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Nørremølle – The largest Viking age silver hoard
of Bornholm (Denmark)

CEN – BRUXELLES

NØRREMØLLE – THE LARGEST VIKING AGE SILVER HOARD OF BORNHOLM (DENMARK)

Gitte INGVARDBSON *

Abstract – The island of Bornholm in the Baltic Sea has the largest concentration of Viking Age and early medieval hoards of Denmark. In 2006 the greatest hoard ever was found by metal detector. Archaeological investigations show that the hoard was deposited in a vessel of Baltic Sea ware only a few meters from the remains of a burnt down house from the Viking Age.

The hoard consists of a heterogeneous group of coins and hacksilber buried around 1020/1030. The majority of the 1,194 coins are German, but there is also a large group of British coins, and a smaller group of Kufic, Scandinavian, and Bohemian coins. The hacksilber consists of 170 pieces of jewellery mainly from the Slavic area and 87 other objects such as ingots and melts.

The composition of the coins reveals strong contact with Southern Scandinavia, whereas the jewellery shows a strong contact with the Slavic area. In comparison with similar investigations in other areas of the Baltic Sea, the weight and test marks analysis demonstrate that Bornholm was part of an exchange network with Scania and the Slavic area. The analysis of the main features of the hoard also shows that the coins were probably tested before they reached Bornholm. This indicates a low degree of silver circulation and that many of the coins were hoarded soon after their arrival on the island. Furthermore, the un-minted silver objects in the hoards of Bornholm reveal that the two islands of Bornholm and Gotland held on to bullion economy longer than their neighbours in the Baltic Sea.

The circumstances of deposition on 29 excavated Viking Age hoard sites on Bornholm show that many of the hoards were deposited in ordinary settlement sites. Only one of these hoards is interpreted as raw material for the silver smith. In the case of the Nørremølle hoard, it is most likely that the silver coins and objects were gathered by means of trade. The characteristics of the coins and the high degree of fragmentation of the objects point to trade rather than raid or tribute.

Résumé – L'île de Bornholm, dans la Mer Baltique, possède la plus vaste concentration de trésors d'époque Viking et du haut Moyen-âge de tout le Danemark. En 2006, le plus important de ces trésors fut découvert au détecteur de métaux. Les recherches archéologiques montrèrent qu'il fut déposé dans un vase en « Baltic Sea ware », à quelques mètres seulement des vestiges incendiés d'une maison d'époque viking.

Le trésor consiste en un groupe hétérogène de monnaies et de hacksilber (objets fragmentés d'argent) enfoui vers 1020/1030. La majorité des 1.194 monnaies vient d'Allemagne, mais le trésor comprend également un lot de monnaies anglaises et un petit groupe de pièces coufiques, scandinaves et bohémiennes. Le hacksilber consiste en 170 pièces de bijouterie provenant principalement de la région slave, et en 87 autres objets considérés comme des lingots ou des résidus de fonte.

La composition des lots monétaires révèle des contacts importants avec la Scandinavie méridionale, alors que les bijoux montrent des rapports avec les pays slaves. Grâce à la comparaison avec d'autres zones de la Baltique, l'analyse des masses et des marques de vérification apposées sur les flans démontre que Bornholm faisait partie d'un réseau d'échange entre la Scanie et la zone slave. L'analyse des caractères principaux du trésor tend à montrer que les monnaies arrivaient à Bornholm déjà munies de leurs marques de contrôle. Ceci indique une faible circulation de l'argent et que de nombreuses monnaies étaient stockées peu après leur arrivée sur l'île. De plus, les objets non monnayés figurant dans l'ensemble des trésors de Bornholm et de Gotland révèlent que les deux îles ont longtemps conservé une économie fondée sur l'argent non monnayé, au contraire de leurs voisins de la Mer Baltique.

L'examen archéologique de 29 sites de dépôts de trésors d'époque viking sur l'île de Bornholm montre qu'un grand nombre fut déposé dans des habitats traditionnels. Un seul de ces trésors est interprété comme source de matière première pour un orfèvre travaillant l'argent. Dans le cas du trésor de Nørremølle, il semble probable que les monnaies et les objets d'argent ont été réunis grâce aux échanges commerciaux. Les caractéristiques des monnaies et le fort taux de fragmentation des objets plaident en faveur d'une origine commerciale plutôt que constituant le fruit du pillage ou le paiement d'un tribut.

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1. INTERACTION IN THE BALTIC AREA

THE VIKING AGE HOARDS OF DENMARK ARE COMPOSED OF OBJECTS PRODUCED IN many different areas from the British Isles in the Northwest to the Caliphate in the Southeast. The hoards stand as a testimony of the Vikings' extensive network, and they tell the story of both peaceful and aggressive interactions. In this paper one of the largest Viking Age silver hoards found in Denmark – the Nørremølle hoard from the island of Bornholm – is presented ^[1].



Fig. 1 – The Nørremølle hoard consists of 1,194 coins, 170 pieces of jewellery and 87 other silver objects such as ingots, rods, melts/lumps and silver plates (not to scale)

^[1] The analysis was carried out within six months and was funded by the Heritage Agency of Denmark. All the pictures of objects from the Nørremølle hoard were taken by J. Lee, the National Museum of Denmark, and are – unless indicated otherwise – on scale 100%.



Fig. 2 – The island of Bornholm is situated in the Baltic Sea and covers 588.5 km².
Map : M. Vennersdorf

In the first half of the xith century a hoard of almost two kilograms of silver was deposited on a settlement on the east coast of the island of Bornholm, between Sweden and Poland in the middle of the Baltic Sea. The hoard is composed of a heterogeneous group of minted and unminted silver objects. The majority of the 1,194 coins are German, but there are also a large number of English coins, and a smaller group of Kufic, Scandinavian, and Bohemian coins. The *Hacksilber*^[2] consists of ingots and jewellery produced mainly in the Slavic territory and in Scandinavia. The hoard was located by the amateur archaeologist Finn Jensen in August 2006 and was excavated by the Museum of Bornholm. Archaeological investigations show that the hoard was situated only a few meters from the remains of a burnt down house from the Viking Age. The exact deposition place of the hoard was recorded and its surroundings were investigated by archaeologists. The exemplary find history gives us a rare insight into the story of the hoard, its contents, its owner and the society in which the hoard was gathered and deposited.

In the analysis of the hoard focus is on the following questions:

- What is the content of the hoard?
- How, why and, by whom was the hoard gathered?
- Where and why was the hoard deposited and why was it not recovered?

1.1 Background

The first complete survey of the Danish Viking Age hoards was published by R. Skovmand in 1942. This thesis included jewellery hoards, coin hoards, and mixed hoards dating from 800-1150. In 1980 G. Galster published a survey of the Viking Age coins found on Bornholm, containing 10 single finds and 38 hoards with a total of more than 5,000 coins. Galster's survey includes a comprehensive catalogue with detailed identification of the coins. Hoards from the latest Viking Age are published in the comprehensive catalogue of the

^[2] As R. Reece e-mailed recently there is no English word for the foreign German word *Hacksilber*.

medieval hoards of Denmark (Jensen *et al.* 1992). Since then the Lillegærde hoard (Kromann & Jensen 1993), the Tyskegård and the Store Frigård II hoards (Moesgaard 2006A) have been published in detail, and the two Rosmannegård hoards have been presented in a preliminary note (Horsnæs 2011). The most recent and complete publication of the Viking Age coin finds of Bornholm is C. von Heijne's dissertation from 2004. The comprehensive catalogue does not include detailed information of coin types, but focuses on coin groups. C. von Heijne divided the coin finds into four categories: hoards (55 sites), single finds (38 sites), series of single finds (49 sites), and grave finds (5 sites). This survey includes 8,706 coins from Bornholm (von Heijne 2004, p. 23). The majority of the coins are found in the plough soil, and some of the series of single finds might represent scattered hoards (von Heijne 2004, p. 45). C. von Heijne focused on the monetisation within ten regions in Southern Scandinavia,^[3] and she concluded that Bornholm in many ways differs from the development in the central economic area represented by Scania, Zealand, Funen, and Jutland (von Heijne 2004, p. 155-167). Detector surveys bring forth new coin finds every year, and today more than 240 sites on Bornholm have produced one or more Viking Age coins (*fig. 3*) (Horsnæs 2012).

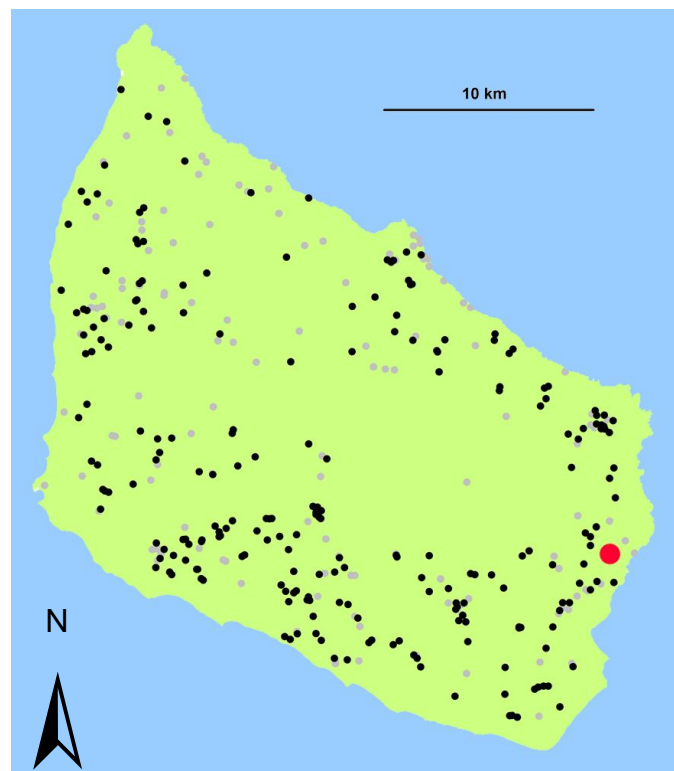


Fig. 3 – The Viking Age sites on Bornholm. Within the last decade about one hundred new find spots have been located with metal detectors. Red dot: the Nørremølle hoard – black dots: sites with coin finds – grey dots: sites without coin finds. Map: M. Vennersdorf

The Viking Age hoards from Scandinavia and the Baltic countries have been analysed with special focus on the unminted silver (Hårdh 1976, 1996). B. Hårdh has shown that the weight of the objects, the degree of fragmentation, and the percentage of coins in relation to unminted silver reflect how silver was used as means of payment. Especially Hårdh's

^[3] The regions are Scania, Blekinge, Halland, Zealand, Bornholm, Falster and Lolland, Fyn and Langeland, North Jutland, East Jutland, and West Jutland.

weight and fragmentation analysis has been an inspiration in the analysis of the Nørremølle hoard.

Bornholm is located in the middle of the Baltic Sea (*fig. 2*) and the many archaeological finds from the island show that the inhabitants of Bornholm played an important role as receivers and communicators of material and probably also of social culture in the Viking Age (Naum 2008; Aarsleff 2005). Thanks to the target research of the Museum of Bornholm, the number of known Viking hoards has doubled within a few years. The survey method combines systematic detector surveys carried out by skilled amateur archaeologists and archaeological excavation campaigns on the Viking Age sites of the island. More than 50 silver hoards deposited c. 900-1150 are known today, and the island has the largest concentration of Viking Age and early Medieval treasures in Denmark. Until now the hoards have not been included in an overall analysis of the economic development of the island.

1.2 How to interpret a hoard?

The Viking Age hoards of Bornholm consist of both coins and *Hacksilber*, and there is little doubt that the Vikings used the silver (both coins and *Hacksilber*) by weight and not by number. The research history of the silver hoards is to some extent characterized by this distinction between “coins and other objects”. In many cases detailed analyses have been made by experts within their field exclusively on either the coins or the jewellery and ingots. It is, however, necessary to consider coins, *Hacksilber* and archaeological data as a whole to discuss the questions raised above. In the identification of the objects, focus is on where and when an object was made and not on specific types.

Considering the size of the Nørremølle hoard, there can be no doubt that it represented a significant fortune in the Viking Age. The interpretation of a find must depend on the individual situation, and the interesting question is what significance the find/hoard had to its owner (Grinder-Hansen 1994, p. 170-174). Did he hide his entire fortune or did she drop her purse on the way to market? Was it booty of the war lord or the raw material for the silversmith? In order to answer these questions a contextual approach is chosen to analyse the Nørremølle hoard. The biography of the Nørremølle hoard can be divided into three contextual stages as described by F. Kemmers and N. Myrberg (2011, p. 89-95).^[4]

1.2.1 The primary context – production time and place

Most of the objects in the Nørremølle hoard were produced outside Bornholm, and the analysis of the primary context reflects the objects' journey, and gives an insight into the contact network of the island.

1.2.2 The secondary context – traces of use

The secondary context reflects how the objects were used in the Viking Age. In the Nørremølle hoard the use can be seen in fragmentation, testing and reworking. Secondary treatment can also illustrate an object's cultural significance, when it is transformed from its original use to another sphere: some of the coins in the Nørremølle hoard are pierced, perhaps indicating that the coins at some time were removed from circulation and used as jewellery. The cut jewellery in the hoard was, on the other hand, removed from the personal sphere and entered the economic sphere as *Hacksilber* payment.

[4] Kemmers and Myrberg connect this approach to the study of coins, but the methodical approach is valid for any archaeological object.

1.2.3 The tertiary context – deposition

The tertiary context gives an insight into the owner of the hoard, and the circumstances that led to the deposition of the hoard. What is the nature of the Nørremølle location? Is it a manor, a craft site, or a plain agrarian settlement (Ingvardson 2010, p. 35-38)? Was the farm burnt down and are there any signs of fighting?

The interpretation of these different stages of context is determined by the narrative context, which could be described as the sum of our cultural and historical knowledge.

It is often difficult to determine whether a hoard has been recovered in its entirety and to establish the circumstances of its deposition. This applies to most hoards found by coincidence and excavated by laymen. All the recent Viking Age hoards of Bornholm are found by means of metal detectors. These hoards have often been disturbed by ploughing and spread. This, of course, makes it difficult to separate objects belonging to the hoard from objects belonging to other settlement activity. On Bornholm the detector finds are normally recorded with GPS coordinates and the pattern of dispersion often gives the opportunity to locate the exact deposition place and an indication of which objects should be included in the hoard. To determine the nature of the deposition, small excavation campaigns have been made on the find spot of 29 Viking Age hoards of Bornholm. Although the excavation campaigns are often small, they give an idea of where and why the hoard was deposited. Thanks to the target research of the Museum of Bornholm the silver hoards of the island are suited for a multipronged contextual analysis.

1.3 Time and space

The Nørremølle hoard is composed of a heterogeneous group of silver objects such as coins, jewellery, ingots, rods, melts/lumps, and plates. While the production time and place of the coins can normally be identified with considerable precision, the chronological and geographical framework of the jewellery is much wider. The shape of some of the objects can be common to wide areas and remain unchanged for long periods, so that the precise production time and place cannot be identified. Some of the objects are cut into such small pieces that it is impossible to identify the original shape and function of the object. The chronology of the hoard is therefore largely based on the coin evidence.

1.3.1 The chronology of the hoard

A German penny minted in Lüneburg in 1024-1045 by Duke Bernhard II gives a *terminus post quem* of the hoard to 1024. The chronology of the hoard is visualised in fig. 4. It is clear that the major part of the coins has a chronological frame in the decades around 1020, and it is very unlikely that the hoard was deposited after 1040. However, the chronology of the hoard is very broad and the oldest coin in the hoard is probably from the Umayyad dynasty, dated to AD 661-750. 65% of all the coins are struck after 980. There are clear chronological differences within the coin groups. The Kufic coins are without doubt the oldest group of coins in the hoard. It is very interesting that they show two waves of influx, one at the turn of the IXth century and one from the end of the IXth century to the middle of the Xth century. Very few Kufic coins in the Nørremølle hoard are struck later than 970. These waves correspond to the general influx of Kufic coins in the Baltic Sea area (Leimus 2009, p. 8-10). The chronological frame of most of the English and German coins and all of the Scandinavian coins are 990-1025, which is close to the deposition time (fig. 4).

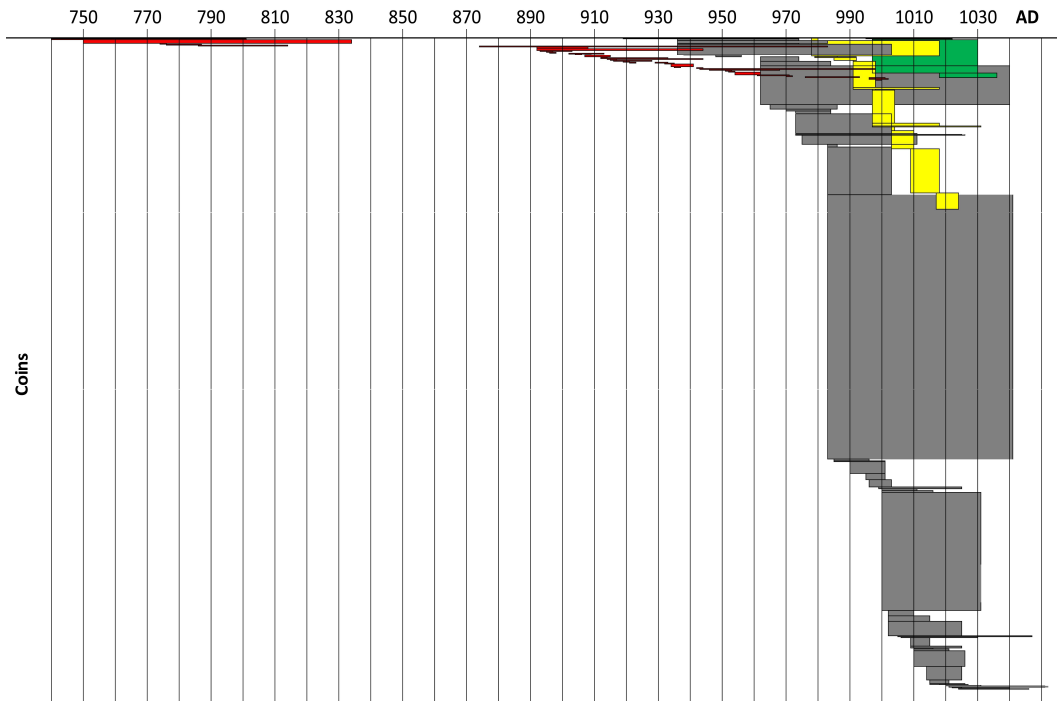


Fig. 4 – The chronological distribution of coins in the Nørremølle hoard. One line represents the chronological frame of one coin. Red lines represent Kufic coins, grey lines represent German coins, yellow lines represent English coins and green lines represent Scandinavian coins. Only coins with a relatively precise identification are included in the graph

In the identification of the jewellery, the definitions made by Hårdh (1976, p. 46-92) are used. 170 objects are classified as jewellery, and they have been subdivided into rings (1), neck-/armrings (15), pendants (9), earrings (50), beads (54), and unidentified jewellery (41). Almost all pieces of jewellery are fragmented. Many of the beads have most likely been part of an earring. Only two earrings/template-rings are complete (fig. 5). The majority of the pendants, earrings, and beads can be connected to the filigree and granulation group D which Hårdh dates to the XIth century (Hårdh 1976, p. 90-91). The jewellery therefore confirms a deposition date in the XIth century (fig. 6-7).

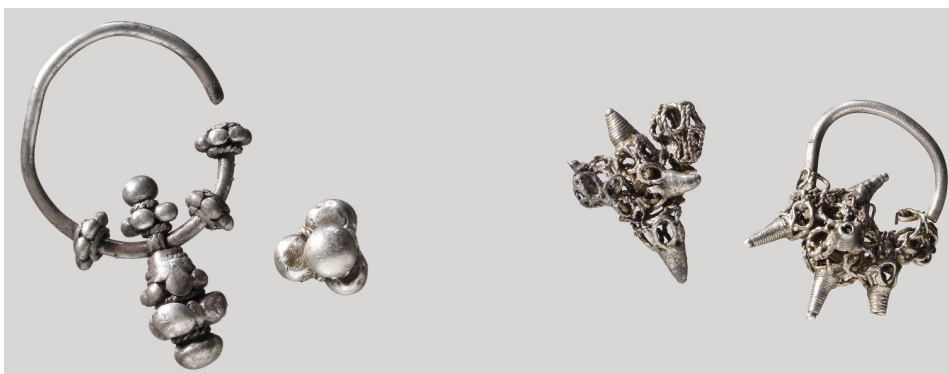


Fig. 5 – These two earrings/template-rings are the only complete jewellery in the Nørremølle hoard. The one on the right is produced in West Slavic area and the one on the left is produced somewhere in the area covering present day Hungary, Serbia and Romania. The beads next to them have most likely been part of identical earrings/template-rings

South Scandinavia	< 970	Filigree & granulation group B	1 piece
West Slavic area	971-1040	Filigree & granulation group C	18 pieces
West Slavic area	971-1100	Filigree & granulation group C/D	19 pieces
West Slavic area	1000-1100	Filigree & granulation group D	89 pieces

Fig. 6 – 127 pieces of jewellery can be classified within the filigree and granulation groups of Hårdh (1976, p. 46-92)



Fig. 7 – Beads and earrings from the Nørremølle hoard.
In the middle: examples of filigree and granulation group C.
Outer ring: examples of filigree and granulation group D

1.3.2 Production place

With regard to both number and mass the German objects constitute by far the largest group with 846 coins (951.54 g). The second largest group are the 204 English coins (226.05 g). On the contrary, the 126 objects (94.69 g) produced in the West Slavic territory are almost exclusively beads, pendants, and earrings made of silver foil decorated with filigree and granulation or of mesh beads. A more southern group consists of 6 Bohemian coins (fig. 8), and two complete and three fragments of earrings/template-rings (fig. 5). The 72 Kufic coins (103.79 g) constitute a heterogeneous group produced in as many different places as present day Iran, Russia, Syria and Iraq^[5].

^[5] I am grateful to René Laursen for the identification of the Kufic coins.



Fig. 8 – Three of the Bohemian coins in the Nørremølle hoard. At the left a coin of Prince Boleslaw II (967-999). In the middle and at the right two coins of Prince Jaromir (1003-1034)



Fig. 9 – Fragments of either neck- or armrings from the Nørremølle hoard

Some objects can only be placed within broader geographical territories. Nine fragments of neck or arm rings were produced either in Scandinavia or in the Baltic area (*fig. 9*). Five fragments of neck rings with rhomboid or oval plate are produced in southern Scandinavia, the Slavic or Baltic area (*fig. 10*). Two hammered ribbon-shaped ingots were probably produced in the Baltic area (*fig. 11*). One complete and ten fragments of cast ingots with D-shaped cross section are, according to the distribution of the type, produced in either Southern Scandinavia or Ireland (*fig. 12*). Two coins of the Viking king Sihtric were minted in Ireland (*fig. 13*).



*Fig. 10 – Fragments of neckrings of Hårdh's type 1
(Hårdh 1976, p. 48-49)*



*Fig. 11 – Fragments of ingots of R. Wiechmann's type 3
(Wiechmann 1996, p. 68 and map 77)*



*Fig. 12 – One complete and six fragments of ingots of Wiechmann's type 1
(Wiechmann 1996, p. 65-67 and map 76)*



Fig. 13 – Two coins of Sihtric, ruler of Dublin, 989-1036

Unfortunately the production place cannot be determined for a large group of 103 objects (*fig. 14*). Hårdh has drawn attention to the fact that the type of melt/lumps, that are represented in the Nørremølle hoard, are characteristic for at least some of the hoards from Poland, Bornholm and eastern Sweden, which indicates that they were also produced in this area (Hårdh 2011, p. 289).



Fig. 14 – The production place of objects like these rods, small pieces of silver foil, and melts/lumps cannot be determined

The typology and the legends on the coins allow us to identify their geographical origin more precisely than is possible for other objects.

711 German coins can be attributed to 25 German mints, situated primarily in Northern Germany; more than 40% (301 coins) of these coins are so-called Otto-Adelheid pennies (983/991-1040) minted in Goslar. The presence of this many German coins can be explained by the discovery of large silver mines in the Harz mountains in the second half of the xth century. The plentiful supply of silver resulted in large scale coin production in the follow-

ing decades. The dominant role of Otto-Adelheid pennies is a common feature in hoards deposited at the beginning of the XIth century in present day Denmark and Scania, whereas the older Saxon penny (*Randpfennig*) predominated slightly earlier in Poland (Kluge 2001, pp. 419 and 424). This suggests a very intense trade between northern Germany and southern Scandinavia/the Baltic.

The second largest coin group originates from England. 144 English coins can be attributed to 27 mints. Even though coins from the London mint represent a large percentage of the coins, the distribution among the English mints is more varied than for the German issues. Contrary to Germany, the English coinage was a unified national coinage, and coins from various mints mingled freely in circulation within the country.

The composition of the coins in the Nørremølle hoard fits the general picture of the hoards from the first half of the XIth century in Bornholm (fig. 15). The dominant role of the Kufic coins faded towards the turn of the XIth century, where we see a strong influx of especially German but also English coins in the hoards^[6].

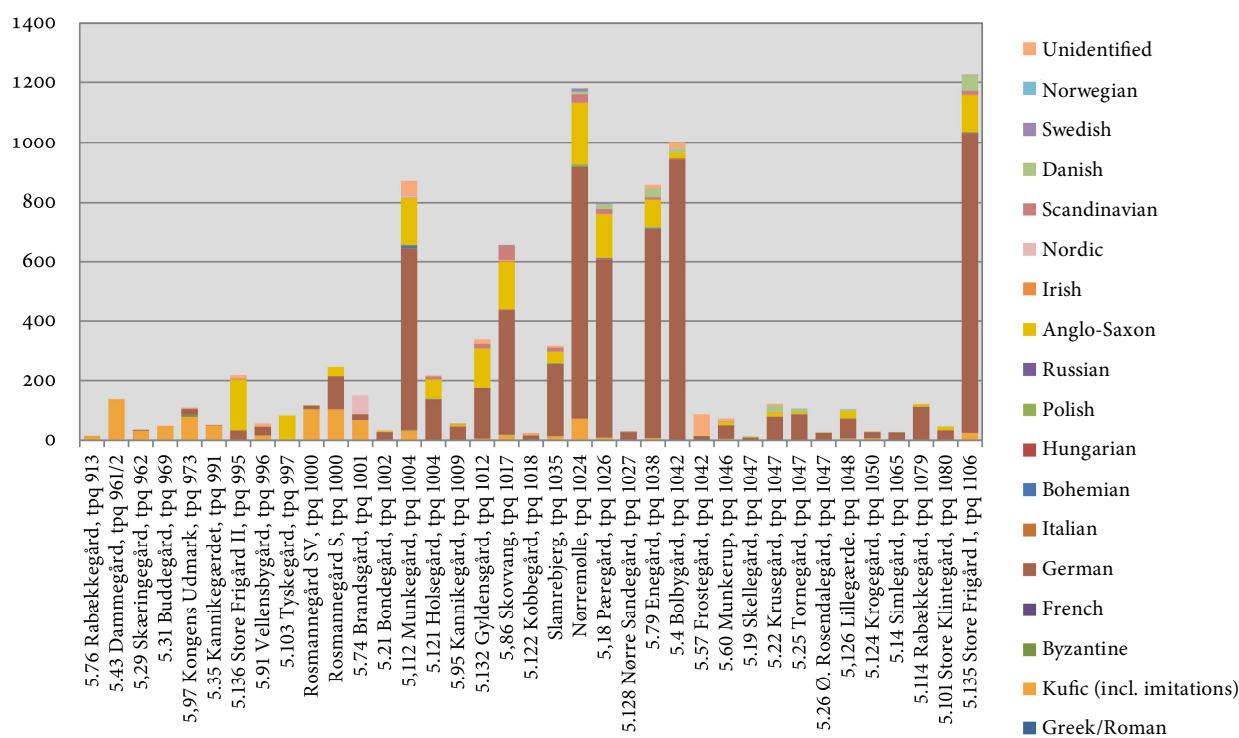


Fig. 15 – The composition of coin provenance in Viking Age hoards of Bornholm. Data is based on von Heijne 2004 and updated with new finds by H. Horsnæs, who has generously allowed me to use the data. The numbers refer to the catalogue of von Heijne 2004

1.4 Contacts across the Sea: discussion

The Nørremølle hoard demonstrates that Bornholm had a network with many ramifications across the Baltic Sea. The *Hacksilber* indicates a strong contact with the Slavic area. The majority of the jewellery is produced there and the many melts/lumps of silver are also a common feature in the Polish Viking Age hoards. It was a common feature in the countries surrounding the Baltic Sea that West European coins succeed Kufic emissions

^[6] The two hoards St. Frigård (tpq 995) and Tyskegård (tpq 997) clearly distinguish themselves from the rest, as they are dominated by English coins. I will return to the interpretation of these hoards later.

as the dominant types in the silver hoards from the end of the xth century (Kluge 2001, p. 419; Leimus 2009, p. 13). The German coins are especially strongly represented in the hoards. There are, however, regional differences (von Heijne 2004, p. 23). Throughout the Late Viking Age, the dominant German coin type in southern Scandinavia, on Bornholm and on Gotland, is the Otto-Adelheid penny. In present day eastern Germany the Otto-Adelheid penny is succeeded by the younger Saxon penny (*Randpfennig*) as the dominant coin type around 1020 (Kilger 2000, p. 127). The latter was also dominant in Poland. In the Nørremølle hoard there are 301 Otto-Adelheid pennies and 142 Saxon pennies. In this aspect this treasure shows greater resemblance to the silver hoards of south Scandinavia than to the hoards of Poland. The relatively high proportion of English coins in the Nørremølle hoard also shows a Western and Northern contact, as there are very few English coins in the Polish hoards (von Heijne 2004, p. 23; Kluge 1981, p. 257-327). The presence of Scandinavian coins in the Nørremølle hoard underlines the interpretation that the main part of the coins probably came to Bornholm through the South Scandinavian territory.

In Scandinavia and in the Baltic countries, so-called mixed hoards with both minted and unminted silver were a common feature throughout the Viking Age. Mixed hoards testify that a bullion economy prevailed, and that silver was traded by weight. 28% of the weight in the Nørremølle hoard consists of unminted silver. During the Late Viking Age and the Early Middle Ages the mixed hoards were succeeded by pure coin hoards. This alteration took place at different times in different regions. In Southern Sweden the portion of unminted silver in the hoards diminishes from around 1025, whereas the hoards in Gotland consist of both minted and unminted silver throughout the xith century (Hårdh 1976, p. 130). In both present day Denmark (except Bornholm) and in Poland, the change in hoarding happened during the second half of the xith century (Bogucki 2011, p. 137; Ingvarðson 2010, p. 34), whereas on Bornholm, mixed hoards are deposited until the beginning of the xiith century (*fig. 16*). Along with Blekinge and Estonia, the two islands in the Baltic Sea, Gotland and Bornholm, apparently held on to a bullion economy longer than their neighbours in the Baltic Sea.

2. TRACES OF USE

Traces of use cover a variety of features by which the objects were afflicted after they left the mint or the workshop. There are three important aspects which may have influenced the secondary treatment of the objects. Differences in traces of use can be due to geographical aspects, chronological aspects, and/or the secondary treatment can be influenced by the material of the objects. Did the Vikings for example use the same type of tests on a fragile mesh bead as on a solid Kufic coin, and are some kinds of objects often fragmented while others are not?

Four kinds of secondary use have been recorded on both coins and *Hacksilber*: fragmentation, test marks, piercing/looping, and bending. Fragmentation or bending of an object can represent an accidental action, during handling or transportation in the Viking Age, during deposition in the earth or during handling or transportation in present times. Fragmentation or bending can also represent a deliberate action. It is a well described phenomenon that the Vikings cut coins and jewellery in order to obtain smaller units for trading purpose in a bullion economy and that objects were bent to test the quality of the metal (Hårdh 1996, p. 84-86). Only deliberate actions in the Viking Age are of importance in the present analysis. In order to eliminate accidental fragmentation and bending, modern fractures and only slightly bent objects are not recorded. All features are recorded without the use of a microscope.

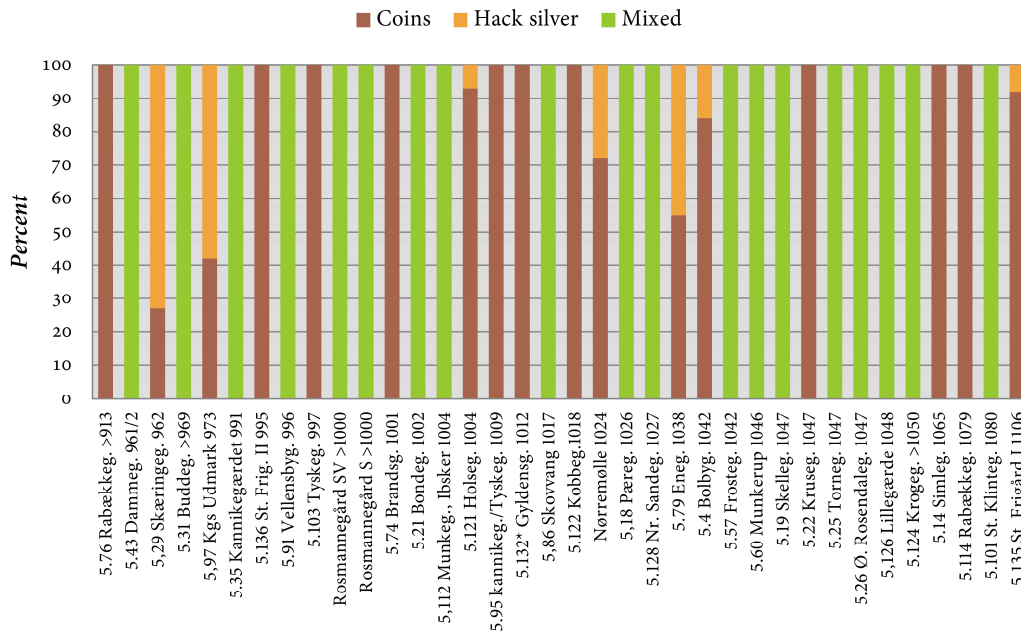


Fig. 16 – The distribution of minted and unminted silver in hoards of Bornholm. Green: mixed hoards, where data of the exact portion of unminted silver is unavailable. Data from von Heijne 2004. The numbers refer to the catalogue of von Heijne 2004

Deliberate impacts with a sharp object are interpreted as test marks, made when the silver object was traded. However, the number of test marks does not necessarily equal the number of transactions. Some of these exchanges involving silver, minted or not, were perhaps made without testing, and some testing included many marks (Malmer 2000, p. 26; Kilger 2003, p. 6-11 & 2006, p. 449-465). Therefore, the precise number of test marks is not recorded, and the registration was limited to three categories: one mark – between two and five marks – more than five marks. Another interpretation of test marks is that it was a custom used to confirm an exchange like a handshake or that the test marks were made in the cultic sphere to clear out the evil spirit of the silver (Duczko 2002, p. 193-208; Bogucki 2011, p. 145). Here the test marks are interpreted as a purely economic feature, they therefore signal mistrust of the silver quality of the object (Moesgaard 2011, p. 297).

Three kinds of test marks have been recorded on the silver objects of the Nørremølle hoard: nicks, notches, and pecks. Nicks are defined as small scratches made with a knife on the surface towards the edge of the object (Malmer & Lagerqvist (ed.) 1987, p. XVIII). They were primarily used as test marks on Kufic and Byzantine coins in Scandinavian hoards deposited in the beginning and the middle of the IXth century. There are, however, examples of Xth century coins with nicks (Rispling 2004, p. 3). Nicks are not exclusively a Scandinavian phenomenon; G. Rispling has drawn attention to a hoard which shows that coins were also nicked in the Caucasus. Some of the coins in the Danish hoards could therefore have been nicked in Russia, but the find picture implies that most of the coins were nicked in Scandinavia. Notches are defined as small cuts made with a knife in the edge of the object (Rispling 2004, 4f type C). These kinds of test marks are seen as an eastern phenomenon and are dominant on Kufic coins from the middle of the IXth century to the Xth century. Pecks are defined as small impacts of a knife in the surface of the coin (Malmer & Lagerqvist (ed.) 1987, p. XVIII; Kilger 2003, p. 3-12 & 2006, p. 449-465). Pecking first occurred in the Viking held areas of England c.890-c.925, and new studies of the hoard of Grisebjerggård indicate that the practice spread to Scandinavia from at least the 930s (Moesgaard 2011, p. 297-308). Pecking is common on European and Islamic coins in

mixed hoards, and this is a phenomenon to be associated predominantly with the later xth century and the xith century (Malmer & Lagerqvist (ed.) 1987, p. xviii).



*Fig. 17 – Examples of objects with pecks and notches.
Top left: clear peck marks in the centre of a coin.
Top right: a bent planchet with test marks along the rim.
Bottom: fragment of arm/neck ring and
an ingot with notches along the edges*

Piercing is a deliberate action in order to transport the coin on some kind of string, for practical purposes and/or for decoration.

2.5 Differences and similarities

The Nørremølle hoard primarily consists of objects originating from five areas: Germany, England, the West Slavic area, South Scandinavia, and the so-called Kufic group. Within the different geographic areas there are both some very distinct differences and similarities (*fig. 18*).

	Fragmented	Peck	Nick	Notch	Bend	Test marks/Bend
Slavic area (127 sp.)	90%	1%	0%	9%	82%	83%
South Scand. (45 sp.)	16%	91%	0%	23%	98%	98%
Germany (846 sp.)	15%	93%	1%	23%	99%	100%
England (204 sp.)	20% (33%)	90%	0%	18%	94%	98%
“Kufic” (72 sp.)	74% (75%)	43%	3%	68%	92%	99%
All objects (1,451 sp.)	34%	75%	1%	29%	92%	97%

Fig. 18 – The secondary treatment of the objects in the Nørremølle hoard

2.1.1 Fragmentation

A very high percentage of objects from the eastern areas, especially from the Slavic area but also the Kufic coins, are fragmented, while the more western groups from England, South Scandinavia, and Germany have a relatively small percentage of fragmented objects. This might be due to the nature of the objects rather than to geographical variation, as the objects from the Eastern areas were originally heavier and less fragile than the West Euro-

pean objects. West European coins weigh on average approximately one gram, while the average of Kufic coins is about two and half grams; most of the objects from the Slavic area are various types of jewellery, generally heavier than a European coin. Since small units of silver were more suitable for trade, these heavy objects were more likely to be fragmented. The West European coins might also have represented a fixed value, a standard accepted by the trading parties in the region.

Among the coins, it is important to make a distinction between irregular fragments and halved or quartered coins. A coin cut in two or four might express the need for smaller monetary standards in a coin based economy, whereas it might express the need for smaller units in a bullion economy. 26 English coins (13%) are cut in two or four, and this feature distinguishes the English coins from the other coin groups. Only one of the 72 Kufic coins is cut in two, and none of those from South Scandinavia and Germany are fragmented in this way. This implies that these coins were fragmented in England in the more advanced English monetary system.

Mass analysis

The average mass of objects in the Nørremølle hoard is 1.3 grams. The majority (93.5%) of the objects – including the coins – in the Nørremølle hoard weigh less than 2 grams, and 35.5% less than 1 gram (fig. 19). This is not solely due to the high percentage of coins in regard of the total number of objects. 74% of the unminted silver objects weigh less than 2 grams and 50% less than 1 gram. Objects with a mass under 2 grams are primarily coins and jewellery, whereas ingots, melt/lumps, and arm-/neckrings dominate the heavier categories (fig. 20). Nine objects (fig. 21) weigh more than 9 grams and are not included in the diagrams.

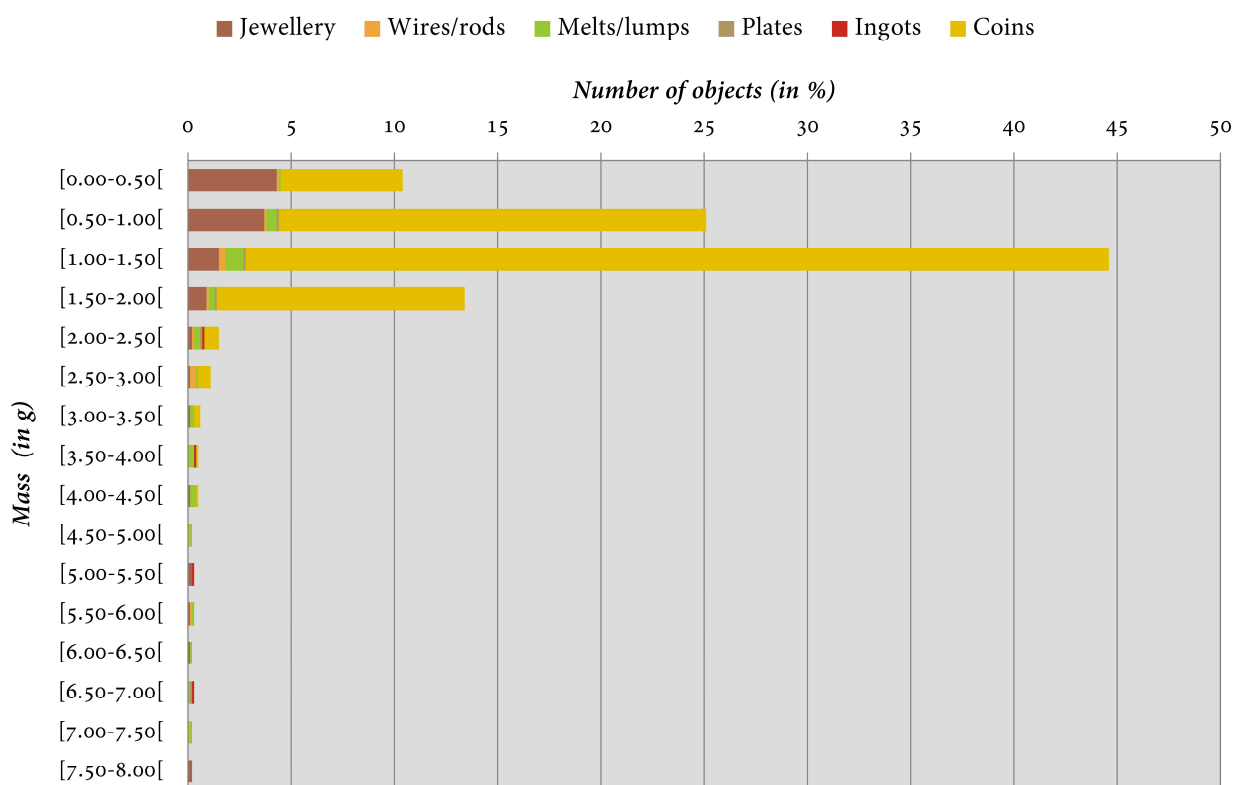


Fig. 19 – Mass distribution in the Nørremølle hoard

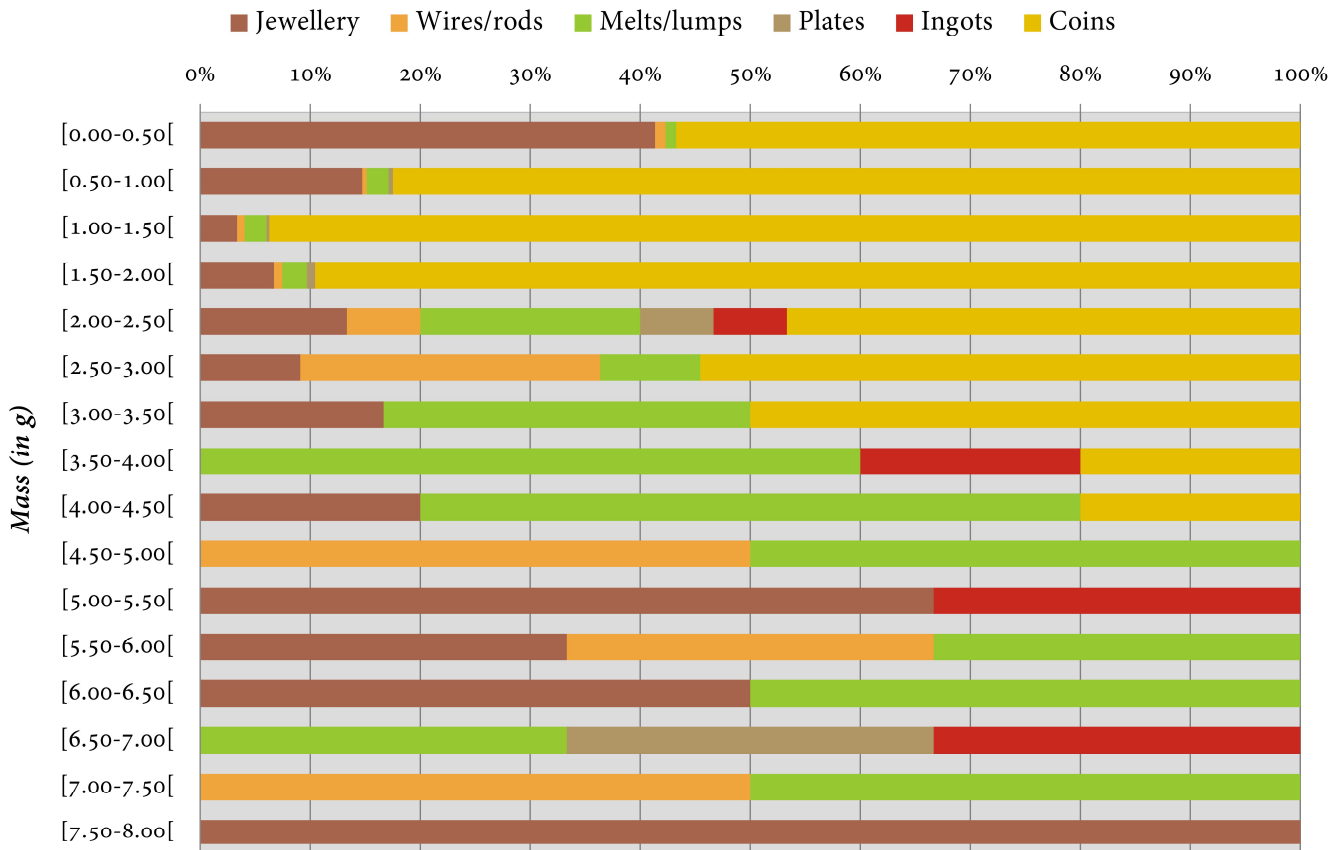


Fig. 20 – Distribution of objects within mass categories

Ingot	9.04 g
Rod	9.64 g
Jewelry, earring	10.94 g
Melt/lump	11.62 g
Ingot	13.72 g
Melt/lump	18.20 g
Ingot	19.46 g
Jewelry, neckring	23.15 g
Ingot	43.33 g

Fig. 21 – The few heavy objects in the Nørremølle hoard

Among objects with a mass below 2 grams, there is a clustering in the interval [1.00-1.50 g] (*fig. 22*). When minted and unminted silver are split up, it is clear that the cluster is due to the coins, whereas the unminted silver clusters around [0.20-0.70 g] (*fig. 23*). This does not indicate that the degree of fragmentation of unminted silver was adjusted to the weight of the coins, but rather that the need for very small units was met with unminted silver, as suggested by Hårdh (1996, p. 89). However, coins were also used as small units, and we must bear in mind that more than 50% of the objects with a mass below 0.50 gram are coins (*fig. 19*).

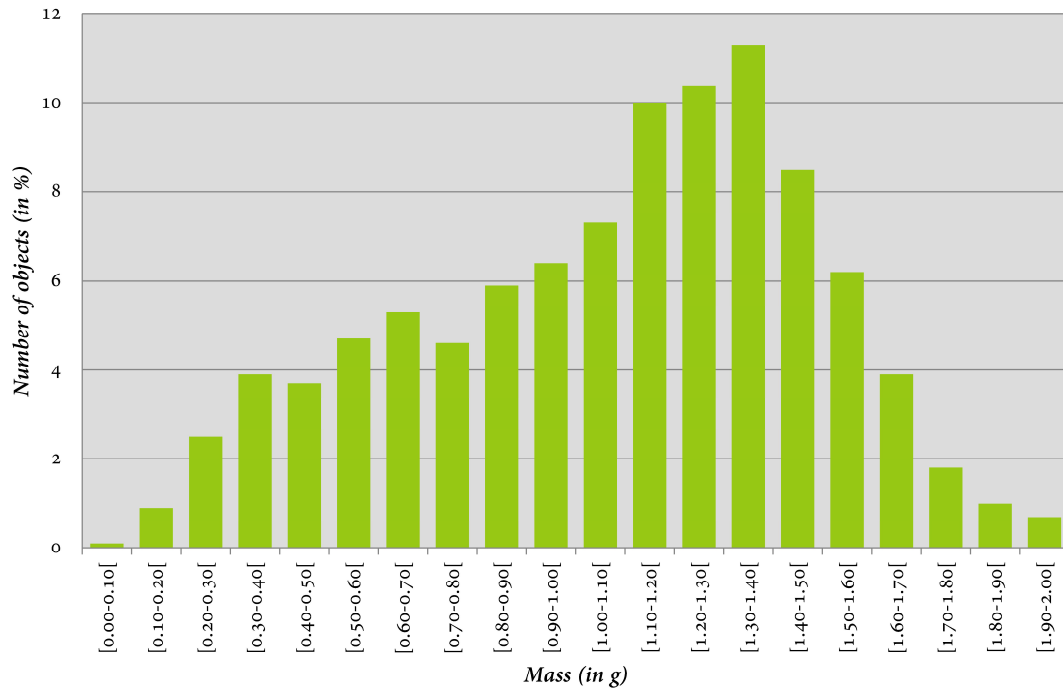


Fig. 22 – Mass distribution of objects weighing less than 2 grams

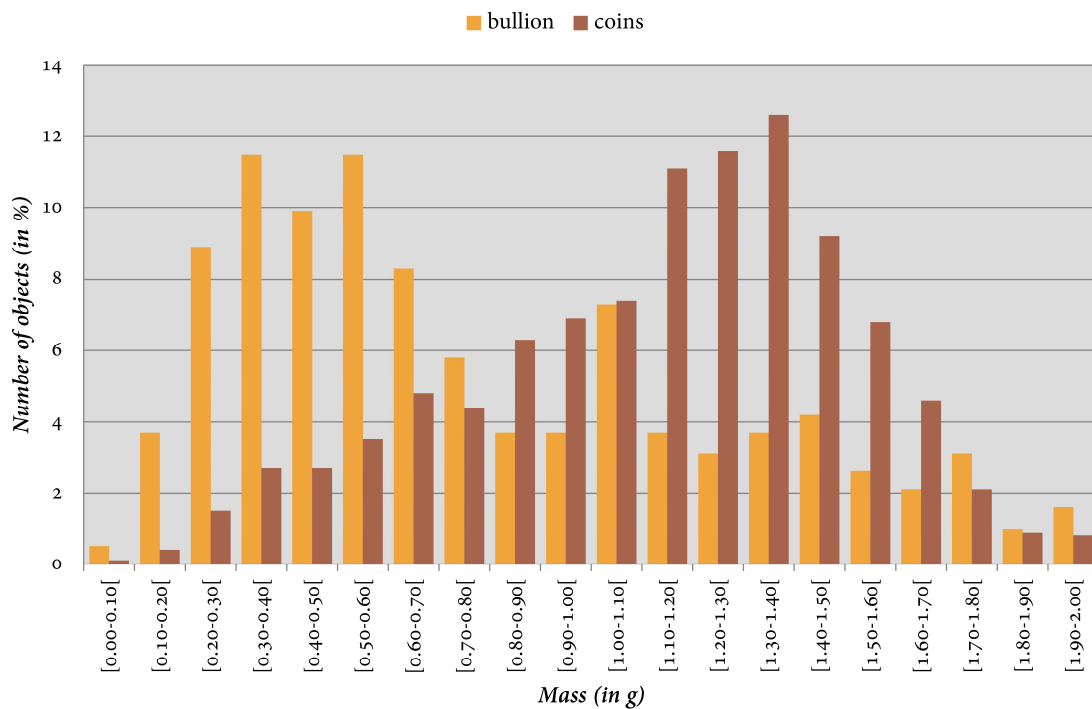


Fig. 23 – Distribution of mass of minted and unminted silver weighing less than 2 grams in the Nørremølle hoard

The results of the weight analysis of the Nørremølle hoard correspond to the survey made by Hårdh, which shows that Scania, Blekinge, Bornholm and the Slavic area constitute a homogeneous economic area where the fragmentation in hoards culminates in the decades around 1000, whereas the size of fragments in hoards deposited after 1020 increases slightly, corresponding to the fragmentation in the Nørremølle hoard (Hårdh 1996, p. 104-111).

2.1.2 Test marks

97% of the objects in the Nørremølle hoard have been tested for their silver content either by test marks or by bending. There are very few objects with nicks, which confirm that nicks are a chronologically earlier feature (Rispling 2004, p. 3). Bending, on the contrary, is a dominant feature in the Nørremølle hoard and is seen on objects from all areas. Around 90% of the Western objects, which are almost exclusively coins, are tested with pecks, and around 20% are tested with notches. This implies that the coins have probably been in circulation in the same areas. In the light of other hoards, especially Tyskegård but also Store Frigård, both from Bornholm, the presence of some of the English coins in the Danish Viking Age deposits has been interpreted as the result of Danegeld (Moesgaard 2006A, p. 405-419). The Tyskegård hoard is composed of 81 coins all of the same type, Ethelred II's long cross minted c. 997-1003, and none of the coins bear test marks. This is not the case in the Nørremølle hoard, which is composed of many different English coin types (*fig. 24*). Furthermore 98% of the English coins in the Nørremølle hoard have been tested either by test marks and/or by bending, which indicates that the coins have been in circulation for some time outside the British Isles. It is unknown how they left England, but in the last instance the English coins in the Nørremølle hoard are therefore probably the result of trade rather than raid.

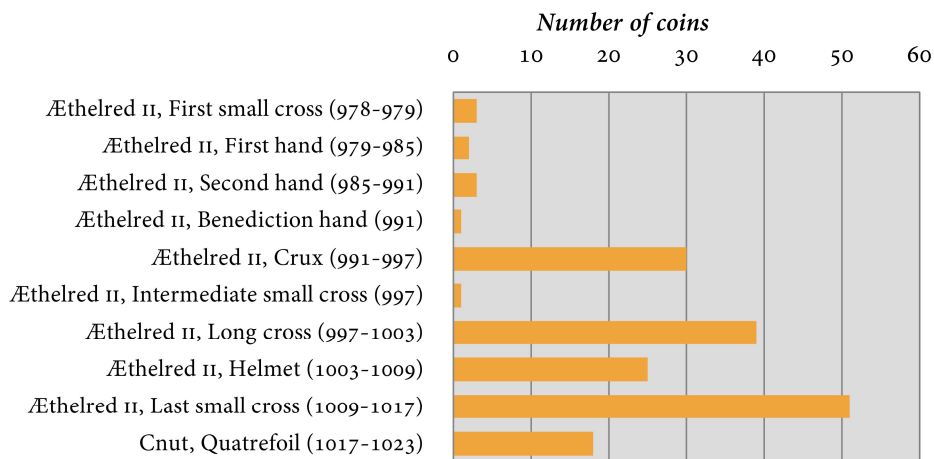


Fig. 24 – English coin types in the Nørremølle hoard

The Kufic coins, on the contrary, show a different picture, as 43% of them have been tested with pecks and 69% with notches. This confirms the idea that notches are a phenomenon connected to the eastern areas. As mentioned, the Kufic coins probably reached Bornholm in two waves, the first one at the turn of the IXth century and the second one from the end of the IXth century to the middle of the Xth century. The Kufic coins must therefore have been in circulation for a long time on the Bornholm island. As there is a very distinct difference between the West European coins and the Kufic ones, it seems likely that the main part of the test marks on the German, English and Scandinavian coins were made before they reached Bornholm, otherwise the dirhams would have had a similar pattern of test marks. Another possible interpretation is that the Kufic coins were a more trusted currency on Bornholm and therefore not pecked to the same degree as the West European coins. We must however bear in mind that the Kufic coins were tested with notches, in the Eastern territories, prior to their arrival in Bornholm, which probably indicates mistrust. Therefore, an explanation of these different patterns of testing can be that the coins were rarely tested on Bornholm, perhaps indicating a low degree of circulation.

A large percentage of the objects in the Nørremølle hoard derive from the Slavic area. Only 12 out of 126 objects (10%) from the Slavic area carry test marks, and the group thereby differs from the German, English, South Scandinavian, and Kufic groups. This is most likely due to the character rather than the origins of these objects, since all the Slavic objects are jewellery. They are in majority fragile silver foil beads or mesh beads, whereas the objects from the German, English, Scandinavian, and Kufic areas are coins. It is evident that foil beads and mesh beads were not suited for silver tests like pecking and notching. The few objects that are tested all bear their test marks on a part of the object which is solid silver (*fig. 25-26*).



Fig. 25 – Examples of unminted silver objects with test marks. Scale 3/2

Test marks	Ingots (8)	Beads (54)	Earrings (50)	Neck-/armrings (15)	Melts/lumps (52)	Rods (18)
1			3		6	
2-5	2		3	33	22	3
> 5	6		3	11	18	15
In all	8 (100%)		9 (18%)	14 (93%)	46 (88%)	18 (100%)

Fig. 26 – Distribution of test marks on unminted silver objects. The objects are classified according to the definitions made by Hårdh (1976, p. 46-92). Two out of three earrings with more than five test marks are made of massive silver. The melts/lumps often also carry chisel marks

Some coins only present one test mark, whereas others carry many marks, making them completely disfigured. Again, we see a geographical difference between West European and Kufic coins. Around 40% of the German, English, and Scandinavian coins carry more than five test marks whereas only 25% of the Kufic dirhams show more than five test marks. This confirms the idea that the coins were tested outside Bornholm. Jewellery from the Slavic territories is excluded from this survey: as shown previously, their fragility explains the few number of test marks on them.

In the Nørremølle hoard, 58% of the German and 61% of the English coins have more than five pecks. This picture seems to correspond with the Polish hoards from the first half of the 11th century, rather than the Gotlandic hoards, where German coins are pecked more than the English coins in hoards with a *terminus post quem* in the first half of the 11th century (Malmer 1985, p. 51-55).

The Kufic coins of the Nørremølle hoard can be divided into two chronological groups (*fig. 4*). A *terminus post quem* before 840 can be attributed to the first one, and after 870 for the second one. If we look at the number of test marks within these chronological sequences, it is clear that notches predominate within the early Kufic coin group, whereas the later ones show both pecks and notches (*fig. 27*). This suggests that the Kufic coins were tested outside Bornholm, and did not circulate long on the island after their arrival. Otherwise a higher degree of pecks on the early Kufic coins would be expected.

	Peck	Nick	Notch	Bend	Test marks/Bend
Kufic coins with <i>tpq</i> before 840 (10 p.)	30%	0%	90%	100%	100%
Kufic coins with <i>tpq</i> after 870 (41 p.)	61%	2%	63%	93%	100%

Fig. 27 – Test marks on chronological sequences within the Kufic coins

Gotlandic hoards show that earlier English coin types, such as Crux, are more pecked than later English types, such as Long Cross (Malmer 1981, p. 398-400). This is not the case in the Nørremølle hoard, as shown in figure 28.

		No pecks	1 peck	2-5 pecks	> 5 pecks
Æthelred II	First small cross, 978-979 (3 coins)		2		1
	First hand, 979-985 (2 coins)				1
	Second hand, 985-991 (3 coins)			2	
	Benedictionhand, 991 (1 coin)				1
	Crux, 991-997 (30 coins)		4	13	13 (43%)
	Intermediate small cross, 997 (1 coin)				1
	Long cross, 997-1003 (39 coins)	6	2	14	17 (44%)
	Helmet, 1003-1009 (25 coins)	1		11	13
	Last small cross, 1009-1017 (51 coins)		1	25	25 (49%)
Cnut	Quatrefoil, 1017-1023 (18 coins)	3	4	9	2

Fig. 28 – Pecks within different English coin types

2.1.3 Piercing

None of the coins in the Nørremølle hoard have been looped, and only 17 coins (1.4%) have been pierced. The group of pierced coins shows neither chronological nor geographical characteristics (fig. 29).

	Frag.	Type of piercing	Nº
Bohemia, Jaromir (1003-1034)	<input checked="" type="checkbox"/>	irregular piercing	1226
England, Æthelred II, Crux (991-997)		one round and one oval piercing	257
England, Æthelred II, Long cross (997-1003)		round piercing	478
England, Æthelred II, First hand (997-1003)		round piercing	267
England, Æthelred II, Long cross (997-1003)		irregular piercing	1209
Germany, unidentified		round piercing	276
Germany, Magdeburg? (1000-1030)		round piercing	897

Germany, Emden? (900-1000)	<input checked="" type="checkbox"/>	round piercing	918
Germany, Otto-Adelheid (983/991-1040)		round piercing	1085
Kufic dirhem, unidentified	<input checked="" type="checkbox"/>	round piercing	811
Kufic dirhem (932-934)		two round piercings	1252
Kufic dirhem, unidentified	<input checked="" type="checkbox"/>	round piercing	627
Volgabulgarien imitation (892-907)		round piercing	743
Samanide, Nuh b. Nasr/Nuh b. Mansur (943-997)	<input checked="" type="checkbox"/>	round piercing	741
Kufic dirhem, unidentified	<input checked="" type="checkbox"/>	round piercing	1,042
Samanide, "Ismail b. Ahmad", al Khuttal? (916-927)		round piercing	742
Samanide, Mansur b. Nuh, Samarqand (970-971)		round piercing	957

Fig. 29 – List of pierced coins in the Nørremølle hoard

2.2 Economic systems: discussion

The analysis of the secondary treatment of the objects in the Nørremølle hoard has shown interesting chronological, geographical and material variations, which give us an insight in the way the silver was treated, traded, and trusted in the Viking Age.

A lower percentage of the West European coins are fragmented compared to the Kufic coins and the jewellery. However, the analysis of the test marks does show that this was not because the West European coins were a trusted currency in the region. German, English, and Scandinavian coins were tested for their silver content, which points to the opposite. The West European coins are mainly unfragmented, and the mass analysis thereby indicates that the original weight of the West European coins was suited for an existing economic system in the Baltic region. Mass analysis of the *Hacksilber* hoards in Scandinavia and in the Baltic region demonstrates that weight standards must have functioned in various regions (Hårdh 1996, p. 94-130). The mass analysis of the Nørremølle hoard confirms Hårdh's surveys, which show that Bornholm, Blekinge, Scania, and the Slavic area constituted an economic entity. However, there are also differences. The islands in the Baltic Sea, Bornholm and Gotland, are often compared, but both the weight analysis and the examination of test marks of the Nørremølle hoard suggest that there are different patterns on the two islands. It is only with regard to the content of unminted silver in the hoards that the two islands have a similar development, as unminted silver continues to be a part of the silver hoards throughout the XIth century.

Finally, it should be emphasized that the analysis of the test marks on the coins of the Nørremølle hoard suggests that the coins were tested before they arrived in Bornholm.

3. DEPOSITION OF THE NØRREMØLLE HOARD

The Nørremølle hoard was located by one of the diligent private metal detectorists of the island: in August 2006, Finn Jensen found a large concentration of silver objects in a field just north of Nexø on east Bornholm. He contacted the Museum of Bornholm as soon as he was convinced that he had found the deposition place of a Viking Age treasure. The hoard was excavated the following day. The exact deposition place was referenced and a part of the hoard was still preserved in the lower part of a simple ceramic vessel (*fig. 30*).

The majority of the objects was spread in the plough soil of the field in areas just north and south of the deposition place. There were no traces of organic material in the vessel indicating purses or other smaller containers. The following year, the Museum of Bornholm carried out a small excavation around the find spot of the hoard (*fig. 31*).^[7]

The excavation showed that the hoard was deposited near a now removed large stone in a simple pit with dimensions just fitting the pot. Several settlement remains such as trenches, pits, and post holes were found near the deposition. Of special interest are the traces of a pair of roof-bearing posts just a few meters north of the deposition. The excavator interpreted the post holes as the remains of the western part of a northeast-southwest orientated house. These holes contained Baltic Sea ware, sherds of a soapstone vessel, a miniature vessel, a fragmented amber bead, and some fragmented iron objects. These finds date the house to the late Viking Age, and the house may be contemporary with the Nørremølle hoard. The soil in and around the post holes was filled with charcoal and the holes themselves contained large amounts of fragments of burnt wattle-and-daub and charred grains. It is therefore likely that the house was burnt. The west end of another house was excavated a few meters south of the hoard; traces of three roof bearing posts in an east-west oriented house lay within the excavated area. The contents of the post holes suggest that this house is older than the burnt down house.

Because of the small excavation area (565.3 m²), it is difficult to interpret the nature of the site. The finds depict a plain agrarian settlement with Baltic Sea ware, bones from domesticated animals, a small amount of slags, fragments of wattle-and-daub, and a single loom weight. Besides the sherds of a soapstone vessel and the miniature vessel from the post holes of the Viking Age house, the only extraordinary finds are an iron arrowhead found in the top of a post hole and a small pit with a large amount of animal bones. Although the Nørremølle hoard is the largest Viking treasure found so far on Bornholm, and the hoard must have represented a fortune, nothing besides the treasure differentiates the Nørremølle settlement from other contemporary sites.



Fig. 30 – The Nørremølle hoard was deposited in a plain ceramic vessel. Left: the top part of the vessel was destroyed. Right: a small stamp in the bottom of the vessel indicates that it is Baltic Sea ware.

Scale: 1/2

^[7] Excavation report by M. Thorsen: Museum of Bornholm, BMR 3419, Nørremølle, Nexø sogn, Bornholms Sønder herred (06.02.02 SB 33). The National Museum, C36843, FP 8165, FP 8283.

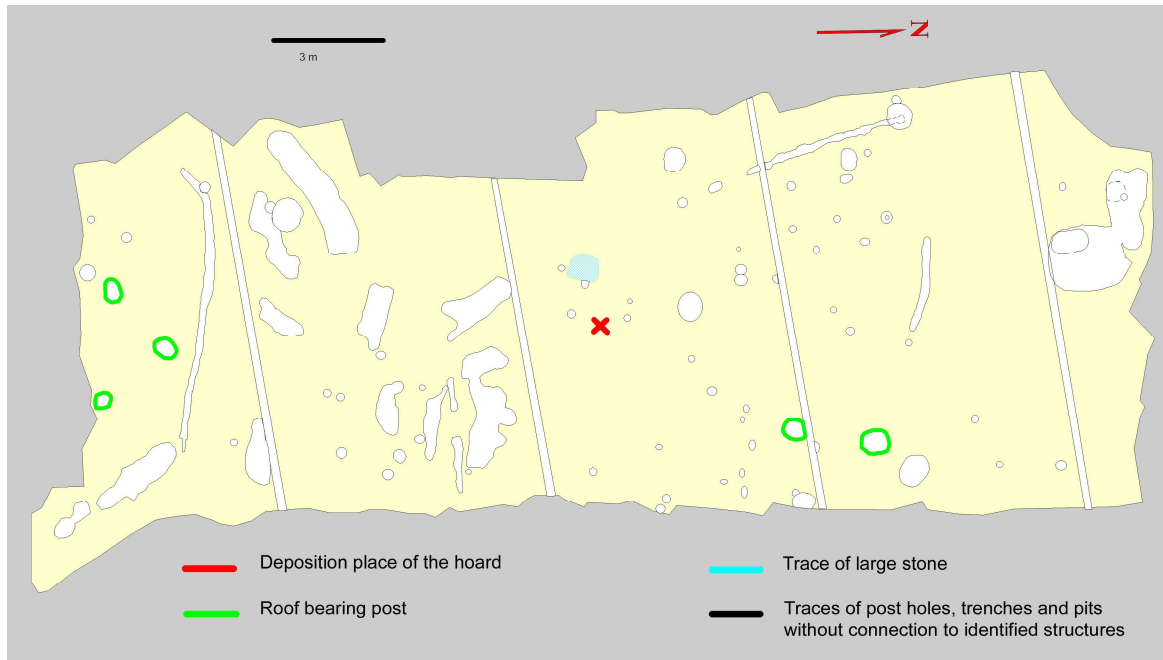


Fig. 31 – Excavation plan of the Nørremølle site. During the excavation the plough soil was removed in two to three layers, and every layer was thoroughly investigated with metal detectors. The excavation method was chosen with the purpose to recover the hoard, and 118 objects belonging to it were found during the excavation. The excavation campaign had a very limited budget, and as recovery of the hoard was prioritised, the excavation area was laid out where it was most likely that one would encounter objects from the hoard in the plough soil. This unfortunately means that the information on other archaeological features is very limited. Map: C.S. Vinge

3.1 Viking age sites on Bornholm

The Museum of Bornholm has undertaken small archaeological excavation campaigns on the find spot of 29 Viking Age treasures^[8]. My analysis of these sites in the following section will give a background for the interpretation of the Nørremølle hoard.

The Pæregård site in the northern part of Bornholm is of special interest, as the hoard found there is very similar to the one from Nørremølle. The Pæregård hoard consists of 841 coins and 117 pieces of *Hacksilber*. The *terminus post quem* date and composition of the two hoards are almost identical (fig. 32).

The Pæregård hoard was found in 1993 and a small excavation campaign was undertaken by the Museum of Bornholm in 2006^[9]. The remains of five houses were revealed in the limited excavation area. Two superimposed east-west oriented houses were located; and the two houses most likely represent two phases of a main building on a farm site (fig. 33).

During the excavation, another 60 coins were found, but only a few may belong to the Pæregård hoard (fig. 34). Several of these new-found coins and pieces of *Hacksilber* dating to the Viking Age were located in a fire layer of burnt debris, and are thus not connected to the Pæregård hoard. It has not been established whether the objects from the fire layer represent single finds, another treasure, or both.

^[8] I am grateful to the Museum of Bornholm that has willingly let me use their archaeological data, and especially to René Laursen who was a great help when I visited the museum.

^[9] I am grateful to Michael Vennersdorf, who has kindly let me use the excavation data and his maps of the Pæregård site. Excavation report by M. Vennersdorf: Museum of Bornholm, BMR 1083, Pæregård, Olsker sogn, Bornholms Nørre Herred, Bornholms Amt (06.01.05 SB 185).



Fig. 32 – The Pæregård hoard was deposited after 1026. The hoard consists of 599 German coins, 145 English coins, 41 Scandinavian coins, 8 Kufic coins and 48 other coin types (von Heijne 2004, p. 305). The hacksilver consists of jewellery, primarily produced in the Slavic territory, and other silver objects such as ingots, rods, melts/lumps and silver plates.
Photo: The National Museum of Denmark (not to scale)

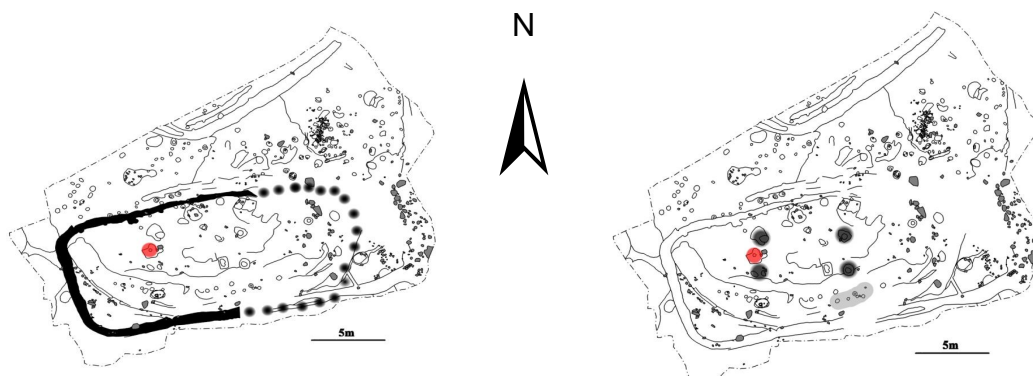


Fig. 33 – The Pæregård hoard was deposited in a small pit located between the western pair of roof bearing posts of a house (right). The hoard is marked with a red dot.
Map: M. Vennersdorf



Fig. 34 – The distribution of coin finds (black dots) at the Pæregård site.
Map: M. Vennersdorf

The Pæregård site also compares to the Nørremølle site in that nothing except from the coins and *Hacksilber* indicates that the Pæregård site had a special status. The house where the hoard was deposited was only 18 meters long and must be characterized as a small habitation unit.

Among the 29 Viking Age hoard sites investigated by the Museum of Bornholm, Store Gadegård^[10] is the only site that can be categorised as a high status settlement (fig. 35). Here the excavation revealed a 33 meters long house and the find material contained Baltic Sea ware, iron knives, arrows and needles, animal bones from domesticated animals and fish, glass fragments, and a coin imitation pendant of gilded bronze with a king’s portrait, probably produced in the second half of the XIth century. One, or perhaps two hoards consist of 68 complete coins, 44 fragmented coins, 33 pieces of unminted silver and piece of hack gold, which is rare in the Viking Age hoards of Bornholm. The large house, the gilded pendant, the glass and the gold piece in the hoard indicate that the Store Gadegård site should be interpreted as a high status settlement, but the main part of the Viking Age hoards found at Bornholm is apparently found on ordinary settlements lacking these features. It must however be underlined that the excavated areas are limited and it is difficult to give an exact interpretation of the sites.

Site	Excavated area	Near settlement	Circumstances of deposition	House	Container	tpq of hoard
St. Munkegård, BMR 148	500 m ²	<input checked="" type="checkbox"/>	Spread in the outskirts of settlement site		Wooden trunk	1002
Smørbygård, BMR 1491	280 m ²	<input checked="" type="checkbox"/>	Deposited in a small pit in the outskirts of settlement area			1020

[10] Excavation report by H. Wagnkilde: Museum of Bornholm, BMR 1978, St. Gadegård, Pedersker sogn, Bornholms Sønder herred, Bornholms amt (06.02.03 SB 160).

Skovvang, BMR 291	240 m ²	☑	Deposited in the outskirts of settlement site		Ceramic vessel	1017
Ybnastedgård, BMR 2154	260 m ²	☑	Spread in the outskirts of settlement site			XI th c.
St. Frigård II, BMR 1711	450 m ²	☑	Spread in the outskirts of settlement site			995
Munkerup, BMR 2212	500 m ²	☑	Spread in the outskirts of settlement site			1046
Dalegård, BMR 1754	450 m ²	☑	Deposited in disturbed trench of building	min. 11 m	Ceramic vessel	XI th c.
Frostegård, BMR 1229	575 m ²	☑	Spread in the outskirts of settlement site			1042
Kannikegærde, BMR 2292	260 m ²	☑	Spread near the west ends of three houses			991
Ndr. Bjerregård, BMR 1508	280 m ²	☑	Spread near house	min. 15 m		1017
Skovgård, BMR 3360	500 m ²	☑	Spread in East end of burnt house			XI th c.
Nørremølle BMR 3419	425 m ²	☑	Deposited few meters from burnt? house		Ceramic vessel	1024
Pæregård, BMR 1083	470 m ²	☑	Deposited between roof bearing post in house	c. 18 m	Ceramic vessel	1026
Dammegård, BMR 2000	300 m ²	☑	Spread near to houses	c. 18 m		961/2
St. Gadegård, BMR 1978	855 m ²	☑	Spread near house	33 m		XI th c.
Kannikegård/ Tyskegård, BMR 2174	585 m ²	☑	Spread 20 meters from burnt house	c. 18 m		1009
St. Klintegård, BMR 2758	420 m ²	☑	Spread in west end of house			1080
Gyldensgård, BMR 3194	255 m ²	☑	Spread near house			1012
Lillegærde, BMR 1513	110 m ²	☑	Spread in area with settlement finds		Ceramic vessel	1048
Nørre Sandegård I, BMR 1853	240 m ²	☑	Spread near house			1027
Kobbegård, BMR 2114	240 m ²	☑	Deposited in small pit in house	c. 17 m	Leather purse	1018
Krogegård, BMR 2252	500 m ²	☑	Spread near to burnt houses			1050
Skørrebro, BMR 3337	300 m ²	☑	Spread near house?			939
Ndr. Stenseby- gård, BMR 2151	400 m ²	☑	Spread near smith pit			1047
Buddegård, BMR 2306	625 m ²		Spread in area without other finds			969
Krusegård, BMR 2158	245 m ²		Spread in area without other finds			1047
Englyst, BMR 2320	230 m ²		Spread in area without other finds			XI th c.
Døvregård, BMR 5588	360 m ²		Spread in area without other finds		Ceramic vessel	1024
Tyskegård, BMR 2150	420 m ²		Spread in area without other finds			997

Fig. 35 – Excavated Viking age sites on Bornholm. Red: Hoards deposited in the outskirts of settlement area. Green: hoards deposited in or in the close vicinity of a house. Blue: hoard deposited in connection to silver smith's work. Yellow: Hoards deposited in areas without other finds

Many Viking Age hoards of Gotland were deposited in connection with Gotlandic farms (Östergren 1989, p. 37-66). Recently, a more detailed analysis of the settlement structures indicates that the hoards were deposited on the outskirts of settlements, in areas where a smith's work took place. The hoards are therefore interpreted as raw material for the silver smith (Carlson 2010, p. 7-10). There are around 700 Viking Age hoards on Gotland, and it seems unlikely that all of these should represent raw material for a silver smith. The hoards on Gotland often consist of imported coins and locally produced jewellery (Östergren 2011, p. 321). The many locally produced silver and bronze objects in the hoards do however confirm a large scale production of silver and bronze items on Gotland.

The hoards from Bornholm were located on the outskirts of a settlement area in 11 out of the 29 excavated sites, but only on the Nordre Stensebygård site^[11] the hoard could be connected to a smith's work. The exact deposition place of the Nordre Stensebygård hoard was not determined during the excavation, but the silver objects of the hoard were scattered by the plough in the vicinity of a pit with the remains of silver smith's work. The remains of two vessels of Baltic Sea wear were placed in the top of the pit. Perhaps these vessels were the original deposition place of the hoard. Beneath the vessels the remains of a melting pot, a fragment of a Viking Age silver bracelet, small silver melts and in one of the fragments of the melting pot a partially melted silver coin were found.

The main part (15) of the 29 hoards on Bornholm were deposited in or in the close vicinity of what the excavator has interpreted as longhouses. Only five hoards were deposited in areas without settlement traces (*fig. 35*). The main part of the Viking Age treasures of Bornholm should therefore probably not be interpreted as raw material for a smith but rather as the savings of the occupants of the house where the hoards are deposited.

3.2 The Viking Age hoards of Bornholm: final discussion

The analysis of the Nørremølle hoard has perhaps not surprisingly revealed that Bornholm had strong contacts with the neighbours around the Baltic Sea. What does surprise is the complex nature of these contacts. The composition of the coins in the Nørremølle hoard reveals a strong contact with Southern Scandinavia, whereas the jewellery of the hoard shows a strong contact with the Slavic area. In comparison with similar investigations in other areas of the Baltic Sea, the weight and test marks analyses on the Nørremølle hoard objects demonstrate that Bornholm was part of an exchange network with Scania and the Slavic area. The analysis of the main features of the hoard also shows that the coins were probably tested before they reached Bornholm. This indicates a low degree of silver circulation and that many of the coins were hoarded soon after their arrival on the island. Furthermore, the characteristics of unminted silver objects in the hoards of Bornholm reveal that the two islands of Bornholm and Gotland held on to a bullion economy longer than their neighbours in the Baltic Sea.

The current trend in numismatic research sees the single finds of coins as evidence of silver circulation (Metcalf 1994, p. 196-214; Moesgaard 2006B, p. 389-433; Blackburn 2008, p. 29-74). In order to understand the patterns of silver circulation on Bornholm the evidence of the single finds should therefore be included. However, it is a major problem in this respect that the definitive determination (insofar as it is possible) of which are real single finds and which are strays from hoards has not yet been made – it would take a lot

^[11] Excavation report by F.O. Nielsen: Museum of Bornholm BMR 2151, Ndr. Stensebygård, Bodilsker sogn, Bornholms Sønder herred, Bornholms amt (06.02.01 SB 45).

of work, as one would need to check the find circumstances of every single coin (Moesgaard 2009, p. 284-289). A solution to this problem is, of course, far beyond the scope of the present study.

The circumstances of deposition of the 29 excavated Viking Age hoard sites on Bornholm show that many of the hoards were deposited in ordinary settlement sites, and unlike Gotland, the main part of the hoards was not intended as raw material for the silver smith.

In the case of the Nørremølle hoard, it is most likely that the silver coins and objects were gathered by trade. The characteristics of the coins and the high degree of fragmentation of the objects point to trade rather than raid or tribute. However, the organization of trade on Bornholm in the XIth century is an open question. The Sorte Muld complex, that had functioned as an important power and trading centre during the Iron Age, gradually declined during the Viking Age. In the late Xth and the early XIth century, Sorte Muld was reduced to a few individual farmsteads (Aarsleff 2009, p. 119; Watt 2009, p. 26). No new trading centre has yet been located in the archaeological record. Instead we see a reorganization of the settlement pattern, and new farmsteads withdrawn from the coastline are established during the XIth century. These new settlements are among other things characterised by finds of Baltic Sea ware, fragments of imported millstones from Central Europe, whetstone from South Norway, weights of lead or bronze and West European and Kufic coins (Aarsleff 2008, p. 21-22; Nielsen 1994A, p. 125-129). The distribution of coins and weights indicates that trade on Bornholm was carried out in these individual farmsteads and not in a powerful trading centre like Wolin or Visby. The decentralized settlement and trading pattern also indicate a decentralized power structure. The fall of the Sorte Muld complex and the establishment of new farmsteads probably reflects a reorganization of power on Bornholm in the XIth century. The fact that a bullion economy prevailed on the island until the beginning of the XIIth century, whereas coin economy dominated the neighbouring areas, also indicates that the island was not under strict control of an external ruler. Apparently Bornholm did not have one strong ruler who organized and guaranteed safe trading conditions in one dominating trading centre, but several manor sites where trade was carried out on a smaller scale. The owner of the Nørremølle hoard might therefore primarily have gathered the fortune outside of the island, and judging by the objects' primary context it was through trade in Scania and the Slavic area.

The number of Viking Age hoards found on Bornholm and their composition suggest that many of the inhabitants were sailors with trading connections both north and south of the island. They brought back their accumulated wealth, which was often deposited in what appears to be ordinary settlement sites. However, with the present archaeological data the nature of these trading contacts is unclear. Which goods were traded? Did the inhabitants of Bornholm sell fish or perhaps their skills as ship builders? Were they specialized merchants, who utilized Bornholm's geographical location to transport goods from Scania to the Slavic area? These questions can only be answered by further archaeological investigations of the Viking Age sites at Bornholm.

Why were the many Viking Age hoards deposited on Bornholm? R. Kiersnowski has suggested that areas with many hoards were economically primitive, because the silver was not used but hoarded (Kiersnowski 1961, p. 53-56). His theory fits very nicely with the find picture at Bornholm. As mentioned, the analysis of the test marks of the Nørremølle hoard indicates that at least some of the coins were hoarded soon after their arrival on the island, jewellery persists to be in the hoards of Bornholm throughout the XIth century and there are few indications of large scale trade on the island. Kiersnowski (1961, p. 42-44)

has also stated that the smaller the pieces in the hoards, the livelier the market. The weight analysis showed that there are many small pieces in the Nørremølle hoard, and this seems to contradict the earlier statement. The hoards of Bornholm can, however, underline both statements, if the lively markets, where the silver objects were gathered, were on the shores of the Slavic area or Scania, and the silver was brought home and deposited in an economic primitive society. But why accumulate silver fortunes abroad, if you cannot use them at home? I do not find it likely that hoards with a composition like those of Nørremølle and the Pæregård are offerings. M. Östergren has shown that some of the Gotlandic hoards were most likely deposited on the floor level of a house (Östergren 1989, p. 61). Likewise some of the hoards on Bornholm, for example the Pæregård hoard, should perhaps be characterised as active hoards, where the owner had continuous access to the deposit. Some of the objects could then be recycled during the next journey of trade. However, this does not give a satisfying explanation of why so many hoards were gathered on Bornholm.

The last question raised above is why the hoards were not recovered? Perhaps we should return to the classic thesis that deposited hoards – or at least the non-recovery of the hoards – are the result of war and unrest (Bolin 1962, p. 45-64). Bornholm's location in the middle of the Baltic Sea made the island strategically important for the central powers of the region and vulnerable to attack from the sea. Towards the end of the xth century, the settlement pattern on Bornholm changed, and became characterised by individual farmsteads withdrawn from the coastline (Watt 1988, p. 112-116). The excavations on the Nørremølle site and the Pæregård site showed that the houses were burnt and at the Nørremølle site an iron arrowhead was found in a post hole – perhaps small indications of fighting.

The data of the Nørremølle hoard can be seen as a snapshot of the course of events that led to the deposition of the objects, and the multipronged contextual analysis has thrown light on its contents, owner, how and why it was gathered, why it was deposited and not recovered. Hopefully, future research will give us a greater insight of the economic, social and monetary development on Bornholm, and enable us to put this fantastic hoard into a wider historical context.

4. CATALOGUES

4.1 Comments on the catalogues

The coins have been identified according to standard reference works (Dbg. = Dannenberg, Häv. = Hävernicks, Il. = Ilisch).

Due to lack of time, it has unfortunately not been possible to check more specialized literature. Some of the attributions and dating may thus reflect an older state of research. Neither has it been possible to single out possible imitations in the series of German coins within the time available for the present study.

Test marks: All objects have been examined for pecks, nicks and notches. The following codes are used: ① = one test mark on the object – ② = two to five test marks – ③ = more than five test marks.

References: Refers to literature listed in *list of references*. The reference is given without the date of printing, if the author only appears with one title in the *list of references*.

Nº: Refers to the unique number given to every object by the Museum of Bornholm.

4.2 Catalogue of the coins

4.2.1 German coins

	Description	Date	Frag.	Piercing	Peck	Nick	Notch	Bent	Mass	Reference	N°
Augsburg	Bishop Bruno	1006-1029	☑		②		①	③	0.73	Dbg. 1025	1122
Basel	Bishop Adalbero II	999-1025						②	0.69	Dbg. 971 ?	275
Basel	Bishop Adalbero II	999-1025						②	0.75	Dbg. 971 ?	568
Deventer	King Henry II	1002-1014			③			③	0.96	Dbg. 562; Il. 1.7	893
Deventer	King Henry II	1002-1014			③			②	0.99	Dbg. 562 var.; Il. 1.7	1159
Deventer	King Henry II	1002-1014			③			②	1.00	Dbg. 562; Il. 1.7	1366
Deventer	King Henry II	1002-1014			②		①	③	1.07	Dbg. 562; Il. 1.7	899
Deventer	King Henry II	1002-1014			②			①	1.11	Dbg. 562; Il. 1.7	900
Deventer	Emperor Henry II	1014-1024			①			①	1.37	Dbg. 564; Il. 1.9	569
Dortmund	Otto III	983-1002			②		①	③	1.11	Dbg. 744	442
Dortmund	Otto III	983-1002	☑		②			③	1.13	Dbg. 743	733
Dortmund	Otto III	983-1002			②			②	1.32	Dbg. 743	501
Dortmund	Emperor Otto III	996-1002			②			③	1.08	Dbg. 743	377
Dortmund	Emperor Otto III	996-1002			③			③	1.28	Dbg. 744 ?	855
Dortmund	Otto III	983-1002			②		①	③	1.11	Dbg. 744	442
Dortmund	Otto III	983-1002	☑		②			③	1.13	Dbg. 743	733
Dortmund	Otto III	983-1002			②			②	1.32	Dbg. 743	501
Dortmund	King Henry II	1002-1024			②			①	1.31	Dbg. 749	688
Dortmund	King Henry II	1002-1024			③			③	1.31	Dbg. 749	1091
Emden ?		1000-1015	☑		②		①	③	0.53	Kilger gr. Emd ? B ?	1322
Emden ?		1000-1015			③			③	0.80	Dbg. 1299, Kilger gr. Emd ? B	1354
Emden ?		1010-1015			②			③	0.82	Dbg. 1299, Kilger gr. Emb ? B:2	362
Emden ?		1015-1020			②			③	0.68	Dbg. 1959, Kilger gr. Emd ? C	1239
Emden ?		1015-1020			②			②	0.73	Dbg. 1959, Kilger gr. Emd ? C	615
Emden ?		1015-1020			②			③	0.75	Dbg. 1959, Kilger gr. Emd ? C	681
Emden ?		1015-1020			②			③	0.77	Dbg. 1959, Kilger gr. Emd ? C	1003
Emden ?		900-1000	☑		②			③	0.30	Kilger gr. Emd ? A	921
Emden ?		900-1000	☑		②			③	0.34	Kilger gr. Emd ? A	1115
Emden ?		900-1000	☑	round	③		①	③	0.35	Kilger gr. Emd ? A	918
Emden ?		900-1000			②			③	0.71	Kilger gr. Emd ? A	1202
Emden ?		900-1000						③	0.73	Kilger gr. Emd ? A	278
Erfurt	Archbishop Aribio/Bardo	1021-1051			②			①	1.18	Dbg. 877-879	616
Erfurt	Archbishop Aribio/Bardo	1021-1051					①	①	1.18	Dbg. 877-879	582
Esslingen	King Henry II	1002-1024			③			③	1.18	Dbg. 951	951
Esslingen	King Henry II	1002-1024			②			③	1.18	Dbg. 951	1425
Esslingen	King Henry II	1002-1024			②			②	1.20	Dbg. 951-953	489
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Goslar ?	Otto-Adelheid	983/991-1040	☑		②		②	③	0.56		1109
Goslar ?	Otto-Adelheid	983/991-1040	☑				①	③	0.58		116
Goslar ?	Otto-Adelheid	983/991-1040	☑		①			③	0.59		1098
Goslar ?	Otto-Adelheid	983/991-1040	☑		③		②	③	0.62		1101
Goslar ?	Otto-Adelheid	983/991-1040	☑		①		①	③	0.62		1112
Goslar ?	Otto-Adelheid	983/991-1040	☑		②		②	③	0.65		913
Goslar ?	Otto-Adelheid	983/991-1040	☑		③			③	0.66		1118
Goslar ?	Otto-Adelheid	983/991-1040			②			②	0.67		903
Goslar ?	Otto-Adelheid	983/991-1040	☑		③			③	0.69		1287

THE VIKING AGE HOARD OF BORNHOLM

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Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.09	1187
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Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.11	1396
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Goslar ?	Otto-Adelheid	983/991-1040		③	①	③	1.11	1278

Gitte INGVARDSON

Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.12	1074
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.12	1150
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.12	718
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Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.15	325
Goslar ?	Otto-Adelheid	983/991-1040		②	①	③	1.15	659
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Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.17	606
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.17	721
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.17	621
Goslar ?	Otto-Adelheid	983/991-1040	☑	③		③	1.18	1094
Goslar ?	Otto-Adelheid	983/991-1040		③		②	1.18	463
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.18	1163
Goslar ?	Otto-Adelheid	983/991-1040	☑	③	②	③	1.19	909
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.19	532
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.21	330
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.21	454
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.21	653
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.21	563
Goslar ?	Otto-Adelheid	983/991-1040		②	①	③	1.21	308
Goslar ?	Otto-Adelheid	983/991-1040		③	②	③	1.22	409
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.22	328
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.22	1277
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.22	1167
Goslar ?	Otto-Adelheid	983/991-1040		②		①	1.23	993
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.23	537
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.23	1009
Goslar ?	Otto-Adelheid	983/991-1040		③	①	③	1.23	856
Goslar ?	Otto-Adelheid	983/991-1040		③	①	③	1.23	1205
Goslar ?	Otto-Adelheid	983/991-1040		③	①	③	1.23	322
Goslar ?	Otto-Adelheid	983/991-1040	☑	③		③	1.24	597
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.24	1151
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.24	1356
Goslar ?	Otto-Adelheid	983/991-1040		③	②	③	1.24	715
Goslar ?	Otto-Adelheid	983/991-1040		②	①	③	1.24	1361
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.24	363
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.24	869
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.24	1013
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.25	536
Goslar ?	Otto-Adelheid	983/991-1040		②		②	1.25	719
Goslar ?	Otto-Adelheid	983/991-1040		③	①	③	1.25	305
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.25	585
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.26	305
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.26	663
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.26	461
Goslar ?	Otto-Adelheid	983/991-1040	round	③		③	1.27	1085
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.27	1075
Goslar ?	Otto-Adelheid	983/991-1040	☑	③	③	②	1.27	1419
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.27	1282
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.27	1141
Goslar ?	Otto-Adelheid	983/991-1040		③	②	③	1.28	1290
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.28	1078

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Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.28	600
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.29	315
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.29	704
Goslar ?	Otto-Adelheid	983/991-1040		③	②	1.29	443
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.29	613
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.29	662
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.30	531
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.30	665
Goslar ?	Otto-Adelheid	983/991-1040		③	① ③	1.30	1128
Goslar ?	Otto-Adelheid	983/991-1040		②	①	1.30	1392
Goslar ?	Otto-Adelheid	983/991-1040		②	①	1.30	859
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.30	400
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.30	865
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.30	534
Goslar ?	Otto-Adelheid	983/991-1040		②	②	1.30	519
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.30	607
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.31	1001
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.31	657
Goslar ?	Otto-Adelheid	983/991-1040		③	② ③	1.31	867
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.31	666
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.32	574
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.32	1165
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.32	307
Goslar ?	Otto-Adelheid	983/991-1040		①	③	1.32	861
Goslar ?	Otto-Adelheid	983/991-1040		②	②	1.34	562
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.34	1148
Goslar ?	Otto-Adelheid	983/991-1040		①	①	1.34	321
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.35	1077
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.35	521
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.35	571
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.35	523
Goslar ?	Otto-Adelheid	983/991-1040		③	① ③	1.35	444
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.35	896
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.35	445
Goslar ?	Otto-Adelheid	983/991-1040		③	② ③	1.36	863
Goslar ?	Otto-Adelheid	983/991-1040			③	1.36	1237
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.36	1382
Goslar ?	Otto-Adelheid	983/991-1040		②	① ③	1.37	870
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.37	650
Goslar ?	Otto-Adelheid	983/991-1040		③	②	1.37	1146
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.37	14
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.37	12
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.37	407
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.38	1235
Goslar ?	Otto-Adelheid	983/991-1040		③	① ②	1.38	346
Goslar ?	Otto-Adelheid	983/991-1040		②	②	1.38	460
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.38	458
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.38	835
Goslar ?	Otto-Adelheid	983/991-1040		②	②	1.38	1164
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.38	324
Goslar ?	Otto-Adelheid	983/991-1040		③	① ③	1.38	316
Goslar ?	Otto-Adelheid	983/991-1040		②	① ③	1.39	1154
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.39	364
Goslar ?	Otto-Adelheid	983/991-1040			②	1.39	997
Goslar ?	Otto-Adelheid	983/991-1040		②	① ③	1.39	432
Goslar ?	Otto-Adelheid	983/991-1040		③	① ③	1.40	1359
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.40	535

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Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.40	604
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.40	1010
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.41	971
Goslar ?	Otto-Adelheid	983/991-1040		②		①	1.41	491
Goslar ?	Otto-Adelheid	983/991-1040		②		①	1.41	15
Goslar ?	Otto-Adelheid	983/991-1040		②	②	②	1.42	654
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.42	725
Goslar ?	Otto-Adelheid	983/991-1040		②		②	1.42	522
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.42	1377
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.42	873
Goslar ?	Otto-Adelheid	983/991-1040		③		①	1.42	317
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.43	1158
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.43	1200
Goslar ?	Otto-Adelheid	983/991-1040		③		②	1.43	1315
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.43	1014
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.44	1367
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.44	822
Goslar ?	Otto-Adelheid	983/991-1040		②		②	1.44	1369
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.44	990
Goslar ?	Otto-Adelheid	983/991-1040		③		①	1.44	622
Goslar ?	Otto-Adelheid	983/991-1040		②	①	②	1.45	583
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.45	690
Goslar ?	Otto-Adelheid	983/991-1040		③	①	③	1.45	1193
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.45	517
Goslar ?	Otto-Adelheid	983/991-1040		②		②	1.45	1203
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.45	1233
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.46	1081
Goslar ?	Otto-Adelheid	983/991-1040		①		③	1.46	1295
Goslar ?	Otto-Adelheid	983/991-1040		③		②	1.46	527
Goslar ?	Otto-Adelheid	983/991-1040		②	①	③	1.47	1175
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.47	1358
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.47	1185
Goslar ?	Otto-Adelheid	983/991-1040		②	①	②	1.47	560
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.47	1145
Goslar ?	Otto-Adelheid	983/991-1040		②		②	1.47	1199
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.47	1373
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.47	410
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.47	875
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.48	1230
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.48	314
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.48	462
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.49	1168
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.49	988
Goslar ?	Otto-Adelheid	983/991-1040		②	①	②	1.49	323
Goslar ?	Otto-Adelheid	983/991-1040		②		①	1.49	1397
Goslar ?	Otto-Adelheid	983/991-1040				①	1.50	564
Goslar ?	Otto-Adelheid	983/991-1040		②		①	1.50	1307
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.50	1374
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.51	528
Goslar ?	Otto-Adelheid	983/991-1040		②	①	②	1.51	668
Goslar ?	Otto-Adelheid	983/991-1040		②		①	1.52	453
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.52	1172
Goslar ?	Otto-Adelheid	983/991-1040		③		②	1.52	619
Goslar ?	Otto-Adelheid	983/991-1040		①		①	1.52	450
Goslar ?	Otto-Adelheid	983/991-1040		②		②	1.53	862
Goslar ?	Otto-Adelheid	983/991-1040		③		③	1.53	1139
Goslar ?	Otto-Adelheid	983/991-1040		②		③	1.53	1387

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Goslar ?	Otto-Adelheid	983/991-1040		②	①	1.53	1130
Goslar ?	Otto-Adelheid	983/991-1040		①	③	1.53	975
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.53	1363
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.54	1142
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.55	1388
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.55	825
Goslar ?	Otto-Adelheid	983/991-1040		③	① ③	1.55	1398
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.56	318
Goslar ?	Otto-Adelheid	983/991-1040		②	① ③	1.57	1383
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.57	828
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.57	506
Goslar ?	Otto-Adelheid	983/991-1040			③	1.58	327
Goslar ?	Otto-Adelheid	983/991-1040		③	②	1.58	651
Goslar ?	Otto-Adelheid	983/991-1040		①	①	1.59	518
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.59	1149
Goslar ?	Otto-Adelheid	983/991-1040		②	① ③	1.59	652
Goslar ?	Otto-Adelheid	983/991-1040		②	②	1.59	602
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.59	658
Goslar ?	Otto-Adelheid	983/991-1040		②	①	1.59	1184
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.61	1089
Goslar ?	Otto-Adelheid	983/991-1040		①	②	1.61	874
Goslar ?	Otto-Adelheid	983/991-1040		③	②	1.61	679
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.62	368
Goslar ?	Otto-Adelheid	983/991-1040		③	① ③	1.63	1059
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.63	890
Goslar ?	Otto-Adelheid	983/991-1040		①	①	1.64	1180
Goslar ?	Otto-Adelheid	983/991-1040		③	① ②	1.64	312
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.65	992
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.66	336
Goslar ?	Otto-Adelheid	983/991-1040		③	② ③	1.66	831
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.66	559
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.66	319
Goslar ?	Otto-Adelheid	983/991-1040		②	① ①	1.68	871
Goslar ?	Otto-Adelheid	983/991-1040		③	① ②	1.68	320
Goslar ?	Otto-Adelheid	983/991-1040		②	① ③	1.69	19
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.69	329
Goslar ?	Otto-Adelheid	983/991-1040		③	② ③	1.73	455
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.74	1399
Goslar ?	Otto-Adelheid	983/991-1040		③	② ③	1.74	991
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.77	660
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.81	1080
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.85	692
Goslar ?	Otto-Adelheid	983/991-1040		②	②	1.89	656
Goslar ?	Otto-Adelheid	983/991-1040		③	③	1.92	561
Goslar ?	Otto-Adelheid	983/991-1040		②	③	1.92	1071
Goslar ?	Otto-Adelheid	983/991-1040		②	①	1.96	872
Goslar ?	Otto-Adelheid ?	983/991-1040	☑	①	② ③	0.38	1410
Goslar ?	Otto-Adelheid ?	983/991-1040		②	③	0.51	603
Goslar ?	Otto-Adelheid ?	983/991-1040		③	③	0.91	1090
Goslar ?	Otto-Adelheid ?	983/991-1040	☑		③	1.04	1126
Goslar ?	Otto-Adelheid ?	983/991-1040		③	③	1.10	608
Goslar ?	Otto-Adelheid ?	983/991-1040	☑	③	① ③	1.21	911
Goslar ?	Otto-Adelheid ?	983/991-1040		③	③	1.32	1060
Goslar ?	Otto-Adelheid ?	983/991-1040		③	③	1.45	524
Goslar ?	Otto-Adelheid ?	983/991-1040		③	③	1.47	369
Goslar ?	Otto-Adelheid ?	983/991-1040		③	③	1.48	727
Goslar ?	Otto-Adelheid ?	983/991-1040		③	②	1.59	612

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Goslar ?	Otto-Adelheid ?	983/991-1040		③		③	1.60		887	
Goslar ?	Otto-Adelheid ?	983/991-1040	☑	③		①	1.34		998	
Halle-Giebichenstein ?	Otto III	983-1002		②		③	0.93	Dbg. 1329, Kilger gr. KN 4	510	
Halle-Giebichenstein		985-1000		③		③	1.51	Dbg. 1329, Kilger gr. KN 4	277	
Halle-Giebichenstein		1010-1020	☑	③	③	③	0.54	Dbg. 1332 var., Kilger gr. MgPH 2 ?	922	
Halle-Giebichenstein ?		1010-1020		②		②	0.95	Dbg. 1332 var., Kilger gr. MgPH 2 ?	418	
Halle-Giebichenstein ?		1020-1030		②		③	1.00	Kilger gr. MgHP3:1	860	
Huy	Konrad II	1024-1039		③		③	0.95		684	
Jever ?		1000-1010		③		③	1.06	Dbg. 1957, Kilger gr. Jev?, A	386	
Jever ?	Duke Bernhard I	1000-1010		③		③	0.87	Dbg. 1957, Kilger gr. Jev? A	816	
Köln	Otto I-III	936-1002	☑	②		①	0.64	Dbg. 329-331; Häv. 29, 34; Il. 1990	298	
Köln	Otto I-III	936-1002	☑			②	0.68	Dbg. 329-331; Häv. 29, 34; Il. 1990	300	
Köln	Otto III	983-1002	☑	②		②	③	0.84	Dbg. 331; Häv. 34; Il. 1990	1417
Köln	Otto III	983-1002		③		①	③	0.88	Dbg. 331; Häv. 34; Il. 1990	430
Köln	Otto III	983-1002	☑	②		③	③	0.95	Dbg. 331; Häv. 34; Il. 1990	1423
Köln	Otto III	983-1002		③		②	③	0.96	Dbg. 331; Häv. 34; Il. 1990	392
Köln	Otto I-III	936-1002		②		③	1.06	Dbg. 329-331; Häv. 29, 34; Il. 1990	428	
Köln	Otto III	983-1002		③		③	1.08	Dbg. 331; Häv. 34; Il. 1990	558	
Köln	Otto III	983-1002		③		③	1.08	Dbg. 331; Häv. 34; Il. 1990	373	
Köln	Otto III	983-1002		③		②	③	1.09	Dbg. 331; Häv. 34; Il. 1990	554
Köln	Otto III	983-1002		③		①	③	1.12	Dbg. 331; Häv. 34; Il. 1990	1201
Köln	Otto I-III	936-1002		②		①	1.12	Dbg. 329-331; Häv. 29, 34; Il. 1990	1194	
Köln	Otto I-III	936-1002		②		②	②	1.12	Dbg. 329-331; Häv. 29, 34; Il. 1990	669
Köln	Otto III	983-1002		②		③	1.15	Dbg. 331; Häv. 34; Il. 1990	9	
Köln	Otto III	983-1002		②		①	1.18	Dbg. 331; Häv. 34; Il. 1990	675	
Köln	Otto III	983-1002		②		①	1.19	Dbg. 331; Häv. 34; Il. 1990	1238	
Köln	Otto III	983-1002		②		②	1.20	Dbg. 331b; Häv. 34; Il. 1990	1245	
Köln	Otto III	983-1002		②		①	1.22	Dbg. 331; Häv. 34; Il. 1990	1284	
Köln	Otto III	983-1002		③		①	1.24	Dbg. 331; Häv. 34; Il. 1990	674	
Köln	Otto III	983-1002				①	①	1.26	Dbg. 331; Häv. 34; Il. 1990	394
Köln	Otto III	983-1002				①	①	1.31	Dbg. 331; Häv. 34; Il. 1990	836
Köln	Otto III	983-1002		③		③	1.31	Dbg. 331 ?; Häv. 34; Il. 1990	424	
Köln	Otto III	983-1002		①		①	1.31	Dbg. 331; Häv. 34; Il. 1990	1289	
Köln	Otto III	983-1002		②		①	①	1.32	Dbg. 331; Häv. 34; Il. 1990	838
Köln	Otto III	983-1002				①	③	1.32	Dbg. 331; Häv. 34; Il. 1990	1386
Köln	Otto III	983-1002		②		②	③	1.33	Dbg. 331; Häv. 34; Il. 1990	1072
Köln	Otto III	983-1002		③		③	1.33	Dbg. 331; Häv. 34; Il. 1990	494	
Köln	Otto III	983-1002		③		①	①	1.34	Dbg. 331; Häv. 34; Il. 1990	533
Köln	Otto III	983-1002		③		②	②	1.35	Dbg. 331; Häv. 34; Il. 1990	1129
Köln	Otto III	983-1002		③		①	③	1.37	Dbg. 331; Häv. 34; Il. 1990	839
Köln	Otto III	983-1002		②		①	1.38	Dbg. 331; Häv. 34; Il. 1990	1018	

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Köln	Otto III	983-1002		③		②	1.39	Dbg. 331; Häv. 34; Il. 1990	1375
Köln	Otto III	983-1002		③		③	1.40	Dbg. 331; Häv. 34; Il. 1990	969
Köln	Otto III	983-1002		③		③	1.40	Dbg. 331; Häv. 34; Il. 1990	696
Köln	Otto III	983-1002		③		③	1.41	Dbg. 331 ?; Häv. 34; Il. 1990	1241
Köln	Otto III	983-1002				①	1.44	Dbg. 331b; Häv. 34; Il. 1990	572
Köln	Otto III	983-1002		①		①	1.45	Dbg. 331; Häv. 34; Il. 1990	671
Köln	Otto I-III	936-1002		②	①	③	1.50	Dbg. 329-331; Häv. 29, 34; Il. 1990	672
Köln	Otto III	983-1002		②	②	①	1.52	Dbg. 331; Häv. 34; Il. 1990	433
Köln	Otto III	983-1002		②		③	1.53	Dbg. 331; Häv. 34; Il. 1990	837
Köln	Otto III	983-1002		①	③	②	1.54	Dbg. 331b; Häv. 34; Il. 1990	981
Köln	Otto III	983-1002		②		①	1.56	Dbg. 331; Häv. 34; Il. 1990	343
Köln	Otto I-III	936-1002		③	②	③	1.61	Dbg. 329-331; Häv. 29, 34; Il. 1990	841
Köln	Otto III	983-1002		③	①	③	1.64	Dbg. 331; Häv. 34; Il. 1990	395
Köln	Otto III	983-1002		①		①	1.64	Dbg. 331; Häv. 34; Il. 1990	1066
Köln	Otto III	983-1002		③	②	③	1.70	Dbg. 331; Häv. 34; Il. 1990	1144
Köln	Otto I-III	936-1002		②		②	1.76	Dbg. 329-331; Häv. 29, 34; Il. 1990	429
Köln	Otto III	983-1002		③		②	1.81	Dbg. 331; Häv. 34; Il. 1990	1324
Köln	Otto III	983-1002			①	①	1.81	Dbg. 331; Häv. 34; Il. 1990	1390
Köln	Otto III	983-1002		③	②	③	1.85	Dbg. 331; Häv. 34; Il. 1990	845
Köln	Otto III	983-1002		②	①	③	1.92	Dbg. 331; Häv. 34; Il. 1990	834
Köln or West Saxony	Emperor Otto I-II	962-983		②		③	1.02	Dbg. 333-334; Häv. 62, 64; Il. 1990	396
West Saxony?	Emperor Otto I-II	962-983		③	①	③	1.05	Dbg. 334? Häv. 64? Il. 1990	974
Köln or Saxony	Emperor Otto I-II	962-983		①		③	1.08	Dbg. 333-334; Häv. 62, 64; Il. 1990	393
Köln	Emperor Otto I-II	965-983		③		③	1.20	Dbg. 333; Häv. 62; Il. 1990	372
Köln or West Saxony	Emperor Otto I-II	962-983		③	①	③	1.27	Dbg. 333-334; Häv. 62, 64; Il. 1990	371
West Saxony	Emperor Otto I-II	962-983		②		①	1.42	Dbg. 334; Häv. 64; Il. 1990	383
Soest	Otto III	c. 990-c. 1000		③	①	②	0.97	Dbg. 342; Häv. 73; Il. 1990	697
Köln	Otto III	983-1002		①	①	③	1.15	Dbg. 340-342	1086
Liège	Otto III	983-996		①	①	①	1.17	Dbg. 340; Häv. 162	422
Soest	Otto III	c. 990-c. 1000		③		③	1.19	Dbg. 342; Häv. 73; Il. 1990	1353
Soest	Emperor Otto III	c. 990-c. 1000	☑	③	②	③	0.62	Dbg. 342; Häv. 73; Il. 1990	737
Soest	Emperor Otto III	c. 990-c. 1000		③		③	0.77	Dbg. 342; Häv. 73; Il. 1990	575
Soest	Emperor Otto III	c. 990-c. 1000				①	0.87	Dbg. 342; Häv. 73; Il. 1990	397
Soest	Emperor Otto III	c. 990-c. 1000	☑	①	②	③	0.88	Dbg. 342; Häv. 73; Il. 1990	496
Soest	Emperor Otto III	c. 990-c. 1000		②		①	1.25	Dbg. 342; Häv. 73; Il. 1990	673
Soest	Emperor Otto III	c. 990-c. 1000		②		①	1.27	Dbg. 342; Häv. 73; Il. 1990	1317
Soest	Emperor Otto III	c. 990-c. 1000		②		③	1.28	Dbg. 342; Häv. 73; Il. 1990	379
Soest?	Emperor Otto III	c. 990-c. 1000		②		③	1.35	Dbg. 342? Häv. 73? Il. 1990	1174
Soest	Emperor Otto III	c. 990-c. 1000		②		③	1.39	Dbg. 342; Häv. 73; Il. 1990	1138
Soest	Emperor Otto III	c. 990-c. 1000		②		③	1.43	Dbg. 342; Häv. 73; Il. 1990	378

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Soest	Emperor Otto III	c. 990-c. 1000		②		①	1.56	Dbg. 342; Häv. 73; Il. 1990	676
Köln	Otto I-II	936-983		③	②	①	1.16		848
Köln	Otto I-II	936-983		②	②	①	1.25		995
Köln	Otto I-II	936-983		③	①	①	1.36		854
Köln	Otto I-III	936-1002	<input checked="" type="checkbox"/>		②	②	0.72		916
Köln	Otto I-III	936-1002		③		③	0.96		605
Köln	Otto I-III	936-1002		②	①	③	1.28	Dbg. 334-342	387
Köln	Otto I-III	936-1002		②		③	1.37		847
Köln	Otto I-III	936-1002			②		1.56		1076
Köln	Emperor Henry II	1014-1024		①	①	①	1.40	Dbg. 355; Häv. 157	968
Köln ?	Colonia type	900-1000		②		③	0.71		341
Köln ?	Colonia type	900-1000	<input checked="" type="checkbox"/>	①	①	③	0.87		595
Köln ?	Colonia type	900-1000	<input checked="" type="checkbox"/>	②		①	0.56		926
Köln ?	Colonia type	900-1000	<input checked="" type="checkbox"/>	②	②	③	0.64		1107
Köln ?	Colonia type	900-1000	<input checked="" type="checkbox"/>		②		0.80		925
Köln ?	Colonia type	900-1000	<input checked="" type="checkbox"/>		①	①	0.82		1310
Köln ?	Colonia type	900-1000		③		③	0.84		1155
Köln ?	Colonia type	900-1000		②		③	0.85		1393
Köln ?	Colonia type	900-1000		③		②	0.97		1016
Köln ?	Colonia type	900-1000		③		③	1.11		670
Köln ?	Colonia type	900-1000			②	①	②	1.14	1065
Köln ?	Colonia type	900-1000		③	②	③	1.15		889
Köln ?	Colonia type	900-1000		③		③	1.19		891
Köln ?	Colonia type	900-1000		②	①	③	1.20		1242
Köln ?	Colonia type	900-1000		③		③	1.21		1012
Köln ?	Colonia type	900-1000		②	②	③	1.26		555
Köln ?	Colonia type	900-1000		③	②	③	1.27		1189
Köln ?	Colonia type	900-1000		③	①	③	1.31		840
Köln ?	Colonia type	900-1000		③	②	③	1.35		1192
Köln ?	Colonia type	900-1000				③	1.36		374
Köln ?	Colonia type	900-1000		③		①	1.40		892
Köln ?	Colonia type	900-1000		①		③	1.41		384
Köln ?	Colonia type	900-1000		②		③	1.44		850
Köln ?	Colonia type	900-1000		③		③	1.51		832
Köln ?	Colonia type	900-1000		③		③	1.67		1320
Köln ?	Colonia type	900-1000		②		③	1.75		680
Köln ?	Colonia type	900-1000		③	①	③	1.83		844
Köln ?	Colonia type	900-1100		②	①	③	1.71		431
Lüneburg ?	Duke Bernhard I	973-1011		③		②	1.19	Dbg. 587, Kilger gr. Lün ? B:1	1266
Lüneburg ?	Duke Bernhard II	1010-1025		③		③	1.11	Dbg. 589/1558, Kilger gr. Lün ? B:2 ?	345
Lüneburg ?	Duke Bernhard II	1010-1025	<input checked="" type="checkbox"/>	①	②	③	0.39	Dbg. 589/1558, Kilger gr. Lün? B:2	1293
Lüneburg ?	Duke Bernhard II	1010-1025	<input checked="" type="checkbox"/>	③		③	0.41	Dbg. 589/1558, Kilger gr. Lün? B:2	1416
Lüneburg ?	Duke Bernhard II	1010-1025	<input checked="" type="checkbox"/>	③	③	③	0.92	Dbg. 589/1558, Kilger gr. Lün? B:2	1093
Lüneburg ?	Duke Bernhard II	1010-1025		②		③	0.97	Dbg. 589/1558, Kilger gr. Lün? B:2	902
Lüneburg ?	Duke Bernhard II	1010-1025		③		③	0.99	Dbg. 589/1558, Kilger gr. Lün ? B:2	338
Lüneburg ?	Duke Bernhard II	1010-1025		③		③	1.00	Dbg. 589/1558, Kilger gr. Lün? B:2	1061
Lüneburg ?	Duke Bernhard II	1010-1025		③		②	1.10	Dbg. 589/1558, Kilger gr. Lün? B:2	895
Lüneburg ?	Duke Bernhard II	1010-1025		③		③	1.13	Dbg. 589/1558, Kilger gr. Lün? B:2	1136
Lüneburg ?	Duke Bernhard II	1010-1025		②		③	1.16	Dbg. 589, 1558, Kilger gr. Lün ? B:2	427
Lüneburg ?	Duke Bernhard II	1010-1025	<input checked="" type="checkbox"/>	②		③	1.17	Dbg. 589/1558, Kilger gr. Lün? B:2	1100
Lüneburg ?	Duke Bernhard II	1010-1025		②		③	1.21	Dbg. 589, 1558, Kilger gr. Lün ? B:2	851

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Lüneburg ?	Duke Bernhard II	1010-1025		①		③	1.23	Dbg. 589/1558, Kilger gr. Lün? B:2	593
Lüneburg ?	Duke Bernhard II	1010-1025		③		③	1.24	Dbg. 589/1558, Kilger gr. Lün? B:2	1062
Lüneburg ?	Duke Bernhard II	1010-1025		②		③	1.30	Dbg. 589/1558, Kilger gr. Lün? B:2	1391
Lüneburg ?	Duke Bernhard II	1010-1025		②	①	③	1.30	Dbg. 589/1558, Kilger gr. Lün? B:2	849
Lüneburg ?	Duke Bernhard II	1010-1025		②		③	1.39	Dbg. 589/1558, Kilger gr. Lün? B:2	1070
Lüneburg ?	Duke Bernhard II	1010-1025		②		③	1.50	Dbg. 589/1558, Kilger gr. Lün? B:2	1153
Lüneburg ?	Duke Bernhard II	1024-1045	☑	③	①	③	0.74	Dbg. 590, Kilger gr. Lün C	1037
Lüneburg ?	Duke Bernhard I-II ?	973-1025	☑	②		③	0.43	Kilger gr. Lün? B ?	1407
Maestricht	King Henry II	1002-1024		②		③	1.28	Dbg. 245	382
Magdeburg ?	Otto I-III	965-985	☑	②		③	0.42	Dbg. 1325/2176, Kilger gr. KN 10	1409
Magdeburg ?	Otto I-III	965-985	☑			①	0.49	Dbg. 1326, Kilger gr. KN 1	598
Magdeburg ?	Otto I-III	965-985		③		③	0.57	Dbg. 1326/1970; Kilger gr. KN 10	901
Magdeburg	Archbishop Giselher	995-1000	☑			①	0.28	Dbg. 644; Kilger gr. Mg 40	1411
Magdeburg	Archbishop Giselher	995-1000				②	1.26	Dbg. 643; Kilger gr. Mg A 4	1147
Magdeburg ?		965-985	☑	②	②	③	0.38	Kilger gr. KN 1	910
Magdeburg ?		965-985		②		③	1.59	Kilger gr. KN 1	691
Magdeburg ?		995-1000		③		③	1.37	Dbg. 643, Kilger Mg A 4	520
Magdeburg		1000-1030		③		③	1.33	Dbg. 1330, Kilger gr. MgHP 1	464
Magdeburg		1000-1030		②		③	1.25	Dbg. 1330, Kilger gr. MgHP 1	507
Magdeburg ?		1000-1030				①	0.49	Dbg. 1330, Kilger gr. MgHP 1 ?	437
Magdeburg ?		1000-1030	☑	②		③	0.59	Dbg. 1330, Kilger gr. MgHP 1	1292
Magdeburg ?		1000-1030		②		③	0.65	Dbg. 1330, Kilger gr. MgHP 1-MgHP 3	738
Magdeburg ?		1000-1030		②	②	③	0.72	Dbg. 1330, Kilger gr. MgHP 1-MgHP 3	594
Magdeburg ?		1000-1030		③		③	0.79	Dbg. 1330 ?, Kilger gr. MgHP 1 ?	1169
Magdeburg ?		1000-1030	☑	②		③	0.80	Dbg. 1330, Kilger gr. MgHP 1	736
Magdeburg ?		1000-1030				①	0.87	Dbg. 1330, Kilger gr. MgHP 1	447
Magdeburg ?		1000-1030		②		③	0.87	Dbg. 1330, Kilger gr. MgHP 1	1243
Magdeburg ?		1000-1030		③		③	0.92	Dbg. 1330, Kilger gr. MgHP 1	303
Magdeburg ?		1000-1030		②		①	0.93	Dbg. 1330, Kilger gr. MgHP 1	1321
Magdeburg ?		1000-1030		③		③	0.95	Dbg. 1330, Kilger gr. MgHP 1	539
Magdeburg ?		1000-1030		③		③	0.96	Dbg. 1330, Kilger gr. MgHP 1	358
Magdeburg ?		1000-1030		③		②	0.97	Dbg. 1330, Kilger gr. MgHP 1	419
Magdeburg ?		1000-1030		①		②	0.99	Dbg. 1330, Kilger gr. MgHP 1	538
Magdeburg ?		1000-1030		②		①	1.00	Dbg. 1330, Kilger gr. MgHP 1	714
Magdeburg ?		1000-1030		②		③	1.00	Dbg. 1330, Kilger gr. MgHP 1	1305
Magdeburg ?		1000-1030		②		③	1.01	Dbg. 1330, Kilger gr. MgHP 1	466
Magdeburg ?		1000-1030		①		①	1.01	Dbg. 1330, Kilger gr. MgHP 1	617
Magdeburg ?		1000-1030		②		②	1.01	Dbg. 1330, Kilger gr. MgHP 1	708
Magdeburg ?		1000-1030		②	①	③	1.02	Dbg. 1330, Kilger gr. MgHP 1	715
Magdeburg ?		1000-1030				③	1.02	Dbg. 1330, Kilger gr. MgHP 1	1388
Magdeburg ?		1000-1030		③		②	1.03	Dbg. 1330, Kilger gr. MgHP 1	707

Magdeburg ?	1000-1030		③	③	1.03	Dbg. 1330, Kilger gr. MgHP 1	864	
Magdeburg ?	1000-1030		③	③	1.07	Dbg. 1330, Kilger gr. MgHP 1	468	
Magdeburg ?	1000-1030		②	②	1.09	Dbg. 1330, Kilger gr. MgHP 1	1011	
Magdeburg ?	1000-1030		②	①	1.10	Dbg. 1330, Kilger gr. MgHP 1	1196	
Magdeburg ?	1000-1030		②	①	1.11	Dbg. 1330, Kilger gr. MgHP 1	359	
Magdeburg ?	1000-1030		②	①	1.11	Dbg. 1330, Kilger gr. MgHP 1	398	
Magdeburg ?	1000-1030		③	②	1.12	Dbg. 1330, Kilger gr. MgHP 1	880	
Magdeburg ?	1000-1030		③	①	1.15	Dbg. 1330, Kilger gr. MgHP 1	885	
Magdeburg ?	1000-1030		②	③	1.16	Dbg. 1330, Kilger gr. MgHP 1	884	
Magdeburg ?	1000-1030		②	②	1.16	Dbg. 1330, Kilger gr. MgHP 1	1291	
Magdeburg ?	1000-1030		②	①	1.16	Dbg. 1330, Kilger gr. MgHP 1	465	
Magdeburg ?	1000-1030		①	②	1.16	Dbg. 1330, Kilger gr. MgHP 1	589	
Magdeburg ?	1000-1030		③	③	1.17	Dbg. 1330, Kilger gr. MgHP 1	10	
Magdeburg ?	1000-1030		②	③	1.17	Dbg. 1330, Kilger gr. MgHP 1-MgHP 3	580	
Magdeburg ?	1000-1030		②	③	1.17	Dbg. 1330, Kilger gr. MgHP 1	350	
Magdeburg ?	1000-1030		③	③	1.18	Dbg. 1330, Kilger gr. MgHP 1	17	
Magdeburg ?	1000-1030		②	③	1.18	Dbg. 1330, Kilger gr. MgHP 1	592	
Magdeburg ?	1000-1030		③	③	1.18	Dbg. 1330, Kilger gr. MgHP 1	882	
Magdeburg ?	1000-1030		②	①	1.19	Dbg. 1330, Kilger gr. MgHP 1	355	
Magdeburg ?	1000-1030		③	③	1.20	Dbg. 1330, Kilger gr. MgHP 1	881	
Magdeburg ?	1000-1030		②	②	1.20	Dbg. 1330, Kilger gr. MgHP 1	588	
Magdeburg ?	1000-1030		①	①	1.20	Dbg. 1330, Kilger gr. MgHP 1	448	
Magdeburg ?	1000-1030		②	①	1.20	Dbg. 1330, Kilger gr. MgHP 1	709	
Magdeburg ?	1000-1030	round	③	②	③	1.21	Dbg. 1330, Kilger gr. MgHP 1	897
Magdeburg ?	1000-1030		①	②	1.21	Dbg. 1330, Kilger gr. MgHP 1	710	
Magdeburg ?	1000-1030		②	①	1.22	Dbg. 1330, Kilger gr. MgHP 1	868	
Magdeburg ?	1000-1030		②	③	1.23	Dbg. 1330, Kilger gr. MgHP 1	449	
Magdeburg ?	1000-1030		③	②	1.24	Dbg. 1330, Kilger gr. MgHP 1	508	
Magdeburg ?	1000-1030		②	①	1.25	Dbg. 1330, Kilger gr. MgHP 1	416	
Magdeburg ?	1000-1030		②	②	1.26	Dbg. 1330, Kilger gr. MgHP 1	1083	
Magdeburg ?	1000-1030		②	③	1.27	Dbg. 1330, Kilger gr. MgHP 1	877	
Magdeburg ?	1000-1030		③	③	1.27	Dbg. 1330, Kilger gr. MgHP 1	713	
Magdeburg ?	1000-1030		③	②	1.27	Dbg. 1330, Kilger gr. MgHP 1	1002	
Magdeburg ?	1000-1030		③	③	1.28	Dbg. 1330, Kilger gr. MgHP 1	712	
Magdeburg ?	1000-1030		②	②	1.29	Dbg. 1330, Kilger gr. MgHP 1	349	
Magdeburg ?	1000-1030		③	②	1.29	Dbg. 1330, Kilger gr. MgHP 1	904	
Magdeburg ?	1000-1030		③	③	1.30	Dbg. 1330, Kilger gr. MgHP 1	1067	
Magdeburg ?	1000-1030		②	①	1.30	Dbg. 1330, Kilger gr. MgHP 1	994	
Magdeburg ?	1000-1030		③	③	1.30	Dbg. 1330, Kilger gr. MgHP 1	360	
Magdeburg ?	1000-1030		②	②	1.30	Dbg. 1330, Kilger gr. MgHP 1	591	

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Magdeburg ?		1000-1030		②		①	1.31	Dbg. 1330, Kilger gr. MgHP 1	965
Magdeburg ?		1000-1030		③		③	1.32	Dbg. 1330, Kilger gr. MgHP 1	962
Magdeburg ?		1000-1030		②		②	1.32	Dbg. 1330, Kilger gr. MgHP 1	1365
Magdeburg ?		1000-1030		②	②	③	1.32	Dbg. 1330, Kilger gr. MgHP 1	356
Magdeburg ?		1000-1030		②		③	1.33	Dbg. 1330, Kilger gr. MgHP 1	1178
Magdeburg ?		1000-1030		②		②	1.33	Dbg. 1330, Kilger gr. MgHP 1	711
Magdeburg ?		1000-1030		②		③	1.34	Dbg. 1330, Kilger gr. MgHP 1	467
Magdeburg ?		1000-1030		②		③	1.34	Dbg. 1330, Kilger gr. MgHP 1	1161
Magdeburg ?		1000-1030		②		③	1.34	Dbg. 1330, Kilger gr. MgHP 1	352
Magdeburg ?		1000-1030		②		③	1.34	Dbg. 1330, Kilger gr. MgHP 1	509
Magdeburg ?		1000-1030		③		③	1.35	Dbg. 1330, Kilger gr. MgHP 1	417
Magdeburg ?		1000-1030		②	①	③	1.38	Kilger gr. MgHP 1-3 ?	434
Magdeburg ?		1000-1030		①		②	1.38	Dbg. 1330, Kilger gr. MgHP 1	5
Magdeburg ?		1000-1030		②		③	1.43	Dbg. 1330, Kilger gr. MgHP 1	815
Magdeburg ?		1000-1030		③		①	1.44	Dbg. 1330, Kilger gr. MgHP 1	1401
Magdeburg ?		1000-1030		③	②	③	1.47	Dbg. 1330, Kilger gr. MgHP 1	883
Magdeburg ?		1000-1030		③		②	1.47	Dbg. 1330, Kilger gr. MgHP 1	457
Magdeburg ?		1000-1030		②		①	1.47	Dbg. 1330, Kilger gr. MgHP 1	353
Magdeburg ?		1000-1030		③		③	1.48	Dbg. 1330, Kilger gr. MgHP 1	1283
Magdeburg ?		1000-1030		②		①	1.49	Dbg. 1330, Kilger gr. MgHP 1	1384
Magdeburg ?		1000-1030		③		③	1.51	Dbg. 1330, Kilger gr. MgHP 1	357
Magdeburg ?		1000-1030		③		②	1.53	Dbg. 1330, Kilger gr. MgHP 1	706
Magdeburg ?		1000-1030		③		②	1.61	Dbg. 1330, Kilger gr. MgHP 1	1362
Magdeburg ?		1020-1030		③		③	0.84	Kilger gr. MgHP 3 ?	514
Magdeburg/Halle-Giebichenstein ?		1000-1030		②	①	①	1.00	Kilger gr. MgHP 1-3 ?	973
Magdeburg/Halle-Giebichenstein ?		1000-1030		③		③	1.11	Kilger gr. MgHP 1-3	1182
Magdeburg/Halle-Giebichenstein ?		1000-1030		③		③	1.23	Kilger gr. MgHP 1-3	963
Magdeburg/Halle-Giebichenstein ?		1000-1030		②		②	1.24	Kilger gr. MgHP 1-3	1308
Magdeburg/Halle-Giebichenstein ?		1000-1030		②		③	1.24	Kilger gr. MgHP 1-3	618
Magdeburg/Halle-Giebichenstein ?		1000-1030		②	①	③	1.27	Kilger gr. MgHP 1-3 ?	879
Mainz Emperor Otto II		973-983		②		②	1.03	Dbg. 778 ?	961
Mainz Archbishop Willigis		975-1011		②		③	1.17	Dbg. 802	313
Mainz Archbishop Willigis ?		975-1011	☑	①	②	③	0.81	Dbg. 802	1405
Mainz Archbishop Willigis ?		975-1011		③		③	1.16	Dbg. 803	1236
Mainz Archbishop Willigis ?		975-1011		②		③	1.42	Dbg. 801	1177
Mainz Archbishop Willigis ?		975-1011		②		③	1.51	Dbg. 802	504
Mainz Archbishop Willigis ?		975-1011		②		①	1.52	Dbg. 802	687
Mainz Archbishop Willigis ?		975-1011		②		②	1.64	Dbg. 801	1368
Mainz Archbishop Willigis ?		975-1011		③		③	1.70	Dbg. 802	823
Mainz Archbishop Willigis ?		975-1011		②		②	1.74	Dbg. 802	1137
Mainz Emperor Otto III		996-1002		②		②	0.46	Dbg. 780	720
Mainz Emperor Otto III		996-1002				②	0.47	Dbg. 780	576
Mainz Emperor Henry II		1022-1024		③		③	1.33	Dbg. 788	1170
Mainz King Henry II		1002-1024		①		①	1.03	Dbg. 785	611
Mainz King Henry II		1002-1024		①		③	1.39	Dbg. 788	686
Mainz King Henry II		1002-1024		②		①	1.45	Dbg. 788	1389
Mainz King Henry II		1002-1024		③		③	1.50	Dbg. 788	565
Mainz Otto II-Henry II		973-1024		②	①	②	1.25	Dbg. 777 ff	649

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Mainz/Speier/Worms	Tempeltype	962/73-1040			③	0.34	1131		
Mainz/Speier/Worms	Tempeltype	962/73-1040		①	①	0.51	332		
Mainz/Speier/Worms	Tempeltype	962/73-1040	☑	③	①	③	0.64	497	
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	0.88	609		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	0.88	601		
Mainz/Speier/Worms	Tempeltype	962/73-1040		①	③	0.89	440		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	0.91	340		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	0.91	309		
Mainz/Speier/Worms	Tempeltype	962/73-1040		①	③	0.92	342		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	0.94	1152		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	0.94	413		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	①	0.96	702		
Mainz/Speier/Worms	Tempeltype	962/73-1040			③	1.00	405		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	②	1.01	420		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.05	311		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.05	716		
Mainz/Speier/Worms	Tempeltype	962/73-1040		①	①	1.08	599		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	①	③	1.09	526	
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.09	620		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.10	1079		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.10	1006		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.11	1394		
Mainz/Speier/Worms	Tempeltype	962/73-1040		①	②	1.11	1143		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.12	415		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.14	1296		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.17	584		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	①	③	1.18	334	
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	①	1.22	333		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.23	876		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.23	586		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.24	502		
Mainz/Speier/Worms	Tempeltype	962/73-1040			③	1.25	610		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.25	821		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	②	③	1.27	529	
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	②	1.27	412		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	①	③	1.39	1380	
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.39	587		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.42	1132		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.43	1127		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.45	459		
Mainz/Speier/Worms	Tempeltype	962/73-1040		③	③	1.50	1000		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.54	335		
Mainz/Speier/Worms	Tempeltype	962/73-1040		②	③	1.56	500		
Mainz/Speier/Worms?	Tempeltype	962/73-1040		③	③	1.46	726		
Metz	Bishop Theodoric II	1005-1046		③	③	1.33	Dbg. 22	557	
Regensburg	Duke Berthold	938-947		③	③	0.77	Hahn 9?	525	
Regensburg	Duke Henry I	948-955	☑		③	0.97	Hahn 10	292	
Regensburg	Duke Henry I	948-955		②	①	1.34	Hahn 10	389	
Regensburg	Duke Henry III	983-985			③	0.93	Hahn 19	375	
Regensburg	Duke Henry II	985-995	☑	①	②	③	0.65	Hahn 22	293
Regensburg	Duke Henry II	985-995	☑	②	③	0.85	Hahn 22	1418	
Regensburg	Duke Henry III	983-985		②	①	0.91	Hahn 19	1232	
Regensburg	Duke Henry IV	995-1002		②	③	0.62	Dbg. 1072	1005	
Regensburg	Duke Henry IV	995-1002	☑	②	③	0.95	Hahn rev. 17e	1123	
Regensburg	Duke Henry IV	995-1002		②	③	1.11	Hahn rev. 25d1	1069	
Regensburg	Duke Henry IV	995-1002		①	②	1.23	Hahn rev. 25c6	818	
Regensburg	Duke Henry IV	995-1002		①	①	1.31	Hahn 25c	1306	

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Regensburg	King Henry II	1002-1009		②	②	0.97	Hahn rev. 27j1	689
Regensburg	King Henry II	1002-1009		②	③	1.00	Hahn 27	367
Regensburg	King Henry II	1002-1009		②	③	1.56	Hahn rev. 27h	693
Regensburg	King Henry II	1002-1009		②	③	1.59	Hahn rev. 27d2	695
Regensburg	King Henry II	1002-1009		②	③	1.60	Hahn rev. 22f	694
Regensburg	King Henry II	1009-1014	☑		②	0.66	Hahn 29	297
Regensburg	King Henry II	1009-1014	☑	②	②	0.86	Dbg. 1077b	986
Regensburg	King Henry II	1009-1014		③	③	1.14	Dbg. 1076	979
Regensburg	King Henry II	1009-1014		③	③	1.38	Hahn 29	388
Regensburg	King Henry II	1009-1014		①	①	1.49	Dbg. 1077b	942
Regensburg	King Henry II	1009-1024		②	③	1.54	Hahn 29b	1265
Regensburg	King Henry II	1009-1014		②	②	1.59	Dbg. 1076	1190
Regensburg	King Henry II	1009-1014		③	③	1.61	Dbg. 1077b	685
Regensburg	King Henry II	1009-1014		①	②	1.62	Dbg. 1077b	1211
Regensburg	King Henry II	1009-1014		②	③	1.68	Hahn rev. 29b	631
Regensburg	Duke Henry V	1018-1026		③	②	1.27	Hahn 31b1	366
Regensburg ?		1002-1024		③	③	0.91	Hahn rev. 27-29 ?	1297
Regensburg		900-1100	☑	①	③	0.43		1403
Salzburg	King Henry II	1009-1024		②	① ③	1.29	Hahn rev. 94A	505
Seligenstadt, Gittelde, Goslar	Emperor Otto II	970-983	☑	①	②	0.60	Dbg. 1325b, Kilger gr. KN 3	1520
Seligenstadt, Gittelde, Goslar	Emperor Otto II	970-983		②	③ ①	0.62	Dbg. 1325b, Kilger gr. KN 3	596
Speier	Emperor Otto III	996-1002		③	③	1.03	Dbg. 827	858
Speier	Emperor Otto III	996-1002		②	①	1.07	Dbg. 827	967
Strasbourg	Emperor Otto III	996-1002		③	③	1.17		700
Strasbourg	King Henry II	1002-1024	☑	②	① ③	0.63	Dbg. 920, 922	1119
Strasbourg	King Henry II	1002-1024	☑	③	③	0.90	Dbg. 916	1124
Strasbourg	King Henry II	1002-1024		①	②	1.30	Dbg. 918	391
Strasbourg	Emperor Henry II	1014-1024		①	①	1.37	Dbg. 920	280
Strasbourg	Emperor Henry II	1014-1024		②	② ③	1.43	Dbg. 920	1229
Strasbourg	Emperor Henry II	1014-1024		②	③	1.47	Dbg. 920	279
Strasbourg	Emperor Henry II	1014-1024		②	③	1.50	Dbg. 920	978
Strasbourg	Emperor Henry II	1014-1024		①	③	1.51	Dbg. 920	8
Strasbourg	Emperor Henry II	1014-1024		①	③	1.53	Dbg. 920	441
Strasbourg	Emperor Henry II	1014-1024		③	③	1.54	Dbg. 920	857
Strasbourg	Emperor Henry II	1014-1024		③	③	1.61	Dbg. 920	567
Strasbourg	Emperor Henry II	1014-1024		③	③	1.33	Dbg. 916	1240
Südliches Saalegebiet ?		1015-1025		③	③	1.06	Dbg. 1810, Kilger gr. Sal D 1	351
Thiel	Emperor Henry II	1014-1024		②	②	1.39	Dbg. 578	570
Thiel	Emperor Henry II	1014-1024		③	① ②	1.43	Dbg. 578	421
Trier	Otto III	983-1002		②	②	1.17	Dbg. 461	682
Trier	King Henry II	1002-1014		③	①	1.21	Dbg. 462	306
Verdun	King Henry I	919-936		③	③	1.19	Dbg. 92	344
Worms	Otto III	983-1002		③	③	0.89	Dbg. 844	511
Worms	Otto II-III	973-1002		②	③	0.53	Dbg. 844	1286
Worms	Otto II-III	973-1002		① ②	①	0.84	Dbg. 844	852
Worms	Otto II-III	973-1002		②	①	0.86	Dbg. 844	581
Worms	Otto II-III	973-1002		③	③	0.87	Dbg. 844	1162
Worms	Otto II-III	973-1002		③	③	0.88	Dbg. 844	724
Worms	Otto II-III	973-1002		②	① ①	0.89	Dbg. 844	817
Worms	Otto II-III	973-1002		②	③	0.90	Dbg. 844	1134
Worms	Otto II-III	973-1002		②	① ③	0.90	Dbg. 844	717
Worms	Otto II-III	973-1002		③	③	0.91	Dbg. 844	908
Worms	Otto II-III	973-1002		③	① ③	0.93	Dbg. 844	677
Worms	Otto II-III	973-1002		②	③	0.94	Dbg. 844	1360
Worms	Otto II-III	973-1002		②	②	0.95	Dbg. 844	983
Worms	Otto II-III	973-1002		③	① ③	0.99	Dbg. 844	907

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Worms	Otto II-III	973-1002		③		③	1.00	Dbg. 844	1402
Worms	Otto II-III	973-1002				①	1.02	Dbg. 844	866
Worms	Otto II-III	973-1002		②		②	1.03	Dbg. 844	1304
Worms	Otto II-III	973-1002		②		③	1.10	Dbg. 844	590
Worms	Otto II-III	973-1002		③		③	1.10	Dbg. 844	1017
Worms	Otto II-III	973-1002		②		③	1.12	Dbg. 844	1004
Worms	Otto II-III	973-1002		②		②	1.22	Dbg. 844	1087
Worms	Otto II-III	973-1002		③	②	②	1.35	Dbg. 844	1082
Worms	King Henry II	1002-1024	☑	②		②	0.49	Dbg. 845	474
Worms	King Henry II	1002-1024					1.05	Dbg. 845	452
Würzburg	Emperor Otto III	996-1002		③	①	③	0.96	Dbg. 856	678
Würzburg	King Henry II	1002-1024		②		③	1.07		425
Zürich	Emperor Otto II	973-983		③		③	1.13	Dbg. 999	1231
Zürich	Emperor Otto II	973-983		③		③	1.22	Dbg. 999	1316
	Emperor Otto I	962-973		③		③	0.79	Dbg. 1157	361
	Emperor Otto I	962-973		②		③	0.80	Dbg. 1157	381
	Emperor Otto I	962-973				①	0.82	Dbg. 1157	423
	Emperor Otto I	962-973		②		③	0.83	Dbg. 1157	380
	Emperor Otto I	962-973		②		①	0.95	Dbg. 1157	376
	Otto I (Otto/III ?)	936-973		①		①	0.92	Kluge 1999 9.9	980
	Otto I (Otto/III ?)	936-973				③	1.10	Kluge 1999 9.9	3
	Otto III	983-1002		③		③	0.89		982
	Otto III	983-1002		③	①	③	1.27	Dbg. 1160	830
	King Henry II ?	1002-1009	☑	②		③	0.52		1117
	Emperor Henry II	1014-1024		②		①	1.43	Dbg. 1177	553
	Emperor Henry II	1014-1024		③		③	1.54	Dbg. 920	857
		900-1000		③		③	0.70	Dbg. 1271a	905
		900-1100		③		③	0.73	Dbg. 1229	1285
		900-1100		②		③	0.80	Dbg. 1229	1084
		900-1100		②		①	0.82	Dbg. 1229	820
		900-1100		③		③	0.83	Dbg. 1229	1183
		900-1100		③		③	0.85	Dbg. 1229	701
		900-1100		②		③	0.86	Dbg. 1229	516
		900-1100		③		③	0.87	Dbg. 1229	1133
		900-1100		③		③	1.54	Dbg. 1772 ?	698
		900-1100	☑	②		③	0.44		924
		900-1100	☑	③		③	0.47		999
		900-1100	☑	②	②	③	0.75		923
		900-1100		②	②	③	1.32		984
		900-1100		②		③	1.48		843
		900-1100	☑			①	0.31		1102
		900-1100	☑	②		③	0.33		472
		900-1100	☑	②		③	0.36		1413
		900-1100		①	①	③	0.39		1379
		900-1100	☑	②		③	0.41		1120
		900-1100	☑			③	0.43		1422
		900-1100	☑		②	③	0.43		1106
		900-1100	☑	②		③	0.46		732
		900-1100	☑	②		③	0.46		1249
		900-1100	☑	②		③	0.49		1125
		900-1100				③	0.49		1064
		900-1100	☑	②	②	②	0.49		1097
		900-1100	☑	②		③	0.51		1439
		900-1100	☑	①	②	③	0.53		20
		900-1100	☑	②	②	③	0.54		1250
		900-1100	☑	③		③	0.56		1412
		900-1100	round	③		③	0.57		276

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900-1100	☑	②		②	0.58	919
900-1100		①		①	0.61	347
900-1100	☑	①	②	③	0.62	498
900-1100				①	0.62	1068
900-1100	☑		①	①	0.62	1113
900-1100	☑	②	①	②	0.64	296
900-1100	☑		②	③	0.64	1225
900-1000	☑	②		③	0.64	1114
900-1100		②	①	③	0.65	401
900-1100		③		③	0.66	833
900-1100	☑	③	③	①	0.68	1019
900-1100		②		③	0.68	827
900-1100	☑	②		③	0.68	1415
900-1100		②		③	0.69	829
900-1100		③		③	0.69	1073
900-1000	☑	②	①	③	0.70	289
900-1100		③		③	0.72	403
900-1100		③		③	0.75	1381
900-1100		①		①	0.77	614
900-1100		③		③	0.78	1166
900-1100		②		①	0.79	894
900-1100		②			0.80	898
900-1100		①		③	0.80	512
900-1100		②		②	0.86	878
900-1100	☑	③	②	③	0.87	1313
900-1100		③		②	0.90	578
900-1100		③		③	0.90	699
900-1100		②		①	0.91	426
900-1100		②		③	0.91	406
900-1100		③		③	0.93	888
900-1100		③	①	③	0.95	446
900-1100		②		③	0.97	339
900-1100		③		③	1.00	702
900-1100		③		③	1.01	1140
900-1100		③		③	1.03	499
900-1100		③		①	1.08	310
900-1100		①		③	1.12	1372
900-1100		③		③	1.16	1157
900-1100		②		①	1.18	1244
900-1100		②	①	③	1.18	573
900-1100		③		③	1.19	370
900-1100		③		③	1.19	1395
900-1100		③	①	③	1.19	705
900-1100		①		①	1.22	503
900-1100		③		③	1.28	853
900-1100		②		③	1.30	729
900-1100		③	①	③	1.33	728
900-1100				③	1.35	579
900-1100		①	②	①	1.45	1179
900-1100		③	①	②	1.47	492
900-1100		③	①	③	1.48	1385
900-1100		③	③	③	1.48	493
900-1100		②	①	①	1.50	438
900-1100		③		③	1.50	1234
900-1100		②		③	1.51	530
900-1100		③	②	③	1.52	556
900-1100		③		③	1.58	404
900-1100		③	①	③	1.69	1191

4.2.2 English coins

	Description	Date	Frag.	Piercing	Pecks	Notches	Bent	Mass	Reference	N°
Bath	King Ethelred II – Long cross	997-1003					①	1.74	North Pl. 13, 9-12	1022
Buckingham	King Cnut I – Quatrefoil	1017-1023			②		③	1.56	North Pl. 12, 23-27	1206
Cambridge	King Ethelred II – Helmet	1003-1009			③		③	1.17	North Pl. 13, 13-14	769
Cambridge	King Ethelred II – Last small cross	1009-1017			③		③	1.35	North Pl. 13, 16-19	801
Canterbury	King Ethelred II – Crux	991-997		1 round and 1 oval	②			1.27	North Pl. 13, 1-6	257
Canterbury	King Ethelred II – Crux	991-997			②		③	1.35	North Pl. 13, 1-7	1026
Canterbury	King Ethelred II – Crux	991-997			②		③	1.60	North Pl. 13, 1-7	23
Canterbury	King Ethelred II – Long cross	997-1003	☑		②	②	③	0.84	North Pl. 13, 9-12	1274
Canterbury	King Ethelred II – Intermediate small cross	997-997			③		③	1.65	North Pl. 13,8	952
Canterbury	King Ethelred II – Long cross	997-1003			③		③	1.66	North Pl. 13, 9-12	745
Chester	King Ethelred II – Long cross	997-1003		Irregular	③		③	1.77	North Pl. 13, 9-12	1209
Chester ?	Crux/Small cross (imitation?)	997-1020/30			①		③	1.39		1264
Chester	King Ethelred II – Last small cross	1009-1017			②		③	0.98	North Pl. 13, 16-19	951
Chester	King Cnut I – Quatrefoil	1017-1023			②		②	0.99	North Pl. 13,24	542
Colchester	King Ethelred II – Last small cross	1009-1017			③		③	1.15	North Pl. 13, 16-19	636
Dover	King Ethelred II – Helmet	1003-1009			②		②	1.41	North Pl. 13, 13-14	263
Dover	King Ethelred II – Helmet	1003-1009			③		③	1.47	North Pl. 13, 13-14	262
Dover	King Ethelred II – Last small cross	1009-1017			③		③	1.01	North Pl. 13, 16-19	935
Exeter	King Ethelred II – Crux	991-997			②		③	1.25	North Pl. 13, 1-7	477
Exeter	King Ethelred II – Crux	991-997			③		③	1.53	North Pl. 13, 1-7	1255
Exeter	King Ethelred II – Long cross	997-1003			③		③	1.46	North Pl. 13, 9-11	259
Exeter	King Ethelred II – Long cross	997-1003		round	②		②	1.72	North Pl. 13, 9-11	478
Exeter	King Ethelred II – Helmet	1003-1009	☑		②		①	0.57	North Pl. 13, 13-14	1269
Exeter	King Ethelred II – Helmet	1003-1009			③		③	1.18	North Pl. 13, 13-14	476
Gloucester	King Ethelred II – Crux	991-997			①		③	1.65	North Pl. 13, 1-7	640
Gloucester	King Ethelred II – Intermediate/ Last small cross	997-1017			③		③	1.39	North Pl. 13, 8/16-21	934
Hereford	King Ethelred II – Long cross	997-1003	☑		②	③	③	0.77	North Pl. 13, 9-12	544
Hereford	King Ethelred II – Long cross	997-1003			②		②	1.66	North Pl. 13, 9-12	771
Ilchester	King Ethelred II – Crux	991-997	☑		②		③	0.89	North Pl. 13, 1-7	749
Ilchester	King Cnut I – Quatrefoil	1017-1023			①		③	1.06	North Pl. 12, 23-27	772
Ipswich	King Ethelred II – Helmet	1003-1009			②		③	1.11	North Pl. 13, 13-14	642
Ipswich	King Ethelred II – Last small cross	1009-1017			②		③	1.29	North Pl. 13, 16-19	1258
Ipswich	King Ethelred II – Last small cross	1009-1017			②		③	1.39	North Pl. 13, 16-19	775
Lincoln	King Ethelred II – Small cross	978-1017	☑		③		③	0.75	North Pl. 12, 30-32, Pl. 13, 8/16-21	944
Lincoln	King Ethelred II – Long cross	997-1003	☑		③		③	0.44	North Pl. 13, 9-12	754
Lincoln	King Ethelred II – Intermediate/ Last small cross	997-1017			②		②	1.24	North Pl. 13, 8/16-19	479
Lincoln	King Ethelred II – Long cross	997-1003			③		③	1.28	North Pl. 13, 9-12	752
Lincoln	King Ethelred II – Long cross	997-1003			③		③	1.55	North Pl. 13, 9-12	768
Lincoln	King Ethelred II – Helmet	1003-1009			③		②	1.10	North Pl. 13, 13-14	937
Lincoln	King Ethelred II – Last small cross	1009-1017	☑		②	②	①	0.66	North Pl. 13, 16-19	1031
Lincoln	King Ethelred II – Last small cross	1009-1017	☑		②		①	0.67	North Pl. 13, 16-19	648
Lincoln	King Ethelred II – Last small cross	1009-1017			②		③	1.04	North Pl. 13, 16-19	936
Lincoln	King Ethelred II – Last small cross	1009-1017			③		③	1.10	North Pl. 13, 16-19	1253
Lincoln	King Ethelred II – Last small cross	1009-1017			③		③	1.13	North Pl. 13, 16-19	552
Lincoln	King Ethelred II – Last small cross	1009-1017	☑		②		③	1.15	North Pl. 13, 16-19	551
Lincoln	King Ethelred II – Last small cross	1009-1017			③		①	1.19	North Pl. 13, 16-19	1246
Lincoln	King Ethelred II – Last small cross	1009-1017			②		③	1.20	North Pl. 13, 16-19	943
Lincoln	King Ethelred II – Last small cross	1009-1017			③		③	1.36	North Pl. 13, 16-19	647
Lincoln	King Ethelred II – Last small cross	1009-1017			③		③	1.66	North Pl. 13, 16-19	646
London	King Ethelred II – Small cross	978-1017	☑		②			0.55	North Pl. 12, 30-31, Pl. 13, 8/16-19	1436
London	King Ethelred II – First hand	979-985		round	③		③	1.47	North Pl. 12, 35	267
London	King Ethelred II – Second hand	985-991			②		③	1.28	North Pl. 12, 38-39	1280

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London	King Ethelred II – Second hand	985-991		②	③	1.58	North Pl. 12, 38-39	747
London	King Ethelred II – Crux	991-997		②	③	1.17	North Pl. 13, 1-7	264
London	King Ethelred II – Crux	991-997		②	① ③	1.28	North Pl. 13, 1-7	1262
London	King Ethelred II – Crux	991-997		②	③	1.34	North Pl. 13, 1-7	638
London	King Ethelred II – Crux	991-997		③	③	1.35	North Pl. 13, 1-7	766
London	King Ethelred II – Crux	991-997		①		1.49	North Pl. 13, 1-7	6
London	King Ethelred II – Crux	991-997		③	①	1.64	North Pl. 13, 1-7	266
London	King Ethelred II – Long cross	997-1003	☑	①	① ②	0.71	North Pl. 13, 9-12	800
London	King Ethelred II – Long cross	997-1003		③	③	1.26	North Pl. 13, 9-12	548
London	King Ethelred II – Long cross	997-1003		③	③	1.31	North Pl. 13, 12	265
London	King Ethelred II – Long cross	997-1003		②	③	1.34	North Pl. 13, 9-12	547
London	King Ethelred II – Long cross	997-1003		③	③	1.35	North Pl. 13, 9-12	746
London	King Ethelred II – Intermediate/ Last small cross	997-1017		②	③	1.42	North Pl. 13, 8/16-21	1198
London	King Ethelred II – Long cross	997-1003		③	③	1.57	North Pl. 13, 9-12	1259
London	King Ethelred II – Long cross	997-1003		③	③	1.60	North Pl. 13, 9-12	764
London	King Ethelred II – Long cross	997-1003		②	③	1.64	North Pl. 13, 9-12	1207
London	King Ethelred II – Long cross	997-1003			①	1.67	North Pl. 13, 9-11	268
London	King Ethelred II – Long cross	997-1003		②	③	1.67	North Pl. 13, 9-12	1261
London	King Ethelred II – Long cross	997-1003			①	1.68	North Pl. 13, 9-12	767
London	King Ethelred II – Long cross	997-1003		②	③	1.70	North Pl. 13, 9-12	765
London	King Cnut I – Quatrefoil	1017-1023		③	②	0.94	North Pl. 12, 25	956
London	King Cnut I – Quatrefoil	1017-1023		②	①	1.01	North Pl. 12, 23-27	796
London	King Cnut I – Quatrefoil	1017-1023	☑	②	②	1.01	North Pl. 13, 13-27	1035
London	King Cnut I – Quatrefoil	1017-1023		①	③	1.10	North Pl. 13, 25	24
London	King Ethelred II – Helmet	1003-1009		②	②	1.19	North Pl. 13, 13-14	625
London	King Ethelred II – Helmet	1003-1009		③	③	1.33	North Pl. 13, 13-14	762
London	King Ethelred II – Helmet	1003-1009		②	③	1.33	North Pl. 13, 13-14	1260
London	King Ethelred II – Helmet	1003-1009		②	③	1.39	North Pl. 13, 13-14	1428
London	King Ethelred II – Helmet	1003-1009		③	③	1.43	North Pl. 13, 13-14	1024
London	King Ethelred II – Last small cross	1009-1017		②	③	0.84	North Pl. 13, 16-19	1429
London	King Ethelred II – Last small cross	1009-1017		③	③	1.00	North Pl. 13, 16-19	1208
London	King Ethelred II – Last small cross	1009-1017		②	①	1.16	North Pl. 13, 16-19	13
London	King Ethelred II – Last small cross	1009-1017		③	③	1.18	North Pl. 13, 16-19	797
London	King Ethelred II – Last small cross	1009-1017		②	①	1.21	North Pl. 13, 16-19	1171
London	King Ethelred II – Last small cross	1009-1017		②	③	1.22	North Pl. 13, 16-19	634
London	King Ethelred II – Last small cross	1009-1017		②	①	1.25	North Pl. 13, 16-19	950
London	King Ethelred II – Last small cross	1009-1017		③	③	1.30	North Pl. 13, 16-19	1023
London	King Ethelred II – Last small cross	1009-1017		②	③	1.30	North Pl. 13, 16-19	763
London	King Ethelred II – Last small cross	1009-1017		③	③	1.30	North Pl. 13, 16-19	1432
London	King Ethelred II – Last small cross	1009-1017		③	③	1.36	North Pl. 13, 16-19	546
London	King Ethelred II – Last small cross	1009-1017		③	① ③	1.70	North Pl. 13, 16-19	1254
Lydford	King Ethelred II – Helmet	1003-1009		③	③	1.09	North Pl. 13, 13-14	1441
Lydford	King Ethelred II – Helmet	1003-1009		③	③	1.12	North Pl. 13, 13-14	1028
Norwich ?	King Cnut I – Quatrefoil	1017-1023		②	②	1.14	North Pl. 12, 24	628
Salisbury	King Ethelred II – Small cross	978-1017		③	③	1.44	North Pl. 12, 30-31, Pl. 13, 8/16-19	481
Shaftesbury	King Ethelred II – Helmet	1003-1009		②	③	1.20	North Pl. 13, 13-14	776
Shaftesbury	King Ethelred II – Last small cross	1009-1017	☑	②	③	0.90	North Pl. 13, 16-19	947
Shaftesbury	King Ethelred II – Last small cross	1009-1017		③	③	1.36	North Pl. 13, 16-19	1427
Southampton	King Ethelred II – Long cross	997-1003	☑	③	② ③	0.83	North Pl. 13, 9-12	803
Southampton	King Ethelred II – Long cross	997-1003		②	③	1.68	North Pl. 13, 9-12	639
Southampton	King Ethelred II – Last small cross	1009-1017		③	③	1.17	North Pl. 13, 16-19	365
Southwark	King Ethelred II – Crux	991-997		③	③	1.45	North Pl. 13, 1-6	258
Southwark	King Ethelred II – Crux	991-997		③	③	1.22	North Pl. 13, 1-7	791
Southwark	King Ethelred II – Crux	991-997		③	③	1.42	North Pl. 13, 1-7	485
Southwark	King Ethelred II – Crux	991-997		②	③	1.53	North Pl. 13, 1-7	1256
Southwark	King Ethelred II – Crux	991-997		①	②	1.57	North Pl. 13, 1-7	751
Southwark	King Cnut I – Quatrefoil	1017-1023		①	①	0.99	North Pl. 12, 25	630

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Southwark	King Cnut I – Quatrefoil	1017-1023			②	③	1.03	North Pl. 13,25	755	
Stamford	King Ethelred II – First hand	979-991				③	1.46	North Pl. 12, 33-36	773	
Stamford	King Ethelred II – Last small cross	1009-1017	☑		②	③	0.72	North Pl. 13, 16-19	781	
Stamford	King Ethelred II – Last small cross	1009-1017	☑		③	③	0.80	North Pl. 13, 16-19	1032	
Stamford	King Ethelred II – Last small cross	1009-1017			②	③	1.13	North Pl. 13, 16-19	483	
Stamford	King Ethelred II – Last small cross	1009-1017			②	③	1.19	North Pl. 13, 16-19	758	
Stamford	King Ethelred II – Last small cross	1009-1017			②	①	1.26	North Pl. 13, 16-19	1027	
Stamford	King Ethelred II – Last small cross	1009-1017	☑		①	③	1.28	North Pl. 13, 16-19	783	
Stamford	King Ethelred II – Last small cross	1009-1017			③	③	1.32	North Pl. 13, 16-19	777	
Stamford	King Cnut I – Quatrefoil	1017-1023			②	①	1.23	North Pl. 12, 23-27	789	
Thetford	King Ethelred II – Intermediate/ Last small cross	997-1017	☑		③	②	0.57	North Pl. 13, 8/16-21	805	
Thetford	King Ethelred II – Helmet	1003-1009			②	③	1.00	North Pl. 13, 13-14	753	
Thetford	King Ethelred II – Last small cross	1009-1017			③	③	1.18	North Pl. 13, 16-19	1430	
Thetford	King Ethelred II – Last small cross	1009-1017			②	③	1.26	North Pl. 13, 16-19	1210	
Wallingford	King Ethelred II – Long cross	997-1003			②	③	1.70	North Pl. 13, 9-12	770	
Winchcombe	King Ethelred II – Last small cross	1009-1017			③	③	1.39	North Pl. 13, 16-19	1433	
Winchester	King Ethelred II – First small cross	978-979			①	③	1.50	North Pl. 12, 978-979	3419	
Winchester	King Ethelred II – Crux	991-997			③	②	1.65	North Pl. 13, 1-7	261	
Winchester	King Ethelred II – Crux	991-997			②	③	1.70	North Pl. 13, 1-7	1025	
Winchester	King Ethelred II – Crux	991-997			③	③	1.73	North Pl. 13, 1-7	759	
Winchester	King Ethelred II – Long cross	997-1003	☑			①	①	0.85	North Pl. 13, 9-12	1030
Winchester	King Ethelred II – Long cross	997-1003			③	③	1.70	North Pl. 13, 9-12	761	
Winchester	King Ethelred II – Long cross	997-1003			③	③	1.78	North Pl. 13, 9-11	260	
Winchester?	King Ethelred II – Long cross	997-1003	☑		①	①	1.03	North Pl. 13, 9-12	1438	
Winchester	King Ethelred II – Helmet	1003-1009			③	③	1.47	North Pl. 13, 13-14	549	
Winchester	King Ethelred II – Helmet	1003-1009			②	③	1.60	North Pl. 13, 13-14	633	
Winchester?	King Ethelred II – Last small cross	1009-1017			③	③	1.10	North Pl. 13, 16-19	632	
Winchester	King Ethelred II – Last small cross	1009-1017			③	③	1.27	North Pl. 13, 16-19	1257	
Winchester	King Ethelred II – Last small cross	1009-1017			③	③	1.35	North Pl. 13, 16-19	798	
Winchester	King Ethelred II – Last small cross	1009-1017			③	③	1.47	North Pl. 13, 16-19	1431	
Winchester	King Ethelred II – Last small cross	1009-1017			②	③	1.48	North Pl. 13, 16-19	931	
York	King Ethelred II	991-1017	☑			②	0.34		1219	
York	King Ethelred II – Helmet	1003-1009			③	③	1.35	North Pl. 13, 13-14	550	
York	King Ethelred II – Helmet	1003-1009			③	③	1.39	North Pl. 13, 13-14	744	
York	King Ethelred II – Helmet	1003-1009			③	③	1.39	North Pl. 13, 13-14	802	
York	King Cnut I – Quatrefoil	1017-1023			③	③	1.01	North Pl. 12, 23-27	541	
York	King Cnut I – Quatrefoil	1017-1023			②	③	1.30	North Pl. 13, 23	252	
	King Ethelred II – Small cross	978-1017	☑		①	①	①	0.25	North Pl. 12, 30-32, Pl. 13, 8/16-21	1034
	King Ethelred II – Small cross	978-1017	☑			①		0.31	North Pl. 12, 30-32, Pl. 13, 8/16-21	784
	King Ethelred II – Small cross	978-1017	☑			②	①	0.35	North Pl. 12, 30-32, Pl. 13, 8/16-21	946
	King Ethelred II – Small cross	978-1017	☑		②	①	①	0.35	North Pl. 12, 30-31, Pl. 13, 8/16-19	299
	King Ethelred II – Small cross	978-1017	☑		②	②	②	0.43	North Pl. 12, 30-32, Pl. 13, 8/16-21	1268
	King Ethelred II – Small cross	978-1017	☑		②	②	③	0.49	North Pl. 12, 30-32, Pl. 13, 8/16-21	1029
	King Ethelred II – Small cross	978-1017	☑		①	①		0.59	North Pl. 12, 30-32, Pl. 13, 8/16-21	1033
	King Ethelred II – Small cross	978-1017	☑		②	②	①	0.60	North Pl. 12, 30-31, Pl. 13, 8/16-19	304
	King Ethelred II – Small cross	978-1017	☑		①		①	0.63	North Pl. 12, 30-31, Pl. 13, 8/16-19	1437
	King Ethelred II – Small cross	978-1017	☑		①	①	①	0.64	North Pl. 12, 30-32, Pl. 13, 8/16-21	792
	King Ethelred II – Small cross	978-1017	☑		③		③	0.66	North Pl. 12, 30-32, Pl. 13, 8/16-21	1300
	King Ethelred II – Small cross	978-1017	☑		②	①	③	0.71	North Pl. 12, 30-31, Pl. 13, 8/16-19	304
	King Ethelred II – Small cross	978-1017	☑		②	②	①	0.73	North Pl. 12, 30-32, Pl. 13, 8/16-21	932
	King Ethelred II – First small cross	978-979	☑		①			0.80	North Pl. 12, 978-979	933

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King Ethelred II – Small cross	978-1017					③	0.83	North Pl. 12, 30-32, Pl. 13, 8/16-21	954
King Ethelred II – First small cross	978-979	☑		③	①	③	0.99	North Pl. 12, 978-979	1323
King Ethelred II – Small cross	978-1017			③		③	1.16	North Pl. 12, 30-32, Pl. 13, 8/16-21	641
King Ethelred II – Second hand	985-991	☑			①	②	0.37	North Pl. 12, 38-39	1248
King Ethelred II – Crux	991-997	☑		②		③	0.34	North Pl. 13, 1-7	1218
King Ethelred II	991-1017	☑		②		③	0.50		545
King Ethelred II – Crux	991-997	☑		②	①	③	0.55	North Pl. 13, 1-7	804
King Ethelred II – Crux	991-997	☑		②	②	③	0.60	North Pl. 13, 1-6	1440
King Ethelred II – Crux	991-997	☑		①	②	③	0.67	North Pl. 13, 1-7	1273
King Ethelred II – Crux	991-997	☑		③		③	0.74	North Pl. 13, 1-7	644
King Ethelred II – Crux	991-997	☑		③		③	0.75	North Pl. 13, 1-7	748
King Ethelred II – Crux	991-997	☑		③	①	①	0.78	North Pl. 13, 1-7	1311
King Ethelred II – Crux	991-997	☑		③	②	③	0.79	North Pl. 13, 1-7	750
King Ethelred II – Crux	991-997			③		①	1.12	North Pl. 13, 1-6	256
King Ethelred II – Benediction hand	991-991			③		③	1.46	North Pl. 12, 40	930
King Ethelred II – Intermediate/ Last small cross	997-1017	☑		②		①	0.52	North Pl. 13, 8, 16-19	295
King Ethelred II – Long cross	997-1003	☑		②	②	①	0.59	North Pl. 13, 9-12	1000
King Ethelred II – Long cross	997-1003	☑				②	0.61	North Pl. 13, 9-12	1288
King Ethelred II – Intermediate/ Last small cross	997-1017	☑			②	③	0.65	North Pl. 13, 8/16-19	290
King Ethelred II – Long cross	997-1003	☑		②	①	③	0.68	North Pl. 13, 9-12	1247
King Ethelred II – Long cross	997-1003			②	②	①	0.75	North Pl. 13, 9-12	1272
King Ethelred II – Long cross	997-1003	☑		③		①	0.89	North Pl. 13, 9-11	255
King Ethelred II – Long cross	997-1003	☑					1.00	North Pl. 13, 9-11	482
King Ethelred II – Long cross	997-1003	☑		②		③	1.12	North Pl. 13, 9-12	779
King Ethelred II – Long cross	997-1003			③		③	1.55	North Pl. 13, 9-11	484
King Ethelred II – Long cross	997-1003			③		③	1.66	North Pl. 13, 9-11	4
King Ethelred II – Helmet	1003-1009	☑			①	①	0.35	North Pl. 13, 13-14	778
King Ethelred II – Helmet	1003-1009	☑		②		③	0.59	North Pl. 13, 13-14	782
King Ethelred II – Helmet	1003-1009	☑		③		②	0.61	North Pl. 13, 13-14	1270
King Ethelred II – Helmet	1003-1009	☑		②	①	②	0.66	North Pl. 13, 13-14	1517
King Ethelred II – Last small cross	1009-1017	☑		②	①	③	0.46	North Pl. 13, 16-19	780
King Ethelred II – Last small cross	1009-1017	☑		②	①	③	0.78	North Pl. 13, 16-19	945
King Ethelred II – Last small cross	1009-1017			③		③	0.91	North Pl. 13, 16-19	774
King Ethelred II – Last small cross	1009-1017			②		③	1.19	North Pl. 13, 16-19	949
King Ethelred II – Last small cross	1009-1017			②		③	1.29	North Pl. 13, 16-19	637
King Cnut I – Quatrefoil	1017-1023	☑				①	0.28	North Pl. 12, 23-27	1271
King Cnut I – Quatrefoil	1017-1023	☑					0.39	North Pl. 12, 25	1036
King Cnut I – Quatrefoil	1017-1023	☑			①	②	0.43	North Pl. 12, 23-27	1267
King Cnut I – Quatrefoil	1017-1023	☑		①		①	0.63	North Pl. 13, 24	251
King Cnut I – Quatrefoil	1017-1023			②		③	1.08	North Pl. 13, 13-27	1442
	900-1100	☑					0.16		302
	900-1100	☑					0.22		301
	900-1100	☑					0.25		1217
	900-1100			③		③	1.05		826

4.2.3 Irish coins

Description/Imitation	Date	Frag.	Piercing	Pecks	Nicks	Notches	Bent	Mass	N°
King Sihtric – Small cross	997-1020			②			③	1.11	1212
“London” King Sihtric – Small cross	997-1020			②			③	1.05	794

4.2.4 Scandinavian coins

Description/Imitation	Date	Frag.	Pecks	Notches	Bent	Mass	Reference	N°
Lund King Cnut I	1018-1035		②		③	1.17	Hauberg Tab. I, 2 (imitation ?)	1214
Lund King Cnut I	1018-1035		②		③	1.45	Hauberg Tab. I, 1	989

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Lund	King Cnut I	1018-1035		②		③	1.64	Hauberg Tab. I, 1	955
Lund	King Cnut I	1018-1035		③	①	③	1.66	Hauberg Tab. I, 1	788
Lund ?	Small cross	997-1020/30		②		②	1.35	Malmer 604.? (105)	799
Lund ?	Long cross/Small cross	997-1020/30		③		③	1.26	Malmer 127.? (105)	953
Lund ?	Long cross/Small cross	997-1020/30		②		③	1.48	Malmer 127.? (105)	480
Lund ?	Long cross/Small cross	997-1020/30		③		②	1.57	Malmer 115.? (105)	486
Lund	Small cross	997-1020/30		②		①	1.42	Malmer 604.1791	1436
Lund	Small cross	997-1020/30		②		③	1.62	Malmer 506.1750	1434
Sigtuna	King Olof III – Long cross	997-1022	☑	③	②	③	1.60	Malmer 21.87 (10)	757
Sigtuna	King Olof III	995-1022		③		③	2.30	Malmer 17.67 (1)	253
Sigtuna ?	Small cross	997-1020/30		③	②	③	1.03	Malmer 1773.1781 (11)	22
Sigtuna ?	Long cross/Helmet	997-1020/30			①	③	2.06	Malmer 249.819 (21)	938
Sigtuna ?	Long cross	997-1020/30	☑	②		③	1.43	Malmer 9.417.4.728 (11)	243
Sigtuna ?	Long cross	997-1020/30		②		③	1.91	Malmer 377.1274 (116)	1215
Sigtuna ?	Long cross	997-1020/30		②		③	2.21	Malmer 320.9114 (117)	1213
Sigtuna ?	Helmet/Small cross	997-1020/30		②		③	1.77	Malmer 507.1865 (3-L)	756
Sigtuna	Long cross	997-1020/30		②		②	1.39	Malmer 374.1122 (11)	269
Sigtuna	Long cross	997-1020/30		③		③	1.89	Malmer 274?.? (11)	18
	King Cnut I	1018-1035		②		①	1.02	Hauberg Tab. I, 2 var.	948
	Small cross	997-1020/30		③		③	1.80		566
	Long cross/Small cross	997-1020/30		③		③	1.40		941
	Long cross	997-1020/30	☑	②	②	③	0.65		785
	Long cross	997-1020/30		②		①	0.89		487
	Long cross	997-1020/30		②		①	0.91		274
	Long cross	997-1020/30	☑	③	②	③	1.09		1021
	Long cross	997-1020/30	☑	②	③	③	1.10		629
	Long cross	997-1020/30		②		③	1.17	Malmer 233.1216 (4-L)	1263
	Long cross	997-1020/30		②		②	1.21		272
	Long cross	997-1020/30					1.24		645
	Long cross	997-1020/30		②		①	1.27		1426
	Long cross	997-1020/30		②		③	1.34		787
	Long cross	997-1020/30		③		③	1.37	Malmer 233.1216 (4-L)	543
	Long cross	997-1020/30		②		②	1.41	Malmer 233.1216 (4-L)	270
	Long cross	997-1020/30		②		①	1.52	Malmer 945.9177 (s)	1216
	Long cross	997-1020/30		②		③	1.63	Malmer 233.1216 (4-L)	273
	Long cross	997-1020/30	☑	③	③	③	1.75		795
	Long cross	997-1020/30		③		③	1.76		488
	Long cross	997-1020/30		③		③	1.80		271
	Long cross	997-1020/30		③		③	2.00		793
	Long cross	997-1020/30		③		②	2.14	Malmer 408.1491 (s)	939
	Long cross	997-1020/30		③	①	③	2.24	Malmer 348.1323 (3-L)	250
	Long cross	997-1020/30				①	2.60		2
	Long cross	997-1020/30		③		③	3.02		790
	Helmet	997-1020/30		②		③	0.79		1195

4.2.5 Bohemian coins

	Description	Date	Frag.	Piercing	Pecks	Nicks	Notches	Bent	Reference	Mass	N°
Prague	Prince Boleslav II	967-999	☑		②			③	Cach 129	0.37	1420
Prague	Prince Boleslav II	967-999	☑		③			③		0.75	735
Prague	Prince Boleslav II	967-999	☑				①	③	Cach 58	0.80	291
Prague	Prince Boleslav II	967-999			②			③	Cach 104	1.27	1156
Prague ?	Prince Boleslav II ?	967-999	☑		③			③	Cach 123 ff	0.56	1275
Prague	Duke Jaromir	1003-1034			②			③	Cach 269	0.94	786
Prague	Duke Jaromir	1003-1034						③	Cach 264	0.95	940
Vysehrad	Duke Jaromir	1003-1034	☑	irregular	③		①	③	Cach 279	0.91	1226

4.2.6 Kufic coins

Dynasty	Caliph – City	Imitation	AD	Frag.	Piercing	Pecks	Nicks	Notches	Bent	Mass	Nº
Abbaside			>833	☑				③	②	0.38	286
Abbaside	al Muktafi		904/905					②	③	4.31	958
Abbaside	al Muqtadir – Salamiyya ?		921/922						③	3.14	1039
Abbaside	al Radi		934-940	☑				②	③	0.76	1044
Abbaside	al Muqtadir		929-932			②			③	2.40	1048
Abbaside	al Muttaki/Nasir & Sayf ad-daula – Madiant al Salam/Bagdad		942/943			②		②	③	4.65	1050
Abbaside	al Mahdi ? – “Madiant al Salam/Bagdad”	☑	? 776-786			①		①	③	2.92	1051
Abbaside	al Mansur/al Mahdi		? 774/975	☑				②	③	0.98	1220
Abbaside	Harun al Rashid/al Amin		786-813	☑		①			①	0.69	1222
Abbaside ?			>833	☑		②		②	③	0.56	285
Abbaside ?			>833	☑				②	①	0.73	495
Abbaside ?	al Muqtadir ?	☑ ?	919/920			③		②	③	2.72	1038
Abbaside ?	al Muqtadir ?	☑ ?	912-932	☑		②		②	③	2.01	1040
Abbaside ?			>833	☑				②	①	0.58	1045
Abbaside ?		☑ ?	895/896			②			③	2.63	1053
Buyide	Muizz al-daula & Imad al-daula – Madinat al Salam/Bagdad		945-950	☑		①		②	③	0.74	1015
Hamdanide	Nasir ad-daula & Sayf ad-daula		946-967			②			③	2.33	623
Samanide	Abd al Malik b. Nuh		954-961	☑		①		③	③	0.71	284
Samanide	Ahmad b. Ismail – Andaraba		907-914	☑				①	③	0.67	470
Samanide	Nasr b. Ahmad		914-943	☑				②	②	0.45	471
Samanide	Nasr b. Ahmad – al Shash/Tasjkent		934-940	☑		③	①		③	6.92	740
Samanide	Nuh b. Nasr/Nuh b. Mansur		943-954/ 976-997	☑	round	②		①	③	1.04	741
Samanide	Nasr b. Ahmad – al Khuttal ?		916-917/ 926-927		round	③			③	2.69	742
Samanide	Nuh II Mansur		976-991			③			③	4.05	806
Samanide	Ismail / Nasr b. Ahmad		892-907/ 914-943	☑				②		0.64	807
Samanide	Nuh b. Nasr ?		? 952/953	☑				②	③	0.89	812
Samanide	Nasr b. Ahmad		935/936	☑				②	①	0.87	813
Samanide	Mansur b. Nuh – Samarqand		970/971		round	③			③	2.76	957
Samanide	Ismail b. Ahmad		892	☑				③	②	1.25	987
Samanide	Ahmad b. Ismail – al Sash/Tasjkent		907/908			②			③	3.28	1052
Samanide	Abd al Malik b. Nuh – Samarqand		954-961	☑		②		③	①	1.41	1055
Samanide	Ismail b. Ahmad		893-902	☑				①	①	0.45	1221
Samanide	Ismail/Nasr b. Ahmad		892-943	☑				②		0.35	1281
Samanide	Ahmad b. Ismail – Nishabur		912/913						③	2.76	1349
Samanide ?	Ismail / Nasr b. Ahmad ?		? 892-907/ 914-943	☑				②	③	0.41	814
Samanide ?			? 950/952	☑				③	③	1.01	1008
Samanide ?			932-940	☑				②	①	1.25	1054
Samanide ?	Ismail/Naer b. Ahmad ?		? 902-912	☑		①		①	①	0.64	1314
Samanider ?	Samarqand ?		800-1000	☑				②		0.32	1058
Samanide ?	Samarqand ?		800-1000	☑				①	③	0.52	1351
Tabarista ?		☑	700-800	☑				②	③	0.74	1047
Umayyade			661-749	☑				②	①	0.61	1057
Uqaylide	Janah ad-daula		996-1000			②			③	1.73	281
Uqaylide	Hanah & Husam ad-daula		998/999			①			③	3.23	1049
Uqaylide ?	(Abbasidecaliph al Qadir ?)		? 996-1001	☑		②		②	①	0.91	1056
Uqaylide ?			? 996-1001	☑				③	①	0.79	1309
Volga Bulgaria ?	“Nase b. Ahmad”	☑	? 915/916	☑		③		③	③	2.76	283
Volga Bulgaria ?	“Ismail b. Ahmad” – Samarqand ?	☑	892-907	☑		②			③	0.58	294
Volga Bulgaria ?		☑	800-1000	☑				③	③	0.45	469
Volga Bulgaria ?	“Ismail b. Ahmad”	☑	892-907		round	①			③	3.41	743

4.3 Catalogue of the unminted silver

Ingots

Production place	Date	Description	Frag.	Chisel marks	Pecks	Nicks	Notches	Bent	Mass	Reference	N°
S. Scand./ W. Ireland ?	900-1050	Cast with D-shaped cross section					②		43.33	Wiechmann 1996 Type 1	26
S. Scand./ W. Ireland ?	900-1050	Cast with D-shaped cross section	☑	☑			③		9.04	Wiechmann 1996 Type 1	28
S. Scand./ W. Ireland ?	900-1050	Cast with D-shaped cross section	☑	☑			③		5.12	Wiechmann 1996 Type 1	89
S. Scand./ W. Ireland ?	900-1050	Cast with D-shaped cross section	☑	☑			③		13.72	Wiechmann 1996 Type 1	135
S. Scand./ W. Ireland ?	900-1050	Cast with D-shaped cross section	☑	☑			③		5.44	Wiechmann 1996 Type 1	204
S. Scand./ W. Ireland ?	900-1050	Cast with D-shaped cross section	☑	☑			③		19.46	Wiechmann 1996 Type 1	213
The Baltics	980-1050	Hammered, ribbon-shaped	☑			①	③	②	6.65	Wiechmann 1996 Type 3	168
The Baltics	980-1050	Hammered, ribbon-shaped		☑			②		2.31	Wiechmann 1996 Type 3	1344
?	900-1100	Ribbon-shaped (or silver plate)	☑				③	①	3.81		134

Silver plates

Production place unknown, date: Viking age

Description	Frag.	Pecks	Nicks	Notches	Bent	Mass	Reference	N°
Ribbon-shaped		②		②	③	1.02	Hårdh 1976, Taf. 32:I, 36	153
Ribbon-shaped, quadratic	☑	③		③	③	1.46		199
Ribbon-shaped, quadratic	☑	②			③	1.59		247
Ribbon-shaped, quadratic	☑	③		②	①	2.11		1346
Ribbon-shaped, rectangular	☑	③		②	③	2.44		246
Circular ?	☑	②	①	②	①	0.60		157
	☑			②	③	0.55		239

Rods and wire

Production place unknown, date: Viking age

Description	Frag.	Pecks	Nicks	Notches	Bent	Mass	N°
Single rod with rectangular cross section	☑			③	①	4.92	30
Single rod with round cross section	☑		①	③	①	2.08	32
Single rod with round cross section	☑			②	③	1.89	46
Single rod with round cross section	☑			②	③	1.12	50
Single rod with round cross section	☑			②	①	7.18	87
Single rod with round cross section	☑			③	①	5.95	88
Single rod with round cross section	☑		②	③	②	2.48	91
Single rod with round cross section	☑			③	③	1.79	142
Single rod with round cross section	☑		②	③	②	9.64	173
Single rod with round cross section	☑			③	③	1.39	198
Single rod with round cross section	☑			③	②	1.08	207

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Single rod with round cross section	☑		①	③	①	2.61	217
Single rod with round cross section	☑			③	③	0.78	222
Single rod with round cross section	☑			③	③	2.71	237
Single rod with round cross section	☑			③	③	1.47	1327
Single rod with round cross section	☑			③	③	1.48	1327
Single rod with round cross section	☑			③	③	2.70	1328
Single rod with round cross section	☑			③	③	2.64	1329
Single wire with round cross section	☑			①	②	0.17	181

Jewellery

Type	Production place	Date	Description	Frag.	Chisel marks	Pecks	Nicks	Notches	Bent	Mass	Filigr. and gran. group	Reference	N°
Ring	W. Slav.	1000-1040	Plaited ring	☑				③		1.74		Wiechmann 1996, s. 49f, Karte 62	147
Pendant ?	W. Slav.	1000-1100	Circular foil decorated with granulation in lines and triangles	☑					①	0.31	D		243
Pendant	W. Slav.	1000-1100	Foil pendant decorated with twisted dobbelt wire	☑						0.68	D		54
Pendant	W. Slav.	1000-1100	Crescent shaped ? Pendant decorated with granulation	☑					③	0.90	D		126
Pendant	W. Slav.	971-1040	Foil pendant decorate with plain and twisted wires	☑					③	0.56	C		129
Pendant	W. Slav.	1000-1100	Crescent shaped pendant decorated with filigree lines	☑						0.63	D	Hårdh 1976, Taf. 44:1, 18	155
Pendant	W. Slav.	1000-1100	Crescent shaped pendant decorated with granulation in lines and patches	☑				②	①	1.02	D	Hårdh 1976, Taf. 44:1, 18	206
Pendant	W. Slav.	1000-1100	Triangular foil pendant decorated with granulation in lines, patches and triangles							2.38	D		240
Pendant	W. Slav.	971-1040	Foil pendant decorate with plain and twisted wires	☑					②	1.32	C		259
Pendant	?	900-1100	Tube-shaped foil, decorated with lines of twisted wire, three round piercings					①	③	1.33			125
Neckring	S. Scand./ W. Slav.	900-1000	Rhomboid plate decorated with stamps	☑				③	②	1.65		Hårdh 1996 type 1	43
Neckring	S. Scand./ W. Slav.	900-1000	Rhomboid plate decorated with stamps/ twisted from two rods	☑				③		7.73		Hårdh 1996 type 1/I	104
Neckring	S. Scand./ W. Slav.	900-1000	Oval plate decorated with stamps/twisted from pairs of rods/ dropshaped hole	☑		②		③	②	6.33		Hårdh 1996 type 1/I/I/d	186
Neckring	S. Scand./ W. Slav.	900-1000	Rhomboid plate decorated with stamps	☑		②		③	②	1.58		Hårdh 1996 type 1	230
Neckring	S. Scand./ W. Slav.	900-1000	Rhomboid plate decorated with stamps/ twisted from two rods	☑		①		③	③	23.15		Hårdh 1996 type 1/I	1325
Neck-/arm-ring	Scand./ Baltics	900-1100	Plate decorated with stamps	☑		③		③	③	2.06			1
Neck-/arm-	Scand./	900-	Plate decorated with	☑		③		③	③	0.81			14

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ring	Baltics	1100	stamps								
Neck-/arm-ring	Scand./Baltics	900-1100	Two twisted rods with round cross section	☑		③	③	5.06			78
Neck-/arm-ring	Scand./Baltics	900-1100	Plate decorated with stamps	☑	②	②	③	1.73			79
Neck-/arm-ring	Scand./Baltics	900-1100	Three twisted rods	☑	③	②	①	1.94			148
Neck-/arm-ring	Scand./Baltics	900-1100	Twisted from pairs of rods with round cross section	☑		②	②	5.65			187
Neck-/arm-ring	Scand./Baltics	900-1100	Twisted from pairs of rods with round cross section	☑		③	①	5.92			188
Neck-/arm-ring	Scand./Baltics	900-1100	Two twisted rods with round cross section	☑		③	①	7.83			1326
Neck-/arm-ring	Scand./Baltics	900-1100	Plate decorated with stamps	☑	②	③	③	0.88			1342
Neck-/arm-ring	?	900-1100	Two × two twisted wires	☑		②	③	1.97			145
Earring ?	W. Slav.	971-1100	Mesh bead made of dobbelt wire with attached cone	☑				0.43	C/D	Hårdh 1976, Taf. 28:VI, 1/ Taf. 40:I, 6-7	19
Earring ?	W. Slav.	1000-1100	Star-shaped foil bead decorated with granulation in lines and patches, attached to wires	☑			③	1.43	D		45
Earring ?	W. Slav.	971-1040	Foil bead decorated wiht thin twisted wire	☑				1.01	C	Hårdh 1976, Taf. 28:VI	47
Earring ?	W. Slav.	1000-1100	Dobbelt cylindrical foil bead decorated with granulation in lines and triangles	☑			②	1.07	D	Hårdh 1976, Taf. 32:I, 12	48
Earring ?	W. Slav.	1000-1100	Dobbelt mesh bead made of twisted dobbelt wire	☑			②	1.12	D		49
Earring ?	W. Slav.	971-1100	Foil bead (?) attached to wire	☑		②	③	0.78	C/D		52
Earring ?	W. Slav.	971-1100	Mesh bead decorated with small silver beads	☑			①	0.62	C/D	Hårdh 1976, Taf. 29, 35	55
Earring ?	W. Slav.	1000-1100	Cylindrical foil bead decorated with twisted wire, attached to wire	☑			③	0.56	D		56
Earring ?	W. Slav.	1000-1100	Mesh bead made of single wire	☑		①	①	0.43	D	Hårdh 1976, Taf. 29, 34	59
Earring ?	W. Slav.	971-1040	Foil bead decorated with thin twisted wire	☑			③	0.50	C	Hårdh 1976, Taf. 28:VI	60
Earring ?	W. Slav.	1000-1100	Undecorated foil bead attached to wire decorated with twisted dobbelt wire	☑				0.42	D		63
Earring ?	W. Slav.	971-1040	Foil bead decorated wiht thin twisted wire	☑			③	0.60	C	Hårdh 1976, Taf. 28:VI	76
Earring ?	W. Slav.	971-1100	Wire decorated with granulation	☑		③	②	0.41	C/D		102
Earring ?	W. Slav.	1000-1100	Mesh bead made of twisted dobbelt wire	☑				0.41	D		110
Earring ?	W. Slav.	1000-1100	Wire with twisted dobbelt wire	☑		①	③	0.37	D		113
Earring ?	W. Slav.	1000-1100	Mesh bead made of single wire	☑				0.20	D	Hårdh 1976, Taf. 29, 34	114
Earring ?	W. Slav.	1000-1100	Foil bead of earring decorated with wire at one end	☑	①			0.57	D	Hårdh 1976, Taf. 11:II, 10-11	128
Earring ?	W. Slav.	971-1100	Mesh bead made of dobbelt wire with attached cone	☑				0.37	C/D	Hårdh 1976, Taf. 28:VI, 1/ Taf. 40:I, 6-7	130
Earring ?	W. Slav.	1000-1100	Dobbelt foil bead decorated with granulation in patches,	☑			③	1.68	D		144

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attached to wire											
Earring ?	W. Slav.	971-1040	Band with two cylindrical foil beads with filigree decoration	<input checked="" type="checkbox"/>			② ③	1.47	C	Hårdh 1976, Taf. 32:I, 12	146
Earring ?	W. Slav.	971-1100	Dobbelt mesh bead decorated with small silver beads	<input checked="" type="checkbox"/>			① ①	1.79	C/D	Hårdh 1976, Taf. 29, 35	151
Earring ?	W. Slav.	971-1040	Foil bead decorated with thin twisted wire	<input checked="" type="checkbox"/>			②	0.49	C	Hårdh 1976, Taf. 28:VI	158
Earring ?	W. Slav.	971-1100	Foil bead decorated with twisted wire, attached to wire	<input checked="" type="checkbox"/>			③	0.31	C/D		160
Earring ?	W. Slav.	1000-1100	Double foil bead with filigree ribbon, decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			②	0.83	D		178
Earring ?	W. Slav.	971-1100	Foil bead attached to wire	<input checked="" type="checkbox"/>			③	0.68	C/D		197
Earring ?	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches, attached to wire	<input checked="" type="checkbox"/>			① ③	0.72	D		201
Earring ?	W. Slav.	971-1040	Foil bead decorated with concentric circles, attached to wire	<input checked="" type="checkbox"/>				0.47	C		211
Earring ?	W. Slav.	971-1040	Foil bead decorated with thin twisted wire	<input checked="" type="checkbox"/>			②	0.36	C	Hårdh 1976, Taf. 28:VI	215
Earring ?	W. Slav.	1000-1100	Tribel cylindrical foil bead decorated with double twisted wires	<input checked="" type="checkbox"/>			③	1.73	D	Hårdh 1976, Taf. 32:I, 12	220
Earring ?	W. Slav.	1000-1100	Undecorated foil bead	<input checked="" type="checkbox"/>			③	0.30	D	Hårdh 1976, Taf. 11:II, 10-11	227
Earring ?	W. Slav.	971-1040	Wire with foil bead decorated with thin twisted wire	<input checked="" type="checkbox"/>			③	0.90	C	Hårdh 1976, Taf. 28:VI	231
Earring ?	W. Slav.	971-1100	Mesh bead made of dobbelt wire with attached cone	<input checked="" type="checkbox"/>				0.33	C/D	Hårdh 1976, Taf. 28:VI, 1/ Taf. 40:I, 6-7	1340
Earring	W. Slav.	1000-1100	Two foil beads decorated with granulation in triangles, filigree band and one mesh bead made of single wire with attached cone	<input checked="" type="checkbox"/>			②	1.84	D	Hårdh 1976, Taf. 11:II, 10-11/ Taf. 28:VI, 1	44
Earring	W. Slav.	1000-1100	Band with filigree, and undecorated foil bead	<input checked="" type="checkbox"/>			③	0.45	D	Hårdh 1976, Taf. 11:II, 10-11	85
Earring	W. Slav.	971-1040	Foil decorated with thin twisted wire	<input checked="" type="checkbox"/>			③	1.32	C		150
Earring	W. Slav.	971-1040	Filigree band with foil bead decorated with concentric circles	<input checked="" type="checkbox"/>			③	0.42	C	Hårdh 1976, Taf. 11:II, 10-11/ Taf. 44:II, 19	163
Earring	W. Slav.	1000-1100	Dobbelt foil bead decorated in granulation in lines and patches, attached to wire decorated with twisted wires	<input checked="" type="checkbox"/>			②	2.24	D	Hårdh 1976, Taf. 11:II, 11-12	174
Earring	W. Slav.	971-1040	Wire with three foil beads decorated with thin twisted wire and two mesh beads made of double wire with attached cone	<input checked="" type="checkbox"/>			③	3.10	C	Hårdh 1976, Taf. 28:VI	175
Earring	W. Slav.	1000-1100	Filigree decorated band and foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	1.58	D	Hårdh 1976, Taf. 11:II, 10-11	176
Earring	W. Slav.	1000-1100	Filigree band with undecorated foil bead	<input checked="" type="checkbox"/>			③	0.88	D	Hårdh 1976, Taf. 11:II, 10-11	179
Earring	W. Slav.	1000-	Large mesh bead made				② ①	4.05	D		184

		1100	of twisted dobbelt wire with six attached cones										
Earring	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches, attached to wire decorated with thin twisted wires	<input checked="" type="checkbox"/>				③	1.06	D	Hårdh 1976, Taf. 11:II, 11-12	189	
Earring	W. Slav.	1000-1100	Filigree band with foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>				③	1.21	D	Hårdh 1976, Taf. 11:II, 10-11	195	
Earring	W. Slav.	1000-1100	Filigree band	<input checked="" type="checkbox"/>				③	1.00	D	Hårdh 1976, Taf. 11:II, 10-11	225	
Earring	W. Slav.	1000-1100	Large mesh bead made of twisted dobbelt wire with four attached cones	<input checked="" type="checkbox"/>				③	2.78	D		228	
Earring	W. Slav.	1000-1100	Wire decorated with filigree	<input checked="" type="checkbox"/>					1.11	D		258	
Earring	W. Slav.	1000-1100	Band and foil bead with filigree and granulation in lines and patches	<input checked="" type="checkbox"/>				②	1.57	D	Hårdh 1976, Taf. 11:II, 10-11	1337	
Earring	Serbia/Romania/Hungary	900-1100	Grape shaped type, groupes of massive beads around twisted wire	<input checked="" type="checkbox"/>					0.49		Hårdh 1976, Taf. 46, 14/ Mesterházy 1994 fig. 12	64	
Earring	Serbia/Romania/Hungary	900-1100	Grape shaped type, groupes of massive beads around twisted wire	<input checked="" type="checkbox"/>				③	5.12		Hårdh 1976, Taf. 46, 14/ Mesterházy 1994 fig. 12	140	
Earring	Serbia/Romania/Hungary	900-1100	Grape shaped type, groupes of massive beads around twisted wire					③	10.94		Hårdh 1976, Taf. 46, 14/ Mesterházy 1994 fig. 12	183	
Bead ?	W. Slav.	971-1100	Two buckles	<input checked="" type="checkbox"/>				③	0.25	C/D		70	
Bead ?	W. Slav.	971-1100	Foil bead decorated with buckles	<input checked="" type="checkbox"/>				③	0.83	C/D		108	
Bead ?	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles	<input checked="" type="checkbox"/>				②	0.33	D		112	
Bead	W. Slav.	1000-1100	Undecorated foil bead					③	0.28	D		11	
Bead	W. Slav.	1000-1100	Foil bead with small piece of twisted wire					①	0.21	D		16	
Bead	W. Slav.	1000-1100	Undecorated foil bead						0.35	D		18	
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines	<input checked="" type="checkbox"/>				②	0.70	D	Hårdh 1976, Taf. 29, 19-21	51	
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles	<input checked="" type="checkbox"/>				③	0.34	D	Hårdh 1976, Taf. 11:I, 12-14	57	
Bead	W. Slav.	971-1100	Bead made of wires with attached small silver beads	<input checked="" type="checkbox"/>				①	0.46	C/D		58	
Bead	W. Slav.	971-1100	Mesh bead decorated with small silver beads	<input checked="" type="checkbox"/>				②	0.29	C/D		61	
Bead	W. Slav.	971-1100	Mesh bead made of single wire with attached cone	<input checked="" type="checkbox"/>					0.33	C/D	Hårdh 1976, Taf. 28:VI, 1/ Taf. 40:I, 6-7	62	
Bead	W. Slav.	1000-1100	Mesh bead made of dobbelt twisted wire	<input checked="" type="checkbox"/>					0.22	D		73	
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation	<input checked="" type="checkbox"/>				③	0.24	D		75	
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles	<input checked="" type="checkbox"/>				③	0.37	D		83	

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Bead	W. Slav.	971-1100	Bead made of wires with attached small silver beads	<input checked="" type="checkbox"/>			②	0.76	C/D		84
Bead	W. Slav.	971-1100	Mesh bead made of fourfold wire with attached cone	<input checked="" type="checkbox"/>			②	0.56	C/D	Hårdh 1976, Taf. 28:VI, 1/ Taf. 40:I, 6-7	93
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	0.47	D		95
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation lines and patches	<input checked="" type="checkbox"/>			③	0.33	D	Hårdh 1976, Taf. 29, 19-21	97
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	0.32	D		101
Bead	W. Slav.	1000-1100	Mesh bead made of twisted dobbelt wire, decorated with small silver beads	<input checked="" type="checkbox"/>			③	0.36	D		103
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches				③	0.74	D	Hårdh 1976, Taf. 29, 19-21	109
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches				③	1.16	D	Hårdh 1976, Taf. 29, 19-21	124
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines	<input checked="" type="checkbox"/>			②	0.65	D	Hårdh 1976, Taf. 29, 19-21	127
Bead	W. Slav.	971-1040	Foil bead decorated with concentric circles				③	0.40	C	Hårdh 1976, Taf. 44:II, 19	131
Bead	W. Slav.	971-1040	Mesh bead made of dobbelt wire with attached cone	<input checked="" type="checkbox"/>			②	0.31	C	Hårdh 1976, Taf. 28:VI, 1/ Taf. 40:I, 6-7	132
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation	<input checked="" type="checkbox"/>			③	0.23	D		133
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches				③	2.63	D	Hårdh 1976, Taf. 29, 19-21	149
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in patches				①	0.59	D		159
Bead	W. Slav.	971-1100	Mesh bead made of dobbelt twisted wire decorated with small silver beads	<input checked="" type="checkbox"/>				0.49	C/D		162
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and rhombuses	<input checked="" type="checkbox"/>			③	1.22	D		177
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles	<input checked="" type="checkbox"/>			③	0.77	D	Hårdh 1976, Taf. 11:I, 12-14	185
Bead	W. Slav.	971-1040	Foil bead decorated with thin twisted wire and buckler	<input checked="" type="checkbox"/>			③	0.73	C		190
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	1.07	D	Hårdh 1976, Taf. 29, 19-21	196
Bead	W. Slav.	971-1040	Foil bead decorated with thin twisted wire and buckler				③	1.01	C		202
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	0.26	D	Hårdh 1976, Taf. 29, 19-21	203
Bead	W. Slav.	1000-1100	Foil decorated with granulation and buckle	<input checked="" type="checkbox"/>			③	0.55	D	Hårdh 1976, Taf. 38, 19	208
Bead	W. Slav.	1000-1100	Foil decorated with granulation and buckle	<input checked="" type="checkbox"/>			③	0.58	D		209
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles	<input checked="" type="checkbox"/>			③	0.67	D	Hårdh 1976, Taf. 11:I, 12-14	210

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Bead	W. Slav.	1000-1100	Tube-shaped bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			②	0.52	D		212
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	0.55	D	Hårdh 1976, Taf. 29, 19-21	219
Bead	W. Slav.	1000-1100	Mesh bead made of dobbelt twisted wire with attached cone	<input checked="" type="checkbox"/>			①	0.32	D		223
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation	<input checked="" type="checkbox"/>			③	0.54	D		226
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	1.29	D	Hårdh 1976, Taf. 29, 19-21	229
Bead	W. Slav.	1000-1100	Mesh bead made of dobbelt wire decorated with granulation	<input checked="" type="checkbox"/>				0.58	D		234
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	0.49	D	Hårdh 1976, Taf. 29, 19-21	235
Bead	W. Slav.	971-1040	Foil bead decorated with concentric circles	<input checked="" type="checkbox"/>			③	0.33	C	Hårdh 1976, Taf. 44:II, 19	238
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles				③	0.92	D		241
Bead	W. Slav.	1000-1100	Mesh bead made of dobbelt twisted wire	<input checked="" type="checkbox"/>			①	0.42	D		242
Bead	W. Slav.	971-1100	Mesh bead made of single wire with attached cone	<input checked="" type="checkbox"/>			①	0.27	C/D	Hårdh 1976, Taf. 28:VI, 1/ Taf. 40:I, 6-7	245
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles, attached to wire	<input checked="" type="checkbox"/>			③	0.78	D	Hårdh 1976, Taf. 11:I, 12-14	253
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	0.67	D	Hårdh 1976, Taf. 29, 19-21	257
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in lines and triangles	<input checked="" type="checkbox"/>			③	0.60	D	Hårdh 1976, Taf. 11:I, 12-14	1332
Bead	W. Slav.	1000-1100	Foil bead decorated with granulation in filigree lines and triangles				③	1.02	D	Hårdh 1976, Taf. 11:I, 12-14	1338
	W. Slav.	1000-1100	Foil decorated with granulation in lines and triangles	<input checked="" type="checkbox"/>			③	0.27	D		65
	W. Slav.	1000-1100	Foil decorated with granulation	<input checked="" type="checkbox"/>			②	0.55	D		66
	W. Slav.	1000-1100	Foil decorated with granulation in lines and patches	<input checked="" type="checkbox"/>			③	0.16	D		69
	W. Slav.	1000-1100	Foil decorated with granulation	<input checked="" type="checkbox"/>				0.12	D		71
	W. Slav.	1000-1100	Foil decorated with granulation and buckle	<input checked="" type="checkbox"/>			①	0.21	D		72
	W. Slav.	1000-1100	Foil decorated with granulation	<input checked="" type="checkbox"/>				0.30	D		74
	W. Slav.	1000-1100	Foil decorated with twisted wire and buckles	<input checked="" type="checkbox"/>			③	0.67	D		94
	W. Slav.	971-1100	Foil decorated with twisted wire	<input checked="" type="checkbox"/>			③	0.26	C/D		111
	W. Slav.	1000-1100	Foil decorated with braided silver wires and buckel	<input checked="" type="checkbox"/>			③	0.90	D		123
	W. Slav.	1000-1100	Foil decorated with granulation and buckler	<input checked="" type="checkbox"/>			③	0.25	D		161

THE VIKING AGE HOARD OF BORNHOLM

W. Slav.	1000-1100	Foil decorated with granulation in lines and triangles	☑			①	0.36	D		164
W. Slav.	1000-1100	Foil decorated with granulation	☑			①	0.25	D		165
W. Slav.	1000-1100	Foil decorated with granulations in lines	☑				0.14	D		167
W. Slav.	1000-1100	Foil decorated with granulation in lines and rectangles	☑			②	1.00	D		180
W. Slav.	1000-1100	Foil decorated with granulation and buckler	☑			① ③	0.54	D		193
W. Slav.	1000-1100	Wire decorated with twisted wires	☑			①	0.63	D		216
W. Slav.	1000-1100	Foil decorated with granulation in lines	☑				0.17	D		232
S. Scand.	900?-971	Rim fragment of round jewelry made of twisted wires	☑			② ②	0.44	B	Hårdh 1976, Taf. 7, 41-46	218
S. Scand.	950-1040	Circular silver plate decorated with engraving	☑	②		② ③	0.66		Hårdh 1976, Taf. 40:1, 1-2; Wiechmann 1996, liste 30, karte 79	156
?	900-1100	Wire	☑			②	0.14			182
?	900-1100	Two twisted wires	☑			② ③	3.25			143
?	900-1100	Wire decorated with twisted wires	☑			① ①	0.37			67
?	900-1100	Wire decorated with twisted wires	☑			① ③	0.28			68
?	900-1100	Ribbon with dobbelt twisted wires	☑			② ③	1.25			254
?	900-1100	Foil decorated with filigree line	☑			③	0.76			200
?	900-1100	Foil decorated with wire	☑			③	0.93			154
?	900-1100	Tube shaped foil	☑	②		③	1.31			152
?	900-1100	Foil with V-shaped carvings	☑				0.59			100
?	900-1100	Tube shaped foil	☑	①		③ ③	0.58			96
?	900-1100	Foil	☑			③	0.25			98
?	900-1100	Tubeshaped foil decorated with wires	☑			③	0.52			53
?	900-1100	Foil decorated with twisted wire	☑			② ②	0.57			77
?	900-1100	Two twisted wires	☑			② ②	0.61			244
?	900-1100	Circular foil decorated with buckler	☑	②		② ③	0.54		Hårdh 1976, Taf. 46, 12	262
?	900-1100	Two twisted wires	☑			③	1.94			1333
?	900-1100	Foil decorated with small cylindrical taps	☑			① ③	0.65			1343
?	900-1100	Tube shaped foil	☑			③ ③	0.79			21
?	900-1100	Tube shaped foil	☑	③		③ ③	7.63		Hårdh 1976, Taf. 33, 67-73	172
?	900-1100	Tube shaped foil	☑	☑		③ ③	5.19		Hårdh 1976, Taf. 33, 67-73	232
?	900-1100	Foil	☑				0.06			12
?	900-1100	Foil, undecorated	☑			② ③	0.36			1341

Gitte INGVARDSON

Melt/Lumps

Production place unknown, date: Viking age

Frag.	Chisel marks	Pecks	Nicks	Notches	Mass	N°
☑	☑			②	0.98	17
☑	☑			①	3.39	23
☑	☑			③	18.20	27
☑	☑			③	4.29	29
☑	☑		①	②	6.14	31
☑	☑			②	1.25	33
☑	☑			②	1.27	34
☑	☑				1.04	35
☑	☑			③	1.15	36
☑	☑			②	0.91	37
☑	☑			②	0.55	38
☑	☑				0.48	39
☑	☑			③	0.40	40
☑	☑			②	0.53	41
☑	☑			①	0.81	42
☑	☑			②	2.62	80
☑	☑			①	1.76	81
☑	☑				1.08	82
☑	☑			②	6.92	86
☑	☑		①	①	3.56	90
☑	☑			②	1.55	92
☑	☑			③	1.46	105
☑	☑			①	1.14	106
☑	☑			①	0.80	107
☑	☑	①		③	3.94	115
☑	☑	②		②	5.94	116
☑	☑			③	6.52	117
☑	☑			②	3.62	118
☑	☑			②	3.98	119
☑	☑			②	2.34	120
☑	☑			②	1.39	121
☑	☑			③	1.40	122
☑	☑			③	3.39	136
☑	☑			②	4.46	137
☑	☑		①	②	4.24	138
☑	☑			③	1.64	139
☑	☑			①	2.29	141
☑	☑			②	0.61	166
☑	☑		②	③	4.44	169
☑	☑			②	3.67	170
			①	③	2.50	171
☑	☑	②		③	1.43	191
☑	☑			②	1.31	192
☑	☑			③	1.03	194
☑	☑				1.62	205
☑	☑				11.62	214
☑	☑			①	1.17	221
☑	☑			③	2.16	224
☑	☑			②	4.69	236
☑	☑			③	2.35	1345
☑	☑			③	7.30	1347
☑	☑			③	3.39	1348

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