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COIN CIRCULATION IN GERMANY DURING THE EARLY MIDDLE AGES THE EVIDENCE OF SINGLE-FINDS*

The extraordinary wealth of the coin hoards from Scandinavia and the Slav lands provides the numismatist with a vast body of material from which to discern the pattern of minting in Germany during the later tenth and eleventh centuries. Indeed the problem, if there is one, is that the coinage survives on almost too large a scale for it to be analysed efficiently, given the limited number of scholars working in this field. When it comes to the study of coin circulation, rather than coin production, the difficulties are the reverse. The paucity of hoards of this period from within the empire has frustrated efforts to trace local circulation patterns. Single-finds can potentially augment the evidence of hoards as to the composition of the currency, and they also offer a means of tracing the growth or decline in monetary activity in a given region. However, until recently the number of recorded single-finds from within the empire has also been fairly limited.

Recording single-finds from medieval Germany

The increasing use of private metal detectors in western Europe over the past twenty years has been a cause of concern to archaeologists, but it has also brought benefits, for it has yielded large numbers of single-finds of coins providing important new evidence for the monetary historian. The efficiency with which these finds have been recorded and published varies from country to country and region to region, depending largely on the initiative of a few individuals. In Britain within the last ten years a systematic effort has been made to record all single-finds from the period c. 550-1180¹, through the major museums and by contacting detector-users direct via their own magazines and clubs. These have mostly been published in the *British Numismatic Journal*, which since 1987 has had a special section, or 'Coin Register', devoted to single-finds. A volume discussing finds of coins and metalwork from the more productive sites in Britain is shortly to appear in the Oxford Symposium series². As a result of this activity, the number of recorded finds of this period from Britain now stands at over 3,000, having more than doubled during the last five years.

For the German empire the figures are much smaller, but they too have seen a dramatic increase in recent years. In 1974 Hatz was able to list only 61 single-finds, including grave and church finds, for the period c. 925-1100, while today the number stands at more than 325. For the Carolingian period the number has grown from 49 (excluding the major sites of Domburg, Dorestad, and Schouwen Island) recorded by Völckers (1965) and Morrison and Grunthal (1966), to at least 225 today (c.625 if one includes those from the three Low Country sites). Thus for the whole period 750-1100 we now have knowledge of some 950 single-finds from productive sites and isolated contexts within medieval Germany³.

Since the 1950s the Numismatische Kommission of the Bundesrepublik has gathered data on medieval and modern coin finds in an archive in Hamburg, and information has also been gathered in some regional

* I am very grateful to Simon Coupland, Hans-Ulrich Geiger, Clemens Haertle, Wolfgang Hahn, Ulrich Klein, Klaus Petry, Arent Pol, Christian Stoess, and Raymond Weiller for kindly providing me with information or copies of publications about finds.

¹ After 1180 coin finds in England become too plentiful and the currency was too uniform to make comprehensive

recording of single-finds a practical proposition. For the later middle ages the study of coin circulation in England has to be based on samples from a limited number of sites.

² Blackburn and Metcalf forthcoming.

³ This is based on the finds cited in Table 1 and the Appendix, but the number is certainly an under-estimate.

centres. However, there is no central forum in Germany for the publication of single-finds, and such reports as appear are scattered through the literature and are uneven in their representation. For Hessen and Württemberg regular lists of coin finds have been published in the *Fundberichte aus Hessen*⁴ and *Archäologische Ausgrabungen in Baden-Württemberg*⁵, although they contain relatively little from the early Middle Ages. The more productive regions in the Middle Rhineland have no comparable publications. Finds from Bavaria and finds of Bavarian coins from elsewhere were collected by Hahn in 1976⁶, and those from Westfalen (Regierungsbezirke Arnsberg and Münster) by Ilisch in 1980⁷. For the cities of Trier and Mainz, Gilles⁸ and Stoess⁹ have been very active in recording local finds. A listing of finds of obols from throughout Germany, drawing on the Hamburg archive, has recently been published by Hatz¹⁰. Outside modern Germany, Austria has one of the most complete records, although it is on the periphery of the coin circulation area. Reports have appeared annually in the *Fundberichte aus Österreich*, and comprehensive listings have recently been made by Hahn for the fifth to eleventh centuries¹¹. For the Netherlands finds have been recorded at the Koninklijk Penningkabinet in Leiden, and since 1985 its annual report has noted some of the more notable single-finds as well as the usual listing of hoards. A listing of tenth- and eleventh-century finds is published by Pol elsewhere in this volume, and those of the later Carolingian period, 814-98, will be included in a major work on Carolingian coin finds being prepared by Haertle¹². For the Grand Duchy of Luxembourg we have Weiller's excellent and comprehensive catalogues of medieval and modern finds¹³. For French Lorraine and Belgium I am not aware of any systematic attempt to record modern single-finds. Petry, in his unpublished thesis on Upper Lotharingia has listed all the finds he could from the region¹⁴, but most of these are from nineteenth- or early twentieth-century sources, highlighting the problem over more recent finds. For Switzerland Hatz has provided an excellent listing down to 1979 of finds of the tenth and eleventh centuries¹⁵, including those from regions then belonging to Burgundy and Lombardy, but the even rarer finds of Carolingian coins have not recently been surveyed¹⁶. In the 1960s and early 1970s the *Schweizer Münzblätter* carried from time to time very good collected reports of recent coin finds, and although this has since ceased a new institute is shortly to be set up under the aegis of the Schweizerische Akademie für Geisteswissenschaften for the purpose of co-ordinating the recording of coin finds from Switzerland¹⁷.

There may well be other collective sources of which I am not aware, and finds have, of course, also been published individually or in excavation reports, some of which have been picked up but others I will have overlooked. In general the publication of single-finds from the empire has been very patchy, and even the recording of them appears to have been given a low priority in some regions. In those cases where numismatists have made a particular effort to contact metal-detector users and record their finds, as at Mainz, the results have been dramatic, and this suggests that certain regions could potentially be as productive in single-finds as southern and eastern England.

It will be apparent that the material that I have noted is far from being comprehensive, and as a sample it

⁴ See also Hess 1975.

⁵ See also Nau 1965.

⁶ Hahn 1976, 49-56; see also additions in the review by D. Steinhilber, *JNG* 27 (1977), 138.

⁷ Ilisch 1980. Ilisch continues to collect find material for a further publication.

⁸ Gilles 1982, 1983, 1985, 1986.

⁹ Stoess is preparing a report on finds from the very productive Hilton Hotel site in Mainz, of which he kindly lent me a draft.

¹⁰ Hatz 1985.

¹¹ Hahn 1990 and Hahn forthcoming, of which Dr Hahn kindly sent me a draft. While the present article was in the press, Hahn forthcoming was published with the addition of six finds not included in the Appendix, Table 1, or Figs. 6 and 7 here.

¹² I am grateful to Dr Haertle for making available to me, via Drs Arent Pol, a copy of his listing of Dutch single-finds. It is understood that his work will include finds from other parts of the Empire, but these I have not drawn upon for this paper.

¹³ Weiller 1975/89.

¹⁴ Petry 1988. I am grateful to Dr Petry for making the relevant sections of his thesis available to me.

¹⁵ Hatz 1979.

¹⁶ I understand that they will be included in Haertle's projected catalogue of ninth-century finds, but I have not seen this section of his work.

¹⁷ Geiger 1990 describes the background and the aims of this project.

contains various biases which favour certain regions at particular periods. Further systematic research into publications and archives would reduce these but not eliminate them, for the recording of finds has always been dependent on the enthusiasm of a few individuals often operating in one locality or interested in a certain period. Nonetheless there is useful information to be gleaned from a cautious analysis of the material, and as usual the process of analysis raises as many questions as it answers. It had not been my original intention to publish a listing of the finds, but I have been persuaded by others that it would be useful to add it as an appendix. This at least lays out the evidence on which I have relied in the discussion below, and it may serve as a handy source of reference pending the publication of a more comprehensive survey. Indeed if this paper prompts someone else to produce a more detailed study, it will have served its purpose.

Changes in monetary activity

In theory single-finds – specifically excavation or chance finds representing accidental losses from circulation, thus excluding grave deposits – can be used as a broad measure of monetary activity¹⁸. There should arguably be a correlation between the number of site finds and the number of monetary transactions or the volume of coinage in active circulation. That is not to say that we regard every single-find as having been lost during a commercial transaction, but the more coinage there was in circulation and the more often it was carried about and used the greater the chance of coins being accidentally lost. Comparisons between different sites or different regions are fraught with problems, but variations from one period to another on the same site or within the same region can usefully be studied. Deliberate deposits, such as grave finds, should be excluded from any quantitative analysis of this nature, and as a precaution finds from in or near churches have also been left out of account here as they may come from disturbed graves. Exotic gold and bronze coins have similarly been omitted since we do not know the role they played in currency. Ideally in any histogram or distribution table one should plot the date of loss of each coin rather than its date of striking. Although this is impossible to determine precisely, estimates of the average period of circulation for each issue can be made based on the compositions of coin hoards and taking account of any general recoinages. For practical purposes in Table 1 and Figs. 1-6 a simple assumption has been made that roughly one third of the coins struck in each twenty-five year period were not lost until the following period, with the proviso that there was an effective renewal of the coinage in c.794, 819 and 822/3¹⁹. Such an adjustment is admittedly crude, but it is in the right direction and has I believe a useful smoothing effect on the statistics.

Of the 910 or so single-finds of the period c.750-1100 from the German empire noted in the Appendix, some 570 come from just seven sites or towns, viz. Domburg, Dorestad, Schouwen Island, Mainz, Trier, Metz and Verdun²⁰. For these major productive sites we are very fortunate in having good runs of coin finds reflecting their economic importance in the early Middle Ages. The first three, all in the Netherlands, have been prolific in coins of the eighth and ninth centuries, after which the finds virtually cease, presumably because of a major change in economic activity on the sites. The distribution patterns at each of these sites (Figs. 1-3) are fairly similar. Coins of Pepin III (751-68) and Charlemagne (768-814) are better represented at Domburg than at the other sites (although they are also plentiful among the nineteenth-century finds from Dorestad). At all three sites the coins of Louis the Pious (814-40) are the most common, particularly his *Christiana religio* issue struck 822/3-840. Coins of his immediate successors struck in the following two decades are moderately well represented, but very few coins struck after c.860 have been found on these sites.

¹⁸ The theory and practice of this approach to medieval single-finds are considered in Blackburn 1989a and 1989b.

¹⁹ The recoinage ordered under the Edict of Pitres in 864 applied only to West Francia, and while this may have been extended to part of Lotharingia when it was annexed by

Charles the Bald in 869/70, there was so little minting in the rest of Germany that a recoinage could not have been implemented there.

²⁰ See Appendix, sect. A.

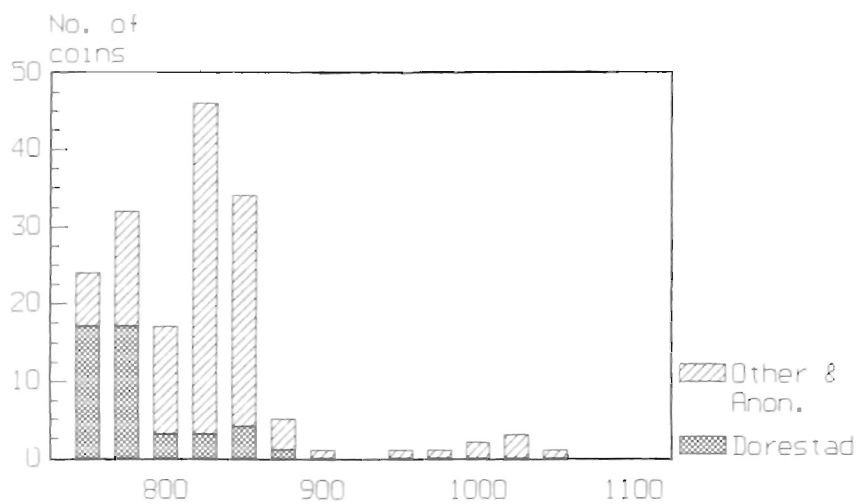


Fig. 1 Single-finds from Domburg (170 coins, source Völckers 1965 and Pol 1992).

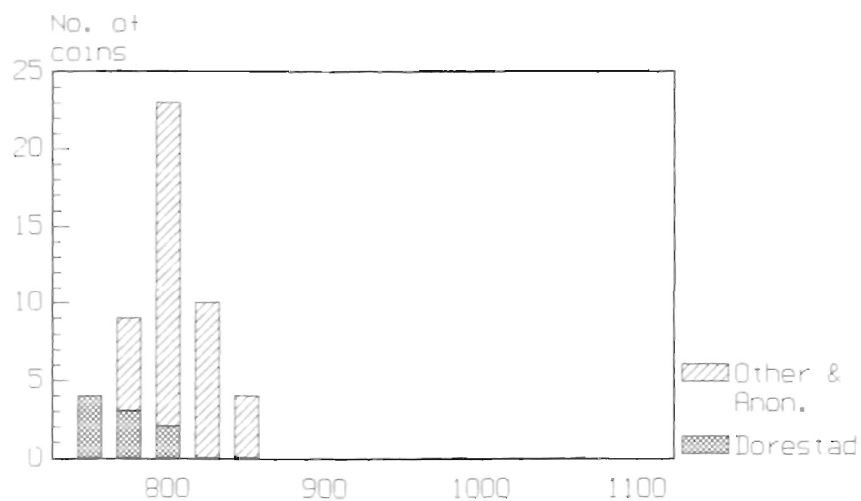


Fig. 2 Single-finds from Dorestad 1967-75 (48 coins, source van Gelder 1980).

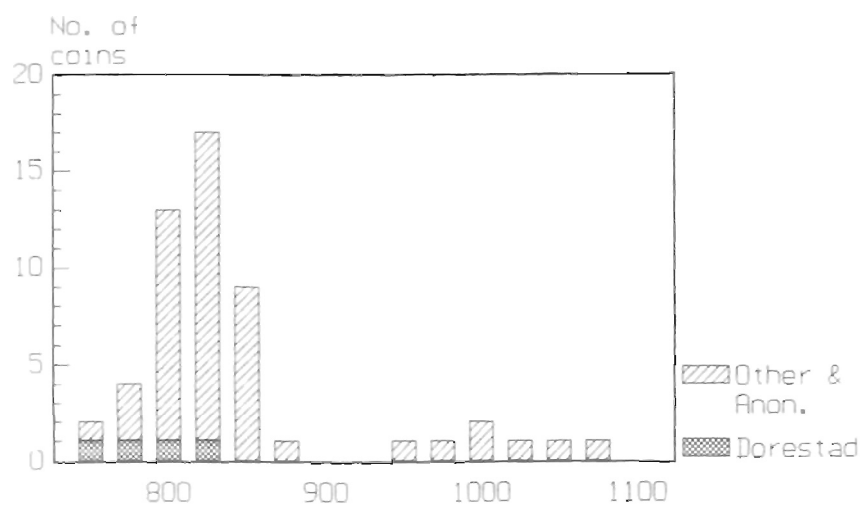


Fig. 3 Single-finds from Schouwen Island (53 coins, source Völckers 1965 and Pol 1992).

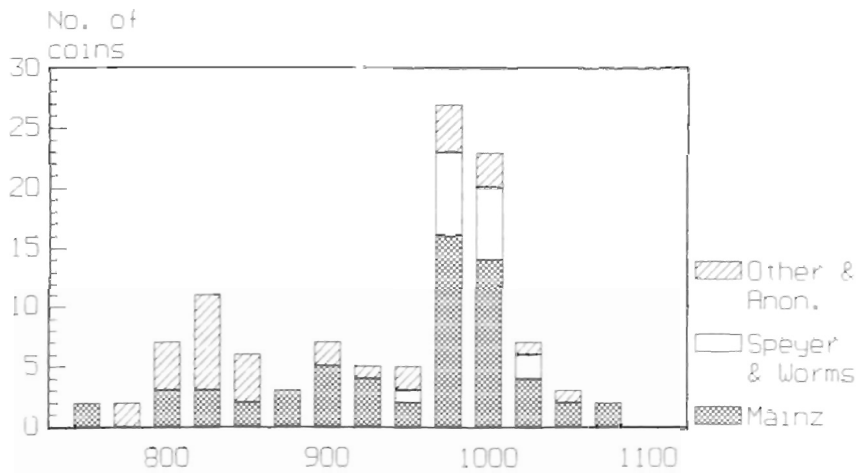


Fig. 4 Single-finds from Mainz, Hilton Hotel II site (110 coins, source Stoess, unpublished paper).

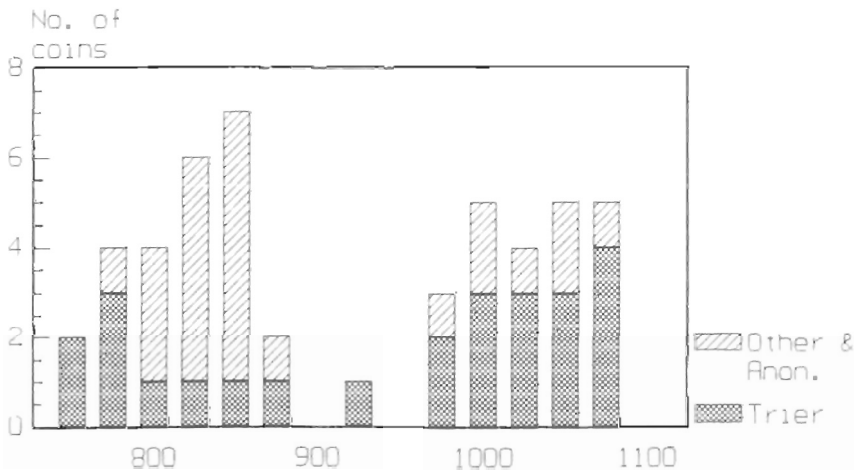


Fig. 5 Single-finds from Trier, various sites (48 coins, source Gilles 1982-86 and Petry 1988).

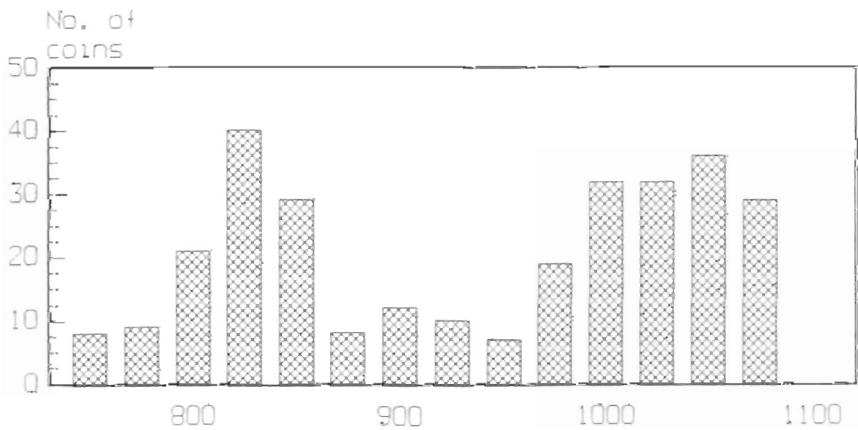


Fig. 6 Single-finds from the German empire (excl. grave and church finds and finds from productive sites).

By contrast the finds from the four towns on the Meuse, Moselle and Middle Rhine continue down to the eleventh century and beyond. The finds from Trier (Fig. 5) come from various sites within the city and are a mixture of older and more recent finds. The Carolingian coins follow a similar pattern to those at the three Low Country sites, building up in the later eighth century and peaking in the mid-ninth, before decreasing dramatically in the last quarter of the century. There is then a notable break, with only two coins to represent the first three-quarters of the tenth century. The finds revive sharply at the end of the century and continue at a moderately high level throughout the eleventh century. For Metz and Verdun we know of only the nineteenth-century finds recorded by Chalon and other numismatists of his day and recently gathered together by Petry (1988). They are summarised in the Appendix below, but they are too few to warrant plotting in histograms. Of the thirteen coins from Metz, nine are Carolingian mainly of the second and third quarters of the ninth century, one is from the mid-tenth century and the remaining three belong to the late tenth or early eleventh century. By contrast, at Verdun only two of the ten recorded coins are Carolingian, and the other eight date from the late tenth and eleventh (or even twelfth) centuries. There are, however, some similarities with the distribution seen at Trier, notably the scarcity of coins from the first three quarters of the tenth century, but more finds will be required before the patterns at Metz and Verdun become clear.

It had long been a puzzle why the towns on the Middle and Upper Rhine had yielded virtually no coin finds, although many of them were prolific mints that contributed enormously to the export of coinage to the Northern Lands. Now at a stroke a single development site in Mainz, strategically located in the *Marktvorstadt* between the river and the Roman city, has made this one of the most prolific sites for early medieval coin finds in Europe. Christian Stoess was able to record and photograph some 137 coins out of several hundred estimated to have been found by metal-detector users in the early 1980s prior to the construction of the new Hilton Hotel in Lohrstrasse (see Appendix and Fig. 4). All but four of these coins date from the seventh to eleventh centuries. The Carolingian finds show the by now familiar pattern, peaking in the second quarter of the ninth century, and falling away in the late ninth and tenth centuries but not to the same extent as at the other productive sites we have considered. In the late tenth century there is a dramatic increase, which is sustained during the first quarter of the eleventh century, but is then followed by a marked and progressive decline. It is not entirely clear whether this decline and the virtual absence of later medieval coins is due to the later occupation layers having been removed in previous building works or reflects a significant change in the function of the site after the mid-eleventh century.

It has been suggested above that the single-finds can be regarded as a rough indicator of the level of monetary activity on the sites, but are we entitled to extend that and say the histograms reflect variations in general commercial and social activity there? Did the volume of trade in Trier and Mainz, for example, reach a peak in the second quarter of the ninth century, then fall back to lower levels until the late tenth century when it increased dramatically? Elements of this same pattern have been seen at all seven of the more productive German sites, which might seem rather a coincidence if they were marking parallel changes in function and degree of use at each place. However, the common features of the distributions may in fact be caused by variations in the currency or monetary economy generally, and it so we would hope to see these reflected in an aggregation of all the other single-finds from Germany, which have mostly been found in ones or twos and thus offer a broader statistical base.

The 292 single-finds from non-productive sites (excluding grave finds or potential grave finds and gold or copper coins) are set out in Table I and plotted as a histogram in Fig. 6. The distribution has been adjusted, as before, in an attempt to reflect the date of loss rather than the date of striking. The shape of the histogram is again similar to the common features observed with the productive sites, i.e. a peak in the second or third quarters of the ninth century, a low level of late ninth- and tenth-century finds, and a step up in the late tenth century. The figures in Table I must be used with caution, since the recording of coin finds has been uneven in many regions. To some extent the amalgamation of the finds from all regions will decrease the significance of local anomalies. There is, however, a chronological division that may well have distorted the record, since Carolingian coins have often been treated separately from the tenth- and eleventh-century ones. Accepting that there is a dislocation in the histogram at c.900, we should not make

T.p.q.	Single-finds of silver coins													All Germany	G/Ch	AV/AE
	Bl.& Lux.	Lor.& Als.	Nl.	S-H	Ns.	N-W	R-P	B-W	Hes.	S-A & Th.	Ba.	Sw.	Aus.			
750-74	2	1	1				2		1		1			8	4	1
775-99		1	2				1	2			2		1	9	1	
800-24		1	11	1	1	1	3		1		2			21	3	1
825-49	2	3	22		2	2	2		1	1	4		1	40	5	
850-74	3	2	19		1		1		1		2			29	3	14
875-99	1	1	4				1						1	8	2	2
900-24	1		3	1	1	1		2			1	1	1	12	3	
925-49	1		2	1				2	1		2	1		10	3	1
950-74	1		1					2	1		1	1		7		
975-99	2	2	6	1	1		2	1	1		1	1	1	19	9	
1000-24	2	4	8		1	4		4	1	1	2	1	4	32	10	
1025-49	2	5	5		2	3	1	3	1		2	2	6	32	3	1
1050-74	1	3	6		1	3		3	1	4	2		12	36	4	1
1075-99	1	1	6			3		2		2	2		12	29	3	1
Total	19	24	96	4	10	18	18	17	8	8	24	7	39	292	53	22

TABLE 1 Single-finds from the territory of the German empire, 750-1100 (excluding finds from productive sites).

Notes to table 1

1 The 367 finds summarised in this table are those listed in the Appendix plus additional finds published elsewhere in this volume by Pol (Netherlands, 10th and 11th cent.) and those noted in the unpublished works of Petry (Belgium, Lorraine, and Rheinland-Pfalz) and Haertle (Netherlands, 814-98), which the authors have kindly allowed me to draw upon; I felt it would be wrong of me to incorporate their material into the Appendix. The finds in this table do not include those from the major productive sites of Domburg, Dorestad, Schouwen Island, Mainz, Trier, Metz, and Verdun.

2 The main part of the table gives the total number of single-finds of silver coins other than those known to have come

from graves or churches. Finds of gold and copper coins and grave and church finds are summarised separately in the two right-hand columns.

3 The distributions here, like the histograms in Figs. 1-6, are intended to reflect the likely date of loss of the coins rather than their date of striking. In practice it has been assumed that one third of the coins struck in any 25 year period remained in circulation until the following 25 year period, with the proviso that no coins were carried over the past years 794, 819 and 822 when the hoards indicate that fairly comprehensive recoinages took place.

direct comparisons in the rate of coin loss between the ninth and the eleventh centuries. Nonetheless the rise and fall during the ninth century and the rise at the end of the tenth century followed by the maintenance of higher rates of coin loss during the eleventh century are trends that we can validly observe within the single-finds.

Taken together the finds from the productive sites and the other single-finds suggest that between c.860 and c.990 in much of Germany the rate of coin loss was significantly lower than in the preceding and succeeding periods. The most likely explanation for such a general trend is that there was less coinage in circulation to be lost, so that fewer people were carrying money and it was changing hands less often. A correlation between the volume of coinage in circulation (or, in modern economic parlance, the 'money supply') and the rate at which single-finds have been discovered is suggested by the later medieval finds from England²¹. It does not necessarily follow that there were any fewer commercial transactions or that this was a period of economic recession. Forms of barter and credit would always have played a substantial role in trade, particularly for domestic purposes since the value of the early medieval denar was relatively

²¹ Rigold 1975; Blackburn 1989a, 19-20.

high. We can assume that when cash was in short supply the use of non-monetary methods of payment would have expanded. It would therefore be wrong to suggest on the basis of the coin finds alone that trade in the *Marktvorstadt* at Mainz declined in the late ninth and for most of the tenth century. Similarly, although there is little doubt that economic activity at the three Low Country sites had virtually ceased by the early tenth century, historians should be cautious about dating the decline to the mid-ninth century simply because of the fall in the volume of coin finds, for it is clear that some decrease would be expected anyway and the sites could have continued to be used into the later ninth century without leaving a further mark on the coin finds. The notion that variations in coin finds from a site do not necessarily mirror changes in the scale of economic or social activity there is neatly illustrated by several productive sites in England that have yielded significant quantities of metalwork as well as coinage. On at least three of these sites – Barham, Bawsey, and Royston – although the coin finds peak in the mid-eighth century and fall off markedly in the early ninth century, the volume of metalwork is maintained and in some cases increases during the ninth century and even continues into the tenth.²²

There are other interesting parallels to be drawn from the finds from Anglo-Saxon England. A comparison between the finds from productive sites and single-finds from elsewhere in England has yielded results similar to those observed for Germany, although the chronological patterns differ a little²³. In the areas south of the river Humber the finds peak in the first half of the eighth century, but then remain moderately plentiful until the beginning of the second quarter of the ninth century when they start a progressive decline (i.e. somewhat earlier than in Germany). Coins of the late ninth and first three-quarters of the tenth century are very scarce among single-finds, but in the last quarter there is a notable increase which is maintained during the eleventh century, paralleling the German distributions. As in Germany, similar trends can be seen at a number of productive sites and among the single-finds generally suggesting that they reflect underlying monetary changes. In the kingdom of Northumbria the pattern in the eighth and ninth centuries is somewhat different from that in the south, with the finds peaking in the mid-ninth century at the time when large numbers of base, low value pennies of Merovingian module (the so-called 'stycas') were being produced there.

It has long been suspected that an increase in the scale of minting in Germany and England in the late tenth century was fuelled by the discovery and exploitation of new silver mines in the Harz mountains from the 960s. Much of this coinage was draining away to the Northern Lands, but the single-finds suggest that the volume of the domestic currency in both countries nonetheless grew considerably. What was less expected was the suggestion that the currency of England and Germany may have contracted during the second half of the ninth and for much of the tenth century. In England the number of mints grew over this period, and, although not based on any firm estimates, it is generally assumed that mint output also increased. On the Continent Charles the Bald's *Gratia Dei Rex* coinage in West Francia appears to have been very substantial, but the volume of minting in Lotharingia and East Francia is difficult to gauge and it may well have fallen overall with the closure of the mint at Dorestad. In any event mint-output alone does not govern the size of the currency, which is also dependent on the rate at which coinage was exported or reminted. If there was a contraction in the amount of coinage in circulation in both England and Germany, as the finds suggest, this may have been due to a general shortage of silver in Western Europe, a precursor of the silver famines of the later fourteenth and fifteenth centuries²⁴. Further evidence for this may be seen in the progressive debasement that Metcalf and Northover have recently identified in the West Frankish and southern English coinages from the 840s²⁵, and perhaps also in the Northumbrian coinage which had started to be debased in the early ninth century. Charles the Bald restored the fineness of the Frankish coinage in 864 and Alfred that of the southern English coinage in c.875, but perhaps only by reducing the number of coins in circulation. Moreover, the restored standards of fineness and weight were not maintained, for the coinages in both France and England experienced debasement and weight reductions during the first half of the tenth century.

²² Blackburn forthcoming.

²³ Blackburn forthcoming.

²⁴ Spufford 1988, ch. 15.

²⁵ Metcalf and Northover 1985 and 1989.

Regional coin circulation

The contrast between the plentiful finds from the Baltic area and the paucity of those from Germany was so extreme as to prompt Hävernick to argue that German coinage of the tenth and eleventh centuries was produced primarily for export rather than domestic use²⁶. He called this period the 'Zeit des Fernhandelsdenars', in contrast to the 'Zeit des regionalen Pfennigs' which he thought began during the twelfth century. There is no doubt that German denars of the later tenth and eleventh centuries were one of the principal mediums for trade with the Northern Lands, but it now seems clear that they also played an important role as currency within the empire²⁷. The mass of single-finds from the Hilton Hotel site in Mainz is perhaps the most demonstrative evidence that coinage was used internally, but a number of other interlocking arguments had already been developed by German scholars to show that this was the case. These emphasise the regional nature of the currency, showing how Germany was divided up into a number of local circulation pools. Hess has drawn attention to the remarkable homogeneity of the eleventh-century hoards in the Rhineland, with often over 90% of the coins coming from the nearest mint²⁸. The contrast with English hoards is striking, for coins from many different and distant mints are normally present, and locally struck coins form a much smaller proportion of the finds than in the Rhineland hoards. Hess has also shown how the dominant coinages of Köln and of Regensburg appear to have had separate, mutually exclusive areas of circulation²⁹, while Ilisch has laid emphasis on their spheres of influence as judged by the regions in which their designs were imitated³⁰. The issues of other German mints appear likewise to have been limited to particular circulation pools, and the reason for this was in part economic. The erosion of the weight standard from that established in the Carolingian period took place at different rates in different regions, so that while the coins of Regensburg and Köln were stabilized at around 1.4 g, those of Mainz, Worms and Speyer on the Middle Rhine and of Trier on the Moselle were struck at c.1.1 g or less. It now appears that the so-called 'Zeit des regionalen Pfennigs' may have had its origins as early as the tenth century.

The fifteen hoards from the Rhineland marshalled by Hess demonstrate convincingly the regional nature of the currency, but they are not sufficiently numerous to trace its development over the tenth and eleventh centuries or to define the boundaries of the circulation areas. Moreover, every hoard has its own history, and it may not be typical of the currency of the locality in which it was deposited. Single-finds should serve as a useful check on the pattern discerned from hoards, and provide for regions or periods from which hoards are lacking.

The single-finds give the impression of a somewhat more mixed currency than that suggested by the hoards, at least for the eleventh century. Of the finds from Mainz, 80% of the tenth-century coins and 86% of the eleventh-century coins were from the mints of Mainz, Worms or Speyer. Other mints represented were Köln (9%), Metz (4%), Goslar (2%) and Verdun (1%). The local mints may seem from these figures to be heavily dominant, but compared with hoards such as Klein-Auheim (232 coins, 100% Mainz), Langenselbold (740 coins, 99% Mainz), Mechttersheim (3721 coins, 96% Speyer), and Frankenbach (50 coins, 100% Speyer or Worms)³¹, the Mainz single-finds are significantly more mixed. At Trier 75% of the four tenth-century finds and 72% of the 18 eleventh-century finds were of the Trier or nearby Echternach mints, though the numbers are admittedly small. Other mints represented were Remagen? (9%), Metz (5%), Mainz (5%), Worms or Speyer (5%), and an uncertain Lower Lotharingian mint (5%).

Turning to the more scattered finds listed in the Appendix, by the time they have been divided by region and by period (Fig. 7) there are as yet really too few of them to enable us to define the character of the currency in a particular locality. In general for the eleventh century around 60-80% of the coins are from one of the

²⁶ Hävernick 1956.

²⁷ There remains a difference of opinion as to whether the primary function of the coinage was for external or internal trade, see the papers by Hess and Kluge in this volume.

²⁸ Hess 1982.

²⁹ Hess 1990.

³⁰ Ilisch 1981, 130-2.

³¹ Hess 1988, 192.

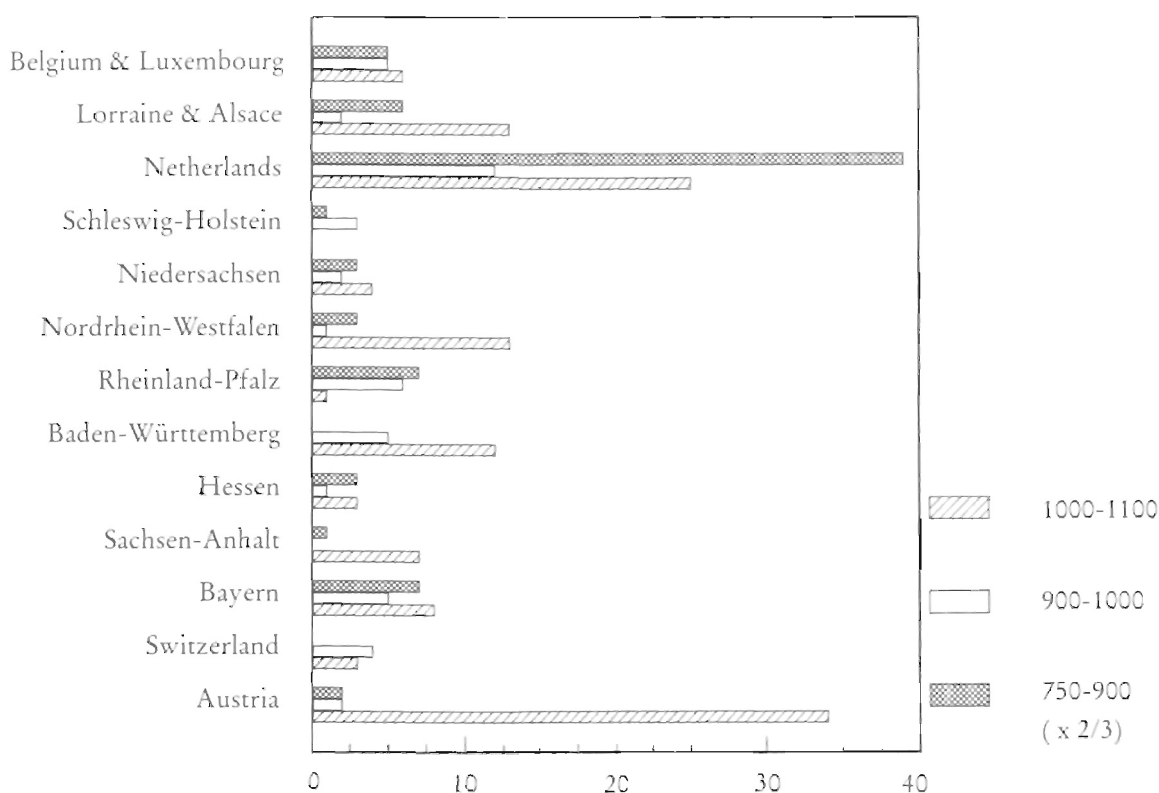


Fig. 7 Single-finds by region (excl. grave and church finds and finds from productive sites).

nearby mints, and the proportion is much the same in Bavaria and Lorraine/Alsace as it is in the Rhineland. Where the coins are from further afield, they tend to be from the more productive mints Köln, Mainz, and Trier, or in Baden-Württemberg the Italian mints of Venice, Milan, and Lucca. Austria is entirely exceptional, and should perhaps be treated quite separately. Its use of money developed essentially in the eleventh century and was then based largely on Hungarian denars, which represent 81% of the eleventh-century finds.

Why should the single-finds be more mixed in their composition than the Rhineland hoards? It is unlikely that non-local coins would have been discarded, for their intrinsic value was high – a Köln denar was comparable to an English penny, five of which in the tenth century would have purchased a sheep³². A non-local coin might, on the other hand have been put into a grave or an offering box, so that a higher proportion of them among church finds would be understandable. The hoards, on the other hand, may not be truly representative of the currency, for local issues might have been preferred for savings.

This paper is only intended to present a preliminary review of the evidence single-finds can offer for coin circulation in early medieval Germany. Within a few years, no doubt, the amount of data available will have grown so much and the techniques of analysis become sufficiently more refined to render it outdated. High priority should be given to the publication of a more comprehensive catalogue of single-finds, and preferably one that begins in the sixth or seventh centuries and continues into the twelfth century, so that the initial development of monetary circulation can be traced, as well as the potential shortage of currency in the first half of the twelfth century. Providing metal-detector finds are recorded systematically we should eventually be able to rely solely on these and excavation finds as providing a more solid statistical base than the nineteenth-century reports, which may be biased in favour of the rarer or more exotic issues and omit the common coins. Until then, however, every piece of information about finds must be treated as precious if we are to grope our way towards an understanding of the early medieval economy.

³² One of a series of values given in the law code VI Aethelstan ch. 6. 2.

APPENDIX

Single-finds in the German Empire, 750 - 1100

Abbreviations

Aus.	Austria (Österreich)	AAB-W	Archäologische Ausgrabungen in Baden-Württemberg
B-W	Baden-Württemberg	BSFN	Bulletin de la Société française de numismatique
Ba.	Bayern (Bavaria)		
Bl.	Belgien (Belgium)		
Hes.	Hessen		
Lor.	French Lorraine and Alsace	FH	Fundberichte aus Hessen
Lux.	Luxemburg (Grand Duchy)	FÖ	Fundberichte aus Österreich
N-W	Nordrhein-Westfalen	H.	Hatz 1974
Nl.	Niederlande (Netherlands)	HBN	Hamburger Beiträge zur Numismatik
Ns.	Niedersachsen (Lower Saxony)	Ilisch	Ilisch 1980
R-P	Rheinland-Pfalz	JMP	Jaarboek voor Munt- en Penningkunde
S-A	Sachsen-Anhalt (Upper Saxony)	JNG	Jahrbuch für Numismatik und Geldgeschichte
S-H	Schleswig-Holstein		
Sw.	Schweiz (Switzerland), region within the Empire only	MG	Morrison and Grunthal 1966
Th.	Thüringen (Thuringia)	MÖNG	Mitteilungen der Österreichischen Numismatischen Gesellschaft
		NIR	Nederlandse Rijksmusea
AE	copper alloy	RBN	Revue Belge de Numismatique
AV	gold	Roth & Wamers	Roth and Wamers 1984
Ch	church find	SM	Schweizer Münzblätter
G	grave find	Völ.	Völckers 1965

A. Major Productive Sites (Fig. 1-5)

1. Domburg, Nl. A coastal wic that has been eroded by the sea. Enormous numbers of Roman and early medieval coins of the 7th-9th centuries have been exposed on the beach since at least the 17th century. Most of the collections and records of finds were made in the 19th and early 20th centuries. Völckers (1965, find 2) lists 162 Carolingian coins recorded from various sources, and there have been a few subsequent finds. By comparison there are only a small number of finds of the 10th and 11th centuries (Pol 1992, which amends the list of finds in Berghaus 1974). Fig. 1.
2. Dorestad (Wijk-bij-Duurstede), Nl. A major trading port and mint on the Lower Rhine that has produced three coin hoards and many single-finds of the 7th-9th centuries. Some 51 Carolingian coins discovered in excavations and as stray finds in 1967-75 have been listed by Van Gelder (1980, 222). The 19th-century single-finds are less reliably recorded, for as Coupland (1988, 8-11) has pointed out of the 201 coins listed by Völckers (1965, 137-50) 57 apparently derive from two dispersed hoards, and the coins of Louis the Pious' *Christiana religio* and Lothar I's Dorestad issues are severely under-represented since they were often melted down without being described or counted. There is also doubt over some coins in the name of 'Charles', whether they were struck under Charlemagne or Charles the Bald. Coupland would thus date the decline in coin circulation at Dorestad to c. 850 rather than Van Gelder's c. 830, and he thinks the mint remained open until the late 850s. Virtually no coins later than the mid-9th century have been found on the site (Pol 1992). Fig. 2 is limited to the recent single-finds, but if one were to include the 19th-century finds the pattern would be similar, although with stronger representation in the last two columns.

3. Schouwen Island (Burgh-Haamstede), Nl. A coastal wic that has yielded many Roman and Carolingian coins, a small number of later ones, but few if any Merovingian coins. Völckers (1965, find 19) lists 46 Carolingian coins and Pol (1992) seven coins of the 10th and 11th centuries. See Fig. 3.
4. Mainz, R-P. Few single-finds of the 8th-11th centuries had been recorded from Mainz until the opening of the site in Löhrrstraße for the building of the new Hilton Hotel in the early 1980s. Several hundred early medieval coins were said to have been found by metal-detector users in soil removed from the site, and fortunately Christian Stoess, as a result of his great diplomacy, was able to see and record some 137 of these. (I am very grateful to him for showing me a draft report on these finds and allowing me to draw on it here.) They include 22 Merovingian, 33 Carolingian, 76 Ottonian and Salian, and only 4 later medieval coins. For the 10th and 11th centuries, this is now one of the richest sites in Europe for coin finds. Stoess has also recorded three Carolingian coins from a second building site in Mainz, Deutsches Rotes Kreuz, namely two of Charlemagne's heavy coinage (Dorestad and Milan) and one *Christiana religio* type of Louis the Pious. One earlier find from the city was published by Völckers (1965, find 47), a coin of Pavia of Charlemagne's heavy coinage. The finds from the Hilton Hotel II site are summarised in Fig. 4.
5. Trier, R-P. Single-finds of the early middle ages have been regularly found at various locations in the city over the last two centuries. In an excellent series of articles Gilles has listed the older and modern finds from the 6th-11th centuries. These include 30 Carolingian and 25 Ottonian and Salian coins. They are summarised in Fig. 5, omitting six finds from churches and one of a Byzantine copper coin.
6. Metz, Lor. Petry (1988) cites 13 19th-century finds from Metz: late 8th cent. 1; 9th cent. 8; mid-10th cent. 1; late 10th cent. 1; 11th cent. 2. Presumably some additional finds have been made during the 20th century, even if they have not been published.
7. Verdun, Lor. Petry (1988) cites ten 19th-century finds from Verdun, with a broadly similar pattern to those from nearby Trier, i.e. mid 8th cent. 1; late 9th cent. 1; late 10th/early 11th cent. 2; mid 11th cent. 2; 11th or 12th cent. 4. As for Metz, these do not include more recent finds that may have been made but which remain unpublished.

B. Less Productive Sites and Isolated Finds (Table 1 and Figs. 6-7)

This list does not include finds of the 10th and 11th centuries from the Netherlands published elsewhere in this volume by Pol (1992), finds from Upper Lotharingia noted in Petry's unpublished thesis (Petry 1988), or those of the 9th century recorded in the forthcoming work of Haertle (see n. 12).

	T.p.q.	Find location and date	No. (mint)	Ref.
1.	751	Zellerndorf, Aus. pre 1937 [Ch]	1 AE (Syracus)	FÖ 2, 120; Hahn 1990, 242
2.	755	Brussels, Bl. pre 1884	1 (Cambrai?)	Völ. 11
3.	755	Liège, Bl. pre 1859	1 (?)	Völ. 5
4.	755	Müstair, Sw. pre-1990 [G]	1 (Quentovic)	SM 1990, 96
5.	755	Bonn, N-W 1929/30 [Ch]	2 (Angers, ?)	Völ. 4:1-2
6.	768	Middelstum, Nl. pre 1915	1 (Bingen)	Völ. 32
7.	768	Sneek, Nl. pre 1915	1 (?)	Völ. 40
8.	768	Colmar, Alsace 1844	2 (Strassburg)	Völ. 38
9.	768	Bonn, N-W 1929/30 [Ch]	1 (?)	Völ. 4:4
10.	768	Bitburg, R-P c. 1864	1 (Trier)	Völ. 39; Gilles 982, b. 15
11.	768	Speyer, R-P 1861	1 (Melle)	Völ. 35
12.	768	Worms, R-P pre 1906	1 (Dorestad)	Völ. 33:1
13.	768	Kloster Lorsch, Hes. 1932/3	1 (Mainz)	Völ. 30
14.	768	Erdmannhausen, B-W 1920/21 [G]	1 (Mainz)	Völ. 31; Nau 1965, 263
15.	768	Epfach, Ba. 1957	1 (?)	Völ. 18; MG 160
16.	781	Bonn, N-W 1929/30 [Ch]	1 (Italy)	Völ. 4:3

T.p.q.	Find location and date	No. (mint)	Ref.	
17.	786	Münchberg, Ba. pre 1973	1 (dirhem)	Hahn 1976, 51, no. 17
18.	786 (789?)	Völkermarkt-Lamprechtskogel, Aus. c. 1990	1 (dirhem)	Hahn 1990, 238, fig. 6
19.	794	Leer, N-W 1914	2 (Köln, Arles)	Völ. 44; Ilisch 1
20.	794	Lembeck, N-W 1934	1	Ilisch 2
21.	794	Böbingen, R-P 1913	1 (Melle)	Völ. 53
22.	794	Burgheim, Ba. 1949	1 (Milan)	Völ. 46
23.	794	Eysölden, Ba. 1769	1 (Ravenna?)	Völ. 48; MG 168
24.	813	Straden, Aus. pre 1867	1 AE (Syracus)	Hahn 1990, 244
25.	819	Neumünster, S-H 1954	1 (Venice)	MG 178
26.	819	Bonn, N-W 1929/30 [Ch]	1 (Dorestad)	Völ. 4:5
27.	819	Boppard, R-P 1915	1 (Venice)	MG 177
28.	819	Worms, R-P pre 1906	1 (Dorestad)	Völ. 33:2
29.	822	Hornburg, Ns	1 (?)	MG 185
30.	822	Aachen, N-W 1929	1 (?)	MG 179
31.	822	Korvey, N-W	1 (?)	MG 186
32.	822	Karden, R-P pre 1929	1 (?)	Bonner J. 1929, 180
33.	822	Mayen, R-P 1919	1 (?)	MG 187
34.	822	Ramelsloh, Ns. 1959	1 (?)	MG 188
35.	822	Speyer, R-P pre 1882	1 (?)	MG 189
36.	822	Worms, R-P pre 1906	1 (?)	Völ. 33:3
37.	822	Bad Nauheim, Hes. 1960/1	1 (?)	Roth & Wamers, no. 157
38.	822	Frankfurt a. M., Hes. 1857	1 (?)	MG 181
39.	822	Fulda, Hes. 1941	1 (?)	Roth & Wamers, no. 155
40.	822	Esslingen, B-W 1960/3 [Ch]	2 (?)	Nau 1965, nos. 1-2
41.	822	Burglengenfeld, Ba. c. 1873 [G]	1 (?)	Steinhilber 1977, no. 35
42.	822	Epfach, Ba. 1831?	1 (?)	MG 180
43.	819	Ketzendorf, Ba. pre 1973 [G]	1 (Melle)	Berghaus 1973, 31, no. 14
44.	822	Regensburg, Ba. pre 1881	1 (?)	Hahn 1976, 52, no. 26 c
45.	822?	Regensburg (Bahnhof), Ba. 1901	1 (?)	MG 209; Hahn 1976, 53, no. 26 d
46.	822	Regensburg (Praschweg), Ba. 1971	1 (?)	Hahn 1976, 53, no. 26 h
47.	822	Regensburg (Alter Kornmarkt), Ba. 1901	1 (?)	Steinhilber 1977, no. 26 k
48.	822	Hohenaltheim, Ba. c. 1835	1 (?)	MG 184
49.	822	Stade, Ns. 1717	1 (?)	MG 190
50.	822	Woltwiesche, Ns. pre 1973 [G]	1 (?)	Berghaus 1973, 31, no. 14
51.	822	Ostfriesland, Ns. pre 1836	1 (?)	Berghaus 1958, no. 23
52.	822	Beers, Nl.	1 (?)	Boeles 1951, 459-60
53.	822	Drenthe, Nl. pre 1866	1 (?)	Chijs 1866, 148, pl. 21.13
54.	822	Pingjum, Nl. 1901	1 (?)	Boeles 1951, pl. 49.5
55.	840	Wintrange, Lux. pre 1989	1 (?)	Weiller 1989, D1
56.	840	Wormeldange, Lux. pre 1975	1 (Trier)	Weiller 1975, D1058 a
57.	840	Ostro, S-A 1925	1 (Mainz)	MG 193
58.	840	Ralingen, R-P 1860 [Ch]	1 (Orleans)	MG 194; Gilles 1982, 20
59.	840	Burghöfe, Ba 1973	1 (Pavia)	Hahn 1976, 50, no. 3
60.	840	Salzburg-Itzling, Aus. pre 1926	1 (Melle)	Hahn 1990, 243
61.	840	Gouda, Nl. 1842	1 (Dorestad)	Chijs 1866, 159, pl. 15.15
62.	840	Maastricht, Nl. pre 1866	1 (?)	Chijs 1866, 155, pl. 14.2
63.	840	Maren, Nl. 1986	1 (Aquitaine)	NIR 1987, 186
64.	mid 9th c.	Aalzum, Nl. c. 1886	1 AV (Frisia)	Grierson 1951, no. XIII a
65.	mid 9th c.	Drenthe, Nl. pre 1866	1 AV (Frisia)	Grierson 1951, no. XVIII d
66.	mid 9th c.	Friesland, Nl. pre 1858	1 AV (Frisia)	Grierson 1951, no. XI b
67.	mid 9th c.	Friesland, Nl. pre 1913	1 AV (Frisia)	Grierson 1951, no. XVII a
68.	mid 9th c.	Raswerd, Nl. pre 1899	1 AV (Frisia)	Grierson 1951, no. XII a
69.	mid 9th c.	Roswinkel, Nl. 1870	1 AV (Frisia)	Grierson 1951, no. XV a

	T.p.q.	Find location and date	No. (mint)	Ref.
	70.	mid 9th c. Stedum, Nl. 1958	1 AV (Frisia)	JMP 48 (1961), 99-100
	71.	mid 9th c. Tzummarum, Nl. 1987	1 AV (Frisia)	NIR 1987, 186
	72.	mid 9th c. Veenwoude, Nl. pre 1951	1 AV (Frisia)	Grierson 1951, no. XIIIc
	73.	mid 9th c. Ylst, Nl. 1858	1 AV (Frisia)	Grierson 1951, no. XIIIc
	74.	858 Esens, Ns. pre 1893 [G]	1 (Kent)	Berghaus 1958, no. 22
	75.	864 Furfooz, Bl. pre 1906	1 (Dinant)	RBN 1962, 168
	76.	864 Dinant, Bl. pre 1962	1 (Dinant)	RBN 1962, 167
	77.	864 Namur, Bl. 1846	1 (Dinant)	RBN 1962, 168
	78.	864 Angre, Bl. pre 1886	1 (Valenciennes)	La Belgique ancienne IV, 159
	79.	886 Leibnitz region, Aus. pre 1867	1 AE (Byz.)	Hahn 1990, 244
	80.	886 Wagna, Aus. pre 1867	1 AE (Byz.)	Hahn 1990, 244
	81.	887 Oberbillig, R-P 1942	1 ('Mainz')	MG 195; Gilles 1983, no. 8
	82.	887 Regensburg (Minoritenkirche), Ba. 1935 [Ch]	1 (?)	MG 196; Hahn 1976, 53, no. 26 e
	83.	889 Salzburg (Dom), Aus. 1966 [Ch]	1 (Milan or Pavia)	Hahn 1976, 54, no. 28 a; Hahn 1990, 243, fig. 7
	84.	894/5 Melk, Aus. pre 1904	1 (Regensburg)	Hahn 1976, 51, no. 15
	85.	898 Weiden, Aus. pre 1983	1 (Milan)	MÖNG 23, 43 f; Hahn forth.
	86.	900 Neumünster, S-H 1956	1 (Mainz)	MG 197
	87.	900 Hollingstedt, S-H	1 (Strassburg)	Hatz 1961, 54; MG 198
	88.	900 Urach, B-W 1954	1 (Strassburg)	MG 199; Nau 1965, 263
	89.	900 Emden, Ns. 1953	1 (Köln)	MG 200; Hatz 1985, no. 1
	90.	900 Münster, N-W 1953	1 (Köln)	MG 201; Ilisch 3
	91.	900 Schwenningen, B-W 1927	1 (Strassburg)	MG 202; Nau 1965, 263
	92.	900 Bonn, N-W 1929/30 [Ch]	1 (Köln)	Völ. 4:6; MG 203
	93.	10th c. Dalheim, Lux. pre 1989	1 (?)	Weiller 1989, D2
	94.	10th c. Pettendorf, Ba. pre 1849 [G]	1 (?)	Steinhilber 1977, no. 38
	95.	early 10th c. Miltenberg, Ba. 1971	1 (Mainz)	Hahn 1976, 51, no. 16
	96.	10th/11th c. Carnuntum, Aus. pre 1985	1 (Brioude)	MÖNG 25, 27; Hahn forth.
	97.	901 Rottenburg-Sülchen, B-W 1984	1 (Milan imit.)	AAB-W 1984, 270-1
	98.	912 Üetliberg, Sw. 1984	1 (Zürich)	SM 1986, 8-10
	99.	913 Hofstetten, Sw. 1980 [Ch]	1 (Strassburg)	SM 1981, 42-3
	100.	917 Pfaffenhofen, Ba. 1800	1 (Regensburg)	Hahn 1976, 52, no. 24; Hatz 1985, no. 2
	101.	917 Regensburg (St Clara), Ba. 1971	1 (Regensburg)	Hahn 1976, 53, no. 26 g
	102.	917 Burglengenfeld, Ba. c. 1873 [G]	1 (Regensburg)	Steinhilber 1977, no. 35
	103.	936 Fritzlär, Hes. 1970 [Ch]	1 (Köln)	H. 4; Hess 1975, C1
	104.	936 Ralingen, R-P 1985	1 (Trier)	Gilles 1985, no. 2
	105.	936 Grevenbroich-Elfgem, N-W pre-1985 [Ch]	1 (Köln)	Hatz 1985, no. 3
	106.	936 Ilanz, Sw. pre 1959	1 (Konstanz)	H. 5; Hatz 1979, no. 2
	107.	946 Untergermaringen, Ba. pre 1923	1 AV tari (Salerno)	H. 11
	108.	948 Regensburg (Obermünster), Ba. 1957 [Ch]	1 (Regensburg)	H. 12; Hahn 1976, 53, no. 26 f.
	109.	953 Rosstal, Ba. 1973	1 (Köln)	Hahn 1976, 53, no. 27
	110.	954 Eberhardzell, B-W pre 1968	1 (Swabia)	H. 14
	111.	954 Zürich (near), Sw. pre 1840	1 (Zürich)	Hatz 1979, no. 3
	112.	964 St. Ingbert, R-P 1963	1 (Metz)	H. 15
	113.	976 Hamburg, Ns. pre 1965	1 (Byzantine)	H. 17
	114.	982 Zürich, Sw. pre 1940	1? (Zürich)	Hatz 1979, no. 12
	115.	983 Antwerp, Bl. pre 1959	1? (Münsterbilsen)	H. 20
	116.	983 Limburg, Bl. pre 1959	1 (Münsterbilsen)	H. 22
	117.	983 Schuttrange, Lux. 1852 [Ch]	1 (Trier)	Weiller 1975, D1059

	T.p.q.	Find location and date	No. (mint)	Ref.
118.	983	Hontheim (Entersburg), R-P 1977	1 (Andernach)	Hatz 1985, no. 7; Gilles 1985, no. 7
119.	983	Oberbillig, R-P 1938	1 (Trier)	H. 23; Gilles 1985, no. 4
120.	983	Pforzheim, B-W pre 1955	1 (Worms)	H. 24
121.	983	Unterregenchbach, B-W 1960/3 [Ch]	1 (Venice)	H. 38; Nau 1965, no. 5
122.	983	Nürnberg-Ziegelstein, Ba. pre 1956	2 (Württemberg, ?)	H. 43; Hatz 1985, no. 8
123.	990	Greibenstein, Hes. pre 1898	1 (Dieulouard)	H. 25
124.	990	Zwentendorf, Aus. 1955 [G]	2 (Prague)	FÖ 5, 236; Hahn forth.
125.	991	Schenefeld, S-H 1980	1 (Lüneburg)	Hatz 1985
126.	991	Salzburg (Dom), Aus. 1967/68 [Ch]	1 (Salzburg?)	Hahn 1976, 54, no. 28 b
127.	995	Burglengelfeld, Ba. c. 1873 [G]	1 (Nabburg)	Steinhilber 1977, no. 35
128.	996	Echternach, Lux. pre 1975	1 (Metz)	Weiller 1975, D948
129.	996	Allschwil, Sw. 1958 [Ch]	1 (Normandy)	H. 29; Hatz 1979, no. 13
130.	996	Essen-Werden, N-W pre 1957 [Ch]	1 (Köln)	H. 30
131.	996	Heidelberg (Heiligenberg), B-W pre 1986	1 (Worms)	Hatz 1985, no. 9
132.	997	Disentis, Sw. pre 1983 [Ch]	1 (Zurich)	Hatz 1985, no. 10
133.	999	Carnuntum, Aus. 1978	1 (Vysehrad)	Hahn forth.
134.	1000?	Gatterstedt, S-A pre 1955	1 (Strassburg imit.)	H. 33
135.	early 11 th c.	Mechede, N-W 1965	1 (Soest)	H. 34; Ilisch 4
136.	early 11 th c.	Paderborn (Brenkenhof), N-W pre 1974	1 (Soest)	H. 36
137.	early 11 th c.	Paderborn (Domplatz), N-W pre 1969	2 (Soest)	H. 37
138.	early 11 th c.	Steppenrode, N-W 1976/77 [Ch]	1 (Soest)	Hatz 1985, no. 12
139.	early 11 th c.	Heidelberg (Heiligenberg), B-W pre 1986	1 (Upper Loth.)	Hatz 1985, no. 9
140.	early 11 th c.	Unterregenchbach, B-W [Ch]	1 (Ulm)	H. 57; Nau 1965, no. 4
141.	11 th c.	Esslingen, B-W 1960/63 [Ch]	3 (Ulm, 2 Lucca)	H. 80; Nau 1965, nos. 3, 6 a-b
142.	11 th c.	Regensburg (Dom), Ba. 1924/25 [Ch]	2 (?)	Steinhilber 1977, no. 26 j
143.	11 th c.	Nürnberg-Ziegelstein, Ba. pre 1956	1 (?)	H. 43
144.	11 th/12 th c.	Echternach, Lux. 1983-87	1 (?)	Weiller 1989, D417
145.	11 th/12 th c.	Unterregenchbach, B-W, 1982/83	1 (Ulm)	AAB-W 1983, 22
146.	11 th/12 th c.	Rottenburg-Sülchen, B-W 1984	1 (Ulm)	AAB-W 1984, 270-1
147.	11 th/12 th c.	Tübingen-Derendingen, B-W 1984	1 (Ulm)	AAB-W 1984, 270
148.	11 th/12 th c.	Amstetten-Stubersheim, B-W 1984	1 (Ulm)	AAB-W 1984, 270
149.	1001	Gegenbach, B-W pre 1887	1 (Strassburg)	H. 39
150.	1002	Schwerte, N-W 1964	1 (Dortmund)	H. 44; Ilisch 5
151.	1002	Wetter, Hes. pre 1958 [Ch]	1 (Worms)	H. 45
152.	1002	Bad Hersfeld, Hes. 1975 [Ch]	1 (Worms)	FH 15 (1975), 633, 2C.01
153.	1002	Auberg, Ba. pre 1858	1 (Regensburg)	Steinhilber 1977, no. 34
154.	1002	Nürnberg-Ziegelstein, Ba. pre 1956	1 (Nabburg)	H. 43; Hatz 1985, no. 8
155.	1002	Basel, Sw. pre 1963	1 (Strassburg imit.)	Hatz 1979, no. 14
156.	1004	Gammertingen, B-W 1984	1 (Lucca)	AAB-W 1984, 270
157.	1011	Elten, N-W 1961-4 [Ch]	1 (Jever?)	H. 50
158.	1011	Gammertingen, B-W pre 1965	1 (Jever?)	H. 51; Nau 1965, no. 8
159.	1014	Müstair, Sw. pre 1977 [Ch]	1 (Milan)	Hatz 1979, no. 15
160.	1020	Münsterschwarzach, Ba. 1966 [Ch]	1 (Würzburg)	H. 35
161.	1020	Carnuntum, Aus. 1973-89	3 (Hungary)	FÖ 12, 193; FÖ 14, 254; Hahn forth.
162.	1020	Oberleiserberg, Aus. 1984-87 [G]	2 (Hungary)	Hahn forth.
163.	1020	Deutschkreuz, Aus. 1966 [G]	1 (Hungary)	FÖ 9, 45; Hahn forth.
164.	1020?	Hamburg, Ns. 1953/4	1 (?)	H. 53
165.	1024	Mainz (north of), Hes. ? 1980s	1 (Mainz)	Inf. C. Stoess
166.	1027	Winden, Aus. pre 1984	1 (Regensburg)	FÖ 23, 349; Hahn forth.
167.	1028	Neubürg, Ba. 1963/5	1 (Regensburg)	H. 59
168.	1030	Hitacker, Ns. pre 1967	1 (Bardowick)	H. 60
169.	1030	Schattendorf, Aus. 1978	1 (Soest)	Hahn forth.

	T.p.q.	Find location and date	No. (mint)	Ref.	
	170.	1034	Hamburg (Lurup), Ns. pre 1962	1 (Byzantine)	H. 63
	171.	1034	Stade, Ns. pre 1932	1 (Stade)	H. 65
	172.	1034	Eringersfeld, N-W 1836	1 AV (Byz.)	Ilisch 6
	173.	1034	Rosstal, Ba. 1973	1 (Würzburg)	Hahn 1976, 53, no. 27
	174.	1035	Paderborn (Markt 10), N-W pre 1974	1 (Magdeburg)	H. 67
	175.	1035	Münster (Domplatz), N-W 1887	1 (Minden)	H. 74; Ilisch 7
	176.	1038	Bruckneudorf, Aus. 1982	1 (Hungary)	FÖ 21, 335; Hahn forth.
	177.	1038	Oberleiserberg, Aus. 1836-c. 1990	4 (Hungary)	FÖ 10, 164; Hahn forth.
	178.	1038	Maria Enzersdorf am Gebirge, Aus. 1980	1 (Hungary)	FÖ 19, 693; Hahn forth.
	179.	1039	Dieue, Lor. 1968	1 (Verdun)	BSFN 24 (1969), 382
	180.	1039	Dreieichenhain, Hes. pre 1969	1 (Worms)	H. 69
	181.	1039	Stuttgart, B-W pre 1974	1 (Speyer)	H. 71
	182.	1039	Oberammerthal, Ba. 1961 [Ch]	1 (Regensburg)	H. 48; Hahn 1976, 52, no. 21
	183.	1046	Münster (Domplatz), N-W 1960	1 (Goslar)	H. 77; Ilisch 8
	184.	1046	Leibnitz, Aus. 1954/55	1 (Pavia)	FÖ 1955/60, 256; Hahn forth.
	185.	1046	Oberleiserberg, Aus. c. 1929-90	5 (Hungary)	Hahn forth.
	186.	1046	Winden, Aus. pre 1980	1 (Hungary)	FÖ 19, 674; Hahn forth.
	187.	1046	Loretto, Aus. 1984	1 (Hungary)	Hahn forth.
	188.	1047	Kehlen, Lux. 1982-84	1 (Trier)	Weiller 1989, C24:225
	189.	1047	Helperknapp, Lux. 1983-87	1 (Verdun)	Weiller 1989, C20:189
	190.	1048	Sachsendorf, Aus. 1988	1 (Hungary)	Hahn forth.
	191.	1048	Illmitz, Aus. 1978	1 (Hungary)	Hahn forth.
	192.	mid 11 th c.	Tiel, near, Nl. pre 1870	1 (Tiel imit.)	H. 81
	193.	mid 11 th c.	Saalfeld I, Th. pre 1974	1 (Anglo-Sax. imit.)	H. 100
	194.	mid 11 th c.	Ferndorf, N-W 1887	1 (Köln imit.)	Ilisch 10
	195.	mid 11 th c.	Unterregenbach, B-W pre 1972 [Ch]	1 (Ulm)	Hatz 1985, no. 15
	196.	mid 11 th c.	Carnuntum, Aus. pre 1990	2 (Konstanz)	Hahn forth.
	197.	mid 11 th c.	Auw, Sw pre 1977 [Ch]	1 (Zürich)	Hatz 1979, no. 25
	198.	mid 11 th c.	Berslingen, Sw pre 1977	1 (Zürich)	Hatz 1979, no. 28
	199.	mid 11 th c.	Flums, Sw pre 1976	1 (Zürich)	Hatz 1979, no. 29
	200.	mid 11 th c.	Zürich, Sw pre 1976 [Ch]	1 (Zürich)	Hatz 1979, no. 34
	201.	mid 11 th c.?	Dieue, Lor. 1968	1 (?)	BSFN 24 (1969), 382
	202.	1050	Magdeburg (Alter Markt), S-A pre 1964	3 (Magdeburg, Sachsenpf., ?)	H. 85
	203.	1050	Magdeburg (Buttergasse), S-A pre-1960	1 (Sachsenpf.)	H. 86
	204.	1050	Etting, Ba. 1936	1 (Sachsenpf.)	H. 83
	205.	1056	Xanten (Colonia Ulpia Traiana), N-W pre 1978	1 (Köln)	Hatz 1985, no. 17
	206.	1056	Stillfried, Aus. 1990	1 (Regensburg)	Hahn forth.
	207.	1060	Seegräben, Sw. 1967	1 AE (Byz.)	Hatz 1979, no. 21
	208.	1063	Bruckneudorf, Aus. 1979	1 (Hungary)	FÖ 18, 528-9; Hahn forth.
	209.	1063	Mönchhof, Aus. 1985	1 (Hungary)	Hahn forth.
	210.	1063	Pöttsching, Aus. pre 1930 [G]	1 (Hungary)	FÖ 1, 94; Hahn forth.
	211.	1063	Bruck an der Leitha, Aus. 1983	1 (Hungary)	FÖ 22, 358; Hahn forth.
	212.	1063	Jois, Aus. 1978	1 (Hungary)	FÖ 17, 427
	213.	1068	Lorsch, Hes. 1927-33	1 (Worms)	H. 99
	214.	1077	Jois, Aus. 1978	2 (Hungary)	FÖ 17, 427
	215.	1079	Helperknapp, Lux. 1983-87	1 (Trier)	Weiller 1989, C20:214
	216.	1081	Wickerode, S-A pre 1974	1 (Goslar)	H. 113
	217.	1084	Rünthe (Bumansburg), N-W c. 1938	1 (Dortmund)	H. 88; Ilisch 14
	218.	1084	Werl, N-W 1969	1 (Dortmund)	H. 91; Ilisch 15
	219.	1088	Carnuntum, Aus. pre 1975	1 (Mainz)	FÖ 14, 254; Hahn forth.
	220.	1089	Gorndorf, Th. pre 1974	1 AV (Köln)	H. 117
	221.	1089	Laurenzberg, N-W pre-1964	1 (Köln)	H. 118

T.p.q.	Find location and date	No. (mint)	Ref.
222.	1089 Carnuntum, Aus pre 1990	1 (Regensburg)	Hahn forth.
223.	late 11th c. Esslingen, B-W 1960/63 [Ch]	1 (Normandy)	Nau 1965, no. 7
224.	1090 Pforzheim, B-W pre 1954	1 (Worms)	H. 120
225.	1095 Jois, Aus. 1979	1 (Hungary)	Hahn forth.
226.	1100 Cham, Ba. pre 1956	1 (Bohemia)	H. 124

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