THE PROVISION AND USE OF SHORT CROSS CLASS V DIES

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Introduction

WHEN L. A. Lawrence introduced his classification of the Short Cross coinage he associated class V with King John's partial recoinage.[1] John Brand has considerably increased our understanding of mint organisation during the partial recoinage by producing die-studies of class V coins struck at Bury St Edmunds, Exeter, Ipswich, Lynn, Northampton, Norwich, Oxford and Rochester.[2] This article will reconsider the dies used at the mints studied by Brand and offer important evidence from the other mints of class V. New information that is essential for a full discussion of the production of class V has been very generously contributed by Dr Robin Eaglen, Mr Glenn Gittoes and Mrs Yvonne Harvey. Dr Eaglen has provided access to the research compiled for his PhD thesis on the Bury St Edmunds mint[3] and Mr Gittoes has supplied information derived from his unpublished study of the Short Cross coins of Oxford. Mrs Harvey has allowed the use of the results of her study of the Short Cross coins of Winchester, produced in collaboration with Mr Gittoes, in advance of the publication of a forthcoming *Winchester Studies* volume. I have produced new die-studies of the mints not examined by Dr Eaglen, Mr Gittoes or Mrs Harvey. H. R. Mossop's pioneering study of the Lincoln mint included Short Cross class V[4] but a fresh die-study of Lincoln coins has been necessary.[5]

The classification used in the die-studies is tabulated in appendix 1. Appendix 2 is a table of the numbers of coins studied and the numbers of dies found are recorded in appendices 3, 4 and 5.[6] Appendix 7 provides diagrams representing dies used at all of the mints studied except Canterbury, London and Winchester. The Carlisle and Durham diagrams have been adapted from diagrams in my published study of the Short Cross issues of those mints, incorporating five Carlisle coins and 16 Durham coins that were not available for study at the time of the original publication.[7] Dies have been arranged on the diagrams in numbered sequences based upon their classification, the evidence of die-links and subjective assessments of the style of the portraits on the obverse dies. These sequences may not reflect the order in which dies were actually produced or used, and examples of

[1] L. A. Lawrence, 'The Short-Cross coinage, 1180 to 1247', *BNJ* 11 (1915), 59–100, at pp. 70, 78 and 82. I have used Lawrence's classification, with modifications introduced below (p. 62), and by J.D. Brand, 'Some Short Cross questions', *BNJ* 33 (1964), 57–69, at pp. 58, 59, 64 and 65, and *SCBI* 21, *Coins in Yorkshire collections* (London, 1975), p. lvi.

[2] J. D. Brand, 'Some Short Cross questions', pp. 61–65.

[3] R. J. Eaglen, 'The mint of Bury St. Edmunds to 1279' (Birkbeck College, University of London, 1989).

[4] H. R. Mossop et al, *The Lincoln mint c.890–1279*

(Newcastle upon Tyne, 1970), pl. 94, 28–pl. 97, 21, pl. 102, 5.

[5] Mossop identified 30 obverse dies and 52 reverse dies from 159 coins of class V but 217 coins in the new study were produced from only 25 obverse dies and 50 reverse dies.

[6] The most common versions of moneyers' names have been preferred in the appendices but alternative versions that seem to be substantive have been included. It is particularly notable that the names Andre, Gilebert, Milis, Peres and Renald, which appear on dies attributed to class Vaii in this article, were permanently modified to Andreu, Gileberd, Miles, Pieres and Renaud respectively on later dies. In the key to the plates only the version appearing on the illustrated coin is given.

[7] M. R. Allen, 'The Carlisle and Durham mints in the Short Cross period', *BNJ* 49 (1979), 42–55, at pp. 49, 51 and 52. The previously unpublished coins are all from die-combinations published in 1979.

the simultaneous supply of groups of dies will be discussed. Reverse dies are indicated by numbers with prefixes derived from the name of the moneyer on all of the diagrams except the Carlisle and Durham diagrams, which employ the numbering used in the original publication. The numbering used in Brand's Norwich die diagram[8] has also been retained, with the addition of four obverse dies and eight reverse dies and the omission of one obverse die.[9] The numbers of coins providing evidence for die-combinations are recorded against the lines connecting combined dies.[10]

It has not been possible to illustrate coins from all of the dies included in the studies. However, copies of photographs of coins from the Bury St Edmunds, Chichester, Exeter, Ipswich, Lincoln, Lynn, Northampton, Norwich, Oxford, Rochester and York dies have been deposited in the Department of Coins and Medals at the British Museum, the Library of the British Numismatic Society, the Heberden Coin Room of the Ashmolean Museum and in the Fitzwilliam Museum. The Carlisle and Durham dies have already been illustrated.[11]

The evidence provided by the exceptional numbers of dies found in the studies of Canterbury, London and Winchester coins has been reduced to a manageable form in appendices 4, 5 and 6. Appendices 4 and 5 tabulate the die survival frequencies, which are the numbers of dies known from specified numbers of coins. The table of links between obverse dies in appendix 6 has been produced by counting each permutation of two obverse dies used with a common reverse die as a separate link. For example, if a reverse die has been found in combination with four obverse dies there are six permutations of two obverse dies and six links been counted. The tables of links between reverse dies, which include links between reverse dies of the same moneyer, have been similarly produced. Thus, the first column in the table of links between Canterbury reverse dies records three links involving pairs of dies of the moneyer (H)ernaud/Arnaud/Arnold, 11 links between a die of that moneyer and a die of Coldwine, and so on.

Die-links between class IVc and class Va

Lawrence considered that there was a fundamental discontinuity of style and workmanship between the 'very bad' coins of class IV and the 'very good' coins of class Va.[12] However, reverse dies of the Canterbury moneyers Coldwine[13] and Roberd used with class Va obverse dies were also used with obverse dies of class IVc (**pl. 3, 1–4**). The portraits on the obverse dies involved in these die-combinations show the change from the class IV beard composed of pellets[14] to the beard of 'fine strokes' specified by Lawrence as a characteristic of class V.[15]

[8] J. D. Brand, 'Some Short Cross questions', p. 63.

[9] The evidence for the existence of obverse die 3 seems to have been a coin in the Fitzwilliam Museum described as a class Vb/class Va 'mule' in an unpublished list (J. D. Brand, 'Short Cross coins in the Fitzwilliam Museum Cambridge' (Rochester, 1963), coin no. 216). This coin is an indistinct product of obverse die 2.

[10] The Sudbourne hoard is probably the principal source of the exceptional numbers of coins from two class Vc obverse dies combined with reverse dies of the Ipswich moneyer Iohan. A parcel of 49 coins from this hoard published by R. H. M. Dolley, 'A note on the chronology of some published and unpublished 'Short Cross' finds from the British Isles', BNJ 29 (1958–1959), 297–321, at pp. 307–311, contained 16 class Vc pennies of Iohan.

[11] Allen, pl. 7, 46–49, pl. 8, 50–55 and 68–77, pl. 9, 78–95.

[12] Lawrence, pp. 64 and 70.

[13] The moneyer Coldwine named by this reverse die and other reverse dies used with class V obverse dies can be identified with the moneyer Goldwine named by Canterbury coins of earlier classes. Class IV coins from two reverse dies of Goldwine illustrated by G. C. Brooke, NC 4th ser. 10 (1910), pl. 8, 1 and 2 have London mint-signatures and Mr Gittoes has a class IVb penny from a third London reverse die of this moneyer. However, the first die illustrated by Brooke is linked to reverse dies of the Canterbury moneyers Reinald/Reinaud, Samuel and Simon/Simun and the die not published by Brooke is linked to a die of the Canterbury moneyer Ulard. These die-links, which will be illustrated in another publication, may indicate that all of the 'London' reverse dies of Goldwine were supplied for use in Canterbury. It can be assumed that the reverse die of Coldwine was supplied to Canterbury although it does not have a mint-signature.

[14] J. D. Brand, 'Some Short Cross questions', p. 59, allocates coins with a beard of pellets to class IV.

[15] Lawrence, p. 64.

Class Vai obverse dies

Lawrence noted that in class V the curls representing the portrait's hair 'generally' contained pellets.[16] The two die-linked class Va obverse dies and 12 other class V dies share with dies of class IVc and previous varieties a complete absence of pellets inside the curls.[17] All of the die-combinations involving these class V dies are illustrated (**pl. 3, 2, 4–20, 23, 24, 27 and 28**). Five of the dies, including the linked dies, have distinctive large annulet eyes comparable with those often found in class IVc (**pl. 3, 2 and 4–11**). Three of the dies having smaller eyes similar to those usually found in class Va (**pl. 3, 20, 24, 27 and 28**) are die-linked with apparently normal class Va obverse dies (**pl. 3, 21, 22, 25 and 26**), confirming their official origin. Eleven of the dies have the reversed S of class IVc and class Va ((**pl. 3, 2, 4, 5, 8–17, 23, 24, 27 and 28**), and the other three (**pl. 3, 6, 7 and 18–20**) have a normal S in combination with the single stop before REX that was considered by Lawrence to be an early feature of class V, reviving the punctuation of class I.[18] All of the dies may be plausibly assigned to an early place in class Va – although those with a normal S would have been attributed to class Vb by Lawrence[19] – and they can be described as class Vai. The diverse and unusual portraits on the class Vai dies, the apparently unique appearance of the sceptre to the right of the portrait on one of them (**pl. 3, 6 and 7**) and the aberrant legends on two of the dies (**pl. 3, 6, 7 and 17**) seem to be examples of the variations sometimes found at the start of a reform of the coinage.[20] It is possible that the production of these dies was followed without an overlap by the production of class Va obverse dies not attributable to class Vai, but this cannot be proved.

Class Vai reverse dies

Class Vai obverse dies have been recorded in combination with six Canterbury reverse dies (**pl. 3, 1–5 and 18–22**) and 16 London reverse dies (**pl. 3, 6–17 and 23–28**). Three of the Canterbury reverse dies (**pl. 3, 18–22**) and four of the London reverse dies (**pl. 3, 23–28**) have the cross pommée initial mark of Lawrence's class Va but the remaining 15 dies (**pl. 3, 1–17**) have the cross pattée initial mark conventionally associated with class IVc and class Vb. The cross pattée initial mark dies should not be attributed to class Vb. The cross pattée die of the Canterbury moneyer Samuel (**pl. 3, 5**) has the reversed S, which is not found on dies of class Vb and subsequent varieties, and the dies of Coldwine and Roberd (**pl. 3, 1–4**) have provided the die-links with class IVc. The cross pattée reverse dies and the class Vai obverse dies used with them have lettering that resembles the lettering on some class IVc obverse dies, such as the illustrated dies. The cross pattée dies, which can be attributed to class Vai, were probably produced before the introduction of the cross pommée initial mark.

Class Vai reverse dies do not have any characteristics that would allow them to be distinguished from reverse dies exclusively known from coins of class IVc. The barred letter A found on four class Vai reverse dies (**pl. 3, 3, 4, 10, 15 and 16**) was noted by Lawrence as a novel characteristic of some coins of class Va,[21] but a reverse die of the Canterbury moneyer Iohan and three reverse dies of the York moneyer Davi used with class IVc obverse dies also have barred forms of this letter. It is possible that some of the class Vai reverse dies were made during the production of class IVc obverse dies.

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[16] Lawrence, p. 64.
[17] Classes I, II, III and IV are generally characterised by curls without pellets although some coins of classes III and IVa have a pellet in at least one of the curls.
[18] Lawrence, p. 64.
[19] The forms of the normal letter S on these dies are smaller than the forms usually found in Lawrence's class Vb.
[20] I. Stewart, 'Style in medieval coinage', NC 7th ser. 9 (1969), 269–289, at p. 287 uses class Va as an example of the early experimental stage of a reformed coinage.
[21] Lawrence, p. 78.

Class Vaii obverse dies

Class Va obverse dies that have pellets in some or all of the curls of the portrait's hair can be attributed to class Vaii. The opening of the additional mints required for the partial recoinage began during the supply of class Vaii obverse dies. Six of the mints that received class Vaii obverse dies did not use class Vai dies. At least three of these mints (Exeter, Lincoln and Winchester) did not produce coins of class IVb or class IVc, indicating that they were closed before the introduction of class Vai.

The 61 class Vaii obverse dies recorded have been divided into three groups, which might possibly represent three periods of die production. The allocation of dies to groups has principally depended upon subjective assessments of the style of portraits, and all of the dies have been illustrated to aid the understanding of these assessments.

Group A obverse dies (**pl. 3, 25 and 26, pl. 4, 29 and 54–56, pl. 5, 57 and 77**) can be usefully compared with three of the class Vai obverse dies used with cross pommée reverse dies (**pl. 3, 18–20, 27 and 28**). The portraits are comparatively small, with the face positioned well above the collar, and the curls are often relatively small. The four class Vaii dies (**pl. 3, 25 and 26, pl. 4, 29, 54 and 55**) that have the stop before REX also found on three class Vai dies can be assigned to group A. The most unusual of the group A dies (**pl. 5, 77**), which seems to represent an attempt to reproduce the slightly turned view of the head often suggested by class I portraits, may be the earliest class V obverse die used at Winchester. One group A obverse die (**pl. 4, 29**) was used with Canterbury reverse dies and five group A dies (**pl. 3, 25 and 26, pl. 4, 54–56, pl. 5, 57**) were combined with London reverse dies.

The 34 class Vaii obverse dies placed in group B (**pl. 3, 21 and 22, pl. 4, 30–38 and 47–53, pl. 5, 58–63, 75, 76, 78, 79 and 81–84**, *BNJ* 49 (1979), pl. 8, 68–71) have relatively broad, rounded portraits that are unlike any of the class Vai portraits. Group B includes all of the class Va obverse dies used with Durham, Exeter, Lincoln, Norwich and York reverse dies. Group B dies were also combined with reverse dies of all of the Canterbury and London moneyers known from coins with class Va reverses, who are listed in table 2 (p. 50), and with reverse dies of the Winchester moneyers Adam, Henri and Milis/Miles.

Twenty class Vaii obverse dies (**pl. 4, 39–46, pl. 5, 64–74 and 80**), allocated to group C, have relatively elongated portraits resembling portraits on class Vbi obverse dies. A group C die (**pl. 5, 71**) used with class Vb reverse dies of the London moneyers Rener, Ricard, Ricard T and Wille(l)m B is the only class Va obverse die that is known to have been combined with class Vb reverse dies of Canterbury, London or Winchester moneyers. Group C dies were used with reverse dies of all of the Canterbury and London moneyers listed in table 2 and with dies of the Winchester moneyers Iohan and Ricard. A table of the numbers of class Vaii obverse dies found emphasises the difference between the supply of dies to Canterbury, London and Winchester and the supply to the other mints.

TABLE I

Class Vaii obverse dies

Mint	Group A	Group B	Group C	Totals
Canterbury	1	11	8	20
Durham	0	2	0	2
Exeter	0	3	0	3
Lincoln	0	4	0	4
London	5	6	11	22
Norwich	0	2	0	2
Winchester	1	2	1	4
York	0	4	0	4
Totals	7	34	20	61

The die diagrams for the Durham, Exeter, Lincoln, Norwich and York mints show consistent patterns clearly indicating that all of the class Vaii obverse dies provided for these mints have been found. One group B die was supplied for each of the moneyers at Exeter, Lincoln and Norwich but the Durham and York moneyers seem to have been allocated two group B dies each.

All of the class Vaii obverse dies supplied to Winchester may have been found although the four dies known were combined with a total of five reverse dies naming five different moneyers. The class Vaii coins of Henri are the only evidence for the activity of this moneyer during the production of class V and it is probable that he was replaced by one of the other moneyers named.

Class Vaii reverse dies

Reverse dies with the cross pommée initial mark of Lawrence's class Va can be attributed to class Vaii to distinguish them from the cross pattée initial mark reverse dies of class Vai. The use of class Vaii reverse dies with five class Vai obverse dies might indicate that the cross pommée initial mark was introduced during the production of class Vai obverse dies, but it is possible that the five obverse dies were contemporary with class Vai reverse dies.

The Durham, Lincoln, Norwich and York moneyers evidently received two class Vaii reverse dies each. One class Vaii reverse die seems to have been provided for each of the moneyers active at Chichester and Exeter. The Winchester moneyers Adam, Henri, Iohan, Milis/Miles and Ricard also apparently received initial supplies of one class Vaii reverse die each, used with class Vaii obverse dies. However, two additional class Vaii reverse dies with the name of Iohan were used with class Vbi obverse dies. These two extra dies of Iohan and the class Vaii reverse dies used at Chichester were probably produced after the reappearance of the normal letter S on obverse dies attributable to class Vbi.[22] A table of the Canterbury and London class Vaii reverse dies recorded shows that approximately one third of these dies have been found in combination with class Vbi obverse dies only.

TABLE 2

Class Vaii reverse dies

Mint and moneyer	Total no. of Vaii rev. dies	Combined with Va obv. die(s)	Combined with Vaii and Vbi obv. dies	Combined with Vbi obv. die(s)
Canterbury				
(H)ernaud/				
Arnaud/Arnold	8	6	0	2
Coldwine	7	5	0	2
Hue	7	5	0	2
Iohan	13	8	0	5
Roberd	5	3	0	2
Samuel	5	4	1	0
Simon/Simun	7	5	0	2
London				
Fulke/Folke	18	4	5	9
Henri(k)	21	17	0	4
Ricard	18	12	1	5
Wille(l)m	28	16	1	11
Totals	137	85	8	44

[22] The class Vaii reverse die of the Chichester moneyer Simon and three class Vaii reverse dies of the Canterbury moneyer Simon/Simun have the normal letter S. Twelve class Vaii reverse dies have the reversed form of the letter.

Class Vbi obverse dies and associated reverse dies

The division of class Vb into class Vbi, characterised by 'flat-topped' forms of the letters K and R, and class Vbii, which has 'round-topped' forms of those letters, was originally supported by the observation that coins of class Va had flat-topped forms.[23] All of the class Vb obverse dies known to have been used with class Vaii reverse dies can be attributed to class Vbi, confirming the chronological significance of the flat-topped letter R found on them.

The Lincoln moneyer Ricard seems to have continued to use his class Vaii reverse dies after the supply of class Vbi obverse dies and class Vb reverse dies for the use of his fellow moneyers Andre(u), Rauf and Tomas. Single class Vaii obverse dies were retained at Durham, Lincoln, Norwich and York after the receipt of class Vbi dies. However, the three Exeter moneyers seem to have collectively surrendered all of their class Vaii dies when class Vbi dies were provided.

All of the mints having two or more moneyers using class Vbi obverse dies, with the exception of Chichester, have provided evidence of the sharing of obverse dies by moneyers noted by Brand.[24] At Chichester each moneyer seems to have had one obverse die for his exclusive use which had to be surrendered, with any associated reverse dies, when a new set of dies was issued. A similar system may have been frequently applied to the use of dies at Northampton, although one class Vbi obverse die was used with reverse dies of both of the moneyers supplied with class Vbi reverse dies.

It is probable that dies were often supplied in pairs when production of class Vbi dies started and that this system was generally superseded by the supply of two reverse dies with each class Vbi obverse die. The class Vbi/class Vaii coins of Winchester studied were produced from two obverse dies and two reverse dies. The Carlisle, Chichester and Lynn moneyers all seem to have received class Vbi obverse dies and their associated reverse dies in pairs. Three reverse dies of the Ipswich moneyer Alisandr(e)/Alisandar (al–a3)[25] have been found combined with a total of five class Vbi obverse dies but these dies might have been part of five or six pairs of dies if associated reverse dies were provided for the moneyer Iohan. However, the two class Vbi obverse dies directly or indirectly die-linked with one of the class Vbii obverse dies supplied to Ipswich may have been accompanied by two reverse dies for Alisandr(e)/Alisandar and two dies with the name of Iohan. A change from the supply of dies in pairs to their supply in sets of one obverse die and two reverse dies per moneyer might also have occurred during the provision of class Vbi dies for the Northampton moneyers Adam and Roberd. Each of the Exeter, Lincoln, Norwich, and Oxford moneyers seems to have been allocated one class Vbi obverse die with two reverse dies.

Dies were not always supplied in pairs or sets of three during the provision of class Vbi dies. The four class Vbi reverse dies of the Bury St Edmunds moneyer Fulke/Folke have been found combined with only one obverse die. If it is supposed that one of the class Vbi obverse dies supplied to York has not yet been found it is evident that the Durham and York moneyers each received two class Vbi obverse dies with two reverse dies, continuing a system used for the supply of class Vaii dies to them.

Class Vbi coins of Winchester name the new moneyers Andreu and Lukas in addition to

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[23] J. D. Brand. 'Some Short Cross questions'. p. 65. The letter R on class Vai dies varies considerably from the normal flat-topped form (eg. **pl. 3, 7**) to a letter that could not be said to be flat-topped (eg. on the reverse of **pl. 3, 9**).

[24] J. D. Brand, 'Some Short Cross questions', p. 64.

[25] The mint-signature on these three reverse dies is C but on other Ipswich reverse dies it always commences with a G.

This seems to be an example of the substitution of C for G also shown by the change in the initial letter of the name of the Canterbury moneyer Goldwine/Coldwine and it does not indicate the existence of an otherwise unknown Canterbury moneyer. None of the three reverse dies are die-linked with Canterbury reverse dies.

the previously established moneyers Adam, Iohan, Milis/Miles and Ricard. The seven Canterbury moneyers and three of the four London moneyers named by class Vaii reverse dies are also known from coins of class Vbi. The London moneyer Henri(k) used four of his class Vaii reverse dies with class Vbi obverse dies but his name does not appear on a class Vb reverse die in the study. The new London moneyers Adam, Beneit, Ilg(i)er, Rener, Ricard B, Ricard T, Wille(l)m B, Wille(l)m L and Wille(l)m T also used class Vbi obverse dies.

Mr Gittoes has used die-links to show that the class Vbi reverse die of a moneyer Andreu having a Canterbury mint-signature (Lincoln reverse die an4) was used with a class Vbi obverse die supplied to Lincoln and that a similarly classified 'London' reverse die with this moneyer's name was used at Winchester.[26] The class Vbi obverse dies used with the apparently unique 'London' reverse dies of Arnaud and Iohan have not provided die-links with reverse dies of substantive London moneyers or dies of any other moneyers. These reverse dies of Arnaud and Iohan have had to be treated as London dies in the tables and appendices but it must be suspected that the die of Arnaud was used at Canterbury and that the die of Iohan was used at one of the mints with a substantive moneyer named Iohan. Common Canterbury or London mint-signatures seem to have occasionally appeared on dies in error when other mint-signatures were required.

The substantive moneyers listed in appendix 2 increase from 36 in class Vaii to 57 in class Vbi, which is only four less than the peak attained in class Vbii. The appointment of new moneyers and the opening of mints for the partial recoinage seems to have been substantially completed before the end of the supply of class Vbi dies. All of the 16 mints of class V used at least one class Vbi obverse die.

Class Vbii obverse dies and associated reverse dies

The class Vbii obverse dies sent to Chichester, Exeter, Lynn, Northampton and Norwich may all have been accompanied by two reverse dies each. The nine class Vbii obverse dies and 18 associated reverse dies used at Exeter can be confidently interpreted as three successive batches of dies comprising one obverse die and two reverse dies for each of the three Exeter moneyers. The three Lynn moneyers might also have received a total of three class Vbii obverse dies on three occasions, if it is supposed that an obverse die supplied with dies 4 and 5 and another obverse die supplied with dies 9 and 10 remain to be found. Three of the class Vbii obverse dies and six of the reverse dies used at Norwich evidently constitute a single supply to the three moneyers there, but they have seem to have been exchanged for a batch containing two class Vbii obverse dies and four reverse dies for each moneyer. One of the class Vbii obverse dies used at Northampton (die 8) may not have been supplied with both of the reverse dies known to have been used with it. This die seems to have been the last obverse die used by the moneyer Roberd and the first obverse die used by Roberd T, Roberd's probable successor.

The Durham and York moneyers received their customary allocations of two obverse dies and two reverse dies each when class Vbii obverse dies were provided. The supply of a total of eight obverse dies to the York moneyers Davi, Nicole, Renaud and Tomas was followed by the provision of four obverse dies for the use of Davi and Nicole only. The two Rochester moneyers also seem to have received batches of four obverse dies, on three occasions. Table 6 (p. 58) assumes that all of the dies sent to Rochester were supplied during the issue of class Vbii dies although one of the twelve Rochester obverse dies must

[26] G. P. Gittoes, 'When is a mint-signature not a mint-signature?', read to the BNS 24 June 1980. A class Vbi obverse die provides die-links between the 'London' reverse die and Winchester reverse dies of the moneyers Andreu, Iohan and Lukas.

be attributed to class Vbi. No class Vbi Rochester reverse die has been found and it can be suggested that the class Vbi obverse die was supplied from a previously produced stock after the introduction of class Vbii.

The class Vbii obverse dies used by the Lincoln moneyers Andre(u) and Hue were probably supplied as part of an unparalleled batch of two dozen dies comprising six obverse dies and eighteen reverse dies. The Bury St Edmunds, Carlisle, Ipswich, Oxford and Rochester mints have not provided unequivocal evidence of the supply of class Vbii obverse dies and accompanying reverse dies in simple ratios. The class Vbii obverse dies used at Ipswich were probably supplied in pairs but these pairs have not been found combined with consistent numbers of reverse dies of the two Ipswich moneyers.

Some class Vbii obverse dies have been placed after dies of class Vbiii in the Chichester, Ipswich and Northampton die diagrams. Brand, who introduced class Vbiii as the designation for coins with eyes from a distinctive broken iron,[27] does not consider that this variety represents the last phase of class Vb.[28] The evidence of die-links has assisted the placing of class Vbii dies after class Vbiii dies in the Ipswich diagram and it must be significant that the die-links between class Vb and class Vc obverse dies used at Canterbury and Winchester involve class Vbii dies.

The Canterbury die-link between obverse dies of class Vbii and class Vc has been provided by coins from a reverse die of the moneyer Iohan B. Iohan B, his fellow Canterbury moneyer Iohan M and the Winchester moneyers Bartelme and Rauf seem to have started production during the supply of class Vbii obverse dies. All of the substantive Canterbury, London and Winchester moneyers known from coins having class Vbi obverses also used class Vbii obverse dies, with the exception of the London moneyer Henri(k).

Class Vbiii obverse dies and associated reverse dies

One of the pairs of obverse dies apparently supplied to the Ipswich moneyers consisted of class Vbiii dies. The moneyers at Chichester, Exeter, Northampton and Norwich probably received one class Vbiii obverse die and two reverse dies each, under a system of supply used for the provision of class Vbii dies to them. The Chichester moneyer Simon had probably been replaced by Willelm before class Vbiii dies were supplied and the Northampton moneyer Roberd T does not seem to have used dies of class Vbiii or subsequent varieties. No class Vbiii coins of the Oxford moneyer Henri have been available for study.

The three Lynn moneyers may have received two successive supplies of three class Vbiii obverse dies, comparable with the groups of three class Vbii obverse dies that may have been supplied to them, although only five class Vbiii obverse dies have been found. The Lincoln moneyers evidently exchanged their batch of six class Vbii obverse dies for a batch of six class Vbiii obverse dies but the accompanying reverse dies were probably reduced from nine to six per moneyer. If all of the six reverse dies of Hue known to have been used with class Vbiii obverse dies were supplied with them it is apparent that two of these reverse dies (h13 and h14) were available for use when class Vc obverse dies were received. The Lincoln and Norwich moneyers seem to have exchanged their class Vbiii obverse dies for class Vc obverse dies without an intermediate supply of class Vbii dies. The Exeter, Lynn and Oxford moneyers could have retained class Vbiii obverse dies until the end of the period of supply of class Vb dies. Similarly, the Bury St Edmunds, Carlisle, Durham,

[27] *SCBI* 21, *Coins in Yorkshire collections* (London, 1975), p. lvi. Some coins of class Vc have eyes from another broken iron.

[28] J. D. Brand, 'Some Short Cross questions reconsidered part 2', read to the BNS 23 February 1988.

Rochester and York moneyers may have retained class Vbii obverse dies during the supply of class Vbiii dies.

All the Canterbury, London and Winchester moneyers known from coins of class Vbii used class Vbiii obverse dies, with the apparent exceptions of the London moneyers Fulke/Folke, Ricard and Ricard T and the Winchester moneyers Milis/Miles and Ricard.

Class Vc obverse dies and associated reverse dies

It cannot be assumed that the Carlisle, Chichester, Exeter, Lynn, Oxford and Rochester moneyers, who do not seem to have produced coins of class Vc, lost the use of their dies before the introduction of that variety. The existence of die-links between class Vb and class Vc obverse dies might indicate that some class Vb obverse dies were used during the production of class Vc obverse dies if it is not entirely attributable to the survival of reverse dies originally associated with class Vb obverse dies.

The class Vc coins of Ipswich, Lincoln and Northampton studied have not provided any evidence of changes in die supply systems. The Lincoln moneyers may have received a batch of six class Vc obverse dies and twelve reverse dies similar to the batch containing class Vbiii dies, although only eight of the ten Lincoln reverse dies known from coins of class Vc have been found used with class Vc obverse dies exclusively.

The three Norwich moneyers received a group of three class Vc obverse dies in exchange for three class Vbiii obverse dies but the number of reverse dies per moneyer was reduced from two to one. The total number of dies in the batches supplied to Durham seems to have been increased from the usual four to six during the production of class Vc.[29] The York moneyers might have received their customary allocations of four dies but only two class Vc coins of York have been available for study, struck from one pair of dies. The Bury St Edmunds moneyer probably received only one class Vc obverse die, which may not have been supplied with all of the three reverse dies used with it.

All of the Canterbury, London and Winchester moneyers known from coins of class Vbiii used class Vc obverse dies[30] and the Winchester moneyer Milis/Miles is also named by coins of class Vc. One hundred and eight London reverse dies combined with class Vc obverse dies have the names of the new moneyers Abel, Rauf and Walter and another such reverse die has the hybrid name 'Ralter'. Abel, Rauf and Walter produced all of the class VIa coins of London with the previously established moneyer Ilg(i)er.[31] The apparent absence of die-links between these three new moneyers and other class V moneyers, with the exception of Ilg(i)er, might support the suggestion that the number of London moneyers was reduced to the class Va total of four when they were appointed. However, the number of moneyers might have been reduced to four before or after the appointment of Abel, Rauf and Walter and these new moneyers might not have been appointed simultaneously.

The Bury St Edmunds, Lincoln, Northampton, Norwich and York moneyers probably received only one supply of class Vc obverse dies. It is difficult to disagree with Brand's suggestion that the closure of provincial mints was completed soon after the introduction of class Vc.[32] The numbers of class Vc obverse dies in table 3 (p. 56) and appendix 3 are consistent with Stewart's proposal that the Canterbury mint probably continued produc-

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[29] Allen, pp. 51 and 52.

[30] No class Vc coins of the London moneyer Wille(l)m have been available for study but Dr Stewart has informed me that the Aegean hoard contained a class Vc penny of this moneyer.

[31] I. Stewart, 'English coinage in the later years of John and the minority of Henry III part 1', BNJ 49 (1979), 26–41, at p. 38.

[32] J. D. Brand, 'Some Short Cross questions', pp. 68 and 69.

tion, with the Durham and London mints, and closed before the end of the issue of class Vc.[33] Only the Durham and London mints were active during the production of class VIa.[34]

The production of dies: chronology

The prohibition of clipped money announced by a Letter Patent of 9 November 1204[35] could have been associated with an official interest in the appearance of new coins. The apparent imitation of the original reformed coins of class I by class Va obverse dies might have resulted from such official interest, either before or after the issue of the Letter Patent.

The assize of 26 January 1205, which regulated the exchanging of clipped coins, assumed that it was possible to distinguish coins produced after Christmas 1204.[36] If this distinction was feasible it might have been achieved by the introduction of the cross pommée initial mark,[37] implying that class Vai reverse dies were not produced after Christmas 1204. Alternatively, class Vai obverse and reverse dies might have been produced after Christmas 1204 and the cross pommée initial mark might have been introduced later to facilitate the implementation of the assize.

The opening of some of the mints apparently required for the recoinage of clipped money can be related to available documentary evidence. The Chichester moneyers seem to have received their initial supply of class Vbi obverse dies and class Vaii reverse dies as a result of a writ of 17 May 1205.[38] The supply of class Vaii obverse dies probably ended at about this date, or before it. The continued supply of class Vaii reverse dies may have been superseded by the supply of class Vbi reverse dies late in May 1205, or in June 1205. The abbot of Bury St Edmunds was granted a die on 12 June 1205,[39] and it must be assumed that the class Vbi reverse dies with the name of his moneyer were produced after that date. The supply of class Vbi obverse and reverse dies to Northampton may have followed the grant of dies to Peter of Stoke, which was intended to take effect from 24 June 1205.[40]

There does not seem to be any documentary evidence that could be used to determine the dates of introduction of class Vbii and class Vbiii. Stewart considers that class Vc must have been produced in Lincoln before the end of King John's eighth regnal year, which finished on 30 May 1207.[41] A Pipe Roll account for the profits of the Lincoln exchange refers to the king's seventh and eighth years only,[42] but it must be admitted that the account does not explicitly indicate that the exchange was inactive after that period. The apparent absence of Pipe Roll accounts for individual exchanges relating to periods after 29 September 1207 noted by Stewart[43] may be consistent with the proposition that some of the associated mints producing class Vc did not operate after that date. Brand has suggested that class Vc might have been introduced after 10 January 1208, when the moneyers and others concerned with coinage were to meet at Westminster bringing their dies.[44] The summons to this meeting was sent to all of the class V mints, including the mints that are not known to have produced coins of class Vc, but it cannot be assumed that class

[33] I. Stewart. 'King John's recoinage and the Conference of Moneyers in 1208', above pp. 39–45.

[34] I. Stewart. 'English coinage in the later years of John and the minority of Henry III part 1', pp. 31 and 38.

[35] The terms of this Letter Patent are summarised by R. Ruding, *Annals of the coinage* . . . ., (3rd edition, 1840) I, p. 178.

[36] The best discussion of this assize is provided by S. Smith, introduction to *Pipe Roll 7 John (1205)*, pp. xxviii and xxix.

[37] Allen, p. 48.

[38] *Close Roll 6 John (1205)*, p. 32.

[39] *Charter Roll 7 John (1205)*, p. 156.

[40] *Fine Roll 7 John (1205)*, p. 294.

[41] I. Stewart, 'King John's recoinage and the Conference of Moneyers in 1208', p. 43.

[42] *Pipe Roll 12 John (1210)*, p. 10.

[43] I. Stewart, 'King John's recoinage and the Conference of Moneyers in 1208', p. 42.

[44] J. D. Brand, 'Some Short Cross questions', p. 68.

Vc obverse dies were not supplied before the meeting. The end of the production of class Vc has been dated to $c.1208$,[45] $c.1209/1210$[46] and $c.1210$[47] without decisive documentary evidence.

The production of dies: quantification

It may not be correct to assume that all of the class V obverse dies produced were supplied to the moneyers and used by them. However, a useful estimate of the total number of dies produced might be derived from estimates of the numbers of dies used.

Stewart Lyon has discussed the derivation and use of four formulae that can provide estimates of the number of dies used to produce a sampled coinage.[48] Lyon's testing of the formulae with simulated random samples illustrates the variability of the estimates produced and the underestimation that may be caused by bias in the sample. However, Lyon's formula (3) eliminates potentially overrepresented dies known from four or more coins and seems to provide relatively satisfactory results in his experiments. This formula has been applied to the obverse dies studied in table 3, using Lyon's notation. N is the number of coins studied, d_n is the number of dies represented exactly n times, d is the total number of dies found and the estimated total number of dies used is $D^{est} = d + d_1 \cdot (d_1 + d_2)/(2d_2 + 3d_3)$. The confidence limits D^{min} and D^{max}, which are intended to be 95 per cent limits when they are applied to a random sample, have been calculated using the method described by Lyon.[49]

TABLE 3

Estimation of numbers of obverse dies

Mint and class		d_1	d_2	d_3	d	N	D^{min}	D^{est}	D^{max}
Canterbury	Va	5	3	5	24	95	24	26	28
	Vbi	12	10	11	42	111	42	47	53
	Vbii	21	22	12	69	172	73	80	90
	Vbiii	15	7	5	30	57	33	41	54
	Vc	10	9	11	40	117	40	44	48
Canterbury totals					205	552	212	238	273
London	Va	8	5	5	32	120	34	36	39
	Vbi	7	11	8	46	160	46	49	52
	Vbii	45	29	7	91	177	116	133	156
	Vbiii	16	5	1	23	34	33	49	93
	Vc	133	31	8	174	227	348	428	556
London totals					366	718	577	695	896
Winchester		9	13	10	78	388	79	82	84
Other mints		18	19	24	210	1369	214	216	218
Totals		299	164	107	859	3027	1082	1231	1471

Statistics for class Vai and class Vaii dies used at Canterbury and London and for dies of all types used at other mints have been aggregated in table 3 to provide significantly large frequencies. The aggregation of data relating to types or mints with differing ratios of coins

[45] I. Stewart, 'Some German coins overstruck with sterling types', in *Lagom. Festschrift für Peter Berghaus*, edited by T. Fischer and P. Ilisch (Münster, 1981), pp. 205–210, p. 209.

[46] I. Stewart, 'King John's recoinage and the Conference of Moneyers in 1208', above p. 45.

[47] J. D. Brand, 'Some Short Cross questions', pp. 68 and 69.

[48] S. Lyon, 'Die-estimation: some experiments with simulated samples of a coinage', above, pp. 1–12.

[49] Lyon, p. 7.

to recorded dies may cause underestimation of the numbers of dies used,[50] but this is relatively unimportant in table 3 as the numbers of dies estimated to be unrecorded are small. The comparatively large numbers of class Vb and class Vc dies used at Canterbury and London have not been aggregated. The estimates provided by the Canterbury dies of class Vbiii and the London dies of classes Vbii, Vbiii and Vc confirm Lyon's prediction that confidence limits will be unacceptably divergent when the number of coins per die is less than two. None of the sets of data in table 3 constitute the random samples required if it is to be categorically stated that the confidence limits are 95 per cent limits.

Approximate totals of D^{min}, D^{est} and D^{max} for the types listed in table 3 can be produced by allocating the dies estimated to be missing from the studies of the coins of Winchester and the 'other mints' to each type in proportion to the numbers of dies found.[51] In table 4 the minimum possible percentage for a type within the estimates produced ($\%^{min}$) has been derived from the relevant aggregate of D^{min} and the combined estimates of D^{max} for the other varieties. The maximum percentages ($\%^{max}$) have been calculated using the total D^{max} for the type concerned and D^{min} estimates for the remaining types. Estimated percentages ($\%^{est}$) have been derived from the totals of D^{est}. All of the percentages in table 4 are subject to a combination of the approximations in the original estimates.

TABLE 4

Comparison of estimated numbers of obverse dies

Class	Canterbury			London			Winchester and other mints			Totals					
	D^{min}	D^{est}	D^{max}	D^{min}	D^{est}	D^{max}	D^{min}	D^{est}	D^{max}	D^{min}	D^{est}	D^{max}	$\%^{min}$	$\%^{est}$	$\%^{max}$
Va	24	26	28	34	36	39	19	19	19	77	81	86	5.3	6.6	7.9
Vbi	42	47	53	46	49	52	63	64	65	151	160	170	10.4	13.0	15.4
Vbii	73	80	90	116	133	156	148	152	154	337	365	400	23.9	29.7	34.9
Vbiii	33	41	54	33	49	93	30	30	30	96	120	177	6.9	9.7	15.2
Vc	40	44	48	348	428	556	33	33	34	421	505	638	33.6	41.0	49.1
Totals	212	238	273	577	695	896	293	298	302	1082	1231	1471		100.0	

The estimation of the numbers of reverse dies produced is more problematic than the estimation of the numbers of obverse dies. Reverse dies cannot be definitely attributed to classes Vbii, Vbiii or Vc as attributions to these varieties are based upon characteristics of the obverse. It is not possible to be certain that all of the reverse dies studied were produced before the introduction of class VI. Some reverse dies contemporary with class Vc obverse dies could have been partly or exclusively used with class VI obverse dies. However, estimates of the numbers of reverse dies used during the production of class V can be produced by allocating the reverse dies found to the types of the obverse dies used with them. In table 5 if a reverse die is known to have been used with obverse dies of more than one type it has been allocated to the type listed first. The London statistics for classes Vbii and Vbiii have been aggregated, as a separate analysis of the relatively small number of dies allocated to class Vbiii would not provide useful estimates ($d_1 = 24$, $d_2 = 3$, $d = 27$, $D^{max} = 1568$). The die ratios have been calculated by comparing the estimated numbers of dies with the respective estimates for obverse dies.

[50] The value of D^{est} that can be calculated from an aggregate of the London obverse dies is 609 but the total estimate provided by separate calculations for different types is 695.

[51] The discussion of the class Vaii obverse dies supplied to these mints (p. 50) suggests that they have all been found and this has been assumed in table 4.

TABLE 5

Estimation of numbers of reverse dies

Mint and class		d_1	d_2	d_3	d	N	D^{min}	D^{est}	D^{max}	Die ratios D^{min}	D^{est}	D^{max}
Canterbury	Va	15	14	4	40	96	44	51	60	1:1·83	1:1·96	1:2·14
	Vbi	16	19	8	50	113	51	59	69	1:1·21	1:1·26	1:1·30
	Vbii	49	37	12	101	173	119	139	168	1:1·63	1:1·74	1:1·87
	Vbiii	19	9	3	33	54	40	53	77	1:1·21	1:1·29	1:1·43
	Vc	20	13	10	51	116	55	63	73	1:1·38	1:1·43	1:1·52
Canterbury totals					275	552	309	365	447	1:1·46	1:1·53	1:1·64
London	Va	35	22	7	72	136	88	103	123	1:2·59	1:2·86	1:3·15
	Vbi	58	23	8	93	145	133	160	202	1:2·89	1:3·27	1:3·88
	Vbii and Vbiii	134	32	4	170	210	362	463	642	1:2·43	1:2·54	1:2·58
	Vc	156	28	5	189	227	460	593	834	1:1·32	1:1·39	1:1·50
London totals					524	718	1043	1319	1801	1:1·81	1:1·90	1:2·01
Winchester		30	36	19	125	388	133	140	149	1:1·68	1:1·71	1:1·77
Other mints		52	65	66	328	1369	340	347	354	1:1·59	1:1·61	1:1·62
Totals		584	298	146	1252	3027	1825	2171	2751	1:1·69	1:1·76	1:1·87

The supply of dies

In 1205 the *cuneator* (i.e. the hereditary die-maker) was instructed to supply dies to a representative of the bishop of Chichester, to William of Wrotham and Reginald of Cornhill for use in Chichester and to Peter of Stoke for use in Northampton.[52] There does not seem to be any documentary evidence indicating that dies were supplied through the exchequer during the production of class V but it cannot be assumed that they were always directly supplied by the *cuneator*.

TABLE 6

No. of obverse dies +no. of reverse dies supplied per moneyer

Mint	Vai	Vaii	Vbi/Vaii	Vbi	Vbii	Vbiii	Vc
Bury St. Edmunds	-	-	-	1+4?	?+?	-	1+?
Canterbury	?+?	?+?	?+?	?+?	?+?	?+?	?+?
Carlisle	-	-	-	1+1	?+?	-	-
Chichester	-	-	1+1	1+1	1+2	1+2	-
Durham	-	2+2	-	2+2	2+2	-	2+2,3+3
Exeter	-	1+1	-	1+2	1+2	1+2	-
Ipswich	-	-	-	1+1?, 1(+2?)	1+?	1+?	1+?
Lincoln	-	1+2	-	1+2	3+9	3+6	3(+6?)
London	?+?	?+?	?+?	?+?	?+?	?+?	?+?
Lynn	-	-	-	1+1	1+2	1(+2?)	-
Northampton	-	-	-	1+1,1+2	1+2	1(+2?)	1+2
Norwich	-	1+2	-	1+2	1+2,2+4	1+2	1+1
Oxford	-	-	-	1+2	?+?	1(+1?)	-
Rochester	-	-	-	-	2+2.2(+4?)	-	-
Winchester	-	1+1	1+1	?+?	?+?	?+?	?+?
York	-	2+2	-	2+2	2+2	-	?+?

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[52] *Close Roll 6 John (1205)*, p. 32 and *Fine Roll 7 John (1205)*, p. 294.

It is probable that class V dies were usually or always supplied to Chichester, Durham, Exeter, Lincoln, Lynn, Northampton, Norwich, Rochester and York in sets or batches consisting of obverse and reverse dies in simple ratios. However, at least seven different ratios have been found and no mint has provided unequivocal evidence of the consistent application of only one ratio throughout the production of class V.

It might be assumed that the exceptional numbers of dies used at Canterbury and London were periodically supplied in variable quantities related to the numbers of used dies that had to be replaced. The clear difference between the Canterbury and London die ratios during the production of classes Va and Vb shown by table 5 (p. 58) could have been caused by obverse and reverse dies becoming unusable at dissimilar relative rates, or by the application of different criteria when dies were selected for replacement. However, it is also possible that dies were withdrawn from use and replaced at either or both of the mints in predetermined ratios.

There are no die-links between the sets of dies supplied to the Chichester moneyers or the batches of dies supplied to the Exeter and Rochester moneyers, indicating that all usable dies had to be surrendered when new dies were provided. A similar system seems to have been applied to the supply of dies to Durham, Lynn, Norwich and York but at each mint one obverse die from the first batch of dies supplied was available for use when the second batch was received. Dies from two of the batches supplied to Lincoln seem to have been retained after the surrender of most of the dies in the batch. Used sets of dies were often surrendered when new sets were supplied to the Northampton moneyers.

The use of dies

The table of links between Canterbury reverse dies in appendix 6 provides clear evidence of the sharing of obverse dies also found in the studies of Exeter, Ipswich, Lincoln, Lynn, Northampton, Norwich, Oxford, Rochester and York coins. The percentage of the links in the table that involve dies of different moneyers (87.5 per cent) is only 1.4 per cent less than the percentage that might be expected if equal numbers of dies of the nine Canterbury moneyers were randomly combined with the available obverse dies (8/9 = 88.9 per cent). Every possible link between reverse dies of two Canterbury moneyers has been found with the single exception of a link between dies of Iohan B and Simon/Simun. Moneyers sharing obverse dies might have shared premises but it is also possible that they worked separately, using dies kept centrally.

The Winchester moneyers seem to have had a single mint premises during the production of the Short Cross coinage[53] but this would not be readily deduced from the table of links between their reverse dies. Fifteen of the 32 possible links between dies of different moneyers have not been found and most of the numbers of links are small enough to have been the result of occasional borrowing of dies. I am indebted to Mr Gittoes for the suggestion that the relatively large numbers of links between dies of Adam and Milis/ Miles, Andreu and Lukas, Bartelme and Rauf and Iohan and Ricard might indicate that these pairs of moneyers shared workshops within the mint. It will be recalled that Andreu and Lukas are the two new moneyers named by coins of class Vbi and that Bartelme and Rauf are the two moneyers who seem to have started production during the supply of class Vbii dies. If obverse dies were always completely shared by one of the pairs of moneyers 50.0 per cent of the links in the table might be between dies of different moneyers. This percentage would be increased if obverse dies were shared by more than one pair of moneyers or used at times when only one reverse die of a moneyer was available. The actual percentage is 58.7 per cent, or 54.4 per cent if the link involving the die of Henri and the links between moneyers not associated in the same pair are excluded.

[53] *Winchester in the early Middle Ages: and edition and discussion of the Winton Domesday* (Winchester Studies 1), edited by M. Biddle (Oxford, 1976), pp. 419, 422, 513 and 514.

Only 29.0 per cent of the London coins studied are die-duplicates of other coins examined but the corresponding percentages for Canterbury and Winchester are 53.6 per cent and 77.8 per cent respectively. Consequently it is probable that London die-combinations and the die-links provided by those die-combinations are relatively underrepresented. However, all of the substantive London moneyers known from coins of class Vb are die-linked to each other either directly or through links with a third moneyer, excepting Beneit and Rener and also Rener and Wille(l)m L.

Mint output and the English coinage supply

Nicholas Mayhew has used an estimate of the number of class V reverse dies used at Lincoln (58 dies) to tentatively estimate their output (1,160,000 coins or £4,833) and the total output of the English mints during the production of class V (£241,650).[54] Mayhew's estimate of the number of Lincoln reverse dies is only two more than the maximum number that would be consistent with the pattern of die supply indicated by table 6 (p. 58) and appendix 7 but his calculations of outputs rely upon the assumption that the dies produced an average of 20,000 coins each. The average output of the Long Cross reverse dies used at Shrewsbury was almost exactly 20,000 coins[55] and reverse dies supplied to the Canterbury and London mints during the reign of Edward I seem to have produced an average of approximately 19,500 coins each, if it can be assumed that the die ratio was 1:2 in this case.[56] However, calculated average outputs of Edward I obverse dies at various mints have varied from 21,750[57] to 75,000.[58] The average output of reverse dies may not have been as variable as the output of obverse dies, which might have been partly dependent upon the average thickness of flans,[59] but it is evident that estimates of total output based upon an assumed average output must be extremely speculative. If Mayhew's suggested average output and the D^{min} and D^{max} estimates for reverse dies (p. 58) can be used as the basis of calculation the approximate total value of the class V coins produced might be estimated to have been £150,000–£230,000.

The closure of all of the new or reopened mints before the end of the production of class V probably indicates that the recoinage of clipped Short Cross coins required by the assize of January 1205 had been substantially completed. Pre-class V coins may have been recoined during the production of Short Cross types later than class V but hoards deposited during that production might possibly be used to approximately quantify the survival of pre-class V coins at the end of the production of class V. Unfortunately, eight hoards deposited during the production of classes VII and VIII that have been analysed by F. Dumas and Brand[60] contained calculated percentages of pre-class V pennies ranging from 1.8 per cent to 11.3 per cent. If coins of classes VII and VIII are excluded from the numbers of coins in each hoard,[61]

[54] N. J. Mayhew, 'Frappes de monnaies et hausse des prix en Angleterre de 1180 à 1200', in Études d'histoire monétaire XIIe-XIXe siècles, edited by J. Day (Lille, 1984), pp. 159–177, at pp. 163 and 165.

[55] J. D. Brand, 'The Shrewsbury mint, 1249–50', in Mints, dies and currency, edited by R. A. G. Carson (London, 1971), pp. 129–150, at pp. 135, 139 and 140.

[56] M. Mate, 'Coin dies under Edward I and II', NC 7th ser. 9 (1969), 207–218, at p. 209.

[57] Mate, p. 211.

[58] I. Stewart, 'Second thoughts on medieval die-output', NC 7th ser. 4 (1964), 293–303, at pp. 301–302.

[59] J. D. Brand, 'The Shrewsbury mint, 1249–50', p. 139 suggests that an apparent reduction of the average output of Long Cross obverse dies used at Shrewsbury might have been caused by the striking of thinner flans, with a consequent increase in the potentially damaging force transmitted

to the obverse die.

[60] F. Dumas and J. D. Brand, 'The British coins in the Gisors (1970) hoard', BNJ 40 (1971), 22–43, at pp. 26–30.

[61] Some of the statistics published by Dumas and Brand have been slightly amended in table 7. The revised statistics for the 1911 Ribe hoard ('Ribe I') have been taken from a summary provided by I. Stewart and J. D. Brand, 'A second find of English sterlings from Ribe (1958)', NNA 1971, 38–59, at pp. 55–59, which excludes some irregular coins. Apparently imitative coins have not been subtracted from the statistics for other hoards if they were published as regular coins but specimens attributed to the Rhuddlan mint have been excluded from all of the statistics. The numbers of pre-class V coins in the Eccles and Colchester hoards have been derived from statistics for Evans classes I and II but it should be noted that Evans class II included coins of class Vai (eg. NC 4th ser. 3 (1903), pl. 4, 10).

to eliminate distortion caused by differing dates of deposit, the percentages vary from 6.8 per cent to 46.2 per cent.

TABLE 7

English pennies in hoards (classes I–VI)

	Clifton	Eccles	'France'	Colchester	Gisors	Ribe I	Ribe II	Wrexham
Classes I–IV	4(7.7%)	c. 200(7.4%)	35(14.4%)	1,196(27.4%)	73(26.2%)	34(11.0%)	3(6.8%)	6(46.2%)
Classes V and VI	48(92.3%)	c.2,520(92.6%)	208(85.6%)	3,163(72.6%)	206(73.8%)	276(89.0%)	41(93.2%)	7(53.8%)
Totals	52	c.2,720	243	4,359	279	310	44	13

The statistics provided by the relatively small numbers of coins from the Wrexham hoard can be disregarded as the published parcel from this hoard seems to have been unrepresentative,[62] but the wide variation shown by the other statistics requires explanation. The higher percentages of pre-class V coins could indicate a preference for coins of earlier classes, or the inclusion of coins accumulated long before the deposition of the hoard, but it may be more probable that the lower percentages are attributable to a preference for fresher coins. The high percentages of pre-class V coins in the Colchester hoard, which is the largest recorded hoard of Short Cross coins, and the Gisors hoard may reflect the percentage of such coins in the available currency.[63] Unfortunately, the Colchester hoard was published before the introduction of Lawrence's classification[64] and consequently the number of class V pennies provided by it cannot be precisely determined. If the ratio of pre-class V pennies to pennies of class V in the Gisors hoard (1:1·56)[65] is applied to the estimate of total output during the production of class V (£150,000–£230,000) the quantity of pre-class V coinage surviving the production of class V might be tentatively estimated to have been approximately £100,000–£150,000. If hoards with relatively low percentages of pre-class V coins are used as the basis of calculation, or if it is assumed that a significant percentage of the class V output was eliminated by export or other wastage before the end of its production, the estimate of the quantity of pre-class V coins surviving would be reduced. Any calculation of the total amount of English and non-English coinage available in England when the production of class V was completed must be extremely problematic. The estimates produced do not conflict with Mayhew's proposal that the approximate total value of the English currency in 1205 was £250,000,[66] but this proposal cannot be properly evaluated without comprehensive studies of the dies used to produce the Short Cross coins available before the introduction of class V.

[62] J. M. Lewis, 'A Short Cross hoard from Wrexham', *BNJ* 39 (1970), 19–23, at p. 22.

[63] it cannot be assumed that statistics from non-English hoards always accurately represent the English currency but it has been suggested by Dumas and Brand, p. 28 that the English content of the Gisors hoard was principally or entirely assembled in England.

[64] H. A. Grueber, 'A find of silver coins at Colchester', *NC* 4th ser. 3 (1903), 111–176.

[65] Dumas and Brand, p. 25.

[66] N. J. Mayhew, 'Money and prices in England from Henry II to Edward III', *Agricultural History Review* 35 (1987), 121–132, at p. 125.

APPENDIX 1

The classification used

(C = characteristic of every die recorded, x = characteristic of at least one die)

	Vai	Vaii	Vbi	Vbii	Vbiii	Vc
No enclosed pellets in the curls	C					
Enclosed pellets in some or all of the curls		C	C	C	C	C
More than two curls on one or both side(s)	x	x	x	x		
Two curls only on both sides	x	x	x	x	C	C
Five 'pearls' in the crown	x	x	x	x	x	x
Six 'pearls' in the crown	x	x	x	x	x	
Seven 'pearls' in the crown	x	x		x		x
Large annulet eyes	x					
Eyes from a broken punch					C	x
Sceptre on the right	x					
C ornamented by pellet(s)	x	x	x	x		
E ornamented by pellet(s)	x	x	x	x		
Flat-topped K	C	C	C			
Round-topped K				C	C	C
K ornamented by a pellet		x				
Flat-topped R	x	C	C			
Round-topped R	x			C	C	C
R ornamented by pellet(s)	x	x	x	x		
Reversed S	x	C				
Normal S	x		C	C	C	C
S ornamented by pellet(s)			x			
X ornamented by pellets			x			
'St. Andrew's cross' X						C
Colon(s) on the obverse or reverse	x	x	x	x		
Stop before REX	x	x		x		
REX after the sceptre				x		x
RE after the sceptre	x					
EX after the sceptre	x	x	x	x	C	x
X, X' or 'X' after the sceptre		x	x	x		
Xh after the sceptre	x					
Cross pattée initial mark	C		C	C	C	C
Cross pommée initial mark		C				

APPENDIX 2

Coins studied (obverse classification only)

Mint/moneyer	Vai	Vaii	Vbi	Vbii	Vbiii	Vc	Moneyer totals	Mint totals
Bury St Edmunds								
Fulke/Folke	-	-	24	41	-	6		71
Canterbury								
(H)ernaud/Arnaud/								
Arnold	3	7	10	24	4	18	66	
Coldwine	1	13	13	25	9	12	73	
Hue	1	15	16	15	7	12	66	
Iohan	-	21	31	21	4	5	82	

Mint/moneyer	Vai	Vaii	Vbi	Vbii	Vbiii	Vc	Moneyer totals	Mint totals
Iohan B	-	-	-	4	7	13	24	
Iohan M	-	-	-	10	9	22	41	
Roberd	2	12	20	20	8	17	79	
Samuel	2	9	14	19	4	10	58	
Simon/Simun	-	9	7	34	5	8	63	
Canterbury totals	9	86	111	172	57	117		552
Carlisle								
Tomas	-	-	11	18	-	-		29
Chichester								
Pieres	-	-	3	13	14	-	30	
Rau(1)f	-	-	5	29	3	-	37	
Simon	-	-	6	20	-	-	26	
Willelm	-	-	-	18	3	-	21	
Chichester totals	-	-	14	80	20	-		114
Durham								
P(i)eres	-	18	9	27	-	25		79
Exeter								
Gilebert/Gileberd	-	2	4	15	5	-	26	
Iohan	-	2	3	15	6	-	26	
Ricard	-	6	3	18	6	-	33	
Exeter totals	-	10	10	48	17	-		85
Ipswich								
Alisandr(e)/Alisandar	-	-	19	22	4	9	54	
Iohan	-	-	8	22	5	90	125	
Ipswich totals	-	-	27	44	9	99		179
Lincoln								
Alain	-	16	-	-	-	-	16	
Andre(u)	-	10	6	19	23	10	68	
Hue	-	2	-	35	29	13	79	
Iohan	-	4	-	-	-	-	4	
Rauf	-	5	8	-	-	-	13	
Ricard	-	10	9	-	-	-	19	
Tomas	-	2	16	-	-	-	18	
Lincoln totals	-	49	39	54	52	23		217
London								
Abel	-	-	-	-	-	36	36	
Adam	-	-	10	17	6	12	45	
Arnaud	-	-	3	-	-	-	3	
Beneit	-	-	14	17	3	8	42	
Fulke/Folke	3	15	34	10	-	-	62	
Henri(k)	11	33	6	-	-	-	50	
Ilg(i)er	-	-	10	8	2	32	52	
Iohan	-	-	4	-	-	-	4	
'Ralter'	-	-	-	-	-	1	1	
Rauf	-	-	-	-	-	51	51	
Rener	-	1	2	21	3	9	36	
Ricard	5	20	20	2	-	-	47	
Ricard B	-	-	7	18	3	11	39	
Ricard T	-	1	6	11	-	-	18	
Walter	-	-	-	-	-	35	35	
Wille(1)m	5	25	32	5	2	-	69	

Mint/moneyer	Vai	Vaii	Vbi	Vbii	Vbiii	Vc	Moneyer totals	Mint totals
Wille(1)m B	-	1	6	17	9	8	41	
Wille(1)m L	-	-	5	25	1	10	41	
Wille(1)m T	-	-	1	26	5	14	46	
London totals	24	96	160	177	34	227		718
Lynn								
Iohan	-	-	6	15	3	-	24	
Nicole	-	-	3	8	10	-	21	
Willelm	-	-	4	13	5	-	22	
Lynn totals	-	-	13	36	18	-		67
Northampton								
Adam	-	-	13	29	4	5	51	
Roberd	-	-	18	1	-	-	19	
Roberd T	-	-	-	32	-	-	32	
Northampton totals	-	-	31	62	4	5		102
Norwich								
Gi(e)f(e)rei	-	1	6	15	10	7	39	
Iohan	-	17	2	22	6	10	57	
Renald/Renaud	-	9	12	18	8	5	52	
Norwich totals	-	27	20	55	24	22		148
Oxford								
Ailwine	-	-	10	21	2	-	33	
Henri	-	-	10	5	3	-	18	
Miles	-	-	7	17	-	-	24	
Oxford totals	-	-	27	43	5	-		75
Rochester								
Alisandr(e)	-	-	-	25	-	-	25	
Hunf(e)rei	-	-	5	27	-	-	32	
Rochester totals	-	-	5	52	-	-		57
Winchester								
Adam	-	3	20	26	2	8	59	
Andreu	-	-	8	35	2	3	48	
Bartelme	-	-	-	32	3	3	38	
Henri	-	7	-	-	-	-	7	
Iohan	-	4	19	24	-	3	50	
Lukas	-	-	10	25	3	4	42	
Milis/Miles	-	6	18	47	-	7	78	
Rauf	-	-	-	28	4	8	40	
Ricard	-	1	8	17	-	-	26	
Winchester totals	-	21	83	234	14	36	388	388
York								
Davi	-	20	9	13	-	-	42	
Nicole	-	7	20	25	-	2	54	
Renaud	-	-	6	14	-	-	20	
Tomas	-	1	8	21	-	-	30	
York totals	-	28	43	73	-	2		146
Totals	33	335	627	1216	254	562		3027

APPENDIX 3

Obverse dies

Mint	Vai	Vaii	Vbi	Vbii	Vbiii	Vc	Totals
Bury St Edmunds	-	-	1	4	-	1	6
Canterbury	4	20	42	69	30	40	205
Carlisle	-	-	1	3	-	-	4
Chichester	-	-	6	11	3	-	20
Durham	-	2	2	6	-	7	17
Exeter	-	3	3	9	3	-	18
Ipswich	-	-	7	10	2	4	23
Lincoln	-	4	3	6	6	6	25
London	10	22	46	91	23	174	366
Lynn	-	-	3	7	5	-	15
Northampton	-	-	6	9	1	1	17
Norwich	-	2	3	9	3	3	20
Oxford	-	-	3	4	2	-	9
Rochester	-	-	1	11	-	-	12
Winchester	-	4	16	45	4	9	78
York	-	4	7	12	-	1	24
Totals	14	61	150	306	82	246	859

APPENDIX 4

Obverse die survival frequencies .

No. of coins from die:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	40	56	Total no. of dies	Coins per die
Bury St Edmunds	0	0	0	0	0	1	1	0	1	0	0	1	1	0	0	0	0	1	0	0	6	11.8
Canterbury Vai	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2.2
Vaii	3	3	4	3	2	1	2	0	0	1	0	0	1	0	0	0	0	0	0	0	20	4.3
Vbi	12	10	11	5	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	42	2.6
Vbii	21	22	12	7	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	69	2.5
Vbiii	15	7	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	1.9
Vc	10	9	11	3	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	40	2.9
Vai-Vc	63	51	44	21	8	6	8	2	0	1	0	0	1	0	0	0	0	0	0	0	205	2.7
Carlisle	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	4	7.2
Chichester	2	3	5	0	1	1	2	1	2	0	1	0	0	1	1	0	0	0	0	0	20	5.7
Durham	1	3	2	2	2	5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	17	4.6
Exeter	3	0	2	4	1	4	1	3	0	0	0	0	0	0	0	0	0	0	0	0	18	4.7
Ipswich	4	4	2	4	4	1	1	0	0	0	0	0	0	0	1	0	0	1	1		23	7.8
Lincoln	2	2	0	3	1	2	1	0	3	1	1	2	2	3	1	0	1	0	0	0	25	8.7
London Vai	3	2	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	2.4
Vaii	5	3	1	5	2	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	22	4.4
Vbi	7	11	8	7	7	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	46	3.5
Vbii	45	29	7	5	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	91	1.9
Vbiii	16	5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	1.5
Vc	133	31	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	174	1.3
Vai-Vc	209	81	29	20	11	4	6	2	0	2	2	0	0	0	0	0	0	0	0	0	366	2.0
Lynn	0	0	7	3	2	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	15	4.5
Northampton	0	1	1	6	3	0	0	3	1	0	1	0	0	1	0	0	0	0	0	0	17	6.0
Norwich	0	1	1	2	2	2	4	2	2	0	1	1	1	0	1	0	0	0	0	0	20	7.4
Oxford	1	0	0	1	1	0	0	1	1	1	0	1	2	0	0	0	0	0	0	0	9	8.3
Rochester	4	1	2	1	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	12	4.7

No. of coins from die:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	24	40	56	Total no. of dies	Coins per die
Winchester Vaii	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	5.2
Vbi	3	3	2	1	0	1	3	1	0	0	0	0	1	0	0	1	0	0	0	0	16	5.2
Vbii	5	8	5	8	3	4	2	0	1	3	3	0	2	0	1	0	0	0	0	0	45	5.2
Vbiii	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3.5
Vc	1	0	2	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9	4.0
Vaii-Vc	9	13	10	14	5	7	6	2	1	3	3	0	3	0	1	1	0	0	0	0	78	5.0
York	0	4	2	3	2	3	2	4	1	1	0	1	0	0	1	0	0	0	0	0	24	6.1
Totals	299	164	107	83	45	37	36	20	12	12	11	6	10	5	5	2	2	1	1	1	859	3.5

APPENDIX 5

Reverse die survival frequencies

No. of coins from die:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	38	53	Total no. of dies
Bury St Edmunds	0	1	3	1	1	0	0	1	2	0	1	0	0	1	0	0	0	0	11
Canterbury																			
(H)ernaud/Arnaud/																			
Arnold	15	14	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
Coldwine	12	14	1	3	2	0	0	1	0	0	0	0	0	0	0	0	0	0	33
Hue	12	7	5	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	29
Iohan	23	8	7	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	42
Iohan B	6	5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Iohan M	7	7	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	18
Roberd	13	12	8	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	36
Samuel	16	13	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
Simon/Simun	15	12	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	34
Canterbury totals	119	92	37	12	9	1	2	2	1	0	0	0	0	0	0	0	0	0	275
Carlisle	1	2	2	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	8
Chichester	5	7	9	1	3	2	0	1	1	2	0	0	0	0	0	0	0	0	31
Durham	0	3	3	2	3	3	1	2	0	0	0	0	0	0	0	0	0	0	17
Exeter	6	10	9	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	32
Ipswich	15	9	8	2	1	3	0	0	0	0	0	0	0	0	0	0	1	1	40
Lincoln	7	7	11	6	6	2	5	2	1	1	1	0	0	0	0	1	0	0	50
London																			
Abel	24	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
Adam	25	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
Arnaud	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Beneit	24	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
Fulke/Folke	18	10	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	34
Henri(k)	12	8	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	26
Ilg(i)er	36	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
Iohan	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
'Ralter'	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rauf	43	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
Rener	22	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
Ricard	18	7	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	29
Ricard B	20	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
Ricard T	4	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Walter	29	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
Wille(l)m	27	11	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
Wille(l)m B	29	6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35

No. of coins from die:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	38	53	Total no. of dies
Wille(l)m L	26	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
Wille(l)m T	25	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
London totals	383	105	24	8	3	1	0	0	0	0	0	0	0	0	0	0	0	0	524
Lynn	5	7	4	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	24
Northampton	2	4	10	5	5	1	0	0	0	0	1	0	0	0	0	0	0	0	28
Norwich	3	8	2	6	4	2	4	2	0	1	0	0	1	0	0	0	0	0	33
Oxford	3	2	2	1	1	4	1	0	0	1	0	1	0	0	0	0	0	0	16
Rochester	3	2	1	0	3	1	1	0	1	1	0	0	0	0	0	0	0	0	13
Winchester																			
Adam	3	5	2	0	2	1	0	0	0	1	0	0	0	1	0	0	0	0	15
Andreu	6	2	4	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	18
Bartelme	6	4	1	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	14
Henri	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Iohan	7	2	5	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	19
Lukas	2	8	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Milis/Miles	3	3	2	2	4	1	0	1	0	1	1	0	0	0	0	0	0	0	18
Rauf	0	7	1	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	12
Ricard	3	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Winchester totals	30	36	19	16	13	3	1	1	1	2	1	0	1	1	0	0	0	0	125
York	2	3	2	3	4	1	2	2	1	2	2	0	1	0	0	0	0	0	25
Totals	584	298	146	72	62	26	17	14	8	10	6	1	3	2	0	1	1	1	1252

APPENDIX 6

Links between obverse dies

Mint	IVc-Vai	Vai-Vai	Vai-Vaii	Vaii-Vaii	Vaii-Vbi	Vbi-Vbi	Vbi-Vbii
Canterbury	1	0	2	8	1	33	3
London	0	0	2	7	9	25	1
Winchester	-	-	-	2	0	10	3

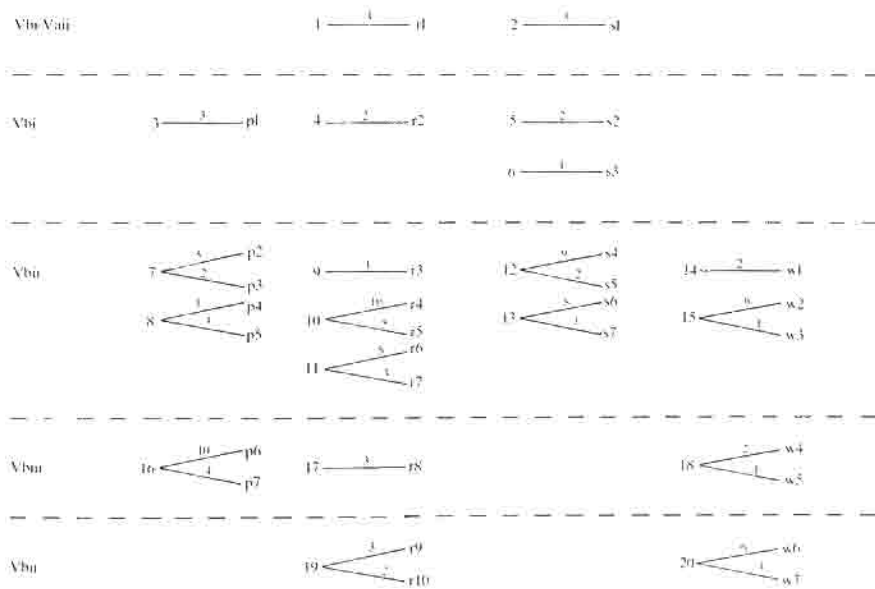| Mint	Vbii-Vbii	Vbii-Vbiii	Vbii-Vc	Vbiii-Vbiii	Vbiii-Vc	Vc-Vc
Canterbury	35	3	1	10	0	23
London	15	3	0	1	0	13
Winchester	31	6	12	0	0	5

Links between reverse dies

Canterbury (H/A = (H)ernaud/Arnaud/Arnold, C = Coldwine, H = Hue, I = Iohan, IB = Iohan B, IM = Iohan M, R = Roberd, Sa = Samuel, Si = Simon/Simun)

H/A	3								
C	11	1							
H	12	9	3						
I	11	13	12	6					
IB	1	4	7	1	0				
IM	1	3	1	1	3	7			
R	12	6	9	13	1	6	5		
Sa	12	11	9	8	5	2	10	4	
Si	9	8	4	4	0	2	6	5	4
	H/A	C	H	I	IB	IM	R	Sa	Si

DIES FOR SHORT CROSS CLASS V

Links between reverse dies (cont.)

London (Ab = Abel, Ad = Adam, Ar = Arnaud, B= Beneit, F = Fulke/Folke, H = Henri(k), Il = Ilg(i)er, Io = Iohan, Ra = Rauf, Re =Rener, Ri =Ricard, RB = Ricard B, RT =Ricard T, Wa = Walter, Wi = Wille(1)m, WB = Wille(1)m B, WL = Wille(1)m L, WT = Wille(1)m T)

	Ab	Ad	Ar	B	F	H	Il	Io	Ra	Re	Ri	RB	RT	Wa	Wi	WB	WL	WT
Ab	0																	
Ad	0	0																
Ar	-	0	-															
B	0	5	0	14														
F	-	1	0	0	22													
H	-	0	0	0	10	10												
Il	0	7	0	14	0	0	2											
Io	-	0	0	0	0	0	0	-										
Ra	3	0	-	0	-	-	4	-	1									
Re	0	0	0	0	3	2	0	0	0	4								
Ri	-	3	0	0	13	23	0	0	-	4	9							
RB	0	8	0	11	0	0	7	0	0	0	0	3						
RT	-	0	0	0	3	2	0	0	-	6	4	0	1					
Wa	1	0	-	0	-	-	3	-	3	0	-	0	-	3				
Wi	-	4	0	4	30	29	1	0	-	0	21	1	2	-	14			
WB	0	1	0	0	4	2	1	0	0	10	4	1	5	0	1	4		
WL	0	6	0	9	0	0	6	0	0	0	0	8	0	0	1	0	5	
WT	0	0	0	0	4	0	0	0	0	13	1	0	4	0	2	13	0	14
	Ab	Ad	Ar	B	F	H	Il	Io	Ra	Re	Ri	RB	RT	Wa	Wi	WB	WL	WT

Winchester (Ad = Adam, An = Andreu, B = Bartelme, H = Henri, I = Iohan, L = Lukas, M =Milis/Miles, Ra = Rauf, Ri = Ricard)

	Ad	An	B	H	I	L	M	Ra	Ri
Ad	10								
An	0	12							
B	2	2	4						
H	1	-	-	-					
I	1	2	0	0	20				
L	0	34	2	-	2	10			
M	21	0	1	0	0	0	16		
Ra	2	0	14	-	0	0	0	6	
Ri	1	0	1	0	30	0	1	1	5
	Ad	An	B	H	I	L	M	Ra	Ri

APPENDIX 7

Bury St Edmunds
(f = Fulke/Folke)

Carlisle
(CA = obverse die, ca = reverse die)

Chichester
(p = Pieres, r = Rauf II, s = Simon, w = Willelm)
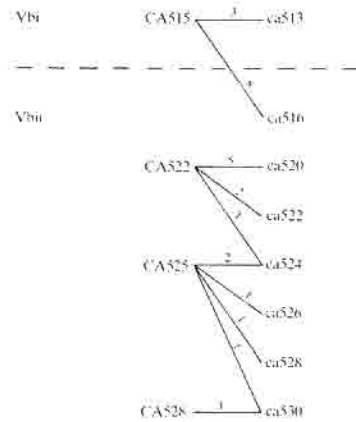
Durham
(DU = obverse die, du = reverse die)
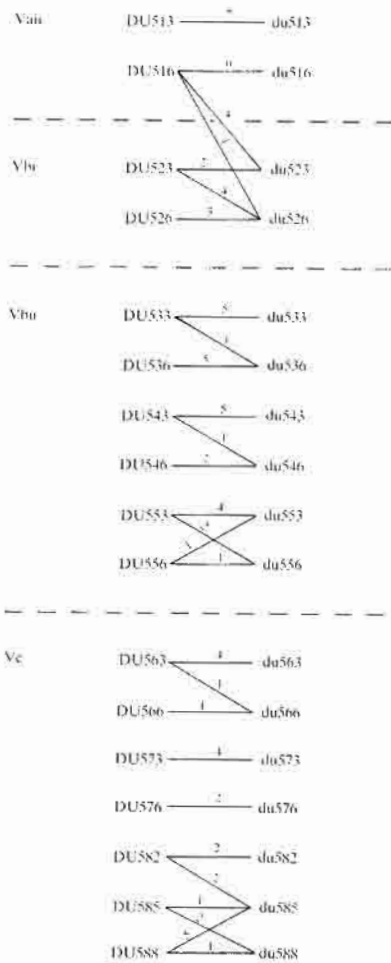
Exeter
(g = Gilebert/Gileberd, i = Iohan, r = Ricard)
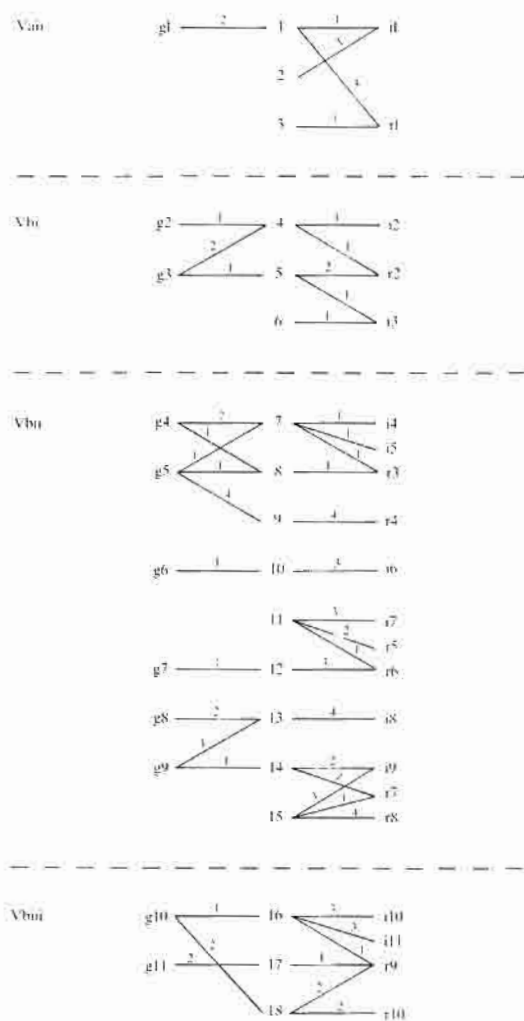
(a = Alisandr(e)/Alisandar, ı = Iohan)

(al = Alain, an = Andreta), h = Hue, ı = Iohan, ra = Raul, ri = Ricard, t = Tomas)

Vbı

Vbıj

Vbıij

Vbıı

Vc

Van

Vbı

Vbıı

Vbıı

Vc
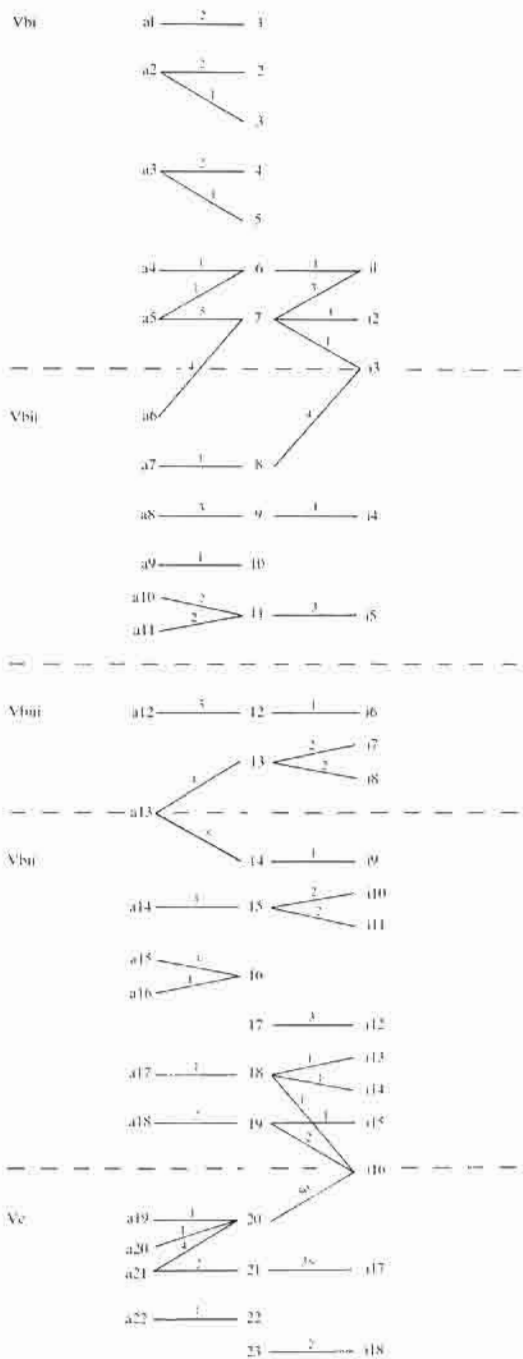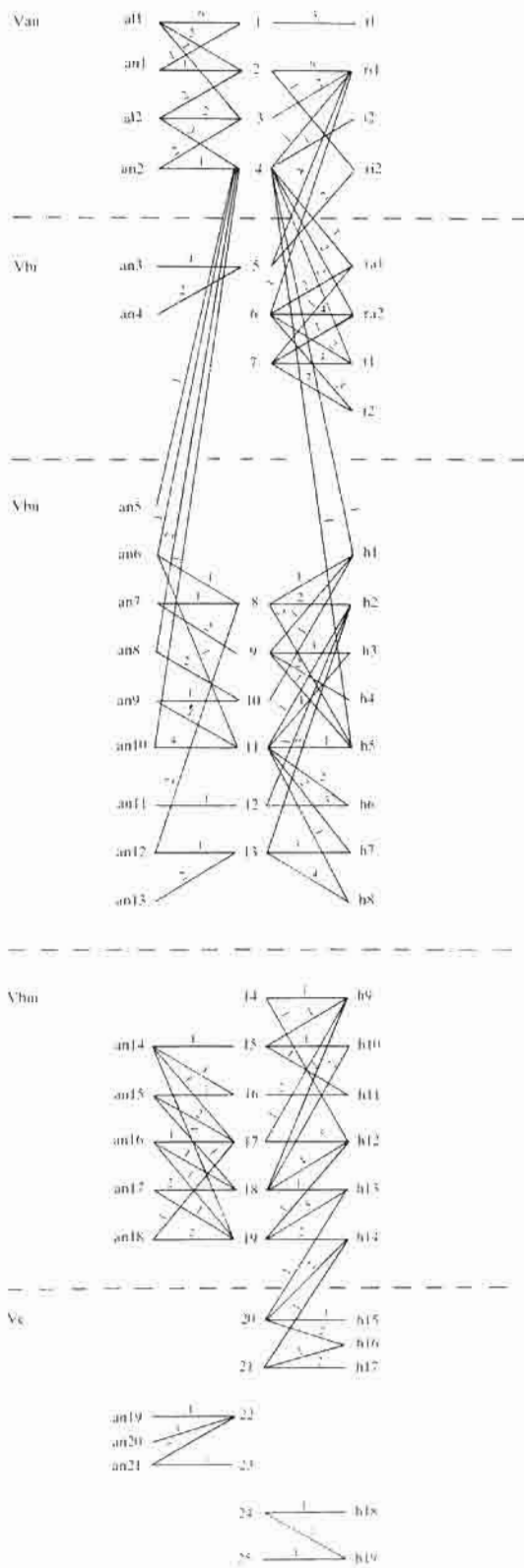
Lynn

(i = Iohan, n = Nicole, w = Willelm)
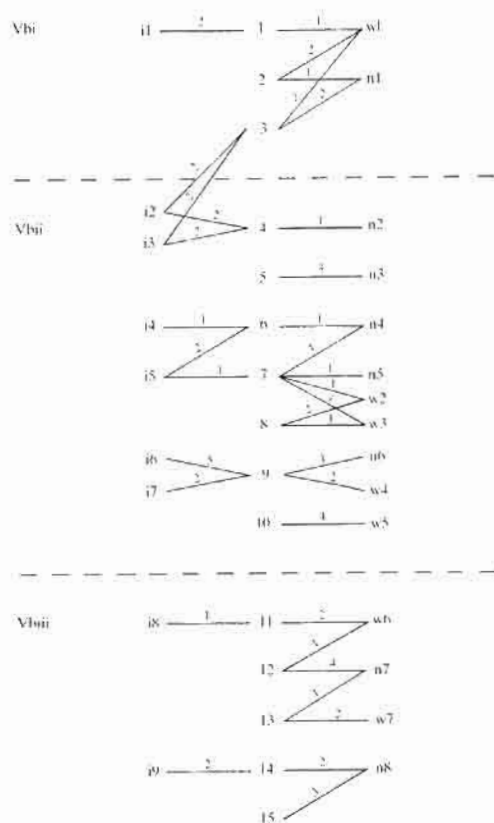
Northampton

(a = Adam, r = Roberd, rt = Robert T)
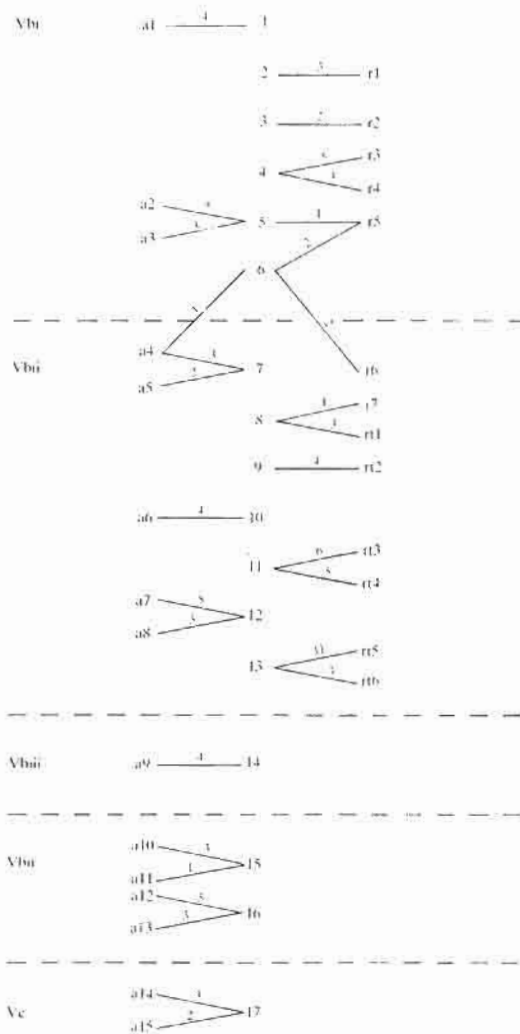
Norwich

(g = Gi(e)f(e)rei, i = Iohan, r = Renald/Renaud)
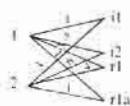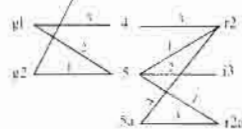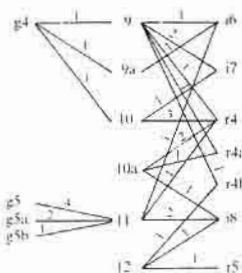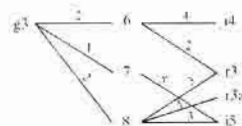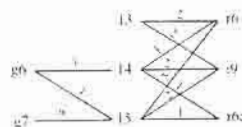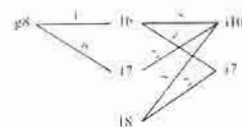
Oxford

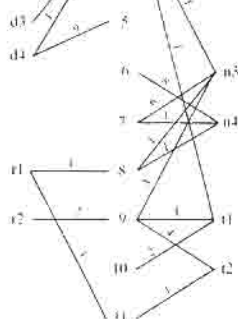(a = Ailwine, h = Henri, m = Miles)

Rochester

(a = Alisandre, h = Hunt(e)rei)
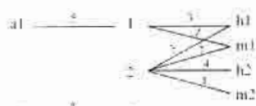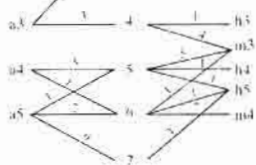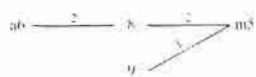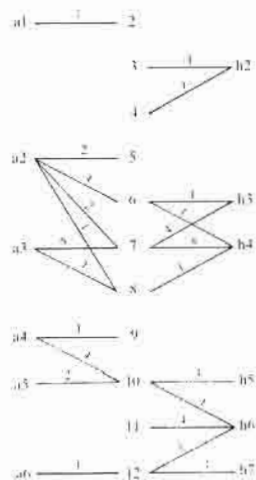
York

(d = Davis, n = Nicole, r = Renaud, t = Tomas)
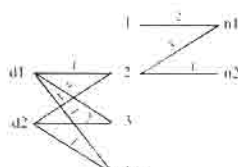
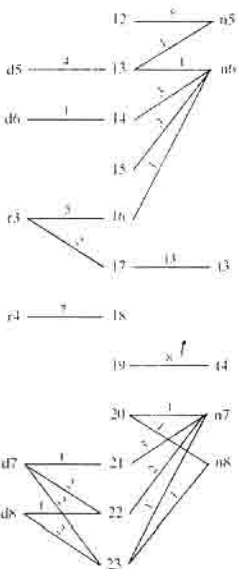## Sources of Coins Studied

American Numismatic Society
Art Gallery and Museums, Brighton
Ashmolean Museum, Oxford
A. H. Baldwin and Sons, Ltd.
Bibliothèque Nationale, Cabinet des Medailles
The late C. E. Blunt, Esq.
The late Dr J. D. Brand
British Museum, Department of Coins and Medals
I. R. Buck, Esq.
Central Museum, Northampton
City of Birmingham Museums and Art Gallery
Colchester and Essex Museum
R. L. Davis, Esq.
A. Dawson, Esq.
G. V. Doubleday, Esq.
Dr R. J. Eaglen
Fitzwilliam Museum, Cambridge
G. P. Gittoes, Esq.
Grosvenor Museum, Chester
Dr E. J. Harris
Hunterian Museum, University of Glasgow
The late F. Elmore Jones, Esq.
M. Lessen, Esq.
Lincolnshire Museums
Lubbock and Son, Ltd.
Prof. J. P. Mass
The late H. R. Mossop, Esq.
Moyse's Hall Museum, Bury St. Edmunds
Museum of London
National Museum of Antiquities of Scotland
National Museum of Ireland
National Museum of Wales
Nationalmuseet, Copenhagen
J. J. North, Esq.
R. Renshaw, Esq.
N. Rhodes, Esq.
D. Rodgers, Esq.
Royal Mint Museum
Royal Museum and Art Gallery, Canterbury
Royal Museum of Scotland
J. C. Sadler, Esq.
B. A. Seaby, Ltd.
D. Sellwood, Esq.
W. Slayter, Esq.
Spink and Son, Ltd.
Dr I. Stewart
Winchester City Museums
P. Woodhead, Esq.
Yorkshire Museum, York

Abbreviations used:-

AM   Ashmolean Museum, Oxford
BM   British Museum, Department of Coins and Medals
BN   Bibliothèque Nationale, Cabinet des Med-ailles
CBMAG   City of Birmingham Museums and Art Gallery
FEJ   Collection of the late F. Elmore Jones. Esq.
FM   Fitzwilliam Museum, Cambridge

GPG   Collection of G. P. Gittoes. Esq.
IS   Collection of Dr I. Stewart
JJN   Collection of J. J. North. Esq.
JPM   Collection of Prof. J. P. Mass
MRA   Author's collection
NMA   National Museum of Antiquities of Scotland
NMC   Nationalmuseet, Copenhagen
PW   Collection of P. Woodhead. Esq.
RCL   Collection of the late R. C. Lockett. Esq.
S   Spink and Son, Ltd.

No.	Class	Mint	Moneyer	Remarks
1	IVc	Canterbury	Coldwine	JJN.
2	Vai	Canterbury	Coldwine	Large annulet eyes; same rev. die as no. 1. BM.
3	IVc	Canterbury	Roberd	JJN.
4	Vai	Canterbury	Roberd	Large annulet eyes; same rev. die as no. 3. BM.
5	Vai	Canterbury	Samuel	Same obv. die as no. 4. IS.
6	Vai	London	Fulke	Large annulet eyes; sceptre to r. of portrait; S·R. BM.
7	Vai	London	Henri	Same obv. die as no. 6. BM.
8	Vai	London	Henri	Large annulet eyes. RCL.
9	Vai	London	Henri	Same obv. die as no. 8. BM.
10	Vai	London	Ricard	Large annulet eyes. AM.
11	Vai	London	Willem	Same obv. die as no. 10. BM.
12	Vai	London	Henri	BM.
13	Vai	London	Henri	GPG.
14	Vai	London	Willelm	Same obv. die as no. 13. MRA.
15	Vai	London	Ricard	BM.
16	Vai	London	Ricard	Same obv. die as no. 15. GPG.
17	Vai	London	Willelm	RE to l. of sceptre. NMC.
18	Vai/Vaii	Canterbury	Ernaud	S·R. JJN.
19	Vai/Vaii	Canterbury	Samuel	Same obv. die as no. 18. BM.
20	Vai/Vaii	Canterbury	Hue	S·R. MRA.
21	Vaii	Canterbury	Hue	Group B obv. die; same rev. die as no. 20. BM.
22	Vaii	Canterbury	Hue	Group B obv. die; same rev. die as no. 20. NMA.
23	Vai/Vaii	London	'Willeln'	R:. MRA.
24	Vai/Vaii	London	Fulke	MRA.
25	Vaii	London	Fulke	Group A obv. die; 2·R; same rev. die as no. 24. JPM.
26	Vaii	London	Willelm	Same obv. die as no. 25. AM.
27	Vai/Vaii	London	Willelm	2·R: same rev. die as no. 26. BM.
28	Vai/Vaii	London	Henri	Same obv. die as no. 27. BM.
29	Vaii	Canterbury	Samuel	Group A obv. die; 2·R. CBMAG.
30	Vaii	Canterbury	Coldwine	Group B obv. die. BM.
31	Vaii	Canterbury	Hue	Group B obv. die. BM.
32	Vaii	Canterbury	Iohan	Group B obv. die. BM.
33	Vaii	Canterbury	Ernaud	Group B obv. die. BM.
34	Vaii	Canterbury	Iohan	Group B obv. die. BM.
35	Vaii	Canterbury	Simon	Group B obv. die. BM.
36	Vaii	Canterbury	Coldwine	Group B obv. die. FEJ.
37	Vaii	Canterbury	Samuel	Group B obv. die. BM.
38	Vaii	Canterbury	Roberd	Group B obv. die. JPM.
39	Vaii	Canterbury	Iohan	Group C obv. die. AM.
40	Vaii	Canterbury	Samuel	Group C obv. die. FEJ.

41	Vaii	Canterbury	Simun	Group C obv. die. BM.
42	Vaii	Canterbury	Arnold	Group C obv. die. BN.
43	Vaii	Canterbury	Arnaud	Group C obv. die. BM.
44	Vaii	Canterbury	Arnaud	Group C obv. die; same rev. die as no. 43. BM.
45	Vaii	Canterbury	Roberd	Group C obv. die. BM.
46	Vaii	Canterbury	Coldwine	Group C obv. die. BM.
47	Vaii	Exeter	Gilebert	Group B obv. die. BM.
48	Vaii	Exeter	Iohan	Group B obv. die. NMC.
49	Vaii	Exeter	Ricard	Group B obv. die. BM.
50	Vaii	Lincoln	Andre	Group B obv. die. BM.
51	Vaii	Lincoln	Alain	Group B obv. die. NMC.
52	Vaii	Lincoln	Ricard	Group B obv. die. BM.
53	Vaii/Vbi	Lincoln	Rauf	Group B obv. die. BM.
54	Vaii	London	Willelm	Group A obv. die; 2·R. BM.
55	Vaii	London	Henri	Group A obv. die; 2·R. RCL.
56	Vaii	London	Henri	Group A obv. die; BM.
57	Vaii	London	Henrik	Group A obv. die; BM.
58	Vaii	London	Henri	Group B obv. die. BM.
59	Vaii	London	Ricard	Group B obv. die. BM.
60	Vaii	London	Ricard	Group B obv. die. BM.
61	Vaii	London	Henri	Group B obv. die. BM.
62	Vaii	London	Willem	Group B obv. die. BM.
63	Vaii	London	Folke	Group B obv. die. BM.
64	Vaii	London	Willem	Group C obv. die. BM.
65	Vaii	London	Willelm	Group C obv. die. NMC.
66	Vaii	London	Ricard	Group C obv. die. BM.
67	Vaii	London	Henri	Group C obv. die. BM.
68	Vaii	London	Ricard	Group C obv. die. JPM.
69	Vaii	London	Henri	Group C obv. die. BM.
70	Vaii	London	Fulke	Group C obv. die. BM.
71	Vaii	London	Henri	Group C obv. die. BM.
72	Vaii	London	Henri	Group C obv. die. S.
73	Vaii	London	Fulke	Group C obv. die. FM.
74	Vaii	London	Willelm	Group C obv. die. BM.
75	Vaii	Norwich	Iohan	Group B obv. die. JJN.
76	Vaii	Norwich	Renald	Group B obv. die. PW.
77	Vaii	Winchester	Adam	Group A obv. die. PW.
78	Vaii	Winchester	Milis	Group B obv. die. BM.
79	Vaii	Winchester	Henri	Group B obv. die. BM.
80	Vaii	Winchester	Ricard	Group C obv. die. JPM.
81	Vaii	York	Nicole	Group B obv. die. BM.
82	Vaii	York	Nicole	Group B obv. die; same rev. die as no. 81. BM.
83	Vaii	York	Davi	Group B obv. die. BM.
84	Vaii/Vbi	York	Davi	Group B obv. die. BM.

PLATE 3

1 2 3 4 5 6 7

8 9 10 11 12 13 14

15 16 17 18 19 20 21

22 23 24 25 26 27 28
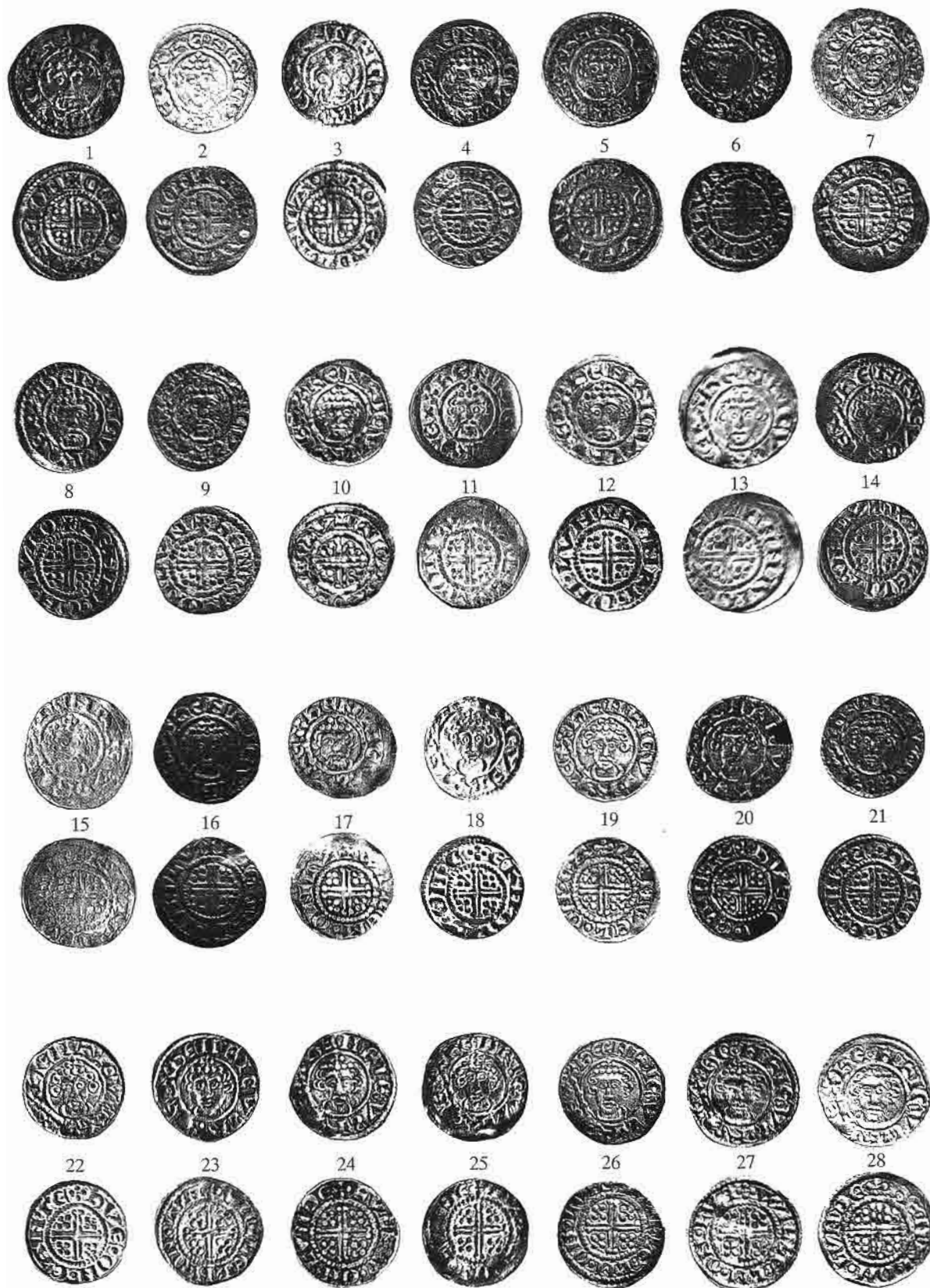
ALLEN: SHORT CROSS CLASS V (1)

PLATE 4

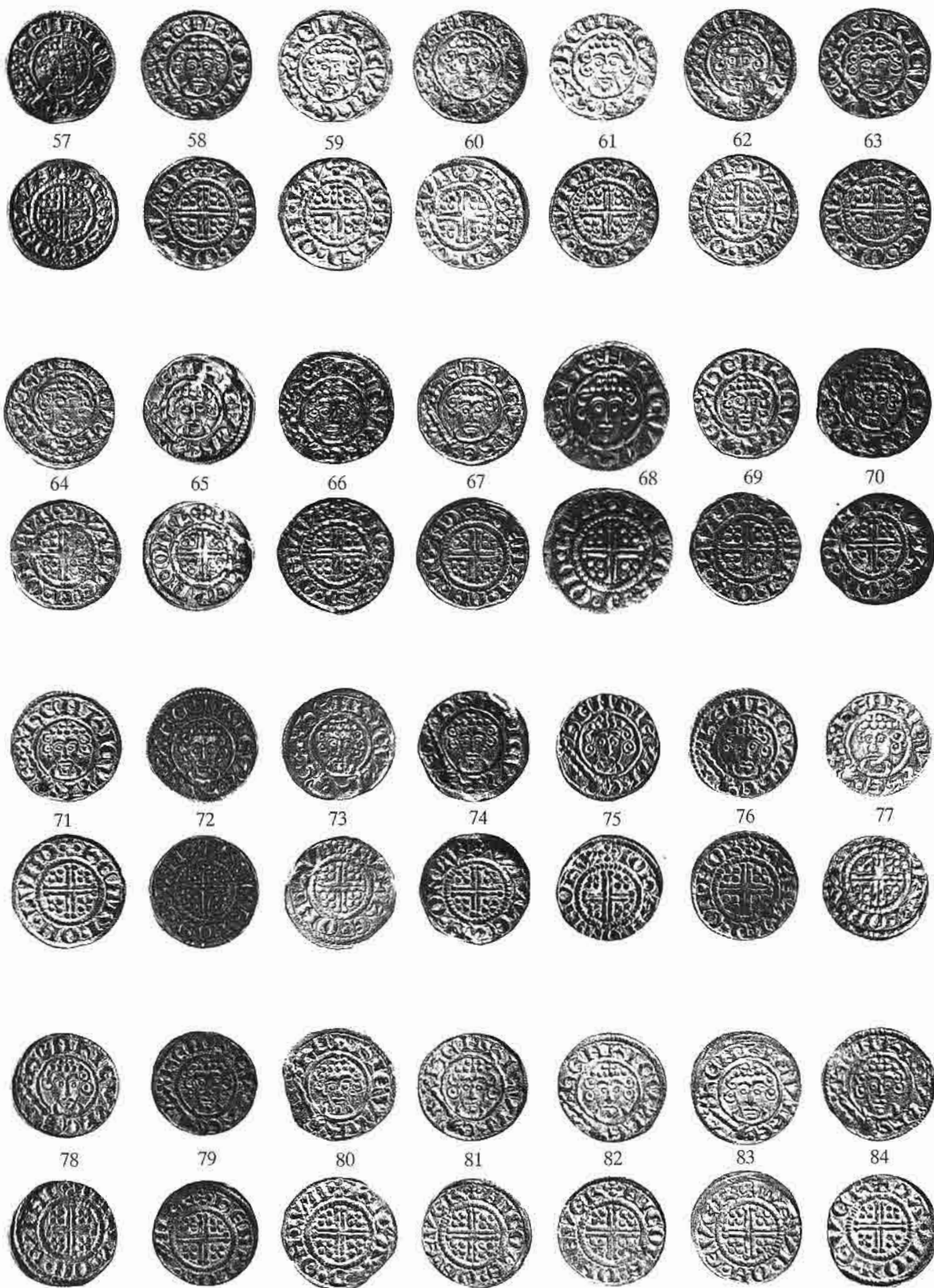29 30 31 32 33 34 35

36 37 38 39 40 41 42

43 44 45 46 47 48 49

50 51 52 53 54 55 56

ALLEN: SHORT CROSS CLASS V (2)

PLATE 5

57   58   59   60   61   62   63

64   65   66   67   68   69   70

71   72   73   74   75   76   77

78   79   80   81   82   83   84