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# Combs, Contact and Chronology: Reconsidering Hair Combs in Early-Historic and Viking-Age Atlantic Scotland

By STEVEN P ASHBY<sup>1</sup>

*ANALYSIS OF AN important collection of bone/antler hair combs from Atlantic Scotland has illuminated the chronology of early-medieval Scandinavian settlement in the region. Application of a new typology, identification of variations in manufacturing practice and analysis of spatial patterning throw light on the development of combs traditionally seen as characteristic of early-historic Atlantic Scotland. The application of new techniques of raw material analysis demonstrates the probable use of reindeer antler in combs of 'native' style. However, none of these combs is from contexts that can confidently be dated to the 8th century or earlier, and the pattern is indicative of Norse-native coexistence (peaceful or otherwise) in the 9th century, but not before. The comb evidence demonstrates a Scandinavian presence throughout Atlantic Scotland from early in the Viking Age, but also highlights the importance of contact with Ireland and Anglo-Saxon England.*

This paper stems from doctoral research completed at the University of York in 2006.<sup>2</sup> It addresses a number of key questions in the archaeology of early-historic and Viking-Age Atlantic Scotland (see Fig 1a), through the medium of artefactual analysis, specifically the study of bone and antler hair combs. These artefacts are a 'type find' of the settlements of early-medieval Atlantic Scotland. However, although a number of site reports have incorporated analyses of combs, synthetic treatment of all or parts of the corpus is rare.<sup>3</sup> This is unfortunate as they offer considerable potential for the investigation of patterning in time and space and may inform debate on several methodological and theoretical issues key to the understanding of Atlantic Scotland in the late 1st and early 2nd millennium AD. Using combs, this paper will examine the chronology and nature of native-Scandinavian contact in Atlantic Scotland, and its implications for the region's political, economic and social dynamics in the early Viking Age.

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<sup>2</sup> Ashby 2006a.

<sup>3</sup> Although see Foster 1990.

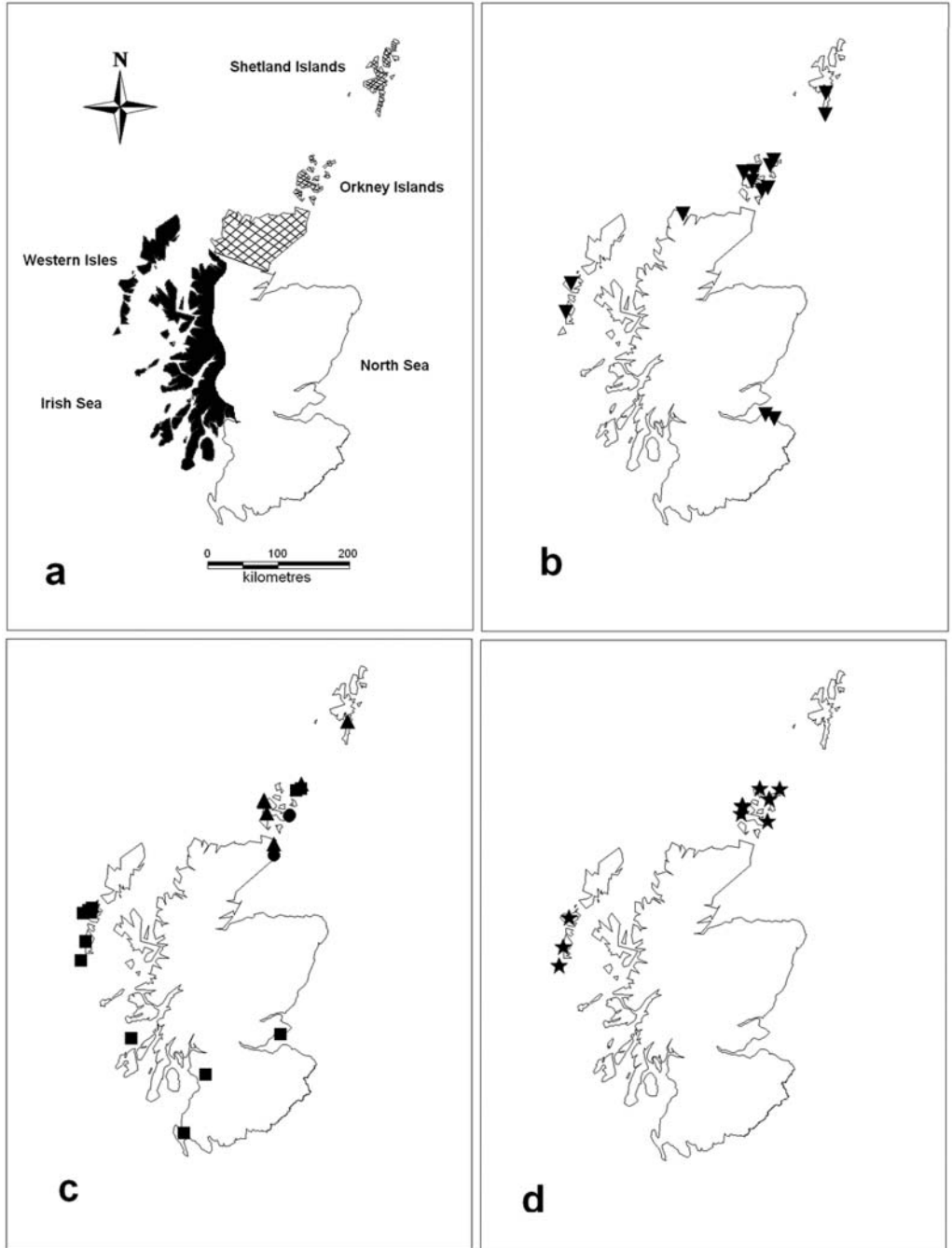


FIG 1

Distribution maps for comb findspots, by type. For reasons of security regarding identification and quantification, the analysis excludes fragments that represent less than 50% of original comb length. (a) Location of Atlantic northern Scotland (hatched) and western Scotland (black). (b) Type 5. (c) Type 11 (square), Type 12 (circle) or both Types 11 and 12 (triangle). (d) Type 1c. *Composed by S Ashby and A McClain.*

The beginning of the Scottish Viking Age has been the subject of much debate over the last few decades, in terms of both chronology and social dynamics.<sup>4</sup> Notwithstanding frequent attempts to characterise the society of early Viking-Age Atlantic Scotland in terms of war or peace, social conditions were surely regionally and chronologically variable, influenced by local environment, politics and population density.<sup>5</sup> For many scholars, the nature of Scandinavian-native relations ties closely to the chronology of Norse settlement. Though work by Björn Myhre (as well as influential contributions to the debate in England by John Hines and Martin Carver) has sparked renewed interest in the subject of pre-Viking traffic in the North Sea, we still lack the ‘smoking gun’ of early contact.<sup>6</sup> The identification of a number of combs of purported ‘Pictish’ style as reindeer antler — a material unavailable within the British Isles at the time, though plentiful in western Scandinavia — has consequently gathered much attention.<sup>7</sup> In the absence of a reliable local source for the antler required to make combs, we might argue that engagement with an outside provider is not in itself unlikely.<sup>8</sup> If Birte Weber’s assertions are correct, however, this might be suggestive of close contact between Scandinavians and the natives of northern Scotland decades, even centuries, prior to the first documented raids at the end of the 8th century.<sup>9</sup>

Unfortunately, despite a number of publications on the subject, a comprehensive methodology for the identification of red deer and reindeer antler does not exist. This has led to considerable scepticism regarding the validity of the identifications, and of the related claims as to long-term contact and continuity. I have stated elsewhere that qualified identifications to species level are possible in many situations, but pointed out that the results do not allow the straightforward recognition of culture contact.<sup>10</sup> Furthermore, the results of investigations into raw material exploitation, formal morphology and methods of manufacture in combs have the potential to illuminate the society and economics of ‘Scandinavian’ Scotland beyond the initial contact period, and in more depth than that which a focus on raw materials or typology in isolation can achieve.

In what follows, I first will lay out the relevant aspects of a new typology.<sup>11</sup> This is an important step as it allows the application of a clear and unambiguous terminology to the dataset, replacing existing culturally and chronologically loaded nomenclature such as ‘Pictish’, ‘native’, ‘Viking’ and ‘Late Norse’ with a new system based on Arabic numbers. Where appropriate, I use correspondence analysis in order to demonstrate the validity of this new typology.<sup>12</sup> Having

<sup>4</sup> See Bäcklund 2001; Crawford 1981; Morris 1985; Myhre 1993; 2000; Ballin Smith 2001.

<sup>5</sup> See Barrett 2003.

<sup>6</sup> Carver 1990; Hines 1984; 1992.

<sup>7</sup> See Graham-Campbell and Batey 1998, 23; A Smith 1998, 131.

<sup>8</sup> Barrett 2003, 80.

<sup>9</sup> Ballin Smith 1995; Weber 1992; 1993; 1994; 1995.

<sup>10</sup> Ashby 2006b

<sup>11</sup> Based upon Ashby 2007; Ashby in prep will detail.

<sup>12</sup> Correspondence analysis is a method of graphically presenting complex variation within a sample in an easily digestible form. It is particularly suited to the analysis of patterning according to large numbers of variables, and to the use of counts, or presence/absence data. In archaeology, it is often used to identify patterning within a sample of artefacts, or between assemblages of artefacts (such as furnished burials). In the present example, it allows us to visualise the variation within a collection of combs by displaying patterning within the sample according to the presence or absence of a large number of discrete traits. Figure 4 shows that double-sided combs can be readily separated out into three classes, referred to as Types 11, 12 and 13.

established this classification as a frame of reference, I will then discuss the distribution of types, noting previously unappreciated patterning. I will also consider patterning below the 'type' level, specifically that relating to variations in manufacturing methods.

Second, with the aim of addressing the chronology of contact with Scandinavia, the paper outlines the results of investigations into the validity of species identification in worked antler. These investigations take the form of like-for-like comparisons and blind trials undertaken using a large sample of modern antler. The tests give encouraging results and facilitate the investigations that follow, in which I apply the identification methodology to the study of archaeological material.

Finally, the paper brings together the above components, allowing reasoned consideration of the confluence of raw material, form, ornament and technology, and discussion of the social and economic implications. In particular, I position the comb evidence within discussion of chronology and culture contact in early Viking-Age Atlantic Scotland.

## TYOLOGY AND TECHNOLOGY

The first issue that we must address is the means by which combs have been characterised as 'native', 'Pictish' or 'Norse'. The stratigraphy is poor for most of the sites in question, and the primary means of generating chronologies has been through typology.<sup>13</sup> In particular, combs have been characterised according to the classes 'Double-sided Type A', 'Double-sided Type B', 'Single-Sided High-Backed', and 'Single-Sided Norse'.<sup>14</sup> This typology has been widely accepted by the archaeological community and has not been reconsidered in detail or compared with material from elsewhere in Europe. My new typology is explicitly for use within the British Isles and Ireland on combs from contexts dating to AD 700–1400.<sup>15</sup> The classification comprises 14 types (incorporating 12 further subtypes), of which four hold particular significance in the archaeology of early-medieval Atlantic Scotland.<sup>16</sup>

Figure 2 outlines the aspects of this typology relevant to the Scottish case, and Table 1 outlines their frequency in the region.<sup>17</sup> The combs that concern us here fit into Types 1c, 11 and 12 (traditionally seen as 'pre-Viking' in date), and Type 5 (traditionally 'Viking'). For ease of reference, the following discussions adopt this traditional chronology and retain the popular nomenclature in headings alongside the new typology. However, the conflation of cultural labels such as 'Celtic', 'Pictish', 'native' and 'Norse' with chronology and culture has proven problematic in the past. Furthermore, uncritical use of these terms assigns an unreasonable level of homogeneity to each group. For instance, there is considerable potential for social, political and material variation across Atlantic Scotland. Shetland, Orkney and the Western Isles were all geographically

<sup>13</sup> Barrett 2003, 84–6.

<sup>14</sup> Curle 1982.

<sup>15</sup> Ashby 2006a, 99–136; Ashby 2007; Ashby in prep; informed by the schemes used by Ambrosiani (1981), Curle (1982), Dunlevy (1988), MacGregor (1985) and Wiberg (1987).

<sup>16</sup> See Ashby in prep.

<sup>17</sup> Ashby 2007; full publication in Ashby in prep.

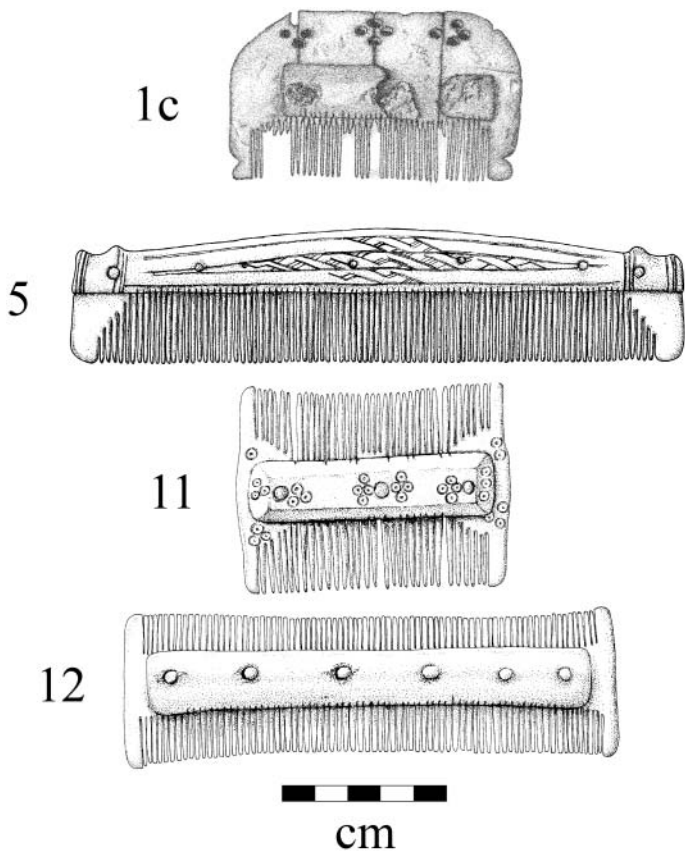


FIG 2

Comb types particular to early-historic and early Viking-Age Scotland.

(1c) Brough of Birsay. (5) Reconstruction based on an example from Birka. (11) Buiston crannog. (12) Reconstruction based on an example from the Brough of Birsay. 1c and 11 drawn by *H Saul*; 5 and 12 drawn by *P Walsh*, © *Northamptonshire Archaeology*.

TABLE 1  
REGIONAL DISTRIBUTION OF COMB TYPES IN SCOTLAND. NUMBERS  
IN OPEN TEXT RELATE TO COMBS 50% OR MORE COMPLETE;  
NUMBERS IN PARENTHESES INDICATE SMALLER FRAGMENTS,  
TENTATIVELY IDENTIFIED TO TYPE.

	1c	5	11	12	Total
Northern Scotland	12 (14)	17 (15)	9 (9)	20 (6)	58 (44)
Western Scotland	1 (2)	1 (6)	6 (11)		8 (19)
Mainland Scotland		2	4 (1)	1	7 (1)
Unprovenanced Scotland		1			1
Total	13 (16)	21 (21)	19 (21)	21 (6)	74 (64)

detached from the Pictish core (and, indeed, from one other). It would therefore be erroneous to suggest that the peoples of these regions shared anything approximating a single, monolithic material culture. Similarly, today's scholars see the idea of a single 'Norse' or 'Scandinavian' identity as a fallacy.<sup>18</sup> It is my intention that the typology outlined in this paper provides greater clarity and

<sup>18</sup> See *Urbańczyk 2003*.

facilitates more nuanced understanding of the use of material culture in the construction and negotiation of identity.

To summarise the classification scheme, Types 1–9 are single-sided composite combs, Types 10–13 are double-sided composite combs, while Type 14 comprises one-piece combs.<sup>19</sup> **Type 1** combs are short in length, relative to their height, and are elaborately decorated (Fig 3). **Type 1a** combs are small and characterised by a triangular or round back. Scholars usually date them to the late Antique and early Anglo-Saxon periods.<sup>20</sup> The defining feature of **Type 1b** combs is the presence of supernumerary connecting plates (ie 3 or 4 plates in total), and their similarity to Type 1a suggests that this formed their basic template. Type 1b combs date between the late 4th and 8th centuries, with small, highly ornate zoomorphic forms at the earlier end of this range. Types 1a and 1b are not common finds in Scotland; their relevance to the present discussion relates to their role in the chronological development of the British corpus.

In contrast, **Type 1c** combs are fundamental to my argument (Fig 2). I will discuss them in detail later in the paper; for now it suffices to say that they are characterised by their distinctive round backs and ornate decoration. Well known in both Ireland and Scotland, MacGregor dates them to between the 5th and 8th centuries.<sup>21</sup>

**Type 2** combs differ from Type 1 in that they are long in relation to their height (Fig 3). They date to between the 5th and 8th centuries and probably developed out of types 1a and 1b. **Type 2a** combs are characterised by flat connecting plates, frequently carved from split bovid ribs, and are of rather rudimentary manufacture, while the well-known ‘hogback’ or ‘winged’ combs make up **Type 2b**. It is common practice to identify these combs by reference to their large, flaring endplates. However, in many examples these features are not preserved, and a rather more useful characteristic is the distinctive connecting plate form, which is concavo-convex in profile, and shallow or flat in cross-section. **Type 3** encompasses asymmetric and handled combs, both of which date to the period between the 8th and 11th centuries.<sup>22</sup> **Type 4** consists of ‘riveted mounts’: short, roughly hewn strips of bone, fastened with two, three or four iron rivets, representing the remains of combs with horn toothplates. They appear to be largely restricted to urban settlements of the 10th, 11th and 12th centuries and are unknown in Atlantic Scotland.<sup>23</sup>

**Type 5** combs, in contrast, are key to the understanding of Viking-Age Atlantic Scotland, as they are often considered as a proxy for Norse activity (Fig 2). These large combs are often found in furnished burials and are well known in Scandinavia between the 8th and mid-10th centuries, with a particular floruit in the 9th century. The group includes those examples commonly known as Ambrosiani A combs, but is rather more broadly defined than this.<sup>24</sup> The

<sup>19</sup> ‘Composite’ combs consist of a series of ‘toothplates’ and ‘endplates’ (or ‘billets’, collectively), riveted alongside one another between two or more ‘connecting plates’ (sometimes referred to as ‘side plates’). For discussion of the manufacturing process, see Ambrosiani 1981.

<sup>20</sup> Eg Roes 1963; MacGregor 1985, 83.

<sup>21</sup> See Curle 1982, 22–4; Dunlevy 1988, 356–8 (‘class C’); MacGregor 1985, 87–8.

<sup>22</sup> See MacGregor 1985, 87, 91–2; Riddler 1990; 1998.

<sup>23</sup> Biddle 1990a; MacGregor et al 1999, 1952–4.

<sup>24</sup> See Ambrosiani 1981, 25, 62–3.

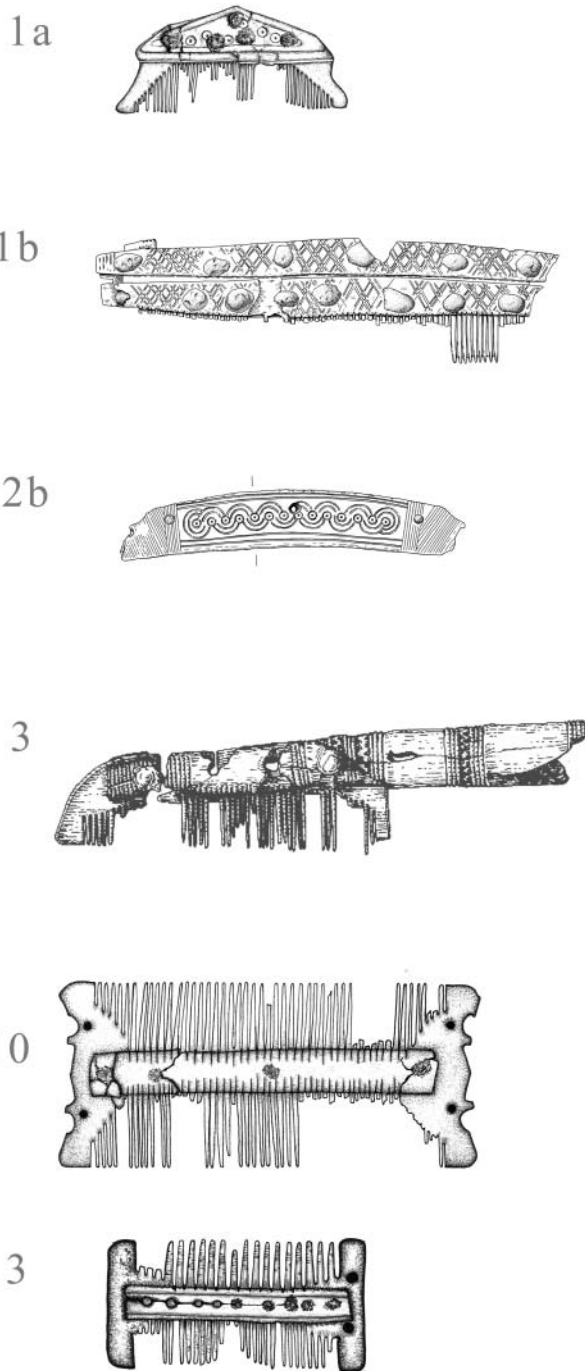


FIG 3

Comb types referred to in the text, but not particular to early-historic or Viking-Age Scotland.

(1a) Wellington Row, York. (1b) Blue Bridge Lane, York. (2b) Blue Bridge Lane, York. (3) Cottam, East Riding of Yorkshire. (10) Wellington Row, York. (13) Freswick Links, Highland. *1a, 10 and 13 drawn by H Saul; 1b and 2b drawn by Richard Jackson, © Field Archaeology Specialists; 3 drawn by Frances Chaloner, © J D Richards et al.*

shorter **Type 6** (which equates to Ambrosiani's class B), and the long, irregular **Type 7** are characteristic of the 10th century in England, Ireland and parts of Scandinavia, but are rare in Scotland. **Type 8** combs seem to develop from the same tradition, but are characterised by their distinctive connecting plate form. **Type 8a** combs have connecting plates of triangular section, **Type 8b** are trapezoidal in this regard, while **Type 8c** have connecting plates with a deep, semi-circular section and are also distinguishable by their unusually straight, rectilinear profile. All three sub-types seem to have an Irish centre of production and are relevant to discussions of Atlantic Scotland (particularly in the west) but, like Types 6 and 7, Type 8 combs belong primarily to the late Viking Age and later Middle Ages, and I will not focus on them here.

**Type 9** is the final group of single-sided combs in this typology. The type is highly distinctive, as all Type 9 combs are finely cut and, though they tend to lack complex incised ornament, this is replaced by decorative use of copper-alloy riveting and plating. There is also significant variation within the type. Type 9 clearly developed in Scandinavia some time in the late 10th century, and it dominates collections from northern Atlantic Scotland in the late Viking Age and later Middle Ages.<sup>25</sup> However, these combs are not the focus of this paper.

Types 10–13 are double-sided composite forms. **Type 10** combs are distinctive, featuring geometric or zoomorphic ornament, differentiated teeth (ie the tooth gauge is different on either side of the comb) and denticulate end profiles (Fig 3). Dated examples come from Roman and late-antique contexts in the British Isles and northern Europe and their relevance here, like Types 1a and 1b, relates to their role in the development of later forms. I will discuss **Types 11 and 12** (Fig 2) at length below; here it suffices to say that these forms are key to understanding early-historic Scotland. **Type 13** combs are the double-sided equivalent of Type 9; they feature differentiated teeth and decoratively arranged copper-alloy rivets. Otherwise, there is considerable in-group diversity, but all examples date to between the 12th and 15th centuries. The type has been the focus of some attention in the study of later medieval Atlantic Scotland, but its significance in the present paper is largely methodological.<sup>26</sup> Specifically, the fact that correspondence analysis of double-sided composite combs allows the recognition of Type 13 as a discrete group, clearly separated from Types 11 and 12, demonstrates the legitimacy of the technique and the usefulness of the typology itself (Fig 4). Finally, **Type 14** combs, which share a simple, *one-piece* construction, may be divided up into three sub-types, but none are particularly germane to the present argument.

#### 'SINGLE-SIDED HIGH-BACKED COMBS': TYPE 1C

As we have seen, Type 1 consists of three subtypes of single-sided comb, but it is the ornate, high-backed composite combs, such as those recorded by Curle and Dunlevy ('class C' in the latter), that are of interest in the Scottish case.<sup>27</sup> These combs make up Type 1c, to which we may assign a broad date

<sup>25</sup> See Flodin 1989; Hamilton 1956, 166; Hansen 2005, 180–6; A Smith 2007, 468; Wiberg 1987.

<sup>26</sup> See Clarke and Heald 2002.

<sup>27</sup> Curle 1982, 22–4; Dunlevy 1988, 356–8.

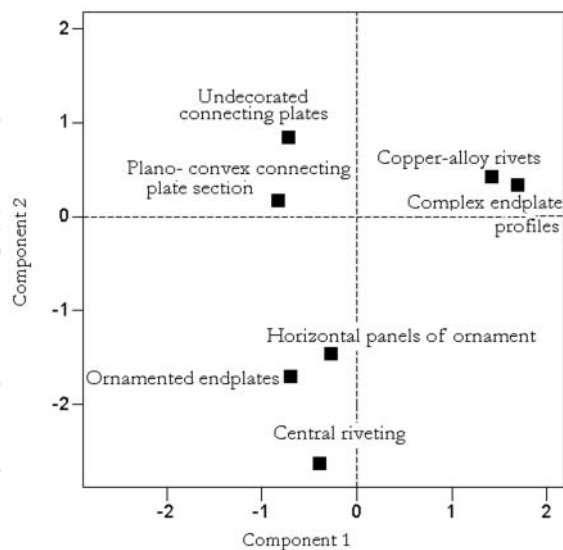
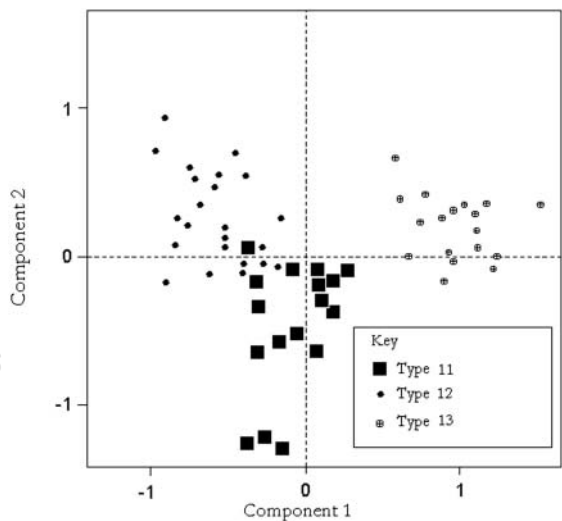


FIG 4

Correspondence analysis of double-sided composite combs from Scotland.

Top: Object Plot, showing distribution of combs according to patterning in presence/absence of discrete traits. Bottom: Variable Plot, showing the influence of key variables on the patterning visible in Fig 4a. Composed by S Ashby.

range of the 5th to 8th centuries (Fig 2).<sup>28</sup> The origins of Type 1c are somewhat elusive, as the form has parallels in both Type 1a and 1b.<sup>29</sup> Andrea Smith argues for 1c having developed in Scotland out of examples of Type 1b, frequently referred to as ‘Frisian barred zoomorphic combs’, and acquired by means of gift exchange.<sup>30</sup> She notes historical evidence for alliances between Picts and Saxons in times of political unrest, alliances that may well have been mediated via

<sup>28</sup> MacGregor 1985, 87–8.

<sup>29</sup> See Hills 1981.

<sup>30</sup> A Smith 2000.

reciprocal agreements.<sup>31</sup> Conceivably, combs were an appropriate item for use in this way and there are documentary references to their exchange between members of the elite in later centuries.<sup>32</sup> Indeed, this mechanism seems feasible, and Smith's argument is initially convincing, but it is reliant upon indirect evidence. Type 1b combs have never been found in Scotland and her proposed examples from Pool, Sanday, and the Broch of Burrian, North Ronaldsay (both in the Orkney Islands) are too fragmentary to be persuasive.<sup>33</sup> However, she proposes that these combs are depicted on symbol-incised stones (traditionally referred to as Class I symbol stones), and some of these examples do seem to be convincing representations of the type.<sup>34</sup> The case therefore remains unproven.

It is worth considering the alternative to an Anglo-Saxon/Pictish axis of transferral. Though some examples of Type 1b and 1c do certainly share similarities (their high, ornate backs in particular), there are also significant differences (such as the use of three or four connecting plates in Type 1b and only two in 1c). The explanation may well be that they developed along divergent lines from a shared early-medieval ancestor (1a). It may be appropriate to see 1b as an Anglo-Saxon and Frisian template, while 1c arrived in northern Scotland, perhaps fully formed, after development in Ireland and the Irish Sea region. This seems particularly likely given Type 1c's presence at Irish sites such as Ballinderry (Co Westmeath) and Lagore (Co Meath) crannogs.<sup>35</sup>

Unfortunately, securely dated examples of Type 1c combs are few and their earliest date remains elusive.<sup>36</sup> Smith suggests a date between the 5th and 6th centuries, but there are a number from probable (if insecure) later contexts.<sup>37</sup> Indeed, we cannot exclude the possibility of an extended currency, particularly as Curle noted the persistence of Type 1c into the 'Lower Norse Horizon' at the Brough of Birsay, and Ritchie found two complete Type 1c combs and a number of fragments in the 'Norse' phases IV and V at Buckquoy.<sup>38</sup> However, both sites are characterised by a lack of absolute dating. This is part of a wider problem in the archaeology of early-medieval Atlantic Scotland.<sup>39</sup>

Furthermore, demonstrably 9th-century settlement sites are not common in the region, limiting the collections one might use to test continuity. There are no Type 1c combs from Jarlshof, but artefactual evidence suggests first settlement of this site in the 10th century, rather than around AD 800, as suggested in the published report.<sup>40</sup> Though examples are known from early levels at Site

<sup>31</sup> See Graham-Campbell 2002.

<sup>32</sup> Bede, *Ecclesiastical History of the English People*, in Sherley-Price 1990, 125; Sorrell 1996.

<sup>33</sup> A Smith 2000, 184–5.

<sup>34</sup> Recently, 'Class I symbol stones' have been reclassified simply as 'symbol-incised stones', while 'Class II symbol stones' are termed 'symbol-bearing cross-slabs' (Henderson and Henderson 2004). In this paper the terminology used by Smith is replaced by the Hendersons' classification. See A Smith 2003, fig 2g,h for representation of type 1b combs on Pictish sculpture.

<sup>35</sup> Hencken 1942, 1950.

<sup>36</sup> Foster 1990, 161.

<sup>37</sup> A Smith 2000, 185; cf Buteux 1997, 97; Hedges 1983; MacGregor 1975; Young 1956.

<sup>38</sup> Curle 1982, 22; Ritchie 1977, 194–6.

<sup>39</sup> See Foster 1990.

<sup>40</sup> See Hamilton 1956, 106. Hamilton's proposed date for the arrival of Norse settlers at Jarlshof appears to be based upon the historically attested dates for raids elsewhere in the British Isles. In contrast, Stumman-Hansen (2000, 89) has suggested that the presence of a ringed pin in Hamilton's Phase I may be more telling. We await publication of further dates from 'Norse' contexts in the Jarlshof region. See also Ashmore 1993, 12–14; Barrett 2003, 86.

2 at Skail, Deerness (Midden 3, and unstratified contexts relating to House 1 and House 2), again absolute dating is lacking, and a Norse association is equivocal.<sup>41</sup> The only definitive Type 1c comb that I am aware of from later excavations comes from Pool, but this was unstratified.<sup>42</sup> In all, the chronological range of Type 1c is difficult to ascertain, and it is neither possible to confirm nor rule out a persistence into the earliest Viking Age.

#### DOUBLE-SIDED COMPOSITE COMBS: TYPES 11 AND 12

Many students of early-medieval Scotland have accepted a tripartite classification of double-sided combs. ‘Pre-Viking’, iron-riveted forms are generally referred to as either Curle Type A (straight-ended, with teeth graduated in length from the centre to the ends, and bevelled, highly ornate connecting plates) or Curle Type B (longer, lacking in complex ornament, with ungraduated teeth). High-medieval (‘late-Norse’) forms are distinguishable from the aforementioned types by their smaller size, differentiated teeth (ie having one set of fine-gauge teeth and one of a coarser gauge), wide range of endplate profiles and, most tellingly, the use of copper-alloy rivets.

This typology goes back to Curle’s work at the Brough of Birsay, and has its roots in specialist experience and subjective judgement rather than quantitative analysis.<sup>43</sup> However, I have undertaken a correspondence analysis of all double-sided composite combs from the region and the resulting plot demonstrates the legitimacy of the distinction (Fig 4). The early-medieval forms (Curle A and B) separate out very clearly from those conventionally seen as high-medieval types (not considered in detail here) and Curle’s Types A and B themselves plot in separate areas of the graph, with a very small area of overlap. The analysis studied patterning across a large number of variables (57), but Table 2 lists the most important. We may use this analysis in order to redefine the classification, allowing its incorporation into the broader scheme of European combs.<sup>44</sup>

TABLE 2

MAJOR CONTRIBUTIONS TO CORRESPONDENCE ANALYSIS IN FIGURE 4, USED TO IDENTIFY FORMAL GROUPINGS IN DOUBLE-SIDED COMBS.

Variable	Contribution to Axis 1	Contribution to Axis 2
Undecorated connecting plates	0.129	0.022
Copper-alloy rivets	0.129	0.022
Plano-convex connecting plate section	0.056	0.006
Complex endplate profile	0.056	0.004
Central riveting	0.002	0.136
Horizontal panels of ornament	0.001	0.071
Ornamented endplates	0.006	0.055

<sup>41</sup> Edwards 1997, 76.

<sup>42</sup> A Smith 2007, 466.

<sup>43</sup> Curle 1982.

<sup>44</sup> Ashby 2007; in prep.

To summarise, the highest contributions to the first axis of variation come from the absence of decoration on connecting plates and the use of copper-alloy rivets. The second axis largely relates to variables such as horizontal panels of ornament or multiple lines of motifs. To put this in context, three clusters are identifiable in Figure 4. In the top left, we see a group very largely defined by its use of connecting plates of plano-convex section and the absence of ornament. This group broadly corresponds with Curle Type B, but I refer to it here as Type 12. The cluster in the bottom left is defined by a range of factors, primary among which is the arrangement of ornament into horizontal panels. This group relates broadly to Curle Type A, but I refer to it here as Type 11. The lack of overlap between Types 11 and 12 is notable and demonstrates the legitimacy of this classification. On the right, a third group is characterised by the use of copper-alloy rivets as well as a range of other traits, such as biconvex and decorative endplates. This cluster clearly relates directly to high-medieval or 'late-Norse' types, in this paper referred to as Type 13. The separation of these combs from both Types 11 and 12 confirms their development as part of a separate (Scandinavian) tradition, rather than their having any close relationship with previous 'Scottish' types.

Type 11 combs have straight ends, iron rivets and graduated teeth, and feature bevelled connecting plates, frequently decorated with multiple horizontal lines of motifs (Fig 2). Type 12 combs also utilise iron rivets, but are typically longer and lacking in complex ornament (Fig 2). Type 13 is a high-medieval type, considered here for comparative purposes only, and consists of double-sided combs with differentiated teeth, decorative copper-alloy rivets and a range of endplate profiles (Fig 3). The group incorporates a diverse array of forms and, at present, the criteria developed for the Norwegian Trondheim and Oslo corpora provide the most parsimonious means of classification.<sup>45</sup>

Their legitimacy established, the next thing that must be determined is the relationship between Types 11 and 12. Unfortunately, as secure contexts for many of these combs are few, it is difficult to assign close chronology to the distribution in Figure 4, other than to state that Type 13 clearly postdates Types 11 and 12.<sup>46</sup> While it is not possible to dismiss a chronological separation of Types 11 and 12 out of hand, a period of overlap is likely. Indeed, we should consider the possibility that the two forms were contemporary, representing regional fashions or functional alternatives.

In short, three issues are of interest: whether Type 11 or Type 12 combs appeared first; whether they were later to become contemporary with one another; and whether either form persisted into the Viking Age. The key piece of evidence relating to the first question concerns carvings on Pictish sculpture (renderings of Type 11 combs occur on symbol-incised stones and Type 12 on symbol-bearing cross-slabs). Symbol-incised stones are rough, undressed and adorned with 'Pictish symbols', while the symbol-bearing cross-slabs are dressed, finely finished, relief sculptures that juxtapose Christian iconography and symbols. There is little consensus regarding their dates, and the key lines of

<sup>45</sup> Flodin 1989; Wiberg 1987.

<sup>46</sup> Curle 1982; Wiberg 1987. See Ashby 2006a, 179–86 for discussion.

argument on this issue relate to parallels with metalwork and manuscript art. Nonetheless, symbol-incised stones and symbol-bearing cross-slabs broadly date to the 5th to 7th and 8th centuries respectively.<sup>47</sup> Smith argues for an early (4th- to 5th-century) date for the symbol stones because of her identification of certain combs inscribed on them as 'barred zoomorphic' forms (part of this paper's Type 1b).<sup>48</sup> Both this evidence and the original art-historical parallels are circumstantial, though they are consistent with Type 11 predating Type 12. An archaeological approach is necessary in order to corroborate this assertion and to address questions pertaining to their contemporaneity and persistence.

Type 11 combs are known from contexts dated as late as the end of the 10th century in Ireland (Dunlevy's Type D1-2), and it is possible that the relationship between Types 11 and 12 is more complex than a simple progression from one to the other.<sup>49</sup> At the very least, a period of overlap is likely; the two co-exist at the Brough of Birsay, for example, though the stratigraphy at this site is insecure.<sup>50</sup> It is possible that the two forms emerged parallel to one another out of some shared antecessor. The most likely candidate for this role is the Roman and late-antique Type 10. Type 10 combs are distinctive, ornate double-sided combs with differentiated teeth, often with denticulate end profiles and complex geometric or zoomorphic ornament (Fig 3). They occur primarily in late-Roman contexts in the British Isles and northern Europe.<sup>51</sup> A detailed study of the chronology of this type would help to clarify its relationship with Types 11 and 12, but any such survey would be reliant on the excavation of new, well-stratified examples.

Type 12 combs also occur in England and on the Continent where archaeologists traditionally date them to AD 400-800.<sup>52</sup> Though Curle briefly noted the similarity with Anglo-Saxon equivalents,<sup>53</sup> nobody has fully considered the wider context of Type 12 combs.<sup>54</sup> Type 12 combs are apparently unknown in Ireland; if introduced there at all, then it was only on the smallest of scales and they rapidly assimilated into the native milieu.<sup>55</sup>

Analysis undertaken elsewhere has helped in distinguishing 'English' and 'Scottish' regional variants of Type 12, but their similarity in terms of form, ornament and chronology is nonetheless clear.<sup>56</sup> They must therefore share a genuine developmental synergy; either one form arose from the other or they developed independently from a common antecessor. Unfortunately, given a lack of chronological resolution, it is difficult to choose between these two scenarios, while the direction of movement and the means by which the template travelled are equally difficult to establish. One possibility is that the connection relates to contact between the churches of Pictland and Northumbria in the 7th

<sup>47</sup> Foster 1990, 162-3. See also Henderson and Henderson 2004.

<sup>48</sup> A Smith 2000, 181.

<sup>49</sup> Dunlevy 1988, 358-60.

<sup>50</sup> Curle 1982.

<sup>51</sup> See Ashby 2006a, 178-216.

<sup>52</sup> See Roes 1963; MacGregor 2000.

<sup>53</sup> Curle 1982, 57.

<sup>54</sup> Though see A Smith 2003, 114.

<sup>55</sup> See Ashby 2006a, 108; Dunlevy 1988.

<sup>56</sup> Ashby 2006a, 181, fig 8.4, tab 8.7.

and 8th centuries but, if this is true, then it is interesting that only Type 12 seems to have been adopted in Scotland rather than the other 'Anglo-Saxon' forms (Types 2a, 2b and 3).<sup>57</sup> Further progress is dependent upon the recovery of identifiable examples from securely stratified contexts in Atlantic Scotland.

To summarise, the double-sided combs of later 1st millennium AD Britain seem to have developed independently from a common antecessor. Type 10 gave rise to Type 11 in western Britain, while Type 12 appeared in England and northern Europe. Arguably, the latter then reached the Northern Isles via gift exchange through mainland Scotland (see below).

#### 'NORSE' SINGLE-SIDED COMPOSITE COMBS: TYPE 5

Type 5 combs are single-sided composite combs, characterised by their large size (complete examples are generally over 150 mm in length) and connecting plates with a shallow plano-convex section and profile (Fig 2).<sup>58</sup> Though the group includes certain distinctive Scandinavian and Frisian forms, such as the very large, ornate 'horse combs' and 8th-century antecedents of Viking-Age forms, the examples encountered in Scotland are those 9th- and early 10th-century forms otherwise referred to as 'Ambrosiani A' combs.<sup>59</sup> A large number of early Viking-Age sites across northern Europe provide examples and the type certainly arrived in Atlantic Scotland fully formed, primarily as the possessions of the first wave of 9th-century raiders and settlers from Scandinavia.<sup>60</sup>

In many ways then, the Type 5 comb is the 'type specimen' of the early Viking Age, and it is constructive to consider its distribution within Atlantic Scotland and beyond. Figure 1b illustrates the distribution of sites featuring examples of Type 5 combs recovered with 50% or more of their length intact. It shows that Type 5 combs are common in the Orkney Islands and Shetland Islands, and are reasonably well represented in lowland Scotland, but are less well known in the Western Isles. In fact, the type has a greater representation in the west than the figure suggests, as there are a number of small but nonetheless clearly identifiable fragments from the Western Isles, as well as a number that cannot be tightly provenanced, but certainly relate to the region.<sup>61</sup>

Of those that are well provenanced, it is notable that a considerable number (7/18 examples across Scotland) represent grave goods. This is significant, as Types 1c, 11 and 12 were not common finds from graves (though there is a single Type 12 from a burial at the Newark Bay cemetery in the Orkney Islands).<sup>62</sup> This disparity is clearly related to the arrival of the 'pagan' burial rite in the 9th century but, more interestingly, the fact that Type 5 combs had a special function as grave goods not shared by Types 1c, 11 or 12 may give us some insight as to their meaning and social significance.

In broader terms, Type 5 combs are indicative of contact with northern Europe and, given the well-attested Norse presence in Atlantic Scotland, they

<sup>57</sup> Ashby forthcoming.

<sup>58</sup> See Ambrosiani 1981, 15–23.

<sup>59</sup> *Ibid.*, 62–3, 68–9.

<sup>60</sup> *Ibid.*, 15–40.

<sup>61</sup> Ashby 2006a, 188–9.

<sup>62</sup> The Newark Bay combs are not included in the present analysis as — although I have since had the opportunity to study them — the time constraints of the original research necessitated their exclusion.

probably represent an early manifestation of this. Though they are few in number, the presence of Type 5 combs is suggestive of a 9th- or earliest 10th-century Scandinavian presence in both northern and western Scotland. The presence of examples from Dunbar and North Berwick, East Lothian may well relate to contact with Scandinavians in Northumbria, though it is notable that Type 5 combs are relatively rare finds from northern England.

#### REGIONAL VARIATION

If the mechanisms by which Type 5 combs reached Atlantic Scotland seem simple in general terms, the developmental histories of Types 1C, 11 and 12 are complex and difficult to grasp. Together, these combs — so often seen as typical of Atlantic Scotland — appear to be the result of long lines of development with their origins elsewhere in the British Isles. As a group, however, they do share a distinctive character. Indeed, the co-occurrence of forms 11, 12 and 1C is practically unique. Double-sided combs are unknown in Scandinavia prior to the 10th century, where the most common 1st-millennium forms fit into Type 5. There are exceptions to this rule, but they are rare and in all cases relate to important market centres such as Birka (Sweden).<sup>63</sup> In Ireland, contemporary combs include Types 1C and 11, but Type 12 is conspicuously absent.<sup>64</sup> Mainland Scotland is poorly represented in terms of combs, but the combs of Anglo-Saxon England and Continental Europe are fundamentally different from those of Britain's far north and north-west; though Type 12 is common in England, Types 11 and 1C are absent, and Types 1b, 2a, 2b and 3 exist in their stead.<sup>65</sup> Previous studies have noted some of these differences, but their implications still need full consideration.<sup>66</sup> In the present case, comb distributions are key to furthering our understanding of the degree to which Atlantic Scotland was socially and economically integrated into a wider British and European cultural milieu.

It is possible to move beyond such broad comparisons and focus in on regional and local variation. In particular, it is interesting to consider the differences between what we might call 'northern Scotland' (the former counties of Caithness, Sutherland and the Northern Isles of Orkney and Shetland) and 'western Scotland' (including the W coast of Highland, Argyll and Bute, Dumfries and Galloway, and the inner and outer Hebrides). Combs are scarce across central, southern and eastern Scotland, and it would be unwise to speculate too much on the significance of the few examples known from this region.<sup>67</sup> However, variations in the frequency of comb types in northern and western Scotland may be informative as to local preferences, external contacts and the communication of identity in differing social and political contexts. Table 1 outlines the main trends and Appendix 1 details the key sites that have yielded combs of these types.

<sup>63</sup> Ashby 2006a, 125, fig 6.21.

<sup>64</sup> See Dunlevy 1988.

<sup>65</sup> Ashby forthcoming.

<sup>66</sup> MacGregor 1985, 86–95; A Smith 2003.

<sup>67</sup> Though there are examples from East Ayrshire, East Lothian, and Fife; see Appendix 1.

Given their possible contemporaneity (see above), it is germane to briefly consider the spatial distributions of Types 11 and 12. While Type 11 occurs throughout Atlantic Scotland, Type 12 is rare in the Irish-Sea area, though it dominates in the north (Fig 1c). We might view type 11 combs as an Irish Sea equivalent of Type 12, such that their presence in the north indicates contact between the two regions. It would be simplistic to attempt to pin ethnic labels to these morphotypes, but it is clear that their popularity was constrained by more than just chronology. The origins of Type 11 may well have had an Irish Sea dimension, while Type 12 clearly did not. Type 1c is also much more common in the north (Fig 1d), though it is notable that the most highly accomplished productions (eg Dun Cuier, Barra, Western Isles) are from the west and Ireland itself. Assertions as to the regional importance of this type must therefore remain tentative.

However, it is counterproductive to focus too closely on the origins and distribution of any one type as in many cases it is the recognition of relationships between types that proves most informative. Indeed, it would be a mistake to consider single- and double-sided combs separately. Given Type 1c's probable persistence between the 5th and 9th centuries, it seems likely that it was contemporary with double-sided Types 11 and 12. We might wonder at the significance of these three forms, being so different in morphology and ornament. Did they serve different markets or different functions? Unfortunately, any discussion of these questions will necessarily be largely speculative as the lack of secure contexts severely confounds their application to the study of such socio-cultural issues.

It is often possible to identify regional variation below the 'type' level, in the form of individual traits characteristic of particular artistic or industrial traditions. In particular, differences in methods of manufacture can be informative as to the existence of local traditions or regional schools of manufacture.<sup>68</sup> In the present case, the study of such fine detail is the key means by which we may learn about comb manufacture in Atlantic Scotland as, unlike in England or Scandinavia, excavated waste deposits are rare.

Few of the discrete traits analysed showed consistent or meaningful variation.<sup>69</sup> For instance, no clear patterning was apparent in the presence or absence of marks produced by toothcutting, or other evidence of toolworking. Similarly, the materials used to rivet the combs together were rather invariable, with bone and copper-alloy rivets absent and iron ubiquitous in all combs of Types 1c, 11, 12 and 5. However, meaningful variation did exist in the arrangement of the rivets and this proved most illuminating. In general, the riveting method most commonly used in Scotland's early-historic and Viking-Age combs is the 'alternating edge' style (Fig 5a; Table 3), which is dominant in Types 1c and 12. The techniques used in Type 11 combs vary considerably, but this patterning does not seem to relate to geography. Type 5 combs exploit a range of riveting methods, though most fit into the 'alternating edge' or 'every edge' (Fig 5b) classes. The presence of the latter technique in four Type 5 combs from Orkney

<sup>68</sup> Michelli 1993; Paterson 2001.

<sup>69</sup> Ashby 2006a, 203-7.

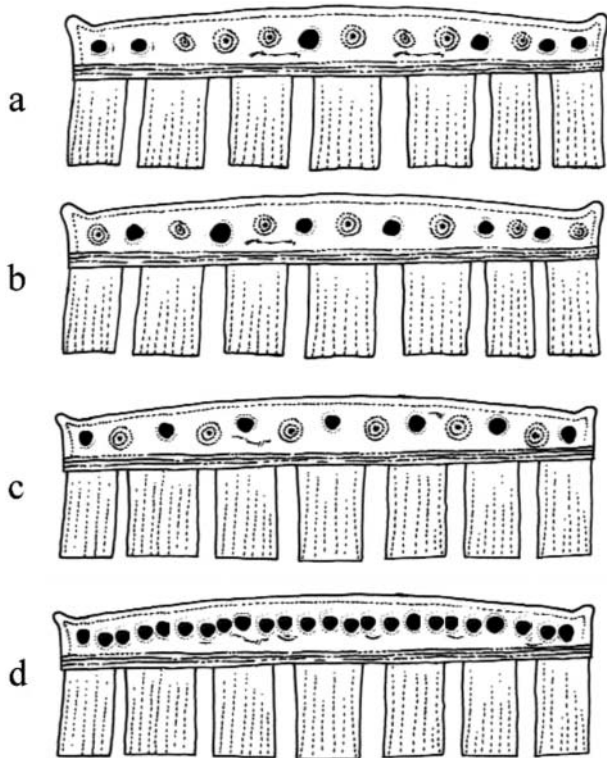


FIG 5

Riveting techniques identified on combs from Scotland. (a) Alternating edge. (b) Every edge. (c) Central. (d) Decorative. *Adapted from a drawing by S Grabow.*

is potentially significant, given its apparent popularity in this type in Trøndelag (Norway) and Birka.<sup>70</sup> The 'alternating edge' technique is known in England and southern Scandinavia, and its use in Type 5 combs (as present here in five examples) is most closely paralleled at Haithabu (Germany).

Given the heavily fragmented nature of much of the early material from the Western Isles, the survey was most informative on the inter-regional rather than the regional scale. The riveting patterns used in Types 1c and 12 are suggestive of an industrial conservatism based on local traditions, while the variety of techniques used in Type 11 raises the possibility that such combs were produced by a relatively small group of artisans, each working according to their own methods. The situation regarding Type 5 is difficult to assess without a thorough survey of riveting techniques in 9th-century Scandinavia. While these rivet arrangements in themselves are not diagnostically alien, they are consistent with these combs arriving as the possessions of Scandinavian settlers.

In all, variation in riveting practice meshes well with that which we have discerned from gross morphology: Type 12 was probably manufactured locally and shares similarities with Anglo-Saxon equivalents, while Type 11 is more ambiguous but seems to have been produced within a different context to

<sup>70</sup> Ibid, 38, 204.

TABLE 3  
RIVETING TECHNIQUES IN COMBS FROM ATLANTIC SCOTLAND.  
EXCLUDES FRAGMENTS REPRESENTING LESS THAN 50% OF ORIGINAL  
COMB LENGTH.

### Northern Scotland

	Alternating	Central	Decorative	Every edge	Mixed	Other	Unknown
1c	5	1		1	3		2
5	5	1		4	2		5
11	2	3		1	1	1	1
12	13			3	1		3
Total	25	5		9	7	1	11

### Western Scotland

1c		1					
5							1
11		2		2	2		
12							
Total		3		2	2		1

Type 12. The manufacture and distribution of Type 1c is once again difficult to explain but, in terms of manufacture, it has more in common with Type 12 than Type 11. Finally, Type 5 arrived on Scottish shores in the hands of the first Scandinavian settlers.

## RAW MATERIAL ANALYSIS

Analyses of raw material exploitation have proven valuable in parallel fields, such as the study of base-metal artefacts, but in the study of worked bone this potential remains largely untapped.<sup>71</sup> The reason for this is largely methodological. There are few well-established identification techniques appropriate for application to the study of small, highly worked objects of skeletal materials and, where techniques exist, the requisite osteological expertise is not routinely available to the artefact specialist. Nonetheless, several examples illustrate the explanatory power of such work: Weber's work on 'Iron-Age' combs from Scotland; and Lyuba Smirnova's study of medieval combs from Novgorod (Russia).<sup>72</sup> Indeed, in the former case (in which analyses were undertaken by Rolf Lie, an experienced faunal analyst) the subject of raw material analysis in combs has become central to a much wider debate concerning the chronology of the Viking Age. However, discussion of this issue has been somewhat confounded by doubts surrounding the security of Lie's identifications. With the aim of encouraging discussion on this subject, I have undertaken controlled investigations into the feasibility of species-level identifications in antler combs.<sup>73</sup>

<sup>71</sup> See Paterson 2001.

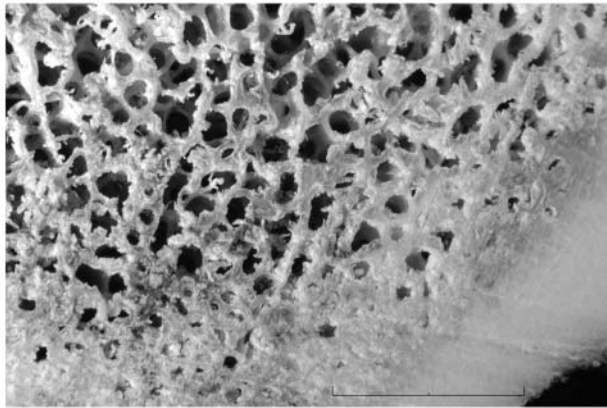
<sup>72</sup> Ballin Smith 1995; Weber 1992; 1993; 1994; 1995; 1996; Smirnova 2005.

<sup>73</sup> See Ashby 2006a, 76–99.

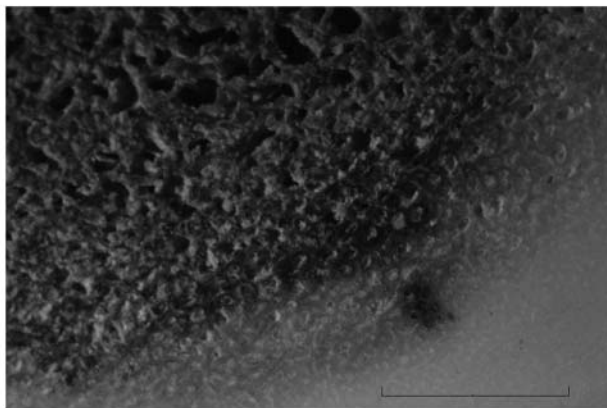
## INVESTIGATIONS

The work began with like-for-like comparisons of a large body of modern antler material donated by parks from England, Scotland and Scandinavia in which sourced material allowed control over variation related to age, sex, nutrition and seasonal changes. These investigations found consistent differences between species irrespective of the other variables. Key among these was the nature of the margin between the antler's outer 'compacta' and its inner 'porous core'. I found that the antler of reindeer (*Rangifer tarandus*) was characterised by a wide transition zone in which porous core grades diffusely into compact outer material, while red deer (*Cervus elaphus*) antler features a discrete margin between the two (Fig 6).

Smirnova was the first to refer to this trait in publication and I am indebted to her for subsequent discussion.<sup>74</sup> However, further investigation was



2 mm



2 mm

FIG 6

Micrographs of antler reference material, illustrating the key characteristics of red deer and reindeer antler as observed under reflected light at low (<10x) magnification.

(a) Red Deer (*C. elaphus*).

(b) Reindeer (*R. tarandus*).

Photographs by S Ashby, after Ashby 2006b.

<sup>74</sup> Smirnova 2005.

TABLE 4  
SUMMARY OF RESULTS FROM BLIND-TEST REPLICATIONS.

Sample group	Average score (N=30)	Correctly identified	Incorrectly identified	Indeterminate
Experienced in faunal analysis (n=5)	27.40	137 (91.33%)	13 (8.67%)	
Inexperienced in faunal analysis (n=5)	27.64	138 (92.13%)	11 (7.21%)	1 (0.66%)
All volunteers (n=10)	27.64	276 (92%)	24 (8%)	

necessary in order to ascertain its validity. Repeated sectioning at intervals along the length of antler beams and tines demonstrated that although the relative thicknesses of core and compacta varied according to morphological position, the nature of the core-compacta transition was consistent within species. From these empirical tests, it is clear that the nature of the core-compacta margin relates more closely to species than to age, sex, environment or antler morphology.

Nonetheless, in order to more thoroughly test the utility and reliability of the technique in small pieces of worked antler, I undertook blind trials on a range of fragments, all of which approximated to the form of comb elements or manufacturing waste. Identification proved to be extremely successful where core-compacta margins were clearly visible (82%). In order to establish the replicability of these identifications, a group of volunteers of varying experience identified a sample of 'comb component' specimens. Results were extremely encouraging (Table 4), with an average score of 28/30 (92%) and all volunteers scoring 23/30 (76%) or more.

Regardless, I recommend that analysts attempt identification only in cases in which core-compacta borders or transition zones are clearly visible. Though in some archaeological material the requisite diagnostic features have been lost to us through decay, fragmentation or a high degree of finishing, in some cases they are visible. We should limit identification to species level to these cases and, given that poor preservation could potentially confound recognition of the diagnostic features in a given specimen, identifications of small fragments are qualified with the prefix 'probably'. Notwithstanding such caution regarding the identification of individual fragments, overall trends are reliable and potentially highly informative. Indeed, when coupled with critical assessment of stratigraphy and typology, these methods may prove productive in addressing the important questions of early Viking-Age chronology and social dynamics.

#### ARCHAEOLOGICAL APPLICATION

I have established that we may classify the combs of Atlantic Scotland according to form and ornament, and that the materials they incorporate are identifiable. The results of the application of these novel techniques of raw material analysis are interesting (see Table 5 for a regional breakdown). The analysis formed part of a larger, multi-period study of over 2,300 combs, fragments and pieces of related waste from England, Scotland and Scandinavia and,

TABLE 5  
 RAW MATERIAL USE IN COMBS FROM ATLANTIC SCOTLAND.  
 FRAGMENTS REPRESENTING 50% OR MORE OF ORIGINAL COMB  
 LENGTH ARE GIVEN IN OPEN TEXT. SMALLER FRAGMENTS ARE  
 LISTED IN PARENTHESES ().

<b>Northern Scotland</b>							
<b>Type</b>	<b>Probably red deer</b>	<b>Probably reindeer</b>	<b>Indeterminate antler</b>	<b>Bone</b>	<b>Other</b>	<b>Unknown</b>	<b>Total</b>
1c	1 (1)	3 (5)	4 (8)	2		2	12 (14)
5		5 (5)	10 (7)			2 (3)	17 (15)
11	1 (3)	(1)	6 (2)	1		1 (3)	9 (9)
12	1	12 (2)	6 (4)			1	20 (6)
Total	3 (4)	20 (13)	26 (21)	3 (0)		6 (6)	58 (44)
<b>Western Scotland</b>							
1c			1 (1)			(1)	1 (2)
5	(1)	1	(4)			(1)	(6)
11	2 (5)		(3)	2 (1)		2 (2)	6 (11)
12							
Total	2 (6)	0	1 (8)	2 (1)	0	2 (4)	8 (19)

against this, the sample size for western Scotland in particular may seem rather small. However, for the purposes of the current debate (establishing the existence or otherwise of reindeer antler in the pre-Viking-Age corpus of combs), even presence/absence data is significant.

The outcome is that 23/96 Type 11, 12 and 1c combs are identifiable as probable reindeer (see detail in Appendix 2). However, none of these combs is clearly datable stratigraphically to before the 9th century. This is to be expected; scholars have long recognised the insecurity of the stratigraphy at many of Atlantic Scotland's early-historic and Viking-Age sites.<sup>75</sup> Nonetheless, the implications of this observation require consideration.

Only a single fragmentary example of Type 11 is probable reindeer antler. In the case of such small fragments, assignation to Type 11 or 12 can only be tentative.<sup>76</sup> Given that this fragment is the sole example of the probable use of reindeer antler in Type 11, it would be unwise to read too much into its significance. Of Type 1c, 19 examples could not be identified to species level, while there were two combs of probable red deer antler and eight combs were identified as probably reindeer but, of the latter, none are well dated. Similarly, 14 Type 12 combs are probably reindeer, but none date reliably to before the Viking Age. Of the Type 5 combs, 11/42 examples recovered from sites in Scotland are probable reindeer antler, while the remaining 31 (including examples from mainland Scotland, and without provenance, so not included in Table 5) could not be identified to species level.

<sup>75</sup> See Curle 1982, 15; Ritchie 1977, 175.

<sup>76</sup> Cf A Smith 2007, 466.

The use of reindeer antler in Type 5 combs is unsurprising, but the results from the analyses of Types 11, 12 and 1c are of significance. In short, the use of reindeer antler in combs of Types 12 and 1c does seem to be a genuine phenomenon, but not one that can be dated to the 8th century and earlier. On the contrary, it seems more likely that it occurred during the 9th century, demanded by the depletion of local red deer populations by this point.<sup>77</sup> Nonetheless, the probable use of reindeer antler requires comment, as it seems to be a peculiarity of the Northern Isles; red deer and bone are ubiquitous in the Western Isles and Ireland. It also contrasts markedly with the situation in England, in which combs of bone and probable red deer antler dominate the collections of all periods from Anglo-Saxon to high medieval.<sup>78</sup> These findings are significant in that they both confirm and refute Weber's work in equal measure, and they may demand revision of models of Scandinavian settlement that incorporate Weber's findings as supporting evidence.<sup>79</sup>

## DISCUSSION

### TYPE 5 COMBS AND THE CHRONOLOGY OF SCANDINAVIAN SETTLEMENT

Although the dating of comb Types 1c, 11 and 12 no longer seems restricted to what has traditionally been referred to as the 'Pictish period', we can at least remain confident that the appearance of Type 5 combs in Atlantic Scotland relates to the beginning of the Viking Age (however defined). Indeed, the presence of Type 5 combs across the region clarifies our chronology somewhat. The wide distribution of such combs is indicative of contact with Scandinavia, probably from sometime in the 9th century, and a Scandinavian presence — probably settlement — in all areas shortly afterwards. A small number of Type 5 combs in the Western Isles are particularly important as they may constitute evidence for an otherwise under-represented early Viking Age in western Scotland. Parker-Pearson and others have argued that the Western Isles lacked Scandinavian settlement prior to the mid-10th century and that native settlements remained occupied until this point.<sup>80</sup> However, these comb finds, together with the number of furnished burials (which date to AD 850–950), may not be entirely consistent with such a position. Indeed, it is perhaps more likely that the settlement pattern is simply related to the greater visibility of late Viking-Age and high-medieval sites, given that the farm mound deposits of the latter period tend to be much thicker and more substantial than early Viking-Age levels.<sup>81</sup>

We should note that the situation is different in southern mainland Scotland. Type 5 combs in the Scottish/English SE border area indicate an early Scandinavian presence that probably relates little to the Norwegian hegemony in the north. Instead, it is probably better associated with the Scandinavian presence in either Northumbria or Strathclyde and is evidence of contact

<sup>77</sup> See C Smith 1994, 149.

<sup>78</sup> Ashby 2006b; Ashby forthcoming.

<sup>79</sup> Myhre 1993.

<sup>80</sup> Parker Pearson et al 2004, 129.

<sup>81</sup> See for example Bertelsen and Lamb 1993.

and interaction between the peoples of the various kingdoms of northern England and southern Scotland.

#### THE PERSISTENCE OF TYPES 10, 11 AND 12

One of the key findings of this research is the fact that many of the combs traditionally considered typical of the 'Pictish period' are in practice key to our understanding of the early Viking Age, both in terms of chronology and the dynamics of culture contact. There is clearly a tendency for the use of red deer antler in the manufacture of Type 11 combs. Type 12 combs, in contrast, may be made of either red deer or reindeer antler. There no longer seems to be any reason to suggest that this difference has a chronological basis and it seems more likely to reflect differing working traditions. Accordingly, it is possible that most Type 11s were actually made in Ireland or the west, that they were manufactured by travelling artisans bringing their own raw materials, or that red deer antler was imported from the west. The first option seems intuitively most likely. The variety of riveting techniques used in their manufacture is suggestive of a number of combmakers working with no fixed tradition; perhaps at this point they worked principally on individual commissions for powerful magnates.

As we can no longer take those Type 12 combs exploiting *R. tarandus* as evidence for pre-Viking-Age contact, the manufacture of a 'native' form in Scandinavian materials demands explanation. Conceivably, Scandinavian settlers required combs in the local style, or perhaps 'natives' felt it necessary or desirable to maintain the production and use of their traditional combs, but needed to negotiate for foreign materials in order to make them.

At root, this question concerns the relationship between Types 11/12 and 5. Was the popular change from the former to the latter a chronological development, or does it represent a cultural or social distinction? To distinguish between these two scenarios, we are reliant upon a small number of key sites. Taking the date for the start of Norse settlement at Jarlshof as the 10th century (but see above), it is interesting that Type 12 combs are absent from this site, but there are ten comb fragments relating to Type 5. This suggests that if the two forms were contemporary at any time, it was only during the 9th century. Evidence for this overlap period exists in the interface phase at Pool (although Type 5 combs seem to have been absent at contemporary Buckquoy).<sup>82</sup> There is clearly a chronological component to the distinction, but the interface phase is the period of greatest interest. If these two forms were contemporary for a time, they presumably had very different associations and their use must have been subject to a degree of social negotiation. In detail, we might posit two possible situations.

The first might be termed 'factionalism'.<sup>83</sup> The combs may reflect two separate communities (conceivably, though not necessarily, native and incomer, or Christian and Pagan), each using their own distinctive forms of comb. In this case, combs may have played an important role in the creation of identity.<sup>84</sup> If

<sup>82</sup> A Smith 2007, 467; cf Ritchie 1977, 194–6.

<sup>83</sup> See Barrett et al 2000.

<sup>84</sup> See Ashby 2006a, 237–53; Jones 1997. Cf Clarke and Heald 2002.

such factionalism was manifested geographically, any such patterning is now lost. This is perhaps not surprising, given that combs are portable items and that our chronological resolution is poor.

An alternative model could see the two forms of combs not as having direct associations with ethnic or social groups, but as having different social roles; that is to say that they were consumed in different arenas. In this model, the same people may have used both Types 5 and 12, conceivably for different purposes. For instance, Type 12 combs may have fulfilled the role of 'everyday grooming accessory', while Type 5 combs were reserved for more formalised purposes. In particular, the frequency of Type 5 combs in Scotland's pagan graves draws us to the possibility of their curation for disposal as grave goods. This theory has some merit, particularly given the apparent lack of wear on grave combs (5/7 Type 5 combs from Scottish grave contexts had little to no wear).<sup>85</sup> However, this role in mortuary ritual was not the only use for Type 5 combs. There are a number of examples from settlement deposits and these frequently show evidence of wear, suggesting that they also performed a more 'everyday' utility. With the possible exception of Newark Bay, Type 12 combs are absent from the graves of Atlantic Scotland, but unfortunately the small sample sizes confound significance testing of the findspots of Types 5 and 12. Consequently, the question must remain open. The simplest solution, however, is probably one of factionalism in its broadest sense.

#### COMBS AND THE PLACE OF ATLANTIC SCOTLAND IN EARLY-MEDIEVAL EUROPE

Though the presence of Type 5 combs and the probable use of reindeer antler in Types 1c and 12 do stand as testament to a Norse presence in the region, it would be simplistic to focus too tightly on Scandinavian contact as the peoples of early-medieval Scotland were clearly part of a more generalised North Sea-Irish Sea network. For instance, we must assume that there was contact between Anglo-Saxon Northumbria and southern 'Pictland'. The rarity of combs across much of mainland Scotland is probably a largely taphonomic pattern, given the wide distribution of sculpture featuring depictions of combs.<sup>86</sup> The combs from northern England and northern Scotland therefore represent opposite ends of a continuum of contact and we might expect certain disparities (such as variations in ornament) to be present.<sup>87</sup> Nonetheless, the absence of certain 'English' forms (specifically the flat-sided Type 2a, the 'hogbacked' Type 2b and the handled Type 3 comb, see Fig 3) from the Scottish corpus is striking.<sup>88</sup> Though it is difficult to argue from negative evidence, we can only assume that contact between the peoples of Anglo-Saxon Northumbria and southern Pictland, or between the 'southern' and 'northern Picts', was not mediated through combs of these types.

<sup>85</sup> Ashby 2005.

<sup>86</sup> Foster 1990, fig 9.7.

<sup>87</sup> See Ashby forthcoming.

<sup>88</sup> Cf Ashby forthcoming.

Instead, the dominant combs of Atlantic Scotland during the 8th century were Types 1c, 11 and 12 (Fig 2). The concentration of Type 12 in the north is striking. As Smith has suggested, the close relationship between Type 12 combs in Scotland and England is indicative of some level of contact, though there is sufficient distinction to assume that different artisans were responsible for their manufacture. The shared manufacturing traditions (in particular, the use of iron rivets set at alternating billet edges) are unsurprising if the combs had a common template, but subtle differences in terms of ornament may be indicative of divergent local fashions. In all, it seems unlikely that many of these combs arrived in Atlantic Scotland as exports from England, rather that they shared a common template. Type 12 combs occur in England from as early as the 6th century; the form probably travelled north from there to Scotland where the native population reinterpreted it.<sup>89</sup> The medium by which the initial transferral took place may well have been missionary contact and the relationship between the churches of Northumbria and Pictland. Circumstantial evidence for such contact exists in the similarities between Northumbrian manuscript ornament and Pictish sculpture, even if the combs themselves are under-represented in mainland Scotland.<sup>90</sup> Whatever the mechanism, Type 12's popularity in Atlantic Scotland is intriguing, particularly given the region's failure to adopt its 'Anglo-Saxon' contemporaries, Types 2a, 2b and 3. This disparity does not seem to be chronologically significant, and is more likely to be indicative of the symbolic associations of particular comb forms, or the social groups that used such types.

Turning westward, the development of Type 11 from its Roman and late-antique precursor, Type 10, seems to have been region-specific. In Ireland and the Western Isles, there was a market for highly ornate double-sided combs that represented considerable investment in skills and time; perhaps combs already had an important role to play in gift exchange. The same mechanism may have been responsible for the type's introduction into northern Scotland from the Irish Sea region, but the Scottish chronology is weak. Consequently, the date at which this took place is unclear; it may have occurred at any time between the 5th and 7th centuries. In isolation, these combs do not indicate the presence of an 'Irish' population, but this is a possibility, particularly in the light of other evidence for such a presence.<sup>91</sup> The combs are suggestive of contact between the peoples of northern Scotland, Anglo-Saxon England and the Irish Sea region. Taken as a group, the corpus is a unique collection, representing the nexus of these different influences and provides a complex backdrop against which to discuss the combs of the later Viking Age and high Middle Ages.

In all, the combs from the early Viking-Age 'interface period' demonstrate the existence of complex and mutable webs of contact around the North Atlantic, North Sea and Irish Sea regions; these links were to become increasingly

<sup>89</sup> See MacGregor 1985, 92–4; West 1985, 14–15.

<sup>90</sup> See Clarke 2007; Foster 1990, 162–5; A Smith 2000, 181. Though see Henderson and Henderson 2004, 11–12, who argue that the role of the Picts within the development of Insular art was active and innovative, rather than passive or indirect.

<sup>91</sup> Eg Forsyth 1995.

complex as the Viking Age and high Middle Ages progressed.<sup>92</sup> This study complements other archaeological and documentary evidence for the centrality of Atlantic Scotland to Norse trade and travel around the end of the 1st millennium AD, offering a foretaste of the social and economic developments that were to characterise the 10th and 11th centuries.<sup>93</sup>

## CONCLUSION

The organisation of combmaking and distribution in Viking-Age Scotland is difficult to assess given the lack of direct evidence for production, but it is clear that Scandinavian fashions did not immediately supplant the local combmaking traditions of Atlantic Scotland. Rather, the region's stylistic repertoire seems to be the result of something of a melting pot, a coming together of stylistic references and traditions with origins in Anglo-Saxon England, Ireland and Scandinavia. More particularly, the nexus of local technologies and styles and foreign raw materials has interesting implications for native-Norse relations. A number of Type 12 and 1c combs are probably made of reindeer antler, but though their form and methods of manufacture confirm them as locally produced artefacts, none of these combs have a secure early date. Following Occam's Razor, the fact that we cannot satisfactorily assign combs of probable reindeer antler to pre-9th-century contexts is most easily explained if these combs were manufactured and used in the Viking Age. Indeed, there is no evidence to suggest that the production of combs in 'pre-Norse' style ceased immediately upon the arrival of Scandinavian settlers. In England, it appears that the use of 'Anglian'-style combs continued long after Norse settlement, particularly in smaller, rural settlements.<sup>94</sup> There is no reason to believe that the situation was any different in this regard in Atlantic Scotland, and the excavations at Pool represent the clearest evidence to date for the coexistence of 'native' and 'Norse' comb forms.<sup>95</sup> In all, it is most likely that these combs were manufactured sometime in the 9th century.

So, rather than indicating Scandinavian contact prior to AD 793, the comb evidence is suggestive of continued use of 'native' material culture following Scandinavian settlement. This interpretation does not constitute a new concept, having its origins in Anna Ritchie's early work and becoming a particular focus of attention in the discussion of poorly stratified combs and pins from the Brough of Birsay.<sup>96</sup> Today, the idea remains an important topic of discussion within the archaeological community of Atlantic Scotland, but Weber's analyses did not explicitly consider the problem of stratigraphic integrity, and the economic, cultural, and ethnic implications of this observation require further consideration.<sup>97</sup>

<sup>92</sup> Ashby 2006a, 228–37.

<sup>93</sup> Eg Barrett 1997; Forster 2005.

<sup>94</sup> Ashby forthcoming.

<sup>95</sup> A Smith 2007, 461–72.

<sup>96</sup> Curle 1982; Ritchie 1974, 192.

<sup>97</sup> See Ballin Smith 1995; Weber 1992; 1993; 1994; 1995; 1996.

Indeed, the results have particularly significant knock-on effects for Myhre's hypothesis for the chronology and characterisation of the early Viking Age.<sup>98</sup> Myhre proposed an extended period of Norse activity in the North Sea area, stretching back into the 8th century, such that the Viking raids constitute a transformation of relations between Scandinavia and the British Isles, rather than an initiation of contact. His argument utilises Weber's work with the 'reindeer combs', but also incorporates evidence for early settlement elsewhere in the North Atlantic, the use of early Insular artefacts in Norwegian inhumation burials and the perceived early presence of pagan graves in Scotland. Much of this evidence is disputable and, without the evidence of pre-9th-century reindeer combs, the model may require revision.

The analysis also has implications for the study of the nature of culture contact in 9th-century Atlantic Scotland. The presence of Type 5 combs suggests that there was a Scandinavian presence throughout much of the region in the early Viking Age and raises the possibility that Types 10, 11, 12 and 5 experienced contemporaneous use in different contexts. Given the absence of evidence for functional differences, in contrast to the 'continuity' school,<sup>99</sup> this arguably indicates the existence of some level of factionalism. However, the manufacture of 'native' style combs in Scandinavian materials argues against the segregation of 'settler' and 'native' in terms of comb style. Rather, it raises the possibility that upon arrival the Norse began to adopt Pictish material culture, 'remaking' it (or perhaps commissioning its manufacture) in their own materials. This perhaps suggests that Pictish-Norse relations were, at least on occasion and in particular socio-economic settings, amicable, or that the Norse felt it necessary in the early period to use material culture to integrate themselves into the native social fabric. I raise these only as possibilities here, but future research using alternative forms of material culture may foster the production of informed synthetic treatments of the archaeology of early Viking-Age Atlantic Scotland, allowing us to address such questions more fully.

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<sup>98</sup> Myhre 1993.

<sup>99</sup> Bäcklund 2001; Ritchie 1977.

APPENDIX 1: GAZETTEER OF SITES WITH COMBS OF TYPES 1C,  
5, 11 OR 12

**Northern Scotland** (incorporating the Orkney Islands, Shetland Islands and the areas of Highland previously known as Caithness and Sutherland)

Site	Council area	1C	5	11	12
Balnakeil, Durness	Highland		√		
Broch of Borwick	Orkney Islands	√			
Broch of Burrian	Orkney Islands	√		√	√
Brough of Birsay	Orkney Islands	√	√	√	√
Brough of Deerness	Orkney Islands				√
Brough of Lambaness	Orkney Islands			√	
Brough Road, Birsay	Orkney Islands	√	√		
Buckquoy, Birsay	Orkney Islands	√		√	√
Freswick Links	Highland			√	√
Galilee, Sanday	Orkney Islands			√	
Hillhead Broch	Highland				√
Howe, Stromness	Orkney Islands			√	√
Jarlshof	Shetland Islands		√		
Lyking	Orkney Islands		√		
Munkerhouse, Papa Westray	Orkney Islands	√			
Pool, Sanday	Orkney Islands	√	√	? <sup>100</sup>	?
Saevar Howe, Birsay	Orkney Islands	√	√	√	√
Sandwick, Unst	Shetland Islands	√			
Scalloway	Shetland Islands		√	√	√
Scar, Sanday	Orkney Islands		√		
Skaill, Deerness	Orkney Islands	√	√		√
Westness, Rousay	Orkney Islands		√		

**Western Scotland** (incorporating the inner and outer Hebrides, and western coastal areas of Highland, Argyll and Bute, and Dumfries and Galloway)

Site	Council area	1C	5	11	12
Bornish	Western Isles/Na h-Eileanan Siar	√	√	√	
Colonsay	Argyll and Bute			√	
Dun Cuier	Western Isles	√		√	
Dunadd	Argyll and Bute			√	
Foshigarry	Western Isles			√	
Garry Iochdrach	Western Isles			√	
Keil Cave	Argyll and Bute		√		
Loch Inch-Crindil	Dumfries and Galloway			√	
Rudha Chaisteach	Western Isles			√	

**Mainland Scotland** (all areas of mainland northern Britain falling within the present political boundaries of Scotland and not accounted for above)

Site	Council area	1C	5	11	12
Buiston	East Ayrshire			√	
Castle Park, Dunbar	East Lothian		√		
North Berwick	East Lothian		√		
St Ford's Links	Fife			√	

<sup>100</sup> Excavations at Pool (see A Smith 2007) have recovered double-sided combs of indeterminate form but certainly either Type 11 or Type 12. I have not analysed these combs myself so confident assignment to type is not possible at present.

APPENDIX 2: COMBS IDENTIFIED AS PROBABLY  
REINDEER ANTLER

Abbreviations: **NMS**: Museum of Scotland; **OM**: Orkney Museum; **CU**: Cardiff University (pending allocation under the Treasure Trove system).

**Northern Scotland**

Site	Type	Completion	Database no <sup>101</sup>	Current location	Archive no
Broch of Burrian	12	80–100%	1258	NMS	GB 71
Brough of Birsay	12	80–100%	1245	NMS	202
Brough of Birsay	12	50–80%	1243	NMS	212
Brough of Birsay	5	10–50%	1235	NMS	225
Brough of Birsay	1c	<10%	1206	NMS	220
Brough of Birsay	1c	80–100%	1073	OM	1982.101
Brough of Birsay	12	10–50%	993	OM	1982.103
Brough of Birsay	12	80–100%	1029	OM	1982.100
Brough of Birsay	5	80–100%	1024	OM	1982.102
Buckquoy	12	80–100%	1058	OM	1976.104
Buckquoy	1c	80–100%	1034	OM	1976.108
Buckquoy	12	50–80%	1057	OM	1976.112
Galilee, Sanday	11	10–50%	1089	OM	554
Jarlshof	5	50–80%	1291	NMS	HSA 192
Jarlshof	5	80–100%	1320	NMS	HSA 155
Jarlshof	5	10–50%	1263	NMS	HSA 154
Jarlshof	5	80–100%	1216	NMS	HSA 156
Lyking, Orkney	5	10–50%	1379	NMS	IL 213 a
Lyking, Orkney	5	10–50%	1380	NMS	IL 213 b
Munkerhouse, Papa Westray	1c	<10%	994	OM	731
Orkney unknown	5	10–50%	1361	NMS	GA 44
Saevar Howe	12	50–80%	1001	OM	1984.435
Saevar Howe	1c	<10%	1039	OM	1984.433
Skaill, Deerness	12	10–50%	1004	OM	SK 1016
Skaill, Deerness	1c	80–100%	1000	OM	SK 1007
Skaill, Deerness	12	80–100%	999	OM	SK 1013
Skaill, Deerness	12	50–80%	998	OM	SK 1014
Skaill, Deerness	12	80–100%	996	OM	SK 1012
Skaill, Deerness	1c	10–50%	1006	OM	SK 1004
Skaill, Deerness	12	80–100%	1013	OM	SK 138
Skaill, Deerness	12	80–100%	1007	OM	SK 1019
Skaill, Deerness	1c	<10%	1044	OM	SK 1008
Westness, Rousay	5	50–80%	1391	NMS	IL 739

**Western Scotland**

Bornais	5	50–80%	1706	CU	2003/5398
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## BIBLIOGRAPHY

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.

Ashby, S P 2005, 'Bone and Antler Combs: Burial and Identity in Viking-Age Scotland', unpubl paper presented at the 'Breaking and Shaping Beasty Bodies'

<sup>101</sup> Database numbers relate to database in Ashby 2006a.

- Conference, MacDonald Institute for Archaeological Research, University of Cambridge, 16th February 2005.
- Ashby, S P 2006a, Time, trade and identity: bone and antler combs in northern Britain c. AD 700–1400 (unpubl PhD thesis, University of York).
- Ashby, S P 2006b, 'Trade in Viking Age Britain: identity and the production and distribution of bone and antler combs', in J Arneborg and B Grønnow (eds), *Dynamics of Northern Societies. Proceedings of the SILA/NABO Conference on Arctic and North Atlantic Archaeology, Copenhagen, May 10th–14th, 2004*, Publications from the National Museum, Studies in Archaeology and History **10**, 273–9.
- Ashby, S P 2007, 'Bone and antler combs', *Finds Research Group Datasheet* **40**. Privately distributed publication. Details at <<http://www.frg700-1700.org.uk/>> [accessed 10 April 2009].
- Ashby, S P forthcoming, '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 in prep, 'Combs from medieval northern Europe'.
- Ashmore, P 1993, *Jarlslof: A Walk Through the Past*, Edinburgh: Historic Scotland.
- Bäcklund, J 2001, 'War or peace? The relations between the Picts and the Norse in Orkney', *Northern Stud* **36**, 33–47.
- Ballin Smith, B 1995, 'Reindeer antler combs at Howe: contact between late Iron Age Orkney and Norway', *Universitetets Oldsaksamling Årbok* (1993/94), 207–11.
- Barrett, J H 1997, 'Fish trade in Norse Orkney and Caithness: a zooarchaeological approach', *Antiquity* **71**, 616–38.
- Barrett, J H 2003, 'Culture contact in Viking Age Scotland', in J H Barrett (ed), *Contact, Continuity, and Collapse: The Norse Colonization of the North Atlantic*, Turnhout: Brepols, 74–111.
- Barrett, J H, Beukens, R P, Simpson, I, Ashmore, P, Poaps, S and Huntley, J 2000, 'What was the Viking Age and when did it happen?', *Norwegian Archaeol Rev* **33**, 1–40.
- Bede, *Ecclesiastical History of the English People*, ed L Sherley-Price, London: Penguin.
- Bertelsen, R and Lamb, R G 1993, 'Settlement mounds in the North Atlantic', in C E Batey, J Jesch and C D Morris (eds), *The Viking Age in Caithness, Orkney and the North Atlantic*, Edinburgh: Edinburgh University Press, 544–54.
- Biddle, M 1990a, 'Toilet equipment: combs of horn and bone', in M Biddle (ed), *Object and Economy in Medieval Winchester (Winchester Studies volume 7.2.2)*, Oxford: Clarendon Press, 678–90.
- Carver, M O H 1990, 'Pre-Viking traffic in the North Sea', in S McGrail (ed), *Maritime Celts, Frisians and Saxons*, Council Brit Archaeol Res Rep **71**, 117–25.
- Clarke, D V 2007, 'Reading the multiple lives of Pictish symbol stones', *Medieval Archaeol* **51**, 19–39.
- Clarke, D and Heald, A 2002, 'Beyond typology: combs, economics, symbolism and regional identity in Late Norse Scotland', *Norwegian Archaeol Rev* **35**, 81–93.
- Crawford, I A 1981, 'War or peace — Viking colonisation in the Northern and Western Isles of Scotland reviewed', in H Bekker-Nielsen, P Foote and O Olsen (eds), *Proceedings of the Eighth Viking Congress, Århus 24–31 August 1977*, Odense: Odense University Press, 259–69.
- Curl, C L 1982, *Pictish and Norse Finds from the Brough of Birsay 1934–74*, Soc Antiq Scot Monogr Ser **1**.
- Dunlevy, M M 1988, 'A classification of early Irish combs', *Proc Roy Ir Acad* **88**, 341–422.
- Edwards, R 1997, 'Norse settlement', in S Buteux (ed), *Settlements at Skail, Deerness, Orkney: Excavations by Peter Gelling of the Prehistoric, Pictish, Viking and Later Periods, 1963–1981*, Brit Archaeol Rep Brit Ser **260**, 70–95.
- Flodin, L 1989, *Kammakeriet i Trondheim ca. 1000–1600*, Trondheim: Riksantikvaren.
- Forster, A K 2005, 'Steatite, resource control and the Orkney earldom', in O Owen (ed), *The World of Orkneyinga Saga: The Broad-Cloth Viking Trip*, Kirkwall: Orkney Museums and Heritage, 55–74.
- Forsyth, K 1995, 'The ogham-inscribed spindle-whorl from Buckquoy: evidence for the Irish language in pre-Viking Orkney', *Proc Soc Antiq Scot* **125**, 677–96.
- Foster, S M 1990, 'Pins, combs and the chronology of later Iron Age settlement', in I Armit (ed), *Beyond the Brochs: Changing Perspectives on the Atlantic Scottish Iron Age*, Edinburgh: Edinburgh University Press, 143–74.
- Graham-Campbell, J 2002, *Pictish Silver: Status and Symbol*, Cambridge: Department of Anglo-Saxon, Norse and Celtic, University of Cambridge.

- Graham-Campbell, J and Batey, C E 1998, *Vikings in Scotland: An Archaeological Survey*, Edinburgh: Edinburgh University Press.
- Hamilton, J R C 1956, *Excavations at Jarlshof, Shetland*, Edinburgh: Her Majesty's Stationery Office.
- Hansen, G 2005, *Bergen c800-1170: the Emergence of a Town, The Bryggen Papers: Main Series No 6*, Bergen: Fagbokforlaget.
- Hedges, J W 1983, 'Trial excavations on Pictish and Viking settlements at Saevar Howe, Birsay, Orkney', *Glasgow Archaeol J* **10**, 73-124.
- Hencken, H O N 1942, 'Ballinderry crannog no 2', *Proc Royal Ir Acad (C)* **47**, 1-76.
- Hencken, H O N 1950, 'Lagore crannog: an Irish royal residence of the 7th to 10th centuries AD', *Proc Royal Ir Acad (C)* **53**, 1-247.
- Henderson, G and Henderson, I 2004, *The Art of the Picts: Sculpture and Metalwork in Early Medieval Scotland*, New York: Thames and Hudson.
- Hills, C 1981, 'Barred zoomorphic combs of the Migration period', in V I Evison (ed), *Angles, Saxons, and Jutes: Essays Presented to J N L Myres*, Oxford: Oxford University Press, 96-111.
- Hines, J 1984, *The Scandinavian Character of Anglian England in the Pre-Viking Period*, Brit Archaeol Rep Brit Ser **124**.
- Hines, J 1992, 'The Scandinavian character of Anglo-Saxon England: an update', in M O H Carver (ed), *The Age of Sutton Hoo: The Seventh Century in North-Western Europe*, Woodbridge: Boydell Press, 315-29.
- Jones, S 1997, *The Archaeology of Ethnicity*, London: Routledge.
- MacGregor, A 1975, 'The Broch of Burrian, North Ronaldsay, Orkney', *Proc Soc Antiq Scot* **105**, 63-118.
- 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, *Wharram: A Study of Settlement on the Yorkshire Wolds, 8: The South Manor Area*, York University Archaeol Publ **10**, 148-54.
- MacGregor, A, Mainman, A J and Rogers, N S H 1999, *Craft, Industry and Everyday Life: Bone, Antler, Ivory and Horn from Anglo-Scandinavian and Medieval York*, *The Archaeology of York 17/2*, York: Council for British Archaeology.
- Michelli, P 1993, 'Migrating ideas or migrating craftsmen? The case of the bossed pennanular brooches', in M Spearman and J Higgitt (eds), *The Age of Migrating Ideas: Early Medieval Art in Northern Britain and Ireland: Proceedings of the Second International Conference on Insular Art held in the National Museums of Scotland in Edinburgh, 3-6 January 1991*, Edinburgh: National Museums of Scotland, 182-7.
- Morris, C D 1985, 'Viking Orkney: a survey', in A C Renfrew (ed), *The Prehistory of Orkney BC 4000-1000 AD*, Edinburgh: Edinburgh University Press, 210-42.
- Myhre, B 1993, 'The beginning of the Viking Age — some current archaeological problems', in A Faulkes and R Perkins (eds), *Viking Revaluations*, London: Viking Society for Northern Research, 182-204.
- Myhre, B 2000, 'The early Viking Age in Norway', *Acta Archaeologica* **71**, 35-47.
- Nicholson, A 1997, 'The antler', in P Hill (ed), *Whithorn and St Ninian: The Excavation of a Monastic Town, 1984-91*, Stroud: Sutton, 474-95.
- Parker Pearson, M, Sharples, N and Symonds, J 2004, *South Uist: Archaeology and History of a Hebridean Island*, Stroud: Tempus.
- Paterson, C 2001, 'Insular belt-fittings from the pagan Norse graves of Scotland: a reappraisal in the light of scientific and stylistic analysis', in M Redknap, N Edwards, J Knight, A Lane and S Youngs (eds), *Pattern and Purpose in Insular Art: Proceedings of the Fourth International Conference on Insular Art Held at the National Museum & Gallery, Cardiff 3-6 September 1998*, Oxford: Oxbow, 125-31.
- Riddler, I 1990, 'Saxon handled combs from London', *Trans London Middlesex Archaeol Soc* **41**, 9-20.
- Riddler, I 1998, 'Combs with perforated handles', *The Archaeology of Canterbury* **8**, 189-98.
- Ritchie, A 1974, 'Pict and Norseman in northern Scotland', *Scott Archaeol Forum*, 23-36.
- Ritchie, A 1977, 'Excavation of Pictish and Viking-Age farmsteads at Buckquoy, Orkney', *Proc Soc Antiq Scot* **108**, 174-227.
- Roes, A 1963, *Bone and Antler Objects from the Frisian Terp-Mounds*, Haarlem: HD Tjeenk Willink and Zoon NV.

- Smirnova, L 2005, *Comb-Making in Medieval Novgorod (950–1450). An Industry in Transition*, Brit Archaeol Rep Int Ser **1369**.
- Smith, A N 1998, 'The worked bone and antler', in N Sharples, *Scalloway: A Broch, Late Iron Age Settlement and Medieval Cemetery in Shetland*, Oxbow Monogr **82**, 110–11.
- Smith, A N 2000, 'Material culture and North Sea contacts in the fifth to seventh centuries AD', in J C Henderson (ed), *The Prehistory and Early History of Atlantic Europe*, Brit Archaeol Rep Int Ser **861**, 181–8.
- Smith, A N 2003, 'From the small green isles to the Low Countries: artefactual evidence for contact around the North Sea basin in the later Iron Age', in J Downes and A Ritchie (eds), *Sea Change: Orkney and Northern Europe in the Later Iron Age AD 300–800*, Balgavies: Pinkfoot Press and Orkney Heritage Society, 111–16.
- Smith, A N 2007, 'Worked bone', in J R Hunter, *Investigations in Sanday Orkney: Vol 1 Excavations at Pool, Sanday — A Multi-Period Settlement from Neolithic to Late Norse Times*, Kirkwall: The Orcadian, 459–514.
- Smith, B 2001, 'The Picts and the martyrs or did Vikings kill the native population of Orkney and Shetland', *Northern Stud* **36**, 7–32.
- Smith, C 1994, 'Animal bone report', in B Ballin Smith (ed), *Howe: Four Millennia of Orkney Prehistory: Excavations 1978–1982*, Soc Antiq Scot Monogr Ser **9**, 139–53.
- Sorrell, P 1996, 'Alcuin's "comb" riddle', *Neophilologus* **80**, 311–18.
- Stumman-Hansen, S 2000, 'Viking settlement in Shetland: chronological and regional contexts', *Acta Archaeologica* **71**, 87–103.
- Urbańczyk, P 2003, 'Breaking the monolith: multi-cultural roots of the North Atlantic settlers', in S Lewis-Simpson (ed), *Vinland Revisited: The Norse World at the Turn of the First Millennium*, St John's, Newfoundland and Labrador: Historic Sites Association of Newfoundland and Labrador, 45–50.
- 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.
- Weber, B 1993, 'Norwegian reindeer antler export to Orkney', *Universitetets Oldsaksamlings Årbok* (1991/1992), 161–74.
- Weber, B 1994, 'Iron Age combs: analyses of raw material', in B Ambrosiani and H Clarke, *The Twelfth Viking Congress: Developments around the Baltic and the North Sea in the Viking Age*, Stockholm: The Birka Project, 190–3.
- Weber, B 1995, 'The identification of raw material in combs', *Universitetets Oldsaksamlings Årbok* (1993/1994), 197–205.
- Weber, B 1996, 'Handel mellom Norge og Orknøyene for norrøn bosetning? Reingevir som råmateriale i Orknøysk kamproduksjon', in J F Krøger and H Naley (eds), *Nordsjøen: Handel, Religion og Politikk*, Stavanger: Dreyer Bok, 31–40.
- West, S E 1985, *West Stow: The Anglo-Saxon Village. An Anglian Archaeology Report* **24**.
- Wiberg, T 1987, 'Kammer', in E Schia (ed), *De arkeologiske utgravninger i Gamlebyen, Oslo. Bind 3 'Søndre Felt'*, Oslo: Alvheim and Eide, 413–22.
- Young, A 1956, 'Excavations at Dun Cuier, Isle of Barra, Western Isles', *Proc Soc Antiq Scot* **89**, 297–328.

### Résumé

**Peignes, contacts et chronologie: un réexamen des peignes à cheveux de la façade atlantique de l'Écosse pendant l'Antiquité et l'âge des Vikings** par Steven P Ashby

L'analyse d'une importante collection de peignes en os/bois de renne provenant de la façade atlantique de l'Écosse a éclairé la chronologie du peuplement scandinave dans la région au très haut Moyen Âge. La mise en œuvre d'une nouvelle typologie, l'identification de variations dans la fabrication et l'analyse de la répartition géographique permettent de faire la lumière sur l'évolution des peignes, traditionnellement considérés comme caractéristiques de la façade atlantique de l'Écosse antique. L'application de nouvelles techniques d'analyse des matières premières a mis en évidence l'utilisation probable de bois de rennes dans les peignes de style « indigène ». Toutefois, aucun de ces peignes ne provient de contextes pouvant être datés avec certitude du VIII<sup>e</sup> siècle ou plus tôt, et le motif est révélateur de la

coexistence (pacifique ou autre) avec les Vikings au IX<sup>e</sup> siècle, mais pas avant. Si les peignes sont la preuve d'une présence scandinave sur toute la façade atlantique de l'Écosse dès le début de l'âge des Vikings, ils soulignent également l'importance des contacts avec l'Irlande et l'Angleterre anglo-saxonne.

### *Zusammenfassung*

**Kämme, Kontakte und Chronologie: Ein neue Studie von Haarkämmen an der schottischen Atlantikküste in der Frühgeschichte und zur Wikingerzeit** von Steven P Ashby

Die Analyse einer bedeutenden Sammlung von Knochen- und Geweihkämmen von der schottischen Atlantikküste hat die Chronologie der frühmittelalterlichen skandinavischen Siedlungen in dieser Region erhellt. Die Anwendung einer neuen Typologie, die Identifizierung von Variationen in der Herstellungspraxis und die Analyse der räumlichen Verteilungsmuster haben neues Licht auf die Entwicklung der Kämme geworfen, die traditionell als ein charakteristisches Merkmal der frühgeschichtlichen schottischen Atlantikküstenregionen galten. Die Anwendung neuer Analysetechniken für die Rohmaterialien zeigt, dass wahrscheinlich für die Kämme im „einheimischen“ Stil Rentiergeweihe verwendet wurden. Jedoch stammt keiner der Kämme aus einem Zusammenhang, den man mit Sicherheit ins 8. Jahrhundert oder davor datieren kann, und das Verteilungsmuster deutet auf eine (friedliche oder nicht friedliche) Koexistenz von Wikingern und Einheimischen frühestens im 9. Jahrhundert hin. Die Kämme als Beweisstücke belegen, dass schon seit dem frühen Wikingerzeitalter in der gesamten schottischen Atlantikküstenregion eine skandinavische Präsenz zu verzeichnen war, unterstreichen aber auch die Bedeutung des Kontakts mit Irland und dem angelsächsischen England.

### *Riassunto*

**Pettini, contatti e cronologia: un riesame dei pettini del versante atlantico della Scozia nell'antichità e nel periodo vichingo** di Steven P Ashby

L'analisi di un'importante collezione di pettini in osso e in corno del versante atlantico della Scozia ha permesso di fare luce sulla cronologia dello stanziamento scandinavo nella regione durante il primo Medioevo. L'adozione di una nuova tipologia, l'identificazione delle varie pratiche di manifattura, e l'analisi della distribuzione geografica hanno portato a chiarire l'evoluzione dei pettini, tradizionalmente considerati un elemento caratteristico del versante atlantico della Scozia antica. L'applicazione di nuove tecniche di analisi dei materiali grezzi ha messo in evidenza il probabile impiego di corna di renna nella manifattura dei pettini di stile 'indigeno'. Tuttavia nessuno di questi pettini proviene da ambienti che si possano far risalire con certezza all'VIII secolo o ad ancora prima, e la distribuzione dei tipi di pettine rivela una coesistenza (pacifica o non pacifica) tra norreni e indigeni nel IX secolo, ma non anteriore. La testimonianza fornita dai pettini dimostra l'esistenza di una presenza scandinava in tutta la Scozia atlantica a partire dagli inizi del periodo vichingo, ma pone inoltre in evidenza l'importanza dei contatti con l'Irlanda e con l'Inghilterra anglosassone.