APPENDIX S1: THE CLASSIFICATION AND DISTRIBUTION OF HALBERDS FROM BRITAIN AND IRELAND

(Note: In the text that follows Figure and Appendix numbers prefixed by 'S' refer to this appendix, all other Figure and Table numbers refer to the main paper).

Halberds in Britain and Ireland are long overdue for typological reconsideration. The Irish series was first comprehensively classified by Ó Ríordáin (1937) and 30 years later by Harbison (1969a; 1969b). British halberds (and, indeed, Continental ones) were also classified by Ó Ríordáin (1937) according to his Irish-based scheme, but they have never been the subject of detailed independent study and there has only been passing mention of significant differences between the two insular assemblages (Burgess 1980, 75; Rohl & Needham 1998, 86). A substantial classification of halberds on a pan-European scale has appeared since this article was first drafted (Horn 2014); in addition to full discussions on other aspects of halberds, Christian Horn's work is valuable in displaying the full morphological range across the Continent; nevertheless, it does not adequately deal with the detailed variation present in either Ireland or Britain.

Harbison (1969b) curiously paid no regard to overall size and proportions in formulating his classification scheme. His types Carn and Cotton, and to a lesser extent Clonard, comprise a wide range of sizes and a real mix of proportions as well as certain other features. While variable size alone should not be a barrier to objects belonging to the same morphological class, the analysis of dimensions and associated features undertaken here suggests that Harbison's approach has masked significant morphological variation and that this has in turn had repercussions on the perception of halberd evolution in Ireland.

Harbison's disregard for size and proportions stood in contrast to Ó Ríordáin's much earlier classification (1937). Ó Ríordáin implicitly recognised the potential importance of size, without making it a wholly defining attribute; his types 1, 2, and 3 were predominantly made up of short-bladed weapons, whereas types 4, 5, and 6 comprised longer ones. For Ó Ríordáin, size seemed an obvious attribute that might correlate with an internal evolution, especially if, as he argued, halberds had indigenous rather than an external roots; the shorter types were seen as inherently more likely to represent early stages in such an indigenous evolution than the longer ones. Nevertheless, Ó Ríordáin appears not to have recognised the importance of blade proportions as an attribute. The current re-analysis of Irish halberds suggests that both length and proportions play an important part in circumscribing definable types. Ó Ríordáin's types 1 and 2 have stood the test of time, now taken together as Type Clonard; meanwhile his type 3, which had been dispensed with by Harbison, has been effectively reinstated here (Type Roscrea). Some of Ó Ríordáin's other types were less satisfactory and possible reasons are outlined in the accompanying article.

The new classification proposed here is based on personal study of the majority of insular halberds. Those not studied at first hand have been classified wherever possible on the basis of good drawings or photographs – in some cases being unpublished material kindly provided by colleagues.

The Irish classification scheme has two tiers (Table 2). Distinguishable *Types* are often closely related to others in their hafting-plate format (combination of rivet number, rivet disposition and hafting-plate shape) and sometimes other features as well. In such cases they have been linked together at a more generic level as *Series*. Each series can be viewed as the output over time of a particular tradition of halberd manufacture and style which may be concurrent with other series. While a similar approach could theoretically be applied to the British halberds, it has not been necessary to do so (Table 3). There are several types represented by small numbers of

weapons (sometimes as few as two) that do not have particularly close relationships with others and there is only one case where a longer-running tradition embodying two types (Sluie and Auchingoul) might be argued. Consequently, the British material is classified only at the level of *Types*. There are occasional variants within types for both insular corpora.

The condition of halberds in terms of preservation

'Condition' is often used as an umbrella term when applied to artefacts, referring variously to completeness, use wear and minor damage, and the extent to which surface and edges have been altered by decay. All of these alterations can cause problems for classification, but the first two categories may not be properly assessed until the third has been evaluated.

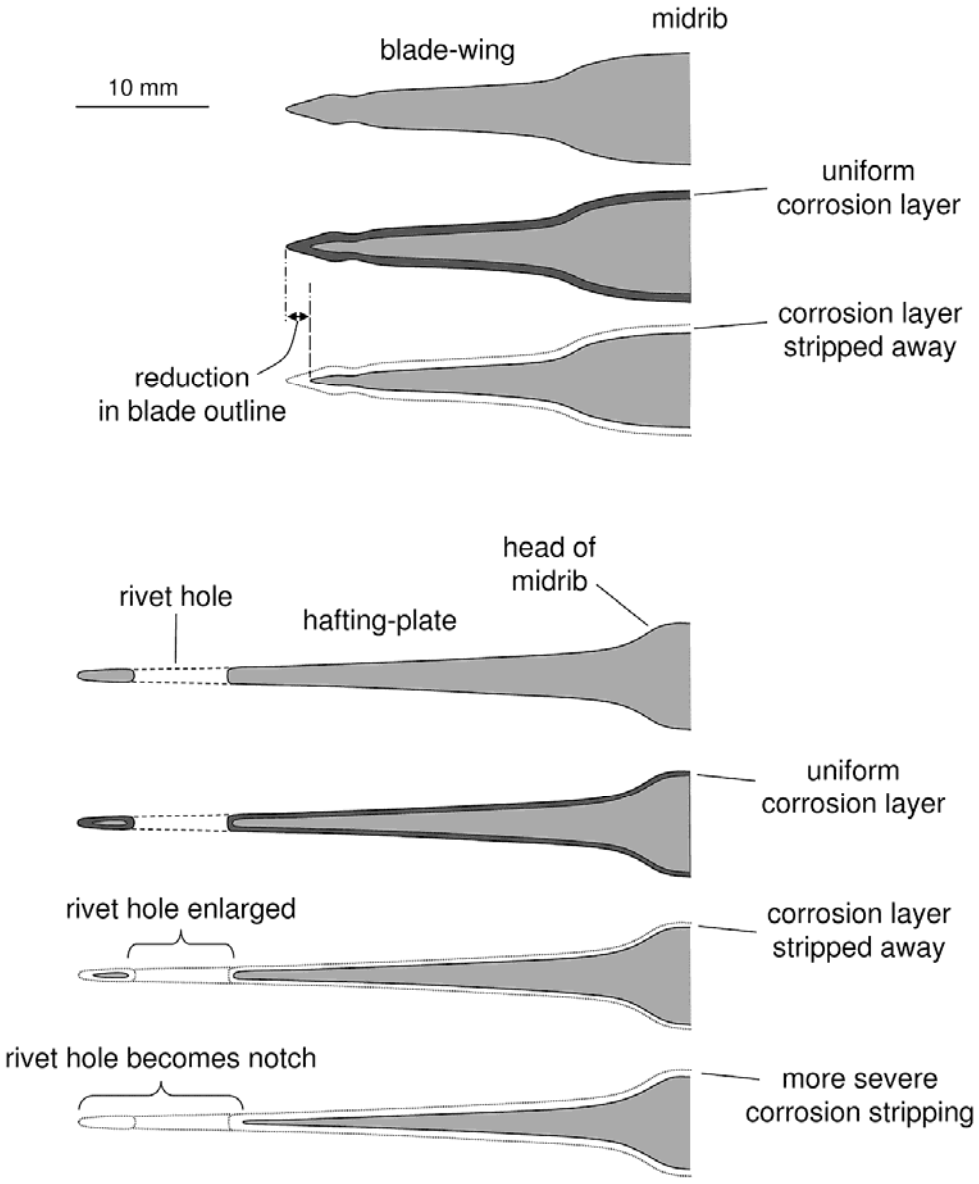

Fig. S1.
The effects of corrosion on thin edges

With respect to halberds, as with all edged blades, it is the sharp blade edges that are most vulnerable both to breakage when uncorroded and then to chipping and flaking after a corrosion layer has formed. The latter process can have disproportionate effects on the outline (Fig. S1); for example, a 0.5 mm thick corrosion layer may easily result in 2 mm or more contraction of the outline. The formation of intensive corrosion spots, eating down further into the metal body, can add marked irregularities in the resulting edges, as well as pock-marking the surface more widely.

There is, however, a second zone of halberds that is badly affected by both damage in antiquity and subsequent corrosion process – the butt. Although halberds are characterised by very stout midribs, these usually terminate around the haft-line and the axial profile usually thins quickly to the hafting-plate (Fig. S1). Even on intact and well preserved weapons, the butt is often as little as 0.5 mm thick. This seems somewhat counter-intuitive given the potential force of blows backward onto the rivets and butt seating; nevertheless, it appears to be consistently the case regardless of halberd type. It is obvious, therefore, that even halberds deposited intact may suffer significant loss at the butt end when in an adverse environment. There is, moreover, abundant evidence for pre-depositional damage along butt lines and around rivets, the rivet holes frequently being torn open; corrosion can serve to compound loss in these circumstances, for example, by penetrating cracks opened up around fractures. Finally, it is worth emphasising that the metal of the hafting-plate immediately around the rivets is not a great deal thicker than at the butt, especially when there are encircling depressions (countersink holes) which is often the case. Consequently, and especially perhaps if the rivets are not in place in the ground, there can also be significant outline reduction around the holes – the hole thus becomes larger.

One further effect of corrosion should be mentioned. Most blade wing features, furrows and bevels, have only slight relief and can easily be removed or diffused with surface stripping. The term 'surface stripping' is used here to describe the loss of a surface layer of metal regardless of the precise process by which this has happened.

The significance of the main attributes of halberds

Little has been written in detail about the individual attributes of halberds and how they might relate to classification and functionality. This is an opportunity to outline some thoughts and principles before setting out the new classification schemes for insular halberds. The main features and dimensions of halberds, or more strictly *halberd heads*, are illustrated in Figure 5.

Length (L)

Halberds vary considerably in length. While length is never a good primary attribute for classification of form, it can be a useful contributory variable.

Blade length (Lb)

It is proposed here that a more sensitive length measure for the purposes of recognising different styles and functionalities is that of the exposed blade, that is, excluding the hafting-plate. This is defined by the length from the tip to where the long axis crosses the line joining the shoulders. This line may not exactly coincide with the haft-mark, where this survives (a minority of examples), but the difference is never significant and it is more important to have a consistent measure for all halberds. Obviously damage and wear can affect blade length, but unless this is marked, which should be clear from the blade tip outline in relation to the midrib and blade wing features, it will have only a small effect on the utility of this dimension.

Width at shoulders (W)

The 'shoulders' are defined as the widest part of the halberd head, where blade meets hafting-plate. With rare exceptions (e.g. Type Corrib, below), the shoulder width of halberds is much more limited in range than is the length. This relative consistency presumably reflects a recognition that hafting-plates of a certain width provided the desired security in the haft – the narrower the hafting-plate and associated rivet formation, the less resistance there would be to rotational pressures in the haft-grip. Nevertheless, the more limited variation encountered in shoulder width has a significant impact on the style of the blade; wider shoulders give rise to a broad-looking blade even if it tapers quickly, while narrower shoulders give rise to more slender-looking blades.

Blade proportions (W/Lb)

In order to compensate for differences in overall size, width can be expressed as a proportion of blade length (W/Lb). The relative proportions of a blade have a tremendous impact on both functionality and the overall look of the weapon. To take the extremes, short and squat blades will have very different capabilities *and* visual impact than do long slender ones. Proportions have never been taken into account in past treatments of insular halberds, certainly not explicitly. Even excluding the outlying proportions of Type Corrib, the range is very large, from 0.2 (very slender) to 1.0 (very squat). By plotting the principal dimensions directly, that is W against Lb (see Figs S3, S5, S6, S8, S9), the gradients of lines passing through the origin represent the blade's proportions, and these can be seen in relation to the absolute size ranges of the two variables in a single plot.

Tip shape

Tips range in shape from rather acute (occasional) to extremely broad and rounded – *lingulate* (also occasional); most fall within a more limited spectrum which is fairly narrow but still round-ended; in other words, there is rarely a sharp point and, moreover, midribs continue almost to the tip, thus maintaining a thick profile until the last few millimetres. Tips will often have been modified through re-sharpening and sometimes through more substantial reworking, so detailed tip shape may not be a particularly useful attribute for the classification of original form. Nevertheless, some trends are apparent for different types.

Blade symmetry/midrib curvature

Halberds are widely understood to be characterised by asymmetry from one side of the axial line to the other – in this way they contrast with the vast majority of daggers. The asymmetry of halberds is in fact a complex issue involving at least four potential aspects (Fig. S2). For convenience here aspects of blade asymmetry have been separated from those relating to the hafting-plate (see below). *Curved blade:* a curved blade and midrib automatically gives rise to side-to-side asymmetry – the blade cannot be mirror imaged about the longitudinal axis even if the blade wings are of similar widths (Fig. S2 i). *Unequal blade wings:* another obvious asymmetry is produced when the blade wings differ in width and/or outline shape, and this can be the case even when the midrib is straight (Fig. S2 ii); there will inevitably be some difference between the lines of the two blade edges, but this can sometimes be rather subtle.

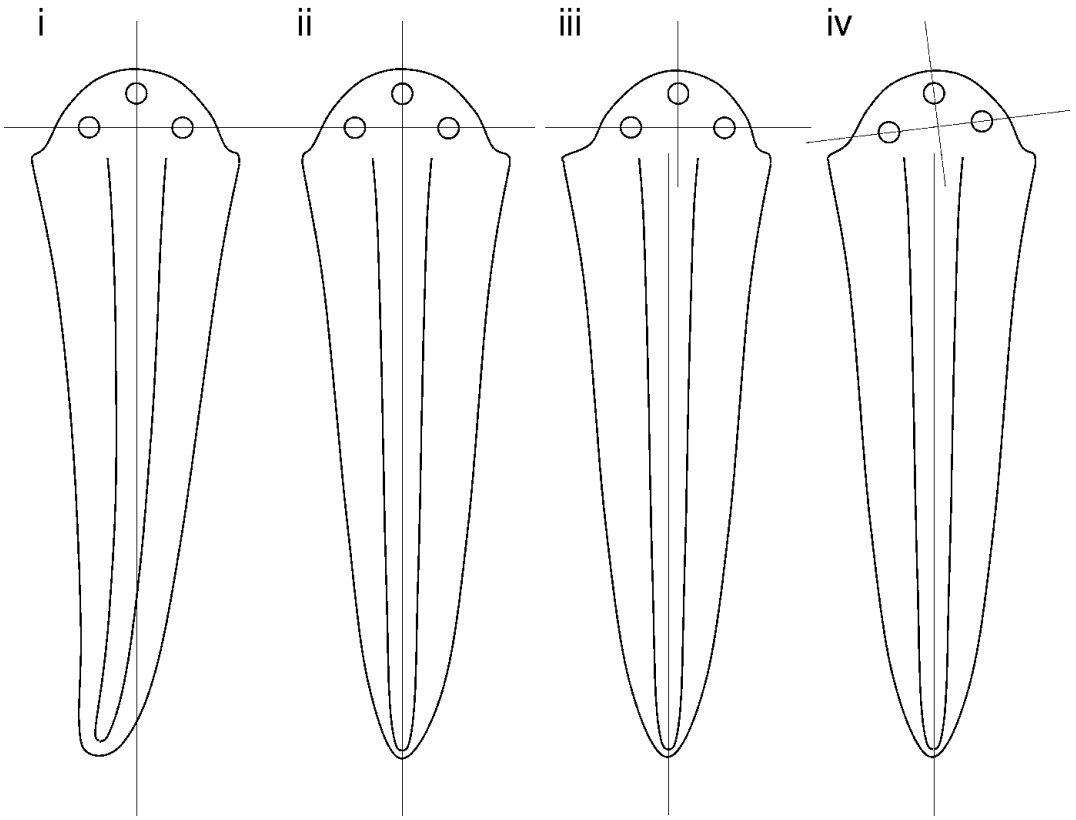

Fig. S2

Schematic illustrations of the various kinds of asymmetry that occur in halberds either individually or in varied combinations: i) blade curvature, ii) unequal blade wings, iii) dislocation between hafting-plate and midrib axes, and iv) the skewing of rivet arrangements and/or haft-lines relative to midrib axis. Since blades often curve, the axial line of a halberd is defined as the line along the *uppermost* part of the midrib, closest to the hafting-plate

Blade edge curvature(s)

The norm is for the blade edges to have gentle 'S' shapes, concave below the shoulders, then giving way to convexity as they converge towards the tip. Rare variations include much more pronounced sinusoidal curves or, at the other extreme, blades with convex outlines all the way. A significant minority have edges converging as more or less straight lines until close to the tip and this is particularly important amongst British halberds.

Midrib width (Wm)

Midrib width has not hitherto been considered as a significant feature, but there are some important contrasts, sometimes even amongst otherwise similar halberds. The width can be given as an absolute value, measured at its broadest point (which is always at its head, at the haft-line), but its ratio with respect to shoulder width (Wm/W) gives an alternative that can compensate to some extent for gross variations in blade size.

Midrib sectional form and thickness

The mid-blade of halberds is almost always defined by a true midrib, standing proud of the flanking wings from which it is usually defined by a crisp angle. Maximum thicknesses measured by the writer are between 5.5 mm and 11 mm; since those at the lowest end of this range are associated with stripped surfaces, it is thought unlikely that any would have been thinner than 6 mm or 6.5 mm originally. The maximum thickness may occur anywhere between a position close

to the head of the midrib and almost at the middle of the blade, although the upper half of the midrib does not thin significantly in either direction. Most often the midrib has a rounded profile in cross-section, though the degree of curvature varies considerably, mainly in relation to midrib width. A few are almost flat-topped and occasional examples have either a central arris running down the midrib (*keeled midribs*), or a very narrow rib on top (*beaded midribs*). One halberd appears to have a medial groove along the midrib. Equally unusual are blade sections which are lozenge throughout, lacking any clear midrib/wing demarcation. A further rare form has multiple ribs or beadings instead of a singleton.

Blade-wing features (furrows, steps, bevels, ribs)
Where edge condition is good, *edge bevels* are almost invariably present and tend to be rather narrow (typically 2–3 mm). A recurring feature of halberds is the presence of outlining grooves, better termed *furrows*, since they invariably have a shallow hollowed profile. Despite their incredibly neat execution, these too are generally not very wide, although they may sometimes exceed the width of the associated bevel. In contrast to the grooves on later daggers, these linear features are always immediately inset from the bevel and may occur singly, as pairs or even occasionally as triples. Occasional features of the blade wings are *step-mouldings* (additional to the midrib's sides) or *ribs* which are separate from the midrib.

Shoulder shape
Where blade meets hafting-plate, there is variation in the angle of meeting and the degree of angularity, as well as in the presence, size and character of indenting immediately above the shoulders. The latter feature, termed *stepped shoulders*, can help in defining types. Use of shoulder shape is, however, limited by the frequency with which these apices have suffered damaged. Extreme shapes do nevertheless stand out from the norm.

Hafting-plate shape and depth
This is an extremely important variable that correlates well with others. Hafting-plate *depth* is best employed as a relative value: its length along the long axis of the blade divided by shoulder width – Lh/W. The extremes are virtually zero (on Type Corrib) and greater than 0.70 (deep hafting-plate halberds and occasional Type Clonard weapons). Depth is obviously related to shape. Shallower forms are mainly low-arched, while medium-deep to deep forms are mainly split between arched and sub-trapezoidal; a few are more triangular. The medial axis through the rivet set may be dislocated laterally to that through the midrib – this may be called *hafting axis dislocation* (Fig. S2 iii).

Haft-line angle
The haft-line, whether preserved as a haft-mark or simply deduced from the line between the two nearest rivets or that between the shoulders, is most often skewed relative to an axis transverse to the midrib – this is termed *hafting axis skewing* (Fig. S2 iv). Interaction between this and *hafting axis dislocation* results in many variants and the overall relationship can be further complicated when the rivets themselves do not form a symmetrical pattern, for example, three rivets which do not form an isosceles triangle.

The angling of the haft-line is obviously important for the implication that blades were generally not set perpendicular to their hafts, or at least not perpendicular to the haft-grip. However, it does not in itself provide any evidence for whether a blade was angled up or down. The Trecastell haft remains are unique in providing a definitive answer (downwards) for one

halberd from Britain and Ireland, but even so we should be wary of assuming all were angled the same way.

Rivet number and formation

The number and arrangement of the rivets can have an obvious effect on the strength of the hafting and resistance to various kinds of forces during use. However, it is clear from the occurrence of very varied rivet formats Europe-wide, and even within Britain and Ireland, that there was no single best way to achieve the hafting security that was found to suffice. It can therefore be argued that the more contrasting formats amongst the full repertoire, many of which seem to have been in contemporary use, relate more to separate production traditions and/or style choices.

While two-rivet halberds are argued to exist in some Mediterranean zones of Europe, Ireland and Britain are dominated by three- and four-rivet formats, though not in the same proportion in the two islands. Sets of three rivets are almost always arranged in triangles, although the depth of the triangle (which is usually closely related to the depth of the hafting-plate) can be significant for defining types. Where butts are shallow, the three rivets appear more as a gentle arc (or very wide triangle). Sets of four rivets prove to have two rather separate formations, those arranged as a rectangle or trapezoid, and those arranged as a more gently curving arc. Although in principle the progressive broadening of a trapezoidal formation will result in the formation described here as an arc, in practice there seems to be a break between the two tendencies, and this is closely correlated with hafting-plate shape – sub-trapezoidal versus arched.

Smaller numbers of halberds have five or more rivets and making generalisations about these is complicated by the fact that some probably involve palimpsests of an original rivet set and a replacement set. Where there is more certainty over contemporaneity, these larger numbers of rivets can be distributed around an arched butt (examples amongst Types Auchingoul, Breaghwy, proto-Breaghwy), or alternatively are arranged in more unusual grid-defined designs (examples amongst Types Derrinsallagh, Corrib, Eweford, proto-Breaghwy).

Rivet dimensions (and special features)

Rivet shank thickness and rivet-hole size are undoubtedly extremely important in defining different production traditions and types. A good number of rivet diameters measured by the author range from as little as 5 mm at the centre to as much as 15 mm. Since rivets have frequently not survived, hole size is the more consistently available measurement for classification purposes; however, compared to rivet shank thickness it introduces a greater uncertainty margin due to two factors: i) variability in the tightness of fit of the rivets and ii) the susceptibility of the holes to enlargement where there is significant surface corrosion loss (discussed above). As has been argued for rivet number, the fact that considerable variation in rivet thickness exists amongst halberds suggests that this variable was not critical to the success of the hafting. Instead, style or even at times metallurgical skills may have played a major part in determining the rivet size. There may, however, have been a mechanical property encouraging the adoption of the most slender rivets, since these are mostly associated with bronze halberds. A small number of copper blades (proto-Breaghwy and amongst Type Auchingoul) also have small rivet holes, but as yet no associated rivets have been analysed.

The thicker rivet shanks in particular can have varied cross-sections ranging from fairly rounded, to sub-square, octagonal, or oval with two faceted sides. These details may have implications for the metalworking traditions concerned, but have not been used to contribute to the classification scheme (not all have been seen at first-hand and publications rarely give adequate description).

Rivet lengths are surprisingly varied and this can provide valuable information on the thickness of the haft-grip. Moreover, in clenching the rivet heads tightly against the surface of the grip, they will tend to reflect the inclination of that surface in immediate proximity. In a number of cases, where rivets are locked in position by corrosion (and thus cannot rotate), it is possible to glean fairly accurate information on the topography of the haft-grip faces.

Rivet head dimensions present a distinct attribute from that of shank diameter since head expansion is variable. In some cases that variability may not be intentional but instead the result of how much the shank projected from the haft-grip surfaces prior to clenching. Some well preserved halberds have rivet heads that are not especially consistent in diameter; indeed, individual heads are sometimes oval or irregular in shape, and sometimes have peripheral cracks. All of this suggests that there was not always total control over the final form of the head. Heads were usually domed to varying degrees; again, it may not have been possible to closely control the curvature and further modification may have arisen from grinding and polishing the heads to finish them.

Two halberds from Ireland retain rivets on which separate disc-like heads have been clenched onto the shanks (Appendix S3, Cat. Nos 112 & 153; Harbison 1969b, nos 261, 297) – these are termed *washer-head rivets*. This is a technique better known in northern Europe and is sufficiently specialised to suggest technological transfer; the associated halberds are, though, of distinctively Irish styles. Their rivet shanks are not of the same dimensions, one set being slender, the other being rather thick and centrally swollen (an exceptional shape).

Rivet emplacement type (holes/notches)

While most rivet emplacements are patently holes, some are present now only as notches in the butt and these can pose problems of interpretation. Notches certainly appear to be an original feature of some halberd types elsewhere (e.g. Wüstemann 1995; Brandherm 2003) and should not therefore be ruled out in principle amongst the insular series. However, the processes affecting very vulnerable areas of the hafting-plate (described above) urge caution as to whether any of the insular halberd types used notches more than exceptionally. Surface condition needs to be good (no suggestion of surface stripping) and edges undamaged before notches can be judged to have been original. One of the few convincing examples seen by the writer is in the butt of an otherwise standard three-rivet halberd from Ireland (no provenance; Harbison 1969b, no. 271); two notches of smaller diameter occur to either side of the central rivet.

CLASSIFICATION OF IRISH HALBERDS

Irish halberds are catalogued in Appendix S3, while Figure 22 shows classic examples of the main types defined.

Halberds in Ireland predominantly have three rivets; a smaller group has four rivets in a trapezoid formation and even fewer have more than four, in some cases at least due to secondary additions due to re-hafting with a new rivet formation. While rivet number is not the only important variable, it does prove to be helpful in creating a broad classificatory structure. The numerous Irish halberds can be divided into four main series: the Hillswood and Corlurgan series both comprise three-rivet weapons, but are differentiated by their hafting-plates and hafting axis skewing; the Clonard series comprises weapons with four rivets in trapezoidal formation; and the Breaghwy series comprises halberds with slender rivets varying in number. A small number of halberds fall outside this over-arching structure.

Hillswood series *(Types: Roscrea, Lough Gur & Hill of Allen)*

Amongst Irish halberds there is a large core group which is characterised by three rivets in a relatively deeply arched hafting-plate, and blades which are always gently curved and/or slightly asymmetric with one edge visibly more concave than the other (Fig. 22 d–f). After the initial contraction from the shoulders, the blade tapers only gradually in its lower part, but then suddenly contracts into a rounded tip. There are frequently small steps above the shoulders (i.e. the hafting-plate side) on one or both sides, but even where this is not the case there is a distinct angle or minor inflexion instead. The three rivets are set in a triangle so as to take up the full area of the hafting-plate without breaching the butt-line (prior to any damage). The rivets themselves have medium to thick shanks with correspondingly proportioned heads. There is almost always some small asymmetry between the hafting arrangement and the blade, showing either as hafting-axis skewing or hafting-axis dislocation. The midrib is well defined, but usually of modest width relative to the upper blade; the exceptions with broader midribs mainly occur within Type Roscrea. Furrows are sometimes present on the blade wings and they lie in the usual position immediately inset from the edge bevels.

This core spectrum accounts for the great majority of Irish halberd finds and has been named after the Hillswood hoard which contains two of the types (Hill of Allen and Lough Gur). Although these two types and some of Type Roscrea are stylistically very similar, there are dimensional and proportional grounds for not regarding them simply as different size ranges within a continuum representing a single type (Fig. S3).

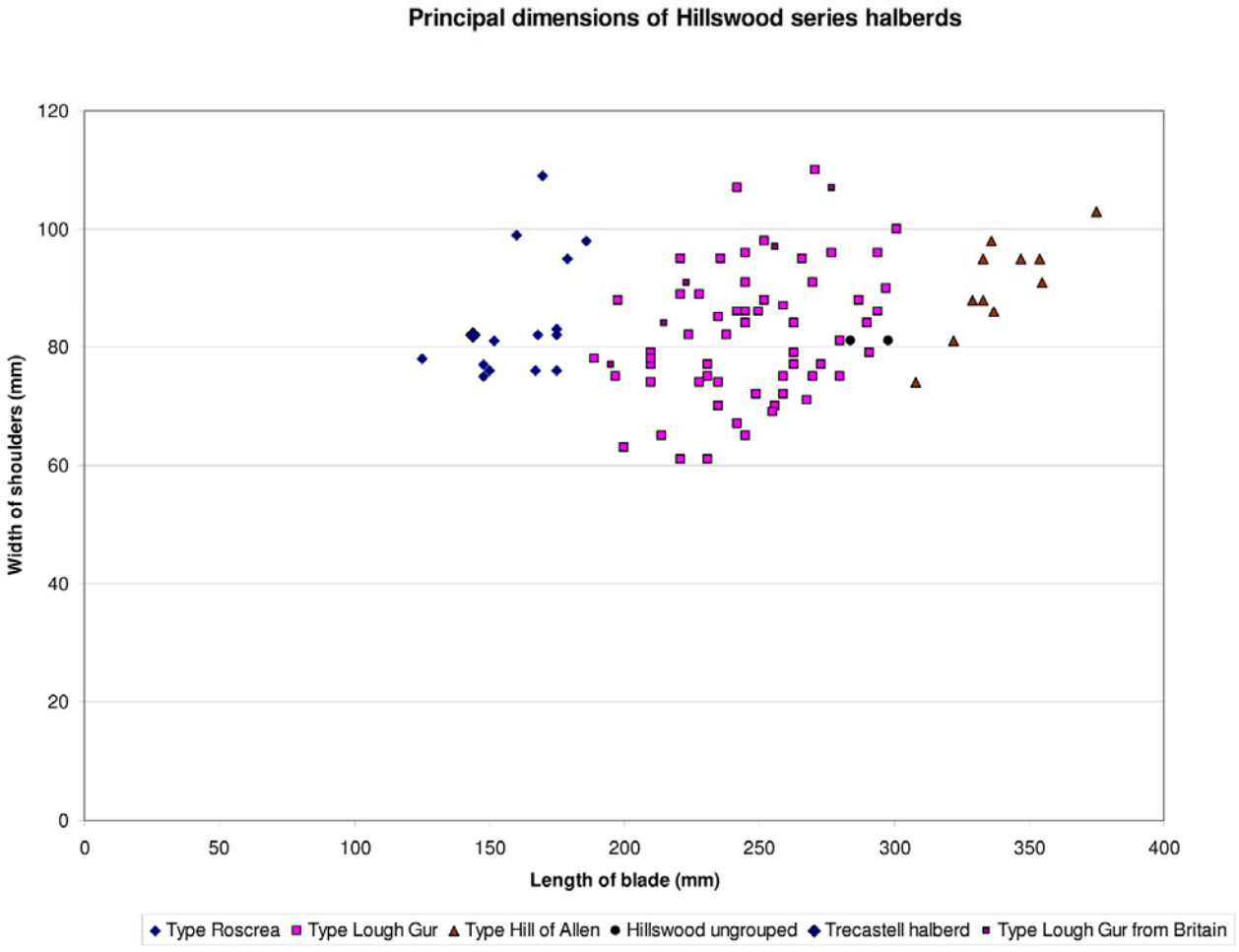

Fig. S3.
The distribution of principal dimensions for the Hillswood Series of halberds

Type Roscrea (Hillswood series, squat; Cat. Nos 21–36)

Sixteen short halberds (1 uncertainly classified) have formal attributes in common with Type Lough Gur, but their distribution on the blade proportions plot (blade length versus shoulder width) seems to be detached from that type; W/Lb for Roscrea falls above 0.45 (one exception), that for Lough Gur below that value. They are not a wholly homogeneous type; in particular, midrib widths vary with about 38% being classed as broad (Fig. S4; Appendix S3). There is also some variation in the depth and splay of the triangle formed by the rivets. Although it is possible that some halberds have been reduced by wear and re-sharpening, the tapering of midrib and grooves makes it clear this cannot have reduced length by more than a very small amount. Type Roscrea halberds are almost always longer than Type Clonard, the only other established squat type of Irish halberd.

Contexts: None are known for this type in Ireland, and the radiocarbon date for the Trecastell example provides the best evidence for absolute dating, most likely in the early to mid-Chalcolithic.

Type Lough Gur (Hillswood series, medium)

In the middle of the Hillswood series dimension range is a large group of 64 halberds (13 uncertainly classified) for which there is no clear internal division. Blade length ranges between about 190 mm and 300 mm, hafting-plate width mainly between 60 mm and 100 mm, with one outlier at 107 mm. Although these principal dimensions are quite variable, taking the group as a whole there is a tendency towards proportionality (Fig. S4). Six halberds have midribs that deviate from the normal rounded profile: three have an axial beading (*beaded midrib*) and three an axial ridge (*keeled midrib*). Amongst the latter is the halberd incorrectly shown with a lozenge sectioned midrib by Harbison (1969b, no. 262; Cat. No. 86).

Contexts: Four examples come from the Hillswood hoard, two from the Cotton hoard, and one is very uncertainly associated with a tanged chisel at Letterkenny. One of two halberds in the Castell Coch hoard, south Wales, is also of this type.

Type Hill of Allen (Hillswood series, long; Cat. Nos 100–12)

Twelve examples of Hillswood series halberds have long, elegant curving blades (blade length 308–375 mm). The length differentiation from Type Lough Gur is supported by a bimodal distribution and Hill of Allen weapons have a more restricted range of shoulder widths (74–103 mm). Internally, the type shows a fairly strong correlation between width and blade length (Fig. S3) and the resulting axis of proportionality misses all but a few Lough Gur weapons on the plot. Midribs are consistently rather narrow relative to blade width. One example is distinguished by washer-head rivets, one of only two Irish halberds to have them (above).

Contexts: Three examples occur in the Hillswood hoard and one in the Cotton hoard.

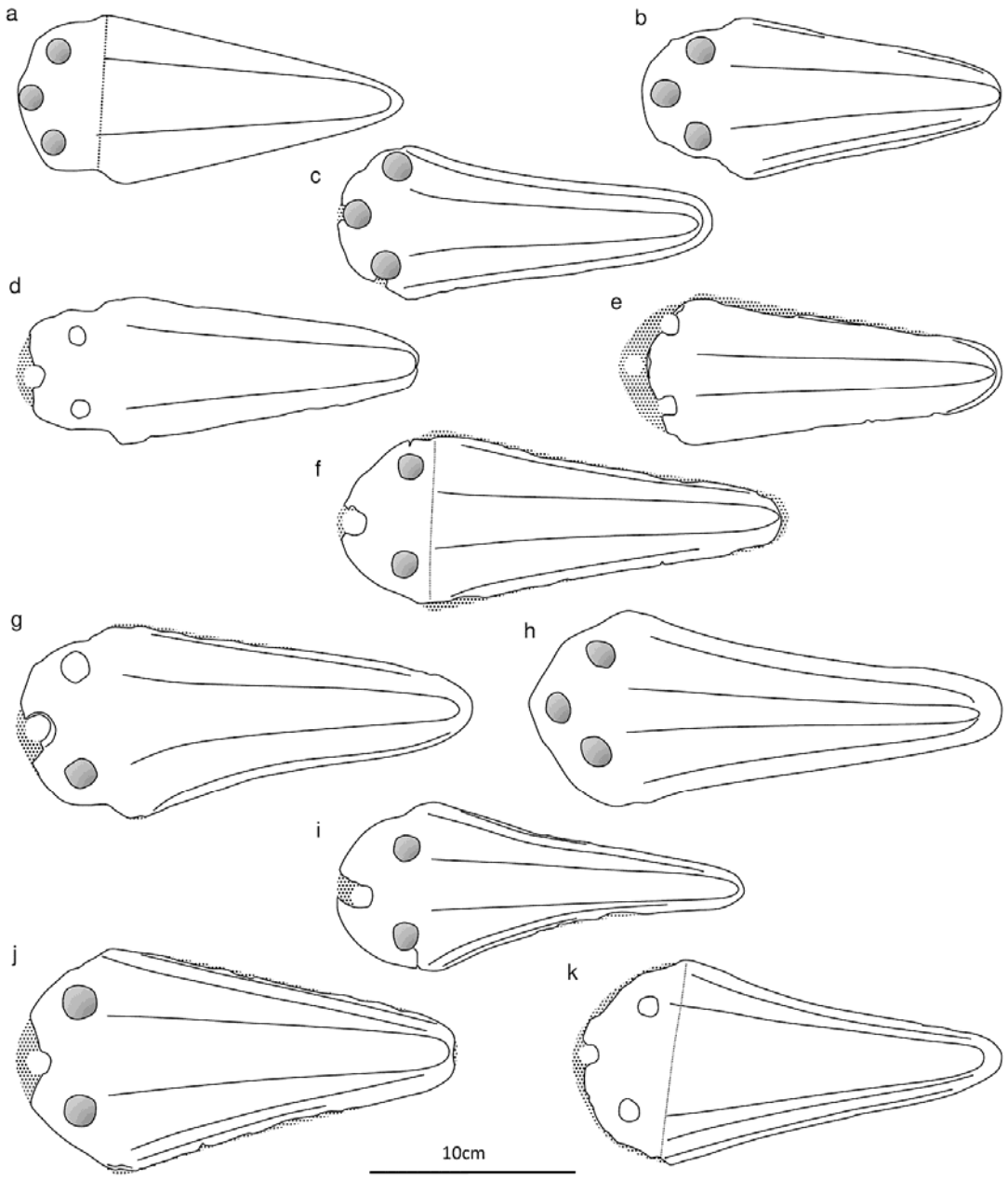

Fig. S4.
A selection of Type Roscrea halberds: a) Trecastell, Powys; b) Enniskillen, Co. Fermanagh; c) – f) no provenance (Harbison 1969b, nos 267, 178, 179, 177); g) Roscrea, Co. Tipperary; h) Laragh, Co. Monaghan; i) no provenance (Harbison 1969b, no. 183); j) near Mallow, Co. Cork; k) near Dublin, Co. Dublin; scale 33%; drawings: Stuart Needham, based on Harbison 1969b and personal observation; reconstructed parts are shown in tone

Ungrouped Hillswood series (Cat. Nos 113–15a)

Two halberds (Harbison 1969b, nos 228–9) have the characteristic shape, proportions and rivet formation of the Hillswood spectrum, but differ in having broad midribs that occupy much of the blade width. The narrow blade wings are hollowed in section. Neither is provenanced to better than the county. A fragmentary piece without provenance may be similar, while another badly damaged weapon is very likely of the Hillswood series (*ibid.*, nos 263 & 317).

Contexts: None.

Corlurgan series *(Types Cloonymorris and Corlurgan)*
Up to 30 halberds differ from the Hillswood series in one of two respects, and usually in both: the hafting-plate forms a shallower arch and the rivet formation is often strongly skewed relative to the blade's axis. The hafting-plate does not therefore have the classic 'club-like' look of most Hillswood weapons. The angle of the rivet formation is echoed in the haft-line, where this is discernible, and otherwise in the head of the midrib which is usually a straight well defined step. The shallowness of the hafting-plate is partly caused by the shoulders being drawn upwards to be in line with, or even above, the lower rivets. In terms of blade length, the Corlurgan series *in toto* has a remarkably similar range to that of Type Lough Gur, there being no overlap at all with either Roscrea or Hill of Allen type halberds. However, shoulder widths trend downwards so that there is only partial overlap on the principal dimensions plot (Fig. S5).

Type Cloonymorris (Cat. Nos 116–125)
Several halberds (eight plus three uncertain) overlap the low end of the dimension range of Lough Gur halberds, but differ in the diagnostic strongly skewed haft-line – around 10° or more. This angle is generally echoed by a line drawn between the two lower rivets. Blade lengths fall in the range 186–228 mm, shoulder widths, 51–84 mm (Fig. S5).

Contexts: None come from hoards, but one was found on a crannog site at Loughnaglack, Drummond Otra, Co. Monaghan (Cat. No. 117; Harbison 1969b, no. 210; National Museum of Ireland, accessions register).

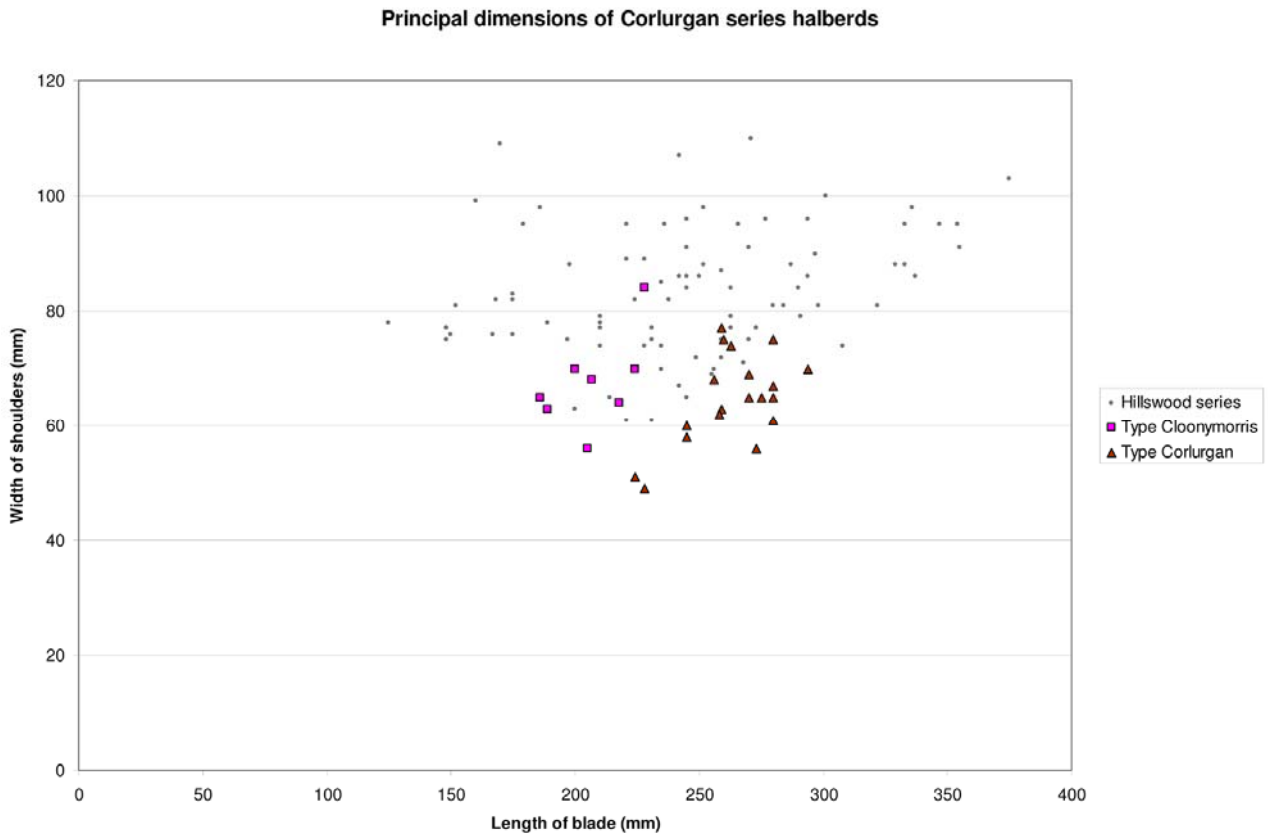

Fig. S5.
The distribution of principal dimensions for the Corlurgan Series of halberds; the Hillswood series is represented as small grey dots for comparison

Type Corlurgan (Cat. Nos 126–44)

Nineteen weapons with the same hafting-plate features are distinguished by having more slender proportions and, usually, longer blades. On the plot of principal dimensions they overlap only one edge of the Lough Gur distribution (Fig. S5). The blade is now straight or has just a hint of curvature. Despite the reduced size of the hafting-plate, it usually contains medium to large rivet holes; where rivets survive they can display impressively large heads. In contrast to the norm, two examples have very slender rivet holes (Harbison 1969b, nos 163 & 211), potentially having been influenced by late halberds such as Type Breaghwy; alternatively, these were just pilot holes prior to finishing the object. Blade lengths are between 224 mm and 294 mm, while width range is very similar to Type Cloonymorris, 50–77mm (Fig. S5).

Contexts: One Corlurgan halberd occurs in association with three flat axes and a rivet-butt knife at Frankford, Co. Offaly, suggesting a very late Chalcolithic date (see Appendix S4). One analysed example, from Lough Ree, has been shown to be of bronze, suggesting continuation of the type across the metallurgical transition, but most have proved to be of copper. The halberd from a possible association at Faversham, Kent, resembles type Corlurgan in having large rivet holes set within a modestly arched hafting-plate with high-placed shoulders. However, although possibly influenced by Type Corlurgan, it lacks any significant skewing of the rivet set and, furthermore, its principal dimensions fall well outside the range of the Irish type.

Clonard series *(Types Clonard, Ballygawley and Derrinsallagh)*

Clonard series weapons have a very distinctive hafting-plate and rivet formation that sets them totally apart from the mainstream of Irish halberds. This was partially recognised by Ó Ríordáin (1937) in defining the short examples as types 1 & 2, while Harbison (1969b, 45) added some longer weapons; the current series definition augments the number of examples further. The hafting-plate is sub-rectangular to sub-trapezoidal and usually projects from marked steps above the shoulders, although occasionally the indent is rather slight. The standard rivet formation is a rectangle or trapezoid echoing hafting-plate shape, but a few examples have an additional fifth or even sixth rivet that may not always be due to replacements. One halberd (Castlecomer; Cat. No. 20) has only three rivets and may be a foreign intruder. There is a wide range of blade lengths, 98–325 mm, with a bimodal distribution – none currently fall between 131 mm and 174 mm – and this suggests the existence of discrete sub-populations having a different chronology or social significance (Fig. S6). Blade widths, on the other hand, occupy a much tighter range than is the case for the Hillswood series, 76–103 mm. Even so, amongst the longer weapons there may be an important differentiation between widths below and above 90 mm.

Blade tips are often relatively broad and lingulate, but this is not universal and even short weapons can have more acutely tapered tips similar to those typical of other series. Likewise, some degree of blade curvature is normal, even for short blades.

Type Clonard (Clonard series, squat; Cat. Nos 1–8)

Eight halberds belong to the short size group (length ≤ 183 mm, blade length ≤131 mm), one being a relatively new find from Hillquarter, Co. Westmeath (Cat. No. 5, Fig. S7 g). The blade end varies to a surprising degree, between sub-triangular and broad lingulate. There is similar variation in the cross-sectional features – the width of the midrib and the presence and position of furrows or grooves. There was evidently no strong conformity to a single ideal model (Fig. S7 b-i).

Contexts: None.

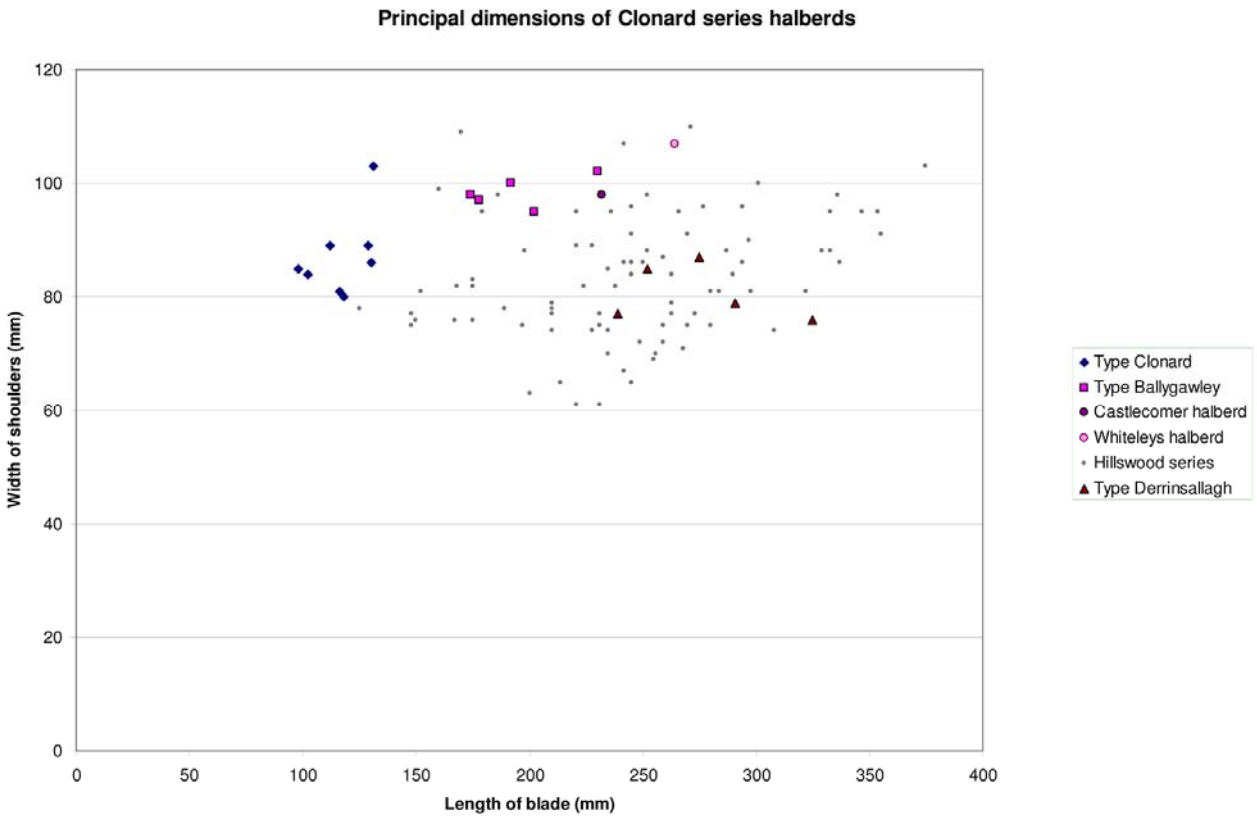

Fig. S6.
The distribution of principal dimensions for the Clonard Series of halberds; the Hillswood series is represented as small grey dots for comparison

Type Ballygawley (Clonard series, medium; Cat. Nos 9–13)
Five halberds of medium length (blade length 174–230 mm, length 223–308 mm) are grouped together as Type Ballygawley after the only example to have a provenance – Ballygawley, Co. Tyrone (Harbison 1969b, no. 145). The hafting arrangement on this example is complicated by reworking. In its latest form it has a classic three-rivet arrangement that might allow it to be seen as an unusually broad version of Type Lough Gur. However, the extant rivets are evidently the second of at least two phases of hafting – two further complete holes perforate the hafting-plate and its butt has three additional notches; the central notch may not be contemporary with the other two since these and the two lower holes have all been compressed into an oval shape due to longitudinal contraction of the hafting-plate. The earlier, more rectangular rivet formation, in conjunction with general dimensions and slightly stepped shoulders, place it within the Clonard series and alongside four others of medium length.

Contexts: None.

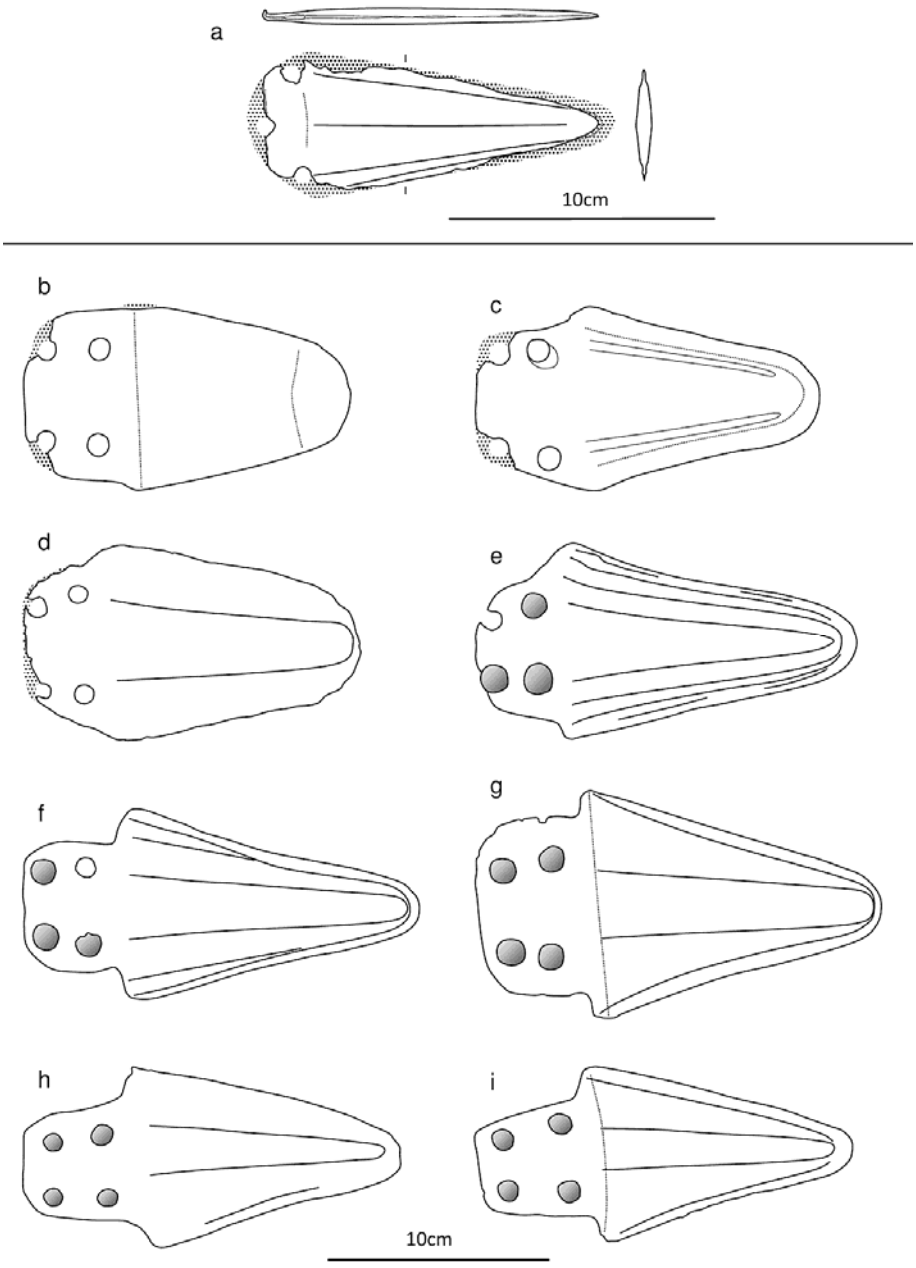

Fig. 7.
a) Individual squat halberd from Whitespots, Co. Down; b) – i) Type Clonard halberds: b) – d) no provenance (Harbsion 1969b, nos 287, 283, 285); e) near Clonard, Co. Meath; f) Tullyvallen, Co. Armagh; g) Hillquarter, Co. Westmeath; h) no provenance (Harbison 1969b no. 284); i) Derrycassan, Co. Cavan; scale: a) 40%, rest 33%; drawings: Stuart Needham based on Harbison 1969b and personal observation; reconstructed parts are shown in tone

Type Derrinsallagh (Clonard series, slender; Cat. Nos 14–19)

This type, represented by six examples, initially became apparent due to having not only longer, but also narrower blades, producing more gracile proportions than Ballygawley weapons. However, there are other differentiating characteristics. Despite their length, the hafting-plates tend to be shallower (i.e. axially) than on most other Clonard series weapons. This shallowness, however, was possibly compensated for in terms of security of hafting by the provision of extra rivets; all but one of the type has evidence for more than four rivets, though it cannot be certain in every case that some were not secondary additions. Holes and notches on three halberds (Cat. Nos 14, 16 & 17; Harbison 1969b, nos 272, 273, 290) suggest an arrangement of five rivets, the fifth being

placed in between the upper two of the classic rectangular set. One (Cat. No. 18) probably had six rivets (the lower hole on one side has totally broken away, but five others are in evidence) and another (Cat. No. 15) may have had as many as nine – in addition to the obvious six, there is a neat notch in the centre of the butt and a possible quarter-circuit notch to one side; the other side is missing. This last formation is perhaps the most likely to have been the product of re-hafting, especially since some extant rivet holes are smaller than others. Nevertheless, it would seem that adherence to the traditional four-rivet formation was being broken in order to provide better fixing and/or a more elaborate look to the hafted weapon.

The only provenanced example, that from Derrinsallagh, Co. Laoighis (Cat. No. 14), has a surface that is totally corrosion stripped and this will have reduced the outline so that it appears to be even more slender than originally.

Contexts: The eponymous example is from a possible association (undocumented; Appendix S4) with a flat axe and a second halberd probably of Type Lough Gur.

Ungrouped, ?Clonard series (Cat. No. 20)
Unusually for a rectangular hafting-plate the weapon from Castlecomer, Co. Kilkenny, only has three rivets in a triangular formation (Harbsion 1969b, no. 147). This is an exceptional conjunction for Ireland and occasional examples can be found on the Continent (the nearest from Armentières, Nord, France – Gallay 1981, no. 505). Metal analysis shows it to have a composition which is also unfamiliar amongst early Irish metalwork and this halberd can probably be dismissed from all insular series. The halberd from Whiteleys, Dumfries & Galloway, is more confidently regarded as an ungrouped Clonard series weapon (see below).

Contexts: None.

Breaghwy series *(proto-Breaghwy halberds, Types Kilcolagh and Breaghwy)*
Seventeen Irish halberds are distinguished in having slender rivets and hafting-plate shapes which differ from all the other series. Rivet numbers vary, from three upwards, and even when there are three or four, they are not in the formation seen to be typical of Hillswood/Corlurgan and Clonard series respectively. Hafting-plates tend to be shallow, either low-arched or very obtusely sub-triangular, and these shapes are reflected in the rivet arrangement; occasional deeper hafting-plates are sub-triangular as well. Blade lengths range between 160 mm and 287 mm, widths between 81 mm and 127 mm (Fig. S8). Blades are broad relative to length and only rarely exhibit more than slight curvature. Midribs too are generally quite broad.

In contrast to the other series defined, Breaghwy Series halberds show a reasonable correlation between blade length and breadth throughout the whole series; thus, whatever their size, the Lb/W ratio falls between 0.37 and 0.50. Although their numbers are modest, there are grounds for dividing them into two groups, partly on the basis of size. This proves to separate for the most part those made of copper from those of bronze. Most of the smaller-size group have not been given a type designation because they are rather eclectic in their features, although two very similar examples within it have been treated as a type (Type Kilcolagh). The larger-size group is more homogeneous, though still not entirely so, and takes in the most familiar weapons of the formerly defined Type Breaghwy (Harbison 1969b, 46). The Moylough blade included by Harbison is now believed to be a dagger (his no. 303). Note that a reworked blade from Kanturk (see *Miscellaneous* below) might also have belonged to the Breaghwy series.

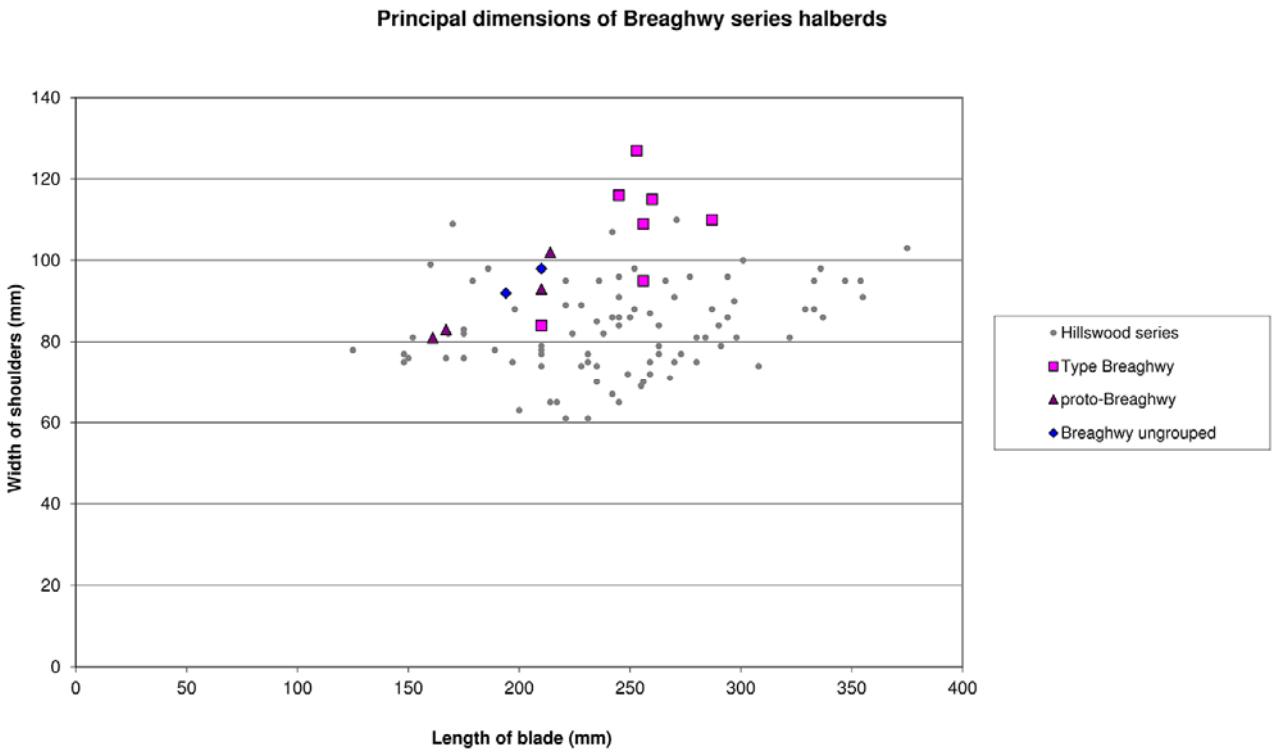

Fig. S8
The distribution of principal dimensions for the Breaghwy Series of halberds; the Hillswood series is represented as small grey dots for comparison

Proto-Breaghwy halberds, including Type Kilcolagh (Cat. Nos 146–9)
As already noted, the smaller-size weapons (blade length <215 mm; length <265 mm) are rather diverse in their attributes and hence cannot be regarded as a 'type'; only one has been attributed to Type Breaghwy (see below). Nevertheless, there are sufficient features to link the others together, especially given their essential differences from all other halberd types. Four halberds are grouped together under the label *proto-Breaghwy*, all of them having been shown to be of copper, and none of them particularly close in form to Type Breaghwy proper, despite linking typological threads. The copper compositions are likely to indicate a generally earlier date, hence the label chosen.

While not a homogeneous group, proto-Breaghwy halberds have slender rivets (one may have slightly thicker ones) and three have relatively shallow hafting-plates holding just three rivets, the previously dominant number. Two of the latter are so similar that they have been termed Type Kilcolagh (below). The fourth has instead a deeper hafting-plate, sub-triangular with a rounded apex, thereby accommodating more rivets, probably six (Cat. No. 147; Harbison 1969b, 172). These rivets were arranged in a unique format; four intact rivet holes in a trapezoidal formation seemingly follow the Clonard format, but in line with the lower two are two side notches which are almost certainly eroded rivet emplacements.

Contexts: None.

Type Kilcolagh
Two relatively broad-bladed halberds within the proto-Breaghwy spectrum are united in having a shallow triangle (or arc) of three slender rivet holes set within a shallow arched hafting-plate separated from the blade by subtly stepped shoulders. One has a midrib broader than the other,

but they are also comparable in their broad, convexly tapering blades, a highly unusual shape. These are also the two smallest of the proto-Breaghwy group (Fig. S8).

Contexts: None.

Type Breaghwy (Cat. Nos 12–162)

Ten or eleven weapons, all but one with blades longer than 230mm, define Type Breaghwy (Fig. S8). Butt lines are either low-arched or modestly arched. Three or four slender rivets closely following the butt line seem to be characteristic of the type, but the example from Rathlin Island, Co. Antrim (Cat. No. 160; Harbison 1969b, no. 298), has evidence for seven and may even have had nine in a gently cusping line. Blades are either straight or very slightly curved. At least four have keeled midribs (Cat. No. 152–5; *ibid*., nos 295, 297, 301, 305) and another (Cat. No. 156; *ibid*., no. 294) instead carries a medial groove down the midrib. The blade wings of Cat. No. 158 (no provenance) carry edge furrows. Of eight analysed examples, seven are of bronze, one of copper.

Contexts: One Type Breaghwy halberd was associated with a hoard at Killaha East, Co. Kerry, datable to the earliest bronzeworking phase (Killaha).

Ungrouped Breaghwy Series halberds (Cat. Nos 150–1)

Two further halberds have been shown to be of bronze and also resemble Type Breaghwy more closely than do the proto-Breaghwy weapons. Nevertheless, particular features distinguish them from the classic type. The distinguishing features of the halberd from Kells are a broad flat-topped midrib flanked by pronounced, detached ribs running along each blade wing (incorrectly represented in Harbison 1969b, pl. 23 no. 300) and a higher arched butt accommodating five rivets. The latter feature might relate it to the proto-Breaghwy example without provenance (Cat. No. 147; *ibid*., no. 172), while the ribs are echoed on the Whiteleys and Ford halberds in Britain. The halberd from Ardlagheen More or Highlake (Cat. No. 150; *ibid*., no. 308) has a narrower midrib and a blade that curves strongly, particularly towards its tip. In this case the latter feature seems to relate it to Type Corrib halberds, which are likely to be contemporary. Overall it has much similarity to the proto-Breaghwy halberd from Tullamore (Cat. No. 146; *ibid*., no. 161), although the latter appears to have a more lobate butt line and thicker rivets.

Contexts: None.

Miscellaneous Irish halberds

Miscellaneous squat halberds

Two squat halberds have been left out of any defined type or series. The Whitespots example (Cat. No. 167; Fig. S7a), considered by Harbison to be a dagger (1969b, no. 116), has a wholly atypical thickened-blade section for Chalcolithic daggers and its identification as a halberd is also supported by the skewing of the rivet format to the blade's axis (by about 7°). Even so, the particular section, a very broad lozenge mid-blade bordered by furrows and an edge bevel, is difficult to parallel exactly amongst insular halberds. Nevertheless, keeled midribs do occur on varied types of Irish halberd. An unprovenanced halberd in Gallay's corpus (Gallay 1981, no. 503) has a moderately broad keeled midrib and is, moreover, a small weapon about 165 mm long. The larger blade from Etigny is depicted with the same midrib form (*ibid*., no. 502). The hafting-plate of the Whitespots implement is burred towards either side of the central notch; if that notch had originally been a full hole, then the original butt had broken off and its length could have been over 140 mm (allowing for a little loss at the tip as well).

An unprovenanced halberd (Cat. No. 168; Harbison 1969b, no. 186) has a more conventional broad midrib, rounded with flat blade wings to either side. However, it also has an extremely stubby sub-triangular blade; total length would originally have been a little over 120 mm.

Contexts: The Whitespots example is from a hoard also containing a flat tanged dagger and a flat axe (Appendix S4).

Type Eweford

A single unprovenanced Irish halberd (Cat. No. 163; Harbison 1969b, no. 311) can be linked closely to two from Scotland and is discussed below.

Contexts: None.

Type Corrib (Cat. Nos 164–6)

Harbison's corpus included two extraordinary looking halberds which he put in his 'miscellaneous' group (Harbison 1969b, nos 309 & 310). They are characterised by extremely splayed hafting-plates and a blade that curves particularly strongly towards the tip. Their position on the plot of principal dimensions is well adrift from all other insular halberds (Fig. 32). Both have a provenance (one only to county), but nevertheless their form seemed utterly out of character with the great preponderance of Irish and, indeed, north-west European halberds. They could easily have been viewed as antiquarian or modern introductions that had been given an Irish provenance (Harbison himself did not venture an opinion: *ibid.*, 47). However, the recent discovery of a further example from the River Corrib, just north of Galway city (Mary Cahill, pers. comm.) suggests they are a genuine element of the Irish halberd spectrum. The new find has the pair of large midrib-flanking rivet holes seen on that from Rockforest (*ibid.*, no. 310), and it also bears a line of three much smaller holes close to the butt (two becoming notches), again seemingly paralleled by two notches on the Rockforest example. The only significant difference is that the River Corrib halberd has a plain midrib, whereas Rockforest has a triple-moulded midrib. The third example, from near Cavan (*ibid.*, no. 309), has no rivet emplacements and may not have been finished for hafting; it shares the simple midrib of the River Corrib example.

The only other halberds in Europe with similarly exaggerated butt expansion occur in the Argaric culture of south-east Spain (Brandherm 2003, 384–6, pl. 162). There are no intermediate finds and the styles of the respective groups are quite dissimilar, so it is perhaps most likely that these two groups result from independent evolutionary trajectories, both having the common objective of obtaining more stability against rotational forces acting on the metal blade.

Contexts: None.

Type Gambara (Cat. No. 169)

One halberd of the Italian Gambara type was published by Harbison (1969b, no. 312; following Kemble 1863) as an Irish piece, though without provenance. It is an unregistered object in the collections of the British Museum and is presumably from one of the very early collections, prior to systematic registration. Intriguingly, the museum's collections contain a second halberd of the same type likewise unregistered. It seems most likely that these are both antiquarian pieces brought back from The Grand Tour.

Contexts: None.

Kanturk halberd (Cat. No. 170)

One unclassified halberd merits some comment (Harbison 1969b, no. 316 – not illustrated). In its current form it passes as an intact halberd head with a neat butt and three rivet holes. However, the hafting-plate is very shallow and only the central rivet lies within it, the lower two lying well into the top of the blade, flanking the top of the midrib. This is not a hafting arrangement matched by any other extant Irish halberd and the rather spatulate butt form strongly suggests reworking, although it is not clear when this took place. The whole of the surface has probably been stripped down by vigorous cleaning, but this has still left in place the bases of deep corrosion pits, especially along the midrib. The midrib is currently rather flattened, potentially through later modification, and is moderately broad. The extant proportions of the blade are also fairly broad and, assuming it had originally been somewhat longer at the haft end, they would sit comfortably within the Breaghwy series. This is in good accord with its composition which has been shown to be bronze.

Unclassified halberds (Cat. Nos 171–82)

Unclassified halberds are either fragments that cannot be reconstructed even when carefully studied, or ones which have not been seen by the author and have not been illustrated in publications.

Classification of British halberds

British halberds are catalogued in Appendix S2, while Figure 23 c–i shows classic examples of the main types defined.

Ó Ríordáin's rather generic pan-European classification scheme for wooden hafted halberds made it appear that British halberds had much in common with the 'more developed' of the Irish types (his types 4–6; Ó Ríordáin 1937, 311–3). Coles (1968–9, 40) seemed happy to accept most as of Irish type, even if some might have been produced locally, as had previously been suggested by Britton (1963, 284). Subsequently and gradually, however, it came to be recognised that British halberds represent a very different morphological spectrum from those of Ireland (e.g. Burgess 1980, 75; Rohl & Needham 1998, 86), but their largely insular character has never previously been adequately defined. The range of proportions, as mapped by blade length against shoulder width, is less extensive than for the Irish corpus (Fig. 32), but there is still some important variation in this respect. The majority of halberds form a cluster with moderately broad blade proportions, but these are rarely short and thus there are very few with the squatness of Irish Types Clonard and Roscrea.

Another major difference between the two insular series is the near absence of any significant blade curvature on British weapons, excluding the obvious Irish imports. British blades are marginally curved at most and asymmetry is manifested in other ways, such as unequal blade wings and rivet formations that are offset and/or angled relative to the main axis defined by the midrib. One exception to this general rule is found in Type Eweford, which has more obvious curvature, but is only represented by two finds (plus a third from Ireland). A final general difference worth mentioning lies in rivet numbers; for Ireland three-rivet arrangements are by far in the majority (excluding non-Irish types and Type Corrib: 84% three-rivet, 16% four- or more rivet), while in Britain they only slightly outnumber four-rivet arrangements. In fact, amongst British-specific types, four-rivet halberds are in the majority (55% four-rivet, 24% three-rivet, 21% five- or more rivet). Moreover, few of these have the four-rivet arrangement that characterises Irish Clonard series weapons.

Irish types of halberd (Cat. Nos 1–9)

The Irish types represented in Britain are defined and mainly discussed above, but special mention should be made of the four-rivet halberd from *Whiteleys*, Dumfries & Galloway. It obviously does not fit into any British type, its hafting-plate and rivet formation instead recalling Clonard Series weapons. Nevertheless, its blade tapers concavely to a rather slender lower end uncharacteristic of that series and this cannot be the result of excessive whetting given the parallel line of the blade mouldings. These blade features are themselves unusual – a flat-topped midrib flanked each side by a groove and then a rib before the narrow blade wing, furrow and edge-bevel. To some extent, however, this sectional form does fit in with the Clonard idiom, since blade sections in that series are far more variable than on other halberd types and sometimes complex (see above). Whiteleys can be attributed to the Clonard Series, but is left ungrouped because of differences from both of the longer types, Types Ballygawley and Derrinsallagh. Another potential stylistic link, however, is with the Westfield Farm halberd discussed below for it shares the splayed upper blade and blade-wing ribs seen in that piece and its Continental congeners.

Continental-related three-rivet halberds (Cat. Nos 10–13)

The various halberd series of western and northern continental Europe are dominated by three-rivet attachment to their hafts. Setting aside those weapons for which the rivet emplacements were notches from the start, butt lines are predominantly within a spectrum ranging from arched to sub-triangular to triangular. Even in the small minority of cases where there is obvious curvature of the blade, other aspects of form clearly differentiate the weapons from Irish and British three-rivet types. These Continental halberds offer the best comparisons for four British finds, none of which can be readily accommodated in the types defined below.

In terms of the defined insular types, the halberd from Sancton, East Yorkshire, with its moderately arched butt would have to be treated as a three-rivet variant of Type Sluie (cf Tonfannau halberd 2), but it is longer than most of that type and bears comparison with the form of Continental examples such as Alderney no. 2, Channel Isles, Roermond, Netherlands, and Pederstrup, Denmark (O'Connor *et al*. 2010; Butler 1963, 17–8 fig. 2; Vandkilde 1996, 198 fig. 193, nos 579, 457). The halberd from Faversham, Kent, is not dissimilar, although the rivet holes are larger (possibly enlarged due to corrosion); it has probably suffered significant edge loss and its proportions may not have differed much from the Sancton halberd. It could, for example, have been very similar to that in the Dieskau 2 hoard (Wüstemann 1995, no. 137). This latter weapon with its straight-sided midrib has often been regarded as looking rather western in style; indeed, in the past some researchers have viewed it as an Irish import (e.g. Butler 1963). However, finer analysis suggests it is instead part of a wider family that is not really insular and is better represented on the Continent. Other three-rivet, arched-butt halberds of similar proportions occur in France, for example, at Lanfains, Brittany, Saumur, in the Loire valley, and Sost-en-Barousse in the Pyrenean foothills (Gallay 1981, nos 518, 519, 510).

The remaining two British halberds with Continental affinities may both have had more triangular butts. The relatively squat example from Glaney Wood, Powys (unfortunately now lost) has several potential parallels fairly widespread across Europe (Fig. 31 b, d, e, & g). Of an overall length of 235 mm, the blade takes up about 183 mm (Ó Ríordáin 1937, fig. 57.1); its midrib is shown as being medium-broad (*c*. 32 mm). This set of features may be paralleled, for example, in the halberds from Saint-Denis-en-Val, Loiret, and Mainz, Rheinland-Pfalz (Despriée 1983, 259 fig. 11; Gebers 1978, Tf 75.3), and in slightly larger blades from Ferrières-Haut-Clocher (uncertain provenance), Eure, Obhausen, Sachsen-Anhalt, and Polepy, Bohemia (Gallay 1981, no. 515; Wüstemann 1995, no. 176; Novák 2011, no. 559). The halberd from Maryport, Cumbria, has seen some damage and reworking of the hafting-plate and it is possible that the central rivet has been

replaced. The current flattened apex (the degree to which it is trapezoidal has been exaggerated in Ó Ríordáin's illustration – 1937, fig. 56.1) has slight burring indicating that it was previously a little more rounded here, perhaps giving a sub-triangular shape overall.

All four halberds discussed here fit best into this Continental style repertoire and some may be actual imports, but the possibility of a shared cross-sea tradition incorporating parts of Britain should not be ruled out.

Contexts: The Faversham halberd is uncertainly associated with a tanged copper dagger of a type datable to late in the Chalcolithic (Needham 2012).

A number of halberds of this *Continental 3-rivet series* occur in hoard or grave contexts, especially in the Aunjetitz zone, where they belong to various phases of the Aunjetitz culture (*c.* 2200–1600 BC). The above-cited example from Dieskau 2, Sachsen-Anhalt (Wüstemann 1995, no. 137), comes from a large hoard including several halberds; most are of the more explicitly Saxon three-rivet type with splayed midribs and two are metal-socketed halberds of the *Sächsischen* type with rounded butt projections (*ibid.,* nos 97–8); also in the hoard is a British-Irish decorated flat axe (Butler 1963, pl. Ib; O'Connor 2010). The traditional dating of this hoard is to the classical Aunjetitz phase, Reinecke A2, after about 1950 BC (Wüstemann 1995, 87), which would be 200 or more years later than the dating of Faversham if genuinely associated with the dagger (Needham 2012). The British-Irish axe is of Sub-class 4C and best dated to *c.* 2000–1900 BC (Needham *et al*. forthcoming, appx 2). The above-cited parallel from a grave at Obhausen, Merseburg-Querfurt, is considered to be the earliest datable halberd of this type in the Aunjetitz zone, dated by its associated ceramic vessel to Reinecke A1 (Brandherm 2004, 302; Horn 2014, 41, 131). When in such contexts therefore, these Aunjetitz halberds are coeval only with the tail end of insular halberd use.

However, the more dispersed examples to the west and north may start earlier. The fairly recently found hoard from Hofkirchen-Unterschöllnach, near Passau on the Austrian border is dated by Horn to the transition between the Bell Beaker phase and Reinecke A1, while the stele with a halberd representation (not necessarily of this type) from Tübingen-Weilheim is believed to be even earlier (Horn 2014, 136–8). Other hoards to the west of the Aunjetitz zone lack any critical dating evidence. For example, four in a hoard from Epone, Seine-et-Oise (now lost) are apparently all similar to one another except that one may have a trilobate butt (Gallay 1981, nos 511–14). The evidence gives scope for a phase of three-rivet halberd use in western Germany and France towards the end of the 3rd millennium and prior to their much more regular deposition in datable contexts in the Aunjetitz zone after about 1950 BC.

Halberds with deep hafting-plates and three rivets (Cat. Nos 14–15)

Two halberds have three rivets set within an unusually deep, arching hafting-plate. No type name has been assigned because neither is securely provenanced and one may not be from Britain, the 'possibly River Thames' origin being an assumption (Ó Ríordáin 1937, 274 fig. 56.5). There are stronger grounds for regarding the second as a British find, for it bears a partial pencil inscription suggesting it is a missing piece from the Baile-nan-Coille hoard, Highland (Coles 1968–9, 38 fig. 32.4). The two are similar in their overall proportions, but the Thames example has a narrower midrib than that attributed to the Scottish hoard. It also has unusually wide edge bevels for insular halberds. The two have almost identical blade dimensions (Lb <200 mm) and these lie at the lower limit for specifically British types of halberds (Fig. S9).

A few continental pieces are similar in both their deep three-riveted hafting-plates and their fairly slender blade proportions. There are examples from Duisburg, near Düsseldorf, and Bacharach, near Coblenz, in western Germany (Ó Ríordáin 1937, fig. 63.17 & 23), as well as a single

Iberian piece from Beluso, La Coruña, in the far north-west of Spain (Brandherm 2003, no. 1390). Also from Spain – possibly Valdepeñas, Ciudad Real – is a similar weapon but with four rivets (Brandherm 2003, no. 1384). The only French halberd with this distinctive deep, three-riveted hafting-plate is the squat example from Eysines (Fig. 25k; Gallay 1981, no. 495), which looks rather different overall.

Contexts: If one is indeed from the Baile-nan-Coille hoard, then it was associated with a Type Auchingoul halberd and an unclassified fragment. None have been analysed, but the Auchingoul weapon would suggest a late date for deposition, around the metallurgical transition or just after.

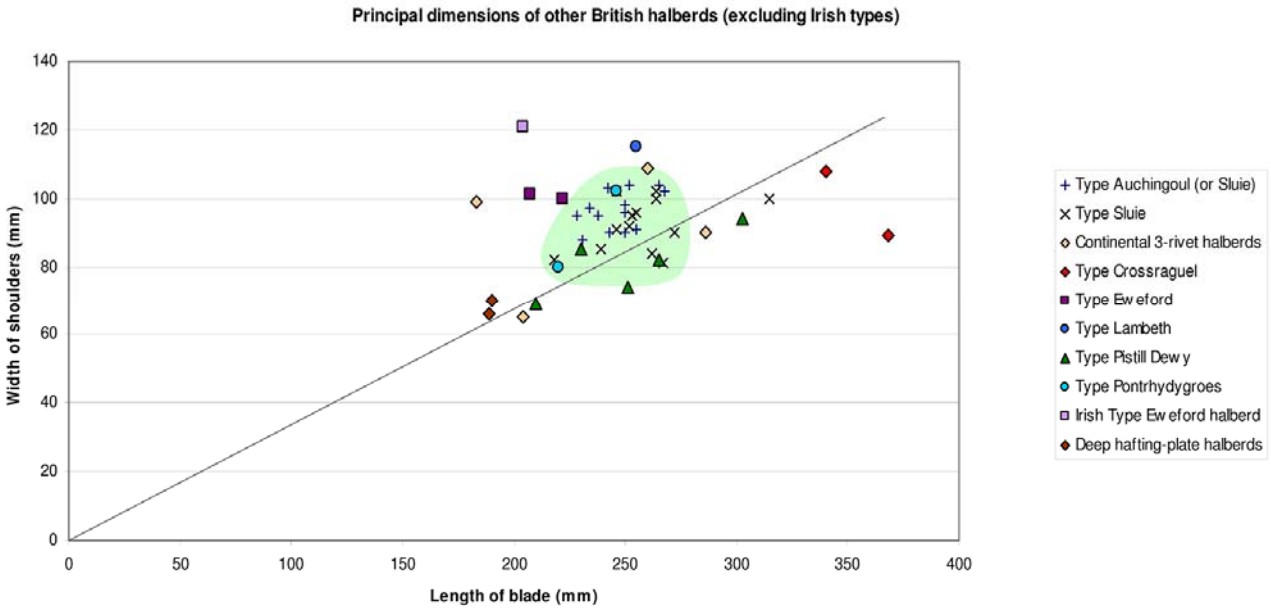

Fig. S9.
The distribution of principal dimensions for the British halberds; the toned area is the combined distribution range for types Sluie and Auchingoul; the diagonal line separates those with the most slender proportions (below the line)

Type Pistill Dewy (Cat. Nos 17–21) and related Continental Type Etigny

Four or five British halberds are characterised by four rivets set within and respecting the shape of a trapezoidal hafting-plate; where condition is good, there are indications that the sides of the trapeze were gently concave. Midribs are moderately broad and plain with the exception of the example from Hundleton, where it is a little narrower and carries the central beading most frequently encountered on Type Sluie. Depending on the amount of loss around its edges, the Backside of Aldie halberd 1 may also belong to Type Pistill Dewy; it certainly seems to have had a trapezoidal rivet formation and the piece is not readily grouped elsewhere. Pistill Dewy halberd blades vary in length between 210 mm and 310 mm and shoulder width follows fairly well in proportion giving a fairly slender central W/Lb value of 0.32 (Fig. S9). This is amongst the most slender of distinctively British halberds.

Although Pistill Dewy halberds have four rivets in trapezoidal arrangement, they are not particularly similar in overall form to any Irish Clonard series weapons. Closer relatives for this hafting-plate/rivet arrangement combined with blade form may be found amongst the French corpus (Gallay 1981, nos 498, 499, 501, 502, 504); these might be termed *Type Etigny*. The five examples there are more varied in morphology than the British set and none of them need be regarded as a British export, or *vice versa*, but it remains likely that there was some kind of stylistic

influence in one direction or the other. A probable four-rivet halberd from Wicheln, Antwerp, Belgium, although badly damaged at the butt (Butler 1963, pl. 1a), seems to be close in form to some of the French Etigny weapons. Likewise, a single Iberian four-rivet halberd also resembles some of the French ones and may be an export from France. It is believed to be from Vélez Blanco, Almería, in the extreme south-east of Spain, and also part of a hoard including a tanged dagger, flat axe, and two Palmela points (Brandherm 2003, nos 147 & 1385, Tf 185B). Another outlying halberd resembling Type Etigny comes from Foiano della Chiana, Tuscany (Bianco Peroni 1994, no. 132), the region of early halberds in Rinaldone contexts.

Contexts: Only the possible Type Pistill Dewy halberd from Backside of Aldie, Fife, is from a hoard and the only associated object is an unclassified halberd fragment. This fragment is, however, of interest in being of 'Bell Beaker' metal.

Type Lambeth (Cat. Nos 22–4)

Two halberds – one from the Thames at County Hall, Lambeth, the other an incomplete example from Shotton, Flintshire – have been grouped together because they have unusual sinuous-arched butts framing a more standard three-rivet formation. The concave curves on the sides of the butt give the shoulders a rather pronounced look. Nevertheless, there are some differences between the two halberds. The Shotton example, even though its edges are probably corrosion blunted, seems to be narrower than that from Lambeth. It also carries the distinctive beaded midrib that is most frequent on Type Sluie. The Lambeth halberd has unusually broad shoulders, a detail that puts it a little adrift from the main British cluster on the principal dimensions plot (Fig. S9).

A third halberd, Castell Coch no. 1, needs to be mentioned since it is possible that the reworking of the butt into a sinuous form and its provision with three new rivet holes were a conscious imitation of Type Lambeth; certainty is difficult because that butt shape might have arisen independently if one or both of the original butt corners had broken across the two hypothesised outer rivet holes. If, however, it was an imitation, the positions of the two replacement lower rivet holes were unusually low and recall instead the low-set pair characteristic of Type Eweford (below).

There is in fact a hint of sinuosity on the better preserved halberd of Type Pontrhydygroes, and it may be significant that this is another three-rivet type; Lambeth and Pontrhydygroes may therefore be two ends of a spectrum that is, as yet, very thinly represented. Looking more widely there is a stylistic resemblance amongst the halberds of Iberian Types Carrapatas and Baútas which exhibit a variety of sinuous-arched and tongue-like hafting plates enclosing three rivets. Occasional examples of this stylistic suite also occur in France (Gallay 1981, nos 494, 505, 514), a more recent find from the Loire at Avoine being very similar to Iberian models (Cordier 2009). Only the Armentières example (Gallay 1981, no. 505) shows the pronounced shoulders of the British Type Lambeth halberds and it differs in having a sub-rectangular hafting-plate. It may be unwise on current evidence to regard the sinuous-arched hafting-plate as anything more than a generic undercurrent running through the wider pool of Atlantic halberd features.

Contexts: The only association is for the reworked phase of the Castell Coch 1 halberd, if this is genuinely related to Type Lambeth, dating to very late in the Chalcolithic.

Type Pontrhydygroes (Cat. Nos 25–6)

This type is based on just two halberds from Wales. They each have three rivets set in a shallow triangle and aligned at a marked angle to the perpendicular (*c*. 6° and 10°); they also share a very unusual feature for Britain – a midrib that splays markedly towards the top. The upper part of the

midrib on the Pontrhydygroes halberd is keeled. Much of its blade edges have been lost, especially perhaps in the upper part running up to the shoulders; the more intact shoulder projection retains a furrow and an edge bevel, but these features appear to have been lost for the rest of the blade through breakage, corrosion and possibly also later cleaning. The Carn-y-bont halberd is badly damaged all round the butt, but it is likely that it had a modestly arched butt line similar to the Pontrhydygroes example; an edge feature is intermittently present, but the ragged edges suggest a certain amount of corrosion chipping. The two halberds have dimensions and proportions falling within the main British cluster (Fig. S9).

The particular characteristics of these two halberds do not seem to be well matched anywhere and they are probably a local fusion of features based on the common three-rivet with arched-butt template. The strong angling of the rivet formations is best paralleled amongst the Irish Corlurgan series. In contrast, the most obvious parallel for strongly expanding midribs is amongst the north European halberds, where the feature is extremely frequent (e.g. Wüstemann 1995), but these may not have been early enough to have influenced copper halberds in Britain. An isolated example with this kind of extreme midrib expansion is from a much nearer location – Armentières, Nord, France (Gallay 1981, no. 505) – but this has a different butt shape.

Contexts: None.

Type Crossraguel (Cat. Nos 27–9)

Two or three halberds are united by having long, straight and relatively slender blades with broad midribs. The two more intact ones (Crossraguel and West Row Fen) survive to 380 mm and 375 mm respectively and do not obviously represent longer versions of any of the other types defined here. They differ from one another in having three and four rivets respectively, although these appear to have been moderately slender rivets in both cases. They also have different blade proportions, but both on the slender side of the British range (Fig. S9). Both are of copper, as is a more heavily damaged blade from the Kingarth hoard (DJ10). The latter only survives to 285 mm, but it has lost an unquantifiable amount at the tip and butt; nevertheless, it was probably not as long as the above two. Despite much corrosion loss at the edges, the fragment can still be recognised as from a relatively narrow, straight blade with a substantial midrib. The one extant hole may not be original.

Although long slender blades are a characteristic of some Irish types – notably Hill of Allen and Corlurgan – these are usually curved to some degree and midribs tend to be narrower; they also have thicker rivets. There are no closely comparable forms on the Continent and it is more likely that Type Crossraguel was an indigenous development in Britain.

Contexts: If the damaged blade in the Kingarth hoard is correctly classified to Type Crossraguel, then it indicates some contemporaneity with Type Sluie.

Type Sluie (Cat. Nos 30–42 & possibly amongst 43–8)

The most dominant style amongst British halberds is consistent in a range of features: relatively broad blades which are essentially straight, fairly broad midribs and modestly arched hafting-plates containing four rivets. The exact shape of the butt varies a little, as does the detailed disposition of the rivets. However, the trapezoidal butt shown on the Manea Fen example by Ó Ríordáin (1937, fig. 57.7) is in fact more rounded with an interruption in the butt line where one rivet hole is broken open (Fox 1923, 54-5, pl. vi, no. 10). The shoulders usually have no step above, or only the slightest indent (Manea, Kingarth 1, Tonfannau 2); the indent on one side of the Shropshire (?Wroxeter) weapon is actually a broken butt corner. Most blades have straight or

slightly concave edges. Asymmetry is sometimes present in the form of unequal blade wings and/or slight dislocation between blade and rivet-formation axial lines.

Almost half of the Type Sluie halberds (6) have the distinguishing feature of a beaded midrib; no other halberd type in Britain or Ireland has this other than occasionally. A further weapon (Kingarth 3) has a keeled (rather than rounded) midrib. All but one Type Sluie halberds form a relatively compact cluster on the principal dimensions plot (Fig. S9), but even so blade proportions (W/Lb) vary somewhat, between 0.29 and 0.42. Nine examples fall close on the plot to weapons of Type Auchingoul (including blades not differentiated between the two types), whereas the other five have more slender proportions. This proves to have a geographic basis, the latter five are from western locations in Britain (Bute, Cumbria, Gwynedd and Shropshire; Cat. Nos 31, 34, 37, 39, 41), while most of the broader-bladed versions are from the east, mainly north-east Scotland.

One halberd, from Tonfannau Quarry 2, is treated as a variant because it has only three rivets. However, it does not conform to any established three-rivet type and in all other respects, including having a beaded midrib, it conforms well to Type Sluie; indeed, it is associated with a more conventional example of the type.

Castell Coch halberd 1 in its original form (phase 1) would have been related to Type Sluie or Type Auchingoul. The current shoulder indents are reworked and the most likely reconstruction assumes that two outer rivet holes have been lost in the process (Fig. 36); this gives a rather shallow arc of rivets, more typical of Type Auchingoul than Type Sluie, while the size of the rivet holes is intermediate between the two types. An alternative reconstruction might assume that the two outermost of the extant rivet holes were initially smaller and were then enlarged for the later three-rivet formation; however, this would produce a rather deep four-rivet arc that is no easier to match on established types. Five further halberds lack critical features that allow them to be attributed specifically and empirically to Type Sluie or Type Auchingoul (Appendix S2); this includes three unfinished weapons in the Auchingoul hoard which, given an associated finished halberd of Type Auchingoul, are perhaps most likely to have been intended for the same type.

A weapon from La-Grande-Paroisse, Seine-et-Marne (Gallay 1981, no. 525), is unlike other French four-rivet halberds (Type Etigny) in having a rather shallow-arched hafting-plate; in this respect and in its blade dimensions it compares very well with British Type Sluie and may be an export to the Paris Basin, or an imitation.

Contexts: There are up to three associations for Type Sluie, discounting the probably fictitious association of the Wroxeter halberd with a Continental dirk of Wohlde type (Chitty 1928; Ó Ríordáin 1937, 200; Appendix S4). The two most secure hoards are at Tonfannau Quarry, where there are two of the type but no other objects, and Kingarth, where two or three of the type are associated with a possible Type Crossraguel weapon. Both Tonfannau halberds have a beaded midrib, while at Kingarth there is a mixture of one beaded, one keeled and one plain midrib. The association from Sluie itself, with two flat axes, is unfortunately poorly documented (Appendix S4) so it cannot be absolutely certain that the three objects came from a single context. If they did, then the bronze axes of classic Migdale type indicate deposition within the Migdale phase; the halberd is still of copper.

Type Auchingoul (Cat. Nos 49–57 & possibly amongst 43–8)

Several halberds have much in common with Type Sluie, having essentially straight broad blades with broad midribs (note also those mentioned above as belonging to one or other of Types Sluie and Auchingoul). Auchingoul halberds mainly differ in having slender rivets that are set in a shallow or moderate arc, reflecting the butt shape, and now varying in number between three and

five. Another important point is that seven analysed examples are of bronze; on the other hand, both the finished weapon and the three unfinished blades in the Auchingoul hoard are of unalloyed copper. Another difference is that the single-beaded midribs frequent on Type Sluie are absent, there being only one case of a triple-beaded midrib (Auchingoul) and one example of a keeled midrib (Assich). The Castell Coch reworked halberd (no. 1) may also be relevant, but is uncertainly classified to Types Sluie or Auchingoul in it original form (see above).

Blades firmly attributed to Type Auchingoul have a more restricted dimensional range than Type Sluie, overlapping only the broader part of that type's distribution (Fig. S10). There is also a distributional shift from Irish Type Breaghwy halberds, despite the close similarities in form (Fig. S10; Breaghwy halberds tend to be both longer and broader).

Contexts

Discounting the dubious association of the Islay halberd with a Late Bronze Age hoard, there are two or three associations for Type Auchingoul. At the type-site and New Machar the only firmly classified weapons are of the one type. At Baile-nan-Coille it is possible that one of the associated halberds was of the deep hafting-plate type. The Culloden halberd is interpreted as having two sets of rivets belonging to two hafting phases; the rivet set best matching Type Auchingoul is presumed to be later than that best matching Type Sluie.

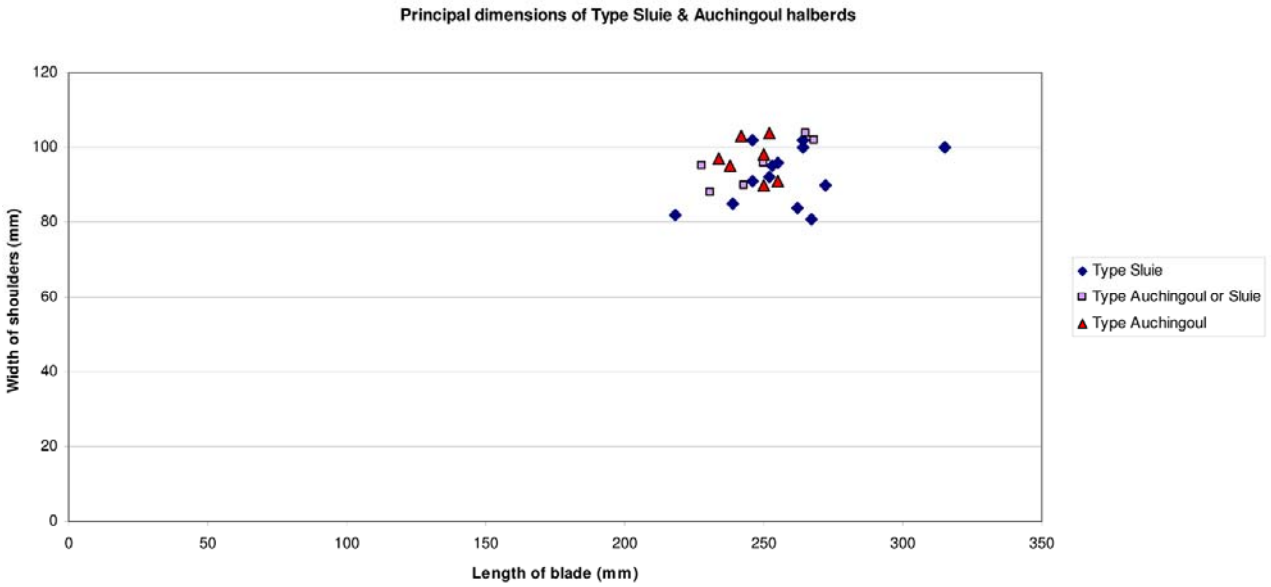

Fig. S10
Comparative distributions of the principal dimensions for Sluie and Auchingoul halberds

Type Eweford (Cat. Nos 58–9)

Two halberds from Scotland – one only attributed to 'Galloway', the other a damaged example excavated from a cairn at Eweford, East Lothian – plus a third from Ireland (unprovenanced, Harbison 1969b, no. 311) resemble one another in terms of shape and probably also in their rather unusual rivet formation. Despite the loss of part of its hafting-plate, the one chosen as the type specimen has a gently curving blade which also expands rapidly towards the hafting-plate, a plain midrib, and two intact rivet holes which are very large and positioned to either side of the head of the midrib. There is also evidence for two small rivet seatings in the fractured sides close to the extant butt and on the evidence of the unprovenanced Irish example these can be reconstructed as part of a line of, probably, four smaller rivets (Fig. S11). Only the large pair of rivet holes survives

on the Galloway halberd, its butt evidently being badly damaged. The three are also linked by being made of bronze.

All three weapons have a gently curved lower blade, convex one side, concave the other. The greater breadth of the shoulders relative to length than is typical of British halberds comes out in the principal dimensions plot (Fig. S9). The broad shoulder expansion and the midrib-flanking rivet pair are both features found also on Type Corrib halberds (the former feature being much more extreme in that type). Type Corrib halberds are also of bronze (two of three analysed).

Contexts: No. datable associations are known for this type, but the eponymous example was excavated from the body of a cairn in a context lacking any human remains.

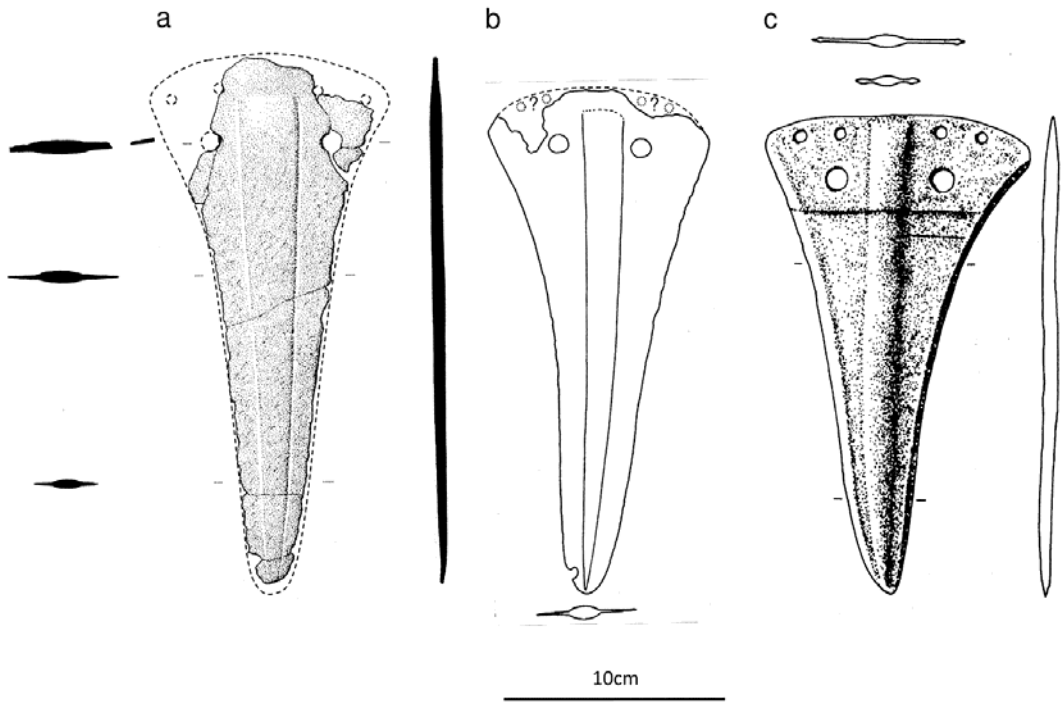

Fig. S11
Reconstruction of the Eweford halberd alongside its parallels: a) Eweford, East Lothian; b) 'Galloway'; c) No. provenance ('Ireland'); scale 33%; drawings: a) Lelong & MacGregor 2007 with added reconstruction lines; b) Coles 1968–9; c) Harbison 1969b

Individual halberds (Cat. Nos 16 & 60–3)

The three-rivet halberd from *Falkland*, Fife, has not been grouped with Pontrhydygroes, Lambeth or Continentally-related weapons (Fig. S12; Ó Ríordáin 1937, fig 55.2). Despite surface loss and outline reduction, it nevertheless started as a rather small halberd (Fig. 25a). The butt would have been shallow arched, the blade edges were almost certainly concave and the midrib was straight and somewhat flattened in section. Attention has been drawn in the main text to a close parallel believed to be from the Beaune region of eastern France (Fig. 25c). Other small Continental halberds, such as that from Euffigneix, Haute-Marne (Fig. 25g), have some comparable features. The Falkland halberd has also been recognised not to be very different from one end of the Type Roscrea form spectrum and this is pertinent in that it is made of A-metal, presumably therefore of Irish origin.

Fig. S12.
Halberd from Falkland, Fife; object in the Ashmolean Museum (photo: Stuart Needham)

An unprovenanced halberd in the *Hunterian Museum*, Glasgow, looks, from Ó Ríordáin's illustration, rather alien to the insular repertoire, although it is possible the butt has been broken off leaving just two small rivet holes intact. The midrib seems to be defined either side with a beaded moulding. Given the possibility that this is an antiquarian import, little more need be said about its stylistic relationships.

The three remaining halberds to be covered here all have five rivets, but are not a homogeneous group. A lost halberd from the Lomonds, near *Strathmiglo*, Fife, appears to have had five rivet holes of the same size set within a sub-triangular butt line. This is a weapon of modest length (265 mm) and parallels are difficult to find anywhere. The Somme Valley example, probably originally with five rivets, is rather smaller (195 mm; Gallay 1981, no. 527). In contrast, halberd 1 from the Alderney hoard and the very similar one from Bruck an der Leitha, Austria (Gallay 1981, no. 524; Ó Ríordáin 1937, 287 fig. 66) are rather larger (357 mm; 528 mm). In fact, both of these have two intermediate rivet holes that are a little smaller in diameter, raising the possibility that these holes were later additions and that the halberds therefore originally belonged to the more standard Continental three-rivet family.

A halberd, recovered with a Late Bronze Age hoard at *Stoke Ferry*, Norfolk, might have had only three rivets, but the symmetry and smooth outlines of two intermediate notches suggest strongly that an arc of five were employed. The weapon has probably suffered overall surface loss and consequent reduction in outline accounting for the opening up of at least the central rivet hole, and possibly the intermediate ones as well. Partial survival of an edge feature suggests that, although reduced, the edges were originally concave; this and the modest expansion of the midrib in its upper quarter set it apart from the great majority of insular halberds. Five rivets is a feature of some Type Auchingoul weapons, but on these they are set within shallower butts and in smaller holes. The copper composition of Stoke Ferry favours a pre-metallurgical transition date, although this could overlap the earliest Auchingoul halberds.

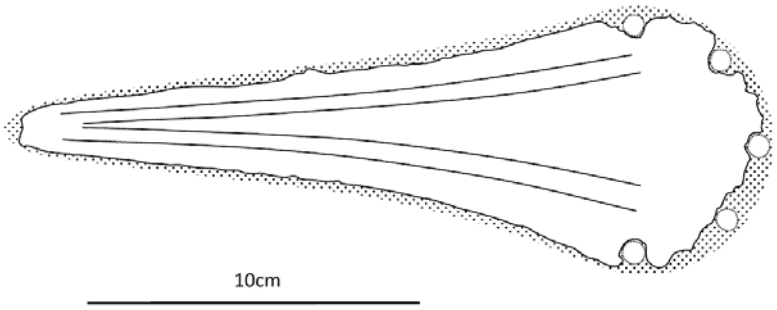

Fig. S13.
Halberd from Westfield Farm, Ford, Northumberland, with suggested reconstruction. Scale 33%.
(Drawing: Stuart Needham)

An atypical blade from *Westfield Farm*, Ford, Northumberland, has been variously categorised in the past, but has characteristics appropriate to halberds rather than daggers (Fig. S13). In terms of the insular halberd series, it stands in a class of its own. Quite exceptionally the blade does not have the standard midrib; the mid-blade is slightly thickened relative to the blade wings, but the main features are two strong ribs, widely spaced at the hafting end, converging in a concave sweep and almost meeting at the tip. Before damage, it would have had a moderately deeply arched butt with, probably, five rivet emplacements. The unusual blade form of this halberd can be related to the north European series, as was recognised by Butler (1963, 14, 20). At a generic level the concave sweep of the mouldings compares with the shape of midribs in the Aunjetitz zone, whereas this feature is rarely seen in Britain or Ireland. More specifically, there is one halberd from the former zone, from the Gross Schwechten hoard II, Sachsen-Anhalt (Wüstemann 1995, no. 181), which has very similar blade morphology, two strong ribs with a recessed mid-blade between; in this case the two ribs meld together for the lower third of the blade, while the hafting-plate is extremely short, a characteristic of a number of north European halberds. A second blade in that hoard has similar but less pronounced cross-sectional features (Horn 2014, Tf 10g). A halberd from Christiansholm, Københabn, Denmark, also has comparable blade ribs (Vandkilde 1996, 195 fig. 191, no. 580), while that from Apeldorn, Kr. Meppen, on the River Ems, close to the German/Dutch border has a central rib added between the two converging ones (Ó Ríordáin 1937, fig. 63, no. 26; Butler 1963, 19). Their hafting-plates are again shallow and, despite stylistic connections, the Westfield Farm weapon cannot be regarded as belonging to exactly the same type as these four north European examples. Nevertheless, the similarity is enough to suggest that its date is likely to overlap the span of Aunjetitz metalwork, probably early within it. Outside the examples cited, the double-ribbed blade is virtually non-existent on halberds anywhere; for example, there appears to be just one from Iberia (Horn 2014, Tf 4k; Brandherm 2003 no. 810); this too has splayed ribs, though that could simply reflect the strong expansion of the upper blade typical of Argaric halberds.

Contexts

Aside from the Late Bronze Age hoard at Stoke Ferry, none of these 'individual' halberds has any context.

The distribution of insular halberd types

Figures 14–30 show the maps of recovery for all Irish and British halberds with provenances to county level or better. Discussion will only be brief here.

Ireland and Irish types

Well provenanced halberds are widespread across the island but are by no means uniformly distributed (Fig. S14). There is a noteworthy central concentration between Counties Galway/Roscommon in the west, Monaghan in the north-east and Laoighis in the south-east. Two further groups occur more as 'ribbons' of finds, one along the coastlands of northern Ireland from Co. Donegal to north Co. Down, the other from western Cork through to the inner Shannon estuary. This aggregate map of recovery will be explored in relation to other contemporary material elsewhere.

Few Clonard Series halberds have provenances – three of Type Clonard, one each of Types Ballygawley and Derrinsallagh. Together these show an easterly tendency (Fig. S15). The Castlecomer halberd is shown on the same map, but may not be relevant (as discussed above).

The Hillswood Series is by far the best represented series of halberds and many have provenances. The putative early halberds, Type Roscrea, again have an easterly emphasis, especially if two provenances just to county are accepted (Fig. S16). Type Lough Gur shows a complete contrast, with the majority of finds occurring north-west of a line drawn from Co. Cork to Co. Antrim (Fig. S17). This change in deposition pattern is intriguing given the presumption based on typological connections that Lough Gur halberds developed from Type Roscrea. Although only represented by seven find-spots, Hill of Allen halberds have a more uniform distribution, deposited examples being widely spread (Fig. S18).

The distribution of the Corlurgan Series (Fig. S19) is mainly reliant on Type Corlurgan. Ten find-spots come from the Midlands and the north-east, with just one on the south coast. Type Cloonymorris adds three from the Midlands and a second possible south coast find ('Co. Cork'). Taken together, the Series does seem to have a central to northern bias.

Provenances for proto-Breaghwy halberds (three) and ungrouped ones of the Breaghwy Series (two) are too few to be interpreted (Fig. S20), but it is intriguing that four of these five finds occur in the Midlands in an area not yet having yielded any Type Breagwhy halberds. The two ungrouped ones are likely to be near-contemporaries of Type Breaghwy, which is instead scattered through western counties and along the north coast, with one exception (Fig. S21). Although Type Lough Gur halberds have a preferential occurrence in the west and north, they are also well represented in parts of the Midlands which is not the case for Type Breaghwy. This gap is, however, filled to a small degree by another late halberd type, Type Corrib (Fig. S22), for which only three finds are known in total (all being provenanced).

It is worth venturing some phase maps despite the uncertainties in individual type chronologies. Using the chronology deduced from this study (Fig. 31), an early phase can be suggested as being represented by Types Clonard and Roscrea, along with the miscellaneous squat halberds from Whitespots and 'Co. Cork'. A mature phase, but still entirely within copper-working traditions, comprises Types Ballygawley, Derrinsallagh, Lough Gur, Hill of Allen, Cloonymorris, and Corlurgan, and proto-Breaghwy halberds. A late phase is clearly represented by bronze types (Breaghwy and Corrib) and some individual halberds shown to be of bronze rather than copper. A gross trend is apparent across the island if a line is drawn SW–NE from Co. Cork to Co. Antrim, as in Figures S23–5. Early halberds are predominantly to the south-east of this line (9:3 findspots SE:NW), middle-stage halberds are nearly equally split (19:28) and late halberds are predominantly north-west of the line (3:12). This may make most sense as a function of

increasing pressure on halberd-bearing communities from the south-east, as single-grave burial rites became established with early Food Vessels from about 2200 BC. Of course, there may be other minor trends, relating to stylistic preferences on a regional basis, superimposed on this aggregate trend. Type Lough Gur, for example, has a north-westerly bias which differs from the totality of its phase-group, whereas Type Corlurgan, likely contemporary, are more centrally distributed around the SW–NE drawn line.

Britain and British types

Halberds in Britain are largely concentrated in the north (Scotland and adjacent parts of England) and Wales, with a small number in the south-east (the Fens of East Anglia and the Lower Thames basin) (Fig. S26).

Figure S27 shows the locations of non-British type weapons – either imports or halberds strongly influenced by alien types. Significantly, the handful of provenanced halberds of Irish style occur in western locations, whereas those with Continental stylistic affinities have a more easterly bias, although two do occur in the west.

Most of the indigenous Chalcolithic types of halberd are too few in number to be sure of any significance to distributional emphases (Fig. S28). These minor types are best represented in Wales and southern Scotland, whereas north-east Scotland only has copper halberds of Type Sluie and Type Auchingoul (Fig. S29). It is possible that Type Sluie was a very late Chalcolithic development, marking the first significant adoption of halberds in the north-east. Certainly the Culloden halberd, which seems to have started life as that type, was made in bronze rather than copper and seems during its lifetime to have been re-hafted in Auchingoul style. The Sluie halberd itself, although made of copper, may have been deposited with two very early bronze axes (Appendix S4), while the original form of Castell Coch halberd 1, also of copper, may have been a rather late Chalcolithic piece to judge from its associated knife.

Irrespective of likely overlap between the currencies of Sluie and Auchingoul halberds, it is the latter type, along with Type Eweford and the unique Westfield Farm weapon that best reflect the period after the copper/bronze transition (Fig S30). At this stage halberds seem to be confined to northern Britain, and only the New Mills mould, Powys (see accompanying article), testifies to any lingering interest in halberds further south.

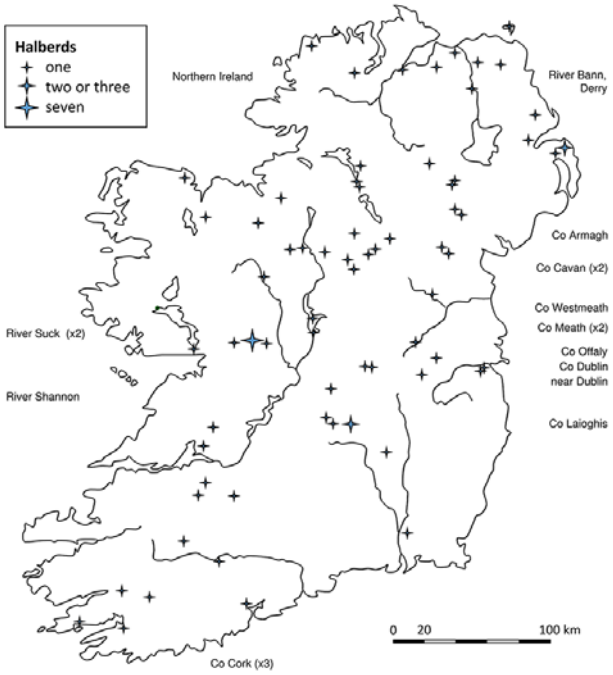

Fig. S14
Map of recovery for all Irish halberds provenanced to county or better. Imprecisely provenanced examples are listed to either side

Fig. S15
Map of recovery for Clonard Series halberds and the likely intrusive Castlecomer halberd

Fig. S16
Map of recovery for Type Roscrea halberds; dotted circles represent county-only or other imprecise provenances, which are given alongside

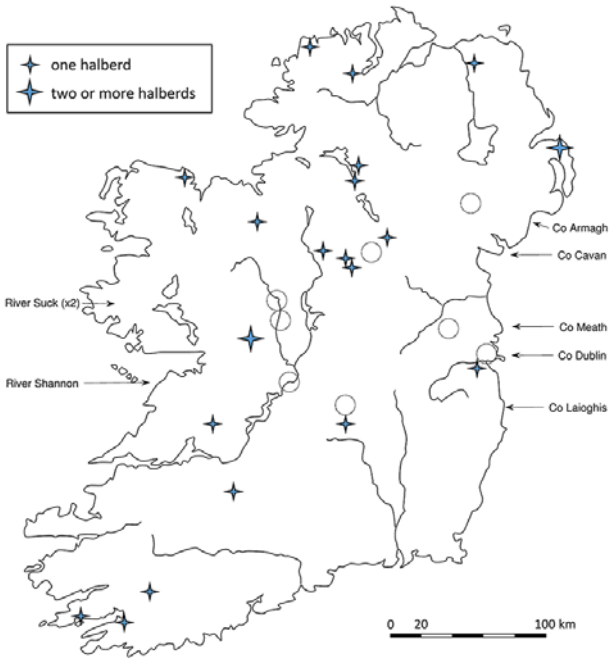

Fig. S17
Map of recovery for Lough Gur halberds; dotted circles represent county-only or other imprecise provenances, which are given alongside

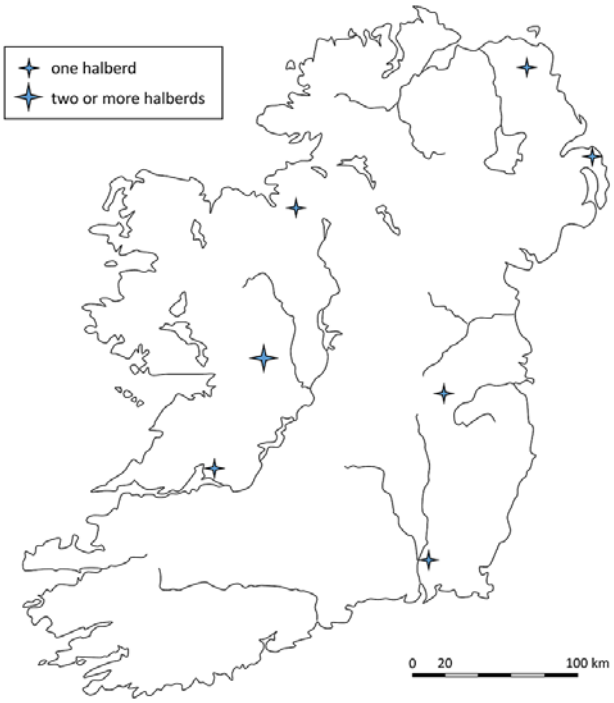

Fig. S18
Map of recovery for Type Hill of Allen halberds

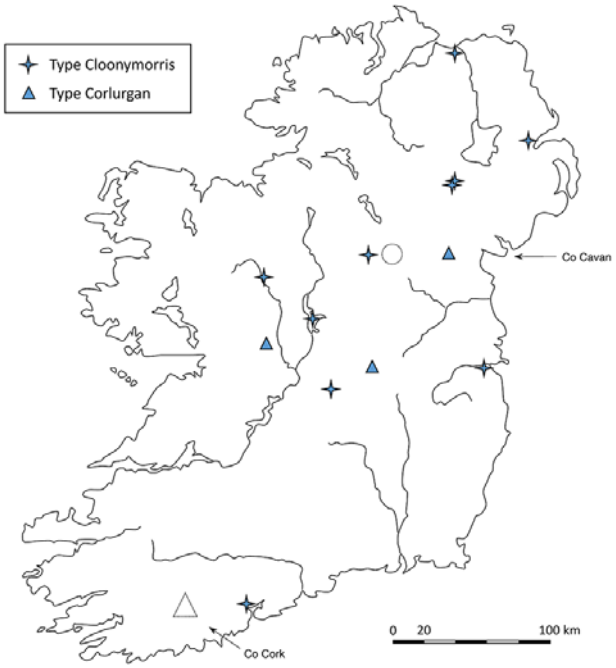

Fig. S19
Map of recovery for Types Cloonymorris and Corlurgan halberds; dotted outlines represent county-only or other imprecise provenances, which are given alongside

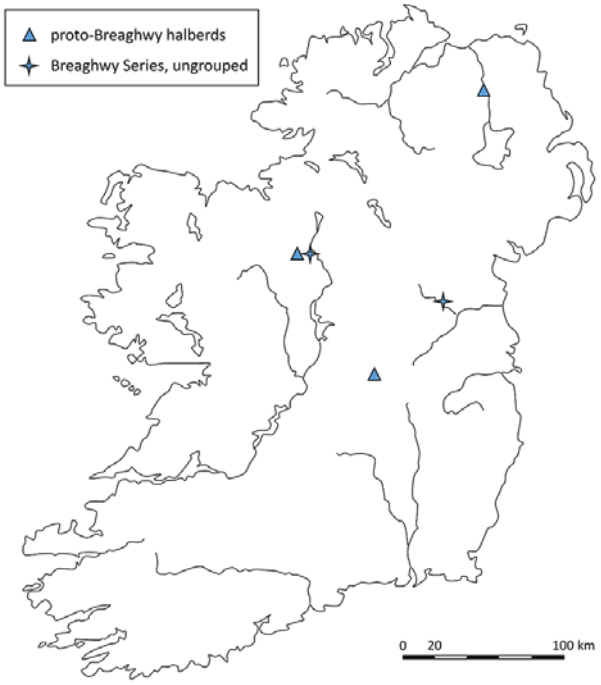

Fig. S20
Map of recovery for proto-Breaghwy halberds and ungrouped Breaghwy Series halberds

Fig. S21
Map of recovery for Type Breaghwy; the dotted circle represents county-only provenance, which is given alongside

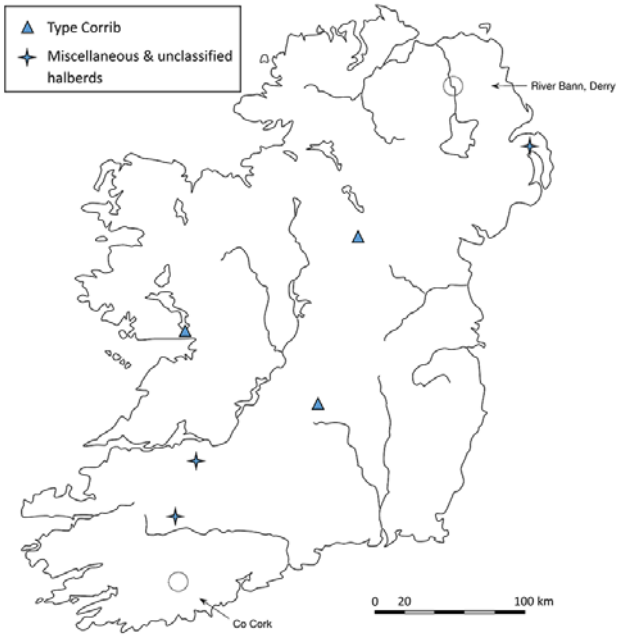

Fig. S22
Map of recovery for Type Corrib, miscellaneous halberds and unclassified halberds; dotted circles represent county-only or other imprecise provenances, which are given alongside

Fig. S23
Map of recovery for early Irish halberds: Types Clonard and Roscrea, and miscellaneous squat halberds; dotted circles represent county-only or other imprecise provenances; the significance of the SW–NE line is discussed in the text

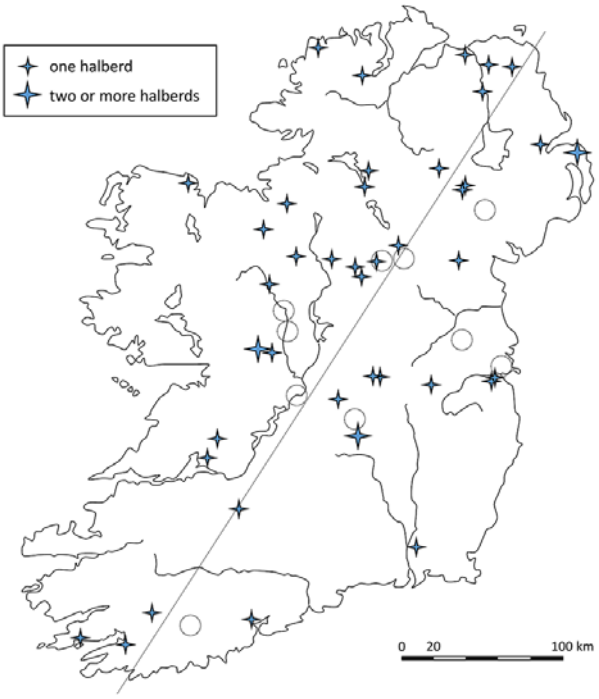

Fig. S24
Map of recovery for middle-stage Irish halberds: Types Ballygawley, Derrinsallagh, Lough Gur, Hill of Allen, Cloonymorris, Corlurgan and proto-Breaghwy; dotted circles represent county-only or other imprecise provenances; the significance of the SW–NE line is discussed in the text

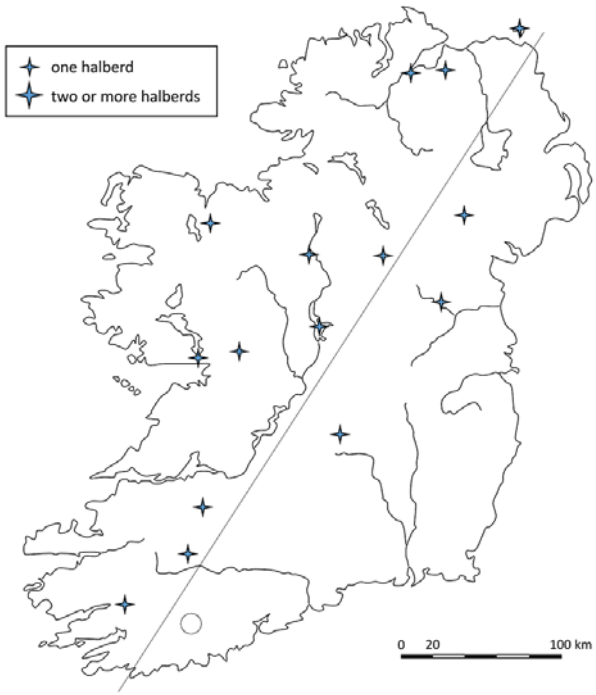

Fig. S.25
Map of recovery for late Irish halberds: Type Breaghwy, ungrouped Breaghwy Series, Type Corrib and other individual halberds found to be of bronze; dotted circles represent county-only or other imprecise provenances; the significance of the SW–NE line is discussed in the text

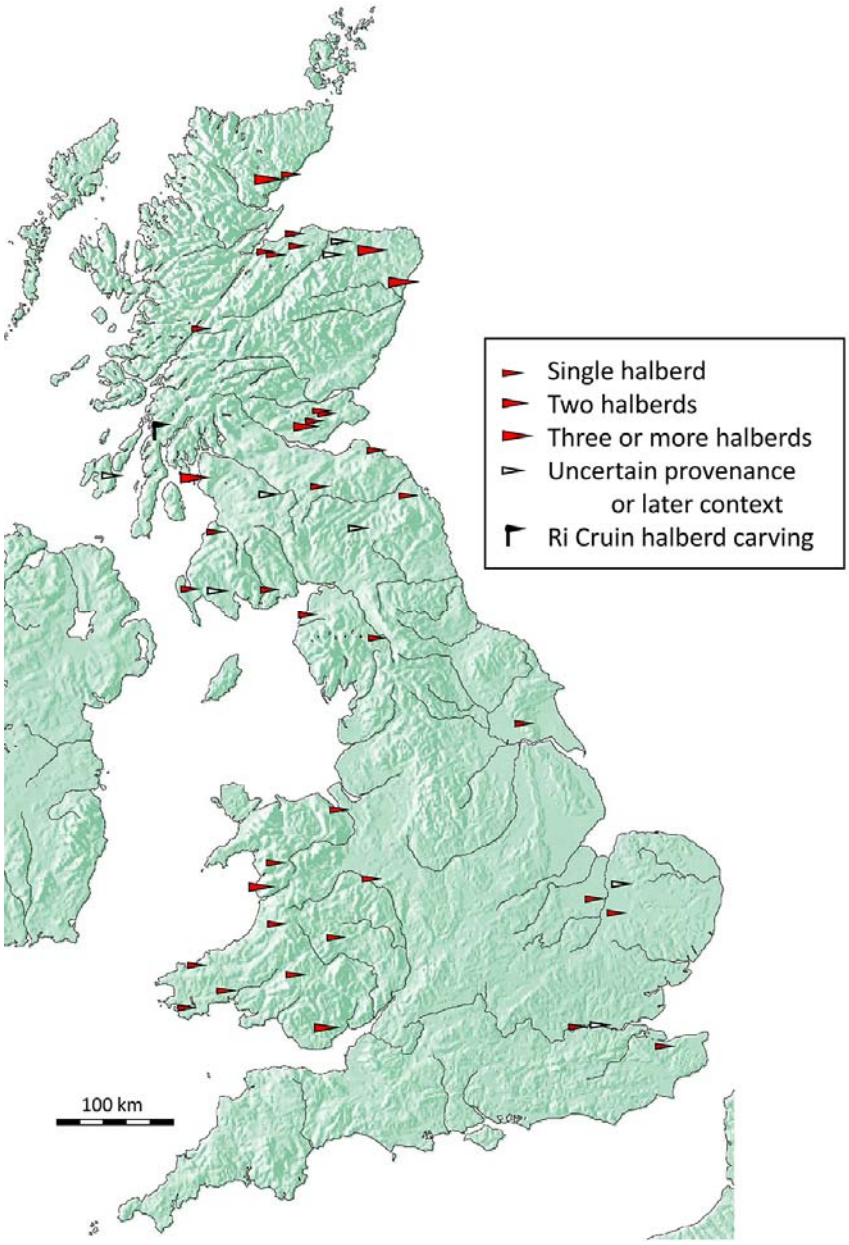

Fig. S26
Map of recovery for all British halberds provenanced to county or better

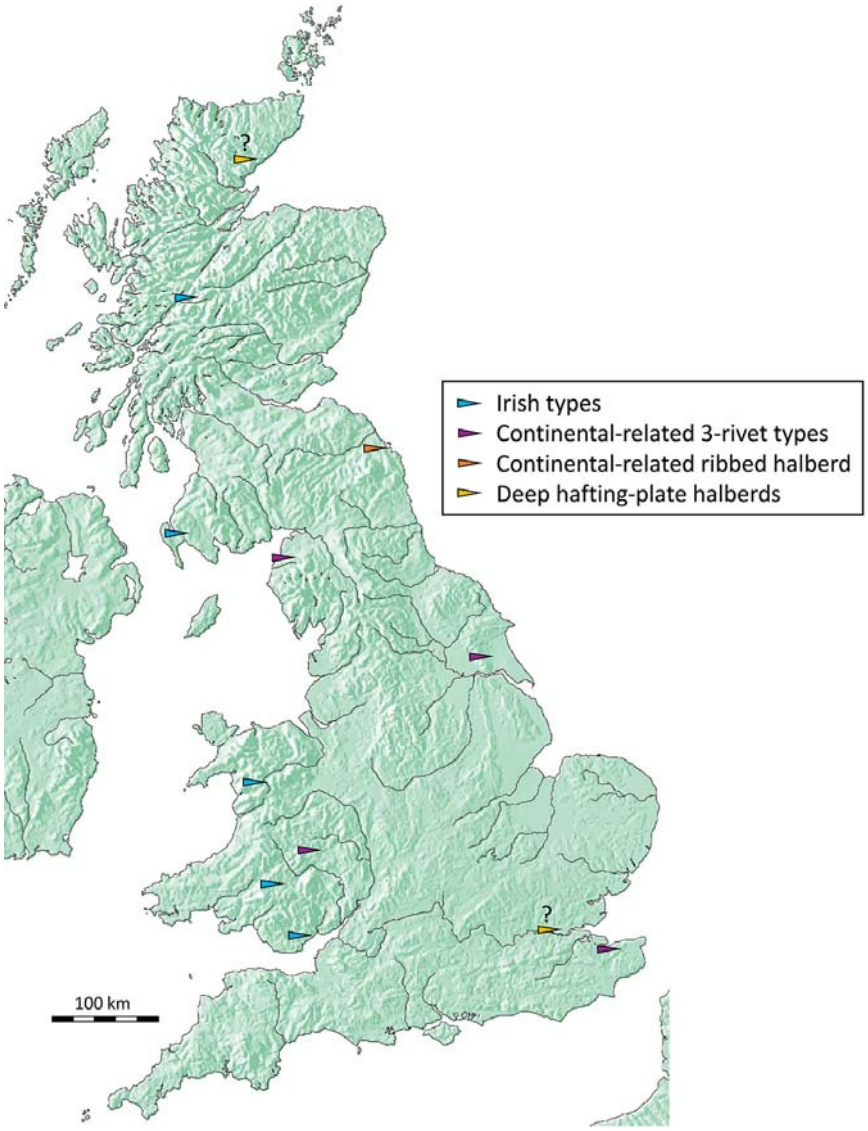

Fig. S27
Map of recovery for halberds of non-British type – imports and stylistically influenced examples. Questionmarks refer to uncertainty of provenance; for uncertainty of classification, see Appendix S2

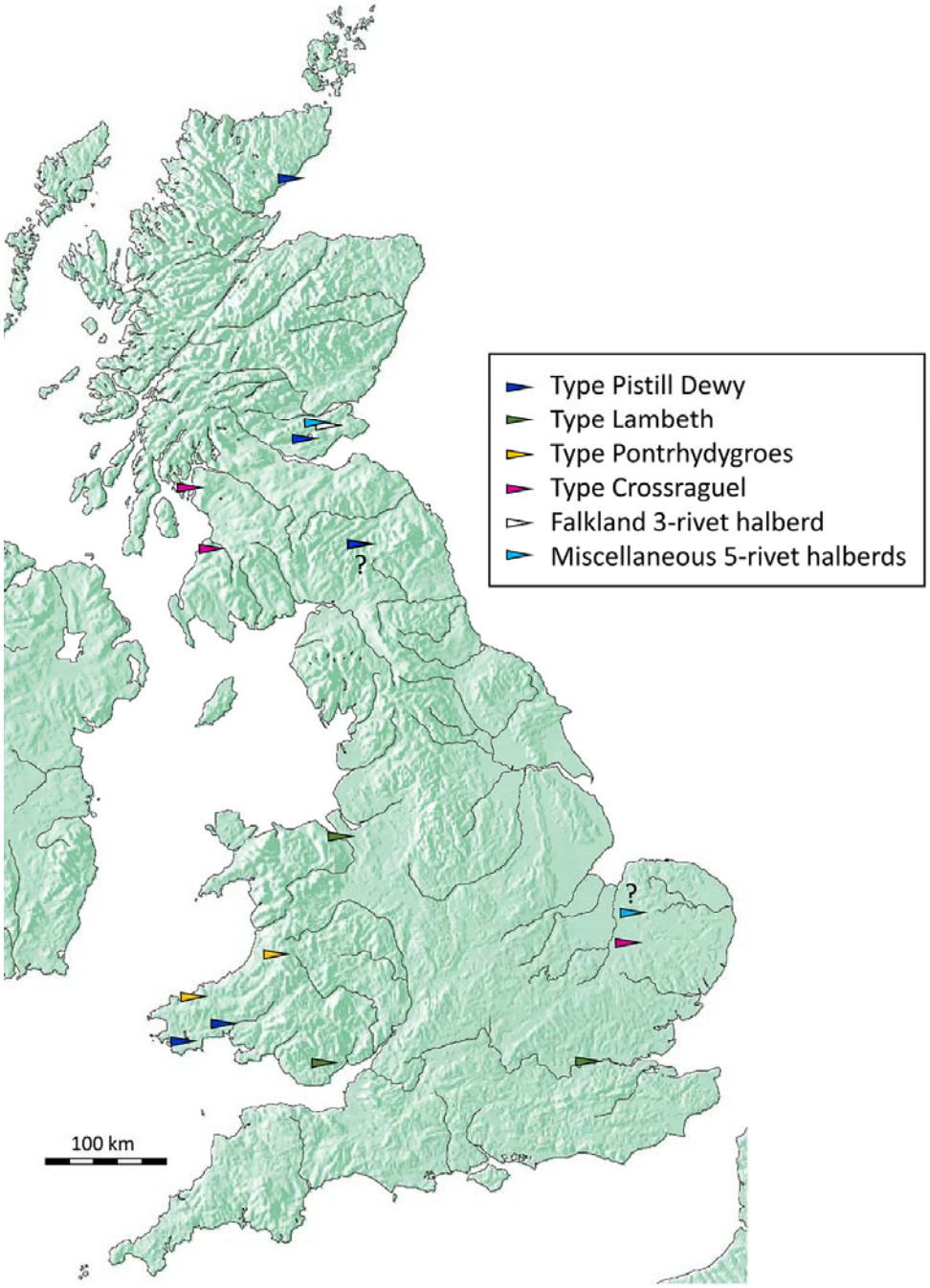

Fig. S28
Map of recovery for 'minor' British copper types of halberd. Questionmarks refer to uncertainty of provenance; for uncertainty of classification, see Appendix S2

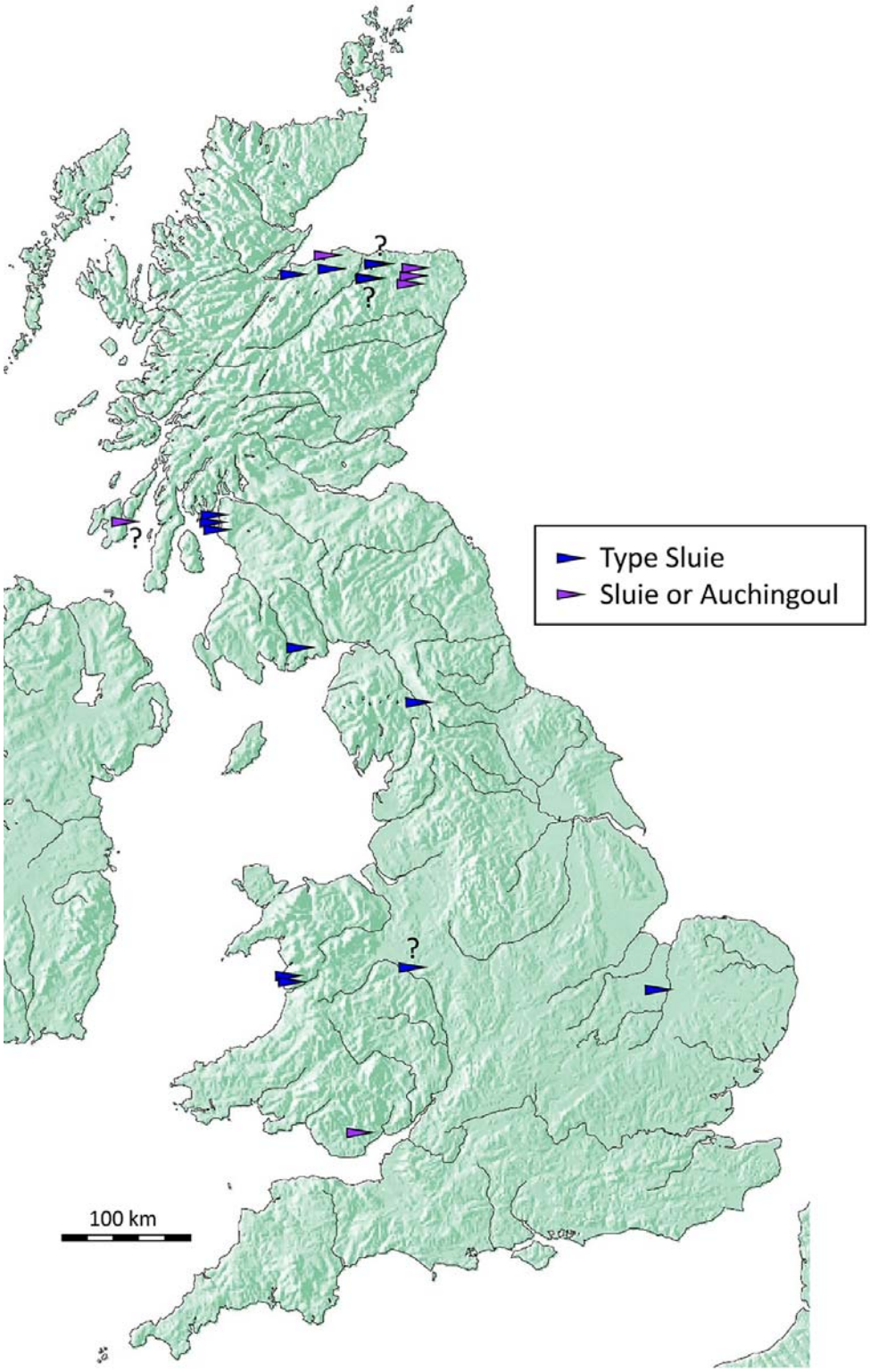

Fig. S29
Map of recovery for Type Sluie (including halberds uncertainly of Type Sluie or Auchingoul). Questionmarks refer to uncertainty of provenance; for uncertainty of classification, see Appendix S2

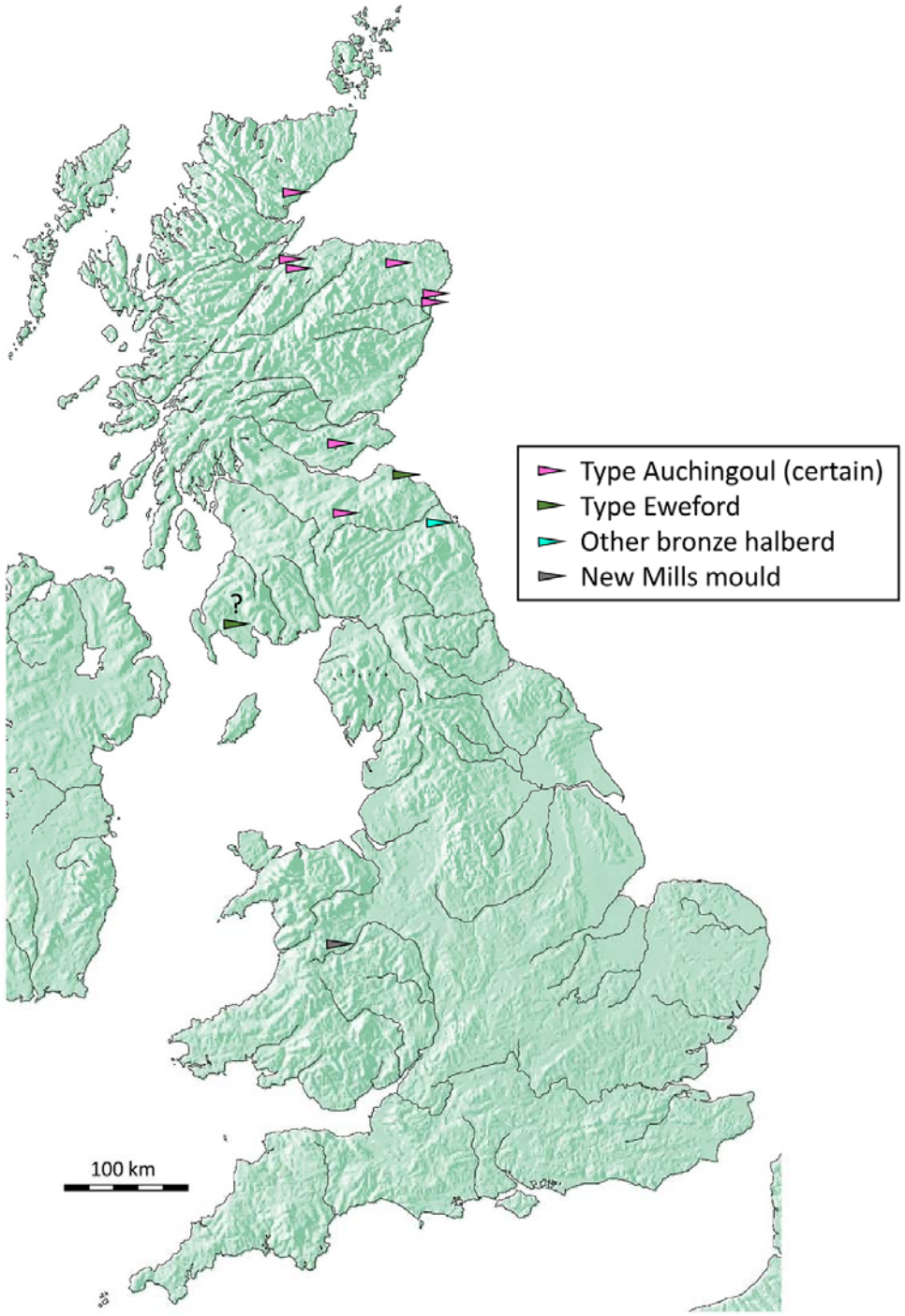

Fig. S30
Map of recovery for Type Auchingoul, Type Eweford and other late halberds of bronze (note that the Ford and Culloden halberds are also represented on previous maps). Questionmarks refer to uncertainty of provenance; for uncertainty of classification, see Appendix S2