ANGLO-SAXON AND VIKING COIN WEIGHTS

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In recent years, a number of lead objects have come to light which show a connection with Anglo-Saxon coinage. Either they have coins set into the lead, or they appear to have been struck using official coinage dies. They come in a variety of shapes and forms, and it is not the purpose of this paper to examine the full range of lead objects with coin associations. This has been discussed at length by Marion Archibald. Instead, this paper will focus on those objects which appear from their size and weight to be coin weights, rather than trial pieces or customs tags, as seems more likely for the smaller, thinner strikings. Several of these weights have been discovered since Archibald’s discussion of the lead objects, mostly found by metal detectorists, and while most of these (as well as the few earlier finds) have been published individually, there has been little comparative discussion.

The weights fall into two categories, which it will be argued are characteristically Anglo-Saxon and Viking respectively, although all the coins involved (with one possible exception: see below) are of Anglo-Saxon origin. The first category, which is considerably the smaller of the two, contains weights which have been struck from official coinage dies. In all four of the recorded instances, the weights were discovered in or very close to the original mint, and it is suggested that these represent official weights for coinage, possibly directly associated with the mint. An Anglo-Saxon origin seems certain for two of the four, struck respectively from dies of the ‘Pointed Helmet’ and ‘Sovereign/Eagles’ types of Edward the Confessor, since this is too late to be plausibly associated with Viking activity in England. One possible example exists of a weight of this type from Viking York in the early 940s (British Museum SCBI 1255) combining two reverses. Taken together with two lead pieces of Athelstan from York, this fits into a general pattern of continuity of minting practice in York under Anglo-Saxon and Viking rule in the mid-tenth century. However, all three of the York pieces are of such low weight that the possibility that they are trial pieces rather than weights cannot be excluded, and they have therefore been excluded from the current listing.

The second category contains weights with coins inset at the top. Although the coins concerned are Anglo-Saxon, the weights are likely to be the products of Vikings in the British Isles. Such weights form a sub-group of typically Viking weights which use a variety of inset metalwork, often of insular origin. Furthermore, the majority of these utilise coins of the mid to late ninth century, the height of Viking activity in England, and their distribution strongly suggests Viking origins. Most have been found in the Danelaw, with two being found in a grave at Vig in Norway, and other possible examples found together with other lead weights incorporating insular metalwork in a Viking boat burial at Kiloran Bay on the island of Colonsay in the Hebrides, and, less certainly, in another Viking grave at Kingscros Point on the Isle of Arran. Two of the three certain examples found outside areas of Scandinavian settlement or authority were discovered near Wareham in Dorset, and are plausibly associated by Archibald with Viking activity in that area in 876.

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1 I am grateful to Marion Archibald and Susan Kruse, both of whom commented on this paper in draft, to Elizabeth Pirie and Hugh Pagan for helpful comments and references, and to Howard Simmonds for drawing my attention to item no. 8. However, the opinions stated here, and any mistakes which remain are, of course, the responsibility of the author.


5 Archibald, as in n. 4, p. 20.
A further case for associating this category of finds with the Vikings rather than the Anglo-Saxons is that no firm identification of a pre-Viking weight of this type has yet been made. The one possible example of such a weight known to the author was a weight in the possession of the late Dr David Rogers, which had inset a ‘porcupine’ penny of the early eighth century. The condition of the object did not permit a reliable estimate of the silver content nor, at our last discussion, had Dr Rogers been able to find a die-link for the coin. Unfortunately, it has proven impossible since Dr Rogers’ untimely death to trace this object for further examination to establish the coin’s place within the chronology of the ‘porcupine’ series. However, it is worth noting that coins of the ‘porcupine’ type are known from the excavations at Ribe in western Denmark, and that the weight was reportedly discovered in Lincolnshire, so a role for the weight in pre-Viking Anglo-Scandinavian trade cannot be excluded. Nor, given the probability that the Vikings looted long-established treasuries in England, and the certain existence of weights with metallic insets other than coins, can the possibility that a coin no longer current was re-used during the Viking Age be safely excluded. Thus, while this weight incorporates a coin which is certainly pre-Viking, it does not provide firm evidence for the use of this type of weight before the Viking Age or in a clearly non-Scandinavian context. Nor is any weight of this type recorded after the effective unification of England under the Wessex dynasty in the mid-tenth century.

There follows a listing of the known examples of both the putative Anglo-Saxon and Viking types of coin weights, with a discussion of weight units and function at the end of each type.

### Anglo-Saxon weights

1. **Ruler:** Alfred, king of Wessex (871–99)
   **Type:** Cross and Lozenge
   **Moneyer:** Ealdulf
   **Mint:** London
   **Obverse:** AELFRE DRE
   **Reverse:** EAL DV. LF[I] M[I]
   **Weight:** c.163.1 g
   **Provenance:** Found in St Paul’s churchyard, London, 1840.
   **Location:** British Museum

The first of the coin weights to be discovered, this has been the subject of considerable discussion. The dies used are of the ‘Cross-and-Lozenge’ type issued by both Alfred and Ceolwulf II of Mercia, most recently dated to c.875–c.880. The moneyer Ealdulf is perhaps to be identified with the Ealdwulf known to have struck the unique coin of the ‘Two Emperors’ type for Ceolwulf II around the beginning of the ‘Cross and Lozenge’ type. Mark Blackburn and Simon Keynes identify at least three local styles within this type, and assign the weight to the London group, which includes coins of both Alfred and Ceolwulf. This corresponds with the London findspot. The weight, which was well preserved when first discovered, apparently represents half a Roman pound (c.163.5 g), but it may also represent half a monetary pound, since the average weight of this issue was 1.35–1.39 g, giving a weight for 120 pennies of between 162 and 167 g. The obverse striking has apparently been deliberately defaced with two parallel cuts across the lower bust. The reverse is also partially defaced, but it is not obvious whether this is the result of deliber-
ate defacement or corrosion. It is notable that two of the other weights of this type appear also to have been defaced.\(^{10}\)

2. **Ruler:** Æthelred II, king of England (978–1016)
   - **Type:** Long Cross
   - **Moneyer:** Manna
   - **Mint:** Thetford
   - **Obverse:** ÆDELREX AI
   - **Reverse:** ÆMA [NA] MOB EOD
   - **Weight:** 44.86 g
   - **Provenance:** Thetford, 1982
   - **Location:** Fitzwilliam Museum, Cambridge

   Unlike the other weights of this type, the shaping of this piece is unfinished, with only one of the corners neatly rounded off. Blackburn has also suggested that the piece may have been struck from unofficial dies, arguing that neither the lettering nor the form of the bust conform to either National or Regional die-cutting styles of the period, and that the piece should be regarded as a forger’s trial-piece rather than a weight.\(^{11}\) However, the piece is 7 mm thick, which seems improbably large for a trial piece, and Archibald has pointed out that at 44.99 g it is roughly equivalent in weight to thirty pennies of the same type. This is equivalent to the gold mancus, which probably existed both as a coin and as a unit of account.\(^{12}\) Furthermore, like items one and three on this list, it has what appear to be deliberate gouge marks across the design, probably indicating the cancellation of its validity.

   This combination of factors fits more easily with its being a weight than a trial-piece, even if the official status of the dies used is questionable. Since it is uncharacteristically rough, Archibald has suggested that it may have been unfinished, having been rejected as inaccurate for the weight required.\(^{13}\) An alternative possibility, given the cancellation marks, is that remained unfinished because it was only created just before the end of the type, and had not been completed before the renovatio made it obsolete. Alternatively again, if the moneyer who produced the weight was using unofficial dies, as Blackburn suggests, this would be consistent with a lack of quality in the production of the weight itself. Whatever the official status of the piece, however, the characteristics it shares with the other objects of this type seem sufficient to justify its inclusion in the group.

3. **Ruler:** Edward the Confessor, king of England (1042–66)
   - **Type:** Pointed Helmet
   - **Moneyer:** ÆStan
   - **Mint:** Winchester
   - **Obverse:** ÆDER. / D REX
   - **Reverse:** ÆSTAN ON PINCSTI
   - **Weight:** 37.66 g
   - **Provenance:** Excavations at Middle Brook Street, Winchester 1953
   - **Location:** Winchester City Museum

   Michael Dolley noted that the obverse of this piece came from the same die as BMC 1412, and the reverse from the same die as BMC 1406. He also noted the proximity of the find spot to the mint on the reverse die, and accordingly interpreted it as a trial-piece.\(^{14}\) Again, however, it is considerably thicker than most of the putative trial-pieces at 5 mm, and at 37.66 g also the equivalent of a mancus of thirty pennies of the type. Furthermore, it shares the characteristic with items one and

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\(^{10}\) Archibald, as in n. 2, p. 338.


\(^{12}\) Archibald, as in n. 2, p. 335.

\(^{13}\) Archibald, as in n. 2, p. 335.

two on this list of having the obverse apparently deliberately defaced. It therefore fits more obviously into this small group of coin-weights better than it does the broader group of trial-pieces.\footnote{Archibald, as in n. 2, pp. 335, 340.}

4. Ruler: Edward the Confessor, king of England (1042–66)
Type: Sovereign Eagles
Moneyer: Ælfwine
Mint: Winchester
Obverse: \_DV\_A\_D\_EX\_ANGL\_
Reverse: +ÆLFPINONPINCES
Weight: 32.89
Provenance: M/D find from Abbot’s Barton, near Winchester, 1998
Location: Winchester City Museum

![Image of coin weights]

The only one of this group not previously published, this piece has recently been acquired by Winchester City Museum, with the registration WINCM:ARCH 4893. The condition of the surface does not lend itself to photography, and a drawing by Nick Griffiths has accordingly been supplied instead (see Fig. 1). The surface of the piece is worn, but it appears to have been struck from the same dies as BMC 1441 and BM 1915, 5–7, 2568. At 32.89 g, it appears to represent a weight of twenty four pennies, or two shillings. Both the die duplicates weigh 1.38 g, which would give a weight of 33.12 g for twenty four. This marginal discrepancy seems perfectly acceptable, since the piece, although the surface is slightly worn and battered, is substantially intact and well-preserved, and therefore seems likely to have lost only a little of its original weight.

**Weight Units**

In all four cases, the weights appear to correspond with plausible multiples of their respective penny types. With the exception of the Alfred weight, they do not fit well with contemporary weight units based on pounds, marks and ounces, but to more flexible units of account. Items two and three seem to represent the muncus of thirty pennies, while item four is apparently based on the shilling of twelve pennies. The Alfred weight is consistent with a variety of different accounting systems, possibly reflecting London’s mixed status in the 770s as an interface between the monetary systems of Mercia, Wessex and the Vikings. As mentioned, it seems to correspond both to half a Roman pound and to 120 pennies. This is divisible into the muncus of thirty pennies, the shilling of twelve pennies, the earlier Mercian shilling of four pennies and the earlier Wessex shilling of five pennies. Furthermore, it is only fractionally over six Viking ounces, based on the Dublin *eyrir* of 26.6 g.\footnote{A variety of terminology for the ounce is used in the literature concerning Viking-Age weights. I have used Old Norse *eyrir* (pl. *aurar*) throughout, but other authors use the forms *ora*, *oar* or *ore*. All these refer to the ounce. A further unit at a third of an ounce is given here as *ertug* (pl. *ertugar*), but is sometimes given elsewhere as *neuglar* or *neuglur*. A variety of weights have also been suggested for the *eyrir* and the approach adopted here is to note correlations between the individual weights listed here and any of the possible weight standards. The problem of the different weight standards is discussed more extensively in a separate section following the listing.} It is impossible to state with certainty which of these possible units was...
the intended one, or whether it was deliberately created to function within a variety of standards. Nevertheless, it seems likely in the context of the other pieces that its main function was to measure out pennies of the ‘Cross and Lozenge’ type. However, in all this one should note that Susan Kruse has expressed concern about whether it is appropriate to argue for such precise relationships between coins and weights, given that lead is seldom very well preserved.¹⁷

Function

Despite this caveat, all four pieces apparently have weights relating to their respective coin types, and all were found in close proximity to the appropriate mint towns, which strongly suggests that weights of this group had an official function at the place of minting. The most likely explanation is that they were used to weigh out set numbers of coins of average weight within a particular type. The cancellation marks on three of the four pieces suggest that they had a fixed currency period, and it is tempting to link this with the renovatio, since the image on the weight would obviously be immediately comparable with coins of the current type.

Viking weights

5. Type: Series E (‘Porcupine’)
   Moneyer: –
   Mint: –
   Weight: 17.54 g
   Provenance: M/D find, believed to be from Lincolnshire.
   Location: In the collection of the late Dr Rogers, shown BM 1997

Fig. 2

As discussed above, this is the only weight in the ‘Viking’ group to utilise a pre-Viking coin (see Fig. 2). It also differs from the other weights in the group in that while the rest are basically truncated cylinders, this one is more pebble-shaped, with rounded edges rather than vertical side. The possibility that this weight may be pre-Viking cannot therefore be excluded. The use of a coin of a type which is probably Frisian, but which circulated in England and western Denmark as well as Frisia further complicates matters, and it is possible that this weight dates from the period of immediately pre-Viking trading activity in the North Sea area. However, it may simply represent later re-use of a pre-Viking coin. At 17.54 g, the weight is plausible, if marginally on the heavy side, as two ertugar, or two-thirds of a Viking eyrir of 26.6 g. Since the weight is apparently well-preserved, it has probably not changed very significantly from its original weight.

6. Ruler: Possibly Eanred, king of Northumbria
   Type: Styca
   Moneyer: Herred
   Weight: 18.15 g when found.
   Provenance: Vig, Fjære, Aust-Agder, Norway, 1876
   Location: University Museum of Cultural History, Oslo

¹⁷ Kruse, as in n. 4, p. 85.
This was found in a Viking grave together with item 7 below and, *inter alia*, two other weights of other types and a soapstone mould for casting ingots. Only the reverse of the coin is visible, but since item 7 has a coin of Eanred of Northumbria inset, and Herred is a known moneyer of Eanred, Skaare argued that this was also a coin of Eanred. The weight was damaged when found, and has since deteriorated further, making it difficult to estimate the original weight of the piece. Skaare suggested that it might possibly originally have represented an ounce. Assuming that the two weights were produced together, he argued that the fact that one weight shows the obverse of the coin while the other shows the reverse indicates that the person producing the weights was seeking decorative variation, and that the function of the coin insets was purely decorative, in keeping with the broader group of weights with insets of insular metalwork.18

7. Ruler: Eanred, king of Northumbria
   Type: Styca
   Moneyer:
   Weight: 10.45 g when found
   Provenance: Vig, Fjere, Aust-Agder, Norway, 1876
   Location: University Museum of Cultural History, Oslo

Found together with item 6, this weight was also damaged when found, and has since deteriorated. Skaare suggested that the original weight may have represented half an ounce.19

8. Ruler: Probably Eanred, king of Northumbria
   Type: Styca
   Moneyer: Monne
   Obverse:
   Reverse: +[MO]NNE
   Weight: 18.25 g
   Provenance: M/D find, near Faversham in Kent, 1996
   Location: Simmons Gallery, (sale pending at time of press)20

Only the reverse of the coin is visible, and around a quarter of the coin is missing (see Fig 3). Although this means that part of the legend is obscured, it is clearly a coin of the moneyer Monne, who struck in large quantities for both Eanred and Æthelred II. Although it has not been possible to match the die, it seems probable that it is a coin in the name of Eanred, since coins of Monne in the name of Æthelred II typically (although not exclusively) have the first N of the moneyer's name reversed. Apart from the missing fragment of the coin, the weight has also suffered some corrosion, taking the original weight to somewhere around 20 g or a little over. This is too light to represent an eyrir; but may represent two and a half ertugar, or five-sixths of an eyrir; somewhere in the mid-20 g range.

19 Ibid.
9. Ruler: Æthelred II, king of Northumbria  
Type: Styca  
Moneyer: Eanred  
Obverse: ÆDI[ ]REDR  
Reverse: +EANRED  
Weight: 15.62  
Provenance: M/D find, Colchester 1993  
Location: Not recorded

The coin inset comes from the same obverse die, and possibly the same reverse die as CKN 963. The coin was prised out of the lead by the finder, and this has probably affected the total weight.21 At 15.62 g, the weight would be slightly light at two ertugar, or two-thirds of the lighter Viking eyrir of c.24g, but this lightness may be attributable to damage. Allowing for damage, two-thirds of the heavier Viking eyrir of c.26.6 g is also possible.

10. Ruler: Probably Æthelred II, king of Northumbria (2nd reign, c.843/4-49)  
Type: Styca  
Moneyer: Eardwulf  
Obverse: +EARDVVLF  
Weight: 16.43  
Provenance: M/D find, near Lowestoft, 1998  
Location: British Museum

Only the reverse of the coin is visible, but this can be identified as a reverse of Eardwulf, a known moneyer of Æthelred II (see Fig. 4). Elizabeth Pirie has suggested that it was probably struck from the same reverse die as CKN 1111. The surface of the coin is worn comparatively smooth, but the weight is otherwise in a good state of preservation, and probably very close to the original weight. This would be consistent with two ertugar, or two-thirds of an eyrir of somewhere between 24 and 25 g, but it could also fit with the heavier eyrir of 26.6 g.

11. Ruler: Irregular series, mid-9th century  
Type: Styca  
Moneyer: –  
Obverse: +VVEIREX  
Weight: 15.99  
Provenance: M/D find, Torksey 1995  
Location: Scunthorpe Museum

This weight is in good condition, and probably close to its original weight.22 At 15.99 g it would fit very well as two ertugar, or two-thirds of the light Viking eyrir of c.24 g.

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21 Coin Register, no. 168. BNJ 64 (1994).  
22 Coin Register, no. 125. BNJ 65 (1995).
12. Ruler: 
   Type: Styca
   Moneyer: 
   Weight: 20.42 g
   Provenance: M/D find, South Newbald, Yorkshire, 1979-82
   Location: Not recorded

Although this piece was originally published as coming from Sancton, the Sancton material has since been revealed to have come from a productive site at South Newbald, Yorks. The coin inset is badly corroded, making identification of the ruler or moneyer impossible. The condition of the piece probably also means that it is considerably under its original weight. This may thus have represented an eyrir somewhere in the 24–26.6 g range, but close identification of the weight unit is impossible.

13. Ruler: 
   Type: Styca
   Moneyer: 
   Weight: 16.41 g
   Provenance: M/D find, whereabouts uncertain.
   Location: British Museum

Most of the coin is missing, and it has left little impression in the lead, making precise identification impossible, although the remaining fragments leave no doubt that the coin was a styca (see Fig. 5). In addition to the missing coin, the lead is damaged, and the piece as a whole must be significantly below its original weight. With so much missing, it is difficult to estimate the original weight, although it probably weighed something around one eyrir.

14. Ruler: Æthelred II, king of Northumbria (first reign)
   Type: Styca
   Moneyer: Fordred
   Obverse: +E-BFLRED
   Reverse: +FORDRED
   Weight: 17.4 gr
   Provenance: Viking grave, Kiloran Bay, Colonsay
   Location: National Museums of Scotland, Edinburgh

If this and items 15 and 16 below were originally weights, only the coins have survived. Nevertheless, there are a number of reasons for supposing that they may originally have formed parts of coin-weights similar to the others described here. Firstly, stycas are rare finds in Scotland, even in Viking contexts, the main exceptions being hoards from areas of the Scottish borders.

23 J. Booth and I. Blowers, 'Finds of sceattas and stycas from Sancton', NC 143 (1983), 39–45, no. 64. See also n. 21 above.
which should probably be considered as part of Northumbria during this period. Secondly, the two coins were found in a Viking grave, together with a set of scales and several other weights of Viking manufacture. Thirdly, both coins were pierced with a single hole through the centre. Piercing of this sort seems unlikely to have been to allow the coin to be worn as jewellery, and stycas are in any case unlikely to have been considered attractive enough to wear as jewellery. As Archibald points out, this sort of central piercing is consistent with the central pin used to fasten the coin to the lead on item 19 below. While the fact that the lead of the other weights in the grave survived in good condition could be interpreted to suggest that the coins did not originally form parts of weights, the coins were only discovered in a later stage of the excavation, after the comparatively stable environmental conditions of the grave had thus been disturbed. It would therefore not be surprising if the coin-weights (if such they were) had deteriorated more than the weights discovered earlier. With only the coins remaining, there is no way of estimating the size of the original weights. The fact that the other weights from the grave were found together with a pair of scales is a fairly clear indication that this was a set of weights, of which the two putative coin-weights may have been a part. However, the other weights in the set cannot all be made to correspond to a single weight standard, and this should warn against the assumption that the coin-weights should necessarily correspond with a clear system of aurar and ertugar. The presence of the coins together with a number of other decorated weights may indicate that the function of the coins in the weights was purely decorative, as Skjaare suggested for the comparable weights from Vig. However, there is no clear indication that the putative coin-weights and the other coin-weights in the grave shared a common origin, even though they ended up in the same set of weights, and they may originally have had a separate function. In this respect it is important to note that the Viking settlements in Scotland apparently used coinage considerably less in the ninth and early tenth centuries than their counterparts in the Danelaw, since unlike the latter they did not inherit a monetary economy when they conquered and settled.

15. Ruler: Archbishop Wigmund of York (837-54)
   Type: Styca
   Moneyer: Coenred
   Reverse: +COENRED
   Weight: 14.8 gr
   Provenance: Viking grave, Kiloran Bay, Colonsay
   Location: National Museums of Scotland, Edinburgh

See item 14 above for discussion.

16. Ruler: —
   Type: Styca
   Moneyer: —
   Weight: —
   Provenance: Viking grave, Kiloran Bay, Colonsay
   Location: Lost

Like items 14 and 15, this coin was part of the grave goods from Kiloran Bay, and it is possible that it may also have been part of a coin-weight. However, the coin itself is lost, and it is only recorded that it was illegible. It is therefore not fruitful to discuss it further.

27 Archibald, as in n. 4, p. 15.
28 J. Graham-Campbell, pers. comm.
29 S. Kruse, pers. comm.
31 SCBI 6, no. 43.
32 Grieg, as in n. 26, p. 59; SCBI 6, p. xx.
17. Ruler: Archbishop Wigmund of York (837-54)
   Type: Styca
   Moneyer: Coenred
   Obverse: +[VIG]JIVMD[A]REP (N reversed)
   Reverse: +COENRED
   Weight: 1.21 gr
   Provenance: Viking grave, Kingscross Point, Arran
   Location: National Museums of Scotland, Edinburgh

As with the two coins from Kiloran Bay, if this was once part of a weight, only the coin has survived. The suggestion that this may have formed part of a weight comes again from the comparative rarity of styca finds in Scotland and the fact that, like the coin-weights from Vig and the putative coin-weights from Kiloran Bay, the coin comes from a Viking grave, although most Scottish styca finds are in non-Viking contexts in the Borders. Unlike the Kiloran Bay coins, it is not pierced, but since the majority of weights of this type were simply pressed into the lead without pins, this is not a significant omission. Once again, with only the coin surviving, there is no way of estimating the size of the weight, if weight it was.

18. Ruler: Coenwulf, king of Mercia (796-823)
   Type: North 357
   Moneyer: Ealhtan
   Mint: -
   Obverse: +COENWVFREXM
   Reverse: +EALHTANMONETA
   Weight: 1.37 g
   Provenance: Cirencester, Gloucestershire
   Location: British Museum

Like items 14-17, only the coin now survives if this was ever a weight. As with the Kiloran Bay coins, the possibility that this may have been a weight is suggested by Archibald on the grounds of its central piercing. However, in the absence of the lead it is impossible to guess the original weight, although the use of a broad penny may imply a larger weight than those with styca insets. The Gloucestershire findspot lies outside the normal distribution of such objects in areas of Viking control, but Archibald points to the fact that the Great Army was based in Cirencester over the winter of 878-9, and that the army had also passed through the area earlier that year, and suggests that the find may be linked to this period of Viking activity. A coin of Coenwulf would not normally have remained in circulation at this late date, as coins of such fine silver had generally been replaced by issues of poorer silver before the arrival of the Great Army in 865. This does not preclude the survival of such coins in treasuries, however, and the Great Army had already conquered three kingdoms, as well as looting numerous royal and ecclesiastical estates, before arriving in Gloucestershire in 878. Furthermore, a coin struck c.820 would fall well within the period of Viking activity prior to the arrival of the Great Army, and the coin could thus have fallen into Viking hands, and even been utilised as part of a weight, considerably earlier than the 870s. There is thus no reason to doubt that this coin could have been used in a coin-weight in a Viking context, although the evidence for this is only circumstantial, and based to a great extent on the attribution of this group of objects as a whole to the Vikings.

33 Grieg, as in n. 26, p. 26; SCBI 6, no. 44. I am grateful to Susan Kruse for drawing my attention to this coin in the present context.
19. Ruler: Æthelred I, king of Wessex (865–71)  
Type: Lunette, hooked lines sub-type  
Moneyer:  
Mint:  
Obverse: +ÆTÆLREDÆXJ  
Reverse:  
Weight: 99.97 g  
Provenance: M/D find near Kingston, Isle of Purbeck, Dorset  
Location: British Museum  

This weight was found close to, but not with, item 19 below. Like item 20 below, the Dorset provenance is outside the area of lasting Viking control or settlement, but in an area which can be associated directly with Viking activity. It is probable that both weights use coins of a sub-type of the lunette type for which Hugh Pagan has proposed a date of c.873–4, which would mean that the attribution to Æthelred I is posthumous. He has also suggested that this sub-type was produced in Mercia rather than Wessex. Archibald has suggested that this Mercian origin makes sense in a Viking context, since the Viking Great Army which wintered at Repton in 873–4 was based close to Kingston at Wareham in Dorset in 875–6. While at Wareham, the Vikings made an agreement with Alfred, and Æthelward’s Chronicle specifies that the king “paid them money” as part of the peace agreement. Archibald argues that such a payment would probably have been weighed out in a scene similar to that represented in the ninth-century Utrecht Psalter, and postulates that weights of this sort might have been used in the payment.

The weight is well preserved, with slight damage to the base, and as a feature has a pin holding the coin to the lead. It is notable that the head of the pin is of considerably finer silver than the coin, raising the possibility that it may be a later addition. However, Archibald interprets the pin as an original part of the weight, in part by analogy with items 14, 15 and 18 above. To some extent this argument is circular, since the attribution of these pieces as coin-weights is in part due to their central piercing, by analogy with the piece currently under discussion, since the majority of the coin-weights do not contain pins. However, independent evidence for the use of pins in weights of this sort has since emerged with the discovery of item 22 below. It is conceivable in the case of the Æthelred weight that the pin may have been deliberately added as a small weight adjustment, but equally it may have been ornamental. It seems unlikely, however, that a fine silver pinhead would have been added for purely functional purposes. Allowing for the pin as part of the original weight, and for the slight weight loss occasioned by the damage to the base, the original weight would have been a little over the current weight of 99.97 g. Archibald suggests that it would correspond best to a four-aurar weight, based on a weight unit of c.26 g.

20. Ruler: Probably Alfred, king of Wessex (871–99)  
Type: Lunette, hooked lines sub-type  
Moneyer: Biarnulf  
Mint:  
Obverse:  
Reverse: FMO/BIA/NVL/ETA  
Weight: 71.44 g  
Provenance: M/D find near Kingston, Isle of Purbeck, Dorset  
Location: British Museum  


36 Archibald, as in n. 4, p. 20.
37 Archibald, as in n. 4, p. 13.
38 Archibald, as in n. 4, pp. 17–19.
This was found close to, but not with, item 19. The two weights can be seen as a pair, and much of the discussion of item 19 above also applies to this weight. The coin itself is missing from the weight, but has left a firm impression in the top of the lead. Unlike item 19, it had not been pinned into place. The coin was originally mounted with the obverse showing, and has thus left an impression of the reverse. This means that the moneyer can be identified clearly, but the ruler is less certain, since coins of this type were struck in the names of Æthelred I, Alfred and Burgred. However, Archibald has noted that the moneyer Binnulf struck coins for Alfred in the substantive lunettes type and in another sub-type, but is not known to have struck for either Æthelred or Burgred, making it most likely that one of Alfred’s coins was utilised in the weight.39

The missing coin obviously detracts from the original weight of the object, and general wear accounts for a further slight loss. Archibald estimates that, like item 19, it may originally have been based on an eyrir of c.26 g, although this weight would then have represented three aurar, rather than the four aurar or half-mark of item 19.40

Type: Lunette
Moneyer: Dudd
Mint: –
Obverse: –
Reverse: +DVDD/MONETA (in three lines)
Weight: 10.60 g
Provenance: M/D find, said to be found near Malton, North Yorkshire.
Location: British Museum

The attribution of the coin to Alfred is not completely certain, since only the reverse is visible (see Fig. 6). In Simmons and Simmons catalogue no. 154, the coin is attributed to Burgred of Mercia. However, coins of the ‘lunette’ type were struck for Æthelred I and Alfred of Wessex as well as for their brother-in-law Burgred, and the moneyer Dudd(a) struck for all three rulers.41 This particular coin is extremely similar in style to a penny of Æthelred by the same moneyer in the Hunterian collection,42 raising the possibility of an Æthelred attribution. However, the coin appears to have been struck from the same reverse die as a coin of Alfred, formerly in the Lovett collection.43 Interestingly, this coin appears to give Alfred the title of king of Mercia. This is probably a slip by a Mercian die-cutter producing dies for Alfred, and the close similarity with the Hunterian coin suggests a close link with Æthelred as well as Burgred. Nevertheless, the die-link does give grounds for preferring Alfred over either of the alternative candidates. The surface of the lead is distinctly uneven, making it difficult to ascertain the original dimensions and weight. If, like most of the other examples, the weight was originally a flat cylinder, it has lost a

39 Archibald, as in n. 4, p. 13.
40 Archibald, as in n. 4, pp. 17–19.
43 I am grateful to Hugh Pagan for drawing my attention to this.
significant amount of metal. However, if the underside was more dish-shaped, as seems possible, the weight loss would be less. In the latter case, the weight may originally have represented a half *eyrir* of around 12–13 g. In the former case, it may have represented two *ertugar*, at around 16–17.5 g, but both figures are highly conjectural.

22. Ruler: Uncertain, 10th century  
Type: Circumscription Cross  
Moneyer: –  
Mint: –  
Obverse: –  
Reverse: –  
Weight: 48.8 g  
Provenance: M/D find, East Yorkshire, 1999  
Location: In the process of purchase by the British Museum

This piece is apparently unique in having two coin halves rather than a single coin set into the top (see Fig. 7). What makes this particularly interesting is that the two halves do not appear to match. The shapes of the edges do not match up, nor does what is visible of the inscription, even allowing for a slight overlap of the two halves. This suggests that it was thought important to have the appearance of a whole coin mounted on the coin, but that whoever produced the weight only had cut halves available at the time. The weight is also remarkable in having two iron pins or rivets holding each of the coin halves into place, in contrast to the fastening with a single pin discussed on various others weights or putative weights of this type. Both halves are of a circumscription cross type common to several rulers in the tenth century. However, there are various other types which share the same design on one side, but with a different design on the other. One half clearly comes from a reverse. The lower of the two halves at the point where they overlap begins halfway through an S, with the next letter obscured by a rivet, followed by an O or a D, followed by an A or an H (which might also represent M or N). The other half has an initial cross followed by a clear E, followed by something which might be an A or an R, which is partially obscured by the rivet which follows it. This might also represent a reverse, in which case, like the other half, it could belong to almost any ruler of the tenth century. If it is an obverse, however, the choice of possible rulers is narrowed down to Eadward the Elder, Eadmund, Eadred, Eadwig, Edgar or Eric Bloodaxe. Stylistically the coin appears to be comparatively early, and an attribution to Eadward the Elder would be consistent with the broad shift towards a monetary economy in the Danelaw in the latter part of Eadward’s reign. The weight would otherwise be considerably later than the others in the group. However, the condition of the object does not encourage a firm attribution. Furthermore, the uneven shape of the object and the use of two halves rather than a single coin in any case sets this weight apart from the rest, so a later date seems not implausible.
Origin

The distribution of these weights as a whole place them firmly in a Viking context. All but one of the weights in this group have at least approximate provenances, and the majority of these come from the Danelaw, with further examples from Norway and the Western Isles of Scotland, which were also settled by the Vikings in the ninth century. The three exceptions, two from Kingston in Dorset, and one from Cirencester, are plausibly linked with Viking activity in the 870s. The five weights (or postulated weights) with recorded find contexts derive from Viking graves. There thus seems little reason to doubt the Viking origin of the weights. However, the fact that these weights exclusively use coins minted in England, and that the vast majority have been discovered in the British Isles, suggests quite strongly that they were manufactured in the British Isles and probably in the Danelaw. The majority of the weights utilise coins of the mid-ninth century, although two utilise earlier coins, and a single coin of the tenth century is also known. It is unclear whether the two earlier coins represent earlier weights, or whether they reflect the re-use in the mid-ninth century of coins which were no longer current. The single tenth-century weight appears on present to be a late survival of a weight type which apparently predominantly dates from the third quarter of the ninth century. This was the main period of Viking conquest and settlement in England, but predates the establishment of the Anglo-Viking coinages in East Anglia, Northumbria, and Mercia. The weights thus belong to a period in which the Viking economy was still bullion-based rather than properly monetary, but during which the Vikings in England were becoming increasingly familiar with Anglo-Saxon coinage.

Weight units

If one accepts that the weights are of Viking origin, it makes sense to compare them with what is known of Viking weight units. Two pertinent units appear in medieval Scandinavian sources, and it is likely that these already existed in some form by the Viking Age. These are the eyrir (pl. aurar), or ounce, and the ertog (pl. ertugar), or third of an ounce. However, a number of studies based on archaeological evidence have identified units apparently equivalent to half an ertog, or one-sixth of an ounce. As Kruse points out, a weight unit of a sixth of an ounce allows for the convenient division of the ounce both into halves and into thirds. A division into sixths is also consistent with the Viking tendency towards a duodecimal system.

A number of studies have been undertaken on the basis of archaeological evidence, which appear to correlate to some extent with the ertog and eyrir of the historical record. A.W. Brogger’s classic study, based on Norwegian finds, identified two separate eyrir standards, one at 26.5g, and another at 24g. According to Brogger, the heavier standard was used in the early Viking Age, with a later shift to the lighter standard, possibly as a result of Anglo-Saxon influence. Another early study by T.J. Arne, based on Swedish finds, identified a weight unit of c.4 g, and possibly another of c.4.25 g. These, in comparison with Brogger’s figures for the eyrir may plausibly be identified with the half ertog. Both versions of this unit find some corroboration in more recent studies. Kyhlberg identifies units of c.4 g and 4.266 g on the basis of weights from Birka, while Heiko Steuer suggests units of c.4 g and 4.26 g on the basis of weights from Hedeby. The postulated c.4.25 g, 4.26, and 4.266 g units may clearly regarded as a single unit, the most optimistic studies of Viking metrology would argue for rigid control within one-hundredth of a gramme. Both the 4 g and the c.4.25 g unit would be compatible with two suggested figures for the ertog; that of Nielsen (based on weights) at 8.1 ± 0.4 g, and that of Lundström (based on ingots) at 7.78–8.64 g.
Nielsen also proposed an eyrir of 24.4 ± 0.8 g, which falls close to Brøgger’s 24 g unit. This also agrees with Richard Warner’s analysis of Scottish-Viking ‘ring-money’, which produced a weight-unit of 24.0 ± 0.8 g.\textsuperscript{50} The eyrir of c. 26.5 g also finds more recent support. Patrick Wallace suggested a unit of 26.6 g, based on weights from Dublin, and two lead weights of 26.65 g each have recently been recovered from a Viking boat burial at Scar on Sunday, Orkney.\textsuperscript{51} Early silver arm rings from Ireland are identified by John Sheehan as relating to a standard of 25.9 ± 0.4 g to 27.3 ± 0.9 g, while Warner relates these to a target of 26.15 g.\textsuperscript{52} It is notable, however, that the half-ertog of 4.25 g would give an eyrir of 25.5 g rather than 26.5 g. Kruse, on the basis of silver ingots found in England and Wales, argues for a somewhat looser figure of c. 25–26 g.\textsuperscript{53} Kruse has also expressed doubts as to the precision of some of the figures cited above. All of these are based on very limited samples of material, which would raise questions of statistical validity under the best of circumstances. When one adds the instability of lead, and the fact that in a number of cases weights are only estimates based on the reconstruction of damaged or fragmentary material, it seems unlikely that the narrower figures can be considered reliable.\textsuperscript{54} Certainly with many of these estimated standards there are objects which miss the estimated target by significant amounts, although in some cases the discrepancy may be explained by regarding the weights as multiples of smaller units such as the ertog or the half-ertog, rather than representing complete aurar. However, discrepancies in weight between ingots from a single mould indicate a lack of complete metrological stability, and suggest that a certain amount of imprecision was tolerated in the casting process,\textsuperscript{55} and a similar tolerance may explain the weight variations in other types of artefacts such as the silver ‘ring-money’.

A slight degree of imprecision must also have been tolerated during transactions involving weighing out silver, whether in the form of coins or bullion. Experiments with an early Anglo-Saxon balance show that it was disturbed by a weight of 0.06 g, tilts through 2 degrees on 0.09 g, 5 degrees on 0.17 g, and 10 degrees on 0.23 g; consistent with tests on Migration-Age balances from Norway, and Viking-Age balances from Sweden. According to Christopher Scull, ‘This suggests that although accuracy to .06 g could be achieved with care, discrepancies of up to 0.20 g may have been tolerable.’\textsuperscript{56}

A number of possibilities thus arise from the archaeological evidence: a single eyrir standard somewhere in the 24–26.6 g range, but only very approximately applied; two main standards of c. 24 g and c. 26.6 g, both subject to considerable variation in different times and places; no single standard across the Viking world, but a variety of local standards, possibly quite tightly controlled within a particular sphere of commercial activity, but with potential for some variation in weight over extended periods.

Of the eighteen weights in the group, six appear to relatively close to their original weight. A further six are damaged, but in such a way that it is possible to estimate broadly what the original weight may have been, while another one is in such poor condition that it seems impossible to guess the original dimensions or weight. The remaining five, if weights at all, survive only as coins, with no clues to the extent of the original weight.

All the pieces which appear to be close to their original weights tie in relatively well to a broad weight standard of an eyrir of 24–26.6 g. The two weights found near Kingston (items 19 and 20) apparently correspond to a four-unit and a three-unit respectively, with a fairly high eyrir of c. 26 g. Four more pieces cluster round the two-ertugar range of 16–17.5 range. Item 5 is at the


\textsuperscript{52} Cited in Kruse, as in n. 44, p. 288.

\textsuperscript{53} Kruse, as in n. 44, p. 294.

\textsuperscript{54} I am grateful to Susan Kruse for our recent discussion of this point.

\textsuperscript{55} Kruse, as in n. 44, pp. 294–7.

\textsuperscript{56} C. Scull, ‘Scales and Weights in Early Anglo-Saxon England’, Archaeological Journal 147 (1990), 183–215, at p. 188.
upper end of its range, with an implied *eyrir* standard of c. 26.6 g. Items 9 and 11 are at the opposite extreme, slightly below an implied *eyrir* standard of 24 g. The remaining one (item 10) lies in between at 16.43, with an implied *eyrir* standard of just under 25 g. This range supports the interpretation of a single broad standard, since all the weights are assumed to be of similar date, and to have been produced in more or less the same area. The remaining weights for which it is possible to estimate weights probably also correspond with the same standard, with three estimated at an *eyrir* somewhere in the mid-20s, a fourth at half an *eyrir*, and a fifth either at half an *eyrir* or two *ertugar*, but their original weights cannot be estimated with sufficient precision to provide any useful information about precise weight standards. If the two weights at half an *eyrir* are estimated correctly, this lends support to Kruse’s view of the importance of the half-*ertog* unit permitting the convenient division of the *eyrir* into either halves or thirds.

**Function**

The use of coin-weights of this type can be explained in three different ways, corresponding to different interpretations of the sophistication of the monetary system in Viking England. Firstly, the coins can be regarded as purely decorative, and merely a sub-group of the broader class of Viking weights of this period which use items of insular metalwork to decorate otherwise unattractive lead weights, and possibly also to customise them so that their owners could readily recognise their own weights, and distinguish individual weights within a set. Under this interpretation, there would be no significance in the use of coins as such, and the weights would have functioned purely in the measurement of silver bullion, with no reference to the coin-types represented on the weights. As mentioned above, Skaare suggested that items 6 and 7 were purely decorative, on the somewhat curious grounds that one weight shows the coin obverse, while the other shows the reverse. With this in mind, one may also note that the more recent finds of styca-weights also show no consistency in whether the obverse or reverse is shown. A purely decorative function is also consistent with the use of the fine silver pinhead on item 19, and the re-use of older coins which were no longer current, as well as of styca, which the Vikings do not seem to have valued highly as coins, preferring the broader silver pennies even in Northumbria.

This explanation is not wholly satisfactory. In the first place, the majority of Vikings were presumably illiterate, and would thus have been unable to distinguish the obverse from the reverse of styca, and it is thus inappropriate to build too much into the orientation of these particular weights. In the case of the weights utilising broad pennies, obverse and reverse would have been more readily distinguishable, and two of the three must have shown the obverse, while the Coenwulf coin was pierced from obverse to reverse, implying that it was also mounted with reverse showing. However, the significance of obverse and reverse on any of these coins is probably rather more apparent to modern numismatists than to illiterate Vikings, unused to a monetary economy. The orientation of the coins thus gives no real indication as to the significance of the use of coins on the weights. A further argument against the decorative function of the coins is that styca are not enormously attractive decorative objects, although they would presumably have been more attractive than now, when the metal of the coins was still comparatively bright and uncorroded. The attractiveness of the decoration would also probably be less important if, as suggested above, part of the function of the decoration was ease of identification rather than aesthetic appeal alone.

A final argument against the purely decorative interpretation of the group as a whole is the appearance of item 22. The weight itself is crudely shaped, and the two coin halves on the top have not even been carefully aligned, while the four iron pins can never have been visually attractive. In particular, the use of the two coin halves indicates very strongly an expectation that a whole coin should be included in the weight. Since other types of metalwork inset into weights are not always evenly shaped, and some weights are even shaped to match the inset, there seems no reason to have produced a weight with two coin halves rather than one, unless the whole coin was deemed to have some significance. However, since this weight is anomalous both in its late date and its clumsy execution, it is dangerous to generalise too far on the basis of this particular object.
The possibility that, within the group as a whole, the function of the coins was either purely decorative or a combination of decoration and ease of identification cannot therefore be excluded.

At the opposite extreme, the selection of specific types of coins could be regarded as significant. That the Vikings were interested in the quality as well as the quantity of metal received in payment is generally recognised, and is clearly demonstrated by the process of pecking which appears on a large number of coins and other objects from Viking contexts. The metal content of Anglo-Saxon coins in the ninth century varied considerably, and one could argue that the weights were specifically customised for use in measuring out set weights of specific coin types, taking account of the relative purity of the different types, to achieve a specific value in pure silver.

This seems a little far-fetched, for two reasons. Firstly, as discussed above, the metrology of Viking weight units seems to have been relatively imprecise. The acceptance of such imprecision in the measurement of quantity, despite the sensitivity of the balances of the period, makes it unlikely that the weights were intended to fit into a system which measured quality quite so rigidly. A more flexible system, allowing the Vikings to weigh whatever precious metal came their way, seems more plausible. Furthermore, if the coin-weights were used to weigh specific coin types, it is remarkable that so many of the weights utilise Northumbrian stycas, although these rarely occur in Viking contexts, and seem to have been little used by the Vikings as coinage per se. One could even argue that stycas were used so readily on the weights precisely because they were not considered valuable as coins, and thus would not themselves be useful as a means of payment. It is also unlikely that sufficient numbers of 'porcupine' pennies and pennies of Coenwulf came into Viking hands to justify the creation of type-specific weights for these coin-types.

A third interpretation, and one favoured by the author, lies between the two extremes. This interpretation views the coin weights as more than purely decorative, but does not require any sophistication in the silver economy of early Viking England. It is clear from the speed with which the Viking settlers in England adopted coinage that they quickly recognised the symbolic importance of striking coins. Purely as a means of exchange, coinage offered no great advantage over hack-silver, especially since both coins and other silver items used in payment often seem to have required validation by pecking or other methods to establish the quality of the silver. The adoption of coinage was thus as much the adoption of a cultural ideal and symbol of authority as an economic development.57

As discussed above, the evidence of the coins used suggests that this type of weight was current in the earliest years of Viking settlement, before they had begun to issue coins of their own, but after they had already become familiar with Anglo-Saxon coinage. As item 22 shows, such weights remained common into the tenth century, even though a number of Viking rulers in England had begun to issue coins by this time. However, it is clear from the hoard evidence that even after the introduction of Anglo-Viking coinage, coins and hack-silver continued to circulate side by side, and bullion remained a central part of the Viking silver economy.

It is proposed that the coin-weights functioned as bullion weights, with no direct relationship to any type of coinage. Where it is possible to check, the weights appear to correspond with established Viking weight units, although with a degree of variation which supports Kruse's contention that these weight-units were seldom very precise. However, the use of coins in the weights may have been a deliberate attempt to place a symbol of authority on the weights, implying a degree of control, but with little concern for the identity of the original authority behind the issue of the coin. This would be consistent with the wide variety of coins used in the weights, and even with the use of the two coin halves on item 22. It would also be consistent with the apparent disregard for the relative importance of obverse and reverse in the mounting of the coins.

It is even possible that the design of the weights was influenced by the Anglo-Saxon weight type discussed in the first part of this paper. Substantial payments in coin to the Vikings would certainly have been weighed out, and the Vikings may well have come into contact with Anglo-Saxon weights struck from coinage dies in this context. Such contact would have helped to established the concept of the coin design on the weight as a symbol of authority. The fact that the

57 G. Williams, 'Monetary borders and the ideology of kingship in the early Middle Ages', NC 161 (2001, forthcoming).
Viking weights incorporate whole coins, rather than being struck from coinage dies, probably reflects the fact that these weights were apparently introduced before the Vikings in England had coins, and therefore, dies of their own. Once the new type was established, this established a pattern which continued even after coinage dies became available, as shown by item 22.

**Summary and conclusions**

On the evidence of form and distribution, lead weights incorporating Anglo-Saxon coins as part of the design can be divided into two groups. The first, struck using coinage dies, is here identified as typically Anglo-Saxon, and directly connected with the issue of coins from various mints. On the basis of current evidence, this type of weight is known from the late ninth century to the mid-eleventh century, shortly before the end of Anglo-Saxon rule. The second group, with Anglo-Saxon coins inset in the top, is seen as typically Viking, probably of Danelaw origin, with a function of weighing out silver bullion, possibly including coinage *inter alia*. This group predominantly dates from the late ninth century, with a single later example probably from the tenth century. The weights of the Viking group probably did not have the same 'official' status as the Anglo-Saxon weights, but the idea of using a coin image as a symbol of authority or of recognised weight standards may have been derived from Anglo-Saxon weights, and reflects growing familiarity with Anglo-Saxon coinage in the early period of Viking settlement in England.