# THE COINAGE OF BEONNA IN THE LIGHT OF THE MIDDLE HARLING HOARD

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with contributions by
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ONE hundred years ago, just five silver pennies of the eighth-century king Beonna of East Anglia were known, and this total stood until 1968, when Mr H. E. Pagan recognised an early-nineteenth-century find from Dorestadt as an unrecorded Interlace type for the reign (C76).[1] During the past eight years, the number of known Beonna coins has shot up to seventy-six. The first of these 'new' coins came to light in 1978 when the British Museum purchased an example of the Interlace type which, it later transpired, had been found at Packenham, Suffolk (C71). This was followed in 1980 by the acquisition of a new all-runic type by the moneyer Wilred, hitherto unrecorded for Beonna, found at Barham, Suffolk (C61). The principal source of new material was however, Middle Harling, Norfolk, where coins from a dispersed hoard of Beonnas and *sceattas* began to be recovered late in 1980. The first coins were found by Mr Tony Frost using a metal-detector near his home. He carefully plotted the find-spots, and took the coins to the Castle Museum, Norwich, which he had kept informed of earlier discoveries from other local sites. The keeper of archaeology, Miss Barbara Green, and her colleagues, Dr Sue Margeson and Mr W. J. Milligan, gave every assistance and Mr A. J. G. Rogerson of the Norfolk Archaeological Unit, with the help of Mr Frost, undertook an exploratory excavation of the find-spot. Mr Rogerson gives a short account of the excavations at Middle Harling and of the background, below pp.36–7, and is preparing a full-scale report to be published in *East Anglian Archaeology*.[2] The first group of thirty-seven Beonnas was declared treasure trove at an inquest held by the Coroner, Dr E. G. Clark, at Diss, Norfolk, on 12 January 1982 and was acquired by the British Museum under the usual treasure trove provisions. Meantime, through the help and advice of Mr John Cherry and Mrs Leslie Webster of the Department of Medieval and Later Antiquities, the British Museum agreed to finance a more extensive excavation on the site by Mr Rogerson and his team. Mr Frost played a full part in the archaeological work and found fifteen more Beonnas. These and other coins found in the course of the excavations were the subject of another inquest held at Diss on 26 July 1983, and the Beonna coins were declared treasure trove. The British Museum acquired these coins also, but subsequently, three coins were purchased from the Trustees by the Fitzwilliam Museum, Cambridge (MH33, C42; MH43, C59; MH51, C73), and one by the National Museum of Wales, Cardiff (MH26, C34). One Beonna coin found at Middle Harling, but some distance from the excavated area, was sold on the market (MH53, C64). The British Museum has so far acquired all but two of the base *sceattas* from the Middle Harling area, and also some of the other coins and archaeological material from the site. Finds have continued to be made in the environs of the excavated area and the disposition of some of the later material has yet to be decided, although it is hoped that the British Museum will be able to acquire as much of it as possible. All the coin finds from the

[1] H.E. Pagan, 'A new type for Beonna', *BNJ* 37 (1968), 10–15.

[2] The discovery of the hoard has also been discussed by T. Gregory and A. J. G. Rogerson, 'Metal detecting in archaeological excavation', *Antiquity* 58 (1984), 179–84; two popular accounts appeared in *SCMB* 763 (March 1982), 81–2, and *British Museum Society Bulletin* 42 (March 1983), 34.

site to date, in addition to those from the hoard, are briefly listed below and will be discussed in full in the excavation report.

Further Beonnas have come from two major excavations. Burrow Hill, Butley, a monastic site in east Suffolk,[3] has yielded three coins of Efe (C15, 21 and 48),[4] and two of Wilred (C57 and 58), and the author is most grateful to Mrs Valerie Fenwick, the director of the excavations, which are still in progress, for allowing them to be examined and analysed for inclusion in this survey. The excavations in Ipswich have provided two more Beonnas, one Wilred (C65, a recent find) and the only coin of Werferth (C70) apart from the solitary example in the Middle Harling hoard. The author is equally grateful to the director of that excavation, Mr Keith Wade of the Suffolk Archaeological Unit, for allowing her to record these coins and, most importantly, to analyse the Werferth. The author is also indebted to other colleagues, collectors and dealers who have drawn coins to her attention or made investigations into provenances on her behalf.[5]

## MIDDLE HARLING HOARD

The condition of the coins at discovery varied from the lightly patinated, on which the details were readily distinguishable, to those which were heavily encrusted (fig.1). The

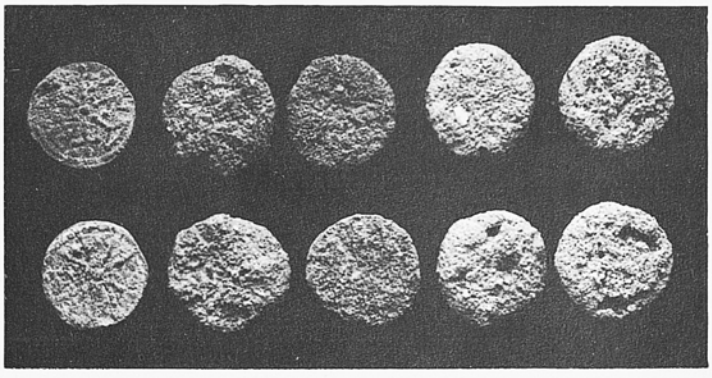


FIG. 1 Before cleaning: MH47, MH5, MH27, MH16 and MH33.

coins were cleaned by Mr K. A. Howes of the British Museum Conservation Division whose skilled treatment ensured that the coins suffered little in being removed from their cocoons. With the exception of a few badly corroded pieces, most of which were among the

[3] The coins considered in this paper are the finds up to 1981 and published by David Sherlock, 'The coins', in Valerie Fenwick, 'Insula de Burgh: Excavations at Burrow Hill, Butley, Suffolk 1978–81', *Anglo-Saxon Studies in Archaeology and History* 3 (1984), 44–53.

[4] C numbers refer to the *Corpus of Coins of Beonna*, below, pp. 34–5; MH numbers refer to coins from the Middle Harling hoard; BH, to coins from the Burrow Hill excavations; dies are referred to by the obverse and reverse dies for each moneyer as listed in Table 1, below, pp. 19–21.

[5] The author is particularly grateful to the writers of the appendices, Mr M. R. Cowell, Professor R. I. Page and Mr A. J. G Rogerson for their major contributions to this paper and to them, Mr K. Penn and Dr Simon Keynes for much helpful advice; to the finder Mr Tony Frost for his kind co-operation and to the following who have helped in the often delicate business of finding out the true provenances of finds: Messrs M. A. S. Blackburn, M. J. Bonser, T. Gregory, M. Lessen, J. Linzalone, P. D. Mitchell, D. Sorenson and the late Mr Wm. C. French, Miss Elizabeth Owles and Miss Elizabeth Pirie. She is also indebted to Dr D. M. Metcalf, Ashmolean Museum, Oxford, and to Dr D. Bateson, Hunterian Museum, University of Glasgow, for their kind permission to analyse the Beonna coins in their collections and to include them here; also to the National Museum of Wales, Cardiff, the Fitzwilliam Museum, Cambridge, and the University of Leeds for permission to include coins now in their collections and to those private collectors who have allowed their coins to be included but do not wished to be named.

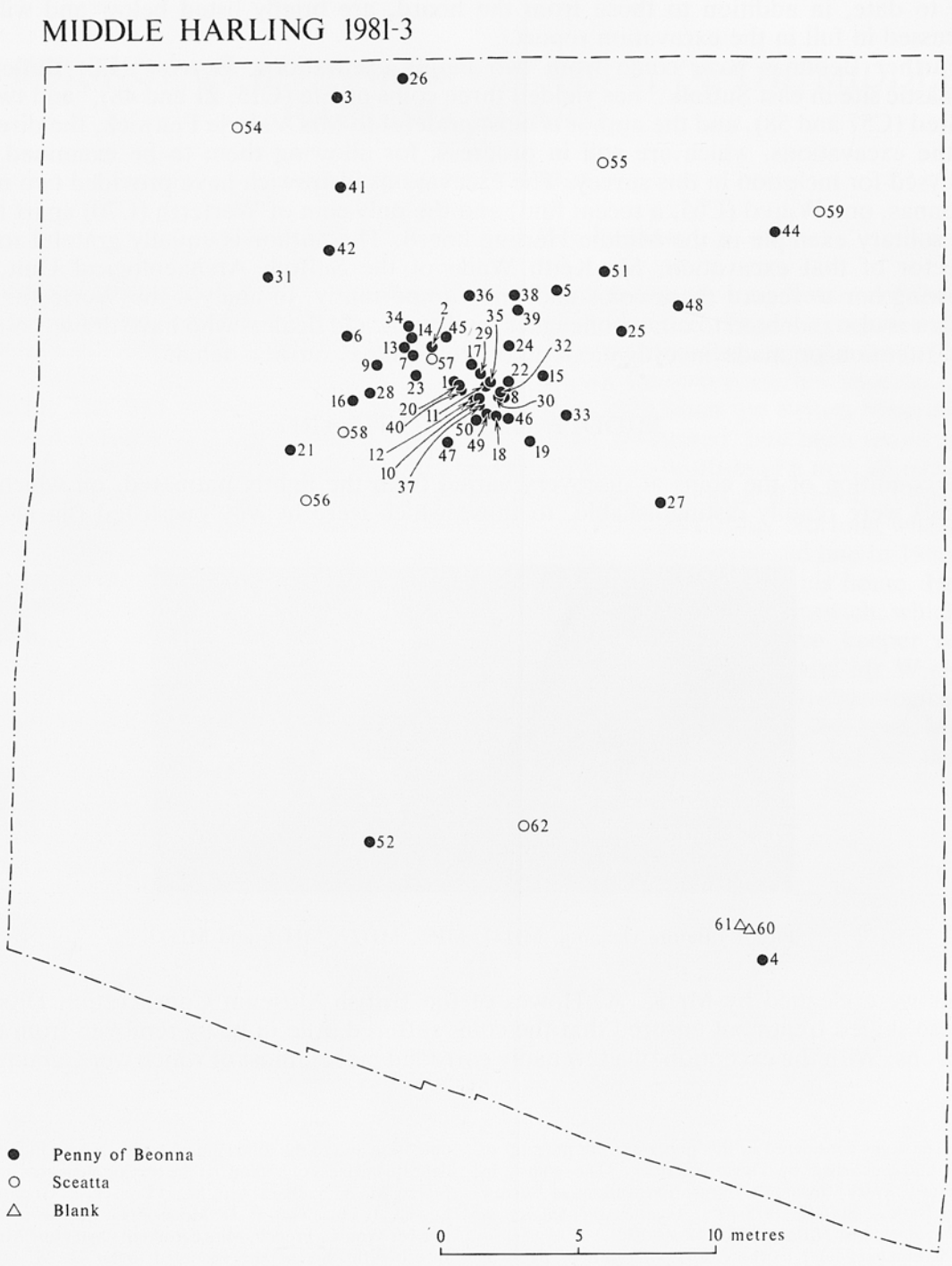



FIG 2. Site-plan of coin finds at Middle Harling 1981–3.

baser-metal coins of the moneyer Wilred, the coins proved to be suitable for analysis and their weights are probably fairly near those at which they were deposited.

The hoard was not found together, but dispersed by ploughing over a considerable area. The site-plan (fig.2), kindly prepared by Mr Steven J. Ashley of the Norfolk Archaeological Unit, shows that even the nucleus of the Beonna group covered an area of some ten metres by five metres, with outliers twenty and thirty metres away. As later coins from the ninth to the sixteenth centuries were also found scattered over the same area, it is necessary to ask which of the coins found on the site were actually from the hoard. Most importantly, were the nine *sceattas* part of the hoard, or could they have been just casual losses, or even distributed from a second, smaller, group deposited in or near the same building associated with the nucleus of the hoard? The archaeological evidence, while not completely conclusive, is in favour of the Beonnas and the *sceattas* having been deposited together. They were associated together in the nucleus of the hoard and even the most distant finds were often fairly close to one of the Beonnas. Even if judgement has to be suspended on some coins found on the periphery of the distribution, most of the mid-eighth century coins from the site must have come from the hoard and are treated as such in the rest of this report. The close date-range of the material, and the unexceptional character of the outliers mean that this assumption is unlikely to distort the picture very seriously. Middle Harling then, as known to date, contained sixty-two coins, fifty-three of them Beonnas, and, possibly, two blanks discussed below. It is the only known hoard to include coins of Beonna, accounting for fifty-three of the present total of seventy-six, and, apart from Aston Rowant from which 324 coins were recovered, and the ill-recorded Hougham hoard with some 300 coins,[6] it is the largest hoard of the *sceatta* period from England.

*The Beonna coins*

The Middle Harling hoard contained thirty-seven coins of Beonna by the moneyer Efe, twelve by Wilred, one by Werferth and three of the Interlace type which lacks a moneyer's name (two complete coins and a fragment representing about half a coin, but not a cut-halfpenny). Of the dies of Efe, eight of the eleven known obverses and twenty-three of the twenty-eight known reverses are present and two more of the reverses die-link into them. Of the dies for Wilred, ten of the fourteen obverses are present on coins in the hoard, three more obverse dies die-link into them, and six of the seven reverse dies are included. The Werferth coin is from the only pair of dies known, and, for the Interlace type, one of the two obverse dies is present and there is only one known reverse die. The only major variety not included in Middle Harling is the Efe with an all-Roman obverse, known at present from a single specimen in the Hunterian Museum (*SCBI* Glasgow 413, C49). The Beonna coins found outside the hoard all die-link into it with only four exceptions (three Efes and one Wilred), none of which are of chronological significance. The Middle Harling hoard is therefore representative of the entire range of the coinage of Beonna as it is known at present, from the best metal coins of Werferth to the worst of Wilred (see below pp. 25–7). The three-to-one ratio of Efe to Wilred in the hoard is also found among the aggregate of the Beonnas from other finds. There are many more die-duplicates among the coins of Efe than those of Wilred in the hoard; this is a clue to some local bias in the contents and will be confirmed by the general distribution pattern of these moneyers' coins discussed below.

Although the hoard includes representatives from, apparently, the entire span of Beonna's coinage, none of the coins is worn. When all coins of poor appearance as a result

[6] J. P. C. Kent, 'The Aston Rowant treasure trove', *Oxoniensia* 37 (1972), 243–4 and *CH* 1 (1975), No. 347; C. E. Blunt, 'The Hougham hoard of sceattas *c.* 1780', *NC* 1979, 108–10.

of poor striking, die-wear and corrosion are discounted, there is no obvious difference in condition between any of the groups of coins present: the good-metal Werferth is just as sharp as the base-metal Wilreds, and the coins on small *sceatta*-like flans for Wilred are at least as sharp as the broader-flanned Interlace coins. Some of the base-metal Wilreds (e.g. MH42) do, however, have a sort of mint bloom which is lacking on the others. This suggests that the whole of the coinage of Beonna was issued over a comparatively short period. Quantifying this is more difficult. The Middle Harling hoard is unique; there is no comparable hoard of the related, but longer-running, Northumbrian silver coinage which might provide some index of how long such coins took before beginning to show signs of wear. The best comparison is with the Aston Rowant hoard which must be about forty years earlier in date. It comprises only the *sceattas* of the heavier and finer Primary and Intermediate series whose relief is often higher than those of the Secondary series, to the end of which the Beonnas belong. The earliest coins in Aston Rowant were about forty years old when it was deposited, and they do show some signs of wear, but it is not excessive. While, therefore, the Beonnas seem to have been struck over a short period, a coinage lasting a decade or so, if it were required for other reasons, would be quite possible. The absence of die-linking between the obverse dies, except in a single instance discussed below, would also suggest that the coins were not all made within a very narrow period.

The Beonna coins present in the hoard are listed below, identified by die numbers and cross-referenced to the *Corpus of coins of Beonna* where full details are given.

Middle Harling hoard: list of Beonna coins

All of the coins are in the British Museum collection with the exception of the following: MH33, 43 and 51, Fitzwilliam Museum, Cambridge; MH26, the National Museum of Wales, Cardiff, and MH53, private hands.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MH1. | Efe | 1/1 | (C1) | MH32.–33. | Efe | 5/17 | (C41–42) |
| MH2.–4. | Efe | 1/2 | (C2–4) | MH34. | Efe | 6/18 | (C44) |
| MH5. | Efe | 1/22 | (C5) | MH35. | Efe | 6/19 | (C45) |
| MH6. | Efe | 2/3 | (C7) | MH36. | Efe | 7/20 | (C46) |
| MH7. | Efe | 2/4 | (C8) | MH37. | Efe | 8/21 | (C47) |
| MH8. | Efe | 2/5 | (C9) | MH38. | Wilred | 1/1 | (C52) |
| MH9.–10. | Efe | 3/6 | (C10–11) | MH39. | Wilred | 2/1 | (C53) |
| MH11. | Efe | 3/7 | (C12) | MH40. | Wilred | 3/1 | (C54) |
| MH12. | Efe | 3/8 | (C14) | MH41. | Wilred | 11/1 | (C55) |
| MH13. | Efe | 3/9 | (C16) | MH42. | Wilred | 4/2 | (C56) |
| MH14.–15. | Efe | 3/10 | (C17–18) | MH43.–44. | Wilred | 5/3 | (C59–60) |
| MH16. | Efe | 3/23 | (C20) | MH45.–46. | Wilred | 6/4 | (C62–63) |
| MH17.–21. | Efe | 4/11 | (C22–26) | MH47. | Wilred | 8/5 | (C66) |
| MH22.–23. | Efe | 4/12 | (C29–30) | MH48. | Wilred | 9/6 | (C67) |
| MH24.–27. | Efe | 4/13 | (C32–35) | MH49. | Werferth | 1/1 | (C69) |
| MH28. | Efe | 4/14 | (C37) | MH50.–52. | Interlace | 2/1 | (C71–74) |
| MH29.–30. | Efe | 4/15 | (C38–39) | MH53. | Wilred | 13/4 | (C64) |
| MH31. | Efe | 5/16 | (C40) | | | | |

*The sceattas*

Nine *sceattas* in all were found at Middle Harling. Three of them were within the nucleus of the hoard, a Wigrd (MH56), a Tilberht with 'standard' reverse (MH57) and a Tilberht with an Efe-type reverse (MH58); four others were farther away, but usually fairly close to one of the Beonna coins (for locations see fig. 2), a devolved Epa (MH54), a devolved Wigr (MH55), a Tilberlt with a Wigrd-type obverse (MH59) and a debased London type (MH62). Two more *sceattas* were some distance from the large excavated area and so are

less certainly from the hoard, an archer type (MH63) and another Tilberht/'standard' type (MH64). These *sceattas* form a coherent group. Six are from the very latest phase of the Secondary Runic series and the archer and London coins, while possibly a little earlier, are still late in the *sceatta* coinage, and acceptable as circulating with the others. Most of these *sceattas* are corroded, so it is difficult to form a firm opinion on the important question of their wear-relationship to the Beonnas. Both groups show no appreciable wear but the Beonnas, if anything, are marginally sharper; it could be believed that they were later, or even contemporary, but not that they were earlier than the *sceattas*.

Middle Harling hoard: list of *sceattas*

All of the coins are in the British Museum collection with the exception of the following: MH63, private hands, and MH64, Fitzwilliam Museum, Cambridge. The runic legends are as read by Professor Page (Appendix 2, below).

MH54 *Obv.*: Devolved radiate profile bust to right, legend composed of three blundered runes, probably devolved from 'epa'.
*Rev.*: 'Standard' type.
Wt: 0.71g Die-axis: 180°

MH55. *Obv.*: Similar to previous, 'wigr'.
*Rev.*: 'Standard' type.
Wt.: 0.81g Die axis: 270°

MH56. *Obv.*: Similar to previous, 'wigrd'.
*Rev.*: 'Standard' type, lines extending diagonally from corners of central square very clear.
Wt: 0.78g Die axis: 180°

MH57. *Obv.*: Small, more realistic, profile head to right, legend almost iilegible, 'ti[ ]', but from same die as next, hence, 'til·berht'.
*Rev.*: 'Standard' type.
Wt. 0.51g (very corroded) Die-axis: 0°
This coin is from the same dies as a very fine example found at Barham, Suffolk.

MH58. *Obv.*: As previous, 'til·berh[t]', XX with a pellet-in-annulet at each side of XX.
*Rev.*: Devolved 'standard' type.
Wt: 0.90g Die-axis: 180°
This coin is from the same obverse die as the previous one, but the reverse is different, and seems to represent an intermediate stage in the evolution of the 'standard' type between the form used on the late runic and related *sceattas* and the reverse type used by Werferth and Efe for Beonna; its central motif is particularly close to Efe MH13.

MH59. *Obv.*: Devolved radiate profile bust to right, 'tilber[l]t', (blundered 'tilberht').
*Rev.*: 'Standard' type.
Wt: 0.83g Die-axis: 270°

MH60. and 61. are the blanks discussed below

MH62. *Obv.*: Diademed profile bust to right, +NNOONIA (retrograde and some letters blundered, devolved LVNDONIA).
*Rev.*: Man holding two crosses.
Wt: 0.75g Die-axis 0°

MH63. *Obv.*: Kneeling man drawing a bow, branch behind.
*Rev.*: Bird to right, head turned back; ∴/· beside legs.
Wt: 1.03g Die-axis 270°.
This coin is of the same types, but from different dies, as the coin found at Walbury Camp, Berks., published by Dr D. M. Metcalf in *BNJ* 47 (1977), 49, pl.III, 44, and discussed by Dr Mary Morehart in *Sceattas in England and the Continent* (BAR British Series 128), pp.181–92.

MH64. *Obv.*: Devolved radiate profile bust to right, '[ti]lberlt' (blundered 'tilberht').
*Rev.*: 'Standard' type.
Wt: 0.59g Die-axis: 180°
This coin is from the same obverse die as MH59. It was found in 1981 about 50–60 yards from the hoard site. Now in the Fitzwilliam Museum, Cambridge, it will be published by P. Grierson and M. Blackburn in *MEC* 1:713.


FIG. 3 The silver blanks

*The blanks*

Also found in the excavated area at Middle Harling were two coin-like blanks, MH60 and 61 (see fig. 3). As they were unearthed together towards the edge of the distribution-area (see fig.2), it is again necessary to ask if they were really part of the hoard. They should first be described. Both blanks are slightly concave, and neither has any trace of a design on obverse or reverse; all that is visible are hammer marks, clearer on the smaller example, MH60. This piece has intact angular edges as directly cut from a thin piece of hammered-out silver but the other, MH 61, has been hammered again after cutting out so that its edges have become more rounded and split. The blanks are nearly the same weight, 0.85g and 0.83g respectively, and have almost identical finenesses, 90.3 per cent and 90.1 per cent silver. They are too large and thin to be flans for any of the types of coin in the hoard and although their weights are just inside the lower edge of the weight-range, their metal is impossibly fine for any of the existing Beonnas.[7] Neither can they be, for similar reasons, hammered-out coins. Mr Cowell indicates below that their unusually low gold content makes it unlikely that the silver from which they were made was a major constitutent in any of the Beonna issues. On the other hand, if the blanks are not part of the hoard, it is difficult to suggest a rôle for them. They are 'new pennies' of the Offa type in flan, but fall short somewhat in fineness and their weight does not fit Offa's, or any other, official standard until the fifteenth century. If they were so late, they would have to be blanks for forgeries, and late medieval forgers seem to have made their products from much baser or plated flans rather than using metal which was only marginally under standard and relying for their profit on low weight alone. Their very coin-like appearance seems to argue against their being unfinished mounts or jewellery. On balance, it would appear to be preferable to accept the close association of the blanks with one of the Beonnas (MH4) at face value and to see them as part of the widely-dispersed hoard. In that case, they should be viewed not as blanks but as substitute coins, not necessarily of local origin. Blanks were present in the seventh-century gold hoards from Sutton Hoo, Suffolk,[8] and Crondall, Hants., (blanks now lost). Silver blanks were also present in the hoard of Merovingian silver denarii found at Saint-Pierre-les-Etieux (Cher), France,[9] buried in the early eighth century, and a blank of more '*sceatta*-like' proportions was present among the finds from Burrow Hill where the date-range of the excavation coins is so similar to that in the Middle Harling hoard. If this explanation is accepted, then the presence of substitute coins is an interesting indication of the inadequancy of the money supply and of the survival into this period of relatively

[7] As their lower weight is compensated for by their finer metal, the blanks are approximately equivalent in bullion value to the coins of Werferth.

[8] The Sutton Hoo blanks are of different sizes but in this match the coins present in the hoard; they are also at the extremities of the weight-range, one at the upper and one, like the Middle Harling pieces, at the lower limit, J. P. C. Kent in *The Sutton Hoo Ship-Burial*, I, edited by R. L. S. Bruce-Mitford (London, 1975), pp.645–46, nos 38–40.

[9] J. Lafaurie, 'Monnaies d'argent mérovingiennes des VII$^{e}$ et VIII$^{e}$ siècles: les trésors de Saint-Pierre-les-Etieux (Cher), Plassac (Gironde) et Nohanent (Puy-de-Dôme)', *RN* 6th ser. 11 (1969), 180, no. 104 (no wt).

primitive monetary conditions. It makes Beonna's introduction of a regal coinage on an improved metal standard with a sophisticated system of die control all the more remarkable, and its failure in the monetary, as well as other, contexts easier to understand.

### *Other coins found at Middle Harling*

The following coins and jettons were found in and around the site of the hoard. Those marked by an asterisk came from the excavations and are now in the British Museum collection. The others were recovered after the close of the excavation and are still in private hands. All of these coins will be illustrated and discussed in detail in the excavation report in preparation for *East Anglian Archaeology*.

*Roman Coins*

1.* Uncertain emperor. Fragment, less than half of a very worn first-century sestertius. It is hard to see how a sestertius could have been broken accidentally; this looks as if it had been done deliberately. Wt: 8.43g.

2. Antoninus Pius, 138–61AD. Dupondius, rev., Providentia, 155–8AD. (*BMC* 2024), hole to left of head (or to right of rev. figure). Wt: 11.6g.

3.* Antoninus Pius, 138–61AD. Very worn as, reverse type uncertain, with crescent-shaped 'bite' out of edge which must have been done deliberately. Wt: 7.98g.

4.* Barbarous radiate. Copy of a radiate of Claudius II, 268–70AD, posthumous type with altar reverse. Wt: 0.61g.

5.* Constans, 337–50AD. AE 3, rev., two Victories, Trier mint (*RIC* 188), holed. Wt. 1.38g.

The only one of these five Roman coins which has not been tampered with in some way is the barbarous radiate, no 4. The others have been mutilated in a manner to suggest that all five were deposited in Anglo-Saxon rather than Roman times. This is confirmed by the other material from the excavation from which Roman material was almost totally absent. The holed coins had been used as pendants at some stage, but their association with the other pieces suggests that they were no longer being used as such immediately before deposition. They could have been for use as scrap metal, or for alloying silver, but the curious mutilation of no. 3 might possibly have been done to reduce its weight to some desired standard. This suggests that the possibility should be considered that these Roman coins might have been used as weights, as was certainly the case with groups of Roman coins found with Byzantine *exagia* and balances in Anglo-Saxon pagan graves.[10] The Middle Harling pieces, however, have no marks and no obvious unit-connection between their individual weights. Some small globules of base metal (unfortunately in an unstratified context) were found which indicate metal-working on a small scale on the site.

*Kufic coin*

6. Imitation of a Samanid dirhem of Isma'il b. Ahmad, 892–907 AD, with the name of Caliph al-Mu'tadid in the area and that of his predecessor al-Mu'tamid in the margin. The copying of two rulers' names from two original dirhems onto the same imitation die is a feature of some of these copies. The legends are partly retrograde. This particular variety is apparently unpublished although work on these imitations is still at a fairly early stage. The Middle Harling imitation belongs to a group of imitations dated by G. Rispling to *c.* 893–902 AD. A Viking Age forgery of a dirhem has recently been found in the York excavations (R. Hall, *The Viking Dig* (1984), p. 92). Kufic dirhems have been found in several English hoards of the Viking period, e.g. those from Cuerdale, Lancs., buried *c.*905 and Goldsborough, Yorks, *c.*920. (The author is indebted for this entry to Mr N. M. Lowick.)

*English Coins*

7. Alfred, 871–99. Fragment of a penny of 'Guthrum' type (North 636), moneyer Tilwine (of London). Wt: 0.35g.

8. St Edmund Memorial. Post-Cuerdale period penny of blundered St Edmund Memorial type (North 483). Wt: 1.03g.

9. Edmund, 939–46. Penny of Bust Crowned type (North 698); mint, Norwich; moneyer, Hrodgar. Wt: 1.42g.

10. Edgar, 959–75. Cut-halfpenny (in fragments) of Bust Crowned type, of East Anglian style (North 751); mint, Norwich; moneyer, uncertain. Wt: 0.72g.

11. Æthelred II, 978–1016. Fragment, less than a quarter of a penny of Last Small Cross type (North 777); mint, Norwich; moneyer, uncertain. Wt: 0.23g.

[10] E.g. from Gilton Down, Kent, published by B. Faussett, *Inventorum Sepulchrale* (1856), pp. 22–23.

12. Edward the Confessor, 1042–66. Penny (in two pieces, broken along the line where it had been bent double) of Sovereign type (North 827); mint, Norwich; moneyer, Leofric. Wt: 1.02g. This is the first recorded example of the moneyer in the type. It is interesting to note the strong local bias among the Anglo-Saxon coins from the site.
13.* Edward the Confessor, 1042–66. Cut-farthing of Pyramids type (North 381); mint, Oxford; moneyer, uncertain. Wt: 0.20g.
14.* Uncertain fragment. A very corroded fragment of about a quarter of a late Anglo-Saxon penny (not a cut-farthing). Wt: 0.37g.
15. Henry I, 1130–35. Penny of *BMC* type xi (North 867) by Saiet of Winchester. Wt: 1.34g. The obverse die was also used by another Winchester moneyer in the type, but this is the first recorded coin in the type by Saiet.
16.* John, 1199–1216. Cut-halfpenny of Short Cross type Vc (North 971), by Roberd of Canterbury. Wt: 0.47g.
17. Henry III, 1216–72. Cut-halfpenny of Long Cross type IIIb (North 987), by the moneyer Nicole of Canterbury. Wt: 0.53g.
18. Henry III, 1216–72. Cut-halfpenny of Long Cross type, details uncertain. Wt: 0.34g.
19.* Henry III, 1216–72. Cut-halfpenny of class IIIb (North 987) of Nicole of London. Wt: 0.55g.
20.* Henry III, 1216–72. Cut-farthing of Long Cross type IIIb (North 987), by the moneyer Nicole, mint uncertain. Wt: 0.32g.
21.* Edward I, 1272–1307. Farthing, class IIIc (North 1045) of Lincoln. Wt: 0.32g.
22. Edward II, 1307–27. Penny, class X (late) of Canterbury. Wt: 0.97g. Very worn and clipped, suggesting deposition in the early fifteenth century.
23. Edward III, 1327–77. Penny of Pre-Treaty Coinage of Durham. Wt: 0.50g. Very worn and clipped, suggesting deposition in the early fifteenth century.
24.* Henry VI, first reign, 1422–61. Halfpenny of the Leaf Pellet Issue, (North 1512). Wt: 0.38g.
25.* Forgery. Currency forgery copying a penny of Edward IV, reverse has York type but London legend, probably late fifteenth century. Wt: 0.43g.
26.* Elizabeth I, 1558–1603. Penny, initial mark castle (North 2001). Wt: 0.48g.
27. Sterling jetton. Period of Edward II, rosette within reverse tressure/rosettes in angles of cross (Berry 7/–). Wt: 0.86g.
28.* Nuremberg jetton. Ship type, sixteenth century. Wt: 1.59g (holed). Diameter 28 mm.

There have been reports of other coins said to have been found at Middle Harling. Mr W. F. Milligan of the Norwich Museum kindly passed on a report of two coins of Henry I and two of Edward IV, found in April 1983, south-west of the site, but not shown to him. Other coins have been found in neighbouring East Harling which should be distinguished from the hoard site.

## SURVEY OF THE COINAGE OF BEONNA

### *The dies*

The dies have been numbered in an arbitrary sequence for the obverses, O1 etc., and reverses, R1 etc., of each moneyer and are all illustrated twice life size from the specimen in the best over-all condition on pls. 2–5. The legends, stops and other significant details are set out in Table 1 from which their numbers are quoted. Details which are obscure on the illustrated example, have nearly always been verifiable from other coins. Cases where a doubt remains are noted in the table. For the moneyer Efe, there are eleven obverse dies and twenty-eight reverse dies; for Wilred, fourteen obverses and seven reverses; for Werferth, one of each and for the Interlace type, two, possibly three, obverses and one reverse, making totals for the whole of the known coinage of Beonna of twenty-nine obverse dies and thirty-seven reverse dies. There are no obverse die-links between moneyers and only one reverse die-link between obverses of the same moneyer (Efe R15 with O6 and, in a later state, with O4). Some of the obverse dies are remarkably similar, and the possibility of re-cutting has been considered, but rejected. The forms of the legends and their linguistic significance are discussed in Appendix 2 by Professor Page whose transcriptions are followed throughout.

*Efe*

On the obverse dies used by the moneyer Efe, the king's name and title are most frequently spelt BEOnna REX, in a mixture of runes and Roman capitals, but one die reads BEnna REss (O3) and another is entirely in Roman capitals, BEONNA REX (O9). The X is often ill drawn and in some cases appears as a tiny letter apparently squeezed in after the rest of the legend had filled up the available space (O2, O5 and O7). The initial cross sometimes looks as if it too were almost an after-thought (O2, O4 and O6) and, in two cases, it has been omitted altogether (O5 and O7). The king's name is usually

TABLE 1
*Obverse and Reverse Dies*

1. In the legends, Roman letters are denoted by capitals, and runic letters by lower case letters as proposed by Professor Page (Appendix 2, below).
2. The groups of pellets are shown in a standarized form to denote their number rather than their precise position relative to the cross and letters, which may be noted on the plates where every die is illustrated twice life size.
3. The following abbreviations have been used: for the central motif on the obverse, p in c denotes a pellet within a circle of pellets, p in c (a) denotes the dies where the pellets of the inner circle also form the base of the letters of the legend, and p in c (b) the dies where the bases of the letters merely extend into a multi-pelleted inner circle; for the central motif on the reverse, pc denotes a cross made from five pellets joined up, and 4p and 5p where the pellets are not joined by lines.
4. Retrograde legends are denoted by (R).

| OBVERSE | | | REVERSE | | |
|---|---|---|---|---|---|
| *Die number* | *Central motif* | *Obverse legend* | *Die number* | *Central motif* | *Reverse legend* |
| *EFE* | | | | | |
| 1 | + | +BEOnna REX | 1 | 5p | + E F E central motif 5p not 1p |
| | | | 2 | 5p | ∴ + ∴ ·E ∴ ∴ F· ∴ E ∴ |
| | | | 22 | 5p | ∴ + ∴ ∴ E ∴ ∴ F ∴ ·E ∴ |
| 2 | p in c | +BEOnna REX | 3 | 5p | + E F E |
| | | | 4 | 5p | 4p E F E |
| | | | 5 | 5p | ·+· ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| 3 | p in c | +BEnna REss | 6 | pc | + E ∴ ∴ f ∴ ∴ E ∴ |
| | | | 7 | pc | + E ∴ F ∴ E ∴ |
| | | | 8 | pc | + ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 9 | pc p in each angle | +: ∴ E ∴ ∴ f ∴ ∴ E ∴ |
| | | | 10 | pc | .+ ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 23 | pc | ∴ + ∴ ∴ E ∴ :f ∴ ∴ E (R) |
| | | | 24 | pc | ·+ ∴ E ∴ ∴ F ∴ ∴ E ∴ |

| OBVERSE | | | REVERSE | | |
|---|---|---|---|---|---|
| *Die number* | *Central motif* | *Obverse legend* | *Die number* | *Central motif* | *Reverse legend* |
| 4 | p in c | + BEOnna REX | 11 | pc | ·+· ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 12 | pc | ⁘ ∴ E ∴ ∴ F ∴ ∴ E ∴ 2p at r.h.s. of + weak |
| | | | 13 | pc | ∴ + · ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 14 | pc | ∴ + ∴ ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 15 | pc | ∴ +· ∴ E ∴ ∴ F ∴ ∴ E ∴ 4th p at l.h.s of + small (?accidental) |
| 6 | p in c | + BEOnna REX | 18 | pc | ⁘ ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 19 | pc | + ∴ ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| 5 | p in c | BEOnna REX (no initial cross) | 16 | 5p | ⁘ ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 17 | 5p | ∴ + ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| 7 | p in c | BEOnna REX (no initial cross, n's retrograde) | 20 | pc | ∴ + ∴ · E ∴ · F ∴ · E ∴ 4th p at r.h.s of + small (?accidental) |
| 8 | p in c | +BEOnna REX (flaws between B–E and n–n) | 21 | pc | + ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| | | | 25 | pc | ∴ + ∴ ∴ E ∴ ∴ F ∴ · E ∴ |
| 9 | p in c (linear) | +BEONNA REX (Ns retrograde) | 26 | pc | + ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| 10 | + | +BEOnna REX | 27 | 5p | ∴ + ∴ ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| 11 | p in c | +BEOnna REX | 28 | pc | + ∴ E ∴ ∴ F ∴ ∴ E ∴ |
| *WILRED* | | | | | |
| 1 | p in c (a) | +ben+na ᛉ | 1 | p in c (b) +wil+red (overstruck) | |
| 2 | p in c (a) | +ben+na ᛉ | | | |
| 3 | p in c (a) | +ben+na ᛉ | | | |
| 11 | p in c (a) | +ben+na ᛉ | | | |
| 4 | p in c (a) | +ben+na ᛉ(R) | 2 | p in c (b) +wil+red | |
| 5 | p in c (a) | +ben+na ᛉ | 3 | + +wil+red | |
| 10 | p in c (a) | +ben+na ᛉ(R) | | | |

| | | OBVERSE | | REVERSE | |
|---|---|---|---|---|---|
| *Die number* | *Central motif* | *Obverse legend* | *Die number* | *Central motif* | *Reverse legend* |
| 6 | p in c (a) | +ben+na ᛉ | 4 | p in c (b) | +wil+red |
| 7 | p in c (a) | +ben+na ᛉ | | | |
| 13 | p in c (a) | +ben+na ᛉ | | | |
| 14 | p in c (a) | +ben+na ᛉ (second 'n' retrograde) | | | |
| 8 | p in c (a) | +ben+na ᛉ (second 'n' retrograde) | 5 | p in c (a) | +wil+red |
| 9 | cross of 4p | +ben+na ᛉ (second 'n' retrograde) | 6 | p in c (b) | +wlir+ed (R) |
| 12 | p in c (a) | +ben+na ᛉ(R) | 7 | p in c (b) | +wil+red |
| *WERFERTH* | | | | | |
| 1 | p in c | +BEOnna REzs | 1 | square | ᚹ·+· we ⁘ rf er |
| *INTERLACE* | | | | | |
| 1 | p in c | ·beonna rex | 1 | Interlace pattern | |
| 2 | p in c | ·beonna rex | | | |
| 3 | p in c | .beonna rex | | | |

arranged round the central motif of a pellet within a circle of pellets. The number of pellets varies: a greater number are used on what is apparently an earlier die, that reading REss (O3). The all-Roman die (O9), possibly a little later, has a linear circle enclosing the pellet. In two cases, probably later in the sequence, the central motif is a cross (O1 and O10). The layout of the obverse was probably derived from the regal coinage of Northumbria bearing the king's name but, at this period, with a cross almost invariably in the centre and not a pellet like the Beonna coins.[11] The reverse design of the Efe dies is however derived from late versions of the 'standard' type on local runic and related *sceattas*. The initial cross and the three letters of the moneyer's name are placed in the four sectors divided off by the lines extending from the corners of the central square to the outer circle. These lines are usually pelleted but occasionally they are left without pellets (R1, 3, 4 and 7). Within the square there are usually five pellets joined up to form a cross, although in some cases, noted in the table, they are left without connecting lines. In one case (R9), the central cross has a pellet in each angle exactly as it is on one of the late runic *sceattas* of Tilberht in the Middle Harling hoard (MH58). The moneyer's name is usually spelt EFE, but a runic 'f' appears on three dies (R6, 9 and 23). In some cases the Roman F is given a curved top, following the line of the edge of the coin, most pronounced on R3–5. No obverse dies are retrograde and just one reverse (R23).

Each obverse die is paired with a number of reverses as set out in Table 1. Although obverses O7 and O9–11 are, as yet, known to be associated with only one reverse die apiece and obverses O5 and O8 with just two, obverses O1, O6 and O7 are found with

[11] James Booth, 'Sceattas in Northumbria', in *Sceattas in England and on the Continent*, edited by David Hill and D. M. Metcalf (BAR British Series 128, 1984), pp 71–111.

three reverses each, O4 with five and O3 with seven. These reverse dies are privy-marked in a most sophisticated way. The marking of dies with numbers, letters or symbols is a regular feature of coins of many periods. In the *sceatta* coinage, the bird-on-cross type (Primary Series, Rigold B) is clearly differentiated in this way.[12] The coins most closely related to the Beonnas, the regal coins of Eadberht of Northumbria, 738–57, are also unequivocally series-marked in their later issues, but the same group of marks appears on a large number of dies so that they are more in the nature of the later medieval issue-marks. On the Beonna coins by the moneyer Efe, however, each reverse die paired with a particular obverse die is individually identified by means of the number and position of the pellets placed in or by the initial cross and/or before and after the letters of the moneyer's name. Different dies with the same pattern of pellets may be used with several obverse dies, but no two of these reverse dies are used with the same obverse die. To take an example, among the coins from reverse dies where the letters of the moneyer's name are preceded and followed by three pellets, reverse dies with three pellets at each side of the intial cross occur with obverse dies O3, O4, O7, O8 and O10, but there is only one reverse die so marked paired with each of these obverses, respectively, R23, R14, R20, R25 and R27; similarly, reverse dies with two pellets at each side of the initial cross are found with three obverses, O4, O5 and O6, again with just one reverse die so marked in each case, R12, R16 and R18 respectively; reverse dies without pellets by the initial cross are found with four obverse dies, O3, O8, O9 and O11, with just one reverse die of the type in each case, R8, R21, R26 and R28 respectively.

Approaching the evidence from the point of view of a single obverse die, obverse die O4 has one reverse die each with the following numbers of pellets beside the initial cross: 1/1, R11; 2/2, R12; 3/1, R13 and 3/3, R14. Another reverse die, R15, paired with obverse die O4 appears to be 3/1 also, hence duplicating R13; although it does have an additional small pellet at the left hand side of the cross which could make it 4/1, the pellet may just be accidental. However, this reverse die is in the unique position among the known material of having been used first with one obverse die, O6, and then re-used later with another obverse die, O4. It will be seen from the dies set out in Table 1 that there are only two further possible instances of duplication. For obverse die O3, reverse dies R10 and R24 are both 1/–, but the single pellet is in different quarters of the cross in the two cases. Also, although reverse dies R3 and R4, paired with obverse die O2, are both without any distinguishing pellets, their initial crosses are distinctly differenced, R4 having the normal cross of R3 replaced by four large pellets. Even if these two instances are considered to be other genuine exceptions, there would seem to be a sufficiently large number of coins extant to show that a system for distinguishing the reverse dies was intended, even if it was not always applied with complete consistency.

In some, but not all, cases, observed development in flaws on the dies has allowed the order of use of individual dies, or groups of dies, to be suggested:

Obverse O1 : uncertain order
O2 : reverse die R5 then R3 then R4
O3 : reverse die R6 then (R7, R9 and R24) then (R8, R10 and R22)
O4 : R13 then the rest
O5 : uncertain order
O6 : R19 then R18
O8 : R25 then R21

This pattern of usage shows that the dies were not employed in any particular or consistent order; the dies which were heavily marked with pellets do not necessarily precede the less-pelleted ones nor *vice versa*. As far as can be seen on the present sample of the

[12] S. E. Rigold, 'The two primary series of sceattas', *BNJ* 30 (1960–61), 18–19.

coinage, however, the dies do seem to have been used consecutively. This method of working means that it is not possible, as might have been hoped, to predict at least a minimum number of 'missing' dies; one may suspect that if there is at present only a 3/3 type of reverse die with a particular obverse, that it was part of a group which included a 1/1 and a 2/2, but this does not mean that either of the other dies was actually used, or even present. The ratio of Efe reverse dies to obverse dies in the cases of O3 and O4 is unusually high and would result in a large number of missing dies if projected throughout the extant series of obverse dies. Mr Cowell has calculated their likely number in Appendix 3, while fully appreciating the difficulties in dealing with the present small sample. His result of a typical range of 2.4 to 4.6 reverses per obverse recalls the ratio of up to four to one found by Mr Rigold to apply to the Primary Series B *sceattas*.[13] Mr Cowell's calculation of a total number of obverse dies for Efe of some eleven to fourteen depending on the method chosen, against the present extant total of eleven, suggests that there are not many new ones to be discovered. This accords well with the evidence of the recently discovered coins which now often die-link into the existing corpus through their obverse. The much larger number of 'new' reverse dies still to come, to a total of somewhere between thirty-seven and fifty-three, against the extant twenty-eight, again seems in the right general area.

*Wilred*

For the moneyer Wilred, both obverse and reverse dies are all-runic. The obverse legend reads invariably +ben+na and it is followed, not by REX as on the Efe dies, but by a symbol which Professor Page suggests is a nonce formation for REX, used in order to solve the problems of spacing. On all the dies the angles and extremities of the letters are usually punctuated by pellets after their linear outline has been drawn in. The pellets at the bases of the letters are so arranged that they form an inner circle. Normally this inner circle encloses a single pellet but, as on some of the obverses for Efe, one obverse die for Wilred (O9), literate although of very rough style and with a uniquely blundered reverse (R6), has a cross of four pellets. The legends on obverse and reverse are invariably arranged in two groups of three letters divided at top and bottom by a cross. If these crosses are viewed as making a type with the central pellet-within-circle, then its origin can be seen in the late 'standard' type with three or four crosses around a pellet-within-circle. This arrangement of the legend is also used on Carolingian coins (below, p. 32).[14]

The Wilred reverses are set out in a similar manner reading entirely in runes, +wil+red. The central motif is again a pellet within a circle of pellets except in one case where it is a cross (R3). The inner circle is not formed by the pellets punctuating the bases of the letters as is the case for the obverses; two dies were perhaps aiming at that (R4 and 5), but in all the others there is an inner circle of pellets into which the bases of the letters run. Also there are unattached pellets between, or punctuating, the letters some little way along the lines of the limbs (R2). On dies R1, 3 and 7, the letters are linear. On the blundered die, R6, traces of a sketchy legend with pelleted letters is visible among the completed letters and may represent a more accurate drafting of the legend which was not followed for the final version. One Wilred coin (MH38) is overstruck. The under-type on the Beonna side is another circumscription type, but the reverse has an entirely different pattern of pellets and it is possible that it is some kind of 'standard' type. If so, it is not one of the known types of *sceattas*, of Beonna or otherwise.

The coins of Beonna on the smallest flans, most reminiscent of other *sceattas*, are to be

[13] Rigold, p. 20

[14] It is also used later on occasional dies for the Northumbrian coinage e.g. coins of Æthelred I, second reign, 789–96, reading ETH+LRED (North 184) and of Eanred, 810–41, reading EAN+RED REX (*BMC* 110) and +EAD+VINI (*BMC* 96).

found among the Wilreds: the coins with reverse 3, C59–61 (MH43–44 and Barham). While these coins were certainly not of the best metal of the Beonnas as a whole, they would be acceptable as standing at the head of the Wilred group. While too much must not be made of individual finenesses, one of this group was the only coin of Wilred whose silver content exceeded 50 per cent. As many of the Wilreds are of baser metal than the Efes, they are often more corroded, making it difficult to decide on the order in which the dies were used. With reverse R1, obverse O2 seems to be the earliest, with R3, O10, and with R4, possibly O7. In contrast to the Efes, where the normal pattern of one obverse die paired with several reverses applied, with the Wilreds it is the other way about, and up to four obverses are used with one reverse. A further difference is that there is no sign whatever here of any attempt at sequence-marking the dies. The coins of Wilred are thus different from the Efes epigraphically, typologically, technically and administratively. It is thus highly unlikely that they could have been made in the same place at the same time and the evidence of provenance below will show that they were probably struck at different mints.

*Werferth*

The two extant coins of Werferth, one from Middle Harling and one from the Ipswich excavations, are from the same pair of dies. The obverse legend reads in a mixture of runes and Roman capitals, +BEOnna REzs around a pellet within an inner circle of pellets. It is similar to the Efe dies, especially to the early one which reads REss, but the Werferth has a very distinctive hooked R not found elsewhere on Beonna's coinage. The reverse die is even closer to the 'standard' design of the late runic *sceattas* from East Anglia. It is similar in layout to the Efe reverses but, for Werferth, the central square of the design is occupied, not by a cross as on the Efes, but by a central pellet in a circle of pellets, with an additional pellet in each corner of the square. The all-runic legend reads in the four sectors, 'we∴/rf/er/þ.+.'. Athough there is as yet just the one reverse die, the pellet on either side of the initial cross places Werferth's coins in the same group as the Efes, where it also belongs on epigraphic and typological grounds. How many other dies there may be it is not possible to say, but the distinguishing marks suggest that others may be expected. As will be seen in the metrology section, the Werferths are by far the finer metal, and it is possible that they had been issued in smaller numbers or had been subject to culling which would reduce their representation in hoards buried after the silver content of the coins had drastically declined.

*Interlace type*

The obverse legend on the Interlace type is all-runic and reads differently from all the others, 'beonna rex', but with the letters punctuated by pellets and the lower edges forming the inner circle which encloses the central pellet, as on the Wilred dies. The legend commences with a pellet, however, which is never found for Wilred or Efe, but is the normal start to the obverse legend on the Northumbrian coins of Eadberht. There are certainly two different obverse dies paired with one reverse. The drawing of the reverse of the lost coin from Dorestadt reproduces the detail of the sole known reverse die so closely that it is likely to have been from this same die. In the case of the obverse, there are several differences between it and the two existing dies and, while there are great similarities, the accuracy of the drawing of the reverse suggests that the detail of the obverse may be accepted and a third obverse die tentatively postulated.

The sole reverse die has no moneyer's name, but a design formed by one continuous line making a four-lobed cross with a second continuous line laced through it. There are three pellets filling each space between the lobes, just inside the outer circle. This design may be viewed as either a cross or a square pattern. It has been shown here as a cross so that the

die axis then becomes regular, which is the normal pattern for Beonna coins and *sceattas*.[15] There is just one reverse die known, paired with two, and possibly three obverses. It is thus the reverse die which occupied the lower position during striking, as was the case with the Wilreds. Again like the Wilreds, the reverse die would not appear to have been differentiated although the three pellets need not necessarily have been a constant feature on any other dies, if indeed there were any. Although the Interlace type can thus be associated with the Wilreds rather than the Efes on technical grounds, its very distinctive type and its lack of moneyer's name set it apart from both.

The sole Interlace reverse die is larger than any of the obverses. Obverse O2 is a particularly poor match. It might look as if it had been designed to go with another smaller reverse, but there is only the one instance in the whole of Beonna's coinage of such cross-linking of dies. Indeed, the ill-matching of obverse with reverse dies is a feature of the coinage as a whole and seems to indicate the hasty production of a large number of dies rather than later re-use of old dies. The Interlace coins are larger in diameter than any other of the Beonna coins and closest to the size of the small, early, coins of Offa's 'new penny' coinage, but as will be discussed below, their weight and debased metal place them firmly in the *sceatta* series, but not, apparently, at the end of Beonna's coinage.

*Metrology*

The weights of all the coins of Beonna, after cleaning[16] and excluding the obviously corroded and damaged examples, are expressed as a histogram (fig. 4). These will be discussed at this point in conjunction with the analyses of the silver content of the Beonna coins as established by Mr Cowell (see Appendix 4). It may perhaps be noted that the non-scientist could be misled by the superficial appearance of a coin in deciding whether it is likely to prove suitable for analysis. The poor specimen of the Werferth issue from the Ipswich excavation (C70) which had required heavy cleaning, was acceptable, whereas the Glasgow cabinet piece (C49), which looked perfectly all right, turned out to be slightly corroded internally, giving an unreliable result – most unfortunately as it is the solitary known all-Roman type.

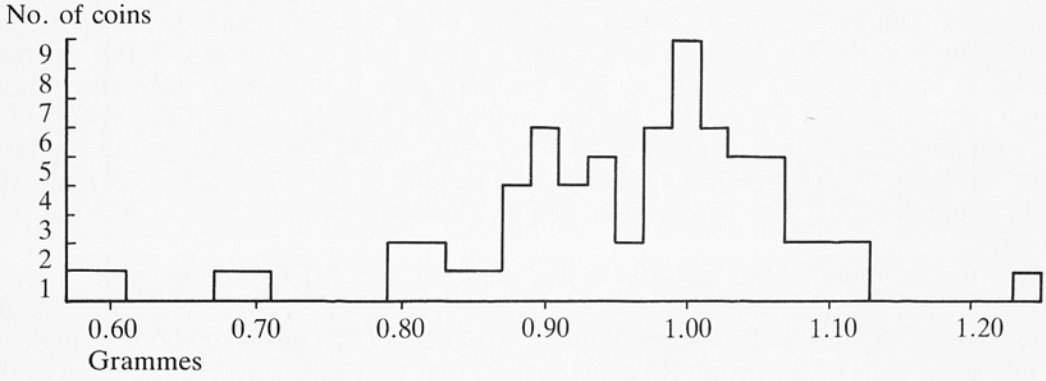



FIG 4. Weights of coins of Beonna

[15] What constitutes vertical in other Beonna coins is not always clear, e.g. in the cases of dies which lack an initial cross. The die axis in the lists is as the coins are shown on the plates. The consistent practice there followed does, however, result in some die-axes appearing to be 'irregular' when they were no doubt intended to be regular; what was considered to be upright was evidently variable.

[16] The weights before cleaning were noted, but are not noted here as the additional material was not so much corrosion products as accreted earth.

The mean weight of all the Beonnas taken together is 0.96g and the median, one gramme. In this, they correspond to the weight of the Secondary phase of the *sceatta* coinage rather than to the 'new penny' coinage of Offa, on broad flans, which restored the weight to the standard of about one-and-a-quarter grammes which it had been in the Primary *sceatta* phase. Looking at the moneyer groups individually, the single Werferth in original condition weighs 1.07g, on the high side of the distribution. It would be possible for this figure to be abnormal, but Mr Cowell shows that the silver content, derived from two examples, is also significantly higher than all the other Beonnas, at about 70 per cent. This suggests that the Werferths stand at the head of the series, at least as it is known at present. It is possible that Beonna introduced his reformed coinage at this three-to-one silver standard, as apparently was also done by Eadberht of Northumbria, but it must be acknowleged that Beonna's first coins could have been on a fine-silver standard and that no example of that phase has yet come to light. A slight clue that this might be the case is that the flan of the Werferth is not particlarly small or '*sceatta*-like'. Although no smooth sequence from small to large flans, or for that matter, from better to worse silver need necessarily have happened, if all these characteristics tend to point in the same chronological direction, some cognisance may be taken of them.

For the moneyer Efe, the weights of the groups linked by their obverse die conform closely to the average of 0.96g except for those associated with obverses O3 and O1. Twelve coins of O3 weigh on average 1.09g, above the rest of the Efes, and group O1 is below the rest, averaging 0.81g. Turning to the silver content, the over-all figure is about 50 per cent. A most important result of Mr Cowell's work is his demonstration of the wide variation in silver content between die-linked, and even die-duplicate, coins which must have been struck within a relatively short time of one another. In the two biggest Efe groups, obverses O3 and O4, the silver content varies as much as 8.4 per cent and 8.9 per cent respectively, the first of these figures between die-duplicates (MH 14 and 15). For Wilred, the coins associated with reverse R1 show up to 8 per cent difference and the Interlace group with reverse R1, 5.6 per cent. In view of this it would not be wise to see chronological significance in narrow differences between the silver content of small numbers of coins. In the case of the Efe obverse O3 group, however, there are eleven relevant coins which average 53.5 per cent, only one of them falling below 50 per cent. This slightly higher than average figure would, like their other characteristics discussed above, place them early in the Efe series. There is only a single coin of obverse O9, but its small size allied to its high silver content at 55.4 per cent puts it tentatively into this phase. Although the evidence is less secure, the low weight and broader flans of the obverse O1 group, with an average silver content of 49.3 per cent, would suggest a place in the later phase of the Efes; as this type has a central cross instead of the usual pellet, perhaps the singleton of obverse O10, also with a cross, and on a similarly broader flan, at 46.6 per cent is also late.

Turning to the Wilreds, the material is less plentiful, but Mr Cowell suggests a trend from coins with a fineness similar to that of the Efes (groups associated with reverses R3 and R1) through an intermediate stage of about 40 per cent (R2) down to about 25 per cent (R4). The small flans of the group R3 coins suggest that they may stand at the head of the Wilred group which would be supported by their inclusion among the coins with a high silver content. The average weight of the four relevant Interlace coins is 1.01g, just on the median weight and Mr Cowell finds that their silver content, averaging 51.1 per cent for the three coins which could be analysed, is not significantly different from the Efes.

Thus the overall pattern for the fineness of the Beonna coins is: the Werferths at *c.* 70 per cent, the Efes, the Interlace and the best of the Wilreds at *c.* 50 per cent, and the tail of the Wilreds, first *c.* 40 per cent and, finally, at least so far as the presently available evidence is concerned, *c.* 25 per cent. None of the coins from outside the hoard is as base as

these last pieces, but it must be allowed that there could have been even baser Beonnas, on a par with the worst of the *sceattas*. This downward sequence is not matched by a parallel smooth transition in flan size, such as might have been expected had the coins been struck consecutively in the same mint. It is therefore necessary to consider the other evidence for the location of production.

*Provenances and find-spots*

The provenance and possible find-spots of the nineteenth-century finds were discussed by Mr Pagan[17] and Mr Sherlock,[18] but a few comments may be made in the light of further research. The two coins from the collection of Dr William Hunter (*SCBI* Glasgow 413, C36 and 413, C49) were sketched by Charles Combe in a manuscript draft-catalogue in the British Museum. They were among the original entries compiled between 1774 and 1782[19] and wrongly entered under Kent. This error was corrected in the plates prepared under the direction of his son, Taylor Combe, in 1803, but not published until used by Ruding in 1817.

The coin in the Ashmolean Museum (*SCBI* Oxford 57, C43) first came to light at the sale of the collection of the Revd J. Maynard of Orford, Suffolk, in 1885, and a local find-spot has been suggested. The Revd Maynard's collection was clearly built up on the market as it included some spectacular Tudor gold, and even one of his Anglo-Saxon pennies was noted in the sale (lot 8) as deriving from the Whitbourn sale (of 1869). While he may have chosen to buy coins from local mints if they were available in preference to others, his collection in the Anglo-Saxon series was not particularly locally-biased and none was given a find-spot in the sale. While, therefore, it is possible that, like any collector, he could have acquired local finds, there is no evidence that he actually did so in the case of his Beonna, and so it would be safer to consider this coin, for the moment, without known find-spot. The author has also had the advantage, through the kindness of Dr D. M. Metcalf, of being able to examine the Oxford coin side by side with *BMC* 1 (C50), 'found near Ipswich'. The British Museum coin is appreciably blacker in colour and there does not seem any reason to believe that they were found together.

There seems to have been some misunderstanding over the fate of the lost Beonna from Dorestadt (C76). This coin, as Mr Pagan established, passed into the collection of the great Belgian antiquary, Pierre-Alphonse-Louis de Coster, but there is in fact no evidence that any part of his coin collection was bequeathed to the University of Louvain, there to be destroyed during the First World War. De Coster's obituary in *RBN* 1879, p. 409, states that after moving from Brussels in 1866, he gave up numismatic studies completely and 'mû par un sentiment patriotique, il avait cédé à l'Etat, moyennant un prix fort modeste, ses incomparables séries de monnaies barbançonnes et de pieces Carolingiennes'. Enquiries at the Royal Coin Cabinet in Brussels, confirm that this is what happened, and authorities at the University of Louvain have said that none of the coins was ever in its possession.[20] There seems to be no suggestion that any of de Coster's coins went elsewhere, but colleagues in Brussels kindly repeated the searches they had undertaken for Mr Pagan, with the same negative result. This Dorestadt coin is still lost, but there is now at least a hope that someday it may be found elsewhere.

In their *Check-list of English finds of Sceattas*, S. E. Rigold and D. M. Metcalf quote

[17] Pagan, esp. p. 10 and pp. 14–15.

[18] Sherlock, p. 46 and pp. 48–50.

[19] The date of compilation is discussed by J. S. Martin, 'Some remarks on eighteenth-century numismatic manuscripts and numismatists' in *Anglo-Saxon Coins*, edited by R. H. M. Dolley (London, 1961), pp. 227–30. The manuscript was presented to the Department of Coins and Medals by B. A. Seaby Ltd.

[20] I am grateful to Dr Simone Scheers and to Professor Paul Naster for this information.

from Hawkins a reference in the Braybrook Diaries, now in the Museum of Archaeology and Anthropology, Cambridge, to a 'transitional' sceatta found at Hadstock, Essex, in *c.*1848 or 1854, which they suggested might possibly be a Beonna. Mr Mark Blackburn has kindly obtained for the author copies of the relevant entry for 5:VII (not VIII): 1854, and a further one which he discovered for 15:VII:1854. Both entries mention that the coin was found 'lately', and the second notes that it had been identified at the British Museum as of the type illustrated in Ruding pl.2, 10. This is an Epa Secondary Runic *sceatta*, so Beonna can be ruled out. Another nineteenth-century reference to the discovery of a Beonna by the moneyer Efe at Debenham, Suffolk, was recently noted,[21] but as there is now, it appears, considerable doubt about the authenticity of the find, it seems safer to leave this find-spot out of account until further work has been done to establish its status.

TABLE 2
*Find-spots of Beonna Pennies*

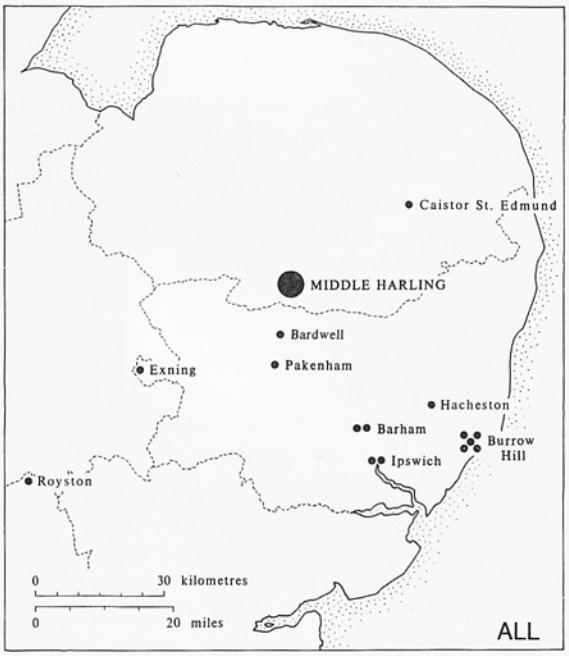
| *Hoard* | *Werferth* | *Efe* | *Interlace* | *Wilred* | *Total* |
|---|---|---|---|---|---|
| Middle Harling, Norfolk | 1 | 37 | 3 | 12 | 53 |
| *Isolated finds* | | | | | |
| Caistor St Edmund, Norfolk | | 1 | | | 1 |
| 'Norfolk' | | 1 | | | 1 |
| 'Norfolk/Suffolk borders' | | 1 | | | 1 |
| Exning, Suffolk | | 1 | | | 1 |
| Royston, Cambs. | | 1 | | | 1 |
| Bardwell, Suffolk | | | 1 | | 1 |
| Packenham, Suffolk | | | 1 | | 1 |
| Hacheston, Suffolk | | 1 | | | 1 |
| Barham, Suffolk | 1 | | | 2 | 2 |
| Burrow Hill, Suffolk | | 3 | | 2 | 5 |
| Ipswich, Suffolk | | 1 | | 1 | 3 |
| Dorestadt, Netherlands | | | 1 | | 1 |
| Unknown find-spot | | 4 | | | 4 |
| Total | 2 | 51 | 6 | 17 | 76 |

The find-spots of Beonna coins are set out in Table 2 and plotted on Map 1, kindly prepared by Mr Ashley. The former restriction of apparent find-spots to the Ipswich area led to the attribution of all Beonna coins to a mint there and to the suggestion that it was Suffolk which fell to him on the division of East Anglia in 749. The situation has now been transformed, for while there is still a strong concentration in the Iswich area, the distribution has been extended into north Suffolk and south Norfolk, as well as westwards into Middle Anglia. It now bears a strong resemblance to the distribution in those same parts of England of the East Anglian runic *sceattas*.[22]

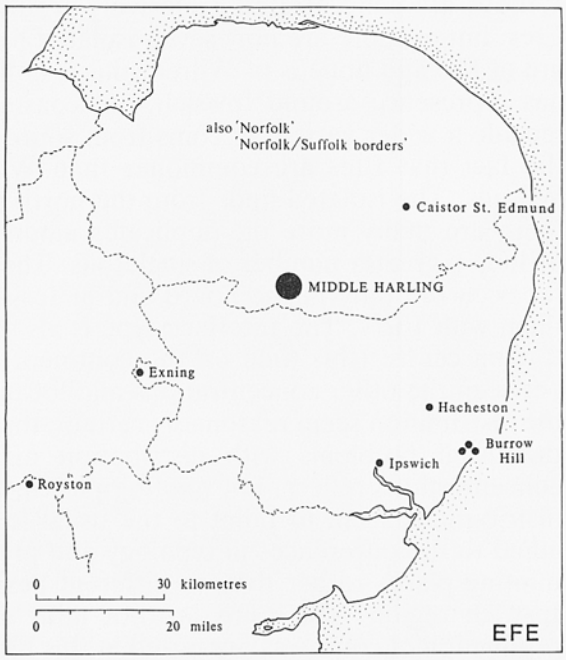
The find-spots of coins of Efe, Wilred and of the Interlace type are plotted separately on Maps 2–4, prepared from Mr Ashley's master-map by Mrs Linda Kendall. The totals are still small, but the distribution patterns are strikingly different. Apart from the hoard, the

[21] Sherlock, pp. 46 and 53, note 28.

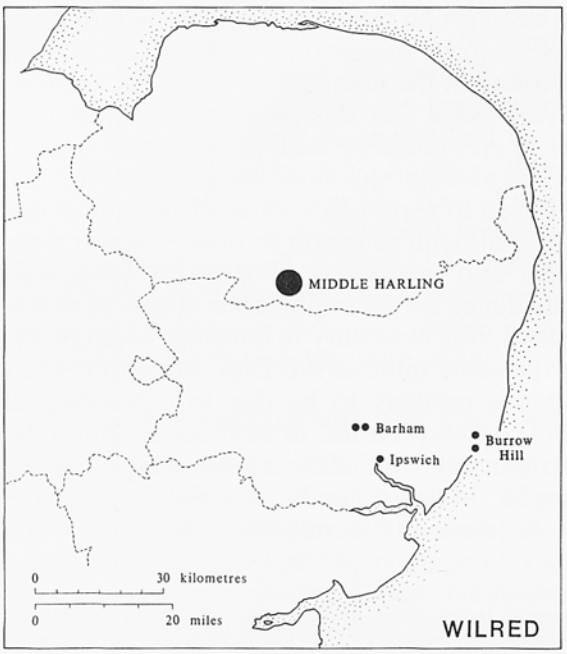
[22] The same distribution is also found for other artifacts of the period so that the coins mirror the normal pattern of human activity in the area.



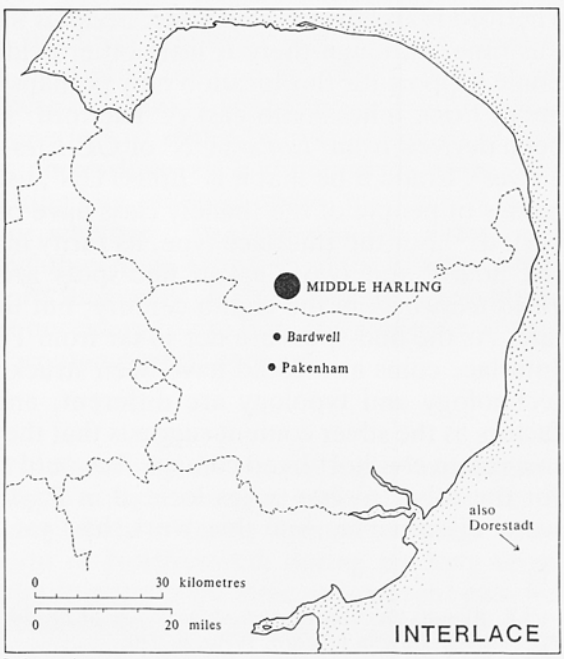

MAP 1




MAP 2




MAP 3




MAP 4

Find-spots of Beonna coins

Wilreds are concentrated exclusively around Ipswich. Wilreds are admittedly rarer than Efes, but as there are now seven isolated find-spots outside the Iswich area, five of which are of Efe and none is of Wilred, this is unlikely to be the result of mere chance. Efe also has a presence around Ipwsich, but coastal trading centres, like major hoards, usually include a wider variety of coins from sources outside their own immediate area. Despite the fact that Efes are commoner than Wilreds, the two coins from Barham are both Wilreds. The isolated finds from the north and west are exclusively of Efe; in the hoard, there are many more die-duplicates among his coins than among Wilred's, which also include a greater number of singletons. The rare coins of Werferth (not mapped) have so far occurred only in the hoard and at Ipswich but, as noted above, their typology links them with Efe's. The Interlace type is also rare, but apart from a find in a major coastal trading centre (this time on the continent, at Dorestadt) the two known find-spots are between the other concentrations and located in the Bury St Edmunds area. The facts of the distribution seem reasonably certain; their interpretation is more difficult. There are all the usual problems with distribution maps including that of deciding whether the concentrations reflect, not minting places, but a changing pattern of use. That said, the distributions seem to point to the usual local bias among isolated site-finds, and, when allied to the differences in typology and production technique, seem to point to different minting places rather than to different periods of issue. Wilred is clearly located in the Ipswich region. The coins are not mint signed and as little is known about how the production of coins was organized at this time, these coins could have been struck at some other place in the area, but Ipswich itself seems the most likely location. The minting places of the other two groups are even more difficult to locate precisely. For Efe's coins Thetford is an obvious candidate. *Sceattas* have been found there, pointing to its activity at this time, although there is little other evidence as to its importance at this early period. Some support for this location may perhaps be found in the name of the village of Euston, about three miles south-east of Thetford. Ekwall[23] says that this place-name could have been derived from '*Eof's*-TŪN' or OE *Efes-tūn*, if efes could be used in the sense 'bank of a river'. Could it be that it is '*Efes*-TŪN', using the name of the moneyer as other personal names of people of the thanely class have been used to form place-names from about this period?[24] For the Interlace type, its rarity makes it difficult to locate its mint.[25] Apart from the hoard, the two English find-spots are east and north-east of Bury St Edmunds, *Beadricesworth* in the eighth century, but the evidence for its importance at this period is late. As the find-spots are not so far from Thetford, it is necessary to consider whether the Interlace coins also could have been struck at the same mint as the Efes. However, their technology and typology are different, and this is unlikely to be due to chronological factors as the silver content suggests that they are contemporaries, or near contemporaries, in a relatively short-lived coinage. It would clearly be relevant, if die studies were available for the other *sceatta* series located in East Anglia, to see if similar distribution patterns were discernable, but this work has yet to be done. It is notable that there is no

[23] E. Ekwall, *The Concise Oxford Dictionary of English Place-names,* 4th edn (Oxford, 1970), p. 170.

[24] As Euston has no known connection with anyone called Efe, moneyer or otherwise, apart from the hypothetical association through the hoard and site-finds, this proposal cannot be pressed, but it is perhaps worth considering. Dr Margaret Gelling has kindly allowed her letter to the author of 9 May 1983 to be quoted.

She said, 'I can see no objection to your suggestion that Euston in Suffolk is named from the moneyer Efe, in fact I find it most convincing. I have long thought that 'x's *tūn*' place-names have a manorial significance, with the personal names being those of the king's thegns or people of comparable status. (. . . .) Your 'Efes-*tūn*', from a man flourishing c. 760, is a little earlier than I had envisaged the 'x's *tūn* type beginning, but there is nothing impossible about it.'

[25] The Interlace type is the exception among Beonna's coins in having no moneyer's name which would seem to indicate a different issuing authority, possibly an ecclesiastical one, on analogy with the Northumbrian coins of Archbishop Ecgberht of York with the kings Eadberht and Alchred.

concentration around Norwich (confirming the archaeological evidence that its rise to prominence came slightly later) or Elmham, the seat of one of the East Anglian bishoprics. The seat of the other at 'Dumnoc' (modern Felixstowe) is near Ipswich which is to be preferred as the minting place.

*Relative chronology of Beonna's coinage*

It is unlikely that coins of differing silver standard would have been issued in Beonna's name at the same time, so the decline in the silver standard is taken to be a valid indication of the relative chronological order. The analysis of Beonna's coins shows a sequence of essentially three major steps: the Werferths come first at *c.* 70 per cent, followed by the Efes, to which they are typologically related, at *c.* 50 per cent; the Interlace type and the best of the Wilreds fall within this band too, so they belong with the Efes in the middle period; when the standard collapses at the end of the coinage, down to 40 and then 25 per cent, Wilred alone is left.

Relating this to the evidence of the distributions, there are at present coins of Thetford alone for the earliest phase, for Thetford, *Beadricesworth* and Ipswich in the middle period and for Ipswich alone at the end. Too much should not be read into the apparent absence of the other mints in the early period. There are only two coins of Thetford known and as the Efes (Thetford) are three times as common as the Wilreds (Ipswich), a coin of Ipswich's first phase, if there were one, need not yet, on statistical grounds, be expected. For the final phases of the Wilreds, there are five coins known from the Middle Harling hoard, and had coins of these standards been produced at Thetford, they might have been expected to appear in a local hoard, This does not mean, however, that Beonna need necessarily have been confined to the south at this time, any more than it can be assumed that at the beginning of his coinage he was in control only of the north. Even if the surviving coins do represent the times when these mints were in operation, the periods of production might have been dictated by commerical or other factors unconnected with changes in political control. Further, there is no evidence of how the three kings, who included Beonna, divided the East Anglian kingdom amongst them: whether it was a division into three self-contained territories or whether it was more in the nature of a multiple kingship such as applied in the mid-eighth-century kingdom of the Hwicce where three brothers 'eadem vocabli dignitate et imperis fungentes'. Before seeking to establish a historical context for Beonna's issues, it is first necessary to examine the evidence of their chronological relationship with other related contemporary coinages.

*Chronological relationships with other series*

Beonna's coinage has affinities with that of Northumbria: in attempting to introduce a coinage of improved metal standard, in making it a regal coinage, and in a similarity of type and detail. Unfortunately, none of this is much help in dating Beonna's coinage as the absolute chronology of the coinage of Eadberht of Northumbria during his long reign, 738–57, has not been established. He revived the coinage there after an apparent gap, but the date when he did so is not known. Mr Cowell's analyses have shown that Eadberht's issues began at about 70 per cent silver and are comparable to Beonna's coins by Werferth, but that thereafter they declined to around the 50 per cent mark, as did Beonna's. When these reductions in standard took place is equally unknown, but it seems difficult to place Eadberht's 70 per cent issue late enough for it still to have been in production when Beonna's coins began, as this cannot have been before his accession in 749. Beonna's coinage is therefore likely to have been introduced on a reformed standard higher than that which then prevailed in Northumbria, and therefore not directly associated with it. Even if a late start to Beonna's coinage were postulated, it would still be out of step, at the start,

with the Northumbrian, as the coins of Alchred, 765–74, analysed by Mr Cowell are on the band of 50 per cent and less, and never achieved a 70 per cent standard. The Northumbrian coinage cannot therefore provide a date for Beonna's issues.

Turning to the Frankish parallels for Beonna's coinage, Dr Metcalf drew attention,[26] to a denier of Charlemagne where the legend was divided by crosses, a feature not otherwise found in his coinage. Dr Metcalf pointed out that there were three crosses present, at 0°, 180° and 270°, and that the design had been copied from an issue of Offa's contemporary, Ecgberht of Kent, by the moneyer Babba (Blunt 2). However, the 'cross' at 270° is formed by a contraction mark across the leg of the R (for Rex), leaving a layout which suggests that the prototype was rather the 'new' Beonna/Wilred issue.[27] The Charlemagne coin belongs to the earliest phase of his coinage which Professor Grierson suggests ended before the death of Carloman in 771, which then provides a *terminus ante quem* for the Beonna prototype.[28] Mr Pagan has drawn attention to the similarity of the Interlace design to the type used on the north Frankish or Frisian deniers formerly attributed to Maastricht both before and after the reform of the coinage in 755 instituted by Pepin the Short, 752–68.[29] A coin of the pre-Reform series, recently found at Woodeaton (Oxon.),[30] weighed 1.17g which places the start of the 'Maastricht' coins of this type before the general reduction in weight in the early years of the eighth century. Thus, the date range is too wide to provide evidence for the chronology of Beonna's issue. Beonna's coinage conforms by flan, weight and metal content to the pre-Reform, rather than to the post-Reform, penny standard. Nevertheless, it cannot be assumed that this places the issue of Beonna's coinage before that date, especially if its prime motivation was internal, and it was not too long after the Pepin reform.

A link between the coinage of Beonna and that of Offa is provided by the moneyer Wilred. Two broad-flan pennies of Offa's earliest issue, from different dies, are known from this moneyer: one from a nineteenth-century French collection with no known find-spot now in the Berlin cabinet (*SCBI* Berlin 67) and the other, a recent find from St Osyth's (Essex).[31] It might be possible to argue that the Wilreds need not be the same person, but the name is not a common one and it would seem reasonable to assume that they are, and that his coins for Offa were also struck in East Anglia, possibly at Ipswich. The all-Roman legend of the Offa need cause no difficulty as all-Roman coins were struck for Beonna also. It is not possible to say how long there was between the issues for these two kings; moneyers could be long-lived and the chronology of Offa's issues is not yet established. Again, the natural assumption would be that the two issues were unlikely to be separated by very long. What the attribution of the Offa-Wilred pennies to East Anglia certainly shows, is that Offa was concerned in the affairs of that kingdom much earlier than had previously been believed, when his earliest known coins from East Anglia were of his second coinage. The typological associations of the Beonna coinage do not therefore

[26] D. M. Metcalf, 'Artistic borrowing, imitation and forgery in the eighth century', *HBN* 20 (1966), 379–92, esp. 380–83, pl. 17, 6.

[27] Other examples exist where it is certain that an Anglo-Saxon coin is being copied for a Carolingian one e.g. K. F. Morrison and H. Grunthal, *Carolingian Coinage* (New York, 1967), no. 221 in the name of Charlemagne, where the prototype is a penny of Offa. (The exact status of these coins in the Carolingian series is not relevant here; M&G 221 is discussed by Dr Metcalf, 'Artistic borrowing'.) A cross also interrupts the name of the king in a similar way on issues of Charles the Bald.

[28] The chronology of Charlemagne's issues is discussed in P. Grierson, 'Money and coinage under Charlemagne' in *Karl der Grosse* I, (Düsseldorf, 1965), pp. 501–36. Morrison and Grunthal, p. 3.

[29] Pagan, pp. 11 and 13, fig. 2. Dr H. Enno van Gelder has recently questioned the atribution of the Pepin to Maastricht, ('Coins from Dorestadt, the Wijk bij Duurstede (1972, 1) hoard' in *Excavations at Dorestad*, I, edited by W. A. van Es and W.J.H. Verwers (1980), pp. 212–24) and Dr V. Zedelius has doubted the attribution of the *sceattas* ('Neue Sceattas aus dem Rheinland-Bonn und Xanten', *Zeitschrift für Archäologie des Mittelalters* 8 (1980), 139–52).

[30] D. M. Metcalf, 'Twenty-five notes on sceatta finds', in *Sceattas in England and on the Continent*, p. 202, pl.10, 24.

[31] Christies 23 Jul. 1985, lot 107 where it was described only as found in Essex but certainly found at St Osyth's.

provide a very tight or secure chronology, and it is necessary to look at the historical evidence, late and inadequate as it is, to try to suggest a likely context.

*Historical context: a hypothesis*

The historical sources which mention Beonna are all post-Conquest. The part of the *Historia Regum* now attributed to Byrhtferth of Ramsey says that after the death of King Alfwald of East Anglia, which he places in 749, 'Hunbeanna and Albert divided the kingdom between them'. Professor H. M. Chadwick was the first to suggest that the first name should be divided into two names, Hun and Beanna, and was followed in this respect by Professor Dorothy Whitelock.[32] Under the year 758, the chronicle attributed to 'Florence' of Worcester notes the death on 26 October of Cuthbert, archbishop of Canterbury, and follows this by saying 'his temporibus Orientalibus Saxonibus, Swithredus, Australibus Saxonibus, Osmundus, Orientalibus Anglis, Beornus reges praefuerunt'. This has been taken to mean that Beornus was king of East Anglia in 758, but in fact the chronology of 'Florence' at this stage, like that of the Anglo-Saxon chronicle, is two years too early. Cuthbert died in 760, not 758, and the entry which follows that mentioning Beornus is about the consecration of Bregowine, the next archbishop of Canterbury, which took place, not as Florence says in 759, but in 761. Consequently, it is likely that the entry sandwiched between the two Canterbury items under 758, really refers to 760. On the face of it, Beonna's reign would thus have extended at least as far as 760, though we do not know how specific the underlying source for 'Florence's' statement might have been (assuming that he had one), or how far he was embroidering the annal of the *Anglo-Saxon Chronicle*. Further, in the appendix to 'Florence', it is said that in Offa's time 'Beorna' was king of the East Angles. No dates or period are given which would allow Beonna's reign to be located within the long span of Offa's, 757–96. When speaking of 760 and 'Offa's time', no other kings in East Anglia are mentioned, which suggests that by this date Beonna was, at the very least, the only king there who counted as far as 'Florence's' source was concerned, and may have been in control of the whole of the East Anglian kingdom.

For most of his time, however, Beonna cannot have been an independent ruler. When he became king in 749, all the kingdoms of England south of the Humber were subject to the overlordship of Æthelbald of Mercia. The extent of their dependence varied, but it is most unlikely that Æthelbald, who had no coins of his own, would have countenanced the issue of a coinage by a sub-ruler in the latter's own name, and describing him, without territorial or other qualification, as 'rex'. The most likely interpretation of Beonna's coinage is that it marks the reassertion of East Anglian independence after the murder of Æthelbald in 757, and as such, is an earlier instance of the phenomenon which was to occur in both East Anglia and Kent after the death of Offa in 796. Although Beonna remained king in East Anglia at least until 760, his coinage can have continued only as long as East Anglia remained independent of Mercia, if it had not already ceased through lack of bullion. As Offa's coins by Beonna's moneyer Wilred belong to the earliest phase of his coinage, it is likely that his overlordship of East Anglia was accepted within a decade or so of that date; although just when it is not possible to say, as Offa's first coinage is itself not datable with any precision. Oman's suggestion[33] that Beonna might be the same person as Beornred who reigned briefly in Mercia after the murder of Æthelbald before being

[32] Dorothy Whitelock, *English Historical Documents*, I (London, 1955), p. 240.

[33] C. Oman, *The Coinage of England* (Oxford, 1931), p. 16. Oman was however concerned to remove the Beonnas from East Anglia and to attribute them to Mercia during the short period of Beornred's rule there. The evidence now available makes this view quite untenable.

expelled by Offa, could still fit the now certain association of the coins with the historical Beorna of East Anglia. Nevertheless, it seems less likely as 'Florence' of Worcester, who appears to have been relatively well-informed about both Beornred and Beonna, gives no clue that they were likely to be the same person. It is suggested, therefore, that Beonna's coinage began in *c.* 757 and probably lasted to some date earlier rather than later in the 760s, although the terminal date in particular must remain uncertain. He could have lived for some time after the end of his coinage, possibly as a sub-king under Offa. There is no evidence for how or when he died.

As a post-script, there are no coins for Æthelred, who according to 'Florence' was Beonna's successor, despite what would have been a fairly long reign, and he may have been a client king of Offa's throughout his entire time. For the short reign of his son, (Saint) Æthelberht, murdered on Offa's orders in 794, three coins survive, one of them found at Tivoli in Rome. Although Æthelberht is portrayed as the innocent victim, his issue of a coinage in his own name, with a suitably flattering type to send to win friends in Rome, was probably viewed by Offa as an indication, possibly among others, of the assumption by the young sub-king of the East Angles of a greater degree of independence than he was prepared to tolerate.

## CORPUS OF COINS OF BEONNA

*Codes*: MH = Middle Harling hoard; BH = Burrow Hill excavations; BM followed by a registration number = recent acquisition by the British Museum.
*Illustrations*: all the Middle Harling hoard coins, identified by MH numbers are illustrated actual size on pls 1–2; all dies, identified by die-number, are illustrated enlarged × 2 from the example in best over-all condition on pls. 2–5; the coins from sales, *Sylloge* volumes and Burrow Hill have already been illustrated and those from Ipswich and Barham will be published in detail elsewhere, although where they are the sole representative of a die, that die is illustrated here. The five remaining coins, identified by their numbers in this corpus, C6 etc., are illustrated on pl. 2.

| | *Dies* | | |
|---|---|---|---|
| | *obv.* | *rev.* | |
| *EFE* | | | |
| C1. | 1 | 1 | a) MH1: 0.61g, 225° |
| C2. | ″ | 2 | a) MH2: 0.83g, 270° |
| C3. | ″ | ″ | b) MH3: 0.88g, 270° |
| C4. | ″ | ″ | c) MH4: 9.90g, 180° |
| C5. | ″ | 22 | a) MH5: 0.68g, 225° |
| C6. | ″ | ″ | b) Private colln (info. Mr J. Linzalone, 1 Dec. 1984): 0.94g, no d.a. 'Found in Norfolk'; very black, not Middle Harling patina. |
| C7. | 2 | 3 | a) MH6: 1.05g, 180° |
| C8. | ″ | 4 | a) MH7: 1.03g, 225° |
| C9. | ″ | 5 | a) MH8: 1.00g, 270° |
| C10. | 3 | 6 | a) MH9: 1.06g, 0° |
| C11. | ″ | ″ | b) MH10: 1.13g, 270° |
| C12. | ″ | 7 | a) MH11: 1.03g, 45° |
| C13. | ″ | ″ | b) BMA 229: 0.96g, 270° |
| C14. | ″ | 8 | a) MH12: 0.97g, 45° |
| C15. | ″ | ″ | b) BH4: 0.92g, no d–a |
| C16. | ″ | 9 | a) MH13: 1.05g, 315° |
| C17. | ″ | 10 | a) MH14: 1.00g, 225° |
| C18. | ″ | ″ | b) MH15: 1.03g, 225° |
| C19. | ″ | ″ | c) Glendining 21 Sep. 1983, lot 151: 1.12g, no d.a.; said in the sale catalogue to have been found 'near Poringland, Norwich, Norfolk', but now known to have been found at Caistor St Edmund, Norfolk. |
| C20. | ″ | 23 | a) MH16: 0.86g, 45° |
| C21. | ″ | 24 | a) BH3: 0.96g, no d–a |
| C22. | 4 | 11 | a) MH17: 0.99g, 90° |
| C23. | ″ | ″ | b) MH18: 1.15g, 90° |
| C24. | ″ | ″ | c) MH19: 1.10g, 0° |
| C25. | ″ | ″ | d) MH20: 0.96g, 0° |
| C26. | ″ | ″ | e) MH21: 1.04g, 0° |
| C27. | ″ | ″ | f) Spink sale 36, 30 May 1984, lot 813; 0.93g, no d.a.; said in the sale catalogue to have been found 'in Cambridgeshire in 1983', and now known to have been found near Royston (to be published by M. Blackburn and |

| | Dies obv. | rev. | |
|---|---|---|---|
| | | | M. Bonser). |
| C28. | ″ | ″ | g) Private colln (info. Mr J. Linzalone, July 1985): 0.70g, 90°. Found 'on the Norfolk/Suffolk borders'. |
| C29. | ″ | 12 | a) MH22: 0.58g, 315° |
| C30. | ″ | ″ | b) MH23: 0.89g, 225° |
| C31. | ″ | ″ | c) Info. Messrs Baldwin 27 Jul. 1982: 0.85g, no d.a. Said to have been found at Exning, Suffolk. |
| C32. | ″ | 13 | a) MH24: 0.80g, 0° |
| C33. | ″ | ″ | b) MH25: 1.10g, 180° |
| C34. | ″ | ″ | c) National Museum of Wales, Cardiff, ex MH26: 1.01g, 90° |
| C35. | ″ | ″ | d) MH27: 0.81g, 90° |
| C36. | ″ | ″ | e) *SCBI* Glasgow 412: 0.98g, 90° |
| C37. | ″ | 14 | a) MH28: 0.93g, 90° |
| C38. | ″ | 15 | a) MH29: 0.90g, 90° |
| C39. | ″ | ″ | b) MH30: 0.83g, 270° |
| C40. | 5 | 16 | a) MH31: 1.00g, 225° |
| C41. | ″ | 17 | a) MH32: 1.02g, 45° |
| C42. | ″ | ″ | b) Fitzwilliam Museum, Cambridge (*MEC* 1:1121B), ex MH33: 1.01g, 315° |
| C43. | 6 | 15 | a) *SCBI* Oxford 57: 1.07g, 180° |
| C44. | ″ | 18 | a) MH34: 0.98g, 315° |
| C45. | ″ | 19 | a) MH35: 0.98, 180° |
| C46. | 7 | 20 | a) MH36: 0.89g, 90° |
| C47. | 8 | 21 | a) MH37: 1.06g, 135° |
| C48. | ″ | 25 | a) BH5: 0.89g, no d–a |
| C49. | 9 | 26 | a) *SCBI* Glasgow 413: 1.00g, 270° |
| C50. | 10 | 27 | a) *BMC* 1: 1.06g, 270°. Found near Ipswich. |
| C51. | 11 | 28 | a) Glendining 10 Jul. 1985, lot 230. 0.98g, 90°. Now known to have been found at Hacheston, Suffolk. |
| *WILRED* | | | |
| C52. | 1 | 1 | a) MH38 : 0.82g, 315° (overstruck) |
| C53. | 2 | ″ | a) MH39: 1.01g, 180° |
| C54. | 3 | ″ | a) MH40: 1.10g, 0° |
| C55. | 11 | ″ | a) MH41: 0.98g, 0° |
| C56. | 4 | 2 | a) MH42: 0.89g, 0° |
| C57. | ″ | ″ | b) BH1: 0.52g (corroded and chipped), no d–a |
| C58. | ″ | ″ | c) BH2: no data |
| C59. | 5 | 3 | a) Fitzwilliam Museum, Cambridge (*MEC* 1: 1121C), ex MH43: 1.04g, 0° |
| C60. | ″ | ″ | b) MH44: 0.81g, 90° |
| C61. | 10 | ″ | a) BM 1980–8–9–1: 1.05g, 0°. Found at Barham, Suffolk. |
| C62. | 6 | 4 | a) MH45: 0.67g (corroded), 0° |
| C63. | 7 | ″ | a) MH46: 1.01g, 0° |
| C64. | 13 | ″ | a) Private colln (info. Mr J. Linzalone) ex MH53: 0.81g (uncleaned), 180° |
| C65. | 14 | ″ | a) Ipswich excavations: 0.48g, 270°. |
| C66. | 8 | 5 | a) MH47: 1.03g, 0° |
| C67. | 9 | 6 | a) MH48: 0.87g, 90° |
| C68. | 12 | 7 | a) BM 1986–8–46–18: 0.81g, 180°. Found at Barham, Suffolk. |
| *WERFERTH* | | | |
| C69. | 1 | 1 | a) MH49: 1.07g, 90° |
| C70. | ″ | ″ | b) Ipswich excavations: 0.50g (corroded and chipped), 180°. |
| *INTERLACE* | | | |
| C71. | 1 | 1 | a) BM 1978–7–20–1: 1.03g, 0° (as illustrated). Found at Packenham, Suffolk. |
| C72. | 2 | ″ | a) MH50: 1.08g, 0° |
| C73. | ″ | ″ | b) Fitzwilliam Museum, Cambridge (*MEC* 1:1121A), ex MH51: 0.90g, 0° |
| C74. | ″ | ″ | c) MH52: 0.43g (fragment, half a coin), 0° |
| C75. | ″ | ″ | d) University of Leeds colln: 1.01g, no d.a. Found at Bardwell, Suffolk, *c.* 1980. |
| C76. | ?3 | ″ | a) Lost specimen found at Dorestadt, Netherlands, 4 Nov. 1836, (Pagan, *BNJ* 1966, p.10): 0.75g, no d.a. |

*Forgery*

Despite the rarity of Beonna's coins in the past, no counterfeits were recorded. But recently the well-publicised discovery on several different sites of authentic coins, only a few of which were likely to be available on the market, provided the classic context for forgery, and one of the Efe group duly appeared in Switzerland in 1983 (fig.5).[34] It is a struck piece, from false dies. The obverse has a runic 'x' in REx which is

[34] It was sent to the Fitzwilliam Museum, Cambridge, on 3 June 1983 by a Swiss dealer. The author is indebted to Mr M. A. S. Blackburn for allowing her to examine it alongside the originals. In the circumstances, it was not possible to have it analysed. It may be remarked, however, that the usefulness of analytical testing has declined since details of the metal content of ancient coins are now readily accessible. The more sophisticated of forgers can generally ensure that their products are of plausible alloy, if not actually made from ancient metal obtained from genuine contemporary coins which are fragmentary or in unsaleable condition.

FIG. 5 Modern Forgery (a) and the reverse of a similar genuine coin (b) (X2)

found only on the all-runic obverses of the Interlace type, while the eleven authentic Efe obverses have either a Roman X or 'ss'. A runic 'x' on a geniune Efe obverse remains possible, but it would appear that the runic 'x' here was either a misinterpretation of one of the known dies on which the Roman X was defective or weakly struck up (*e.g.* dies 4–6) or was deliberately designed to create an unrecorded variant. Unlike the assured and carefully formed runes on the genuine pieces, letters here are defective in form (e.g. the 'a' and R), are laid out in an abnormal manner and are in a scratchy style not found on the originals. The edge pellets are gross when compared with those on the similar genuine die shown alongside. The weight at 1.15g is on the high side and is equalled only by the heaviest of the genuine Efe coins. There is some reason to believe that the forgery is English.

## APPENDIX 1

### *Middle Harling: Context and Excavation*

A. J. G. ROGERSON

Middle Harling lies eleven kilometres ENE of Thetford in the Norfolk Breckland. Post-Roman settlement began in the Middle Saxon period and shifted in the late twelth to the early thirteenth centuries. This move was followed by decline and the parish church was ruined by the early sixteenth century. The present hamlet, consisting of one farm and a couple of cottages, lies within a large parish which includes the former market town of East Harling and the deserted settlements of West Harling and Harling Thorpe.

In November 1980 a local metal detector user, Mr Tony Frost, found eight Beonna pennies (nos. 14–15, 28, 31, 36, 38–39, and 42) in ploughsoil over a very restricted area about forty metres from the site of the medieval church. The find-spots were accurately plotted by Mr Frost, who took the coins to Norwich Castle Museum. In the meanwhile, archaeological field work by Mr Alan Davison had shown that the find-spot of these coins lay within a dense surface pottery scatter which represented the site of Saxon and early medieval Middle Harling.

In February/March 1981 an excavation of fifty square metres was carried out by Mr Frost and the author for the Norfolk Archaeological Unit over the area of the previous coin finds. An additional twenty-eight Beonna coins (nos. 1, 2, 6–13, 17–20, 22–24, 29, 30, 32, 34–35, 37, 40, 45–46, 49–50) were detected within the ploughsoil and subsoil along with one *sceatta* (no. 57). No coins were found *in situ* because of disturbance from Late Saxon ditches and pits.

Later in 1981 the thirty-six pennies were declared Treasure Trove along with another Beonna penny (no. 43) which had been found by Mr Frost in 1980 south of the site of the church about ninety metres from the centre of the dispersed hoard.

In order to establish the context of the hoard, the British Museum sponsored a larger-scale excavation in 1982–83. This was laid out around the dispersed hoard and covered an area of 1,200 square metres. Further metal detecting by Mr Frost during the excavation produced fifteen more Beonna pennies (nos. 3–5, 16, 21, 25–27, 33, 41, 44, 47–48, 51–52) and six *sceattas* (nos 54–56, 58–59, 62). These were widely scattered and only two Beonnas (nos 27 and 44) were found in sealed archaeological contexts, both features of an eleventh-twelfth century date, while a *sceat* (no. 62) was recovered from the upper filling of a ditch that may have been dug in the Middle Saxon period. Two silver blanks (nos. 60–61) were also found. The excavation indicated that the main period of occupation in the vicinity of the hoard was in the tenth century, although a timber building,

demolished in the tenth or the eleventh century and overlying the centre of the hoard, may possibly have contained the coins. Occupation roughly contemporary with the Beonna pennies and *sceattas*, i.e activity associated with Middle Saxon Ipswich-ware pottery (dating to between the mid seventh and mid-late ninth century) was sparse within the excavation. However, south of the site of the parish church frequent surface finds of Ipswich ware and Middle Saxon metalwork indicate the location of the seventh-ninth century settlement. Beonna penny no. 43 and *sceat* no.64 were detected in this area, and a *sceat* (no. 63) was found a further 100 metres to the SW in 1983. A final Beonna penny (no.53) was found by Mr Frost in 1983 seventy metres N of the centre of the scattered hoard in a field where there is little surface evidence of Middle Saxon occupation.

The excavator and all concerned are most grateful to the land-owner of the site, Mr Richard Barker, who offered every assistance throughout.

# APPENDIX 2

## *The Legends on the Coins*

R. I. PAGE

The known Beonna coins have legends in runes, in Roman characters or in mixtures of the two. The standard system of representing runic and Roman letters in transcripts of inscriptions is to put the Roman in capitals (disregarding the actual forms they adopt in the inscription itself) and runes in lower case. A legend which is entirely in runes is enclosed within single inverted commas, but these are dispensed with for runes mixed with Roman in the same legend. Thus '+wil+red' shows that all the letters of this moneyer's name are runic; +EFE that they are all Roman; whereas +EfE has Roman letters save for the 'f' rune.[35] The letters are spaced so as to distinguish the 'ea' rune from the independent runes 'e' and 'a'. There are, of course, inadequacies in this practice, and one is demonstrated in this discussion of the Beonna coins. It is not always possible to distinguish certainly between runic and Roman letters. Roman B, R, for instance, are almost identical in form with runic 'b', 'r'. How, then, are we to represent these letters in mixed legends: as runic or Roman?[36] The question is apposite in certain of the legends which give the royal name and title *Beonna rex*, in a mixture of runic and Roman characters. I give a purely pragmatic answer, declaring the forms as Roman when they occur in a mixed text (as +BEOnnaREX – which could equally properly be transcribed +bEOnnarEX), but consider them runic if they appear in a text that is otherwise wholly in runes. There is no logic in this decision which is purely a matter of convenience; but readers who are not runologists should be aware of it.

Of course, no transcript can represent the original legend exactly: there must be some degree of abstraction. In a strict transcript, it may be important to indicate symbols which are not letters but affect the lay-out of the text, as the crosses that begin or divide name forms (as in '+wil+red'); or to draw attention to the placing of individual letters in distinct panels of the design (as +|E|F|E|, where the verticals show the division of the text). For less exact purposes, some of these details may be omitted. And for the student of philology or of runes, it may be convenient to leave out details important to the numismatists, as the pellets on Efe's various reverse legends.

Apart from the coins with an Interlace reverse, there are three known moneyers for Beonna's coinage: Efe, Wilred and Werferth. Their dies have the following legends:

1. *Efe.* His name commonly uses Roman characters, in the form +|E|F|E|, the letters divided among the four quarters of the reverse design. The only variant is the rune 'f' for the second letter, giving the text +|E|f|E|, (reverse dies 6, 9), while there is one example of this partly-runic text retrograde (reverse die 23). On this moneyer's dies the royal name and title appear in three forms (a) in Roman letters only in one example from the Hunterian Collection (*SCBI Glasgow* 413, obverse die 9): +BEONNAREX, with the N forms retrograde, which is not significant; (b) in mixed runes and Roman, as +BEOnnaREX, by far the most common form (obverse dies 1, 2, 4, 6, 8, 10 and 11), with two examples of this legend which seem to have no initial cross (obverse dies 5 and, with retrograde 'n' forms, 7); and (c) +BEnnaREss (obverse die 3).

[35] The system was devised in the 1930s by Bruce Dickins for convenience of reproduction by the methods then available; see his 'A system of transliteration for Old English runic inscriptions', *Leeds Studies in English* 1 (1932), 15–19. I use here a modified system which keeps Dickins's general principles but makes a few changes of detail, as recorded in my 'On the transliteration of English runes', *Medieval Archaeology* 28 (1984), 22–45.

[36] One might argue that a Roman B, R would have rounded bows, and runic 'b', 'r' pointed ones, but fine distinctions like this tend to disappear in coin legends. A runic 'r' might tend to be more open than Roman R, that is, the bow is often not brought right back to the stem before curving off to the tail, and there are suggestions of this in some of the R-forms in mixed texts of these coins.

2. *Wilred*. This moneyer's name is always in runes. His reverse dies have pairs of crosses placed diametrically opposite one another, with the name divided into its two elements between them: '+wil+red' (reverse dies 1–5,7). An exception is the garbled form (die 6) with the letters roughly in reverse order though the runes read from left to right, '+ de + rilw'. The obverse dies have the same pairs of crosses with the name, always in the form *Benna*, divided between them, and the space filled up by the unique symbol ᛉ . The common form (obverse dies 1–3, 5–7, 11, 13) is '+ben+naᛉ', with retrograde versions (obverse die 4 and two examples from Barham, 10, 12). Three minor variants (obverse dies 8, 9, 14) still have the legend '+ben+naᛉ', but with the second 'n' retrograde.

3. *Werferth*. Only one pair of dies is known from this moneyer. His name appears as 'we|rf|er|þ+|', and the obverse has the legend +BEOnnaREss.

4. The coins with the Interlace reverse. The four extant examples (two obverse dies) have the legend 'beonnarex.'. This is consistent with that of the damaged specimen (known only from an engraving) to which Pagan drew attention, though that may show a third obverse die.[37]

Discussion of the coin legends divides into two parts, the runological and the philological. Runologically interesting are (i) the mixture of runes and Roman characters, (ii) the occasional use of retrograde runes, (iii) the variation between 'x' and 'ss' in the Latin word *rex*, and (iv) the unique symbol ᛉ . Philologically, there must be some discussion of the name forms *Efe, Wilred* and *Werferþ*, and of the variation between *Benna* and *Beonna* in the royal name. The two approaches are not distinct since a writing system will have philological relevance.

It is not unusual for an inscription to mix runic and Roman characters. From the ninth century, for instance, there are two finger-rings with mixed inscriptions, one from Llysfaen, Clwyd, with the personal name +ALHSTAn, and one from Lancashire (perhaps Manchester) with a text reading +æDRED MEC AH EAnRED MEC agROf, 'Ædred owns me, Eanred engraved me'. The seventh-century coffin of St Cuthbert, from Lindisfarne, has legends in runes and legends in Roman, and a single mixed one, the archangel name [*R*]VmIA[*EL*]. From the later Anglo-Saxon period is the Chester-le-Street memorial stone with its name EADmVnD.[38] In coins the addition of occasional runic characters to otherwise Roman legends is common enough, as, for example, on ninth-century *stycas*, which give moneyers' names like +DAEgBERCT, +CVNEMVnD, +LEOFDEGn, +LEOFDEgN, and on Mercian pennies where Offa's moneyers produce such spellings as +BEAgHEARD, +wIHtrED. There are also examples where a moneyer chooses either runic or Roman for his various coin dies, as '+broþēr', '+broþer', side by side with +BRODR on ninth-century *stycas*. Occasional coins use both scripts, distinguishing thereby between two legends, as the 'lul' +EÐIlBERHT issue attributed to Æthelberht of East Anglia (d.794). Sometimes there are clear practical reasons why an engraver might use a runic letter in a Roman context. For instance, 'f' is in form quite similar to F, and would not look out of place in a Roman text, as in +EfE. 'n' is a slim letter, convenient to fit into a narrow space or to bind with other letters, and this may account for its frequent appearance in Roman contexts, and even its occasional use in manuscripts, as in the word SECUn̂DUS on fo.13a of the Lindisfarne Gospels.[39] Thus no special reason need be adduced for Efe's and Werferth's use of runes mixed with Roman characters.

As for their use of runes at all, and for Wilred's exclusive employment of that script, I draw attention to the importance of East Anglia as a rune-using area in the earlier Anglo-Saxon period. In the distribution maps published in 1973, I showed that for the period up to *c*.650, the South-east, East Midlands and East Anglia were important runic areas.[40] Added to the finds there plotted, and pushing the use of runes rather later, could be, *inter alia*, the *sceattas* in the names of *Epa* and *Wigræd* (mid-eighth century) and some runic pennies of Offa which C. E. Blunt has shown to be of East Anglian provenance.[41] Since my maps were published, East Anglia has thrown up several more runic inscriptions from the earlier period, as the related stamped pots with runic patterns from Spong Hill, North Elmham, Norfolk, a bracteate from Undley, Suffolk, two sets of tweezers from Heacham, Norfolk, and Brandon, Suffolk, and a small scatter of objects and fragments less certainly identifiable as runic.[42] Presumably in using runes Beonna's moneyers were simply following local fashion.

The occasional use of a retrograde letter, in this case 'n' on a couple of Wilred's dies, need also occasion no

[37] Pagan, 'New type for Beonna'.

[38] For these inscriptions and most other runic texts listed in this paper, see R. I. Page, *An Introduction to English Runes* (1973). The reattribution of the Lancashire gold ring to Manchester is suggested in B. J. N. Edwards, 'An Anglo-Saxon ring provenance narrowed', *Antiquaries Journal* 63 (1983), 132–4.

[39] Reproduced in T. D. Kendrick *et al.*, *Evangeliorum quattuor codex Lindisfarnensis* (1956–60).

[40] Page, *Introduction to Runes*, pp. 26–7.

[41] C. E. Blunt, 'The coinage of Offa', *Anglo-Saxon Coins*, edited by R. H. M. Dolley (London, 1961), pp. 49–50.

[42] C. Hills, 'A runic pot from Spong Hill, North Elmham, Norfolk', *Antiquaries Journal* 54 (1974), 87–90; B. Odenstedt, 'The inscription on the Undley bracteate and the beginnings of English runic writing', *Umeå Papers in English*, no. 5 (1983). The other items in this list remain unpublished, but a general account of them will appear in my article on new English runic finds in the *Festschrift* for S. B. F. Jansson (forthcoming).

worry. Several of the runes can have retrograde variants, as 'n', 's' and '᛬', and there seems to be no reason why one was chosen rather than the other. Sometimes opposing forms occur in the same inscription, as with 's' on the Great Urswick, Cumbria, rune-stone;[43] and the same applies to Wilred's opposing 'n' forms. On the other hand, a complete retrograde inscription – which runologically would be unusual at this late date – is presumably of numismatic rather than runological significance.

The royal title appears on these coins in two runic forms: 'rex' and REss. The first is apparently straightforward, but is important because it employs 'x', a very rare rune in England. Its form, ᛉ, is that of a Germanic rune which had the value *z*, found in inflexional endings. This was not needed for the Old English phonetic system, and so the rune became otiose. However, it survived in the *futhorc* (the runic alphabet in its distinctive letter order) and so in manuscript writings on runes from the Anglo-Saxon period, as well as in the *futhorc* which is engraved and inlaid on the blade of the ninth-century Thames (Battersea) scramasax.[44] Otherwise the rune is very rare epigraphically, and its only clear context, outside the 'rex' of the Beonna coins, is the sacred name of Christ, 'xps', on the coffin of St Cuthbert.[45] This confirms that the rune had developed, in Old English usage, the value *x*, and shows why it was rare in practical use, for Old English had no need for such a symbol. The rune appears only in learned contexts, and the Latin title *rex* is one of them. The spelling REss must be something different, for 'ss' is not an obvious representation of the sound [ks]. It suggests that the die-cutters of the obverses that use it (or, more likely, whoever designed their legends) were unfamiliar with the symbol 'x'. Perhaps 'ss' is an indication that they recognised that the final sound of *rex* was something like *s* but distinct from it; so they doubled the rune. However, there is some evidence that in Vulgar Latin dialects final *x* became *s* at an early date,[46] so perhaps REss gives a pronunciation spelling of the word. A parallel would be the Franks Casket (*c.*700) spelling 'afitatores' for *habitatores*.[47]

The runes of these coins are skilfully formed, and show a professional knowledge of the script – there is nothing confused about them. A possible exception is the 'd' of the Wilred coins, for in all dies this is ᛞ, clearly represented. The usual 'd' is the simpler ᛞ, and Wilred's more elaborate version, though presumably intended, is unorthodox. The only other difficult character is ᛘ, also used only by Wilred. This is not a rune known from other inscriptions, though of course it looks something like a rune. Its position – on all known coins of Wilred's issues – is after the king's name where Beonna's dies usually give a form of *rex*. Hence it is tempting to take ᛘ as a symbol representing that title. It bears some resemblance to 'x', with a bow at the top of the stem replacing the forked top of that rune. I suggest it is a nonce formation combining parts of 'r' (the bow) and 'x' (the stem with symmetrically placed top); hence *r(e)x*. I suggest further that Wilred used the form to solve problems of spacing. He had added a second cross to the obverse, corresponding to that which opens the legend, and dividing '+ben+na' into two parts. He then had space for only one more rune, which had the further advantage of supplying a text with six symbols, divided into two groups of three by crosses, as was the pattern of Wilred's reverses.

The Old English sources record no King Beonna of East Anglia, but his name – or one closely resembling it – occurs in regnal lists and accounts from after the Conquest. Those of the *Historia Regum* and 'Florence' of Worcester are usually quoted.[48] The *Historia Regum* refers to the king in the form *hunbeanna*, which is presumably to be divided into two names, *Hun* and *Beanna*. In the absence of an adequate edition of the *Chronicon* ascribed to 'Florence' of Worcester, it is hard to know what range of name forms is supplied, so I quote from the text in MS CCCC 92 which records him as *beorna* and *beornna*. Others have given a 'Florence' form *Beornus*, and certainly *Beorn* appears in later lists, as in MS CCCC 66, p. 72. We have, then, four or five forms to deal with: *Beonna, Benna* (which are the only ones with Anglo-Saxon authority) and *Beanna, Beorn(a)* from later sources. It is, I suppose, possible to explain the spelling *Benna* as the effect of space shortage, there being not enough room on the die to accommodate the fuller *Beonna*. This would account for

[43] Page, *Introduction to Runes*, p. 154, fig. 30.

[44] Page, *Introduction to Runes*, p. 61.

[45] Page, *Introduction to Runes*, p. 173, fig. 35.

[46] L. R. Palmer, *The Latin Language* (1954), p. 159; Vulgar Latin from various dates and places evidences confusion of *x* and *s* in a number of different contexts: see, for instance, M. K. Pope, *From Latin to Modern French with especial consideration of Anglo-Norman* (1934, repr. 1952) p. 276; V. Väänänen, *Introduction au latin vulgaire*, 2nd edn (1967), p. 68; J.N. Adams, *The Vulgar Latin of the Letters of Claudius Terentianus (P. Mich. VIIII, 467–72)* (1977), p. 22. However, Dr M. Lapidge tells me that he thinks this is unlikely to apply to insular Latin, so we must seek another explanation. He draws my attention to the Hebrew letter *res* = *caput*, hence by extension 'head (of state)'; this is found in Hebrew alphabets in manuscripts from the Anglo-Saxon period: e.g. Exeter Cathedral Library 3507 (s.x.$^2$), *res. caput vel primatus*; *Byrhtferth's Manual*, edited by S. J. Crawford, E.E.T.S. Original Series 177 (1929), plate facing p. 196. This word *res* occurs in certain difficult poems transmitted in Anglo-Saxon England, as the *Rubisca* (of Irish origin but surviving only in two English manuscripts): cf. F. J. H. Jenkinson, *The Hisperica Famina* (1908), p. 58, line 79. For what it is worth, the form REss on the Werferth obverse is slightly odd, for the first 's' resembles Z. I suspect this is only a device to fit the rune into the radial arrangement of the legend.

[47] Page, *Introduction to Runes*, p. 179.

[48] As in Pagan, 'New type for Beonna', p. 14.

the use of *Benna* on Wilred's coins (where there is other evidence of space shortage), but hardly that on Efe's obverse die 3, unless it is assumed that, in planning to double the final consonant 's', the die-cutter decided he would have to shorten the royal name. On the whole, however, it is perhaps best to assume that here we have acceptable alternatives of the same name. Both forms have Old High German equivalents, *Benno, Beono*;[49] both are explained as hypocoristic forms of names in *Beorn-* (cf. the post-Conquest form *Beorn(a))*. The late *Beanna* form might represent the common spelling confusion of *ea/eo* in Anglian texts of various dates.[50]

Of the moneyer's names, there is little to be said of *Wilred* and *Werfer* . These two names are quite well recorded in Old English sources, and their forms on the Beonna coins show no peculiarities. *Efe* is rather different, for it seems not to occur elsewhere in Old English, though of this it is hard to be sure because of the inadequacy of our name-lists. However, there is no need, with Pagan, to suggest the alternatives that *Efe* either gives the name of the mint or is a 'meaningless conjunction of letters.'[51] It represents a name type, monothematic in *-e*, which is amply evidenced in Old English. It seems common for Old English to have pairs of hypocoristic personal names, one unmutated in *-a* and the other mutated in *-i/-e*: As *Acca/Ecce, Cuna/Cyne, Dunna/Dynne, Hadda/Heddi/Hedde.*[52] *Efe* would stand in the same relationship to the recorded Old English name *Afa*. There is also the related OE *Efic/Aefic*, while Old High German has such names as *Ebo, Epich, Abi, Affi, Effo*, all of which may be cognate and derive from some root such as **af-* or **ab-*.

The *sceattas* that accompany the Middle Harling hoard evidence three runic name forms. One (MH54) has a sequence of three blundered runes that look as if they were copied from a retrograde form of 'epa' (?'æpa'), a common name on these coins. Two have the legends 'wigr' (MH55) and 'wigrd' (MH56), again well-known from *sceattas*, and abbreviated forms of the quite common Anglo-Saxon name *Wigræd*. Four others, two from each of two obverse dies, present a name *Tilberht*, hitherto unpublished on *sceattas* though *Tilbeorht* occurs several times in Old English records. The Middle Harling examples have unclear forms of the name, but it is confirmed by an excellently preserved coin from Barham, Suffolk, which reads 'til.berht', the rune 'h' retrograde. From the same die as this *sceat* are two from Middle Harling (MH57, MH58), but the complete name cannot be read on either coin. Two other Middle Harling coins are from a second die (MH59, MH64). The first of these reads 'tilber*t', the last three runes not easy to make out. The final one is apparently 't', though most of its top is off the flan. Before that are three staves, the first two of which combine to form a very open 'r'. This creates a form 'tilber*t' with the asterisk representing a single stave that cannot support 'h'. At this point the second specimen (MH64) provides help. Its legend is differently placed on the flan, and though its opening letters are indeterminate, its ending is clear: 'rlt'. The combined reading is thus 'til berlt'. A second element *-berlt* is not possible, and it must be a blundered form of *-berht*.

## APPENDIX 3

### *Estimation of the Original Number of Dies used for the Beonna Coinage*

M. R. COWELL

The coins of Efe and Wilred are represented here in sufficient numbers for a die study to be feasible. The intention is to estimate the probable original numbers of dies and in particular to determine the average number of reverse dies used with each obverse die (or vice versa) for the two groups. In this respect it is of some interest that the coins of Wilred, unlike those of Efe, deviate from normal practice in having more obverse than reverse dies.

One undertakes the calculation of die numbers with some caution since the aim is to estimate a quantity which is not available for direct measurement. The number of dies used which do not appear in the sample can only be deduced from the frequency distribution of those actually present. Many methods have been proposed for and applied to the estimation of die numbers, the majority of which have a sound statistical foundation. Provided that the parameters of the sample and the series from which it was derived fulfill the basic assumptions of the method applied, the results obtained should be entirely reliable.

[49] E. Förstemann, *Altdeutsches Namenbuch* I, *Personennamen* (1900), s.n. Also H. Kaufmann, *Ergänzungsband* (1968), under *A þ a-, Af-, Eb-*.

[50] E. Sievers and K. Brunner, *Altenglische Grammatik*, 2nd edn (1951), pp. 22–3.

[51] Pagan, 'New type for Beonna', p. 11 n.3.

[52] M. Redin, *Studies on uncompounded personal names in Old English* (1919), s.n.

The drawback, of course, is that basic assumptions such as uniform die lifetime, a random sample, etc., are often not satisfied or not testable. It would be out of place here to discuss in detail the shortcomings of some of the methods of die estimation when applied to real data or the circumstances which would lead any attempt at estimation to become unsound, since this has been adequately dealt with elsewhere.[53] However, it is worth noting that the principal reason for certain methods being considered unsuitable is their basic assumption of equal output per die. It is now clear that such an assumption is untenable in the vast majority of cases.

For this reason the two methods applied here were selected from those which do not have this requirement. Instead, they assume that a histogram of die output (or lifetime) follows a gamma function, a distribution similar to that of a highly skewed gaussian or normal curve. The lifetime of components in a mechanical operation such as die striking might be expected to exhibit this variation and actual coin data has been shown to conform closely to such a distribution.[54] This approach assumes that the only criterion governing die lifetime is the mechanical failure of the die. No allowance can be made for deliberate disposal of a die whilst it is still useable.

Of the two methods applied here one uses formulae derived from first principles,[55] the other an empirical formula obtained from a simulation.[56] For precise details of their methodology the reader is referred to the original publications.

The basic statistical information for each group has been summarized below by frequency tables.

EFE

| *Obv.* | | *Rev.* | |
|---|---|---|---|
| *k* | *F(k)* | *k* | *F(k)* |
| 1 | 4 | 1 | 16 |
| 2 | 1 | 2 | 4 |
| 3 | 3 | 3 | 5 |
| 6 | 1 | 5 | 1 |
| 12 | 1 | 7 | 1 |
| 18 | 1 | | |

WILRED

| *Obv.* | | *Rev.* | |
|---|---|---|---|
| *k* | *F(k)* | *k* | *F(k)* |
| 1 | 11 | 1 | 3 |
| 2 | 1 | 3 | 3 |
| 3 | 1 | 4 | 1 |

Here F(k) is the number of specific dies which are represented exactly k times in the sample. The following estimates were then obtained for the original numbers of dies used.

| *Type* | | *Muller, 1981* | *Carter, 1984* |
|---|---|---|---|
| Efe, | obv. | 13–14 | 12±1 |
| | rev. | 37–42 | 47±6 |
| Wilred, | obv. | indeterminate, > 39 | 54±26 |
| | rev. | indeterminate | 10±2 |

Note that although the two methods make the same initial assumption about die output the approaches used in the calculation are not the same and hence the final results differ slightly. Muller's method does not give exact values for the total number of Wilred dies because their calculated parameters lie outside the range of the

[53] For example: I. D. Brown, 'On estimating the numbers of dies used in a coinage, a cautionary tale', *NCirc* 1979, 60–61; D. M. Metcalf, 'The Antalya hoard of miliaresia of Basil I', *NC 137* (1977), 113–25.

[54] G. F. Carter, 'Numismatic calculations from die-link statistics', in *Problems of Medieval Coinage in the Iberian Area* (1984), 91–104.

[55] J. W. Muller, 'Estimation de nombre originel de coins', *PACT* 5 (1981), 157–72.

[56] Carter, 'Numismatic calculations'.

method. This is primarily due to the small sample size for this group. The errors quoted for the Carter results are empirically derived values equivalent to one standard deviation.[57] Observe that for the Wilred group where the sample is small the deviations are considerable.

At this point the statistics of the obverse dies of Efe are worthy of comment. Thus, note the high frequency with which two dies are represented in the group, by twelve and eighteen coins. For comparison, a frequency table has been calculated for this group[58] assuming an equal output per die and an original number of thirteen dies.

| *k* | *F(k) observed* | *F(k) calculated* |
|---|---|---|
| 1 | 4 | 0.9 |
| 2 | 1 | 1.9 |
| 3 | 3 | 2.6 |
| 4 | 0 | 2.6 |
| 5 | 0 | 2.1 |
| 6 | 1 | 1.3 |
| 7 | 0 | 0.7 |
| 8 | 0 | 0.3 |
| 9 | 0 | 0.1 |
| 12 | 1 | 0 |
| 18 | 1 | 0 |

For the purposes of this analysis it must be assumed that the observed deviation in the frequency of the two dies in the above table (compared with an equal output model) is due to an output higher than most of the other dies. It is further assumed that the distribution is typical of the population from which the sample was drawn and that there was no preferential selection or enhancement of these abundant dies before the sample was deposited as a hoard.

Neither of these assumptions may be correct, however. The over abundance of the two obverse dies may equally well be due to other factors such as an incomplete circulation of the series or a small intermittent output, none of which can be adequately modelled or predicted. This underlines the limitations of this analysis caused by uncertainties in the available data.

Returning to the die number calculations, and bearing the above comments in mind, the average proportions of obverse and reverse dies can now be suggested. Thus, the probable reverse: obverse die ratio for Efe is about 3–4 ± 0.6 (a typical range of 2.4 to 4.6) and the obverse: reverse ration for Wilred is about 5.4 ± 2.8 (a typical range of 2.6 to 8.2). Note that these are average values, individuals may have been higher or lower than these.

## APPENDIX 4

### *Analysis of Coins of Beonna and Related Issues*

M. R. COWELL

*Introduction*

The Middle Harling hoard provided a unique opportunity to examine in detail the composition of Beonna coins of which previously only a few examples were known. The coins examined consisted of all but one late find of the Beonnas from the hoard and the six *sceattas* and two blanks from the excavated area. (Three *sceattas* found later outside the excavated area were not analysed.) In addition, Beonna coins from other sources were examined (Burrow Hill excavation finds, a single find from the Ipswich excavations, the British Museum collection and those of the Ashmolean Museum, Oxford and the Hunterian Museum, Glasgow) . A series of contemporary Northumbrian coins covering the period 685–770 was also analysed for comparative purposes.

[57] G. F. Carter 'A graphical method for calculating the approximate total number of dies from die link statistics of ancient coins', in *Scientific Studies in Numismatics*, British Museum Occasional Paper No. 18, 17–30.

[58] Calculated using the formulae propoosed by F–J Mora Mas, 'Estimation de nombre de coins selon les repetitions dans une trouvaille de monnaies', *PACT* 5 (1981) 173–92.

As these will form part of the analytical data for a fuller study of the metrology of the Northumbrian *sceatta* series to be published in *MIN* 2, only the silver content of these coins is listed here.

*Method of analysis*

Most of the coins are small and very thin, generally less than 1 mm thick. A complete and accurate analysis by X-ray fluorescence (XRF) alone is not possible with such thin coins using the apparatus available at the British Museum. The reason for this is that the area covered by the X-ray beam is approximately 1–2 mm in diameter and if the coin is analysed on its edge (the only practical possibility in this case) then a significant area of the enriched surface of the coin would be included. However, the interior of the coin can be examined and analysed using the energy dispersive X-ray spectrometer on the scanning electron microscope (SEM). The concentrations of the major components of the alloy can thus be accurately determined (about 2 per cent relative) using the SEM. The XRF is, however, a more sensitive technique for estimating the minor and trace components. The coins were therefore analysed using a combination of the two techniques.

Each coin was mounted in a small jig so that an area on the edge could be abraded to remove the surface-enriched layer and polished to a one micron finish. The prepared edge was then examined in the SEM, and representative areas analysed for silver and copper. Results for these elements were obtained by averaging the composition of two or three zones on the same polished section. Repeat analyses in different areas of the same coin were also carried out as a control. The polished area was also examined for signs of corrosion; particularly the boundaries between the silver-rich and copper-rich phases in the alloy. Any significant amounts were noted and are recorded in the table of results.

After the SEM examination the coins were analysed by XRF on the same polished area. Six elements were quantified: copper, silver, gold, lead, zinc and tin. The silver contents obtained by XRF analysis are generally higher than those using the SEM by some 10–20 per cent relative. This is a reflection of the inclusion of some of the surface enriched layer in the area analysed. The results for the minor components: lead, zinc, tin and gold will also be affected by this phenomenon. There will, for example, be a tendency for gold to be overestimated but it is difficult to predict the exact effect on the other elements. The minor element results by XRF in this instance are probably accurate to within 25 per cent relative and should be regarded as semi-quantitative. However, since the minor components generally make up less than 10 per cent of the alloy in total, the absolute error from this source is relatively small. The results by the two techniques here have therefore been combined by assuming that the minor elements have been correctly estimated by the XRF and adjusting the SEM silver and copper figures so that the total is 100 per cent.

*Results*

The table of results has been ordered so that all Beonna coins are listed first, then the remaining Middle Harling items and finally the Northumbrian coins. The Beonna coins are grouped according to moneyer and ordered by obverse and reverse die number. All coins in the Middle Harling hoard have been examined for obverse and reverse die links, and each unique die has been assigned an arbitrary number. In the column marked 'DIES' an entry such as 4 + 11 indicates that the coin has obverse die 4 and reverse die 11. Many coins have the same obverse die (die-linked) and several have the same obverse and reverse dies (die-duplicates).

The analytical data in the table are the combined results from the XRF and SEM analysis obtained as outlined above. The final column in the table indicates the condition of the coin: * denotes those coins with slight corrosion; ** those with extensive internal corrosion which were not further analysed. The remainder showed no significant signs of internal corrosion on the edge which was polished. The silver contents of coins exhibiting slight corrosion should be interpreted with caution as they may be slightly enhanced.

*Discussion*

The results can be discussed under four main headings: (1) the fineness of the Beonna coins, particularly with regard to possible trends in the series; (2) how the fineness of the Beonna coins relates to the Northumbrian coins; (3) the relationship of other components of the alloy; (4) the composition of the other (from Beonna) coins and the blanks in the Middle Harling hoard.

(1) Three moneyers placed their names on the Beonna coins (Werferth, Efe and Wilred) and there is one type without a moneyer's name (Interlace). The fineness of the Beonna coins has been examined to see if there is any difference between the coins of each moneyer and whether there is any detectable change throughout one moneyer's production. Insufficient coins of Werferth and of the Interlace type have been analysed for any temporal changes to be detected in their issue. However, there are a considerable number of Efe coins and several Wilred coins which can be examined with this end in view.

The range in the fineness of Efe coins (44–58 per cent silver) suggests at first sight that there might be some trend. However, the range for a particular die-linked group, which must surely have been issued over only a short period, is almost as great (44–53 per cent for obverse die 4). The remaining minority of Efe coins with finenesses outside this latter range are randomly scattered throughout the series with no

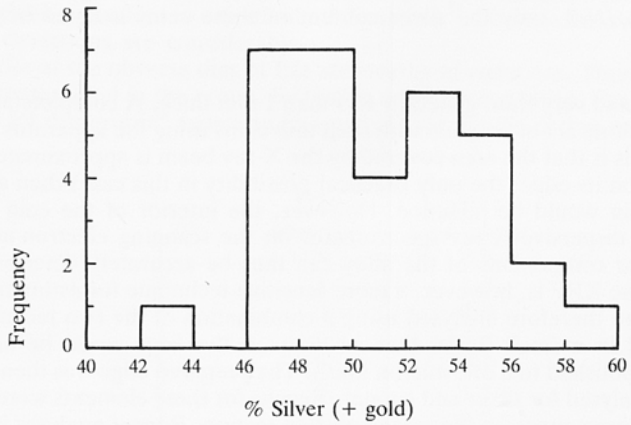



FIG. 6 Silver content (including gold) of coins of Efe

obvious preference for a particular obverse or reverse die. A histogram of the fineness of all the Efe coins (fig. 6) likewise shows no definite evidence of more than one standard for this moneyer since the distribution is essentially unimodal. The range in the measured fineness of these coins is partly due to the method of analysis (repeat measurements on different areas of the same coin agree to within 2–3 per cent absolute), but more to variations in the alloy used to produce the coins.

In contrast to the Efe coins, those of Wilred have a much wider range of fineness (23–50 per cent silver), far wider than can be explained by analytical precision. There does also seem to be a trend from coins with a fineness similar to that of Efe through perhaps an intermediate stage at approximately 40 per cent to finally two coins close to 25 per cent fine (MH45, MH46) which clearly stand out in terms of their fineness. There are unfortunately insufficient analyses here to comment on the significance of this other than that 25 per cent fine may have been the ultimate objective of the Wilred series.

With regard to comparisons between moneyers or types the following table summarises the date on each, for uncorroded coins only.

| *Moneyer or Type* | *Average Silver Content* | *Range in Silver Content* | *No. of Coins* |
|---|---|---|---|
| Interlace | 51.1% | 48–54% | 3 |
| Werferth | 70.5% | 69–73% | 2 |
| Efe | 51.0% | 44–58% | 33 |
| Wilred | 40.7% | 23–50% | 11 |

The Werferth coins are the finest and there is a significant difference between them and all other Beonna coins. The Interlace and Efe coins are not significantly different in fineness. Finally, some of the Wilred coins are significantly baser than the other types whilst some are close to those of Efe. Overall, if the standard changed in simple stages the aim seems to have been about 70 per cent (or perhaps 3:1 fine silver to alloy) for Werferth, 50 per cent (i.e. 1:1 fine silver to alloy) for Efe and then perhaps a gradual change to 25 per cent (1:3 fine silver to alloy) for Wilred.

(2) To assist in the comparison of the Beonna coins with the Northumbrian sceattas the latter's silver contents have been listed separately for each issue. In practice the Northumbrian coins as a whole cover much the same range of silver content as the Beonna series. The exceptions are the Werferth coins for which comparable examples exist only in the issue of Eadberht.

(3) Regarding the minor components of the alloy, apart from the normal occurrence of gold and lead, most of the coins analysed contain some zinc and tin. This has been noted before in coins of about this period.[59] Gilmore and Metcalf suggest that the addition of tin and inclusion of zinc may in some instances have

[59] H. McKerrell, and R. B. K. Stevenson, 'Some Analyses of Anglo-Saxon and associated Oriental silver coinage', in *Methods of Chemical and Metallurgical Investigation of Ancient Coinage* (1972), RNS special publication 8., pp. 195–210. D. M. Metcalf, J. M. Merrick and L. K. Hamblin, *Studies in the Composition of Early Medieval Coins* (1968).

compensated for reduced amounts of silver in the alloy.[60] However, the ninth-century Northumbrian stycas that they analysed contain considerably more zinc than the coins considered here (in the region of 10 per cent zinc with tin contents similar to that found in the Beonna coins). The trace quantities of zinc (1 per cent or less) and small amounts of tin (5 per cent approximately) in the Beonna and eighth-century Northumbrian coins reported here are just as likely to have arisen fortuitously as a result of using a bronze containing small amounts of zinc to alloy with silver. There is evidence of a correlation between tin and copper; the Efe coins generally contain 4–5 per cent of tin whereas the baser Wilred coins generally contain rather more, in the region of 10 per cent in two cases. If this is the correct interpretation then the bronze in question would have contained 10–15 per cent tin and up to 2 per cent zinc. In fact, Anglo-Saxon copper-based metalwork often contains both tin and zinc.[61] A similar source of supply for coinage alloying could account for the observed composition of the silver coins.

(4) A number of other items from the Middle Harling hoard were analysed including a group of *sceattas* and two circular discs of silver sheet presumed to be substitute coins. The *sceattas* were rather corroded but one (MH55) was sufficiently free of corrosion to provide a reliable analysis. This coin is made of very base silver, and two others appear to have a similar composition although corrosion makes these latter analyses less reliable. The London type *sceat* (MH62) seems to have a fineness similar to that of many Beonna coins although again since the coin is corroded the reliability of the analysis is questionable.

The two blanks have almost identical compositions, both having fairly high silver contents. They do not correspond to any of the coins in the Middle Harling hoard in terms of composition. In fact, their fineness and minor element content makes it impossible to determine what period they might have originated from. They are perhaps more consistent with series later than that of Beonna including early or later medieval or even more recently than that. In this respect they differ markedly from any of the coins in the hoard. Their gold content is also different, being much lower. Moreover, further alloying with copper or bronze to match the fineness (and perhaps the zinc and tin contents) of the Beonna series would have yielded an alloy containing only about 0.1 per cent gold, significantly lower than that found in the Beonna coins. This implies that the silver from which the blanks are manufactured is unlikely to have been the same as that used for the Beonna coins, or it could have made only a minor contribution to it.

## *Table of Analyses*

Dies are quoted from the Table of Obverse and Reverse Dies; the coins are identified by their number in the Corpus of Coins of Beonna (C1 etc) and by their provenances as abbreviated in the Corpus. The final column denotes condition: * denotes coins with slight corrosion, and ** coins with extensive internal corrosion which were not further analysed.

COINS OF BEONNA

| *Moneyer or type* | *Dies* | *Provenance* | *Ag* | *Cu* | *Au* | *Pb* | *Zn* | *Sn* | *Condition* |
|---|---|---|---|---|---|---|---|---|---|
| | | | % | % | % | % | % | % | |
| Efe | 1+1 | C1, MH1 | 49.5 | 39.2 | 1.9 | 2.6 | 0.1 | 6.7 | |
| | 1+2 | C2, MH2 | 52.6 | 40.5 | 1.2 | 1.7 | 0.2 | 3.9 | |
| | 1+2 | C3, MH3 | 47.4 | 42.7 | 1.3 | 2.2 | 0.1 | 6.3 | |
| | 1+2 | C4, MH4 | 56.2 | 34.4 | 1.0 | 1.7 | 0.0 | 6.7 | * |
| | 1+22 | C5, MH5 | 47.7 | 41.0 | 2.8 | 2.5 | 0.2 | 5.8 | |
| | 2+3 | C7, MH6 | 49.9 | 40.7 | 1.6 | 2.1 | 0.8 | 4.9 | |
| | 2+4 | C8, MH7 | 47.3 | 43.5 | 1.5 | 2.1 | 0.7 | 4.8 | |
| | 2+5 | C9, MH8 | 58.8 | 34.4 | 1.3 | 1.3 | 0.4 | 3.9 | * |
| | 3+6 | C10, MH9 | 52.1 | 39.8 | 1.3 | 1.9 | 0.7 | 4.1 | * |
| | 3+6 | C11, MH10 | 53.2 | 39.8 | 1.7 | 1.3 | 0.3 | 3.8 | |
| | 3+7 | C12, MH11 | 52.8 | 38.9 | 1.5 | 2.0 | 0.1 | 4.7 | |
| | 3+7 | C13, BMA 29 | 55.9 | 37.6 | 0.9 | 2.3 | 0.3 | 3.0 | |

[60] G. R. Gilmore and D. M. Metcalf, 'The alloy of the Northumbrian Coinage in the mid-ninth century' in *Metallurgy in Numismatics*, I (1980), R.N.S. Special Publication 13, pp. 83–98.

[61] W. A. Oddy 'Bronze alloys in Dark-Age Europe, Appendix B', *The Sutton Hoo Ship-Burial*, III, pt. 2 (1983), 945–61.

| *Moneyer or type* | *Dies* | *Provenance* | *Ag* | *Cu* | *Au* | *Pb* | *Zn* | *Sn* | *Condition* |
|---|---|---|---|---|---|---|---|---|---|
| | | | % | % | % | % | % | % | |
| | 3+8 | C14, MH12 | 56.4 | 36.0 | 1.0 | 1.8 | 0.1 | 4.7 | |
| | 3+8 | C15, BH4 | 53.9 | 35.8 | 1.7 | 2.4 | 0.1 | 6.2 | |
| | 3+9 | C16, MH13 | 52.6 | 39.8 | 0.9 | 1.9 | 0.1 | 4.7 | |
| | 3+10 | C17, MH14 | 56.4 | 35.5 | 1.1 | 1.9 | 0.1 | 5.2 | |
| | 3+10 | C18, MH15 | 48.0 | 43.4 | 1.1 | 1.9 | 0.2 | 5.4 | |
| | 3+23 | C20, MH16 | 50.2 | 42.3 | 1.4 | 1.9 | 0.2 | 4.0 | |
| | 3+24 | C21, BH3 | 55.3 | 37.7 | 1.1 | 1.7 | 0.1 | 4.2 | |
| | 4+11 | C22, MH17 | 49.6 | 41.9 | 1.4 | 1.6 | 0.7 | 4.8 | |
| | 4+11 | C23, MH18 | 46.3 | 44.6 | 1.3 | 2.3 | 0.7 | 4.8 | |
| | 4+11 | C24, MH19 | 43.8 | 46.6 | 1.6 | 1.7 | 0.7 | 5.6 | |
| | 4+11 | C25, MH20 | 50.7 | 41.1 | 1.5 | 1.3 | 1.3 | 4.2 | |
| | 4+11 | C26, MH21 | 48.2 | 43.0 | 1.3 | 1.9 | 0.7 | 4.9 | |
| | 4+12 | C29, MH22 | | | | | | | ** |
| | 4+12 | C30, MH23 | 46.2 | 44.7 | 1.4 | 2.2 | 0.4 | 5.1 | |
| | 4+13 | C32, MH24 | 50.4 | 38.8 | 3.0 | 2.2 | 0.3 | 5.3 | |
| | 4+13 | C33, MH25 | 46.7 | 45.5 | 1.0 | 1.4 | 1.0 | 4.4 | * |
| | 4+13 | C34, MH26 | | | | | | | ** |
| | 4+13 | C35, MH27 | 52.0 | 40.8 | 1.2 | 2.0 | 0.5 | 3.5 | |
| | 4+13 | C36, Glas. 412 | 52.7 | 39.8 | 1.2 | 1.6 | 0.7 | 4.0 | |
| | 4+14 | C37, MH28 | 52.7 | 38.9 | 1.2 | 2.3 | 0.3 | 4.6 | * |
| | 4+15 | C38, MH29 | 48.7 | 41.8 | 1.3 | 2.3 | 0.6 | 5.3 | |
| | 4+15 | C39, MH30 | 50.2 | 41.4 | 1.2 | 1.7 | 0.7 | 4.8 | * |
| | 5+16 | C40, MH31 | 54.8 | 37.4 | 1.5 | 1.5 | 0.8 | 4.0 | |
| | 5+17 | C41, MH32 | 47.9 | 44.0 | 1.8 | 1.7 | 1.0 | 3.7 | |
| | 5+17 | C42, MH33 | | | | | | | ** |
| | 6+15 | C43, Oxford 57 | 55.3 | 38.1 | 1.0 | 1.8 | 0.4 | 3.4 | |
| | 6+18 | C44, MH34 | 54.3 | 38.9 | 0.9 | 1.4 | 0.0 | 4.5 | |
| | 6+19 | C45, MH35 | 58.1 | 35.0 | 1.3 | 1.6 | 0.4 | 3.6 | |
| | 7+20 | C46, MH36 | | | | | | | ** |
| | 8+21 | C47, MH37 | 49.2 | 42.2 | 1.6 | 1.7 | 0.9 | 4.3 | |
| | 8+25 | C48, BH5 | | | | | | | ** |
| | 9+26 | C49, Glas. 413 | 55.4 | 37.0 | 1.6 | 2.0 | 0.2 | 3.9 | * |
| | 10+27 | C50, *BMC* 1 | 46.6 | 47.7 | 0.5 | 2.4 | 0.8 | 2.0 | |
| Wilred | 1+1 | C52, MH38 | 42.7 | 48.9 | 1.6 | 1.9 | 0.9 | 3.9 | |
| | 2+1 | C53, MH39 | 41.0 | 47.0 | 1.4 | 4.1 | 0.5 | 6.0 | |
| | 3+1 | C54, MH40 | 49.0 | 42.9 | 1.1 | 1.7 | 0.4 | 4.9 | |
| | 11+1 | C55, MH41 | 48.5 | 42.8 | 1.3 | 2.1 | 0.2 | 5.1 | |
| | 4+2 | C56, MH42 | | | | | | | ** |
| | 4+2 | C57, BH1 | 36.0 | 52.7 | 1.0 | 2.9 | 0.3 | 7.2 | |
| | 4+2 | C58, BH2 | 40.2 | 47.2 | 0.9 | 3.8 | 0.5 | 7.2 | |
| | 5+3 | C59, MH43 | 50.2 | 40.4 | 1.5 | 2.3 | 0.4 | 5.2 | |
| | 5+3 | C60, MH44 | 44.6 | 45.6 | 0.8 | 2.5 | 0.6 | 5.9 | |
| | 10+3 | C61, Barham | 47.9 | 46.1 | 0.5 | 2.1 | 0.9 | 2.5 | |
| | 6+4 | C62, MH45 | 22.9 | 63.8 | 0.6 | 2.4 | 0.3 | 9.9 | |
| | 7+4 | C63, MH46 | 25.0 | 59.8 | 0.7 | 3.5 | 0.3 | 10.7 | |
| | 8+5 | C66, MH47 | | | | | | | ** |
| | 9+25 | C67, MH48 | | | | | | | ** |
| Werferth | 1+1 | C69, MH49 | 72.5 | 19.9 | 2.4 | 1.2 | 0.3 | 3.7 | |
| | 1+1 | C70, Ipswich | 68.5 | 22.2 | 1.7 | 4.2 | 0.6 | 2.8 | |

| *Moneyer or type* | *Dies* | *Provenance* | *Ag* | *Cu* | *Au* | *Pb* | *Zn* | *Sn* | *Condition* |
|---|---|---|---|---|---|---|---|---|---|
| | | | % | % | % | % | % | % | |
| Interlace | 1+1 | C71, Packenham | 47.9 | 43.9 | 0.7 | 3.0 | 0.4 | 4.1 | |
| | 2+1 | C72, MH50 | 51.8 | 39.1 | 1.0 | 2.1 | 0.4 | 5.6 | |
| | 2+1 | C73, MH51 | 53.5 | 37.1 | 1.5 | 3.1 | <0.1 | 4.9 | |
| | 2+1 | C74, MH52 | | | | | | | ** |
| BLANKS | | MH60 | 90.3 | 6.1 | 0.2 | 1.9 | 1.5 | | |
| | | MH61 | 90.1 | 6.3 | 0.2 | 1.8 | 1.4 | | |

'SCEATTAS' FROM MIDDLE HARLING and related coins from Burrow Hill and the British Museum

Burrow Hill numbers are those of the listing in Sherlock 1984 in which all the coins are illustrated.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EAST ANGLIA (Rigold Series Q) | | | | | | | | |
| bird/beast | BH12 | 34.0 | 50.7 | 1.1 | 3.1 | 0.2 | 10.9 | |
| EAST ANGLIA (Rigold Series R) | | | | | | | | |
| *Epa* (devolved) types | | | | | | | | |
| epa (blundered) | MH54 | | | | | | | ** |
| spi | BH9 | 30.5 | 56.1 | 0.8 | 3.2 | 0.3 | 9.1 | |
| *Wigræd types* | | | | | | | | |
| wigr | MH55 | 3.5 | 85.0 | 0.0 | 2.2 | 0.6 | 8.5 | |
| wigrd | MH56 | 3.0 | 81.7 | 0.2 | 3.6 | 0.9 | 10.6 | * |
| wigrd | BH8 | 15.5 | 67.3 | 0.5 | 4.3 | 3.3 | 9.2 | |
| wigrd | BH9 | 14.1 | 64.7 | 0.8 | 11.5 | 1.2 | 7.6 | |
| | BMA 9 | 40.4 | 48.2 | 0.9 | 2.1 | 1.5 | 6.9 | * |
| | BMA 10 | | | | | | | ** |
| | BMA 11 | 16.4 | 69.3 | 0.5 | 2.4 | 1.6 | 9.8 | |
| *Tilberht types* | | | | | | | | |
| til·berht | MH58 | | | | | | | ** |
| tilberlt | MH59 | 3.7 | 81.4 | 0.5 | 2.2 | 0.9 | 11.3 | * |
| LONDON (Rigold Series L) | | | | | | | | |
| NNOONNIA (retrograde) | MH62 | 48.0 | 34.0 | 0.4 | 4.1 | 0.6 | 12.9 | * |
| *BMC* type 12 | | | | | | | | |
| Profile head to r./ cross, *cf BMC* 162 | BH11 | 38.3 | 52.7 | 0.8 | 1.2 | 0.3 | 6.8 | |

COINS OF NORTHUMBRIA

Full details of the analyses of these coins will be published, with others done later, in a fuller study of the metrology of the *sceatta* coinage of Northumbria, in *Metallurgy in Numismatics* 2.

*Kings of Nortumbria*

| | | *Ag* % |
|---|---|---|
| Aldfrith, 685–704 | *BMC* 3 | 93.3 |
| Eadberht, 737–58 | BM, Barnett 510 | 57.8 |
| | *BMC* 5 | 75.1 |
| | *BMC* 6 | 59.1 |
| | *BMC* 7 | 41.5 |
| | *BMC* 8 | 61.8 |

| | | *Ag* % |
|---|---|---|
| | *BMC* 9 | 50.6 |
| | BM, Barnett 511 | 50.9 |
| | BM, Barnett 512 | 68.9 |
| | *BMC* 10 | 63.6 |
| | *BMC* 11 | 43.7 |
| | *BMC* 12 | 37.5 |
| | BM, Barnett 513 | ** |
| Alchred, 765–774 | *BMC* 13 | 46.6 |
| | BM, Barnett 514 | 32.4 |
| | *BMC* 14 | 51.4 |
| | BM, Barnett 515 | 55.8 |
| | *BMC* 15 | 61.7 |
| Æthelred I, 1st Reign, 774–79 | BM, ex Mack II, 27 | 51.9 |
| Ælfwald, 779–88 | *BMC* 16 | 46.3 |
| Egberht, 732/4–66 with Eadberht, 737–58 | BM, Barnett 572 | 55.8 |
| | BM, Barnett 573 | ** |
| | BM, Barnett 574 | 53.2 |
| | *BMC* 4 | 46.6 |
| | *BMC* 677 | 58.6 |
| with Alchred, 765–74 | BM, 1858–12–21–1 | 51.7 |
| | Barnett 575 | 49.1 |

## KEY TO THE PLATES

Pl. 1 and the upper part of pl. 2 illustrate all the coins from the Middle Harling hoard and associated blanks at natural size. The numbers refer to those of the listing of the hoard where the die-numbers are identified. The coins with C numbers are isolated finds not illustrated in other publications and are identified by their numbers in the Corpus of Coins of Beonna. The lower part of pl. 2 and pls. 3–5 illustrate at twice life size the clearest striking from every known die used for Beonna's coins. The obverse and reverse dies are numbered in separate sequences for each of the moneyers and for the Interlace type. Efe O1 and Efe R1 denote the obverse and reverse series; Wil = Wilred, Wer = Werferth and Inter = the Interlace type. The coins from which the dies are illustrated are identified in the Corpus of Coins of Beonna as follows:

Efe
O1 – C2 (MH2)
O2 – C8 (MH7)
O3 – C10 (MH9)
O4 – C22 (MH17)
O5 – C41 (MH32)
O6 – C44 (MH34)
O7 – C46 (MH36)
O8 – C47 (MH37)
O9 – C49 (Glas. 413)
O10 – C50 (*BMC* 1)
O11 – C51 (Hacheston)
R1 – C1 (MH1)
R2 – C2 (MH2)
R3 – C7 (MH6)
R4 – C8 (MH7)
R5 – C9 (MH8)
R6 – C10 (MH9)
R7 – C12 (MH11)
R8 – C14 (MH12)
R9 – C16 (MH13)
R10 – C17 (MH14)
R11 – C22 (MH17)
R12 – C30 (MH23)
R13 – C32 (MH24)
R14 – C37 (MH28)
R15 – C38 (MH29)
R16 – C40 (MH31)
R17 – C41 (MH32)
R18 – C44 (MH34)
R19 – C45 (MH35)
R20 – C46 (MH36)
R21 – C47 (MH37)
R22 – C5 (MH5)
R23 – C20 (MH16)
R24 – C21 (BH3)
R25 – C48 (BH5)
R26 – C49 (Glas. 413)
R27 – C50 (*BMC* 1)
R28 – C51 (Hacheston)

Wil
O1 – C52 (MH38)
O2 – C53 (MH39)

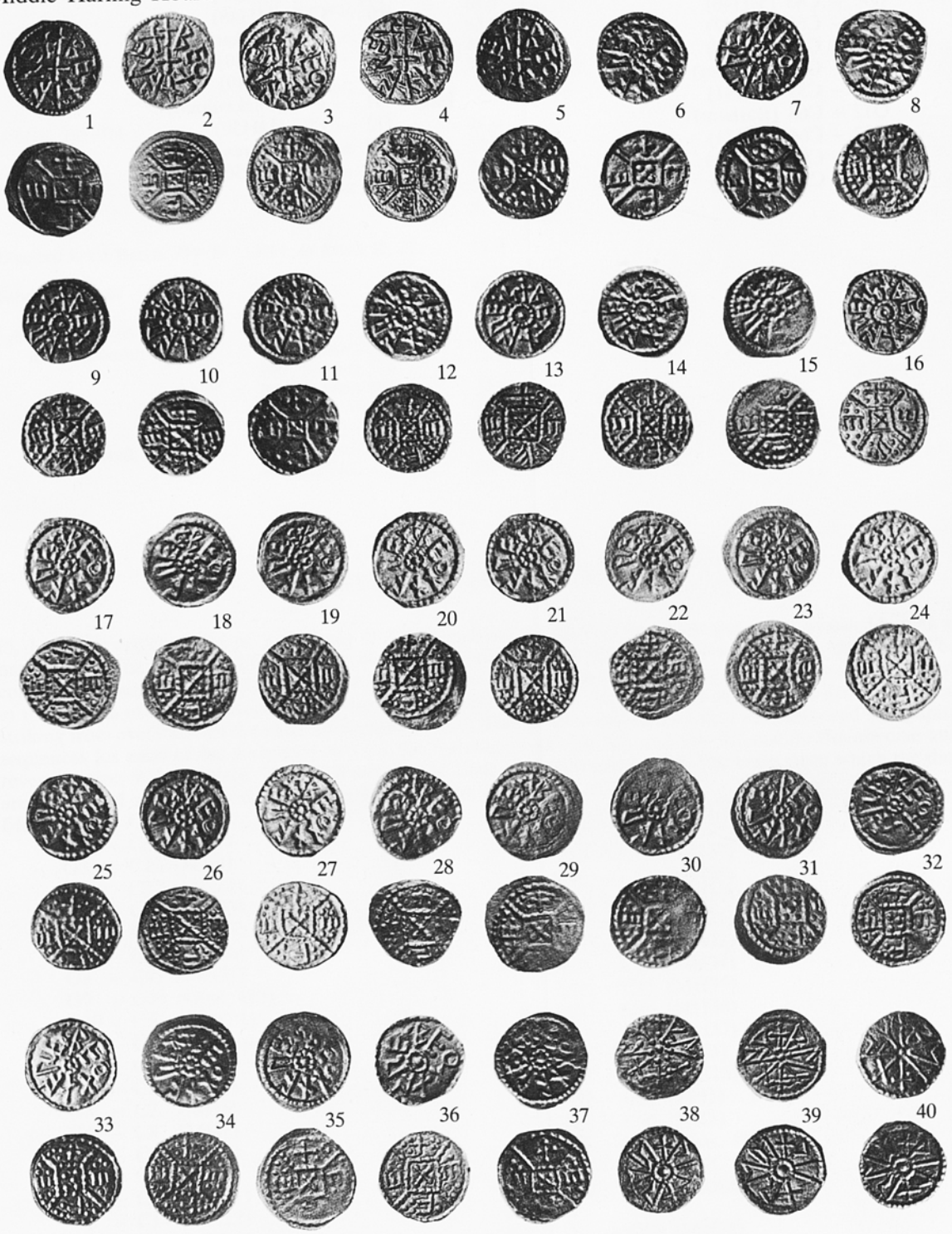
O3 – C54 (MH40)
O4 – C56 (MH42)
O5 – C60 (MH44)
O6 – C62 (MH45)
O7 – C63 (MH46)
O8 – C66 (MH47)
O9 – C67 (MH48)
O10 – C61 (Barham)
O11 – C55 (MH41)
O12 – C68 (Barham)
O13 – C64 (MH53)
O14 – C65 (Ipwich)
R1 – C53 (MH39)
R2 – C56 (MH42)
R3 – C61 (Barham)
R4 – C63 (MH46)
R5 – C66 (MH47)
R6 – C67 (MH48)
R7 – C68 (Barham)

Wer O1 – C69 (MH49)
R1 – C69 (MH49)

Inter O1 – C71 (Packenham)
O2 – C72 (MH50)
O3 – C76 (Dorestadt)
R1 – C72 (MH50)

# PLATE 1

Middle Harling Hoard



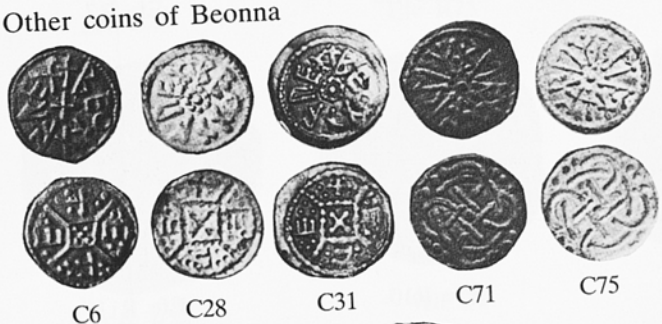
# PLATE 2

Middle Harling Hoard (*cont.*)

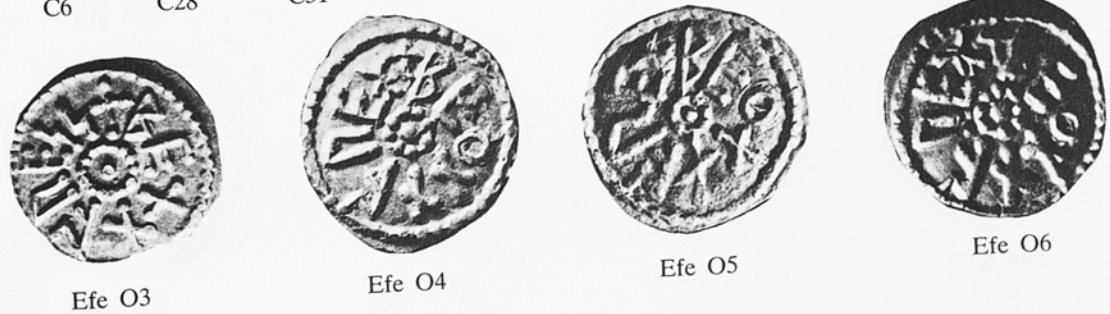



Dies for Beonna's coins (× 2)

Other coins of Beonna







# PLATE 3

Dies for Beonna's coins (*cont.*) (× 2)


Efe O7


Efe O8


Efe O9


Efe O10


Efe O11


Efe R1


Efe R2


Efe R3


Efe R4


Efe R5


Efe R6


Efe R7


Efe R8


Efe R9


Efe R10


Efe R11


Efe R12


Efe R13


Efe R14


Efe R15

# PLATE 4

Dies for Beonna's coins (*cont.*) (× 2)


Efe R16


Efe R17


Efe R18


Efe R19


Efe R20


Efe R21


Efe R22


Efe R23


Efe R24


Efe R25


Efe R26


Efe R27


Efe R28


Wil O1


Wil O2


Wil O3


Wil O4


Wil O5


Wil O6


Wil O7

## PLATE 5

Dies for Beonna's coins (*cont.*) (× 2)


Wil O8


Wil O9


Wil O10


Wil O11


Wil O12


Wil O13


Wil O14


Wil R1


Wil R2


Wil R3


Wil R4


Wil R5


Wil R6


Wil R7


Wer O1


Wer R1


Inter O1


Inter O2


Inter O3


Inter R1