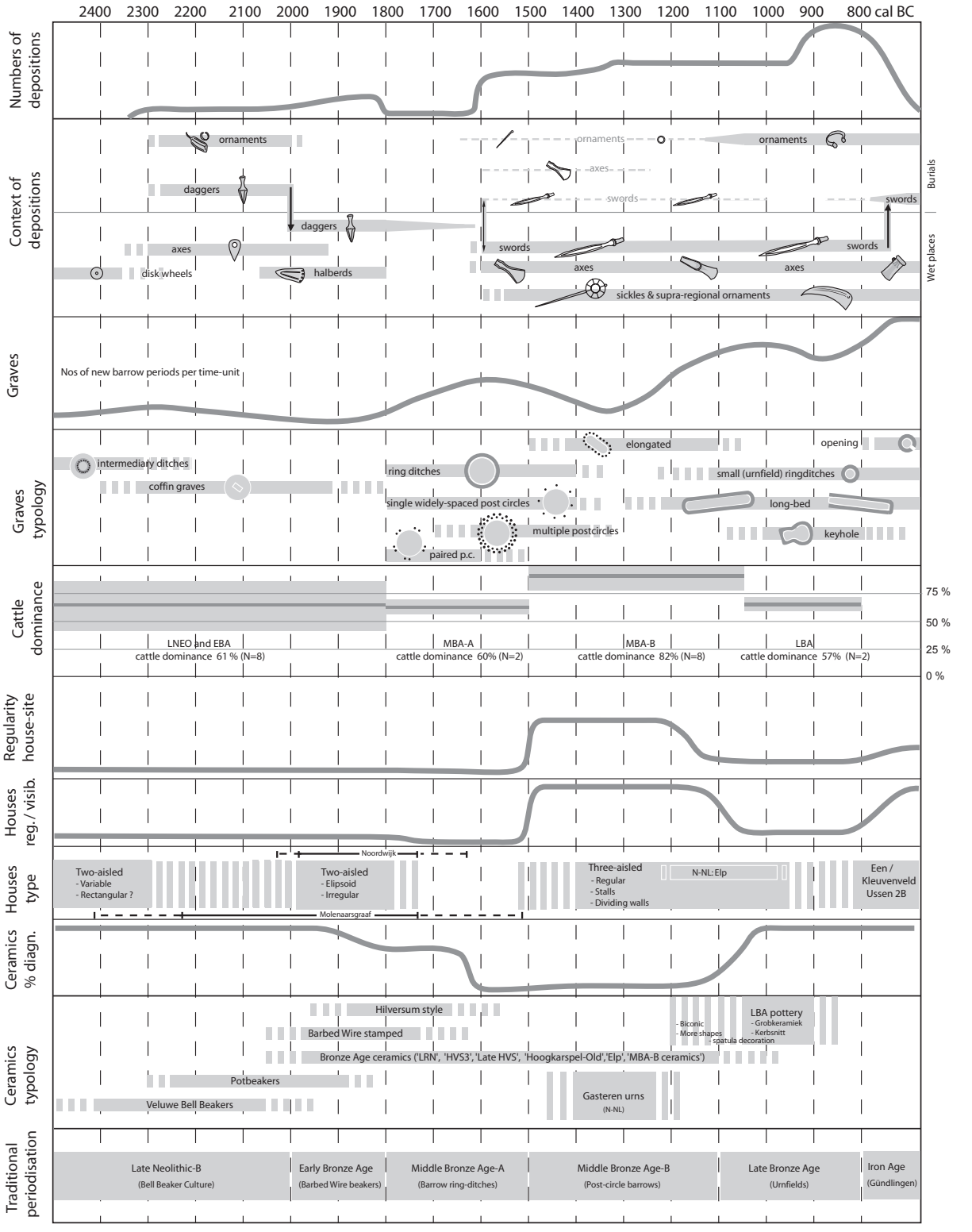

Fig. 8.13 Example of the different chronologies of several prehistoric cultural phenomena (*e.g.* pottery typology, house structure, livestock spectra, funerary traditions and patterns of object deposition) in relation to the traditional Dutch periodisation.

phenomena in possibly unrelated fields (*i.e.* inferring pressure on land from funerary sites, or political competition from house size). Second, more so than in other periods, problems of periodisation affect the study of the Late Bronze Age. The timeframe of *c.* 1100-800 cal BC assigned to the Late Bronze Age in the traditional periodisation seems to bear little relevance to the trajectories of change commented upon above. Does this mean that the periodisation should be changed? And if so, who will determine what defining elements to choose?

Lanting and Van der Plicht have published an important volume on the periodisation of the Bronze Age and the radiocarbon dates supporting it (Lanting & Van der Plicht 2003). They argue in favour of maintaining the defining traits and suggest a shift of the associated dates. For example, the available Swiss and south-German dates for Br. A2 pins, indicating the end of the Early Bronze Age (there), are used to frame the occurrence of Barbed Wire-stamp decorated ceramics in the Netherlands (*op. cit.*, 131; 153). I doubt whether such linkage is an appropriate way forward. Such use of periodisation is inclined to assign primacy to a single element. As another example, in the traditional periodisation, the occurrence of post-circles around barrows is used as the defining trait for the Middle Bronze Age-B (Van den Broeke, Fokkens & Van Gijn 2005, 31), but current research has shown that varied and different ranges of dates apply (fig. 8.13; Bourgeois *in prep.*). Proposals to change the names (*e.g.* Fokkens 2001) or date-ranges (*e.g.* Lanting & Van der Plicht, *op. cit.*) for periods seem only to increase confusion (*e.g.* Jongste 2001, 8; Van Heeringen & Koot 2005, 2) and are prone to overlook the diversities and different chronologies of the multitude trajectories of cultural change. I propose that the traditional chronology, as accepted by the State Service for Archaeological Investigations (now RACM; Brandt *et al.* 1990) and used in the recently published overview on Dutch prehistory (Louwe Kooijmans *et al.* 2005) is maintained. This periodisation clearly also has its flaws, but it remains a valid approximation of the presence of specific cultural phenomenon in the different periods. However, it should only be used as *shorthand* for the association of such phenomena and not as a strict chronological framework predicting (the interrelations of) their presence, absence and exact age-ranges. Rather, such a general periodisation should form the backdrop (and inspiration) for studies on the detailed chronologies of different developments underlying these, of which the works of Lanting and Van der Plicht (2002-2003) are exemplary. Bronze Age archaeology, and perhaps Dutch prehistoric archaeology in wider sense, has reached the point where individual trajectories of change can be – and are best – studied at a centuries time-scale, rather than as part of broader phases in periodisation frameworks. This will make archaeologists ever more aware that cultural changes do not conveniently start and stop (combinedly) at periodisation boundaries and that the various trajectories of change are most promisingly (and deservedly) studied in their own right and as individual chronologies, before entwining them with other cultural phenomena (fig. 8.13).

Out in the field: some comments on fieldwork strategy

As far as the archaeological fieldwork on Bronze Age settlement sites is concerned, I need to stress once more the strong ties between prehistoric occupation and geogentic origin and micro-topographic morphology of fluvial deposits in the river area. I have shown that crevasse splays were favourable settlement site locations, but that they can be characterized by an erratic locally variable morphology. Studies by geologists and physical geographers have indicated that such deposits are hard to detect with large coring grids.[114] In essence, with coring grids of 20 m, more than 40 % of the crevasse deposits are not even mapped at all, assuming full detectability (Chapter 2, note 14). This implies that coring strategies in the river area should be adjusted accordingly to map such deposits (sections 2.7.3-2.7.4). In addition, I feel that there should be increased attention to what the *absence* of archaeological traces during prospective archaeological coring campaigns actually means. Has the option of fluvial erosion been duly considered? Was coring depth sufficient or have corings been ceased halfway through sandy deposits? I have argued that in cases where – based on expert judgment – prehistoric habitation may be suspected,[115] the absence of archaeological indicators during prospective coring campaign should preferably be checked by test-pits or test-trenches that penetrate through these deposits (sections 2.7.3-2.7.4). To put it more succinctly: archaeological prospection in the river area should first and foremost be (palaeo-)landscape based, rather than 'archaeological indicator' based.

Such an attitude should permeate with archaeological consultants and legal heritage authorities. For example, decisions such as that *not* to subject (suspected!) floodbasin locations to prospective archaeological coring

114 Weerts 1996; Makaske 1998; Van Dinter & Van Zijverden 2002.

115 *E.g.* on levees, crevasse splay deposits, dunes *et cetera* (*cf.* fig. 7.10).

– as was done with the A2-motorway project (Haarhuis 1998, 11) – are unacceptable from both an academic and a heritage point of view. In addition, those authorized to compile or approve archaeological fieldwork plans (Dutch: *Programma van Eisen*, *Plan van Aanpak*) have the obligation to check whether the strategy suggested (*e.g.* coring types and grids) is tailored to the meet the required detection rates. Some attention must also be paid to the depth to which archaeological prospective corings are executed. While it seems unnecessary to have all corings penetrate the entire Holocene sequence, limiting all coring depths to the depth of the intended disturbances (necessitating research) is equally ill-advisable. Not only is the long-term palaeogeography in such cases ill-understood, but more importantly, sites situated on deeper levels (such as the pre-Middle Bronze Age-B sites which I have argued to be rare and of great scientific potential) will otherwise go unnoticed. Studies on what happens to the quality of sites underneath developed areas are still few in number, but deterioration due to compaction and loss of moisture content are severe risks.[116] As a final point, I want to argue that consultants and heritage authorities should be aware that selecting (often small) locations with the largest densities of archaeological remains (*i.e.* most-archaeology-per-euro) may be counter-effective to archaeological understanding. The excavations at De Bogen are a case in point, as here the finds-layer was – save for the test-trenches – plainly dug away as it concerned a palimpsest of archaeological periods, only to reveal a feature level which was in most parts an equal palimpsest of features, and from which only the (more regular) Middle Bronze Age-B structures could be isolated and understood in more detail. Similarly, the strategy of discontinuous excavation of the (better recognizable) house-sites at Eigenblok, has resulted in mainly high feature density cut-outs of Bronze Age house-sites and has proven not very informative on their embedding within the wider cultural landscape (which presently may be of much more scientific value).[117]

Here I plea for large, continuous excavations of the locations with the best potential for increasing archaeological knowledge. These are rarely the most densely settled locations (which are, however, best discoverable and yield most finds) but are most likely to be the margins of such areas and short-term used locations. While more difficult to find, such locations will hold crucial keys to understanding the nature and dynamics of later prehistoric settlements, which can thereafter be used to better understand the – more frequently encountered – palimpsest situations elsewhere. Moreover, in order for archaeological narratives to address and give information on the scale of the cultural landscape, the extent of excavations should be adjusted accordingly. To give an example for the Middle Bronze Age-B, the scientific gain of understanding a single Middle Bronze Age-B house-site within its wider cultural and physical landscape through extensive excavation, exceeds (with the present state of knowledge) the scientific gain of using that same excavation surface area to (partly) investigate several of its nearby house-sites in a discontinuous fashion.[118]

However, fieldwork is only half the task, and I feel that archaeologists reporting on Bronze Age settlement site excavations have sometimes lacked sufficient self-critique in (allowing for) assessment of the validity of the structures recognized during and after fieldwork. Once published, it is often difficult for a reader to judge the validity of the proposed plans without having to revert to the original documentation. Several simple guidelines to best practice can help overcome this. For example, the descriptions of structures could be supplemented by a brief summary of the approach and methodology of their investigation (*cf.* Hiddink 2005, 286). In addition, a system of classification could be used for structures in which the method(s) of recognition and possible (doubts on) the validity and are synthesized (*e.g.* table 3.3). In particular with the periods for which the comparative data set of settlement site elements is limited to non-existent (*e.g.* the Late Neolithic to Middle Bronze Age-A), it does not suffice to only show the associated features in plan in archaeological reports. In these (and preferably other) cases, some insight should be offered into the remaining feature-depths, explanations of their variation in relation to (recent) disturbances and original constructional functions, as well as – if applicable – insight into why posts that may be expected, are not present. Additionally, parallels drawn to plans and structures uncovered elsewhere should be

116 See Van den Berg & Hatzmann 2005; Louwagie, Noens & Devos 2005, 119; 151-152 for more references and Van Kappel 2004 for a practical case-study.

117 Such strategies are (perhaps deservedly) characterized mockingly as *postzegels verzamelen* (stamp collecting) in Dutch archaeology.

118 Ideally, of course, all such house-sites are uncovered in a continuous excavation surface that extends as widely as possible into the surrounding parts of the (cultural) landscape, such as for instance at Wijk bij Duurstede - De Horden (section 4.5.3).

precise and explicit,[119] and if no parallels are available caution should be taken in forwarding reconstructions as plausible structures. Furthermore, during fieldwork special attention should be given to the possibilities of dating individual settlement site elements. If datable material is available, it does not suffice to state that house plans date typologically to the Middle Bronze Age-B, as this is a five century block.[120] The scarcity of settlement site remains from the Early Bronze Age and Middle Bronze Age-A will presumably only be resolved by persistent campaigns of more extensive absolute dating.

Locating interesting areas: maps and approaches

The State Service for Archaeological Investigations (RACM)[121] maintains a nationwide map showing the probability of encountering archaeological remains, the 'Indicative Map of Archaeological Values'.[122] For the river area, the available geological maps and the publication by Berendsen and Stouthamer (2001) have been used as a base layer. The location of levee deposits on these maps have been assigned the highest probability, while – mainly in the river area east of the De Bogen excavations – a buffer zone of generally 150 m, but sometimes to 700 m around them is given a medium probability (Deeben, Hallewas & Maarleveld 2002, 25). While this is explicitly not the intention of the drafters of the IKAW map,[123] in archaeological practise it is sometimes used as a heritage decision tool at scales smaller than the 1:50.000 for which it was intended. Here, several problems must be mentioned. First, the chronological information available in the palaeogeographical map by Berendsen and Stouthamer (2001) is ignored in the IKAW map. This means that for given periods, a much better approximation of the location of active fluvial systems can be given than presently offered by the IKAW. A basic chronology of meander belts sequences is known, and additionally the location of younger (eroding systems) can be mapped for specific periods if desired. Second, I have argued that the aims and the methods used in compiling the base palaeogeographical map do not tie in with archaeological aims and prerequisites (section 2.7.3). In particular, crevasse splay deposits that are less than 50 cm thick are not depicted on the geological and Berendsen and Stouthamer (2001) maps (Berendsen 1982, 107), although they may have been suitable habitation areas. Third, crevasse splay deposits occur frequently in the river area west of the De Bogen excavations, and a wide buffer zone (of several hundreds of meters to some kilometers) may be necessary to incorporate them. It this respect I would like to refer to figure 2.8 in Chapter 2, where the location of the meander belts by Berendsen and Stouthamer is indicated on top of detailed geological maps drafted for the Schoonrewoerd and Hennisdijk fluvial deposits. There, a frequency of occurrence and erratic spatial distribution of smaller crevasse splay deposits is visible that only partly corresponds to hypothetical 'buffer zones' used in the IKAW map. At present, the second generation IKAW has been adapted to incorporate these (and similar) known smaller crevasse splay deposits previously lacking (*cf.* Arnoldussen 2000, 112). However, such detailed maps are not available for all parts of the Dutch river area. Consequently, it is unclear how such parts should be represented on predictive maps. I strongly feel that instead of waiting for a larger number of adequately detailed geological maps– usable on an archaeological scale – to become available, a map showing the preferred fieldwork methodology in different parts of the river area may be a valuable asset. Suggesting or obligating the use of such a map, ensures it is a *proper approach*, rather than (determining) a confined *geographic entity* that becomes the focus of both archaeological fieldwork and strategic heritage decisions. This way, no large buffer zones need to be added to *probability* maps, but the probability of uncovering archaeological remains in such zones will be determined by proper fieldwork *strategies*. This strategy may lead foremost to a more refined palaeogeography of the Dutch river area and will moreover allow the full realization – and subsequent exploration and preservation – of the enormous archaeological potential of the Dutch river area for the Bronze Age and other periods alike.

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119 Such parallels are moreover preferably reprinted in excavation reports, at the same scale as the structures proposed.

120 A similar time span as between 2008 and the birth in 1508 of Gemma Frisius (Jemme Reinerszoon Frisius), the Dutch doctor, mathematician and cartographer, who published seminal treatises on how clocks may be used to determine longitude in 1530 and on triangulation in 1533.

121 The National Service for Archaeology, Cultural Landscape and Built Heritage (*Rijksdienst voor Archeologie, Cultuurlandschap en Monumenten*; www.racm.nl).

122 Dutch: *IKAW*; see Deeben 2008, esp. 66; Deeben & Wiemer 1999; Deeben, Hallewas & Maarleveld 2002; Hallewas & Peeters 2005 for backgrounds.

123 Deeben, Hallewas & Maarleveld 2002, 41-48; Hallewas & Peeters 2005, 8.