



Uniwersytet  
Wrocławski



# Written in Bones

**Studies on technological  
and social contexts  
of past faunal skeletal remains**

edited by  
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Uniwersytet Wrocławski  
Instytut Archeologii

Wrocław 2011

INSTITUTE OF ARCHAEOLOGY, UNIVERSITY OF WROCLAW, 2011

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ISBN 978-83-61416-64-7

Wrocławska Drukarnia Naukowa PAN im. Stanisława Kulczyńskiego Sp. z o.o.  
53-505 Wrocław, ul. Lelewela 4

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# The Language of the Combmaker: interpreting complexity in Viking-Age Industry

Composite combs are among the most well known of early medieval bone/antler artefacts. They are well-studied in descriptive terms, with much already published on typology, chronology, manufacture and exchange. However, less time has been devoted to the attempt to understand their meaningful role in social action. It is herein argued that there is a pressing need to ask new questions of our material, to explore the potential of novel analytical techniques, and to utilise a range of conceptual and theoretical apparatus. Using examples from early medieval northern Britain, I propose a new framework for the study of variation in form, ornament, and means of manufacture, and suggest that language provides a useful analogy that may have some methodological utility.

**Keywords:** comb, antler-working, Viking, manufacture, ornament, morphology

This is a paper about boneworking. However, it does not relate the development of analytical techniques particular to the canon of material culture produced in skeletal materials. Neither is its aim to illustrate the application of method (be it zooarchaeological, technological, typological, or traceological). Such work has been ably undertaken and communicated elsewhere in the present volume, and my aim is different.

I strongly believe that worked-bone research belongs within the mainstream of material culture studies (that is, the project of archaeology). That is not to suggest that its faunal foundations be overlooked; a detailed understanding of animal anatomy (and, I would argue, ethology) is fundamental to the analysis and interpretation of objects of worked bone. But so is its artefactual basis. Bone awls, axes, picks, pins, combs, and caskets are all *objects*, and as such are as fundamentally cultural material as they

are biological (if, indeed, any distinction is possible; see Ingold 2000). This is a simple point, but one that is often overlooked, as we have sought to redirect the treatment of worked-bone collections back toward the animals from whence they came. What is needed, rather than an effort to ‘balance’ the influence of zooarchaeological and artefactual approaches, is a commitment that objects of worked bone be analysed within a coherent methodological and theoretical framework that renders the resultant data and interpretation compatible with that resulting from equivalent studies of other forms of material culture (Miller 2007). Such an approach must appreciate the significance of the zoological content of these objects; it is their *animality* that is significant, rather than merely their materiality (see Ingold 2007; Conneller 2011). Within this broad theoretical context, there are multiple ways of looking at worked bone. Herein I propose just one.

## Language and Material Culture

In what follows, I explore the utility of what might be broadly termed a linguistic approach to understanding the manufacture and use of early

medieval bone and antler hair combs. The bringing together of language and material culture is an interesting idea both intellectually and practically. Today,

we use objects as well as oral and written language to communicate with one another, different media being used in different ways, for different purposes. Although it has faded from popularity in the field of social anthropology (compare Moore 1985; Ingold 2000), and (interestingly) has failed to take a firm hold in medieval and historical archaeology, the idea of material culture as language has remained popular

in prehistoric archaeology and, through conceptual borrowings from semantics and rhetoric, is finding increasingly frequent applications as a useful way of interpreting phenomena as diverse as stone tools and landscape (Shanks, Tilley 1987:133; Tilley 1991, 1999; Pluciennik 2002). In this paper, I intend to experiment a little with this idea. My medium is the composite antler hair comb.

## Why a Linguistic Approach? Why Now?

It is, of course, rather less than novel to raise the potential similarities of language and material culture (cf. Lévi-Strauss 1963 [1958], Peirce 1958, de Saussure 1983 [1972]; see also work on archaeology as ‘text’, e.g. Hodder 1989a, 1989b, 1991, Moore 1985). Though far from reaching universal acceptance, Hodder’s ‘contextual’ model has been widely adopted, and has in many ways inspired the production of other post-processual approaches that incorporate linguistic constructions (see Buchli 2000; Preucel 2006: 8-14, Shanks, Tilley 1987:133; though see Nash 1997; Nash, Children 2008). Indeed, linguistic and literary ideas like metaphor and synecdoche – once *avant garde* and revelatory – are now commonplace in the archaeological literature of landscape (see Hodder 1993; Tilley 1999, 2004; though see Fleming 2006 for a critical review). While it is erroneous to equate the ways in which material culture and language behave and operate, the one *can* act as an instructive analogy for the understanding and interpretation of the other, and it is this spirit that I intend to adopt and apply to the study of portable material culture. While what I am suggesting is more than metaphor, there is no suggestion here that objects, their manufacture or use are governed by close material corollaries of the syntactic or pragmatic rules that make up linguistic grammar. Rather, I propose that a critical awareness of the techniques we use in verbal communication may help us to think about the meaningful matter from which material culture is constituted.

How can such theoretical abstractions elucidate an analysis of bone-artefact manufacture and use? A useful lead may be taken from the work of Tim Ingold (2000). Though Ingold himself would not propose such a linguistic approach to social study, his work does provide a context in which we might situ-

ate the superficially discrete subjects of bonework and language. Following Ingold, craftsmanship develops through a process of *enskillment*, wherein an artisan learns the techniques of their craft through guided introduction to the materials and practices involved in manufacture. Apprenticeship is thus undertaken within the environment, and through engagement with it, rather than through the generational imparting of traditional knowledge. This idea is relatively easily appreciated in the case of bone industry, given its reliance on a material that is conventionally understood as the quarry of environmental archaeologists. However, the same might be said of the way an individual goes about their daily life, ‘dwelling’ in the world. In both cases, people learn ‘the rules of the game’ (after Bourdieu) through interaction with their environment, rather than through the direct reception of ideas from other human parties.

Language is vital in enabling us to ‘dwell’ in this way. Ingold prefers to think of speech as a form of ‘singing’; a process that is fundamentally performative, and he argues for direct equivalence between the acts of playing a musical instrument, manufacturing an object, and using a tool (Ingold 2000:406-419). Thus, it can be seen that there is commonality of experience in the acts of speech, and of making and using material culture. If this is the case, then it should be possible to use what we know of the ways in which language works, to illuminate discussions of the uses of material culture (in our case, objects of worked bone). In what follows, I explore this issue, with particular regard to the early-medieval hair comb, though it should be noted that a similar approach could be applied to the study of a range of elements of worked bone technology, or to other forms of material culture.

## Language and Combs

Composite combs are relatively common finds from early-medieval urban sites, and represent one of the best-studied classes of bone/antler artefacts.

Indeed, much has been written – by myself and others – about their typology, dating, and, to a lesser extent, their raw materials and means of distribution

(e.g. Ambrosiani 1981; Ashby 2005a, 2005b, 2006, 2009, in press a, in press b; Smirnova 2005; Vretemark 1989, 1997; Wiberg 1977, 1987). However, less attention has been paid to their style, social significance, or biographies, though a few examples of recent work provide ambitious exceptions (Clarke, Heald 2002; Luik 2008). If the field is to progress, we need to ask novel questions of our material, and explore alternative methods of analysis.

The rationale for the approach taken herein is a hope that it might engender a better understanding of the interface between material culture and the structure, boundaries and cues of society. Following anthropologists such as Polly Weissner (1983), a single object may simultaneously transmit elements of both group and individual identity, and many researchers have consequently experienced difficulty in developing predictive models for the recognition of meaningful artefactual style. A linguistic metaphor might work well in this scenario, but first it is well to consider the means by which combs in particular may have transmitted stylistic or social information.

As has been discussed elsewhere (e.g. Ashby 2009:9-10; Sorrell 1996), early medieval combs could be used as gifts in reciprocal relations of exchange, and as such became bound up in networks of power, kinship, alliance and allegiance. This is important, as such an arrangement implies the investing of significance in the comb on the part of the gift giver, prior to it even reaching its intended recipient. On changing hands, the comb's meaning would undergo a perceptible transformation: its original message of allegiance and support would have been retained (at least in the mind of its new owner), but would then be overlain with a more general statement of status and group membership, a message that could be perceived by any 'literate' observer. In this way, the biography of the comb becomes entangled with those of all the agents involved in its manufacture, exchange, use, and display. For meaning to be transmitted to such a range of actors, we might assume that the 'language' expressed via the comb was readily understood, at least within its particular context.

However, in Viking-Age towns like York or Lincoln, we might expect that the majority of combs were produced – if not *en masse* – at least in advance of the appearance of a potential purchaser. Though the consumer still ultimately had the power to select a comb for purchase, the range of forms and designs from which they could choose was controlled by the decisions, preferences, and skills of the combmaker. The curation and continued use of outdated combs represents a more active decision, and surely has social meaning, perhaps referring back to ancestors

or memories and traditions, in an effort to legitimise status or other aspects of social identity. In addition to this 'inherited' identity, inscriptions and graffiti facilitated communication on a more personal – though not necessarily idiosyncratic – level. However, in contrast to what we see in Scandinavia (Tesch 1987, Fig. 8), combs featuring such deliberate modification (particularly literate inscription) are poorly represented in the British Isles; examples from Nassington (Okasha 1999), Whitby (Page 1973:168) and Dublin (Barnes *et al.* 1997:44-45) constitute notable early medieval exceptions.

Thus, any search for meaning must take as its quarry more frequently recorded aspects of comb morphology, and this is an approach that must be explicitly theorised. A fundamental component of the nature of discourse is the 'field' in which it takes place (Barrett 1988), and it is now a truism to state the importance of an understanding of the social contexts within which combs could be used to express identity (see Jones 1997). We will come to this later, but equally important is some form of analogical framework that models the means by which such communication is articulated. It is here that the linguistic metaphor holds such interpretative power.

Language functions on a range of scales. When a person speaks, we recognise not just the words they use, but unconsciously note their language, their familiarity with it, their wordchoice, their accent, their dialect. That is to say that we note not just *what* is said, but also *how* it is said (see Preucel 2006; Ingold 2000:399-401). This provides a powerful analogy for the ways in which material culture is used to communicate: some themes are screamed out in form and ornament, others are more understated. Familiarity with a medium may allow us to detect subtle discordances between decoration and morphology, or between method and quality of manufacture, and thus identify imitation and poor craftsmanship. Moreover, local differences in manufacturing practice – perhaps unnoticed by the users or even the makers of objects – may be envisioned in terms of a local dialect, and as such may be archaeologically informative as indicators of regionality, displacement, and culture contact.

If one accepts the validity of the linguistic analogy in outline, it remains to discuss in detail its applicability to elements of material culture. In the words that follow, I will investigate some of the ideas outlined above, and endeavour to usefully apply them to the study of composite combs from early-medieval Europe. Combs from the Viking Age in particular have often been considered homogeneous across their European range (Ambrosiani 1981).



On inspection, subtle variation is apparent, but has generally been missed, ignored, or explained away as anomalous (see Ashby 2006). I hope that a more

fine-grained analysis, coupled with this novel approach, might render such complex patterning comprehensible and meaningful.

## Language and Form

One might expect the more regularly recurring elements of comb form and ornament to be widely understood, and they may well have related to particular social groups. Thus, overall morphology and ornamental techniques that show limited variability may be seen as transmitters of emblematic, group-associated style, and within the linguistic framework are directly paralleled by spoken language. The degree to which comb forms were intelligible between geographically disparate regions says something significant about contact between such regions, though of course we cannot assume that shared phenomena have shared meanings. If we accept that types are something other than direct representatives of the cultures that created them, then there is a need for a more sophisticated way of rationalising spatial patterning, and a language-based model is one solution.

Figure 1 outlines the (greatly simplified) distributions of certain comb forms in the British Isles and Scandinavia. Certain forms are clearly much more common in certain areas. But of course combs are not people; these patterns are simply illustrative of networks of travel and trade, and their corollaries: communication and innovation. In our linguistic terms, the ways in which different forms are understood by different groups, societies, and demograph-

ics are easily expressed in terms of the spread of languages. Just as written and verbal language may be transferred from one region to another through conquest or colonisation, or from one group to another by domination or assimilation, so the same is true of material culture.

Furthermore, just as areas in frequent contact may develop mutually intelligible languages and dialects, so the same is true of their repertoires of material culture. However, it is one thing to be familiar with the building blocks of language, it is quite another to develop competence in its correct use. In material terms, context is everything. Particular combs may have been used in particular contexts: some were for public display, some were gifts (presumably of various categories), some were for use in private, some in public, some were probably not even for use with hair. Outside of the appropriate arenas, the visibility or use of a particular comb may appear jarring, or be misunderstood. In 18<sup>th</sup>-century England, it was seen as impolite to comb one's hair in public, and while today's social mores are in many ways more liberal, there are still contexts in which grooming would seem inappropriate. Moreover, particular forms of comb have gender associations (see Cruse 2007:56-73). The same must have been true in antiquity.

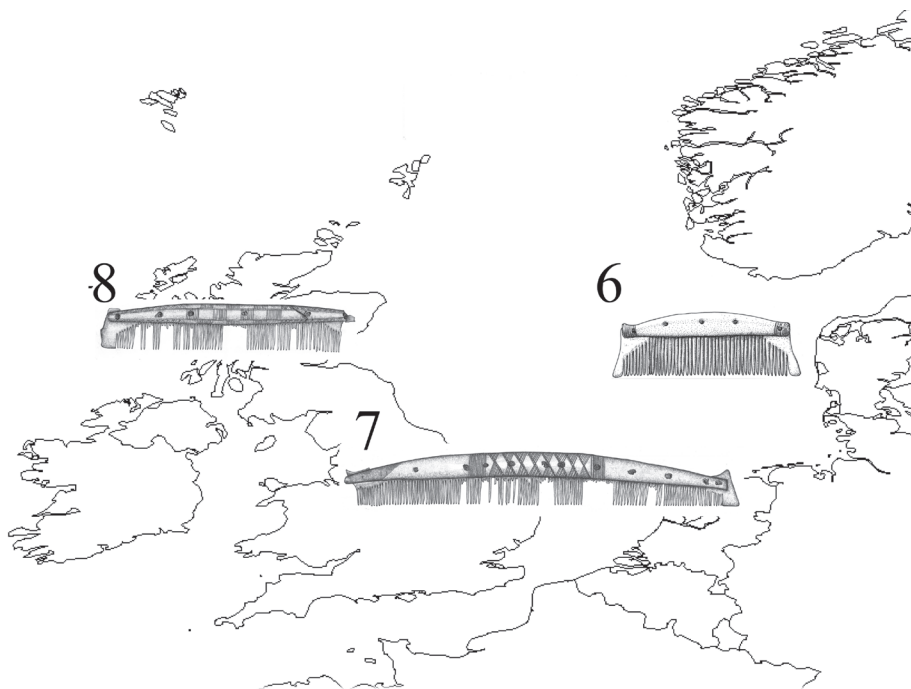
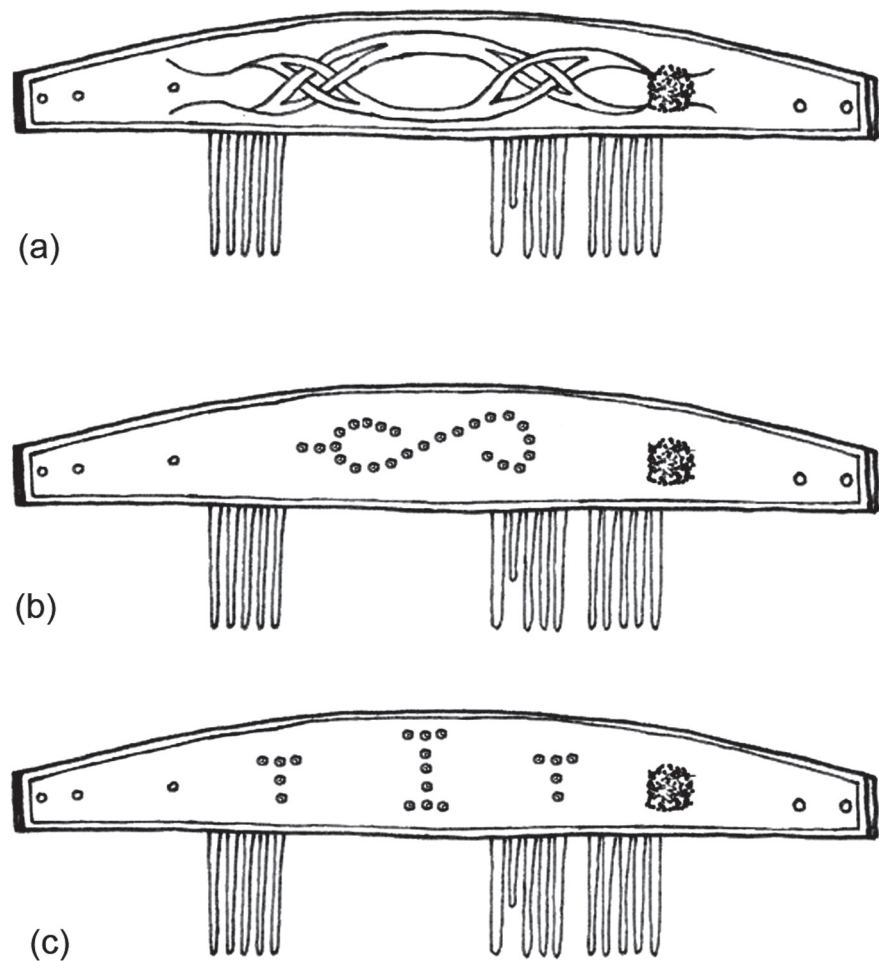


Fig. 1:  
Formal diversity:  
schematic distributions  
of comb types  
frequently recorded  
from 10<sup>th</sup>- and  
11<sup>th</sup>-century contexts  
(Types 6, 7, and 8,  
after Ashby 2007).  
Illustration by the author,  
incorporating drawings  
by Hayley Saul  
and Pat Walsh



Fig. 2: Ornamental Diversity: Schematic representations of decoration recorded on Type 5 combs. (a) atypical interlace, based on an example from the Brough of Birsay; (b) recumbent-S arrangement of ring-and-dot motifs, known from Birka, the Frisian terpen and, less commonly, Orkney; (c) T- and I-shaped arrangements of ring-and-dot motifs, known from Birka and the Frisian terpen, but unknown in the British Isles. Drawings by the author and Hayley Saul



Let us take as an example the scenario in early Viking-Age Scotland, where it has been suggested that combs of an identifiably ‘Pictish’ style unknown in Scandinavia were being manufactured in reindeer antler – a material not native to the British Isles at this date (Ashby 2009; *cf* Weber 1992). If verified, we can only explain this scenario in terms of cultural co-existence and either co-operation or coercion; by some means or another, craftspeople familiar with Pictish styles of construction and ornament found themselves working in Scandinavian materials. They were either trading with the Norse for raw materials, or the Scandinavian incomers were providing materials and commissioning the manufacture of local forms of material culture, perhaps as part of an active policy of incorporation and acculturation.

A similar situation becomes discernible when we consider the apparently concurrent use of these ‘native’ and ‘Pictish’ type combs and other ‘Scandinavian’ forms (Ashby 2009). How can there be sufficient space in the market for such diverse forms, manufactured according to disparate traditions? One explanation is that this dislocation relates to factionalism within the populace; it may not be as simple

as ‘native’ vs ‘incomer’, but combs were certainly being used to formalise, signify, and structure demographic associations.

A similar, if less clear-cut, phenomenon is apparent in Yorkshire. In the dynamic and unstable time that was the Viking Age, we might expect divisions like that in Scotland to be similarly well-evidenced in northern England. We might even hope to observe evidence for the purposeful construction of native identities in relation to some perceived Scandinavian threat. However, no ‘interface’ phase (in which the coexistence of Scandinavian and native material culture exist side-by-side) is visible at York, and in all levels the ‘Scandinavians’ are difficult to find. Only a small number of objects from York can be definitively characterised as ‘Norwegian’ or ‘Danish’ (indeed, there are few imports of any provenance; see Richards 2007: 162), and the rarity of diagnostically ‘Viking’ combs in northern England is remarkable (Ashby 2006; Ashby in press).

Nonetheless, if we shift our gaze beyond the towns, we do find signs of complexity. The persistence at rural settlements of traditionally ‘pre-viking’ style combs (Types 2a, 2b, and 12; see Ashby 2006, 2007) at least into the ninth century is indicative of

a deliberate choice (Ashby 2006:175, 225-228; see also Richards 1999; MacGregor 2000; *cf* Foreman 2009). This phenomenon is unlikely to represent simple ‘backwardness’, and more probably relates to the construction of a shared ‘Anglo-Saxon’ (or perhaps explicitly Northumbrian) identity, as has been proposed for certain forms of metalwork (see

Thomas 2000, 2006). This conservatism suggests that ‘old’, familiar comb forms retained meanings or associations that new, foreign ones did not. So once again, we can see the use of form as an act of implicit but calculated inclusion and exclusion, mediated through material culture in a way analagous to that of language, a kind of material shibboleth.

## The Vocabulary and Grammar of Ornament

A similar claim might be made of ornament. Particular motifs (vocabulary) and arrangements (grammar) could be understood in diverse ways, though of course the precise significance of particular forms of interlace or chevrons are now lost to us. Distinctive and unusual designs (*e.g.* Fig. 2a) might be seen as transmitters of more personal, assertive style, particularly if we view such extravagant combs as individual commissions.

There is further potential for communication mediated through the arrangements of ornamental motifs. At Birka (Sweden), Type 5 combs frequently feature ring-and-dot ornament, and these motifs may be positioned to form distinctive chains or stings. Some of these arrangements, such as the figure-8 or recumbent-S (Fig. 2b), are evidenced, though unusual, in the British isles, while others, such as the T- or I-shape (Fig. 2c), are unknown in the North-east Atlantic archipelago, but are better represented in the Frisian area (see Roes 1963, Pl. XIX, for instance). We can envision these arrangements as a sort of grammar that might be understood in certain contexts, incomprehensible in others. Another example is the ‘display face convention’, the oft-cited Frisian predilection for combs with ornament on only one side (MacGregor 1985:92). This is clearly indicative of a particular way of wearing a comb, a regionally

distinctive behaviour that, when observed out-of-context, may very well have been noted as ‘alien’.

Thus, there are numerous examples of situations in which consumers in diverse contexts shared a common repertoire of motifs, but where the grammars by which they were used and understood were distinctly localised. The potential for linguistic analogy here is clear; one immediately thinks of the differences between US and British vernacular English, which share considerable linguistic commonality, but with significant and particular differences in vocabulary and grammar (see Platt *et al.* 1984; Rohdenburg, Schlüter 2008; Smith 1987). Though such speech is mutually intelligible, there is considerable scope for misunderstanding and consequent alienation. Similar errors are equally possible in material terms, and it is quite conceivable that combs that today seem very similar, or part of a shared tradition (see Ambrosiani 1981) may well have featured particular markers of identity that made clear references for those able to read (or rather *hear*) them. Such complexity is well documented in the anthropology of style (see Weissner 1983), and there are also modern examples from which we may learn (consider, for instance, the skills required in order to ‘read’ the military badges of the recent Balkan conflicts; Laycock 2008:125; see also Richards 2009).

## Dialects of Manufacture

These are all visible, and consciously or unconsciously understood cultural references. But we may also talk of dialects, features that may or may not have been actively recognised by consumers, depending on their familiarity with the language of combmaking. These traits speak of the materials and techniques exploited by the combmaker, which themselves reflect the artisan’s place of work, and the tradition in which they leaned their craft. Examples might include raw materials of combs and rivets, methods and arrangements of riveting, the tools and processes used to construct and finish the piece.

I have written elsewhere on the nature of technology, and the means by which manufacturing traditions are developed and passed on (Ashby, in prep.). Herein it is appropriate to consider briefly the means by which one learns a skill; it is through the experience of working with materials in a particular context. Thus, just as the knowledge acquired during apprenticeship is key to the manner in which a task is conceived and undertaken, so is the place of work, the tools employed, and the materials exploited. So, working with a particular form of raw material – red deer antler rather than reindeer, elk, or bone, for instance – would have an impact on the

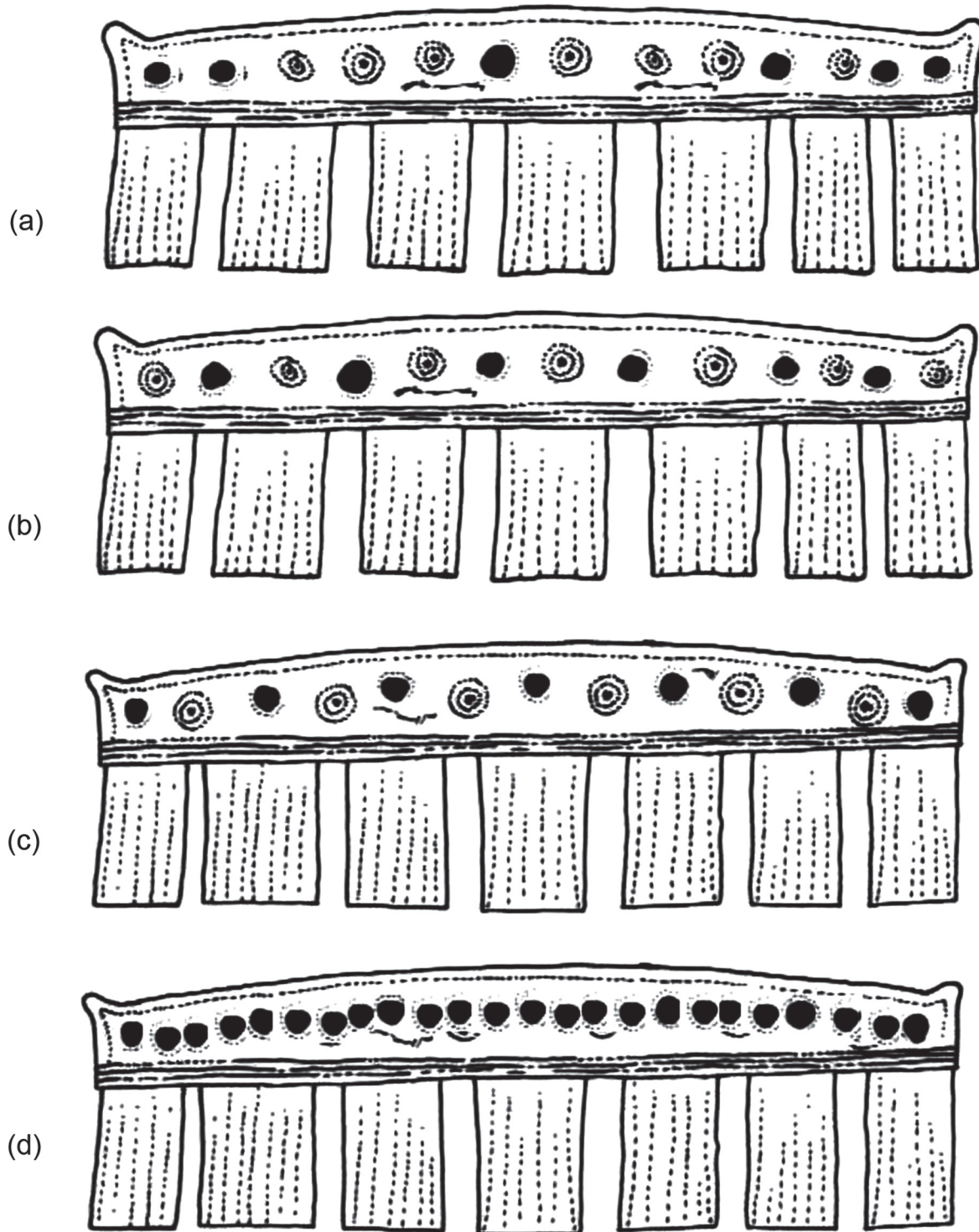


Fig. 3: Manufacturing Diversity: Schematic representations of riveting patterns from across northern Europe.

(a) alternating-edge style; (b) every-edge style; (c) centrally-riveted style; (d) decorative style.

After an original drawing by Sven Schroeder, originally published in Ashby 2009, fig 5

particular manner in which comb manufacture was conceived. Of course, this may have included practical concerns; the particular dimensions of the material would naturally constrain the size and shape of individual comb components. But it need not be restricted to such matters. Ways of thinking about material, or about the animal from whence it came, may

equally have had an impact. This may seem fanciful, but it would be foolish to deny the possible implications of the animist beliefs that seem to have characterised relations with reindeer in the circumpolar north (Äikäs *et al.* 2009; Price 2002; Ingold 1980). Even in post-conquest England, treatment of the red deer carcass ('the unmaking of the deer') was highly



ritualised, and is not easily explicable in efficiency terms (Sykes 2007:71), while we might also remember that the significance of raw materials need not have a basis in explicit religious or symbolic associations (see Conneller 2011). Indeed, meaningful content might well develop out of functional necessity, such that no distinction is made between the 'practical' and 'meaningful' basis behind the choice of a particular material. Material qualities such as toughness and lustre, as well as rarity and the degree to which exploitation is restricted to particular groups, may impart upon a material connotations of status, luxury, or the exotic. In turn, such associations may inscribe that material appropriate or inappropriate for use in the manufacture of particular object types, or for use by particular members of society. Moreover, such conceptual frameworks are not limited to raw materials, but may equally impact upon form, method of assembly, the use of tools, and ultimately the use of the finished object itself, while the significance of particular qualities may move in and out of focus, their meaningful content transforming according to context, such that the people interacting with a given comb form at a given point may be rich or poor, young or old, male or female. For this reason, it is fundamental that context (social, chronological, and geographical) is prioritised in any analysis.

To illustrate this, a specific example is necessary, but given the limitations of space, herein the focus is on just one aspect of manufacturing practice: methods of riveting (Fig. 3). There are a range of ways by which a comb may be riveted together, and these do seem to reflect local schools of manufacture, or at least regional working traditions (see Smirnova 2005:29-38 for a detailed account). To simplify, both 'every edge' and 'central' arrangements are known in Norway and Sweden, while Denmark and the

British Isles seem to share the 'alternating' tradition. Thus, we may perceive significant manufacturing variation, notwithstanding any similarity in morphology or decoration. The implications of this phenomenon are considerable. 'Foreign' comb forms do seem to have been transported beyond their normal ranges (presumably by a combination of travel and exchange), and combmakers from different regions may have had occasion to interact with one another. Nonetheless, it seems clear that traditions of 'making' were discretely regionalised (see Ashby in press a, b). Thus, combs with evidence of anomalous manufacturing processes may be identified as displaced objects, and it is notable that in northern England the small number of combs displaying the 'every edge' riveting technique are concentrated in York (Ashby 2006: Tables 7.32-7.35).

To pitch this in linguistic terms, again we may use the example of US and British English. Though none would doubt the shared linguistic experience of speakers of the two languages, few familiar with the rhythms and cadences of US and British speech would confuse the two, such that it is extremely difficult for a native of one context to go unrecognised in the other. The dialect may be taken for granted in some 'home' contexts, but it becomes significant when 'abroad'. Thus, particular aspects of comb manufacture and material shift in and out of focus according to context and moment, just as do form and ornament (see above), as has been proposed for the material culture of prehistoric Europe (Edmonds 1999), and other aspects of our lived environment (Bender 2001). This is the only way in which the 'meaning' of combs might be assessed; any attempt to identify a particular significance – even for a restricted spatio-temporal frame such as Viking-Age England – is certain to end in failure. The significance of objects is too slippery to be easily grasped.

## Language as Analogy and Language as Practice

The perceptive reader will realise that what is lacking in all that has been discussed so far is an apparatus to account for what happens when we put particular 'ways of making' into their broader context. In particular, how does the linguistic analogy work in the context of actual linguistic communities? In order to develop this argument, the analogy must be coupled more explicitly to a way of thinking about the relationship between 'material behaviours' and the construction of identity.

Social anthropology is again ahead of us here. Work by Judith Butler (*e.g.* Butler 1990, 1993), Andrew and Marilyn Strathern (*e.g.* Stewart, Strathern

2003; Strathern, Strathern 1971) and Tim Ingold (1993) is of particular note. Butler's concept of somatic performativity brings the complex 'chiasmic' relationship between language and materiality into focus (Butler 1993:69), while work by Andrew Strathern and others has identified connections between group identity and technologies of ritual and display. In his analysis of the use of the 'reindeerman's lasso', Ingold (1993) has demonstrated how physical properties only go so far in explaining the particular technological choices of Finnish reindeer herders. Equally important are the suites of skills associated with particular technologies, and these

skills tie in closely to ideas of self, group membership, and identity.

These ideas have some application in the case of combs. Following Ingold in particular, we might suggest that identity inheres in, and is communicated by, not material culture itself, but ‘skills’. This certainly applies to ways of ‘making’, such that particular choices in comb manufacture may be signifiers of identity (see Ashby in prep), but in Ingold’s use of the term, the techniques and behaviours that make up daily life similarly constitute skills. In this sense,

the use of a comb as a gift, as a dress accessory, or as a toilet implement could be described as a skill, and, as such, may be seen to have developed within a particular (social and ecological) environment. Thus, where differences in ‘comb behaviour’ are recognisable, these may be interpreted in terms of the production of identity, providing one has understanding of the contexts within which behaviours developed. In what follows, I apply these ideas to comb material from Viking-Age and medieval northern England.

## Discussion: Communication and Contradiction

Just as Ingold (1993) showed that the reindeer-man’s identity could be expressed in skills and technical choices, and that the particular identity articulated through a technique was contingent upon social context, so the same applies to our combs. Thus, in order to access the ways in which comb behaviours may have created and communicated identities, it is fundamental that our studies are situated within their appropriate social and political context. It therefore behoves us to take a little time to consider both the development of comb use in early medieval northern England, and the region’s socio-political climate in our period of interest.

In pre-Viking England, the display of identity through dress accessories and portable artefacts was well-established (e.g. Hines 1994). Moreover, the significance of combs – possibly in the making and remaking of identity – is evidenced in Early Anglo-Saxon cremation graves (Williams 2003, 2004), and suggested by both their manufacture in precious metals and records of their use in gift exchange (see Sorrell 1996). Thus, by the eighth century, the sending and receipt of signals through media that included combs would have been well-understood. We might suppose that such messages were transmitted through the distribution of well-made combs as gifts, and in their display as dress accessories. This may have applied even to poorer manufactures, but if not, then their significance may have been revealed privately in grooming rituals, as is illustrated in contemporary literature (e.g. Jones, Jones 1949:116-119, 134-135).

Thus, by the start of the Viking Age, combs were a firmly established medium of communication. Interestingly though, it seems that the number of people in ninth-century Yorkshire and Lincolnshire that chose to express their *Scandinavian* identity through the medium of combs was small. This may reflect either a relatively small-scale settlement or an initial reluctance to broadcast one’s affiliation in an unfa-

miliar, unstable and potentially hostile environment. However, in the tenth and eleventh centuries, this social reticence was followed by the creation of a hybrid Anglo-Scandinavian material culture, as opposed to the apparent cultural ‘takeover’ that characterises other areas, such as the Northern Isles of Scotland. Combs from Viking-Age levels in York have some parallels in the Baltic and southern Scandinavia, but are most closely comparable to those of Ireland, and Dublin in particular (Ashby 2006:251). We must envision a considerable surge in local demand for combs of these new forms, which possibly held Irish associations. This sudden flourish of ‘Hiberno-Norse’ identity is paralleled in sculpture, where Irish artistic motifs are adopted and adapted, producing new colonial monuments such as ring-headed crosses (see Collingwood 1927).

This development must be seen in political terms. Ragnald’s takeover of the Kingdom of York in AD 918 marked a significant political watershed, and though Hiberno-Norse overlordship was unstable, it persisted intermittently until the middle of the tenth century, and over this time close political ties existed between York and Dublin (Lang 1991:8). Given the importance of material culture in communication during times of social stress (Barth 1969), it is thus natural that display began to make reference to the perceived origins of dominant political magnates. The exploitation of both fixed and portable forms of material culture is particularly notable, as the two media no doubt had different audiences. Though it has been argued that combs could be used as symbols of status (see above), there is no doubt that the commissioning of sculpture was much more socially restricted. Thus, the combs add some nuance to the scenario developed on the basis of sculptural evidence; Anglo-Scandinavian identity was widely seen as desirable, and was reproduced at multiple social levels within the free population of York. Social and political advantage was to be gained through

speaking the Hiberno-Norse language of material culture.

So, we have seen that new 'Scandinavian' or even 'Hiberno-Norse' templates were adopted in both Northumbria and parts of Ireland in the tenth century. These combs rapidly became extremely popular, and seem to have been produced and consumed in such numbers - especially at large settlements such as York - that it is improbable that all those using such combs were of Scandinavian genetic heritage. More likely the phenomenon suggests rapid and widespread acceptance of a new design: a new material language. In so adopting these combs, the populace ensured that these forms were reinvented as cultural references or linguistic cadences, becoming assimilated into the Anglo-Scandinavian milieu. This contrasts markedly with the situation in smaller settlements, where combs show conservatism of design, and it does appear that Viking-Age northern England had a heterogeneous population. Moreover, that population may have been factional, with inter-group relations being mediated through material culture, including combs. The well-known 'handled' combs (Type 3; see Ashby 2007) constitute a possible example of this phenomenon. They appear to persist right across the political threshold of Norse settlement. Whether they represent 'Saxon' or 'Frisian' combs, they are nonetheless a discrete group, unlike anything else in use in the British Isles, Frisia, Francia or Scandinavia between the seventh and tenth centuries. They may thus represent a specific social reference group, with its own comb language. Just as the techniques of Ingold's northern and southern Finnish reindeermen were the loci for expressions of identity, so it was for the comb behaviours of various late Viking-Age groups in northern England. Combs were used to mediate relations between various demographic, ethnic, or social groups. The linguistic analogy, then, does indeed seem appropriate.

Perhaps the most striking patterning in comb behaviour relates to material choice. Broadly speaking, Viking-Age England saw a shift in preference from bone to antler (see Riddler 1992). It is worth considering why this was the case. While the growth of towns in the Viking Age may certainly have impacted the organisation of material supply, it is difficult to see how this could have made antler more readily available than bone (the development of butchery guilds, which may conceivably have limited access to postcranial bone, seems to have been a later development). Instead, the difference may be related to a change in the perceived qualities of materials. This does not necessarily represent an ethnic influence, but it does reflect differences in skills and worldview. It is precisely these flows and 'meshworks' of

material and meaning that Ingold (2007) has emphasised as priorities for archaeological research more generally.

Combmaking in late Viking-Age and Anglo-Norman England seems to have experienced a related, but perhaps more widely felt trend. From the Late Viking Age and into the Middle Ages, composite comb production seems to decline in England, while the industry thrives in Scandinavia, and its output is identifiable across northern Europe and the North Atlantic (see Ashby, in press). Quite why this occurs is difficult to ascertain. Traditionally, the decline of the English composite comb has been explained with reference to the increasingly restricted nature of access to antler, and the rise of horncraft (MacGregor 1985:32, 51). However, in itself, this explanation may not present the full story. Combs of bone/antler and of horn/wood are not morphologically, materially, technologically or aesthetically similar, and must have fulfilled fundamentally different roles (at least in terms of display). The replacement of the former by the latter must, I believe, relate to a fundamental shift in the perception of what a comb was, and what it was for. If access to antler did indeed become restricted, then the transference of responsibility for comb production to the hornworker does not seem inevitable or inherently predictable. Why did the combmaker not simply return to exploitation of postcranial bone? Though antler does exercise mechanical superiority over bone in some important ways (MacGregor, Currey 1983), we have seen that the latter was used extensively in the pre-Viking period, and its utility was not lost to memory. So why were bone/antler composite combs abandoned altogether, rather than reconceived in terms of material? It is possible that the butchery guilds (which appear to have been in place at least by the thirteenth century) attempted to limit access to domestic animal bone at this point, but the persisting production of bone items such as gaming pieces and knife handles (and the appearance of new forms such as parchment prickers) perhaps argues against this. Rather, it seems that the period following the Norman Conquest saw a change in skills that was unfavourable for the comb. It is a truism to state that the appearance of Norman lordship was accompanied by significant social change, but one particular aspect of this development holds interest here. It has frequently been argued that early-medieval notions of power and status were related to portable wealth, military might and influence, and derived from a complex network of affiliations and responsibilities borne out of relationships of reciprocity and tribute (see Hedeager 1994; Samson 1991), and that these were replaced in large part by Norman ideals founded on land ownership,

inheritance, and feudal relations (see Sykes 2007 for a useful review of these issues in light of human-animal relations). The Saxon-Norman dichotomy is of course simplistic (see Bates, Curry 1992), but it is clear that the political conditions that pertained in later Anglo-Saxon England were different in kind to those that characterised contemporary Normandy, which had developed out of the Carolingian restructuring of the Romano-Germanic state of Merovingian Francia. The social and economic developments of later 11<sup>th</sup>- and 12<sup>th</sup>-century England, are then, unsurprising. It is conceivable that these changes had a material corollary. Although it would be erroneous to propose that it led to a declining need to display status through dress, it is reasonable to suggest that certain mechanisms – involving either the significance of hair, or of particular dress accessories – began to be viewed differently in this regard (see Dutton 2004 for the complexities of interpreting changing attitudes to hair in early-medieval Frankia; see also Petitjean 1995). Comprehension of the trend may be aided by further archaeological and documentary research in Britain and France, but in truth ultimate identification of a particular social cause for this development seems an unlikely goal. Moreover, though there is the temptation to apply an ‘ethnic’ explanation, it is problematic to privilege the impact of the Norman Conquest over contemporary alternatives, particularly when – as in this case – we are hamstrung by an inability to tightly date the phenomenon of interest.

Nonetheless, patterning in the presence/absence of examples of ‘riveted mounts’ suggest that the 11<sup>th</sup> and 12<sup>th</sup> centuries also saw the decline of rudimentary combs that incorporated a horn (or wooden) component (Ashby Type 4; see Ashby 2007; Biddle 1990). This comb form may be seen as the ‘missing link’ (morphologically, and in some senses chronologically) between the composite comb proper, and its one-piece successor in horn. Arguably, these combs represented inexpensive toilet implements with a diminished role in display, and as such provided the template for later, perhaps less symbolically loaded models. Thus, as the need for combs as active, visible dress accessories disappeared, so they were replaced by more functional grooming tools that could be expediently manufactured on single pieces of horn or wood. Though no doubt produced in some numbers, most such examples are now lost to us.

Thus, what at a superficial level appears to be a fairly coherent class of object – the comb – actually comprises several discrete forms with particular cultural associations. Let us call these forms ‘phases’ (in the chemical or zoological – rather than the temporal – sense). The use of the respective phases is

situated within particular social contexts, and their relative fortunes are contingent upon political and socio-economic developments, resulting in distinctive chronological and geographical patterning. The parallel with the case of the reindeer’s lasso is close, and while this is just one possible explanation, such an approach is particularly interesting in light of Ingold’s (2007) concern with ‘materials against materiality’. Thus, while the need for hair combs was to persist, the relevance of the composite comb (with its particular material requirements, its complex and extended production process, its role as a dress accessory, and the conceptual associations drawn from both its raw materials and the symbolic content of its form and ornament) entered a slow decline. Though, as we have seen, precision is not forthcoming, the timing of this decline is interesting, coinciding as it does with perceived recessions in the production of metalwork and large-scale ecclesiastical construction (Hinton 2006; Gem 1975). It is possible that these trends share common causation, and it is not inconceivable that socio-conceptual – rather than simply economic – factors played an important role. In the case of combs, however, the disparity is stark, particularly given the thriving combmaking industry that characterised early second-millennial Scandinavia, and it is tempting to see the pattern in terms of a change in the nature of the relationship between Scandinavia and England under Cnut and the kings of Wessex (Ashby in press). This, however, only describes the situation; what I have endeavoured to do herein is to address the question of *why* the ‘display comb’ so rapidly became redundant. The phenomenon must relate, at least in part, to the changing role of combs in social performance and communication, and a transformation in the rules according to which this material language operated.

Notwithstanding the decline of English combmaking, we do find occasional examples of composite combs in deposits dated to the 12<sup>th</sup> and 13<sup>th</sup> centuries. Such combs are invariably Norwegian- or Danish-made (type 9), and must represent the possessions of travellers from Scandinavia or Atlantic Scotland (Ashby 2006:146-147). The size and extravagance of some such examples suggest that it was not always too much of a risk for a Scandinavian outsider to openly display their identity in Viking-Age and high-medieval England. Incidentally, the same might be said of a small number of Late Viking-Age bronze comb pendants with eastern Baltic origins, which have recently come to light in Lincolnshire (Ashby and Bolton, 2010). Such display would surely have stood out in the eleventh and twelfth centuries if decorative dress accessories (including visible combs) were as rare as they appear



to have been. Indeed, the local imitation of Scandinavian forms suggests that such fashions were seen as exotic or desirable in some contexts, to the extent that their meaning was actively read, interpreted, and adopted.

I hope that this brief case study has demonstrated how a language-driven approach might allow us to understand previously uninterpreted patterning in artefactual material. To summarise, rather than – as has previously been assumed – the corpus being homogeneous, there is much variability and patterning in the combs of Viking-Age Europe. It is simply the complexity of this patterning that renders it invisible at first, and what is needed is a model to help unravel it. Of course, in this paper it has only been possible to touch upon a few of the problems and potentials of studying this complex finds material, and much

has been overlooked. It has not been possible, for instance, to consider in any detail the nature of relations between combs and other meaningfully-loaded objects. The networks of association between multiple objects, people, and places are of course key to their agency, but this is a matter for another paper. Finally, this contribution demonstrates just one potential approach to our problem. Elsewhere, I have outlined and adopted processes based on style (Ashby 2006) and technological choice (Ashby in prep), and I do not suggest a particular theory or framework to be followed; diverse questions call for diverse responses. All that is important is that whatever approach is adopted, care is taken to appreciate that the meaningful content of these objects is multi-faceted: zoological and technological; ecological and communicative.

### Acknowledgements

This paper builds upon research undertaken prior to 2006, as part of AHRC-funded doctoral research at the University of York, and I am grateful for the advice and ideas of staff and colleagues in the Department of Archaeology that made this research possible. In particular, I should thank my supervisor, James Barrett, whose perspicacious comments were always immensely helpful, and Arthur MacGregor, whose support is greatly appreciated. I have also benefitted from discussions with untold numbers of fellow worked bone specialists, and I am of course extremely grateful for the support and encourage-

ment of the members of the Worked Bone Research Group, and to our Polish colleagues in particular, for organising the meeting and for their help in preparing this paper for publication. Thanks are also due to Penelope Walton Rogers, for discussion on the role of butchery guilds. Finally, I owe a big thank you to Mark Edmonds (very much the ‘perceptive reader’ referred to above), whose inspiration and encouragement has been priceless, and whose comments on an earlier draft of this paper have improved it immeasurably. Thanks to you all; all errors of course, remain my own.

### References

- Äikäs, T., A.-K. Puputti, M. Núñez, J. Aspi and J. Okkonen 2009. *Sacred and profane livelihood: animal bones from Sieidi sites in northern Finland*, Norwegian Archaeological Review 42(2), 109-22.
- Ambrosiani, K. 1981. *Viking Age Combs, Comb Making and Comb Makers in the Light of Finds from Birka and Ribe*, Stockholm Studies in Archaeology 2, Stockholm.
- Ashby, S.P. 2005a. *Bone and antler combs: Towards a methodology for the understanding of trade and identity in Viking Age England and Scotland*, In: H. Luik, A.M. Choyke, C.E. Batey and L. Lõugas (eds.) *From Hooves to Horns, from Mollusc to Mammoth. Proceedings of the 4th Meeting of the Worked Bone Research Group, Tallinn, Estonia, August 2003*, Muinasaja teadus 15, Tallinn, 255-62.
- Ashby, S.P. 2005b. *Zooarchaeology, Artefacts, Trade and Identity: The Analysis of Bone Combs from Early Medieval England and Scotland*, In: A. Pluskowski (ed.) *Just Skin and Bones? New Perspectives on Human-Animal Relations in the Historical Past*, BAR Intern. Series 1410, Oxford, 41-3.
- Ashby, S.P. 2006. *Time, Trade and Identity: Bone and Antler Combs in Northern Britain c. AD 700-1400*, unpublished PhD thesis, Department of Archaeology, University of York.
- Ashby, S. P. 2007. *Bone and Antler Combs*, Finds Research Group Datasheet 40.
- Ashby, S.P. 2009. *Combs, contact, and chronology: reconsidering hair combs in Early-historic and Viking-Age Atlantic Scotland*, Medieval Archaeology 53, 1-33. [www.maney.co.uk/journals/med/](http://www.maney.co.uk/journals/med/); [www.ingentaconnect.com/content/maney/med](http://www.ingentaconnect.com/content/maney/med)
- Ashby, S.P. in press. *Making a Good Comb: Mercantile Identity in 9th to 11th-century England*, In: L. Ten-Harkel and D.M. Hadley (eds.) *Everyday Life in Viking Towns: Social Approaches to Towns in England and Ireland c. 800-1100*, Oxford: Oxbow.

- Ashby, S.P. in press (a). *Disentangling trade: combs in the North and Irish Seas in the Long Viking Age*, In: J.H. Barrett and S.-J. Gibbon (eds.) *Maritime Societies of the Viking and Medieval World*, London: Boydell.
- Ashby, S.P. in press (b). *A Study in Regionality: Hair Combs and Bone/Antler Craft in the Northern Danelaw*, In: D. Petts and S. Turner (eds.) *Early Medieval Northumbria*, Turnhout: Brepols.
- Ashby, S.P. and A. Bolton 2010. *Searching with a fine-toothed comb: Combs for Humans and Horses on the PAS database*, In: H. Geake, M.J. Lewis and S. Worrell (eds.) *A Decade of Discovery*, BAR 520, Oxford: Archaeopress.
- Barnes, M.P., J.R. Hagland and R.I. Page 1997. *The Runic Inscriptions of Viking Age Dublin. Medieval Dublin Excavations 1962-81, Series B 5*, Dublin: National Museum of Ireland and Royal Irish Academy.
- Barth, F. (ed.) 1969. *Ethnic Groups and Boundaries: The Social Organization of Culture Difference*, Boston: Little, Brown and Company.
- Barrett, J.C. 1988. *Fields of discourse: reconstituting a social archaeology*, *Critique of Anthropology* 7(3), 5-16.
- Bates, D. and Curry, A. (eds.) 1992. *England and Normandy in the Middle Ages*, London: Hambledon Press.
- Bender, B. 2001. *Landscapes on-the-move*, *Journal of Social Archaeology* 1(1), 75-89.
- Biddle, M. 1990. *Toilet Equipment: Combs of Horn and Bone*, In: M. Biddle (ed.) *Object and Economy in Medieval Winchester*, Winchester Studies 7, Oxford: Clarendon Press, 678-90.
- Buchli, V.A. 2000. *Interpreting Material Culture. The Trouble with Text*, In: J. Thomas (ed.) *Interpretive Archaeology: a reader*, London: Leicester University Press, 363-76.
- Butler, J. 1990. *Gender Trouble: Feminism and the Subversion of Identity*, New York: Routledge.
- Butler, J. 1993. *Bodies that Matter: On the Discursive Limits of "Sex"*, New York: Routledge.
- Clarke, D. and A. Heald 2002. *Beyond typology: combs, economics, symbolism and regional identity in Late Norse Scotland*, *Norwegian Archaeological Review* 35(2), 81-93.
- Collingwood, W.G. 1927. *Northumbrian Crosses of the Pre-Norman Age*, London: Faber and Faber.
- Conneller, C. 2011. *An Archaeology of Materials. Technological Transformations in Early Prehistoric Europe*, London: Routledge.
- Cruse, J. 2007. *The Comb: its History and Development*, London: Robert Hale.
- Edmonds, M. 1999. *Ancestral Geographies of the Neolithic. Landscapes, monuments and memory*, London, Routledge.
- Dutton, P. E. 2004. *Charlemagne's Mustache and Other Cultural Clusters of a Dark Age*, New York: Palgrave MacMillan.
- Fleming, A. 2006. *Post-processual Landscape Archaeology: a Critique*, *Cambridge Archaeological Journal* 6(3), 267-80.
- Foreman, M. 2009. *Combs. Life and Economy at Early Medieval Flixborough, c. AD 600-1000: The Artefact Evidence*, In: D.H. Evans and C. Loveluck (eds.) *Excavations at Flixborough Volume 2*, Oxford: Oxbow, 82-102.
- Gem, R. 1975. *A recession in English architecture during the early 11th century and its effect on the development of the Romanesque style*, *Journal of the British Archaeological Association*, 3<sup>rd</sup> Series 38, 8-49.
- Hedeager, L. 1994. *Warrior economy and trading economy in Viking-Age Scandinavia*, *Journal of European Archaeology* 2(1), 130-48.
- Hines, J. 1994. *The becoming of the English: identity, material culture and language in early Anglo-Saxon England*, In: W. Filmer-Sankey and D. Griffiths (eds.) *Anglo-Saxon Studies in Archaeology and History Volume 7*, Oxford: Oxford University Committee for Archaeology, 50-9.
- Hinton, D. 2006. *Gold and Gilt, Pots and Pins. Possessions and People in Medieval Britain*, Oxford: Oxford University Press.
- Hodder, I. 1989a. *Material culture texts and social change: a theoretical discussion and some archaeological examples*, *Proceedings of the Prehistoric Society* 54, 67-75.
- Hodder, I. 1989b. *This is not an article about material culture as text*, *Journal of Anthropological Archaeology* 8, 250-69.
- Hodder, I. 1991. *Reading the Past: Current Approaches to Interpretation in Archaeology*, Cambridge: Cambridge University Press.
- Hodder, I. 1993. *The narrative and rhetoric of material culture sequences*, *World Archaeology* 25(2), 141-51.
- Ingold, T. 1980. *Hunters, pastoralists and ranchers: reindeer economies and their transformations*, Cambridge: Cambridge University Press.
- Ingold, T. 1993. *The Reindeerman's Lasso*, In: P. Lemonnier (ed.) *Technological Choices. Transformations in Material Cultures since the Neolithic*, London: Routledge, 108-25.
- Ingold, T. 2000. *The Perception of the Environment*, London: Routledge.
- Ingold, T. 2007. *Materials against materiality*, *Archaeological Dialogues* 14(1), 1-16.
- Jones, G. and T.J. Jones (trans. and eds.) 1949. *The Mabinogion*, London: J.N. Dent and Sons, Everyman's Library.
- Jones, S. 1997. *The Archaeology of Ethnicity*, London: Routledge.
- Lang, J.T. 1991. *Corpus of Anglo-Saxon Stone Sculpture. Volume III: York and Eastern Yorkshire*, Oxford: Oxford University Press.
- Laycock, S. 2008. *Britannia: the Failed State. Tribal Conflicts and the End of Roman Britain*, Stroud: Tempus.

- Lévi-Strauss, C. (1963 [1958]). *Structural Anthropology*. (trans. C. Jacobson), New York: Basic Books.
- Luik, H. 2008. *Could broken combs have had new lives?*, *Eesti Arheoloogia Ajakiri* (Estonian Journal of Archaeology) 12(2), 152-62.
- MacGregor, A. 1985. *Bone, Antler, Ivory and Horn: The Technology of Skeletal Materials Since the Roman Period*, London: Croom Helm.
- MacGregor, A. 2000. *Bone and Antler Objects*, In: P.A. Stamper and R.A. Croft (eds.) *Wharram: A Study of Settlement on the Yorkshire Wolds, VIII: The South Manor Area*, York University Archaeological Publications 10, York: University of York, 148-54.
- MacGregor, A. and J.D. Currey 1983. *Mechanical properties as conditioning factors in the bone and antler industry of the 3rd to the 13th Century AD*, *Journal of Archaeological Science* 10, 71-7.
- Miller, H.L. 2007. *Archaeological Approaches to Technology*, Burlington, MA: Academic Press.
- Moore, H. 1985. *Space, text and gender: An anthropological study of the Marakwet of Kenya*, Cambridge: Cambridge University Press.
- Nash, G. (ed.) 1997. *Semiotics of Landscape: Archaeology of Mind*, BAR Intern. Series 661, Oxford: Archaeopress.
- Nash, G. and G. Children (eds.) 2008. *The Archaeology of Semiotics and the Social Order of Things*, BAR Intern. Series 1833, Oxford: Archaeopress.
- Okasha, E. 1999. *An Inscribed Bone Fragment from Nassington, Peterborough*, *Medieval Archaeology* 43, 203-5.
- Page, R.I. 1973. *An Introduction to English Runes*, London: Methuen.
- Peirce, C.S. 1958. *Values in a Universe of Chance: Selected Writings of Chales S. Peirce*, (ed. P.P. Weiner), Garden City, NY: Doubleday.
- Petitjean, M. 1995. *Les peignes en os à l'époque mérovingienne. Évolution depuis l'Antiquité tardive*, *Antiquités Nationales* 27, 145-91.
- Platt, J., H. Webber and M.L. Ho (eds.) 1984. *The New Englishes*, London: Routledge and Kegan Paul.
- Pluciennik, M. 2002. *Art, Artefact, Metaphor*, In: Y. Hamilakis, M. Pluciennik and S. Tarlow (eds.) *Thinking through the Body. Archaeologies of Corporeality*, New York: Kluwer Academic/Plenum Publishers, 217-32.
- Preucel, R.W. 2006. *Archaeological Semiotics*, Malden, MA: Blackwell.
- Price, N.S. 2002. *The Viking Way: Religion and War in Late Iron Age Scandinavia*, Uppsala: Uppsala University Department of Archaeology & Ancient History.
- Richards, J.D. 1999. *Cottam: an Anglo-Scandinavian settlement on the Yorkshire Wolds*, *Archaeological Journal* 156, 1-10.
- Richards, J.D. 2007. *Viking Age England (Third Edition)*, Stroud: Tempus.
- Richards, P. 2009. *Dressed to kill. Clothing as technology of the body in the Civil War in Sierra Leone*, *Journal of Material Culture* 14(4), 495-512.
- Riddler, I. 1992. *Bone-working and the Pre-Viking Trading Centres*, In: R.A. Hall, R. Hodges and H. Clarke (eds.) *Medieval Europe 1992, Preprinted Papers, Volume 7: Art and Symbolism*, York: Medieval Europe 1992, 149-56.
- Roes, A. 1963. *Bone and Antler Objects from the Frisian Terp-Mounds*, Haarlem: HD Tjeenk Willink & Zoon N.V.
- Rohdenburg, G. and J. Schlüter (eds.) 2008. *One Language, Two Grammars? Differences between British and American English*, Cambridge: Cambridge University Press.
- Samson, R. 1991. *Fighting with Silver: Rethinking Trading, Raiding, and Hoarding*, In: R. Samson (ed.) *Social Approaches to Viking Studies*, Glasgow: Glasgow University Press, 123-33.
- Saussure, F. d. 1983 [1972]. *Course in General Linguistics*. (ed. and trans. R. Harris), London: Duckworth.
- Shanks, M. and C. Tilley 1987. *Re-constructing Archaeology. Theory and Practice*, Cambridge: Cambridge University Press.
- Smirnova, L. 2005. *Comb-Making in Medieval Novgorod (950-1450). An industry in transition*, BAR Intern. Series 1369, Oxford: Archaeopress.
- Smith, L.E. 1987. *Discourse Across Cultures. Strategies in World Englishes*, New York: Prentice Hall.
- Sorrell, P. 1996. *Alcuin's "comb" riddle*, *Neophilologus* 80, 311-8.
- Stewart, P.J. and A. Strathern 2003. *Introduction*, In: P.J. Stewart and A. Strathern (eds.) *Landscape, Memory and History. Anthropological Perspectives*, London: Pluto Press, 1-15.
- Strathern, A. and M. Strathern 1971. *Self-decoration in Mount Hagen*, Toronto: Toronto University Press.
- Sykes, N.J. 2007. *The Norman Conquest: a Zooarchaeological Perspective*, BAR Intern. Series 1656, Oxford: Archaeopress.
- Tesch, S. 1987. *Kyrkolunden: en historisk och arkeologisk tillbakablick*, Mårsta: Sigtunahem.
- Thomas, G. 2000. *Anglo-Scandinavian metalwork in the Danelaw: reconstructing social interaction and regional identities*, In: J.D. Richards and D.M. Hadley (eds.) *Cultures in Contact: Scandinavian Settlement in England in the Ninth and Tenth Centuries*, Turnhout: Brepols, 237-55.
- Thomas, G. 2006. *Reflections on a '9th-century' Northumbrian Metalworking Tradition: A Silver Hoard from Poppleton, North Yorkshire*, *Medieval Archaeology* 50(1), 143-64.
- Tilley, C. 1991. *Material Culture and Text: the Art of Ambiguity*, London: Routledge.
- Tilley, C. 1999. *Metaphor and Material Culture*, Oxford: Blackwell.

Tilley, C. 2004. *Round Barrows and Dykes as Landscape Metaphors*, Cambridge Archaeological Journal 14, 185-203.

Vretemark, M. 1989. *Kammakeriavfallet – en osteologisk analys*, In: K. Carlsson (ed.) *Arkeologi i Kungahalla 1989*, Länsstyrelsen i Göteborg och Bohuslän, 57-66.

Vretemark, M. 1997. *Raw materials and urban comb manufacturing in medieval Scandinavia*, *Anthropozoologica* 25-26, 201-6.

Wallace-Hadrill, J.M. 1982. *The Long-haired Kings*, London: Methuen.

Weber, B. 1992. *Norwegian Exports in Orkney and Shetland during the Viking and Middle Ages*, In: R.A. Hall, R. Hodges and H. Clarke (eds.) *Medieval Europe 1992, Preprinted Papers Volume 5: Exchange and Trade*, York: Medieval Europe 1992, 159-67.

Weissner, P. 1983. *Style and information in Kalahari San projectile points*, *American Antiquity* 48(2), 253-76.

Wiberg, C. 1977. *Horn og Beinmaterialet fra "Mindets tomt"*, In: H.I. Høeg, H.-E. Lidén, A. Liestøl, P.B. Molaug, E. Schia and C. Wiberg, *De arkeologiske utgravninger i Gamlebyen, Oslo. Bind 1*, Oslo: Universitetsforlaget, 202-13.

Wiberg, T. 1987. *Kammer*, In: E. Schia (ed.) *De Arkeologiske utgravninger i Gamlebyen, Oslo Bind 3, Vol. 3*, Oslo: Alvheim and Eide, 413-21.

Williams, H. 2003. *Material culture as memory: combs and cremation in early medieval Britain*, *Early Medieval Europe* 12(2), 89-128.

Williams, H. 2004. *Artefacts in Early Medieval graves: A new perspective*, In: R. Collins and J. Gerrard (eds.) *Debating Late Antiquity in Britain AD300-700*, BAR British Series 365, Oxford: Archaeopress, 89-101.