

Kolbjørn Skaare
COINS
AND COINAGE
IN VIKING-AGE
NORWAY



UNIVERSITETSFORLAGET

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The thesis is concerned with the currency history of Norway from the Viking period to the present. It is based on the preserved coins and coin hoards as a starting point. The thesis is divided into six chapters. The first chapter deals with the Viking period (c. 800-1050) and the establishment of the coinage. The decisive step was reached with the coinage of Harald Hardråde (1047-1066).

The theme of this study may be defined thus: The development of the currency history from the earliest import of coins into Norway to the production of a Norwegian coinage was a protracted process. The establishment of a national coinage was brought about - and I think it can only have been brought about - through the initiative of a strong central authority.

The numismatic sources and aspects of this subject have been mentioned at least touched upon by several writers, numismatists and others. For a closer account of the history of research and earlier works the reader is referred to the chapter on Previous works and literature. This chapter and the Bibliography demonstrate, however, the sporadic nature of the existing literature, and how few and brief the surveys are.

A fresh look at the topic is given, the coins themselves and the material has been called for, and I have re-examined all the specimens which are known and available in Norwegian and foreign collections. A detailed discussion on the numismatic sources and some methodological problems connected with them is presented in a special chapter (Chapter A2) in a separate contribution to the catalogue 'Information' in 1981. The numismatic presentation of the Hoards and the coins.

At the same time I should like to emphasize that the 187 Norwegian finds of coins earlier than c. 1100 - see the chapter A1 catalogue of Norwegian finds of coins and some related objects earlier than c. 1100 - are published only in summary form. Preliminary findings for a complete and full-scale publication of the coin finds are on file at the University Coin Collection.

Introduction

This study is concerned with the currency history of Norway up to *c.* 1100. Using the preserved coins and coin hoards as a starting point, I have attempted to study the occurrence and function of coins in Norway before 1100. Thus, I do not discuss the reasons for the import of foreign coins into the country. I have gone right back to the oldest proven occurrence of coins in Norway, partly for the sake of completeness and partly because the coins in question, Roman denarii, occasionally turn up in Scandinavian hoards from the late Viking Age, and this is the period upon which my attention is focused. The late Viking Age saw a great increase in the occurrence and circulation of foreign silver coins in Norway and it was then that the first Norwegian issue was begun. The very limited output during the reigns of Olaf Tryggvason (995–1000) and Olaf Haraldsson (1015–1030) was, however, not decisive for the establishment of the coinage. The decisive stage was reached with the coinage of Harald Hardråde (1047–1066).

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A fresh look at the basic sources, the coins themselves and the hoards, has been called for, and I have re-examined all the specimens which are extant and available in Norwegian and foreign collections. A detailed discussion on the numismatic sources and some methodological problems connected with them is presented in a special chapter (Chapter A2). In a separate 'Introduction to the catalogues' information is given on the methods of presentation of the hoards and the coins.

At this point I should like to emphasize that the 187 Norwegian finds of coins earlier than *c.* 1100 – see the chapter 'A catalogue of Norwegian finds of coins and some related objects earlier than *c.* 1100' – are published only in summary form. Preliminary findings for a complete and fully revised publication of the coin finds are on file at the University Coin Collection,

Oslo. It would have been entirely beyond the scope of the present work to incorporate this detailed list of coins. It might now be opportune to publish the Norwegian coin finds from the period under discussion within the following categories: Roman, Byzantine, Kufic, Frankish, German, etc., Anglo-Saxon, Hiberno-Norse, Danish (with early Scandinavian), and Swedish coins.

The catalogue of Norwegian coins – a corpus – is brought up to *c.* 1065. To include the issues of the years *c.* 1065–*c.* 1100 would also have been beyond the scope of this work, for practical reasons. The Norwegian coins of this period will be included in a later volume on the currency history of medieval Norway. Until then reference must be made to the studies of these series in *B. Malmer* 1961 and *Skaare* 1970.

Although the title of the present work mentions the currency history of Viking-Age Norway, I have not strictly kept to these chronological and chorological limits. I have begun my discussion of the currency history with the Roman Period and have thus included a sketch of the Merovingian Period. On the other side, I have extended the account beyond the traditional closing date of the Viking Age (*c.* 1050), and have traced the development of the Norwegian coinage up to *c.* 1100.

By 'Norway' I usually mean present-day Norway, with her post-1660 boundaries. 'Viking-Age Norway' is difficult to define exactly, but it was almost identical with modern Norway, with the addition of the Faeroes, the Shetlands, and some Swedish territories, especially the province of Bohuslän. The coin finds from these old Norwegian territories have not been found to be in any serious conflict with the evidence from the finds made in present-day Norway.

In order to see to what extent certain elements of the currency history were valid for the country as a whole I have studied the topography of coin finds in relation to the three main regions:

Eastern Norway (south of Dovre, east of the Langfjella and Lindesnes)

Western Norway (west of the Langfjella and Lindesnes, including Sunnmøre)

Trøndelag (including Romsdal and Nordmøre) *and Northern Norway.*

In the chapter on the foreign coins occurring in Norway up to the XI century attempts have been made to interpret the function of the coins, based on studies of the archaeological context of the finds and an examination of any secondary treatment the coins may have been subjected to.

Very early in my investigations of the native coinage, the pennies of the *Triquetra* type emerged as the crucial group, the most important for the understanding of Norwegian currency history in the XI century. This group has therefore been submitted to a close examination, where the technical and decorative elements have been independently studied and compared with both earlier and subsequent issues. Special methods for establishing some of the technical data are explained in the relevant paragraphs.

For terminology, see Chapter M, 'Abbreviations and definitions'.

A. The sources

1. The written sources

Contemporary written sources for the history of Norway before 1100 are very scarce. Some historical and geographical writings by people of other nations with whom the Norwegians and other Scandinavians came into contact do exist, but these sources usually reveal very little about Scandinavia itself, and nothing at all about coins and coinage in the various Scandinavian countries. Frankish¹ and Anglo-Saxon² annals mention the tributes – later known as *danegeld* – which were paid to the Vikings, but without specifying what these large collections of precious metals were composed of. Olaf Tryggvason, the only Norwegian mentioned by name, received *danegeld* in England in the year 994.³ In the narratives by Islamic writers the Scandinavians' activity as travellers and traders is mentioned and the eagerness of the Northerners, in these sources called *ar-Rūs*, to acquire silver dirhems is emphasized.⁴ We are informed by Ibn Rustah that coins were part of the rich equipment usually buried with a dead chieftain of this strange people.⁵

The only surviving writings from Norway before 1100, apart from the coin legends, are the runic inscriptions, short sentences and formulae without any direct relevance to my present purpose.⁶ The old provincial laws, preserved in a few XII-century fragments and in XIII-century manuscripts, are commonly assumed to have been written down in the second half of the XI century. However, having obviously been transmitted orally before that time, they have preserved traces of a non-monetary economy, e.g. in the elaborate system of fines for homicide, where the basic unit is the gold ring of the Migration Period. Later, sums of money were usually given in silver according to weight. Isolated passages even reveal some facts about the coin reckoning.⁷

Icelandic sagas and Norwegian chronicles deal with the history of Norway from about 850 onwards, but the historical value of these tales is necessarily slight, even though they are ultimately based on oral traditions. Scaldic verses purporting to be contemporary with the events described are preserved in the sagas, but they contain no contributions to the monetary history of Norway beyond general allusions to gold and gold rings being used as payment or as royal gifts.

Among scattered references to money in the sagas⁸ one unique and highly relevant episode is recorded, in the *Morkinskinna* version⁹ of the saga of Harald Hardråde:

Oc er cømr enn atti dagr iola var monnom gefinn mali. þat var callat Harallz slatta. var meiri lutr copars. þat bezta costi at veri helmings silfr. oc er Halldorr toc malann. hefir han imavttols scavti sino silfrit ok litr á. oc syniz eigi scirt mala silfrið. lustr vndir neþan annari hendi. oc fer þat allt ihalm niþr. ---

Halldorr s. Til hvers scal ec honom þiona lengr. þatki at ec fa mala minn falslavst. B [arðr] melti. Get eigi þess. vel mattv þer þat lica lata. er lendra manna synir hafa. oc ecki fortv at þvi meþ veggd næsta sini. er þv slott niþr ihalm silfrino. oc onyttir. oc mattv vist vita at konvngi þiccir þat svivirþliga til sin gørt. H.s. Eigi ma ec þat vita at neitt sin hafi iafnmioc logitz í vm fylgðina mina sem imalagiofna konvngs. Satt mon þat vera s.B. biðleica en vil ec hitta konvng. oc sva gerþi hann. oc er Barðr hitti konvng melti hann. Fa Halldori mala sinn sciran. þvi at verþr er hann at hafa.

Konvngr s. Litz þer eigi nocquor sva diorfving í at krefia Halldori annars mala en taca lendra manna synir. oc meþ slicri svivirþing sem hann for meþ malanom næstom. B.s. A hitt er at lita hera er miclo er meira vert drengscap hans. oc vinatto yccra er lengi hefir goþ verit oc þar meþ stormenzco þina oc veiztv scap Halldors oc stirþleti. oc er þat þinn vegr at gøra honom soma. Konvngr melti. Fai honom silfrit. var nu sva gørt. cømr B. til Halldors oc førir honom. xii. avra brenda.

Translation:

On the eighth day after Christmas the men were given their pay. This was called the *Haraldsslátta*, being mostly of copper. At its best it was half silver. When Halldórr [Snorrason] received his pay, he held the money in a fold in his mantle and gazed upon it. The silver did not look fine. He struck his fist with his other hand so that all the money fell down on the straw [floor].

[After Christmas, when the king got ready for an expedition against Denmark, Halldórr showed no sign of joining. Bárd, another of the king's followers, tried to mediate between them:]

Halldórr said: 'Why should I serve him any longer, when I don't even get my pay unadulterated?' 'Don't talk about that,' Bárd said, 'you could well bear what noblemen's sons accept without grumbling. You did not behave decently, last time, when you threw the money down on the straw. You must understand, though, that the king regards this an insult to him'. 'I don't think I have ever been so treacherous when following him, as he was in paying me,' Halldórr said. 'You are quite right,' Bárd said, 'Yet wait and let me talk it over with the king!' Bárd actually went to the king again, and begged him to let Halldórr have his pay in good money, which he was surely worth. 'Don't you think it audacious of you,' said the king, 'To ask for other payment for Halldórr than that which sons of noblemen accept, after his contemptuous behavior when he was last paid?' 'Sire, take into consideration,' Bárd said, 'What is far more valuable: his bravery, your long-lasting friendship – and your own magnanimity. You know Halldórr's harsh temperament, to honour him

will be to your glory.' The king said: 'Let him have the silver!' This was done, and Bárd came to Halldórr and brought him 12 aurar [öre] of fine silver.

To what extent can we rely on this narrative? Halldórr Snorrason, a man from a distinguished Icelandic family, who had been with Harald in Constantinople, is mentioned as one of the prince's most outstanding followers. After the return of Harald and his men to Scandinavia, he stayed with the king for some time. He then went home to Iceland, where he lived to a great age. He is described as blunt and obstinate, and the saga reports several instances of disagreement between him and King Harald.¹⁰ In Iceland Halldórr is said to have been an outstanding narrator of sagas.¹¹ His sister Thurid is mentioned, by Snorri Sturluson,¹² as an informant of Ari fróði Þorgilsson (1067–1148), 'the father of Icelandic historical writing'. It seems not improbable that the tradition of the *Haraldsslátta* goes back to Halldórr himself.

The story does not look like a migratory legend. With its detailed reference to the metal composition of the money, it is quite unique among the Icelandic sagas.¹³ As discussed below, in Chapter E2d, modern analyses have shown that a majority of the coins issued by Harald Hardråde actually had a metal content like that described in the *Haraldsslátta* story. I do not believe that this coincidence can be completely accidental.

The *Morkinskinna* version of the Kings' Sagas, preserved in a manuscript of the late XIII century, probably dates from about 1220 in its present form, but there are certain linguistic details which seem to indicate that parts of it, e.g. the story of Halldórr Snorrason, were written in the XII century (note 9). Not until c. 1220/25 were silver coins containing 50% or more copper again issued in Norway, following a period of a hundred years, c. 1095–1200, when the Norwegian coins had been struck from bullion with a high silver content, about 90% Ag. This in itself indicates that the story of the *Haraldsslátta* is an older one.¹⁴

In conclusion, written sources generally give very little information on coins and coinage in Viking-Age Norway. However, the essence of the *Haraldsslátta* story seems trustworthy: Harald Hardråde had (had struck) bad silver money (coins), which he paid (forced upon) his men, even the most outstanding of them. To refuse this money was a bold action, which only the most obstinate of the king's old companions would have dared to do.

2. The numismatic sources

Studies of coin circulation and coinage in prehistoric and protohistoric Norway have to be based mainly upon the numismatic sources.

These are: Norwegian finds of coins, foreign finds of Norwegian coins, Norwegian coins without find provenance. In addition, records of coins

and coin finds that have now been dispersed must be taken into consideration. The material to be used for comparative studies consists of coins and coin finds from neighbouring countries, and, more infrequently, from other homelands of the foreign coins of this period found in Norway.

The catalogue of the Norwegian finds of coins earlier than c. 1100 in the present work (Chapter I) contains 187 entries comprising a total of c. 10,700 coins, Norwegian and foreign. These finds have come to light during the last 220 years. At all times during this period such finds have legally belonged to the state.

Let us first take a look at this legislation.¹⁵ Norway's medieval code of laws (1276) contained a paragraph on finds of buried treasures.¹⁶ According to this paragraph, later incorporated in the 1687 Norwegian Code of Christian V, such finds, if disclosed according to the regulations, were to be divided between the King, the owner of the land, and the finder. The Danish laws, codified in 1683, were more to the King's advantage:

Gold and silver found in mounds, under the plough or elsewhere, which no one recognizes as his own and which is called *Danefæ* ['dead man's property'], belong to the King and to no one else.

These provisions were even extended and enforced by a Royal Edict of 22 March 1737. A Royal Edict of 7 August 1752, valid also for Norway, emphasized the importance of the coin finds as memorials of the past:

Whosoever happens to find old coins and other things which by their age or special character may be regarded as somewhat rare, shall obtain full payment according to their worth, if he duly sends the objects to Our Exchequer. If any one presumes to hide what he finds, he will be subject to the penalty of the law.

For Norway the Edict of 1752 remained in force until it was replaced, along with the relevant paragraphs of the 1687 code, by the Antiquities Act of 13 July 1905. This Act declared that antiquities – coins were explicitly mentioned – from prehistoric times and the Middle Ages (until 1536, the year of the Reformation) found in the ground were the property of the state. The owner of the land and the finder were entitled to a reward. A Government Order of 30 June 1906 and a Royal Decree of 10 October 1906 authorized the museums in Kristiania (Oslo), Stavanger, Bergen, Trondheim, and Tromsø to act on behalf of the state in their respective districts (see Introduction to the catalogues). The Antiquities Act of 29 June 1951, with the Royal Decree of 5 December 1952, repeats, where coin finds are concerned, the resolutions of 1905/6.

The Norwegian laws on treasure trove and coin finds have been effective only to a certain extent. In the period before 1814 only 5 (18, 55, 166–7, 180), or 23%, out of 22 recorded coin finds went more or less directly to the royal collection in distant Copenhagen, a sixth find

(181) arriving there via the collection of the Danish bishop Fredrik Mønter. Four finds (138, 150, 164, 173), or 18%, came in the course of time to Norwegian museums, no less than 12 finds (14, 17, 32, 54, 57, 60, 96-7, 149, 155-6, 168), or 55%, being dispersed, 3 of them (14, 60, 168) however via Norwegian collections.

Of the 108 coin finds recorded from the period 1814-1905, 93, or 86%, were more or less complete on arrival at Norwegian museums; several, however, came via private collections. The coins from one find (85), came via a Danish collector to the museums of Copenhagen and Stockholm. Fourteen finds (2, 9, 15, 21-2, 44, 53, 75, 99, 101, 124, 129, 152, 179), or 13%, were lost (dispersed, melted down, destroyed). In the period from 1906 to the present day, 54 out of 55 recorded finds, or 98%, came to the Norwegian museums, 1 find, or 2%, being dispersed. This find (46) was returned to the finder in 1906, a year of transition as regards the regulations.

Although some finds may have been kept secret and completely concealed from the museum authorities, after 1814 the great majority of Norwegian finds of coins from the pre-1100 period appear to have reached the museums. Unfortunately, the finds are not quite safe even in the museums; some specimens are lost in the course of time, and specimens from different finds are sometimes mixed up or merged with the systematic collections, whence it is often very difficult to sort them out with any certainty.

However, the most critical time for most coin finds is the moment of discovery and the period immediately afterwards. Only a minor proportion of the finds, unfortunately, are the result of archaeological investigations. Of a total of 187 Norwegian finds only 27 finds, or 14%, containing 181, or less than 2%, of a total of 10,724 (actually about 10,724+x) coins, were found by archaeological investigations. The great majority of the finds, 160, or 86%, and the overwhelming majority of the coins, 10,543, or more than 98%, were discovered and handled with varying degrees of care by people without archaeological, let alone numismatic experience.

It might be useful to study these two groups of finds with regard to their composition and their distribution throughout the different categories of find. Table 1 shows the distribution on the basis of find categories.

On comparing the columns of Table 1 we find in group I a disproportionately high percentage of grave finds and site finds (finds from house sites, market-places, and church floors). The percentage of hoards, on the other hand, is exceptionally low in group I.

The category of stray finds, only met with in group II, may imply some uncertainty. Seven finds (nos. 11, 13, 27, 32, 59, 63, 154), of 11 coins altogether, are doubtful as primary finds from this period. The other 21 finds, of 24 coins altogether, might, to some extent, be traces of finds of other categories, especially grave finds and hoards.

Group II in Table 1 also comprises 25 finds (29 coins) which cannot be attributed to any definite category. One must confine oneself to assuming,

Table 1. *Norwegian finds: distribution by find categories*

	I Finds from archaeological investigations		II Casual finds		Total (I-II)		
	No.	%	No.	%	No.	%	
Finds from graves	12	44	35	22	47	25	
Finds from house sites	5	19	1	1	6	3	
Finds from market-places	3	11	-	-	3	2	
Finds from church floors	6	22	1	1	7	4	
Hoard	1*	4	70	44	71	38	
Stray finds	-	-	28	17	28	15	
Find circumstances unknown	-	-	25	15	25	13	
	Total	27	100	160	100	187	100
	%	14		86		100	

* The Stein find (39). Although found under the floor of a ruined church, this group of 55 silver pennies struck *c.* 990–*c.* 1023 (1015/30) is here counted as a hoard and not as a 'find from a church floor', since the typical character of a church find, a conglomeration of small coins from several centuries, is lacking.

Table 2. *Norwegian finds: composition and regional distribution of stray finds*

Category of coins	Eastern Norway		Western Norway		Trøndelag/ North Norway		Total			
	Finds	Coins	Finds	Coins	Finds	Coins	Finds	Coins	Coins %	
Roman, before AD 307, <i>AR</i>	3	5	1	1	-	-	4	6	17	
Roman, before AD 307, <i>A</i>	3	3	-	-	1	1	4	4	11	
Roman, after AD 307, <i>AV</i>	1	1	-	-	-	-	1	1	3	
Imitations of Roman	-	-	1	1	-	-	1	1	3	
Byzantine, <i>A</i>	1	1	-	-	-	-	1	1	3	
Kufic, <i>AR</i>	3	4	2	4	2	2	7	10	28	
Frankish, <i>AR</i>	1	1	-	-	-	-	1	1	3	
German	1	1	-	-	-	-	1	1	3	
Anglo-Saxon, VIII–IX <i>c.</i>	-	-	1	1	-	-	1	1	3	
Anglo-Saxon, X–XI <i>c.</i>	2	2	-	-	1	1	3	3	9	
Danish	} 1	} 1	-	-	-	-	} 1	} 1	} 3	
Norwegian			-	-	1	1				1
Not classified	2	4	-	-	-	-	2	4	11	
	Total	18	23	5	7	5	5	28	35	100
	% finds	64		19		19		102		
	% coins		66		20		14		100	

Table 3. *Norwegian finds of uncertain category: composition and regional distribution*

Category of coins	Eastern Norway		Western Norway		Trøndelag/ North Norway		'Norway'		Total		
	Finds	Coins	Finds	Coins	Finds	Coins	Finds	Coins	Finds	Coins	Coins %
Roman, before AD 307, <i>R</i>	1	1	—	—	—	—	—	—	1	1	3
Kufic, <i>R</i>	1	1	3	4	4	4	2	2	10	11	38
Frankish, <i>A</i>	1	1	—	—	—	—	—	—	1	1	3
Frankish, <i>R</i>	—	—	1	1	—	—	—	—	1	1	3
German	2	2	—	—	—	—	—	—	2	2	7
Anglo-Saxon VIII–IX c.	—	—	1	1	—	—	—	—	1	1	3
Anglo-Saxon X–XI c.	1	1	—	—	2	2	—	—	3	3	10
Danish	1	1	—	—	—	—	—	—	1	1	3
Swedish	—	—	1	1	—	—	1	1	2	2	7
Norwegian	—	—	1	3	2	3	—	—	3	6	21
Total	7	7	7	10	8	9	3	3	25	29	98
% finds	28		28		32		12		100		
% coins		24		35		31		10		100	

on rather vague criteria, that these finds were partly stray finds, partly traces of grave finds or of hoards. The composition and the regional distribution of these finds are shown in Table 3.

Even if all these finds had been able to be divided into definite categories, I do not think the general picture shown in Table 1 would have been seriously altered. Further, the figures in Table 1 are only what was to be expected. Burial mounds, sites of old houses and of market-places, ruins and sites of old churches are natural targets for archaeological investigation. As the hoards of the pre-urban period are usually buried outside habitation sites and cemeteries, they are not likely to be found by the activities of professional archaeologists.

We shall now see whether the differences in distribution on the basis of find categories also involve differences in distribution according to coin categories.

The composition of the excavation finds and the casual finds is shown in Table 4.

Within group I the early coin categories – Roman, Frankish, VIII–IX century Anglo-Saxon, and early Scandinavian coins – which are usually found in graves, represent, as one would expect, a higher percentage than in group II. The disproportionately high percentage of Kufic coins appearing in group I is primarily due to the Kaupang finds (48). On the other hand, the categories of coins which mostly occur in hoards – German, X–XI century Anglo-Saxon, and Danish – represent a lower percentage in group I than in group II, while 'Bohemian, etc.', Hiberno-Norse, and Swedish pennies are not represented at all in group I. Thanks to the

Table 4. *Composition of the Norwegian finds*

Category of coins	I Coins from archaeological investigations		II Coins from casual finds		Total		
	No.	%	No.	%	No.	%	
Roman, before AD 307	2	1	17	— (0.2)	19	— (0.2)	
Roman, after AD 307	3	2	9	— (0.1)	12	— (0.1)	
Imitations of Roman	1	1	7	— (0.1)	8	— (0.1)	
Byzantine, <i>A</i>	—	—	17	— (0.2)	17	— (0.2)	
Byzantine, <i>R</i>	—	—	7*	— (0.1)	7*	— (0.1)	
Kufic, <i>A</i>	—	—	9	— (0.1)	9	— (0.1)	
Kufic, <i>R</i>	27	15	c. 375+x	4	c. 402+x	4	
Frankish, <i>A</i>	—	—	1	— (0.0)	1	— (0.0)	
Frankish, <i>R</i>	3	2	16**	— (0.2)	19**	— (0.2)	
Imitations of Frankish	—	—	10	— (0.1)	10	— (0.1)	
German	41	23	c. 3,264+x	31	c. 3,305+x	31	
Bohemian, etc.	—	—	9	— (0.1)	9	— (0.1)	
Anglo-Saxon, VIII–IX c.	5	3	6	— (0.1)	11	— (0.1)	
Anglo-Saxon, X–XI c.	26	14	c. 3,272+x	31	c. 3,298+x	31	
Imitations of Anglo-Saxon	2	1	121+x	1	123+x	1	
Hiberno-Norse	—	—	47	— (0.4)	47	— (0.4)	
Early Scandinavian	5	3	7	— (0.1)	12	— (0.1)	
Danish	3	2	c. 385	4	c. 388	4	
Swedish	—	—	24	— (0.2)	24	— (0.2)	
Norwegian	55	30	2,849	27	2,904	27	
Not classified	8	4	c. 91+x	1	c. 99+x	1	
	Total	181	101	c. 10,543+x	99 (101)	c. 10,724+x	99 (101)
	%	2		98		100	

* Including 3 imitations

** Including 1 Italian denier

church finds of group I the Norwegian pennies reach almost the same level here as in group II.

The result most clearly shown by Table 4 is that in our studies we must rely chiefly on the casual finds. These finds were brought to light over many generations, and more material is likely to turn up in the future. The question is whether the present body of material is large enough to draw conclusions from. Would it not be safer to wait a few more generations, until the source material has grown 'large enough'? How does the growth of the material affect its composition? Table 5 shows various stages of the development up to the present day, starting in 1829, the year before C. A. Holmboe entered upon his active curatorship of the Oslo University Coin Collection. The state of affairs in 1829 is compared to the known material in 1867, in 1905 (the year of the Antiquities Act), in 1940 (the outbreak of the war), and in 1975, which gives us four periods of almost equal length: 38, 38, 35, and 35 years.¹⁷

Table 5 shows that the tendencies already visible in the 1829 material, and more clearly in 1867, have continued to a large extent. Since 1905, when the material was less than three-quarters of the 1975 figure, the relative distributions in the coin groups have not changed radically. In 1940 they were practically the same as in 1975. The present figures indicate that groups like the Byzantine, imitations of Byzantine, Kufic gold, Frankish gold, and imitations of Frankish coins are less representative elements in the coin stock of Viking-Age Norway. The other Viking-Age coin groups, and the Roman coins and their imitations, have shown, at their respective levels, a continuous growth which must be considered significant.

The hoards are the most important type of find among our material. However, very few of the hoards have been preserved intact, too many of them having lost some specimens on their way from the site of the find to the museum (nos. 3, 50, 54, 61-2, 85, 90, 92, 94, 127, 140, 143-4, 157, 179; cf. nos. 6, 35, 38, 43, 95, 135, 147, 155). How much do these losses affect their composition, and thereby their value as numismatic sources? Fortunately, we are in a position to attempt an answer to this problem.

The largest hoard of Kufic dirhems (43) was found in two portions. Another such hoard (157), is a mixed, early XI-century hoard of medium size, consisting of 150 silver coins found in the same place over more than 70 years. This hoard was published in seven portions between 1882 and 1953. We shall now see, in Tables 6 and 7, to what extent additional portions have affected the compositions of these two hoards.

Tables 6 and 7 show that random samples of these hoards have a similar proportional distribution of coins among the various categories, and that such samples can also provide a fairly good basis for dating the hoard as a whole. Even samples considerably less than one half of a total may be significant for the composition of a hoard. Since most hoards, at least those from the Viking Age, are composed of coins of roughly the same weight and the same metal value, specimens singled out by the finders or others who come into contact with the find are not likely to seriously alter the composition of a hoard. This would naturally happen more easily to coin finds containing pieces of quite different sizes and/or metallic values, where special groups of coins would be sorted out.¹⁸

What was the principal reason why the coin hoards were buried? How would the different answers to this question affect the usefulness of the hoards as sources of Norwegian coin history?

In connection with the Scandinavian Viking-Age hoards three explanations for hoard deposits have been advanced:

1. The so-called 'law of Odin', mentioned by Snorri Sturluson in the introductory saga of the *Heimskringla*:¹⁹ every man should enjoy in the hereafter what he had buried in the ground.
2. In olden times people were accustomed to keep their treasures hidden under the ground as the only secure place against theft and fire.
3. The hoards were buried because of wars and civil disturbances.

Table 5. *The composition of the Norwegian find material at five stages of its growth*

Category of coins	1829			1867		
	Finds no.	Coins no.	% coins	Finds no.	Coins no.	% coins
Roman, before AD 307	3	6	2	4	7	— (0.2)
Roman, after AD 307	1	1	— (0.4)	4	4	— (0.1)
Imitations of Roman	2	2	1	3	3	— (0.1)
Byzantine, <i>AV</i>	1	14	5	2	17	— (0.4)
Byzantine, <i>AR</i> (& <i>AE</i>)	—	—	—	2	2	— (0.1)
Imitations of Byzantine	—	—	—	1	3	— (0.1)
Kufic, <i>AV</i>	—	—	—	1	9	— (0.2)
Kufic, <i>AR</i>	9	10	4	23	c. 63+x	2
Frankish, <i>AV</i>	—	—	—	—	—	—
Frankish, <i>AR</i>	1	1	— (0.4)	5	7	— (0.2)
Imitations of Frankish	—	—	—	4	10	— (0.3)
German	4	c. 69+x	25	18	c. 1,432+x	37
Bohemian etc.	—	—	—	2	3	— (0.1)
Anglo-Saxon, VIII–IX c.	1	1	— (0.4)	4	5+x	— (0.1)
Anglo-Saxon, X–XI c.	8	c. 57+x	21	23	c. 1,931+x	50
Imitations of Anglo-Saxon	1	4	1	9	25+x	1
Hiberno-Norse	1	1	— (0.4)	4	28	1
Early Scandinavian	—	—	—	1	4	— (0.1)
Danish	3	c. 87	31	11	c. 237	6
Swedish	—	—	—	3	10	— (0.3)
Norwegian	2	24	9	9	47	1
Not classified	7	x	[?]	21	c. 52+x	1
Total	29	c. 277+x	99 (100.6)	76	c. 3,899+x	99 (101.3)
% finds	2			41		
% coins		3			36	

The Scandinavian Viking-Age hoards are not yet sufficiently published. A comprehensive work on more than 600 hoards found on the island of Gotland has been published by the Swedish archaeologist M. Stenberger.²⁰ The coin material could only be summarized, and, since it had not yet been fully examined and classified by the Stockholm research team,²¹ the dating of the hoards tends to be given approximately in round figures. From this monograph I have picked the following groups of material buried at three different dates, chosen more or less at random:

- c. 1000: 34 hoards, 12,293 coins altogether
- c. 1025: 19 hoards, 14,541 coins altogether
- c. 1050: 23 hoards, 19,097 coins altogether

On closer examination of these hoards some interesting features appear. The hoards commonly consist of coins whose minting dates cover a considerable period of time, often a century or more. Thus we find that in the hoards deposited about 1025 there is still a large group of coins struck

1905			1940			1975		
Finds no.	Coins no.	% coins	Finds no.	Coins no.	% coins	Finds no.	Coins no.	% coins
9	14	- (0.2)	12	17	- (0.2)	14	19	- (0.2)
9	9	- (0.1)	11	11	- (0.1)	12	12	- (0.1)
5	5	- (0.1)	6	6	- (0.1)	8	8	- (0.1)
2	17	- (0.2)	2	17	- (0.2)	2	17	- (0.2)
2	2	- (0.0)	4	4	- (0.0)	4	4	- (0.0)
1	3	- (0.0)	1	3	- (0.0)	1	3	- (0.0)
1	9	- (0.1)	1	9	- (0.1)	1	9	- (0.1)
43	c. 133+x	2	56	c. 360+x	4	6	c. 402+x	4
1	1	- (0.0)	1	1	- (0.0)	1	1	- (0.0)
8	15	- (0.2)	8	15	- (0.2)	11	19	- (0.2)
4	10	- (0.1)	4	10	- (0.1)	4	10	- (0.1)
19	c. 1,876+x	24	27	c. 2,753+x	29	34	c. 3,305+x	31
3	4	- (0.1)	5	7	- (0.1)	6	9	- (0.1)
6	8+x	- (0.1)	7	9+x	- (0.1)	8	11+x	- (0.1)
31	c. 2,543+x	33	39	c. 2,888+x	30	45	c. 3,298+x	31
13	62+x	1	17	80+x	1	19	123+x	1
8	38	1	11	43	- (0.4)	12	47	- (0.4)
2	8	- (0.1)	3	10	- (0.1)	5	12	- (0.1)
16	c. 264	3	18	c. 371	4	21	c. 388	4
4	11	- (0.1)	5	12	- (0.1)	7	24	- (0.2)
19	2,598	34	24	2,847	30	32	2,904	27
31	c. 82+x	1	35	c. 93+x	1	39	c. 99+x	1
130	c. 7,712+x	99 (100.4)	160	c. 9,566+x	99 (100.8)	187	c. 10,724+x	99 (100.9)
70			86			100		
	72			89			100	

before the year 1000. Further, in the hoards buried about 1050 there are also specimens issued before the year 1000, and a great number struck in the period 1000-25. A considerable number of the coins in the Gotland hoards are Anglo-Saxon pennies. The organization of the Anglo-Saxon currency at this time, we know, afforded the coins only a limited lifetime at home in England.²² The Anglo-Saxon pennies in the Gotland and other Scandinavian finds are likely to have left their homeland within a few years, at the latest, after they were struck. They probably spent most of the years before their burial in circulation in Scandinavia. A similar pattern, I believe, may be found even among the Kufic dirhems and the German pennies.

The following fact seems to emerge from this investigation: whatever the reason the Gotlanders had for burying their hoards in the XI century, it does not seem to have affected their wealth permanently, nor their opportunities of earning more money. Their prosperity lasted even beyond the year 1050. According to Stenberger, 21 hoards, containing 18,605 coins, were buried in the period 1060-90. In the 950's, on the other

Table 6. *Composition, secondary treatment, and dating of the coins at the two stages of the finding of the Grimestad hoard (43)*

	1936		1937/8	
	No.	%	No.	%
°Abbāsids	10	19	11	14
Imitations of °Abbāsids	1	2	1	1
Sāmānids	38	70	59	77
Imitations of Sāmānids	5	9	6	8
Total	54	100	77	100
% coins	70		100	
<i>Secondary treatment:</i>				
Cut fragments	9	17	11	14
Pierced coins	9	17	11	14
Looped coins	1	2	1	1
<i>Range of dates:</i>	796/7-920/3		796/7-920/3	

hand, 23 hoards containing 6,700 coins (almost exclusively Kufic dirhems, about twice as heavy as the pennies) were buried. Stenberger has also published hoards buried before, after, and between the above-mentioned dates.²³ Finally, as intensive studies provide better means of dating the coins, it would appear that hoards in each of these chronological groups vary to within a few years with regard to the latest coin. A chronological arrangement of the hoards will show less concentration and more continuity. This is clearly shown in Table 8.

Table 7. *Composition and dating of the coins at six stages of the finding of the Sandsaunet hoard (157)*

Category of coins	1882		1889		1907		1922		1935		1952/3	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kufic	1	4	2	3	3	3	3	2	3	2	4	3
German	14	50	37	55	48	54	67	54	71	55	86	57
Bohemian	-	-	-	-	-	-	-	-	-	-	1	1
Anglo-Saxon	6	21	16	24	24	27	35	29	37	29	40	27
Imitations of Anglo-Saxon	-	-	5	7	6	7	7	6	7	5	7	5
Hiberno-Norse	1	4	1	2	1	1	3	2	3	2	4	3
Swedish	-	-	-	-	1	1	1	1	1	1	1	1
Not classified	6	21	6	9	6	7	7	6	7	5	7	5
Total	28	100	67	100	89	100	123	100	129	99	150	102
% coins	19		45		59		82		86		100	
Range of dates	(907/32)-		(907/32), 913/42-		(907/32), 913/42-		(907/32), 913/42-		(907/32), 913/42-		(907/32), 913/42-	
	c. 1000/10		1002/24		1006/29		1006/29		1006/29		1006/29	

Table 8. *The dating of some Gotland hoards, by Stenberger 1947 and G. Hatz 1974*

Stenberger no./ G. Hatz no.	Find spot	No. of coins	Burial date according to Stenberger	Latest coin according to G. Hatz
213/13	Mårtens, Grötlingbo s.	114	c. 1000	973
34/32	Fölhagen, Björke s.	1,215	c. 1000	991
562/73	Kvarna, Vamlingbo s.	1,001	c. 1000	994
440/80	Talings, Rute s.	46+x	c. 1000	995
413/91	Ytlings, Othem s.	603	c. 1000	996
4/95	Larsarve, Alskog s.	218	c. 1000	999
341/100	Lilla Haltarve, Lokrume s.	89	c. 1000	1000
149/108	Hallsarve, Fardhem s.	466	c. 1000	1002
478/130	Källgårds, Stenkumla s.	481	c. 1000	1011
32/104	Digeråkra, Barlingbo s.	1,326	1020-30	1003
415/160	Österby, Othem s.	203	<i>'Um die Mitte der ersten Hälfte des 11. Jh.'</i>	1024
202/170	Bölske, Grötlingbo s.	366	c. 1025	1027
68/168	Änges, Burs s.	375	c. 1025	1035
27/209	Myrände, Atlingbo s.	1,620	c. 1025	1036
417/198	Kviende, Othem s.	518	c. 1050	1035
438/175	Lilla Valla, Rute s.	618	c. 1050	1042
394/256	Pilgårds, När s.	680	c. 1050	1046
504/286	Stora Bjärs, Stenkyrka s.	843	c. 1050	1051
463/300	Stora Varbos, Sanda s.	363	c. 1050	1056

Plotted on a map,²⁴ the Gotland hoards show a distribution all over the island, the east central district being the only large area without hoards. This is the very part of Gotland that was the least cultivated about the year 1700, and also in the Viking Age.

War and civil disturbances do not seem to provide a satisfactory explanation for the deposit of Viking-Age hoards on Gotland.

The deposition of hoards, on Gotland and elsewhere in Scandinavia, does not seem to have been affected by the conversion of the Scandinavians to Christianity. This seems to refute explanation 1, the 'law of Odin' as the primary one. Moreover, coins and other objects of precious metal occur rather seldom in Viking-Age graves, and only in very small quantities.

The sagas tell us about treasures deposited for all the reasons mentioned above.²⁵ Without relying too much on the few instances recorded by the saga writers, I think the hoards really were buried for all these reasons. The Gotland material indicates a strong element of continuity in both the deposits and the composition of the hoards. The Norwegian hoard material, although far less rich and numerous than that of Gotland, shows a similar tendency. Table 9 shows the dates and the composition of the Norwegian hoards.

In Viking-Age Norway, which was a rural society with practically no fortified and organized towns, the burial of hoards must have been quite a normal thing. To answer the question of why the hoards were not

Table 9. Norwegian hoards from IX–XI centuries: burial dates and composition (%)

Find no./Find spot	Buried after	No. of coins	(Roman/) Byzantine	Kufic	Frankish	German	Bohemian etc.
85. 'Jæren'	840	5	–	–	60	–	–
33. Hon	852	20	20	50	25	–	–
142. Torgård	862	7	–	100	–	–	–
169. Herten	913	18	–	100	–	–	–
43. Grimestad	921	77	–	100	–	–	–
12. Teisen	923	16	–	100	–	–	–
62. Voie	926	c. 12	–	100	–	–	–
4. Nedre Strömshaug	945	14	100	–	–	–	–
171. Rönnavik	949	46	–	85	–	–	–
140. Holtan	950	65	–	100	–	–	–
61. Kvitberg	950/75	20	–	20	–	75	–
80. Reve	984	14	–	29	–	64	–
36. Tråen	991	128	1	9	–	81	–
3. Fuglevik	991	c. 80	–	–	–	2	–
79. Bore	997	c. 100	–	5	–	14	–
137. Vitsö	997	44	–	2	–	46	–
159. Kaldal	1002	c. 289	–	4	1*	68	–
127. Slögstad	1002	67	–	5	–	46	–
157. Sandsaunet	1006	150	–	3	–	57	1
123. Törlå	1009	c. 120	–	2–4	–	45–50	–
91. Jösang	1014	318	–	– (0.3)	–	49	–
78. Hårr	1017	c. 418	–	2	–	34	–
82. Slethei	1018	578	– (0.2)	–	–	3	–
39. Stein	1023	55	–	–	–	60	–
135. Nesböen	1023	416	–	1	–	29	– (0.2)
95. Årstad	1029	c. 1,849	– (0.2*)	– (0.3)	– (0.2*)	38	– (0.1)
110. Gjerde	1029	89	–	1	–	53	–
147. Dronningens gt.	1035	c. 964	–	1	–	53	– (0.2)
10. Kongsgården	1038	6	–	–	–	33	–
54. Fen	1042	21	–	–	–	x?	–
60. Rennesund	1047	96	–	–	–	59	–
6. St. Olavs Voll	1047	45	2	–	–	87	–
35. Brøholt (B)	1050	c. 422	–	–	–	63	– (0.2)
90. Foldøy	1051	776	–	– (0.4)	–	68	– (0.3)
31. Stavenesodden	1060	26	–	–	–	35	–
38. Helgelandsmoen	1065	242	–	–	–	36	–
49. Nordrum	1065	35	–	–	–	14	–
92. Nedstrand	1065	8	–	–	–	–	–
83. Tjora	1065	19	–	–	–	–	–
94. Imsland	1080	151	–	–	–	–	–
19. Stange	1080	12	–	–	–	–	–
102. Måge	1080	c. 260	–	–	–	1	–
143. Gresli	1080	2,253	–	–	–	2	–

* Imitation(s)

Anglo-Saxon	Imitations of Anglo-Saxon	Hiberno-Norse	Early Scandinavian	Danish	Swedish	Norwegian	Not classified	Total
40	-	-	-	-	-	-	-	100
5	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
15	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	-	100
-	-	-	-	-	-	-	5	100
7	-	-	-	-	-	-	-	100
8	-	-	2	-	-	-	-	101
98	-	-	-	-	-	-	-	100
65	-	1	-	-	-	-	15	100
48	2	-	-	-	2	-	-	100
25	1	-	1	-	-	-	-	100
46	2	-	2	-	-	-	-	101
27	5	3	-	-	1	-	5	102
45-50	1	-	-	-	-	-	-	(100)
47	3	-(0.3)	-	-	-	-	-	99 (99.6)
60	3	1	-	-	-	-	-	100
92	1	3	-	-(0.4)	-	-	-	99 (99.6)
33	2	-	-	-	-	6	-	101
65	4	1	-	-	-(0.2)	-(0.2)	-	100 (100.6)
56	(x)	-(0.4)	-	4	-(0.4)	-	-	98 (99.6)
19	5	-	-	2	-	-	20	100
39	4	-(0.4)	-	2	1	-	-	100 (100.6)
67	-	-	-	-	-	-	-	100
x	-	-	-	x	-	-	x	x
30	-	-	-	10	-	-	-	99
7	2	-	-	-	-	2	-	100
20	1	-	-	15	-	-(0.2)	-	99 (99.4)
17	1	-(0.1)	-	13	-	1	-	100 (100.4)
-	-	-	-	8	-	58	-	100 (100.4)
3	-	-(0.4)	-	7	-	54	-	101
-	-	-	-	20	-	66	-	100
-	-	-	-	-	-	88	13	101
-	-	-	-	-	-	100	-	100
-	-	-	-	-	-	100	-	100
-	-	-	-	8	-	92	-	100
-	-	-	-	3	-	96	-	100
-	-(0.1)	-	-	-(0.1)	-	98	-(0.1)	100 (100.3)

recovered, one need not necessarily have recourse to such catastrophes as wars and disturbances. One explanation could be that when Norwegians engaged in peaceful and/or warlike enterprises in foreign countries failed to return, there was no one to recover their hidden treasure.

A hoard found in Norway, especially if supported by other hoards, is quite certainly a sample of the coin stock in Norwegian hands at the time of the deposit. The geographical position of the country makes it unlikely that hoards found in Norway were buried by foreign merchants or anyone else carrying money on transit routes across Norwegian ground.

To sum up: the Norwegian Viking-Age finds of coins seem to provide a representative sample of the coins in circulation in this country during the different phases of this period. It should thus be possible to draw some conclusions about the coin history of Norway from this material.

No.	Find	Year	Coins	Denars	Other	Total	Weight	Value
61	Widberg	001	2050-73	—	—	—	—	—
62	Bare	001	—	—	—	—	—	—
63	Stora	101	—	—	—	—	—	—
64	Fjellvåg	001	—	—	—	—	—	—
65	Bare	001	—	—	—	—	—	—
66	Vest	001	—	—	—	—	—	—
67	Kodal	001	—	—	—	—	—	—
68	Stora	101	—	—	—	—	—	—
69	Stora	101	—	—	—	—	—	—
70	Stora	101	—	—	—	—	—	—
71	Stora	101	—	—	—	—	—	—
72	Stora	101	—	—	—	—	—	—
73	Stora	101	—	—	—	—	—	—
74	Stora	101	—	—	—	—	—	—
75	Stora	101	—	—	—	—	—	—
76	Stora	101	—	—	—	—	—	—
77	Stora	101	—	—	—	—	—	—
78	Stora	101	—	—	—	—	—	—
79	Stora	101	—	—	—	—	—	—
80	Stora	101	—	—	—	—	—	—
81	Stora	101	—	—	—	—	—	—
82	Stora	101	—	—	—	—	—	—
83	Stora	101	—	—	—	—	—	—
84	Stora	101	—	—	—	—	—	—
85	Stora	101	—	—	—	—	—	—
86	Stora	101	—	—	—	—	—	—
87	Stora	101	—	—	—	—	—	—
88	Stora	101	—	—	—	—	—	—
89	Stora	101	—	—	—	—	—	—
90	Stora	101	—	—	—	—	—	—
91	Stora	101	—	—	—	—	—	—
92	Stora	101	—	—	—	—	—	—
93	Stora	101	—	—	—	—	—	—
94	Stora	101	—	—	—	—	—	—
95	Stora	101	—	—	—	—	—	—
96	Stora	101	—	—	—	—	—	—
97	Stora	101	—	—	—	—	—	—
98	Stora	101	—	—	—	—	—	—
99	Stora	101	—	—	—	—	—	—
100	Stora	101	—	—	—	—	—	—

* [unclear]

B. Previous works and literature

The establishment of a Norwegian coinage in the XI century, and the preceding history of coins in Norway, have often been touched upon in numismatic, archaeological, and historical literature. However, the topic has never been treated at length in book form.²⁶ The previous literature connected with the subject can be divided into three groups:

1. Catalogues
2. Publications of finds
3. Surveys of Norwegian coinage and/or coin history

1. Catalogues

The *Beskrivelse*, the great 1791 catalogue of coins and medals in the royal Danish collection, also included a section on Norwegian medieval coins, in which only four pennies earlier than 1100 were described.²⁷ Among these were the ONLAFREXNOR(1*d*) and the HARALDREXNO (11*d*) pennies, both based upon drawings of specimens in the collection of the late N. R. Brocman of Stockholm. The other two coins were Danish pennies of Magnus the Good, one of them being the famous MAGNVSREXN/IVLEMEFECIT penny,²⁸ though here classified as struck for the Norwegian king Magnus Erlingsson (1161–1184). Further, 23 Norwegian pennies struck *c.* 1065/80, most probably a Norwegian hoard (180), were also described and illustrated in this catalogue, but published as 'Ostmannic or Irish'.

C. I. Schive incorporated these Norwegian pennies (except for one fragment), in addition to 36 pennies of the same coinage period, in his work on Norwegian medieval coins. The *Triquetra* type of Harald Hardråde then comprised nine specimens, one having the complete reverse legend of VLFONNIÐARNE (11*a*). A tenth coin of the same king was the ARALD/OVÐNĀAR penny from the Danish mint of Odense. Schive also published two coin types of Olaf Haraldsson (2*f*, 4*a*), attributing to the same king three other types of other Scandinavian provenance.²⁹ Two Norwegian earls, Eirik Håkonsson and Håkon Eiriksson, were given the *Crux* imitations struck in the names of HEINRICVSCOM[ES] and the mysterious AACΠINEIΓNVNDEI. These coins, known in Sweden from the

early XVIII century and at that time attributed to Swedish kings, had been classified as Norwegian in 1826 by the Danish numismatist C. Ramus, who attributed the AANINE coin to King Håkon the Good.³⁰ Finally, Schive was the first to publish a coin of the halfpenny standard series.³¹

For 50 years a vast catalogue on Danish (and Norwegian) coins prior to 1448 was in preparation in Copenhagen by C. Ramus and O. Devegge, later by C. F. Herbst. This work, left unfinished in 1867, gives no more information than Schive's section on XI-century Norwegian pennies.³²

Schive's work, which contains the chief ingredients of our present knowledge of XI-century Norwegian coins, has not yet been replaced by a modern reference work. Supplements and corrections to this classic work have been published in several different papers, mainly in publications of finds.³³ A paper published in 1966 includes a catalogue of Danish and Norwegian pennies issued by Harald Hardråde.³⁴

2. Publications of finds

Some scattered notes on early Norwegian coin finds occur in numismatic³⁵ and historico-topographical literature³⁶ of the later part of the XVIII century. Among unprinted sources we have the earliest known record, in a note of 1754, of a Norwegian coin find of this period (97). The detailed description of the Hove hoard (155) by the historian G. Schöning also deserves mention here.

Antiquarians of the XIX century included notes on coin finds in their reports.³⁷ After the foundation of *Universitetets Myntkabinett* in 1817, which was headed by a permanent curator from 1826, the treatment of hoards and other coin finds could be more systematically undertaken. During his long curatorship (1830–76), C. A. Holmboe, in addition to his duties as Professor of Oriental Languages, undertook the examination and publication of such important hoards as Hon (33), Årstad (95), Teisen (12), Kaldal (159), and Brøholt (35). In 1870, C. I. Schive published the Slethei hoard (82), especially remarkable for its large portion of Anglo-Saxon pennies. Holmboe's successor L. B. Stenersen, a Classics lecturer – later professor – was head of the *Universitetets Myntkabinett* from 1877 to 1918. In the second year of his curatorship the Gresli hoard (143), the largest find of Norwegian XI-century pennies, was discovered. Three years later Stenersen published a very detailed description of this hoard, in which all the dies are counted and all the blundered legends are explicitly recorded.³⁸ As it happened, all the major hoards of XI-century Norwegian pennies came to light in Stenersen's time: Imsland (94) in 1886, Helgelandsmoen (38) in 1892, published together with the two smaller hoards from Stavenesodden (31) and Nordrum (49), and, finally, Måge (102) in 1909. The publication of the latter, as Stenersen was by then an old and sick man, was completed in 1912 by the archaeologist A. W. Brøgger, who had just published the large hoard from Foldøy (90). Important hoards

from the first part of the XI century were published by two other archaeologists: Nesböen (135) and Hårr (78) by G. Gustafson and Jösang (91) by J. Petersen. After the time of Holmboe the *Universitetets Myntkabinett* and other museums needed the help of Arabists at the University in reading the Kufic dirhems that turned up in finds now and then: J. P. Broch (in the years 1876–86), A. Seippel (1886–1930), and J. Lindberg (1930–50). The great Swedish specialist on Kufic coins, U. S. L. Welin, has been helpful in more recent years.

In 1877 O. Rygh, the archaeologist, gave a survey of the Norwegian coin finds from the Late Iron Age. This list of finds is all the more valuable as it was also based on information from C. I. Schive, and on studies in the archives of the *Universitetets Myntkabinett*. In his 1929 monograph on the Viking-Age hoards of Norway, S. Grieg naturally mentions the coins concerned, but only gives a secondhand and brief account of them. Hoards consisting exclusively of coins are not included.³⁹ In 1936 H. Holst published a survey of Norwegian coin hoards of all periods,⁴⁰ and in 1944 a more detailed record of Norwegian finds earlier than *c.* 1100.⁴¹ Even this inventory, compiled as it was during the difficult years of the war, was mainly based upon literature and documents. After a study of the coins themselves, Holst later published revised lists of the Kaldal (159) and the Brøholt (35) hoards as well as a couple of minor hoards (79, 123). Holst, like Stenersen originally a Classics lecturer, concentrated on the scattered Norwegian finds of Roman and Byzantine coins for the first ten years of his curatorship (cf. Bibliography). Since C. J. Tornberg's work in 1848, the subject has also profited from foreign scholars taking an interest in Norwegian coin finds in connection with their studies (cf. Bibliography, especially Albrecht, Bolin, Dannenberg, Dolley, Hauberg, Jammer [Hatz], Mackeprang, B. Malmer, Markov, Rasmusson, Tornberg, and Welin).

The procedures usually followed in the last century meant that the find material was not always treated in the way preferred today. 'Duplicates' from the larger finds (Årstad and Gresli) were disposed of, by sale or exchange, to other museums and to private collectors. Coins from finds were also often merged with the main collection without the provenance being clearly noted on the tickets.

Nevertheless, the situation, in general, has not been too bad for coin finds in Norway. After 1830, the pre-1100 coin hoards and other finds, which in this country are comparatively few in number and fairly small in size, were usually handled by competent – if not always specialized – and devoted people associated with museums, who were able to record them.

3. Surveys of Norwegian coinage and coin history

The first survey of the medieval coin history of Norway was an account in Latin by Holmboe, published in 1841.⁴² A German version⁴³ on the same

topic by the same author appeared in 1846. Finally, Holmboe wrote a survey of monetary history in the Middle Ages, as an introduction to the great work of Schive.⁴⁴

Holmboe regarded the AΛΠΙΝE penny as the earliest Norwegian coin, attributing it to Earl Håkon Sigurdsson, whom, in 1841, he had hesitatingly preferred to King Håkon the Good.⁴⁵ Holmboe attributed the pennies of the *Crux* type struck in the names of *Onlaf rex Nor* and *Heinricus com[es]* to Olaf Tryggvason and to Earl Eirik Håkonsson, though, in 1846, he expressed some doubt about the Norwegian provenance of the latter coin.⁴⁶ He regarded the *Magnus rex n/Ivle me fecit* coin as Norwegian, but in 1865 he changed over to Schive's opinion, that there were no coins indicating a Norwegian coinage of Magnus the Good.⁴⁷ In the University Coin Collection there was no penny of Harald Hardråde available for study until 3 October 1867 when the second portion of the Bröholt hoard (35 B) came to the museum. Holmboe, who of course knew the specimen published in the *Beskrivelse* (11d), was himself the first to publish with an illustration⁴⁸ the specimen from the 1837 Stolpehuse hoard (202, 11a). Holmboe expressly wanted coins of Harald Hardråde, to examine their weight and their silver content. He believed that these coins conformed to a national standard with regard to their weight, like the pennies of Magnus the Good, who evidently followed the Danish standard established by Cnut the Great, the Harald pennies being possibly adjusted to the somewhat lighter Norwegian *mark*.⁴⁹ Concerning the silver content, Holmboe was anxious to see whether there was anything in the story about the *Haraldsslátta*, which he was the first to mention in this context.⁵⁰ After the time of Harald Hardråde, Holmboe stated, there was an obscure period in Norwegian coin history. Among 'the small coins and bracteates from the end of the XI and the beginning of the XII century – so difficult to classify' – he published a bracteate reading +////////VI REX, which he wrongly attributed to King Håkon Torefostre, 1093–1095, coruler with Magnus Barefoot.⁵¹

In 1847 C. Holst, a jurist and civil servant, published a survey of the earliest coinage of Norway, mostly compiled from the works of Ramus, Holmboe and Schwach. Holst believed that Håkon the Good had begun the Norwegian coinage.⁵² He thought that, as there was generally a sufficient supply of foreign coins in the country at that time, the native coinage was begun, not in answer to a need for coins, but as a result of the vanity and desire for prestige of the reigning princes, 'who wanted to have their own coins as they had in other countries and to see their pictures on the coins. They might also have considered the profit which this institution promised them in due course.'⁵³

Schive connected the introduction of coinage in Scandinavia in c. 1000 – in Norway coins were introduced by Olaf Tryggvason – with the cultural influence that accompanied Christianity:

The converted princes demonstrated by the coinage their power and independence, as they thereby also discharged their duty as rulers.

Their coin types with the Cross, in word and design after English prototypes, were most suited for showing their piety and devotion to Christianity, their new faith, which they also wanted their subjects to practise. The vanity of being the equals of other European monarchs may also have contributed to their decision to strike coins, certainly more than the acknowledgement of the utility and necessity of a coinage. In those times the latter factors must have been of very little significance in the Scandinavian kingdom, where nearly all payments were made according to weight. In so far as this was not the case, there was plenty of foreign money, at least compared to the coins struck at home.⁵⁴

According to Schive, Harald Hardråde began to issue pennies of low silver content because his warlike expeditions against Denmark had cost a great deal of money, 'and he seems not to have had any hesitation about using whatever means were available to increase his income, if need be'.⁵⁵ His series of pennies had weights corresponding to 1/240 of the Norwegian *mark*, which Schive calculated as 215.8 grammes.⁵⁶ The issue of pennies of low silver content was continued by Harald's sons, Magnus and Olaf, 'especially because of the heavy losses suffered in the unhappy expedition against England'.⁵⁷ The recovery took time, according to Schive's original view. The change from pennies of low silver content, combined with a halving of the penny weight, may have taken place before the end of the XI century, if not during the reign of Olaf Kyrre (1067–1093), then in that of Magnus Barefoot (1093–1103).⁵⁸

This view seemed to be confirmed by the 1863 hoard from Sandøy churchyard (185) on the Faeroes. This hoard came to Schive's knowledge just in time to be dealt with in a supplementary section of his work.⁵⁹ Two coins of the halfpenny standard with the king's name of *Magnus* Schive attributed to Magnus Barefoot. However, the Danish numismatist C. F. Herbst, who published the Sandøy hoard in 1866,⁶⁰ did not agree with Schive. From the composition of the hoard, containing German, English, and Danish coins earlier than *c.* 1060, he thought the Norwegian Magnus coins must be attributed to Magnus Haraldsson (1066–1069). Schive, discussing the Sandøy hoard in a paper read to the *Videnskabs-Selskabet i Christiania* (The Norwegian Society of Science and Letters) in 1866, accepted Herbst's opinion concerning the Magnus coins.⁶¹ Consequently, the introduction of the halfpenny standard should have taken place before the death of Magnus Haraldsson, which occurred, according to tradition, on 28 April 1069.

Influenced by this dating, confirmed by authorities like Herbst and Schive, L. B. Stenersen grouped most of the numerous series of Norwegian pennies of low silver content in the Gresli hoard (143) within a narrow limit of a few years, 1066–8. Harald's sons, according to Stenersen, continued striking pennies of low silver content, then they tried to improve the fineness of the coin. This attempt being abandoned, new issues of pennies of low silver content followed, before they finally

introduced the halfpenny standard.⁶² This chronology also moved Stenersen to regard all the Norwegian coins in the Helgelandsmoen hoard (38) as struck by Harald Hardråde.

In a survey of Norwegian coin history published in 1904 by B. Morgenstjerne, jurist, economist and numismatist, Schive's original opinion on the introduction of the halfpenny standard is upheld, without this view being further explained.⁶³ Morgenstjerne was a serious numismatist, who had an important collection himself and had much of Schive's correspondence in his possession. He had worked in the Bergen collection and had published a hoard of Norwegian pennies of this period.⁶⁴ I am therefore inclined to think that his opinion on the halfpenny standard is something more than a mere repetition of what was then regarded as an old-fashioned view. On another question concerning the early Norwegian coinage, however, he concurred with the current point of view: he maintained, apparently accepting the arguments of the Swedish numismatist H. Hildebrand, that Earl Håkon Eiriksson and Olaf Haraldsson began the Norwegian coinage.⁶⁵

In his 1936 survey of Norwegian coin history in the Middle Ages, H. Holst stated that the Norwegian coinage probably began with Olaf Haraldsson.⁶⁶ The Norwegians learnt to use coins as money from the stream of Anglo-Saxon and German pennies. These pennies were imitated and Norwegian coins were struck independently as soon as the influx of foreign coins no longer met current needs, which evidently happened towards the middle of the XI century.⁶⁷ The earliest coins seemed to Holst to have been struck according to the English standard.⁶⁸ He raised the question, however, of whether the change to a national weight standard had not in fact already taken place under Olaf Haraldsson, contemporaneously with the transition of the Danish coinage to a national weight standard under Cnut the Great.⁶⁹ Holst, following Stenersen, attributed all the Norwegian *Triquetra* pennies to Harald Hardråde.⁷⁰ Harald, he believed, had learned about coinage organization on his voyages to foreign countries: 'He must have been one of the first European princes to make the most of his coining right.'⁷¹ Holst dated all the series of the Gresli group to before *c.* 1069, when he thought that the change to the halfpenny standard took place.⁷² The return to the high silver content, according to Holst, certainly restored confidence in the money, which had been enfeebled by the *Haraldsslátta*.

In 1930 G. Galster suggested a reattribution of the Magnus coins in the Sandøy hoard to Magnus Barefoot, on the basis of the dating of some English prototypes of coins of the Sandøy group.⁷³ Holst, finding further points to connect some of the Sandøy coins with the last decade of the XI century, agreed in this dating of the Magnus coins struck to the halfpenny standard. However, Holst did not, as B. Malmer has pointed out,⁷⁴ take the consequences of this important redating fully into consideration, when he retained his early dating of 'Olaf Kyrre's coin reform'.

In her work on the numismatic history of Norway during the XI century, B. Malmer published the *Onlaf rex Nor* coin from Igelösa (198).

This settled the old question of which of the Olafs had had it struck in favour of Olaf Tryggvason.⁷⁵ However, this work was primarily a study of the Norwegian coins of the later part of the XI century. In the 1956 publication of the coin finds from Lapp offering-places in northern Sweden (190–2) B. Malmer had more or less agreed with the traditional dating of these coin series.⁷⁶ Now, on the basis of the material from the offering-places, she made a meticulous examination of the technical and decorative elements of the completely or partly anonymous Norwegian coins. In this study she distinguished four coin standard periods in the Norwegian coinage of the later half of the XI century.⁷⁷

Period I, until c. 1055. The silver content was approximately the same as that of the few issues of the first part of the century.

Period II, c. 1055–1080. C. 1055, or a little later, the silver content deteriorated markedly. C. 1065 the native coin production increased considerably. The intensive production of coins with a national style and with a silver content of about 500/1000 seems to have continued during the decade 1070–80.

Period III, c. 1080–1090. B. Malmer regarded the establishment of this period as a separate coin standard period as the most important result of her study. The silver content was higher than before, about 650/1000 or more, newly imported design types predominated, and the coining technique was more careful.

Period IV, c. 1090–1110. The coin weight was halved and the silver content of about 900/1000 was restored.

Thus B. Malmer had demonstrated that there was a continuous Norwegian coinage throughout the later half of the XI century, although of varying size.⁷⁸ On this point the special cumulative character of the offering finds makes them a valuable source as a corrective to the coin hoards.

Concerning the question of silver content B. Malmer published 13 new results obtained by the touchstone method.⁷⁹ Otherwise she had to rely on older analyses, which showed rather large discrepancies between the chemical analyses of some badly preserved fragments, and analyses by the touchstone method, usually taken from better specimens.⁸⁰ B. Malmer did not discuss the establishment of a national currency in Norway or the problems involved.⁸¹ In an article in 1966 commenting on the word *mót* (Old Norse: picture, die) she suggested that the numerous and debased coins with moneyer's name connected with the word *mót* may have had a different background of administration and coining policy from those (with a higher silver content) bearing the king's name.⁸²

In a paper published in 1972, the Polish numismatist S. Suchodolski compared the beginning of a coinage in Poland to that in the Scandinavian countries.⁸³ He even made an attempt to estimate the annual production of coins in these four countries during the early phase of minting. He calculated that Norway, in the time of the two Olafs, had definitely the lowest production (an average of about 1,000 coins a year) of these four states. Suchodolski interpreted the early coinage of pennies with a repre-

sentative bust, name and titles, primarily as a political manifestation on the part of the Christian princes. He held the imitations, on the other hand, to be evidence of an economic aspect of the coinage.

Historians have generally taken little interest in the coin finds and the coinage of Viking-Age Norway. One of the few who have dealt with these questions in a wider historical context is E. Bull, sr.⁸⁴ He was especially occupied with the problems concerning the growth of towns in Medieval Norway. He pointed to the abundance of foreign and native coins in Norway before 1070 (according to what was then the dating of the Gresli hoard) in contrast to the – supposed – poverty of coins in the following century. This difference, he suggested, might possibly be due to the development of towns, where commerce and the exchange of goods could have been carried on without the use of coins.

In conclusion, the previous literature concerning early Norwegian coin history consists chiefly of small and scattered contributions about the coins and the coin finds. The authors have usually not aimed at a comprehensive study; nevertheless they have put forward many interesting ideas and suggestions that I have found very useful. However, the uncertainty as to when the Norwegian coinage began and the problem of dating the anonymous series of the late XI century were for a long time an obstacle to fruitful studies of the topic.

C. The history of coins in Norway before the introduction of a national coinage

1. The period of Roman coins

Coins do not seem to have reached Norway before the Roman period.⁸⁵ The catalogue lists 25 Norwegian finds of genuine Roman coins. Eight finds of imitations of Roman coins are known. Four finds (2, 75, 101, 152) that may have contained Roman coins or imitations are not included in these figures. It might be convenient to discuss the Roman coins in two separate groups: the silver denarii of the Early Empire and the gold solidi of the Late Empire. Five finds of Roman *Æ* coins (11, 48, 59, 63, 154), which are questionable as primary finds, are not considered.

a. The denarii

Ten Roman denarii, from nine finds, are known from Norwegian soil. The earliest of these coins are two denarii of the Roman Republic, both struck in the 90's BC. One of them is a single find (13), the other one, only known from an XVIII-century note, is said to have been found with a denarius of the emperor Marcus Aurelius (97). A Danish hoard from northern Jutland includes 16 republican denarii (c. 125/120–32/31 BC) together with imperial coins, the latest of which was struck in AD 74.⁸⁶ Two additional republican denarii, of the late II century BC, are known from two single finds from the southern part of Jutland.⁸⁷ We must bear in mind that republican denarii could circulate for a fairly long time in the territories of the Germanic tribes. We therefore ought not to use the two specimens from Norwegian finds as an indication that coins really reached this country before the Christian Era.

A *denarius subaeratus* struck in the later part (2 BC–AD 14) of Augustus' reign is recorded in an XVIII-century book as having been found together with two *antoniniani* of Gordianus III (32). The remarkably long interval between the minting dates of these coins precludes any far-reaching conclusions. Two grave finds (8, 73), each with a denarius of Hadrian, provide better evidence of coins' being brought to Norway during the Early Empire. Three finds (1, 14, 107), each containing one denarius of Antoninus Pius, and one denarius of Marcus Aurelius found during archaeological excavations of a site (116), form the rest of the II-century material. Of the 10 Roman denarii found in Norway 7 were struck during the period AD 117–171. On the other hand, three of the finds (8, 73, 116) appeared in an archaeological context which seems to

establish that the coins were 200 years old or more when they were finally buried.

Territories in southern and eastern Scandinavia are much richer in finds of Roman denarii. Hoards of denarii are found in the Danish provinces of Jutland and Zealand, in the Swedish provinces of Scania, Halland⁸⁸ and Vestmanland, and in the Baltic islands of Bornholm,⁸⁹ Öland, and – above all – Gotland. From this island Bolin⁹⁰ listed 30 hoards of 10 or more denarii, in addition to 71 minor finds, in 1926. All the Gotland finds taken together amounted to 4,886 denarii, or nearly three-quarters of the Scandinavian total of 6,644 denarii. Among the denarii found on Gotland there are even a few barbaric imitations,⁹¹ which may be of local manufacture. The overwhelming majority of the genuine Roman denarii were struck during the period AD 98–192 (Trajan-Commodus). The reigns of Hadrian (15%), Antoninus Pius (nearly 30%) and Marcus Aurelius (nearly 30%) are by far the most prolific. This means that about 75% of all the Roman denarii from Scandinavian finds (outside Norway) were struck during the period AD 117–180.

Denarii of the Early Empire even occur in a few hoards of the Viking period.⁹² These Roman coins cannot possibly have been circulated for a whole millennium. They are most probably finds of Roman coins which came to light and were put into circulation again in the Viking period, the new silver age.

Compared with the influx of Roman denarii into Scandinavia, the Norwegian finds are few but significant. The import of Roman silver coins to Northern Europe in the period of the Early Empire made itself felt, if only very slightly, in Norway. The circumstances in which these coins have been found indicate that their last owners did not regard them as objects for monetary use.

See Plate I 1–2.

See Map 2.

b. The solidi

The only Norwegian finds of Roman solidi are, strictly speaking, five specimens from as many finds. One of these (18) is probably, and three of them (100, 114, 120) are certainly grave finds. The fifth solidus came from the IX-century Hon hoard (33), where it was found together with later Byzantine solidi (582/602–c. 852), and Kufic, Frankish, and Anglo-Saxon coins. Along with the finds of genuine Roman gold coins we must also count two multiples of the solidus, one double solidus from a grave find (37) and one triple solidus, most probably also from a grave find (76). Three finds (2, 75, 101), each said to have contained a 'thin gold coin' or 'a thin gold plate showing a picture of a man', may perhaps add three specimens, at most, to this material. These dubious objects, which are now dispersed, must, however, be dismissed as unreliable sources. In the

same category I am inclined to place a find of five gold coins of possibly Roman origin (152), to which I shall return later.

Thus, of the seven certain solidus coins all except the Hon specimen seem to come from grave finds. Of these six coins all but one (18) are looped. Three of them, the multiples and a single solidus, are even further enhanced by being mounted in an elaborate frame (37) or a beaded border (76, 114). The minting dates of these Roman gold coins cover about a hundred years: *c.* 325/7–*c.* 425/30. Four of them fall within the period 364/7–393/5, only one being later than the death of Theodosius I.

From IV-century Roman issues we also have three silver coins from as many grave finds (74 – found 'near a burial mound', 105, 121). These coins are *siliquae* struck during the years 326/7–383/8.

These late Roman gold and silver coins have their closest Scandinavian parallels in the Danish finds west of the Sound: solidi with a few multiples and silver coins of the IV century. The three Baltic islands of Bornholm, Öland, and Gotland present a different picture.⁹³ Here hoards and several single finds of post-395 solidi are met with. On Öland no solidus later than 476 has been found. The latest coins in five of the seven Öland hoards (of five solidi or more) were struck for Leo I (457–474). In two hoards the latest coin is from the short reign of Zeno (first reign 474/5), and from that of Basiliscus (475/6). The solidi finds from Bornholm and Gotland also comprise early Byzantine solidi. On Bornholm five of six hoards terminate with solidi of Anastasius (491–518), as do six of the eleven hoards known from Gotland. Two hoards even contain specimens of Justin I (518–527), and the two latest Gotland hoards extend into the solidi series of Justinian I (527–565).

Outside the Baltic islands we only have four Scandinavian hoards of Roman gold coins. In the parish of Gudme (island of Funen), which is exceptionally rich in finds of Roman gold coins,⁹⁴ a hoard of 48 coins (aurei and solidi, 248/51–335/7) was found. The other three hoards have coins as late as solidi of Anastasius and no coins earlier than the V century. These hoards are: Gyllerup, Hörup, Scania: 24 solidi; Kaggeholm, Ekerö, Uppland, Sweden: 21 solidi; Lillön, Ekerö, Uppland: 47 solidi. Detailed die studies indicate that the Lillön hoard seems to have been formed on Gotland and then transferred to mainland Sweden. Too few coins are now available to undertake similar studies for the hoards from Gyllerup and Kaggeholm. These hoards may also, from their composition, be considered as occasional offshoots from the solidi stock in the Baltic islands. J. Fagerlie⁹⁵ has pointed out that mainland Sweden and Denmark, unlike the Baltic islands, have a prevalence of permanently mounted coins. On the other hand, solidi which have been pierced and refilled are found, with three exceptions, only on Bornholm, Öland, and Gotland. The intention of the refilled coins must have been to restore their original function as currency. The three refilled specimens from Scandinavian finds outside the Baltic islands come from mainland Sweden. One of these refilled coins was in the Lillön hoard, the two others being looped. They had therefore most probably been refilled on the Baltic islands.

As already mentioned, from Norway we only have one isolated single find (120) of this vital group of post-395 solidi. This solidus is both pierced and looped, showing that it was used as jewelry.

Before leaving the genuine solidi an obscure find (152), now dispersed, from central Trøndelag should be discussed. Five gold coins were found, within a few years, in the same field. The type was recorded as 'winged figure with a toga-like costume' which may refer to the Victory type, a very common reverse type on late Roman and early Byzantine solidi in the Baltic hoards. It is strange, however, that the observer has not noted the emperor's bust on the obverse. Further, the coins are said to have had an 'inscription which did not have the usual Latin characters'. This is also an argument, even if not a conclusive one, against the assumption that the coins belonged to this solidus group.

Fagerlie has traced 833 post-395 gold coins in the Swedish and Danish finds. Of these, 759 specimens could be included in a detailed catalogue. One hundred and eight of these (14%) are imitations. Forty-nine imitations are attributed, by name, to continental peoples of the Migration Period, 37 of them to the Ostrogoths. There are, however, solidi imitations which bear no resemblance to published varieties. Fagerlie points out that, except for three, these specimens have been found exclusively in Scandinavia.⁹⁶ I am inclined to regard these imitations as possibly of Scandinavian manufacture. Such a production would be located in areas where the solidi principally circulated, namely the Baltic islands.

We have not yet discussed the imitations of Roman gold coins found in Norway. We know eight such imitations from Norwegian finds (55, 81, 108, 112, 130-2, 161).⁹⁷ All these imitations are isolated single finds; they are looped and, with one exception (81), have all been found in graves. With the same exception, they have all been made even more permanently into jewels by an attached frame (55, 112) or a beaded border(s) (108, 130 - with a triple border - 131-2, 161). In other words, these imitative pieces clearly show that they were regarded as jewelry and not as currency. Only two of them (81, 131) have - approximately - the weight of a solidus.⁹⁸ One of these is a coin-like object composed of two impressions of coins on gold foil (131). This extraordinary piece belonged to a man's grave, which contained, among other things, four gold rings weighing 620.4 grammes altogether. Silver coins (*siliquae*) and not solidi had most probably served as 'dies' for the impressions, which now appear as two obverses. Another looped imitation (81) has a gross weight indicating something around the solidus weight for the piece proper. The diameter (23-24 millimetres), however, is larger than that of genuine solidi (about 20 millimetres). The reverse type: 'man on horseback holding wreath', has as its prototype the 'emperor on horseback'. In the late Roman gold series this type seems to have been reserved for the multiples, e.g. multiples of one-and-a-half solidi, which have the same diameter as our imitative piece. All the other six gold imitations from Norwegian finds considerably exceed the size of a solidus. Three of them (55, 130, 132) have a diameter (25-28 millimetres) more or less like that of the double solidus, two others (108,

112) are comparable in size to the triple solidus. Do they also correspond to the genuine Roman multiples in weight? Since they are all permanently mounted their original weight is difficult to estimate with any accuracy. From very rough calculations,⁹⁹ however, none of these pieces seem to attain the weight of the genuine multiples with a corresponding diameter. The late Roman multiples were actual coins struck to the solidus standard. Their contemporary names (*binarias, ternarias, quaternarias*, etc.) prove that they were intended as coins. They even occur in hoards.¹⁰⁰ In modern times these multiples have been called 'medallions', a somewhat unfortunate name, which is supposed to indicate a non-monetary, medal-like piece of ornament. It is true that the gold multiples seem primarily to have been made for payments of a ceremonial character; e.g. *sportulae* usually seem to have consisted of two solidi. The multiples probably also served as imperial gifts to barbarian princes more often than in the single instance recorded, as late as 581.¹⁰¹

The imitations correspond to the outward appearance, not to the intrinsic value of the genuine Roman multiples. The intention of the imitators was to make an ornament, not a piece of currency. These imitations were most certainly made outside the Roman Empire. It is not impossible that some of them could have been made in Scandinavia, or even in Norway. It is, however, more probable that the location of their manufacture lay nearer the Roman frontier.¹⁰² The frame of one of the imitations found in Norway (112) is closely related to the frame of no less than three genuine multiples from a find at Szilágysomlo in Transylvania.¹⁰³

The unit of the *öre* (estimated at 26.8 grammes by A. W. Brögger) in the old Norse weight system is believed to derive metrologically from the Roman *uncia*, as it comes etymologically from the Latin [*solidus*] *aureus*. Another old Norse weight unit, the *ertog* (= one third of an *öre*), may have got its name from **ertavóg* (from Latin *argenteus* and the old Norse *vóg*, weight).¹⁰⁴ Without going into this discussion here, it must be said that even though these units have such a close connection with the Roman coin names *aureus* and *argenteus*, this does not imply that these coins might have been used to any extent as currency in Norway.

Another cultural influence from the Roman world is reflected in a few Early Iron Age grave finds which are likely to be associated with the concept of 'Charon's obol'. The finds in question do not contain coins, but other small pieces of precious metal. From their position in the graves (Gile, Östre Toten, Oppland;¹⁰⁵ Lunde, Lista, Vest-Agder;¹⁰⁶ Hol, Inderøy, Nord-Trøndelag¹⁰⁷) and from their appearance and size, which indicate no other reasonable function, they must fall within the sphere of the burial custom which is usually known as 'Charon's obol'. To explain the occurrence in Norway of this widespread custom, it is not necessary to assume a circulation of Roman coins within this country. On the contrary, these Norwegian 'Charon's obols', which were neither obols nor coins, nor, most probably, expressly intended for Charon, indicate a premonetary society. The same impression is left by the many not unimportant Norwegian

finds of non-numismatic gold from the Early Iron Age. This gold occurs in grave finds,¹⁰⁸ stray finds, and hoards.¹⁰⁹ The gold, especially the gold rings, from these finds must to a great extent have been adjusted to certain weight standards, principally the *öre* and fractions and multiples of it. The bulk of these gold finds seem to belong to the V and VI centuries. The question of whether or to what extent this gold was produced from melted-down *solidi*, must be left to future analyses and metallurgical research.

From the gold just mentioned as non-numismatic I shall single out one special group, the *gold bracteates*, for further comment. The gold bracteates are thin round discs, stamped on one side with a design in a round field.¹¹⁰ The field, which usually covers only part of the flan, is surrounded by one or more decorated borders, with a thicker border at the edge. Almost without exception the gold bracteates are looped. Half of the Norwegian finds of gold bracteates, unlike the Danish and Swedish ones, are grave finds. But the gold bracteates also occur in Norwegian hoards – numbering from 1 to 18 specimens (Sletner, Eidsberg, Östfold;¹¹¹ Övre Tøyen, Höland, Akershus¹¹²) – and then usually with other gold objects. The 60 weights of bracteates that can be gathered from J. Bøe's papers on the Norwegian gold finds¹¹³ range from 1.40 grammes to 33.20 grammes, half of them being between 2.25 grammes and 3.50 grammes. Made into a frequency table the latter weights show a very uneven distribution around a median of about 3 grammes. The gold bracteates cannot, therefore, have been adjusted to any special weight standard.

Scholars generally agree that the majority of the gold bracteates found in Norway are the result of indigenous production. This is an important point. It means that the art of cutting dies and striking flans of metal with more or less detailed and complicated designs,¹¹⁴ sometimes even with letters added, had been introduced in Norway at that time.

The types on some of the gold bracteates are clearly inspired by the emperor's bust on Roman *solidi* and their multiples. Even traces of the original legends are sometimes rendered.¹¹⁵ However, the Norwegian and the other Scandinavian gold bracteates are more dominated by native, often zoomorphic design and iconography, which seem to be connected with Germanic mythology. This aspect is stressed by the runic inscriptions which are sometimes added to the design. The gold bracteates no doubt served their owners as jewelry and/or amulets. Their occurrence in hoards is due to their being objects of gold, which, like other jewelry made of precious metals, never quite lost their economic aspect. The gold bracteates were neither made for nor used as currency.¹¹⁶

In conclusion, the Roman coins form the introductory chapter of the coin history of Norway. Silver coins of the Early Empire and silver and gold coins of the Late Empire, as well as imitative pieces of the latter, occur in scattered finds, mainly in central parts of eastern and western Norway. The main – if not the sole – function of these pieces was that of ornament and jewelry. They were not used as currency, unlike the Roman *denarii* and *solidi* on the Baltic islands. The non-monetary use of Roman gold

coins, particularly, gave rise to the striking of coin-like, but non-monetary gold bracteates in Scandinavia, including its western areas.

See Plate II 3–11.

See Map 3.

2. The Merovingian Period (VII and VIII centuries): the background for the Viking-Age coin history

The fall of the Western Roman Empire did not bring the coinage in Western Europe to an end. Like other migrant peoples the Franks developed a coinage of their own, based at first on imitations of Roman coins. The gold solidus was the main unit in the monetary system, but its third, the *triens* or *tremissis*, was the coin most frequently struck and circulated in early Merovingian France.¹¹⁷ Along with the tremisses, silver deniers were also issued. As time went on, the tremissis became seriously debased by being adulterated with silver. Finally, around the year 700, the gold tremissis was completely replaced by the silver denier. A few years after 750 Pippin the Short introduced a *novus denarius* of heavier weight. It was struck on a thinner but wider flan, which provided more space for a design and a proper legend on both sides of the coin. Unlike the Visigothic and Lombard kings, the Merovingian kings had evidently lost control of the coinage, which had become completely decentralized. Coins struck by thousands of moneyers¹¹⁸ are known from more than 800 different mints. Under Charlemagne¹¹⁹ the development of a coinage based on silver monometallism under full royal control was completed. A penny of heavier weight was introduced by a reform dated to the early 790's. The considerable increase – one third – of the weight of the penny has been explained partly by the lower market value of silver as a result of a huge import of Arab silver coins and partly by the exploitation of new silver mines in the West.¹²⁰ A more convincing explanation, however, is that the alteration of the weight of the penny is connected with Charlemagne's reforms of weights and measures. The new penny weight must have been based on a reckoning in wheat grains instead of the barleycorn system. A change in the penny weight from 20 barleycorns (1.3 grammes) to 32 wheat grains (1.7 grammes) took place.¹²¹

Anglo-Saxon coinage started in the first half of the VII century. Gold coins imitating Merovingian tremisses were issued, probably as early as c. 625.¹²² A generation later, however, silver had replaced gold. Although these early coins were called 'pennies' in contemporary sources, we generally reserve this name for pieces struck from about 775. The latter were struck on a thinner and wider flan, inspired by the Carolingian *novus denarius*. The earlier silver coins struck on small pellets of metal are called *sceattas*. The first 'new' Anglo-Saxon pennies bear the names of

two Kentish kings, but the first issue of any considerable size seems to have appeared after Kent, and thus the Canterbury mint, had come under the control of King Offa of Mercia. The cessation of coinage bearing the names of the Kentish kings seems to indicate that Offa suppressed their right to coin.¹²³ Throughout the remainder of the Anglo-Saxon period – and even afterwards – the penny denomination was virtually unrivalled, normally having the ruler's name on the obverse and that of the moneyer responsible on the reverse. Sceattas were also struck by the Frisians, who later imitated Carolingian gold solidi of the early IX century.

The Byzantine Empire¹²⁴ continued its extensive coinage in the western territories as well as in the east. The gold solidus (*nomisma*) was still the cornerstone of the monetary system. There was a token coinage in bronze, while silver was more rarely struck. During the V and VI centuries there had been no regular silver coinage. Heraclius (610–641) initiated an issue of the silver *hexagram*, but that came to an end before the turn of the VII century. From Leo III (717–741) a silver *miliaresion* of a theoretical weight of 2.27 grammes was issued but was only a ceremonial coin until Theophilus (829–842).

The most important coin-producing area on the eve of the Viking Age was the Moslem world.¹²⁵ For the first half-century after the Arab conquest the monetary systems in the conquered countries remained practically unchanged. In 698, however, under the caliph ʿAbd-al-Malik, a fundamental monetary reform was carried out.¹²⁶ The gold *dinar* and the silver *dirhem* were made the key denominations in a bimetallic monetary system. The reform affected both the design and the weight of the coins. The new types were purely epigraphical, consisting mainly of religious sentences. Part of the inscription, however, was the formula giving the year of issue and – except for the early dinars – the name of the mint. The legends are written in Kufic, an Arabic script associated with the city of Kufah in Iraq. Hence these Arabic coins are usually called 'Kufic coins'. The dinar, as P. Grierson has suggested,¹²⁷ was given the weight of 20 Syro-Arabian carats, 4.25 grammes, and was not an Arabian counterpart of the Byzantine solidus/nomisma, as it is often thought to have been. The dirhem, placed in its proper relationship (1:25) to the dinar, weighed 2.97 grammes. From the first half of the VIII century Kufic coins were issued in a wide range of countries, from Cordoba in Spain to Balkh (now Wizarabad) in Afghanistan. As in the days of the Sasanian rulers, silver continued to dominate the coinage of the eastern provinces where we know very rich silver mines were located. Sums mentioned by Arab writers indicate an annual yield of hundreds of tons of silver, many times the world production of *c.* 1500. This is the background for a prolific coinage of dirhems in the countries which are now Syria, Iraq, Iran, Armenia, Afghanistan, and the Soviet republic of Uzbekistan. During the reign of the Umayyads, Wāsīt on the lower Tigris was the most important mint. The leading mints during the heyday of the ʿAbbāsids were Madīnat as-Salām (Baghdad) and al-Muhammadījah (near modern Teheran). From

Table 10. *Post-Roman coins struck before c. 790 in Norwegian finds*

Find no.	Find place	Coins struck before 790	Remarks
5.	Os churchyard, Halden	Kufic dirhem, 742/3	Found with dirhem, 834/5
12.	Teisen, Oslo	2 Kufic dirhems, 767/8–776/7	Found with 14 (+fragments of) dirhems, 797/8–923/32
33.	Hon, Övre Eiker	2 Byzantine solidi, 582/602–751/74 2 Kufic dinars, 769/70–778/9	Looped. Found with Roman solidus, 364/78, Byzantine solidus, c. 852, 8 Kufic coins 796/7–848/9, and 6 European coins, c. 810–840/55
48.	Kaupang, Tjölling	Kufic dirhem, c. 720/50	Fragment. On the site of this market-place were also found, <i>i.a.</i> , about 19 fragments of dirhems c. 767/815–c. 840/55
66.	Krogen, Fjære	Kufic dirhem, 778/9	Pierced o
103.	Sekse, Ullensvang	Kufic dirhem, 784/5	Pierced o. The coin seems to have been looped
111.	Hopperstad, Vik, Sogn	Kufic dirhem, 738/9	Halved by cutting
113.	Lillevange, Vik, Sogn	2 Kufic dirhems, 744/5–763/4	Pierced o. Found with dirhem, not classified
118.	Ervik [I], Selje	Anglo-Saxon sceatta, c. 750/8	Stray find
133.	Setnes, Grytten	Kufic dirhem, 768/9	Pierced o. Traces of loop
136.	'Vestlandet'	Kufic dirhem, 773/4	Uncertain find
142.	Torgård, Klæbu	2 Kufic dirhems, 714/15–767/8	Fragment. Found with 5 dirhems, 798/802–862/3
155.	Hove, Åsen (?)	Kufic dirhem, 768/9	Found with dirhem, 842/7?
158.	Verdal pgd.	Kufic dirhem, 775/85	Stray find?
181.	'Norway' [II]	Arab-Sasanian hemidrachm, 776/7	Halved, by cutting?
183.	'Norway' [IV]	Kufic dirhem, 767/8	Stray find?

the last decade of the IX century, when princes of the Sāmānid Dynasty ruled Transoxania practically independently of the Baghdad caliphs, there were very large issues of dirhems from eastern mints like Samarqand, aš-Šāš (Tashkent), and Bukhārā.

Did any European or oriental coins struck during the years *c.* 600–*c.* 790 reach Norway within this period? To find an answer to this we have to turn to the material from finds. Table 10 gives a survey of the coins in question.

In the remarkable treasure from Hon (33), which also contained a Roman IV-century solidus, were found two Byzantine solidi, struck in 582/602 and 751/74. In the same find, however, there was a third Byzantine solidus dating from *c.* 852, the latest of the 20 coins in this hoard. These coins were all looped. There are good reasons for supposing that all the coins in this hoard came to Norway together.¹²⁸ The two earliest Byzantine solidi and the two Kufic dinars of the 770's should not, therefore, necessarily imply any influx of eastern gold coins into this country before the Viking Age.¹²⁹

The pre-790 coins in finds nos. 5, 12, 142, and 155 are likewise reduced to the status of very uncertain evidence by their being accompanied by later coins. This might also, to some extent, be valid for the coins from site

Table 11. *Pre-790 oriental coins in some Scandinavian hoards*

	No. of coins (classified)	Earliest Kufic (Sasanian) coin, AD	Latest Kufic (German) coin, AD	Percentage of pre-790 oriental coins
Fittja, Fittja s., Uppland, Sweden ¹³⁰	139	705 (613)	863/4	33
Stora Vellinge, Buttle s., Gotland ¹³¹	2,673 (2,221)	708/9	910/11	11
Slubbemåla, Mönsterås, Småland, Sweden ¹³²	170	c. 737/8	956/7 (962/73)	3
Over Randlev, Randlev s., Hads, Jutland ¹³³	237	737/8 (459/84)	910/11	8
Terslev, Ringsted, Zealand ¹³⁴	c. 1,750 (c. 1,100)	705/6	940/4	1
Jomala, Hammarudda, Åland ¹³⁵	157	709/10 (559)	848/9	49
Saltvik, Bertby, Åland ¹³⁶	859 (831)	739/40	890/1	18

find no. 48. Nos. 136, 158, and 183 are questionable as evidence since, as single finds, they might have been parts of bigger finds. The same may have been the case with find no. 103. At any rate, it is rather too late to have any bearing on the pre-790 coin history of Norway.

By this analysis the material is reduced to six oriental coins, 738/9–778/9 (finds nos. 66, 111, 113, 133, and 181) and one Anglo-Saxon sceatta, c. 750/8 (118). The oriental coins all show evidence of secondary use by being halved or pierced, which, naturally, may indicate a considerable period of circulation. On the other hand, this secondary treatment may well have taken place in Norway. A lost dirhem of unknown date adds some uncertainty to find no. 113. But it is interesting to learn that the find spot of no. 111 is situated only one kilometre away, within the same parish. The occurrence of an Anglo-Saxon sceatta (118) in Western Norway is an interesting fact too. However, the circumstances in which it was found are somewhat obscure and possibly add some uncertainty to the find. There remain three finds (66, 133, 181), each containing one oriental coin struck within the decade 768/9–778/9. The earliest of them (133) came from a grave dated by archaeologists to the first half of the X century. We know from hoards that VIII-century Kufic coins (sometimes even with some earlier oriental coins) could circulate for quite a long time as shown by the hoards 12 and 142, where the percentage of pre-790 coins is 29 and 13 respectively. However, the small size of these hoards, and also the large

proportion of unidentified coins in the latter, render these figures rather uncertain. Therefore, to illustrate the longevity of VIII-century oriental coins in circulation, a few hoards from neighbouring countries are cited as examples in Table 11.

Even within the Caliphate dirhems could circulate for a considerable time. The 1,130 dirhems in a hoard found in 1948 during excavations of the ancient city of Susa in south-western Iran have issue dates ranging from AD 700/1 to AD 878/9. Dirhems struck before 790 amount to about 3% of the total number.¹³⁷

Recent coin finds from archaeological excavations at Dankirke near Ribe, Denmark have shown that Merovingian tremisses and Anglo-Frisian sceattas were brought to Jutland from the early VIII century.¹³⁸ Thus, the sceatta from Ervik (118) is not quite unparalleled in Scandinavia. We cannot deny the possibility that this sceatta and some of the early oriental silver coins may already have reached Norway during the fifty years immediately preceding the sack of Lindisfarne.

Similar problems are touched upon by U. S. L. Welin in a recent paper.¹³⁹ Arguing from about 30 Swedish finds – grave-finds and stray finds – of oriental silver coins struck earlier than *c.* 750, she suggests that the influx of oriental coins into Sweden, due to the Viking expansion, must already have begun *c.* 700. These Swedish finds provide an interesting background to the early Norwegian finds of oriental coins.

Still, we lack conclusive evidence for there having been any import of coins into Norway in the centuries between the period of Roman coins and the Viking Age.

See Plates I 12, II 4–7, IV 9.

3. Frankish deniers and early Anglo-Saxon pennies

In the year 793 the island monastery of Lindisfarne, off the Northumbrian coast, was sacked by foreign pirates. This dramatic event is usually taken as the start of the Viking Age. This name is given to a period of more than 250 years which was remarkable for an intensive Scandinavian activity: raiding expeditions, trade, and colonization. This activity took place first and foremost in the countries around the North Sea and the Baltic, but, in the course of time, the Scandinavians reached the outposts of the known world, and even beyond: from Ladoga to North Africa, from Constantinople to Newfoundland.

The first attacks on the British Isles were probably carried out by Norwegians. Vikings from each of the three Scandinavian homelands developed their own spheres of influence. The Norwegians operated chiefly in the Faeroe Islands, the Scottish Isles, Ireland and elsewhere around the Irish Sea, and also colonized Iceland and Greenland, whence

new expeditions reached the coast of North America. At the time none of these territories produced coins. On the other hand, what is regarded as the Danes' sphere of influence, England, France, and the southern shore of the North Sea, comprised coin-producing countries. From Sweden, bordering on the Baltic, the Vikings usually went eastwards to the lands of the Slav tribes. Even these lands had no coin production, but here the Vikings met and soon became bearers of a stream of Kufic silver coins. Many of the Viking expeditions, however, were evidently joint Scandinavian enterprises.

I shall now examine whether the earliest phase of Viking activity, the closer contact with Western Europe, around the year 800 and the first half of the IX century affected Norwegian coin history. Again we have to turn to the coin finds. We have already discussed the earliest Anglo-Saxon coin found in Norway (118). In addition, there are six finds (30, 33, 48, 85, 96, 106) with eight Anglo-Saxon pennies altogether, dated *c.* 792/6–821/3. Chronologically this fits quite well with the period of early Viking attacks on the British Isles. Four (30, 33, 48,¹⁴⁰ 85) of these six finds contain Frankish deniers struck in the first half of the IX century (805/14–840/77). Thus, these two categories of coins confirm each other's dating. This is important as they are both represented by only one or a few coins in each find. With five singly found Frankish deniers (12a, 64, 86, 122, 153), a single gold coin – Frankish or imitative (53) – and a find of two Anglo-Saxon stycas (67) we have exhausted the evidence of finds of early Western European coins.¹⁴¹ That makes 28 silver¹⁴² coins and 4 gold coins altogether.

What did these coins mean to their Norwegian owners? The two stycas of Northumbria were found in a peculiar context (67). They came to light in the archaeological excavation of a burial mound containing weapons and some smith's equipment. Each of the stycas was mounted on the top of a lead weight. The weights, already damaged when found, then weighed 18.2 and 10.4 grammes. Now, even further damaged and weighing 14.6 and 8.7 grammes, they seem, originally, to have been intended as two different weights (1 öre and 1/2 öre?). One of the stycas is mounted (on the lighter weight) showing the obverse, the other styca (on the heavier weight) showing the reverse. The two coin sides, though, are of the same type: an inscription with an initial cross around a small cross. The obverse reads +EANREDREX, the reverse +HERRED. The latter is a moneyer's name. To my knowledge, the moneyer *Herred* (or *Herreth*) struck only for King Eanred.¹⁴³ We can therefore be reasonably sure that the hidden obverse also reads +EANREDREX. Herreth was only one of some 20 moneyers working for King Eanred. That the hidden reverse should bear this moneyer's name is only one of several possibilities. However, if the person who did the mounting of the two stycas, probably the maker of the weights, wished to give them identical covers on the top, he was in a position to do so. If he only wanted to decorate these grey lead pieces, he would not – especially if he was illiterate – care to affix the two foreign coins showing the same side, the obverse. We therefore have the right to

assume that these two Anglo-Saxon billon stycas were regarded purely as ornaments by their (last) owner in Norway.¹⁴⁴

Of the four IX-century gold coins from Western Europe found in Norway three specimens were in the Hon hoard (33). They were: one gold cast of a Frankish denier and two imitations of Frankish solidi, the prototypes of all of them being coins of Louis the Pious (814–840), who introduced a coinage in gold. The exact date and the intention of these solidi have been much discussed.¹⁴⁵ In any case, this coinage seems only to have been of a modest size and its economic importance, if any, must have been inconsiderable. On the other hand, these gold coins must have meant something to the Frisians, to whom the rather frequent imitations of them are attributed.¹⁴⁶ The two specimens from the Hon hoard belong to the earliest group of these Frisian imitations.¹⁴⁷ The fourth gold coin in the Norwegian find material of this period is recorded as a solidus of Louis the Pious (53). This piece, the present whereabouts of which are unknown, might also have been a Frisian imitation. We do not know whether it was pierced or looped. As previously noted, all the 20 coins of the Hon hoard had been made into jewels by the addition of loops. I believe that gold coins were primarily regarded as jewelry in IX-century Norway, even if gold objects as such always retained an economic value.

In Western Europe silver was established as the primary monetary metal a hundred years before the sack of Lindisfarne. The silver coins are therefore especially interesting. In this group we have 26 Anglo-Saxon and Frankish coins from Norwegian finds, mainly occurring in graves (30, 64, 72, 106, 122, 153). Five coins from Jæren (85), said to have been found with some others (cf. 86), *might* have constituted a hoard. However, the circumstances in which these coins were found are somewhat obscure. The only two complete coins in the find are both pierced. I am therefore inclined to compare this find with nos. 30 and 72, where a handful of pierced silver coins of the early IX century were found in a grave. Four Western European silver coins were found in the 'Black Earth' area at the Viking-Age market-place of Kaupang (48). We know that Kaupang was the leading trading centre of IX-century Norway, and was connected with the international trading routes. It would be interesting to know how coins were used and treated here, but unfortunately, much of the coin material from the Kaupang excavations is very badly preserved, since the ground seems to be rather hostile to silver. One Anglo-Saxon penny and a fragment of a Frankish denier were found together. The former and another Frankish denier are the only silver coins from Kaupang preserved in fairly complete condition. As far as one can see, none of them have been pierced. Of the remaining 26 or so silver coins found at Kaupang, all in fragments, four, at least, have been intentionally cut. One of them, a Kufic dirhem, is halved. This means that these pieces had probably been used as money – means of payment – but only as silver according to weight, just as in the case of the other pieces of hacksilver represented in the Kaupang finds. Especially interesting is a somewhat irregularly cut coin, which shows traces of a loop, and had evidently been a piece of jewelry or

an amulet, but had also later served as a piece of silver money before ending up in the earth of the market-place.

This coin belongs to the earlier group of *Scandinavian coins*, which seem to have been struck at Hedeby from about 825.¹⁴⁸ The main prototype is the Dorestad denier of the epigraphical type of Charlemagne. The Scandinavian imitations, being anonymous, only reproduce, in a more or less degenerated form, the forms and arrangements of the letters of the legends CAROLVS and DORSTAT (DORSTAD) of the original. The Carolingian prototype belongs to the period of the light denier, 768–793/4. The chronological discrepancy between the prototype and the Scandinavian imitations can be explained by other imitations of the same type. Most probably originating from some Frisian mint(s), these imitations provide a chronological and chorological link between the Frankish prototypes and the Scandinavian imitations.

The Kaupang specimen belongs to another type of early Scandinavian coins showing connections with Frisia. The same combination of types, in Scandinavia called *Mask/Animal*, occurs on Frisian VIII-century sceattas of the type-combination with the more dramatic name of *Wodan/Monster*. A variety of the Scandinavian *Animal* looking forward is combined with a *Ship*. This ship is unquestionably inspired by the ship on some Carolingian deniers, struck at Dorestad and Quentovic under Charlemagne and Louis the Pious. The Scandinavian *Ship*, however, always carrying a sail, shows additional details derived from the famous Viking ships.¹⁴⁹ On the whole, these early Scandinavian coins are clearly connected with the Western European coinage of the VIII and IX centuries, but they also show a rather independent treatment of design and motifs.

The Scandinavian coinage was introduced in *c.* 825 with silver pieces weighing 0.84 grammes, about half of the reformed Carolingian denier. However, the weight of the Scandinavian coins shows a tendency to decline and this trend was repeated when, after an interval from *c.* 860, the coinage was continued *c.* 900. It is difficult to tell whether the weights of the subsequent series of Scandinavian coins are directly connected with any foreign coins. The reduction of the weight might have been caused by internal conditions. In any case, the Scandinavian coinage of the IX and X centuries presented to its users a series of smaller silver coins alongside the foreign coins (Carolingian deniers, Kufic dirhems, German and Anglo-Saxon pennies), which were at that time imported into Scandinavia.

As already mentioned, the coins themselves do not indicate who had them struck. They have been regarded as products of private enterprise. The continuity, however, both of the minting and of the types, seems to argue a more permanent (local?) authority as the organizer of the earliest Scandinavian coinage. In the last quarter of the X century this coinage seems to have been extended northwards and eastwards within Danish territory. Just before the turn of the millennium some coins, technically and stylistically related to these half-bracteates, may even have been struck in central Sweden.¹⁵⁰

Any Norwegian counterpart to this early Scandinavian coinage in Den-

mark (and Sweden) cannot be detected in our present material. The older group of the early Scandinavian coins is only represented in two finds, the cut piece from Kaupang (48) already mentioned and four specimens of the *Animal/Ship* type from Spangereid in the southernmost part of Norway (72). These coins, found together with a Frankish denier in a grave, were all pierced. The later group of early Scandinavian coins are not frequently found in Norway either. A few (1–4 specimens) are represented in three hoards buried about the year 1000 (36, 127, 159). Four specimens (136, note) in the Bergen collection¹⁵¹ and one specimen (167, note) in the Trondheim collection¹⁵² might have a local find provenance.

In conclusion, the opening phase of the Viking Age brought from Western Europe some Frankish and Anglo-Saxon coins – mostly of silver – to Norway. The occurrence of Anglo-Saxon pennies earlier than *c.* 840 is unique within Scandinavia.¹⁵³ From the find circumstances and the secondary treatment of the pieces we may clearly conclude that the coins mainly served as jewelry. In a trading centre with international connections like Kaupang, silver coins could serve as money, but only cut into pieces and used according to weight like the hacksilver. The introduction of a Scandinavian coinage along the southern frontier of the Vikings' home territories did not influence the Norwegian coin history beyond the primitive stage.

See Plates IV, X 1–6.

See Map 6.

4. Kufic coins

In the survey of the early medieval coin history of Europe and the Near East I have already touched upon the Kufic coins. In the Norwegian finds of pre-790 coins we also met with oriental coins. The material gives a slight indication, but no conclusive evidence, that oriental silver coins came to Norway during the last two-thirds of the VIII century, and even before the raid on Lindisfarne. We shall now examine the whole material of Kufic coins found in Norway to see whether this chapter of coin history was of any importance to monetary development in this country.

In order to study the early phase – before *c.* 890 – of the import of Kufic coins into Norway we must return to the finds presented in Table 10. In addition to these finds we have two grave finds (45, 125), each with one dirhem, dated 799/800 and 807/8 respectively. A third grave find (165) actually contained a small silver hoard: three fragmentary dirhems with some other silver. Unfortunately only one of the dirhems is dated – 844/65 – which makes the find an uncertain source. On Tjoraneset, Sola (84), in the centre of Rogaland, a dirhem dated 806/7? (*c.* 767/8–815/16) was found during archaeological excavations of a Viking-Age house site. Three stray finds (47, 164, 93) of one dirhem each must also be mentioned where early dirhems are concerned: 798/9, 796/802, and 821/2. Finally,

Table 12. *The major Norwegian finds of Kufic coins and their content of pre-890 dirhems*

Find	No. of dirhems	Earliest dirhem	Latest dirhem	Later coins	Pre-890 dirhems	Pre-890 dirhems %
12. Teisen	16 (+ 'several')	767/8	923/32	–	4	(25)
36. Tråen	11	894/5	948/9	c. 991/7	–	–
43. Grimestad	77	796/7	920/3	–	7	9
			921/2			
62. Voie	12–13? (9 classified)	901/2	926/7	–	–	–
140. Holtan	65 (64 classified)	896/7	950/1	–	–	–
169. Herten	18	896/7	913/14	–	–	–
171. Rønnvik	39 (1+38; 32 classified)	792/3	949/50	–	1	3

among eight dirhems without provenance in the Bergen collection (136, note) are two early ^cAbbāsids: 773/4 and 807/8. In the Trondheim collection there are likewise four dirhems without provenance (167, note). Three of them were struck within the first three-quarters of the IX century: 838/9, 854/64, and c. 844/74. These five early dirhems have most probably come from unrecorded finds in the districts of the two museums.

Apart from these somewhat hypothetical finds the pre-890 oriental material contains 17 finds with c. 52 coins altogether. Because of the uncertain dating due to unclassified coins I have not included finds nos. 113 and 164. In as many as 12 single finds, from all three regions of Norway, none of the coins are later than 810. I have already pointed out that the oriental silver coins could circulate for a fairly long time before they were buried in the ground. It is therefore necessary to take a look at some of the later Norwegian finds of Kufic coins and see how frequently the pre-890 specimens occur in them. Table 12 presents finds containing more than 10 Kufic coins.

These figures indicate that the 17 Norwegian finds of exclusively pre-890 oriental coins must – statistically – certainly represent an import of such coins in the early Viking Age. If not before Lindisfarne, the first influx must at least have occurred during the first generation afterwards. At that time, the first half of the IX century, there was as we have already seen, a certain import of European coins into Norway. The oriental and the European coins seem very rarely to have been mixed up with each other in Norwegian finds.¹⁵⁴ Specimens of both categories are found together in the unique Hon hoard (33) and on the site of the market-place of Kaupang (48). These two exceptions are not very significant in this connection. The other finds, being very small, are rather equivocal sources from which no definite conclusions can be drawn. One cannot say that the two categories of coins exclude each other chronologically. One might perhaps think that people who regarded coins as jewelry would not usually match pieces so different in size and appearance as the Kufic dirhems and the European pennies. If they were used as silver money, by weight or by number, they would have enjoyed a more active circulation, and would be more likely to be mingled.

About 75% of the Kufic coins found in Norway which can at present be properly dated were struck in the period 890–950, two-thirds of them being struck within the period 890–920. From the finds from countries surrounding the Baltic we know that the import of Kufic dirhems to these areas culminated in the first half of the X century, especially in the years c. 910–30.¹⁵⁵ In Russia and on Gotland the largest hoards can be counted in thousands of dirhems; in Finland, the Swedish mainland, and Denmark rarely more than in hundreds; in Norway only in tens (43, 140, 171, 169, 12, 62, 36, 89). The biggest Norwegian hoard of Kufic dirhems, from Grimestad, Stokke, Vestfold (43), is known to have contained 77 dirhems found together with 1.684 kg of non-numismatic silver. The weight of the coins is about 218 grammes (215.46+approx. 3 grammes, the estimated weight of a dirhem in private possession).

The non-numismatic silver of the Grimestad hoard consists of 6¹⁵⁶ bars (2 of them cut), 21 rings (4 of them not quite complete), 7 cut pieces of rings, 2 cut pins of penannular brooches, and 1 cut piece of thick silver thread. The heaviest object, a ring, weighs 121.80 grammes; the lightest, a cut piece of a ring, weighs 6.16 grammes. Only 6 objects weigh less than 20 grammes, and 19 objects weigh more than 40 grammes. Thus the 77 Kufic dirhems of some 3 grammes each – the cut dirhems weighing even less: 2.66–1.34 grammes – must have provided a convenient supplement of lighter silver pieces.

This is in fact so only if the silver of this hoard and the other contemporary finds was regarded as money valued according to weight, and not primarily as ornaments and jewelry. I shall leave the coins for a moment to make a brief examination of the weights of the silver objects. Table 13 shows the weights of the non-numismatic silver objects in the Grimestad (43), Teisen (12), Voie (62), and Vela (89) hoards compared with the surviving corpus of Viking-Age bronze and lead weights found in Norway.

The most striking feature of Table 13 is the accumulation of weights between 26.4 and 22.1 grammes for the 1-öre pieces. There are 20 weights, with a median value of 24.1 grammes, the average being 24.2 grammes. On the basis of seventeen of these weights, A. W. Brögger suggested a unit of one *lighter öre* of about 24.5 grammes, the *heavier öre* being 26.8 grammes.¹⁵⁷ He associated the lighter *öre* with the segmented-sphere weights of the Late Viking Age. This type of weight, though, is already known from finds at the Kaupang market-place in Tjölling,¹⁵⁸ and from a find containing three Kufic dirhems (c. 871/9–c. 910, one lost dirhem not being classified) from Haugen in Hedrum, the neighbouring parish. One of the Kaupang weights is too damaged to be of any metrological use, but another, a well-preserved specimen, weighs 25.4 grammes. The complete Haugen weight, weighing 50.1 grammes, is certainly a 2-öre weight.¹⁵⁹ Other multiples of the *öre* given in Table 13 are: 1 1/2, 2, 2 1/2, 3, 4, 6, 8, and 12. The latter weight, 294.8 grammes, may equally well have been the weight of 11 *öre* of the heavy series. For the denominations of 2, 2 1/2, and 8 *öre* weights of both the light and heavy series appear to be repre-

Table 13. Weight in grammes of 73 non-numismatic silver objects in the hoards from Grimestad (43), Teisen (12), Voie (62), and Vela (89), compared with 78 weights from Norwegian Viking-Age finds

Suggested weight denomination	Bronze and lead weights	Bars	Rings	Cut objects
(12 - or 11 - öre)	294.8	-	-	-
(8 öre = 1 mark)	{ 211 194.7	-	-	-
(6 öre)	140.5	-	-	-
(5 öre)	-	-	121.8	-
(4 öre)	99.5, 95.7	92.8	100.2, 99.9, 98.5, 98.4	-
(3 öre)	71.2	-	77.6, 73.8, 69.6	-
(2 1/2 öre)	{ 66.4, 65 60.8	-	-	66.2, 63.8
(2 öre)	{ 54.2 50.1, 46.6	-	60.2, 60.1, 58.5	-
		49.0, 47.2, 44.8	51.2, 50.7, 49.1, 48.0, 47.4, 45.4, 44.5	50.9, 50.1, 48.4
	41.9	-	-	40.7
(1 1/2 öre)	36.7	-	37.7, 36.2, 34.1, 33.7	33.5
	-	-	30.9, 29.7	29.5
(1 öre)	{ 26.4, 26.2, 25.8, 25.4, 25.3, 24.9, 24.4, 24.4, 24.3, 24.1, 24.1, 24.0, 23.9, 23.8, 23.8, 23.4, 23.3, 22.8, 22.5, 22.1	-	24.9, 24.0, 23.8, 23.6, 23.4, 23.1, 22.3, 21.5	27.6, 27.1, 25.9, 25.5, 24.5
	20.8	19.9	-	21.0
	17.4, 17.3	-	-	-
	15.0, 14.6	-	-	-
(1/2 öre)	{ 13.5, 13.1, 12.9, 12.4, 12.3, 12.3, 12.0, 11.9, 11.8, 11.5	-	-	12.5
	11.0	-	-	9.7
(1 ertog)	8.0, 7.9, 7.5, 7.4	-	7.2	7.9, 7.6, 7.5
	6.5, 6.5, 6.1	-	-	6.9, 6.2
	-	-	-	-
	4.8, 4.5, 4.3, 4.0, 4.0	-	-	-
	3.9, 3.5, 3.5, 3.5, 3.1	-	-	3.7, 3.5, 3.3
	2.8, 2.5, 2.4, 2.1, 2.1, 2.1, 2.0	-	-	2.9, 2.9, 2.5, 2.3, 2.2, 2.0
	1.3, 1.2	-	-	1.5, 1.2, 1.2
	0.9	-	-	0.7, 0.4

sented. It is satisfying to observe a grouping of no less than 10 weights (13.5–11.5 grammes) around what must have been half the light öre. As regards the lower unit of ertog, equal to one-third of the öre, there are four weights (8.0–7.4 grammes) at the expected level. Even below the ertog we find a set of well-differentiated weights. In trying to explain some of these, Brögger has suggested 'several parallel weight systems' used contemporaneously. Different numbers of stamped marks on some weights somewhat outside the normal denominational sequence (20.8, 17.4, 11.0 grammes) seem to indicate a unit of 2.7–3.1 grammes, identified by Brögger¹⁶⁰ as three Roman scruples (2.92 grammes).¹⁶¹

Let us now take a look at the weights of the silver objects from four Norwegian hoards of Kufic coins only. The correlation between the majority of these weights and the weights column in Table 13 is striking and cannot be accidental. The weights of the rings in particular clearly group at the level of 1 öre and its multiples, 1 1/2, 2, 2 1/2, 3, and 4 öre. The heaviest ring weighs 5 öre, the lightest may be a rather light *ertog*. Four of the five silver bars seem to fall within the öre system – 2 (three specimens) and 4 (one specimen) öre. Even among the cut silver objects from these early X-century hoards weights corresponding to 1, 1 1/2, 2, and 2 1/2 öre are recognizable. Here we also have a 1/2 öre piece, and no less than three pieces in the *ertog* group. Below this weight there are smaller pieces, especially from the Teisen hoard (12), of weights which are partly in harmony with the weights in Table 13. In any case, these intentionally cut pieces of non-numismatic silver objects demonstrate a certain need for smaller denominations.

It must be permissible, even after this brief examination of the limited metrological material, to say that in the heyday of the Kufic dirhems, silver objects from Norwegian hoards were, at least to some extent, adjusted to certain weights which are also met with in the native material in the form of bronze and lead weights. This weight evidence also demonstrates that there were units and denominations down to and below the weight of the Kufic dirhem. The Kufic dirhem, with its stable weight and high silver content,¹⁶² would be welcomed in a society which made use of silver according to weight.¹⁶³ In two instances (50, 111) Kufic coins and weights are found together.¹⁶⁴

Before the late IX century coins were very rarely found beyond eastern and western Norway (161, 153, cf. 152). Now, with the arrival of the Kufic dirhems, especially in the first half of the X century, the use of coins extended to all the three main parts of the country. The three finds from the islands of Vesterålen (173–5) are the northernmost finds of Kufic coins.

Kufic dirhems were also taken to overseas territories under Norwegian influence. Finds on Iceland,¹⁶⁵ the Scottish Isles,¹⁶⁶ Ireland,¹⁶⁷ and the eastern shore of the Irish Sea¹⁶⁸ contain Kufic dirhems of the late IX and early X century. We cannot postulate that all these Kufic dirhems arrived there via Norway. Certainly some of them did. At any rate, they reflect the importance of the oriental silver coins in Scandinavia.

Imitations of Kufic dirhems also occur in the Norwegian finds, but always together with genuine coins. Of 320 dirhems which could be sufficiently examined, 35, or 11%, are certainly imitations. Another seven, somewhat questionable, may raise the percentage to 13. At any rate, this is higher than the average of 7% imitations established for Swedish hoards by U. S. L. Welin.¹⁶⁹ The Grimestad hoard (43) contains 9% imitations, while the Holtan hoard (140) has as much as 20% (or perhaps 22%) imitations among its 64 examined specimens. An even higher relative content of imitations is present in the small hoard from Voie (62), where two (or perhaps three) coins out of nine are imitations.

Were Kufic dirhems imitated in Norway? An examination of the material shows that by far the largest proportion of the imitations from Norwegian finds, 32 out of 35 (perhaps 39 out of 42), are so close to the prototypes that an identification of the prototype – sometimes down to the very year of minting – is possible.¹⁷⁰ These imitations of the epigraphical Kufic dirhems must have been manufactured by peoples in closer contact with the Arabs and the Moslem world than the far-away Scandinavians, in particular the Norwegians. The most likely home of these imitations, it is usually suggested, is the land of the Volga-Bulghārs, who were intermediaries between the Arabs and the Scandinavians. The Volga-Bulghārs developed a coinage of their own, perhaps as early as 902–8, but especially in the second and third quarters of the X century.¹⁷¹ One dirhem of the Volga-Bulghārs dated 949/50 has been found in Norway, in fact in the hoard from Holtan.

The three remaining imitations of Kufic dirhems, from two finds, (36, 78), are of bracteate fabric. Welin, who has, in general terms, suggested a possible Scandinavian origin for at least some of the dirhem imitations,¹⁷² has published some 'Kufic bracteates' from the Lapp offering-place at Gråträsk (192). She gives them a possible attribution to Southwestern Finland, where some parallels are found.¹⁷³ These bracteates are usually mounted as jewelry. The three 'Kufic bracteates' found in Norway – all fragmentary, two being cut quarters, one of them pierced – may have had a similar provenance. Thus, there is no material left as evidence that Kufic dirhems were imitated in Norway.

Kufic coins struck later than 950 rarely occur in Norwegian finds. From the period 960–90, when a general decline in the import of Arab silver coins to Eastern and Northern Europe can be observed, there are only two dirhems among our material (36, 157). A small and short-lived influx of dirhems from some dynasties in Syria and Iraq about the year 1000 was also marginally reflected in Norway (90, 127). Here, as far as eastern mints are concerned,¹⁷⁴ the latest dirhem is dated 1001/2 (90).

Kufic dirhems remained part of the currency medium until the middle of the XI century,¹⁷⁵ but from the last third of the X century their importance seems to have rapidly declined. While two small hoards of a transitional character (61, 80) contain about one-fourth and one-fifth Kufic dirhems, the percentage after 990 never reached 10. From about 1010 there are still some hoards which have a very small element (2.1–0.3%) of Kufic dirhems, for the most part deliberately cut fragments. The weights of these fragments – 35 have been weighed – range from 3.17 to 0.14 grammes. Although half of these weights (18) fall between 1.6 and 0.8 grammes, which is a normal range for the weights of the European pennies of that period,¹⁷⁶ there is no clear tendency in this small material towards any definite weight.

In conclusion, Kufic dirhems are present in Norwegian finds from the beginning of the Viking Age to the middle of the XI century. With the coming of the dirhems, especially in the period *c.* 890–950, coins are, for the first time, encountered in all parts of Norway. For the first time,

too, coins commonly occurred in silver hoards. Then, I believe, Viking-Age Norwegians began to appreciate monetiform silver pieces as a convenient medium of payment, within a system of weighted silver money.

See Plates II–III.

See Map 5.

5. Byzantine coins

Compared with the large quantities of Kufic dirhems Byzantine silver coins are rather rare in Scandinavian finds.¹⁷⁷ In Norwegian finds we have only three miliaresia from three different hoards (6, 36, 82). When these coins were buried, 'after 991', 'c. 1018', and 'after 1047' respectively, they seem to have been in circulation – in Norway or elsewhere – for a generation or two, the minting dates being 931/45, 945/59, and 976/1025. In addition, there is one further miliaresion, 969/76, with possible Norwegian find provenance (71, note). Of these four specimens the earliest and the two latest were pierced, the remaining one was considerably chipped (82), which precluded examination for evidence of possible secondary treatment. Only the miliaresion of 931/45 was found together with Kufic dirhems, 894/5–961/70 (36). In the Årstad hoard, containing six Kufic dirhems, dated 900–952/3, there were three imitations of the miliaresion of Basil II and Constantine VIII (976–1025), the most common Byzantine coin in the Scandinavian finds of the Viking Age.¹⁷⁸ Imitations of this miliaresion are known from Russia,¹⁷⁹ and they are also die-linked into the Swedish coin series of Olof Skötkonung.¹⁸⁰ The origin of the Årstad imitations is most likely to be located outside Norway, somewhere east or southeast of it.

Byzantine gold coins are very rare in the Scandinavian Viking-Age finds,¹⁸¹ but, of these, Norway has the lion's share. This is, however, the result of only two hoards, one of which is the Hon hoard (33). The other hoard, from Nedre Strömshaug, Råde, Östfold (4), contained 14 Byzantine solidi, 921/7–945/59, 10 of which have been preserved. These gold coins are recorded as having been found together with several silver coins, unfortunately melted down by the finders. Unlike all the Hon specimens the solidi from Nedre Strömshaug are not looped. This probably means that the last owner of the Hon treasure and the last owner of the Nedre Strömshaug solidi regarded their gold coins somewhat differently. By the time the Nedre Strömshaug coins were buried, a hundred years later than the Hon hoard, some Norwegians, who were engaged in enterprises where sums in precious metals were involved, had become accustomed to series of round stamped pieces of the same weight as useful constituents in these payments. Even in a period dominated by silver, this change of attitude towards coins would also be likely to affect coined pieces of gold.

The XI-century Scandinavian pennies imitating Byzantine gold and silver coins will be discussed below (see Chapter E1).

See Plate I 12–16.

See Map 4.

6. German and late Anglo-Saxon pennies

After the sudden decline in the flow of Kufic dirhems into Norway and the other Nordic countries in the later part of the X century the Scandinavians had to supply their need for monetiform silver from other quarters. Within Scandinavia itself, as already mentioned,¹⁸² the coinage had already experienced its first phase at Hedeby *c.* 825–860, and striking had been resumed from *c.* 900. In the later half of the X century this coinage, now extended to other Danish areas, was intensified. However, these tiny pieces, which from the middle of the X century weighed less than 0.5 grammes,¹⁸³ clearly could not replace the Kufic dirhems. The dominant position formerly occupied by the oriental silver coins was taken over by German and Anglo-Saxon pennies.

To judge from the finds, the import of Western European pennies/deniers into Scandinavia had been very small indeed in the later half of the IX and the first half of the X century.¹⁸⁴ For Norway itself in fact, there is no evidence whatsoever for such import.¹⁸⁵

A few words about the coin history of Western Europe are necessary for a full understanding of later developments. During the X century the weight of the Frankish denier was decreasing.¹⁸⁶ At the same time there was an essential reduction of the silver content.¹⁸⁷ With the advent of feudalism, the right of minting was now extended to princes and ecclesiastical potentates, and the deterioration of the denier continued further. The French denier thus became less attractive to foreigners.

In contrast, the Anglo-Saxon coinage, remaining basically stable, became even more uniform with the political unification of England. The weight of the penny, theoretically 1/240 of the Troy pound, or 24 grains (1.56 grammes), seems in practice to have been usually somewhat below that figure.¹⁸⁸ The silver content of the penny was generally in excess of 85–90%.¹⁸⁹ In the last years of his reign, probably in 973, King Eadgar demonetized all the previous issues.¹⁹⁰ They were replaced by an entirely new type of penny, which was to be the standard type for all England. At the end of a fixed period, which originally seems to have been six¹⁹¹ years, later only three or two years, the current money was to be brought in and exchanged for pennies of a new standard type. From the reverse legends we learn that Eadgar almost doubled the number of mints, from 24 (28?) to 40,¹⁹² apparently to make the exchange easier for the public. The surviving numismatic material shows every sign of this reform having been a successful one.

In the middle of the X century the territory that was soon to comprise the German Empire was on the threshold of becoming the most important minting area on the Continent. By that time some 20 mints were in operation, increasing to more than 50 before the turn of the century.¹⁹³ The X century saw a further 50 German mints issuing silver pennies in Lotharingia, Frisia, and in the land between the Rhine and the Elbe.¹⁹⁴ The opening of the silver mines in the region of the Harz mountains must be mentioned in this connection. It has been proved, by spectroscopic analysis, that coins of the most common German penny types, the so-called *Otto-Adelheid-Pfennige*, were struck from silver from the Rammelsberg mines in the Harz.¹⁹⁵ Like the Carolingian denier, which it seems to have followed metrologically, the early German penny was most probably a '*Reichsdenar*', valid all over the Empire. However, as early as the X century, several archbishoprics, bishoprics, and monasteries (one nunnery) were granted the privilege of striking coins,¹⁹⁶ in accordance with the practice of the 'Ottonian system'. From about the year 1000 coins were struck even for dukes and counts. For the latter, written sources are lacking but these secular princes had also probably been granted the right to coin by the king.¹⁹⁷ The extension of coining rights, clearly reflected in the great variety of types, was a threat to the unity of the German coin system. In the XI century there was still no material limitation to the circulation of the pennies. Certain tendencies towards differentiation in the coin standard were already present, however, pointing to the coming period of the regional penny from the early XII century.

Around the middle of the X century German pennies began to arrive in Scandinavia.¹⁹⁸ From the last quarter of the X century the influx of German coins must have reached very high proportions.¹⁹⁹ Anglo-Saxon pennies now also reappear in the finds and from the 990's occur in large numbers. These pennies from German and English mints were to dominate the Viking-Age hoards for the rest of the period, although there was a remarkable decline in the influx of Anglo-Saxon coins about 1050.²⁰⁰

Norwegian hoards clearly show that German and Anglo-Saxon coins came to Norway in the second half of the X century. The unique Rönnevik hoard (171), buried about the middle of the X century, whose dominant element is still Kufic, contains seven Anglo-Saxon pennies dated 924/39–946/55. The probable mints of these pennies have prompted M. Dolley to think that 'it seems reasonably certain that the coins had left England via Chester' and thus as a result of the Norwegians' special connection with the territories around the Irish Sea.²⁰¹

After the reform of 973 there was a continuous flow of Anglo-Saxon pennies into Norway for some 80 years, as we can see from the hoard material. With the penny type of *c.* 991/7, there is a marked increase in the surviving material, from 24 specimens of the previous type to 311 specimens of the actual *Crux* type. The Fuglevik hoard (3), almost exclusively composed of Anglo-Saxon pennies (98%) of which more than 90% were specimens of the *Crux* type in good condition, must be seen as

a clear reflection of the payment of the first *danegelds* in the years 991 and 994.

On the other hand, we have another hoard from the Oslofjord area, a hoard with the same *terminus post quem*, which has a very clear preponderance of German pennies: Tråen (36). The same tendency is apparent in two older hoards, although considerably smaller and insufficiently recorded: Kvitberg (61) and Reve (80). The Slethei hoard (82), with its contents of 92% Anglo-Saxon pennies, more than 80% of which are of the Last Small Cross type (c. 1009/16) of Ethelred II, also appears to be a hoard directly influenced by a *danegeld* payment.

The other Norwegian hoards buried in the period from the 990's to the 1050's have a great mixture of foreign coins, but mainly Anglo-Saxon (7–67%) and German (14–87%) pennies.²⁰² Half of these hoards also contain a smaller number of Hiberno-Norse pennies which probably arrived along with the Anglo-Saxon ones. A few other continental pennies, it seems, came in with the German coins: Bohemian (3 specimens), Hungarian (2 specimens), and Polish (1 specimen).

Concerning coins of Scandinavian manufacture, we have already mentioned the few Norwegian finds of early Scandinavian coins. There are in addition some scattered Swedish pennies of Olof Skötkonung and Anund Jakob, chiefly found in the Trøndelag area, the hoard from Dronningens gt. 10, Trondheim (147), being the most important. Danish pennies very rarely occur in Norwegian hoards buried before 1030. The influx of Danish coins, especially felt in the 1050–1060's, is demonstrated by a certain number in the Årstad hoard (95) and by a total of five hoards which have a proportion as high as 7–20% of Danish issues. In the last third of the XI century the German and Danish pennies, the last of the foreign coins, relinquished their position in the currency to native coins.

This last phase of the import of silver coins into Norway in the Viking Age is dominated by the Anglo-Saxon and the German pennies. The importance traditionally attributed to the former should not obscure the following fact, which is indicated by the find material: In the middle of the 990's the German element seems to have been as strong as the Anglo-Saxon one in the circulation medium in Norway. We also have reason to think that the general influx of German coins into Norway in the X century might have begun even earlier than the general influx of the Anglo-Saxon pennies, not considering the isolated Rönnvik hoard. The German element was certainly present for a longer period and at a more intensive level during the second half of the XI century.

The overwhelming proportion of foreign pennies surviving from late Viking-Age Norway came from hoards which usually also contained non-numismatic silver. A small number of the coins have been intentionally cut, mostly to halfpennies and farthings.²⁰³ Nearly all the coins show signs of having been tested. They carry a varying number of pecks disrespectfully incised into every part of the coin.²⁰⁴ Many of these coins are also bent, and there seems quite often to have been a connection between

the bending and the pecking, both operations certainly carried out to test the quality of the silver.²⁰⁵

Piercing is more rarely found on these coins, looped coins being extremely rare.²⁰⁶ We have only four grave-finds with foreign pennies of this period. In three of these finds, geographically concentrated in the interior of the district known today as Aust-Agder (68, 70, 71), the coins, found with weights and/or the remains of a leather purse, appear as currency. Only in a woman's grave in Romsdal (134), do the coins, two German pennies of the late X century, distinguish themselves as jewelry: They were pierced and – primitively – looped, and found with other silver jewelry and beads.

The importance of the German and the Anglo-Saxon pennies as silver money in late Viking-Age Norway can be seen from their occurrence in hoards all over the country (see Maps 7–8). Further evidence for the Scandinavian appreciation of these foreign coins is provided by their imitations of these pennies, struck during the very last years of the X century. Imitations of German pennies occur relatively seldom, but this field still calls for further research.²⁰⁷ Imitations of German coins that are certainly of Scandinavian manufacture have so far been found only in the Danish coinage, which, however, is overwhelmingly dominated by imitations of Anglo-Saxon types.²⁰⁸ The earliest coins of Sweden²⁰⁹ and Norway,²¹⁰ which depend almost exclusively on Anglo-Saxon prototypes, show no traces of German influence. In addition, Scandinavian finds contain a great number of anonymous imitations of Anglo-Saxon pennies, whose place of origin has not yet been located.²¹¹

On examining the Norwegian coin finds from the Roman period to the end of the X century, we have found certain changes in the treatment of foreign coins coming to Norway. This must, to some degree, reflect changing attitudes towards pieces of coined metal (silver), at least within certain circles, in this country: Single specimens, jewelled and apparently used as jewelry, ornaments and/or amulets, in the period of Roman coins and in Early Viking Age, were succeeded by silver coins used as hack-silver. With the culmination of the influx of Kufic dirhems about the year 900 silver coins occurred more commonly in hoards. From the last quarter of the X century numerous European pennies were circulated and hoarded, and finally, at the turn of the millennium, imitated on Scandinavian soil. Before that time no native manufacture of coins or coin imitations has been discovered in Norway, except for the non-monetary gold bracteates of the V and VI centuries.²¹² Some of the few jewelled, two-sided imitations of Roman multiple solidi that have been found, and the two pieces of jewelled impressions of Roman (131) and Kufic (41) coins, might perhaps have been made in this country. However, this slight possibility does not affect the main conclusion which can be drawn for the extant material: coins were not issued in Norway before the end of the X century.

See Plates V–IX, X 7–21. See Maps 7–11.

D. The beginning of Norwegian coinage

1. Olaf Tryggvason

When did Norwegian coinage begin?

In two short periods, 948 and 952/4, coins were issued at York in the name of the expelled Norwegian king Eric Bloodaxe.²¹³ This coinage of Eric as King of Northumbria was carried out by the ordinary York moneyers who struck the actual pennies of English or Northumbrian types. Thus, this was merely a chapter of English coin history and has nothing to do with the Norwegian coinage. A younger brother of Eric, Håkon the Good (c. 948–c. 960), brought up at the court of King Athelstan of England, and the independent Earl Håkon Sigurdsson (c. 970–c. 995) have each at different times been regarded as the initiator of the Norwegian coinage.²¹⁴ Such attributions are now of interest merely to the history of research.

In 1794, in the supplement to the *Beskrivelse*²¹⁵ of 1791, the Norwegian penny of the *Crux* type, reading ONLAFREXNOR, was reattributed from Olaf Haraldsson (1015–1030) to Olaf Tryggvason (995–1000). This coin, already mentioned in J. Lauerentzen's edition of the *Museum Regium*,²¹⁶ had been published in detail by the Swedish numismatist N. Keder²¹⁷ in 1722. Although conclusive evidence is lacking, this is most probably one and the same specimen. *Museum Regium* says nothing about the provenance or the whereabouts of the coin but Keder tells us that it had been recently found in Sweden and was then in his own possession. It has been suggested that the *Onlaf* penny came from the 1704 hoard found at Näs, Österåker, Uppland, but it is not included in a detailed and well-illustrated contemporary description of 448 coins from this hoard²¹⁸ made by J. Peringskiöld, secretary of the Antiquities Archive, then the supreme Swedish authority on ancient remains. Later, in 1767, the *Onlaf* penny was in the collection of N. R. Brocman, a member of the board of the Antiquities Archive. Since then the coin itself has disappeared, but thanks to a drawing of it in the possession of Brocman's Danish friend J. Langebek, the *Onlaf* coin could be included in the *Beskrivelse* 1791, and later on in the publications of Ramus,²¹⁹ Holmboe,²²⁰ C. Holst,²²¹ Schive,²²² and in the unfinished works of Kall²²³ and of Ramus and Devegge.²²⁴

Some scholars still attributed the coin to Olaf Haraldsson.²²⁵ The 1883 Vossberg find (227) contained an *Onlaf* penny, but having a burial date as late as 'after 1084', this hoard could not contribute to the solution of the problem. The final evidence for *Onlaf* being Olaf Tryggvason was provided by the 1924 Igelösa hoard (198). The *Onlaf* coin in this hoard,

which remained unidentified for 30 years, was published in 1961 by B. Malmer.²²⁶ The composition and the dating of the approximately 2,060 other coins in the Igelösa hoard could hardly allow a burial date late enough to include coins of Olaf Haraldsson, King of Norway from 1015, a date well established by historical sources.

An imitative *Crux* penny of Olaf Tryggvason also goes better chronologically with pennies of the same type struck in the names of the Danish king Sven Forkbeard, who died on 3 February 1014, and the Swedish king Olof Skötkonung. According to recent studies,²²⁷ the coinage of the latter is dated to a ten-year period from *c.* 995 and only the first part of the issue are coins of the *Crux* type.

The moneyer's name of Godwine, which is an Anglo-Saxon name, occurs on pennies of all the three Scandinavian kings. It would have been a remarkable coincidence if three (or two) different moneyers of that name had struck coins for the three Scandinavian kings at about the same time, even if Godwine was quite a common name among the Anglo-Saxon moneyers of this period.²²⁸ Different explanations have been put forward. K. Erslev²²⁹ thought that the Danish and Norwegian coins were struck in England during Sven Forkbeard's and Olaf Tryggvason's campaign against Ethelred II in 991–4. J. Wilcke²³⁰ suggested that all these Scandinavian coins were struck at Sigtuna in Sweden, which would then have been some sort of a coining centre for all Scandinavia. E. Person²³¹ mentioned the possibility that the *Onlaf rex Nor* coins were struck for Olof Skötkonung, and not for Olaf Tryggvason, when the former, after the death of the Norwegian Olaf in the battle at 'Svolder' in the year 1000, became lord over a part of Norway.

However, as B. Malmer has pointed out, the Scandinavian *Crux* imitations with the name of Godwine are rather different in style and fabric. In the style, legibility of the legends and regularity of the die-axis the Norwegian coins come closest to the prototypes. The Danish ones come second, while the Swedish *Crux* imitations are more barbarized in style and legends than the others. Where the coin standard is concerned, B. Malmer found that the Danish *Crux* pennies were closest to the English originals in weight, the Norwegian pennies being lighter and the Swedish pennies considerably heavier.

This statement was based on not more than two Norwegian pennies of known weight. Since then the Karls hoard (214) has turned up, with an *Onlaf rex Nor* penny weighing 1.64 grammes, thus making the weight of the Vossberg specimen, 1.54 grammes, the median figure. This is even higher than the median weight of the five Danish *Crux* coins, 1.47 grammes. Hence we should be careful in using such a tiny sample, but, it seems, both these medians now point to an actual standard on the same level as the original English pennies of the *Crux* type.²³² A neutron activation analysis of one of the *Crux* pennies (*1 c*) of Olaf gave a silver content of 93.2%, which is on the same level as the Anglo-Saxon originals.²³³

The short reign of Olaf Tryggvason, 995–1000, gives the coins struck in his name a dating which one might well consider sufficiently exact. In

order to try to narrow it even further, we should remember that the prototype, the *Crux* type of Ethelred II, was current in its homeland from c. 991 to c. 997, when it was replaced by the Long Cross type.²³⁴ The change of coin types, it is believed, took place at Michaelmas (29 September). On this assumption, pennies of the Long Cross type must have reached Scandinavia not later than the following summer, 998. The Long Cross pennies, being heavier in weight than the *Crux* pennies,²³⁵ soon supplanted the latter as the favourite prototype of the Scandinavian coin producers. It is therefore not very likely that a coinage of *Crux* imitations was introduced in Norway later than (the earlier part of) the year 998.²³⁶ The coinage of Olaf Tryggvason, as we know it from the surviving material, is probably dated to the first part of his reign.

The three specimens of the *Onlaf* penny known today (198, 214, 227) are struck from the same pair of dies. The lost coin from the Brocman collection may also have been struck from the same dies, but since we only have the drawing of it, nothing can be said for certain. At any rate, the few specimens made from one or, at the most, two pairs of dies, indicate a very small coinage. Another piece of evidence pointing in the same direction is the fact that no *Onlaf* penny has survived in the many Norwegian hoards buried in the period c. 997–c. 1051, all of them containing, *inter alia*, other coins from the time of Olaf Tryggvason, or even earlier (6, 35, 39, 78–9, 82, 90–1, 95, 110, 123, 135, 137, 147, 157, 159).

Olaf Tryggvason initiated the Norwegian coinage by issuing pennies which were close imitations of the Anglo-Saxon *Crux* type. From the surviving material this earliest Norwegian coinage, which can be tentatively dated c. 995/8, looks more like a short-lived experiment than a well-established institution.

See Plate XI 1a–d; cf. Plates VII 6–9, IX 1, X 20.

2. Olaf Haraldsson

After the death of Olaf Tryggvason in the year 1000 Norway came under Danish (and Swedish) supremacy for 15 years, Western Norway and Trøndelag being governed by the earls Svein and Eirik Håkonsson. We have no Norwegian coins identified as struck during this time.²³⁷ The Danish coinage also seems to have ceased after the introductory phase, which most probably occurred before, in 1003, Sven Forkbeard again became involved in English affairs. At about the same time the Swedish coinage of Olof Skötkonung had also come to an end.

Olaf Haraldsson (1015–1030), to whom the *Onlaf rex Nor* penny was originally attributed, finally 'lost' this coin to Olaf Tryggvason, as we have already heard. Nevertheless we know at present 11 coins of three different types attributable to Olaf Haraldsson.

Type I is an imitation of the frequently imitated Long Cross type of

Ethelred II, the original dating from *c.* 997–*c.* 1003. The obverse legend of the Norwegian type is a partly-blundered version of the king's name and title: VNLAFIXEXANOR. Seven specimens of this type are recorded, at least five of them – those which can be properly examined – being die-duplicates. The king *Unlaf rex a(n) Nor(mannorum)*, mentioned on such an imitative coin could well have been Olaf Tryggvason, had it not been for the reverse with the moneyer's name of Asthrith. This reverse is very closely related to coins of the same type struck in the name of CNVT (and EDELRED). The Asthrith coins bearing the names of 'Ethelred' and 'Cnut', as we can see from the type combinations, are not genuine Anglo-Saxon issues.²³⁸ This group of Asthrith coins must therefore be dated to a time when King Cnut the Great first began to make his mark on history (30 November 1016). The question remains whether the whole Asthrith group was of Norwegian manufacture. In this early period of Scandinavian and Hiberno-Norse coinages we find coins whose legends are contradictory to the political realities. Coins bearing the name of 'Ethelred' were struck at Lund and Dublin.²³⁹ Thus, the name of 'Ethelred' should not be an obstacle to declaring a coin Norwegian. On the other hand, Cnut the Great actually was King of Norway for some time, first in 1028, when Olaf Haraldsson fled the country, and secondly from the death of Olaf on 29 July 1030 to the succession of his son Magnus the Good in 1035. However, this period seems too late for the *Cnut/Asthrith* pennies. The Danish hoard from Kelstrup, Slagelse, Zealand, probably buried before 1028, contained one example of these coins. Further, all the *Asthrith* coins must be of the same date. The *Unlafi/Asthrith* coin in the hoard from Grönby, Scania (197), and an *Ethelred/Asthrith* coin in the hoard from Kännungs, Hellvi, Gotland, were both buried *c.* 1025. The pennies of the *Asthrith* group, therefore, must be dated 30 November 1016–*c.* 1025.

The *Ethelred/Asthrith* and the *Cnut/Asthrith* coins are die-linked with other imitations of Anglo-Saxon pennies.²⁴⁰ In the reverse legends several moneyers and English mint signatures are found: LEOFRIƆONTƆPA ('Leofric in Canterbury'), ÆLFSIGIMOƆESƆ ('Ælfsigi moneyer in *Cesth*'), BRIHTNOƆM'OLVD ('Brihtnoth moneyer in London'),²⁴¹ EADPOLDMLVN ('Eadwold moneyer in London') LYFINƆONLVND ('Lyfinc in London') ƆORƆETLM'OLVND ('Thorcetl moneyer in London') – with one variety – BREHTNOƆMOE ('Brehtnoth moneyer in York').

The question is whether all these moneyers actually came over to Scandinavia carrying with them genuine English dies, or whether they had dies made with their names, titles and the names of their home towns when they were in Scandinavian service, or whether the dies were quite simply imitations made by competent Scandinavian die-sinkers skilfully copying the genuine dies in every detail. In any case, it seems that all these *Ethelred* and *Cnut* dies linked into this group with *Asthrith* and the other seven moneyers' names were used contemporaneously, all mixed up quite indiscriminately. All these possibilities, travelling moneyers, travelling dies, and skilful imitations, make one hesitate in attributing the *Ethelred–Cnut/Asthrith* coins to Norway without reservation. A Norwegian provenance is

only one of several possibilities in spite of their close relationship to the *Unlafi/Asthrith* pennies.

The type II coins of Olaf Haraldsson, only known from two die-duplicates in the Stein hoard (39), have their closest parallels in Danish pennies attributed to Cnut the Great.²⁴² The bust on the obverse is related to that on the Anglo-Saxon Long Cross type (c. 997–1003), different, though, in style, and with a cross sceptre added. The bird on the reverse, although lacking the halo, is probably meant to be the Holy Dove. This type goes back to the *Agnus Dei/Holy Dove* type of Ethelred II, a transitional type dated by M. Dolley to the year 1009.²⁴³ Coins with a bird similar to the Norwegian one, but a little more stylized, are die-linked into the Swedish penny series of Anund Jakob, Olaf Haraldsson's brother-in-law and King of Sweden from c. 1022. His coinage seems to have lasted until c. 1030.²⁴⁴

The pointed helmet bust of Olaf Haraldsson's type III also has parallels in the Danish and Swedish series.²⁴⁵ The obvious prototype of these coins is the Anglo-Saxon Pointed Helmet type of Cnut the Great dated to the period c. 1023–9 (H. B. A. Petersson: 1024–31). One should, however, bear in mind that there was already a transitional issue with a Pointed Helmet obverse under Ethelred II, so far only known from a single coin in the Slethei hoard (82). This coin, dated to the year 1015 by M. Dolley,²⁴⁶ shows a helmet with a nasal similar to that on the Pointed Helmet type of Olaf Haraldsson.

The two barbaric reverse varieties with the cross motifs also call for some comments. The short-cross-voided of type IIIA is not that of the Anglo-Saxon Short-Cross type of Cnut, dated c. 1029–35. (H. B. A. Petersson: Circled Short Cross, 1031–5). Olaf's short cross reverse may equally well have been inspired by the long cross on the Anglo-Saxon pennies of the type thus named, or by the many Scandinavian imitations of that type.²⁴⁷ On the reverse of IIIB the cross is combined with a saltire crosslet making a type not known in the contemporary Anglo-Saxon and Scandinavian coinages. However, specimens of one of the latest types of the early Scandinavian coin group, dated c. 995 and tentatively located to central Sweden by B. Malmer,²⁴⁸ could produce a design very similar to the reverse of IIIB, as the thin blank made the types of both sides visible from one side. In the surviving material the two varieties of type III are represented only by one specimen each. The IIIB coin was in the Stein hoard (39), buried after c. 1023, but probably before 1030.

The blundered reverse legends of types II and III do not give any names of mints and moneyers. There is a legible sequence in the middle of the IIIA reverse legend://///DOMINAD///// This fragmentary legend seems to be connected, in one way or another, with the word *dominus*, the Lord.²⁴⁹ On a couple of Danish pennies of Cnut, the ordinary moneyer's formula has been replaced by Christian formulae.²⁵⁰ Something along the same lines might have been intended with reverse IIIA of Olaf Haraldsson.

The median weight of the five complete specimens of type I is 1.04 grammes, the two specimens of type II weighing 1.01 and 0.96 grammes. Again we have a very small sample to work on. The figures, nevertheless,

must be compared with the average weight of the contemporaneous Anglo-Saxon coin types, which are virtually identical: 1.02 and 1.04 grammes respectively.²⁵¹

The two coins of type III, struck on square flans, are considerably heavier: 3.04 and 2.40 grammes. In this early period of Scandinavian coinage, *c.* 995–1030, coins struck on square flans are too frequently met with to be rejected as mere technical accidents. The suggestion has been put forward that these coins on square flans were made intentionally so as to obtain heavier pieces along with the coins struck according to the weights of the European penny. The (theoretical) weight of the Kufic dirhem, 2.97 grammes, has been mentioned as the possible unit that was aimed at. One can say that the weights of the two Olaf specimens do not fall outside the acceptable range for this standard. Without stressing it too much, I should also point out that one of the coins, the heavier, when analysed by neutron activation was shown to have a silver content of 96.1%, on the level of that of the Kufic dirhems.²⁵²

The three coin types of Olaf Haraldsson are not obviously linked together, e.g. by die identity or by type identity. New material might produce some link, but until then I think that the coins of the three types were struck separately in time and/or space. As it is most probable that the coins were struck where the king resided at any particular time, I have, so far, reason to believe that the three issues were chronologically separate. Bearing in mind the numismatic and political evidence involved, the three coin types of Olaf Haraldsson can be dated as follows:

Type I: *c.* 1017–25

Type II: *c.* 1019–28

Type III: *c.* 1023–28

Like the coins of Olaf Tryggvason the extant material from Olaf Haraldsson's coinage consists of very few coins, showing within each type an almost maximum degree of die identity. These coins are also extremely rare in the numerous Norwegian and other Scandinavian and North-Eastern European hoards buried in the time of Olaf Haraldsson and the following years.

The coinage of Olaf Haraldsson should be characterized in the same way as that of his predecessor and namesake: a transient phenomenon, not an established institution.

When, through the events of 1028 and 1030, Cnut the Great became overlord of Norway, he had been issuing coins in both England and Denmark for some 10 years. At that time, *c.* 1029, a change of types, from Pointed Helmet to Short Cross, took place in the former country. A few Swedish coins, struck *c.* 1030 in the name of 'Cnut' with the title *rex Sw[eorum]*, may in fact have been issued by him when he was overlord of a part of Sweden after the Battle of Helgeå.²⁵³

Did Cnut also issue coins in Norway? We have already touched upon the *Cnut/Asthrið* coins, which in any case are dated too early to have been

struck in the period 1028–35. A Pointed-Helmet coin of Cnut with a reverse legend reading LEOFSILEMONIPOR and, by some scholars in the XIX century, hesitatingly attributed to *Nidrosia* (i.e. Trondheim), has been proved to originate from the English mint of Newark.²⁵⁴ Other specimens occasionally attributed to Cnut as King of Norway in some old catalogues have proved to be either Danish or coins so far impossible to classify except as 'Scandinavian imitations'.²⁵⁵

Nor do we know any coin struck in the name of Svein, Cnut's son, whom he made governor of Norway, with his mother Ælfgifu (Norse *Alfiva*) acting as adviser, from 1030. The Norwegian dynasty was restored in 1035, when Magnus, a son of Olaf Haraldsson, returned to Norway from Russia, summoned by leading Norwegian chieftains. Svein and Ælfgifu fled to Denmark, and when Cnut the Great died on 12 November the same year, the Danish claim to Norway came to an end. The tables were then turned and Magnus of Norway became King of Denmark when Harthacnut died in 1042. Magnus devoted himself particularly to Danish affairs, continuing the Danish coinage as intensively as his predecessors Cnut and Harthacnut. The obverse legends of one or two of his Danish issues contain his Norwegian title.²⁵⁶ These coins have previously been regarded as Norwegian by some scholars,²⁵⁷ but at present we do not in fact have any coin which can be attributed to a Norwegian coinage of Magnus the Good.

See Plate XI 2–5; cf. Plates VII 10–14, VIII 5–7, 18–19, X 21.

E. The establishment of a national coinage in Norway

1. Harald Sigurdsson in Constantinople and Odense

Fifteen-year-old Harald Sigurdsson, later King Harald Hardråde, fought in the Battle of Stiklestad on 29 July 1030, where his half-brother King Olaf Haraldsson was killed. After the defeat, Harald, recovered from his wounds, fled to Sweden. By 1031 he had reached the court of Yaroslav of Novgorod–Kiev, a friend and brother-in-law of Olaf Haraldsson. Some years later Harald, leading a company of men – 500 is the number mentioned²⁵⁸ – went to Constantinople and was enrolled in the emperor's Varangian Guard.

There is some uncertainty about the date of Harald's arrival in Constantinople. The *Heimskringla*²⁵⁹ and the Greek source²⁶⁰ agree that he arrived there during the reign of Michael IV (12 April 1034–10 December 1041). It seems certain that he at least took part in the campaign against 'African Saracens and Sicilians' who raided the Cyclades and the Thracian coast in the spring and summer of 1035,²⁶¹ and he may have been with the Byzantine troops in the autumn of 1034. Later on he took part in the war on Sicily under George Maniaces in 1038–40/1, after which he was created *manglavites*.²⁶² Shortly afterwards, in the summer and autumn of 1041, he went with his men on the emperor's campaign against the Bulgarians, who were in revolt. On his return he was promoted *spatharo candidatus* – a relatively high position in the Byzantine court hierarchy²⁶³ – in recognition of his services. Harald may even have been involved in the court intrigues after the death of Michael IV, when the emperor's widow, Zoë, and his nephew, Michael V, struggled for imperial power. According to a scaldic verse,²⁶⁴ Harald took an active part when Michael V was deposed and blinded in April 1042.

After some weeks of joint reign by Zoë and her sister, Constantine IX Monomachus succeeded on 12 July 1042. Relatively soon afterwards, according to both the *Heimskringla* and the Byzantine source, Harald and his men left Constantinople, apparently against the emperor's will.²⁶⁵

Harald's departure may have had some connection with the outbreak of war in 1043 between the Greeks and his friend Yaroslav of Russia. In any case, Harald went back again to Yaroslav to whom, according to the saga, he had forwarded large treasures, acquired during his military career in Constantinople.²⁶⁶

According to the saga by Snorri Sturluson Harald had participated

three times in a so-called *pólútasvarf* in Constantinople, in which the Varangians were supposed to have been allowed to plunder the contents of the imperial palace on the occasion of an emperor's death.²⁶⁷ If this is correct the three occasions should have been the death of Romanus III (1034), the abdication and death of Michael IV (1041), and the deposition of Michael V (1042). However, this custom does not seem to be documented elsewhere.²⁶⁸ Stender-Petersen has suggested that *pólútasvarf* is in fact a tautology composed of the Old Russian *pol'udije*, 'journey to collect taxes', and the Old Norse word *svarf*, meaning 'wandering about in violence'.²⁶⁹ On the basis of these linguistic findings Stender-Petersen supposed that these *pólútasvarfs* actually took place in Russia, during Harald's first stay there. The taxes then collected in that country would have been paid in kind, and these goods were again sold in Constantinople. Harald would have acquired great treasures from his participation in these transactions.²⁷⁰

There is no need to take a stand on these theories here. The idea of Harald's treasure has evidently appealed to people's imagination. It has even been related that this '*massa auri*' from Byzantium – so heavy that it needed 12 strong men to lift it – survived its master, to the benefit of William the Conqueror.²⁷¹

What could Harald Sigurdsson have learnt from the Byzantine coinage? As a successful leader of mercenaries for several years in the service of the Byzantine emperor Harald would have been diligently handling Byzantine coins. Coins were still struck in all the three metals. The silver *miliaresion* and the bronze *folles* were denominations of a token nature, their nominal value being considerably in excess of their intrinsic value. The gold *nomisma* was still the basis of the Byzantine coinage.

The three main coin denominations were counted as follows:

1 *nomisma* = 12 *miliaresia* = 288 *folles*

1 *miliaresion* = 24 *folles*

This stable system began to waver during the reign of Michael IV (1034–1041), which marked the beginning of the debasement of the gold coinage. The purity of the gold coins then seems to have been lowered from the theoretical 24 carats fine to an actual fineness of 19 1/2 carats.²⁷² The users of the coins certainly became aware that there was some change going on. At the same time the *nomisma* had assumed a new fabric. The flan had become very spread and slightly cup-shaped (*scyphati*). It seems probable that the new fabric was adopted to distinguish between the old, pure *nomismata*, and the new, debased ones.

In Russia Harald had married Yaroslav's daughter Elizabeth (in Norse called *Ellisiv*), but by 1045 he and his company had set out for Scandinavia. He arrived at Sigtuna, the residence and mint town of the Swedish kings, but by that time the mint seems to have been idle for more than a decade. Here Harald met the Danish earl Sven Estridsen, with whom he agreed to join forces against his nephew Magnus the Good, then King of Norway

and Denmark. This alliance lasted a year. Harald then came to terms with King Magnus, who offered to make him coruler of Norway in return for the half-share of Harald's treasure. The two Norwegian kings then waged war against Sven Estridsen, who was still disputing the throne of Denmark with Magnus. During this campaign King Magnus suddenly died on 25 October 1047, leaving Harald as sole king of Norway.

After his return to Scandinavia Harald Sigurdsson issued coins in Denmark. The present evidence for this coinage is six pennies struck in the name of *Arald rex Nar*, 'Harald King of the Norwegians'.²⁷³ The pennies of this Danish series, although including as many as three obverse types and three reverse types, are, nevertheless, very closely connected to each other through die-links. Even a penny bearing the name of the moneyer '*Godric on Stanfod*' is die-linked into the other group of five pennies struck at Odense by the moneyer Odinkar.

From other Danish coins we learn that Odinkar had been moneyer to Cnut the Great at Lund, to Harthacnut at Lund and Roskilde, and to Magnus the Good at Lund.²⁷⁴ For Sven Estridsen, Odinkar minted at Odense but, since he is known only from this king's earliest type,²⁷⁵ it is doubtful whether the experienced moneyer was active after c. 1050.

Harald's Danish issues must have been an ephemeral coinage, probably produced after he had been proclaimed King of Norway, which is supposed to have occurred some time in the year 1046. One of the coin types, bearing the obverse legend *Mahnus Arald rex*, raises the question of whether the alliance between Harald and Magnus the Good has found numismatic expression in this issue,²⁷⁶ or whether the singular form of the king's title does not indicate that *Mahnus* and *Arald* in this coin legend are one and the same person. This would imply that in using the cognomen of Magnus, Harald here presented himself as the successor of Magnus, the son of St. Olaf, and King of Denmark and Norway. Harald's rival to the Danish throne, Sven Estridsen, also called himself Magnus, as his coins tell us.²⁷⁷ If this interpretation of the legend is right, the most probable time for the issue of Harald's Danish coin series is the autumn of 1047, the *Mahnus Arald rex* coins thus being struck after the death of King Magnus the Good on 25 October.

The cooperation of a fully experienced Danish moneyer – and the possible connection with an Anglo-Saxon moneyer, Godric of Stamford – must certainly have added substantially to the general knowledge of coins and coinage which Harald had probably acquired during his many years in Constantinople.

Harald probably brought some treasure back to Scandinavia, including Byzantine coins. There has been some discussion about the extent to which this treasure has influenced Scandinavian coin history, especially the imitations of Byzantine coin types. There are, as a matter of fact, Scandinavian imitations that cannot have had any connection with Harald Hardråde. Furthermore there are very few Scandinavian finds of the Byzantine coins concerned. This has caused some numismatists to warn against ascribing too much of the Byzantine element within Scandinavian

numismatics to Harald and his treasure.²⁷⁸ On the other hand, P. Grierson – inspired by Hauberg’s classical paper²⁷⁹ – has convincingly pointed to Danish imitations in silver, with Byzantine coins struck during Harald’s stay in Constantinople as their prototypes:²⁸⁰ gold numismata from Romanus III (1028–1034), Michael IV (1034–1041) and Michael V (1041–1042), and, finally, a silver miliaresion of Constantine IX (1042–1055). All these Danish imitations must be attributed to Sven Estridsen. The Danish issues of Harald himself scarcely show traces of direct Byzantine influence, they were principally modelled on Anglo-Saxon prototypes.

To sum up: At the end of 1047 Harald Sigurdsson was back in Norway as sole king, at the age of 32. During his many years abroad he had gained a broad military and administrative experience. For eight years he had lived in a society with a developed money economy, where he had held relatively high positions in which he assisted at the ceremonies and took part in the life at the court of an absolute ruler. Back in Scandinavia Harald had issued silver coins, pennies struck to a native Danish standard, in cooperation with one of the most experienced Danish moneyers.

See Plate X 14–15.

2. Harald Hardråde’s Norwegian coinage: pennies of the *Triquetra* type

a. Numismatic prototypes and parallels

When Harald Hardråde, in or shortly after 1047, introduced his Norwegian coinage, it was the first issue of coins in Norway after an interval of some 20 years. The *Triquetra* motif was chosen as the principal type of this new coinage. The *Triquetra* had already by this time established a long tradition in numismatic iconography. First used on Merovingian silver coins²⁸¹ it was adopted as an additional symbol to animal types on Anglo-Saxon sceattas.²⁸² The *Animal* type on the early Scandinavian coins of Hedeby also had the *Triquetra* as an additional symbol.²⁸³ A hundred years later the *Triquetra* was a coin type on its own on pennies struck at York in 941–3 in the names of the Viking kings Sihtric, Regnald, and Anlaf Sihtricsson.²⁸⁴ In the later part of the X century the *Triquetra* occurs as a coin type on German pennies from the Strasbourg and the Huy mints.²⁸⁵ During the same period the motif appears as an additional symbol on pennies of Andernach,²⁸⁶ and occasionally also on pennies of Cologne²⁸⁷ and Minden.²⁸⁸ A *Triquetra* as the main type also occurs on pennies struck in the name of Count Dietmar (d. 1048), a brother of Duke Bernhard of Saxony.²⁸⁹ Finally, in the coinage of the Danish kings, the *Triquetra* had already been used as a type – among many other types – on pennies attributed to Cnut the Great,²⁹⁰ Harthacnut,²⁹¹ Magnus the Good,²⁹² and Sven Estridsen²⁹³ also included the *Triquetra* among their numerous coin

types. The legible mint-signatures are evidence for attributing the Danish *Triquetra* coins to the mints of Roskilde and Slagelse.²⁹⁴

In a study of the Danish imitations of Byzantine coin types, P. Grierson has stressed the difference between casual imitations made for aesthetic reasons and imitations made for economic reasons, using as prototypes coins of good quality circulating widely outside their countries of origin.²⁹⁵ He also emphasizes the contrast between the Danish coinage, as primarily the affair of the moneyers, and the highly centralized organization of the English coinage.²⁹⁶

What about the *Triquetra* coin type of Harald Hardråde? Was it deliberately chosen by the king and his administration, or did it only come about as a casual imitation made by some moneyer? Harald's ephemeral coinage in Denmark seems to have enjoyed a very rapid change of types though always within the pattern King's bust/Cross. In Norway, on the other hand, the *Triquetra* type was to dominate the coinage throughout Harald's reign. A bust type combined with the reverse of the *Triquetra* type, known only from a unique penny in the Copenhagen collection, must have been an experimental type from the early part of the reign. Two other types, bust (Malmer P2c/Stenersen F) and half-figure (Malmer P2a/Stenersen T), were probably initiated *c.* 1065, i.e. at the very end of Harald Hardråde's reign. These anonymous pennies were continued during the prolific output under Harald's son and successor Olaf Kyrre (1067–1093).

Thus the *Triquetra* type was struck for several years, being used at both the known mints, Nidarnes and Hamar, and by all the three named moneyers, Ulf, Gerfin (*Geirfinn*), and Olaf. The Norwegian *Triquetra* type, therefore, was probably not introduced by casual imitation. The *Triquetra* type must have been ordered from a high level, most probably by the king himself.

After the period of Harald Hardråde's *Triquetra* pennies this type never occurred on Norwegian coins, except for some bracteates from the late XII century. These bracteates belong to a group with a great variation of types: single letters, crosses of various forms, crozier-head, and geometric motifs. The *Triquetra* is one of the latter.²⁹⁷

An interesting use of the *Triquetra* motif as an additional symbol appears on a late XI-century penny type, probably struck *c.* 1080–95. The main type of this particular series, a standing figure with nimbus (Christ?), is sometimes accompanied by a symbol: cross, bird (probably the Holy Dove), or *Triquetra*.²⁹⁸

The *Triquetra* motif is also found as a symbol and a decorative element on non-numismatic objects of Scandinavian manufacture of this period. On a couple of Gotland stones (*stelae*) of the VIII–IX centuries there are *Triquetra* motifs among the depicted scenes and other decorations.²⁹⁹ Among other symbols such as a cross, a snake and a man's head painted on verge-board heads from the Oseberg ship there was also a *Triquetra*.³⁰⁰ Two silver vessels in the Danish Terslev hoard, buried *c.* 945, have incisions, or *graffiti*, secondarily made on the bottom: a Thor's hammer and a neatly executed *Triquetra*.³⁰¹ Engraved *Triquetra* motifs are known

from small round convex silver plates of a diameter of 3–4 centimetres, probably intended as jewelry. One of these plates was found in the Tråen hoard (36), buried after *c.* 991, one in a Danish hoard from the island of Falster,³⁰² buried *c.* 990, and one fragmentary plate in a hoard from Gotland,³⁰³ buried after the year 1100. An elaborate cross or some other geometric design is the motif on similar plates from other Gotland hoards of the Viking Age.³⁰⁴ In the Herjolfsnes churchyard, Greenland, was found a coffin, which can be dated to *c.* 1150 at the earliest, but which may have been made of re-used wood carved with older ornaments. Among these ornaments was a *Triquetra* motif.³⁰⁵ A seal used in 1375 by the otherwise unknown Norwegian Odd Nikulasson has a *Triquetra* figure as its badge, enclosed by the surrounding legend.³⁰⁶

Numismatists and other scholars have interpreted the *Triquetra* motif very differently:³⁰⁷

- a. The heart of Hrungrnir. In Norse mythology the giant Hrungrnir, finally slain by Thor, had a stone heart with three points.
- b. The *Valknute*, a loosely tied knot.
- c. The Gordian knot.
- d. A composition of three shields, a punning type, which on the earliest Danish *Triquetra* coins would present Cnut the Great as a member of the royal *Skjoldung* family.
- e. (In the Northumbrian series) emblem of Anlaf Sihtricsson's triple dominion.
- f. Symbol of the Trinity.

It is difficult to pass a final and general judgement, but it seems from the Scandinavian examples that the *Triquetra* symbol must have had some magico-religious meaning. In any case, the type combines numismatic iconography and native symbolism, a proper badge for a national coinage.

b. Finds

Of the 257 Norwegian *Triquetra* pennies that are preserved and/or recorded at present, we have a fairly exact find provenance for 246. In addition there are three specimens where the find spots are more vaguely given as 'Sweden' (200) and 'Denmark' (206 note). Fortunately most of the *Triquetra* pennies occurred in hoards, the most important of which were found on Norwegian territory. One hoard alone, Helgelandsmoen (38), contained 127 specimens, more than half the find material of this type.

The finds constitute the main source for the study of the chronological and the chorological extension of the *Triquetra* group. Let us first examine the Norwegian hoards containing *Triquetra* pennies.

The nine hoards shown in Table 14 can be divided into three groups.

- I. Finds nos. 6, 35, and 90: Hoards completely dominated by foreign coins (98–99%), mainly German, Anglo-Saxon, and Danish pennies,

Table 14. Norwegian hoards containing Norwegian *Triquetra* pennies

	Date of latest foreign coin	Total no. of coins	No. of Norwegian coins	No. of <i>Triquetra</i> coins	% Norwegian coins of total	% <i>Triquetra</i> pennies of Norwegian coins
6. St. Olavs Voll	c. 1044/6	45	1	1	2	100
35. Bröholt	c. 1050/3	c. 422	1	1	0 (0.2)	100
90. Foldøy	1051/5	776	4	4	1	100
31. Stavenesodden	c. 1060 ³⁰⁸	26	15	15	58	100
38. Helgelandsmoen	c. 1062/5	242	131	127	53	97
49. Nordrum	c. 1065 ³⁰⁹	35	23	23	64	100
92. Nedstrand churchyard	—	8	7 (8)	1 (2?)	88 (-100)	14-13 (-20)
102. Måge	c. 1065 ³¹⁰	251	240	1	96	0 (0.4)
143. Gresli	1068/90	2,253	2,209	8	98	0 (0.3)
Total		c. 4,058	c. 2,631 (2,632)	c. 181 (182?)	65	7

with only a very few Norwegian pennies, all of the *Triquetra* type. *Termini post quos*, according to the foreign coins: c. 1044–1051.

II. Finds nos. 31, 38, and 49: Hoards in which the Norwegian coins represent the major portion (53–64%), this portion being exclusively – or totally – dominated by *Triquetra* pennies. The foreign coins are mainly German and Danish pennies. *Termini post quos*, according to the foreign coins: c. 1060–c. 1065.

III. Finds nos. 92, 102, and 143: Hoards in which the Norwegian coins represent by far the major portion (88/100, 92–98%), but in which the *Triquetra* pennies are outnumbered by pennies of other types. There is a small element of German and Danish pennies. *Termini post quos*, according to the – rather few – foreign coins: c. 1065–1068.

This Norwegian hoard material is limited. The geographical distribution of the finds throughout the country is also somewhat uneven: group I – two hoards from Eastern Norway, one from Western Norway; group II – three hoards from Eastern Norway; group III – two hoards from Western Norway, one from Northern Norway (Trøndelag). Nevertheless, I am inclined to think that the differences observed within these groups of hoards must chiefly be of chronological rather than chorological significance.

In addition to the hoards there are some further finds of *Triquetra* pennies, originating from churches and other sites. These finds, being without any important chronological significance, provide supplementary material for chorological studies.

In Western Norway north of Rogaland only one hoard (102) with one *Triquetra* penny has been found. Two church finds (104, 117), with one *Triquetra* penny each, constitute an essential contribution to the material.

There is no reason to think that *Triquetra* pennies were especially rare in Western Norway. The Trøndelag hoard material is limited to the eight *Triquetra* pennies from the large Gresli hoard (143). Two site finds (139, 163), each with one *Triquetra* penny, show together with the three specimens from the excavations of medieval Trondheim (148a) that these coins not infrequently circulated within this part of the country.

No finds of *Triquetra* pennies are known so far from Northern Norway. However, only 20 kilometres east of the present Swedish border there is a Lapp offering-place at Rautasjaure (190). Here 15 *Triquetra* pennies were found, with 409 Norwegian and other coins of the Viking period and the Middle Ages. The find spot is only 50–60 kilometres away from the Norwegian coast at Rombaksfjord and Skjomen. In the XVIII and XIX centuries, and probably for centuries before that, the Lapps of this territory had their summerland between these Norwegian fjords and the Rautasjaure offering-place. One can assume, as B. Malmer has pointed out,³¹¹ that the majority of the Norwegian coins in the Rautasjaure find were imported via the region around the present Norwegian town of Narvik. Even the 18 *Triquetra* pennies found, along with 148 other Norwegian and foreign Viking-Age and medieval coins, at Gråträsk, a Lapp offering-place in Nordbotten (192), probably came there directly from North Norway. This is the most reasonable explanation, in spite of Gråträsk being situated farther away from the present Norwegian territory than Rautasjaure, about 300 kilometres east of the Norwegian coast at Saltfjorden.

The *Triquetra* pennies, like the other coins in these offering finds, were pierced when found. The Lapps had probably used them mostly as pendants and jewelry. There is no reason to think that the piercing of the coins, mostly very primitively carried out, was done before these pieces of silver came into the hands of the nomadic Lapps. The Rautasjaure and the Gråträsk finds, therefore, bear evidence that *Triquetra* pennies had been present and had probably circulated in North Norway.

In conclusion, the finds demonstrate that the *Triquetra* pennies circulated in all parts of Norway.

Triquetra pennies are also found in Norwegian provinces outside Norway proper. Two specimens were found in a hoard on the Faeroes (185). This hoard, which has a rather problematic composition, has been divided by scholars into two different hoards to meet the chronological difficulties.³¹² The *Triquetra* pennies, then, would belong to the earlier portion, which constitutes the bulk of the hoard, 83 European pennies of various provenance earlier than *c.* 1065. The later part of the hoard consists of 15 Norwegian pennies, *c.* 1080/95–*c.* 1095/1110. However, as the whole hoard was recorded as having been found in one lump, the suggestion of two different deposits cannot be more than a possibility.

There are also problems concerning a relevant hoard from the Shetland Islands (186). From this hoard one *Triquetra* penny has survived, but the record runs that it was found with 'some similar ones and several cut silver bracelets'. The vital question, hardly possible to answer at present,

Table 15. Foreign hoards containing Norwegian *Triquetra* pennies

	Buried after	Total no. of coins	No. of Norwegian coins	No. of <i>Triquetra</i> pennies	Percentage of	
					Norwegian coins	<i>Triquetra</i> coins
203. Ölsted churchyard, Zealand	1047	31	1	1	3.2	3.2
215. Nore, Gotland	1048	703	1	1	0.1	0.1
202. Stolpehuse, Zealand	1053	2,253	1	1*	0.04	0.04
218. Pyhäjärvi, Finland	1054	320–330	1	1	0.3	0.3
205. Bonderup, Zealand	1056	1,336	2	2	0.2	0.2
207. Torp, Öland	1056	696	3	3	0.4	0.4
209. Halfoser, Gotland	1056	442	1	1	0.2	0.2
204. Kirke Værlöse, Zealand	1059	338	1	1	0.3	0.3
194. Maspelösa, Östergötland Sweden	1066	432	1	1	0.2	0.2
222. Polna, Russia	1068	471	3?	1	0.6?	0.2
213. Stale, Gotland	1070	5,922	4	2*	0.06	0.03
220. Lodejnoje Pole, Russia	1080	approx. 3,260	1	1*	(0.03)	(0.03)
227. Vossberg, Pomerania	1084	approx. 8,700?	2	1	(0.02)	(0.01)
211. Änggård, Gotland	1085	849	1	1	0.1	0.1
212. Findarve, Gotland	1089	3,560	1	1*	(0.03)/(0.05)	0.03/0.05
185. Sandøy churchyard, Faeroes	1095	98	17	2	17	2
Total		approx. 29,411–29,421?	41?	21	approx. 0.14	approx. 0.07

* Pennies with the name of Harald

is whether these 'similar' coins actually were Norwegian *Triquetra* pennies, other (German or Danish?) pennies of the *Triquetra* type or of some kind of related types, or just silver pennies of about the same size. A site find from North Uist (188) shows that Norwegian *Triquetra* pennies also reached the Hebrides.

In old Norwegian territories like the present Swedish provinces of Bohuslän, Härjedalen, and Jämtland, no Norwegian pennies have been found, but these provinces generally are rather poor in coin finds of the period under discussion.³¹³

The distribution of *Triquetra* pennies in hoards from foreign territories is set out in Table 15.

The *Triquetra* pennies are of all Norwegian coins the group which enjoyed the widest circulation. In the foreign finds, however, except for the Lapp offering finds from northern Sweden, these Norwegian coins are nothing more than trace elements compared to the quantities of German, Anglo-Saxon and Danish pennies.

The foreign hoards may make some contribution to the dating of the *Triquetra* group. Half the hoards (8 out of 16) must already have been

buried during the reign of Harald Hardråde. Even among the six later hoards, buried within a 20-year period after the death of King Harald, there are two hoards (213, 220) containing a *Triquetra* penny bearing Harald's name and title. Neither is there in these later finds any evidence for dating the issue of any of the other *Triquetra* pennies to the period after Harald's death.

In addition to this hoard material there is a grave find from Hedeby (229), where the *Triquetra* penny in question, hitherto reckoned as Danish,³¹⁴ appears to be one of the two latest coins found in the area of this market-place,³¹⁵ which was captured and burnt by Harald Hardråde in 1050, according to the saga.³¹⁶

Finally, as already mentioned, there are two (or three) obscure finds (200, 206 note), from 'Sweden' and 'Denmark' respectively. The provenance of 'Denmark' especially cannot be regarded as quite certain.

Similar problems are raised by the 11 *Triquetra* pennies for which no find provenance is known at all. These coins are now in public collections in Denmark (49a, 62b, 62d, 71d, 71f), Norway (12b, 13a-b, 31c, 79d), and Sweden (31k; cf. 201 note). They may or may not have come from finds in their respective countries. From their scattered whereabouts today, and, what is more significant, from their dissimilar appearance and patina, it seems unlikely that they came from one and the same hoard. At present one can only guess that these 11 *Triquetra* pennies, three of which bear the name of Harald on the obverse, have come from several – presumably Scandinavian – finds. However, no reasonable solution of this problem could seriously confuse the picture depicted by the present find material.

c. Weight

For studies of the weight of pennies of the *Triquetra* type 175 complete specimens were available. The weights of these coins range from 1.21 grammes to 0.61 grammes. The results were worked into a frequency table with intervals of 0.10 grammes. The frequency table is graphically illustrated in Figure 1, a histogram showing an even distribution of weights around a peak at the interval of 0.80–0.89 grammes. The median value is found to be 0.88 grammes, the average weight³¹⁷ being virtually identical: 0.879 grammes.

Since as many as 157 of the coins included in this survey have had their metal analysed (see following paragraph), I felt it would be interesting to see whether the coin weights were of the same standard through the various levels of silver content. The results of this examination are shown in Table 16.

The very slight variations of weight within the nine levels of silver content do not seem to be significant. The relatively low weights within the silver content groups 70–79% Ag and 80–89% Ag are, in each group, based upon three specimens only, too few to draw definite conclusions from. The two groups with the lowest silver content, 20–29% Ag and 10–19% Ag, have the highest median/average weights, 0.92 grammes and

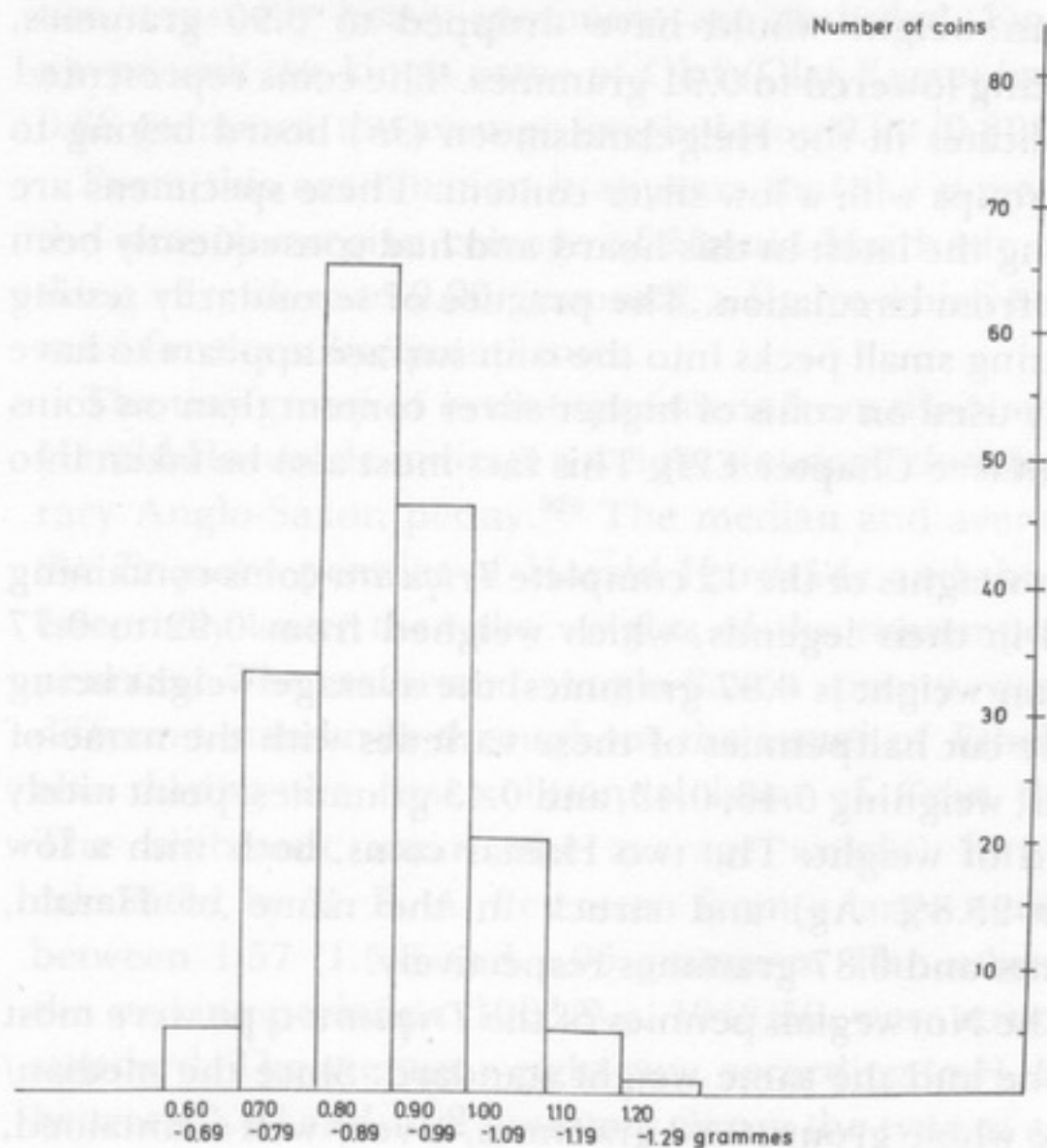


Figure 1. Pennies of the *Triquetra* type: distribution of weights of 175 specimens.

0.91 grammes. However, the discrepancy from the median/average weight of the whole *Triquetra* group, 0.88 grammes, is too small to argue any deliberate increase of weight standard, for example as a compensation for the low silver content. If the heaviest coin in the 20–29% Ag group, the only *Triquetra* penny weighing more than 1.20 grammes, had been

Table 16. *Weights of pennies of the Triquetra type*

Weight in grammes:	0.60– 0.69	0.70– 0.79	0.80– 0.89	0.90– 0.99	1.00– 1.09	1.10– 1.19	1.20– 1.29	Median weight grammes	Average weight grammes
Silver content									
90–99% Ag	–	–	4	1	–	–	–	0.87	0.86
80–89% Ag	–	–	3	–	–	–	–	0.83	0.84
70–79% Ag	–	1	1	1	–	–	–	0.81	0.83
60–69% Ag	–	2	8	4	–	–	–	0.87	0.86
50–59% Ag	–	4	6	6	1	1	–	0.89	0.89
40–49% Ag	2	4	8	8	3	–	–	0.89	0.87
30–39% Ag	2	5	11	7	4	1	–	0.88	0.87
20–29% Ag	–	9	14	16	8	3	1	0.92	0.92
10–19% Ag	–	–	4	1	2	–	–	0.91	0.91
Coins with the name of Harald	–	1	8	3	–	–	–	0.87	0.86
Total: all the coins weighed	5	33	65	46	20	5	1	0.88	0.88

excluded, the median weight would have dropped to 0.90 grammes, the average weight being lowered to 0.91 grammes. The coins represented by the most die-duplicates in the Helgelandsmoen (38) hoard belong to precisely these two groups with a low silver content. These specimens are almost certainly among the latest in this hoard and had consequently been less exposed to wear from circulation. The practice of secondarily testing the coin metal by cutting small pecks into the coin surface appears to have been more frequently used on coins of higher silver content than on coins of lower silver content (see Chapter E2i). This fact must also be taken into consideration here.

Table 16 shows the weights of the 12 complete *Triquetra* coins containing the name of Harald in their legends, which weighed from 0.92 to 0.77 grammes. The median weight is 0.87 grammes, the average weight being 0.86 grammes. Three cut halfpennies of these varieties with the name of Harald in the legends, weighing 0.46, 0.43, and 0.43 grammes, point nicely to the same standard of weight. The two Hamar coins, both with a low silver content (33.0–25.8% Ag) and struck in the name of Harald, weighed 0.89 grammes and 0.87 grammes respectively.

In conclusion, all the Norwegian pennies of the *Triquetra* type were most certainly struck to one and the same weight standard. Since the median/average value for the whole group, 0.88 grammes, is very well maintained, it forms the natural starting point for further discussions on the metrological basis of the first substantial coinage in Norway.

What was the intended weight? It is suggested, in modern studies on coin metrology, that one must take into consideration some deviation caused by wear and corrosion, and make certain corrections for these factors.³¹⁸ In the present case the problem of corrosion can be ignored. Even the wear from circulation seems to have been less significant for the bulk of the *Triquetra* pennies. Twelve coins have suffered some loss of weight by being analysed by the touchstone method, but these losses must have been fairly small, to judge from the appearance of the coins today.³¹⁹ The highest median – and average – weight found in the sub-groups shown in Table 16, counting specimens unworn and in good condition only, was 0.91–0.92 grammes. This is 3–5% above the total median – and average – weight of 0.88 grammes.

The weights of two of the subsequent Norwegian penny types, Stenersen's types T and F (B. Malmer P2a and P2c) represented by 1 and 3 specimens respectively in the Helgelandsmoen hoard, can be adequately judged from specimens in very good condition from the Gresli hoard (143). A median weight of 0.90 grammes was established for both types, their average weight being calculated to 0.91 grammes. The extremely good condition of the Gresli coins is favourable to further studies on weights. The Stenersen type S, a type within B. Malmer's group of 'native style', her 'Independent Classes', has a legend on the reverse only, the moneyer's formula 'Gunnar owns this die' in runic script; 146 specimens of this type have a median weight of 0.90 (0.895) grammes. The average was 0.92 (0.916) grammes, or only 0.91 (0.909) grammes if

two unusually heavy specimens are excluded. Finally, 20 specimens of a type with the king's name of Olaf (Olaf Kyrre) have a median weight of 0.88 grammes, the average weight being 0.90 (0.898) grammes.

From this examination it appears that the penny weight intended for the new Norwegian coinage of Harald Hardråde must have been something very close to 0.90 grammes, a figure which also seems to have been valid for the subsequent issues.

The tiny group of extant specimens from the Norwegian coinage before Harald Hardråde indicate a weight standard close to that of the contemporary Anglo-Saxon penny.³²⁰ The median and average weights found for the *Triquetra* pennies of Harald Hardråde and the subsequent types are essentially lower than the weights of the contemporaneous Anglo-Saxon pennies. The reformed Anglo-Saxon penny was evidently struck to different standards throughout the issues of Ethelred II, and probably also during the first substantial issue of Cnut the Great, *c.* 1017/23. The arithmetic mean (the average weight) for the respective types, calculated by H. B. A. Petersson from a large number of coins,³²¹ varies between 1.57 (1.59) and 1.06 grammes. The subsequent types, those of the striking periods *c.* 1023/9–*c.* 1048/50, were struck to a more stabilized standard. The average weight now, according to H. B. A. Petersson, varied between 1.09 and 1.02 grammes. From the type of *c.* 1050/3 the weight of the Anglo-Saxon penny was increased, and the average weight for the next four triennial types varies between 1.38 and 1.27 grammes. A parallel increase in weight of the Norwegian penny would eventually have happened during the issue of the *Triquetra* type. However, no such increase can be observed in our material.

Within the Danish coinage, which also influenced the numismatic history of XI-century Norway,³²² two parallel standards were developed. In Jutland, a penny weight of 0.76 grammes corresponded with a reckoning of 288 pennies to a Danish *mark* (*c.* 218 grammes). A different reckoning in the eastern provinces of the country (Funen, Zealand, and Scania), 192 pennies to the *mark*, gave a heavier penny of 1.14 grammes.

A third reckoning, 240 pennies – of 0.91 grammes – to the *mark*, has left only vague traces before the time of Harald Hein (1075–1080).³²³ Histograms on the weights of Danish pennies of the *Triquetra* type, the specimens in the Copenhagen collection, all have the mode at the interval of 1.00–1.09 grammes (Cnut the Great, Magnus the Good, Sven Estridsen). The *Triquetra* pennies of Harthacnut give a histogram of two modes, one at the interval of 1.00–1.09 grammes, and one at 0.60–0.69 grammes (see Figure 2).

The weight of the Norwegian penny from the first issues of Harald Hardråde is different from the penny weights of the contemporary coinage of England and Denmark, the two countries with which the Norwegian coinage had its closest numismatic relationship at that time. The weight of the penny from Harald Hardråde onwards, *c.* 0.90 grammes, was probably the national penny weight of Norway.

Paragraphs in old Norwegian law texts dealing with sums of money, in

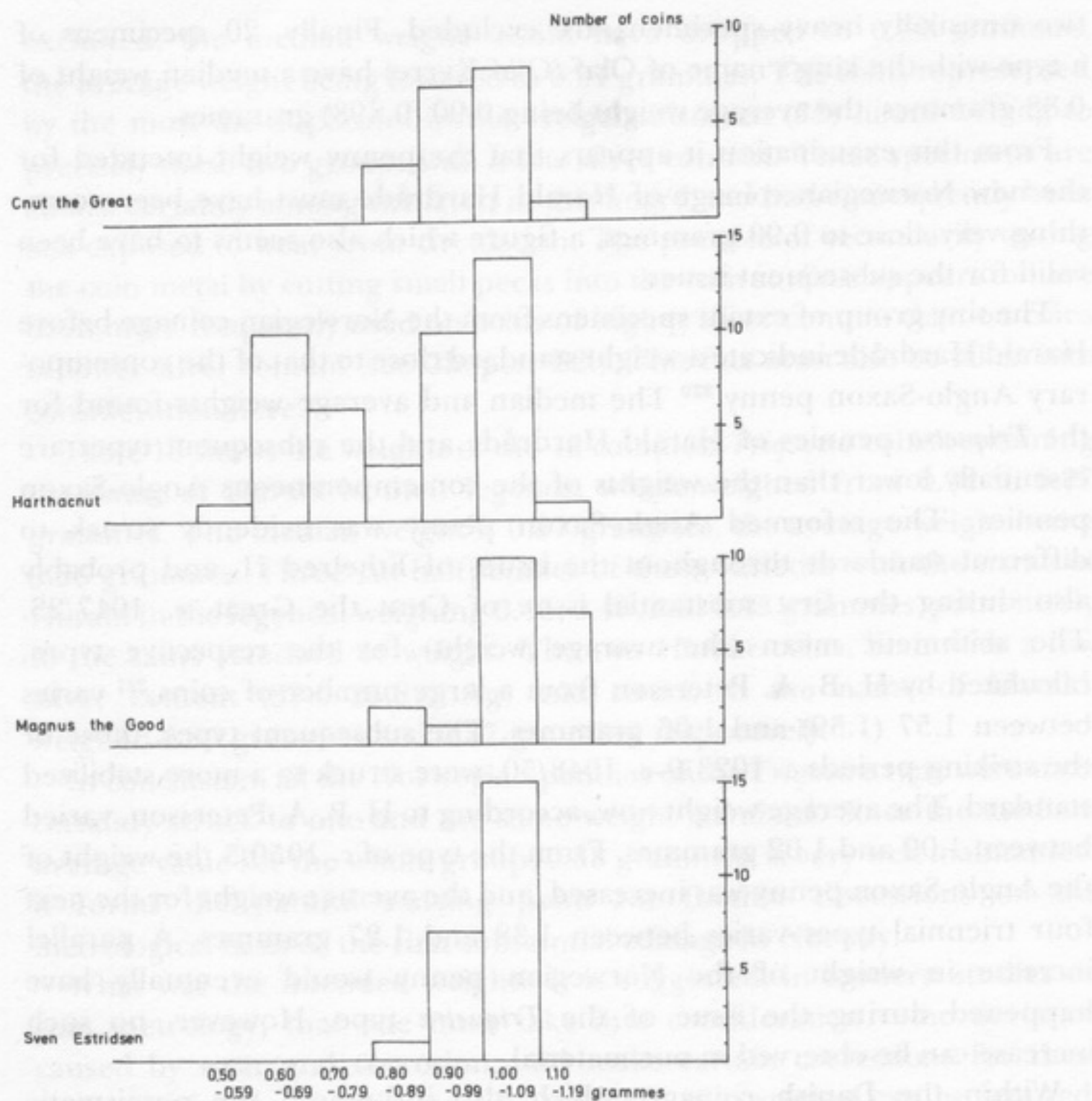


Figure 2. Danish *Triquetra* pennies: weights of the specimens in the KMMS.

Table 17. Weights in grammes of *Triquetra* pennies and pennies of some subsequent types, with the corresponding öre and mark weights

Type/Group	No. of coins examined	Weight of penny		Corresponding weights of higher units	
		Median	Average	30 pennies= 1 öre	240 pennies= 1 mark
<i>Triquetra</i> type (total)	175	0.88	0.88	26.4	211.2
<i>Triquetra</i> with 'Harald'	12	0.87	0.86	26.1, 25.8	208.8, 206.4
<i>Triquetra</i> with silver content 20–29% Ag	51 (50)	0.92	0.91*	27.6, 27.3	220.8, 218.4
Stenersen type F	64	0.90	0.91	27.0, 27.3	216.0, 218.4
Stenersen type T	171	0.90	0.91	27.0, 27.3	216.0, 218.4
Stenersen type S	146 (144)	0.90 (0.895)	0.91**	27.0, 27.3, (26.9)	216.0, 218.4, (214.8)
Stenersen type P (with the name of 'Olaf')	20	0.88	0.90 (0.898)	26.4, 27.0, (26.9)	211.2, 216.0, (215.5)

* With one exceptionally heavy specimen excluded

** With two exceptionally heavy specimens excluded

connection with fines, throw some light on the monetary system. From the *Bjarköyrett* and the *Frostatingslov* we learn that 30 pennies should be reckoned to the *öre* (*eyrir*),³²⁴ one-eighth of the mark, which makes 240 pennies to the mark. Two hundred and forty pennies of an average weight of 0.90 grammes give a mark of 216.00 grammes.

The results of the examination of weights are shown in Table 17, along with the weights of the corresponding *öre* and mark values.

From Table 17 it must be concluded that the Norwegian penny of this period most probably corresponded to an *öre* of about 26–27 grammes, and to a *mark* of about 210–218 grammes. This fits well with the official Norwegian *mark* of the XIII and XIV centuries, which A. Steinnes, from information in accounts of papal tithe collectors, has established as 214.32 grammes,³²⁵ probably with somewhat exaggerated precision. Anyhow, this figure makes an *öre* of 26.8 (26.79) grammes and a penny of 0.89 (0.893) grammes, which fits quite well into the picture drawn by this metrological investigation of the coinage of Harald Hardråde and the succeeding years.

On the other hand, it is somewhat puzzling to compare the *öre* weight of this system with the light *öre* of about 24 grammes appearing from the bulk of the extant Viking-Age weight material, also evidently used for the non-numismatic silver to a great extent (see Table 13). However, according to Brögger a weight system was in use in Norway before the Viking Age, in which a unit – the *öre* – of about 26.8 grammes played a dominant part. Some of the Viking-Age weights also seem to have belonged to such a system.³²⁶ The explanation may be that two parallel systems of weight were developed of which Harald Hardråde chose the heavier – the ‘royal’? – *mark* as the basis of his monetary system.

d. Silver content

So far, 27 results of analysis of Norwegian *Triquetra* pennies have been published. These results were arrived at by various methods. In 1865 Schive³²⁷ published the silver content of eight coins examined by the touchstone method, the results varying between 14 and 9 *lod* (87.5–56% Ag). Stenersen, in his 1895 paper on the hoards from Helgelandsmoen, Nordrum, and Stavenesodden, published 14 analyses.³²⁸ The four coins with intelligible legends were analysed by the touchstone method, which gave a silver content of 14–12 *lod* (87.5–75.0% Ag). Ten fragments of specimens with blundered legends were examined by chemical analysis, showing 9–2 $\frac{7}{8}$ *lod* (56.4–18.1% Ag). B. Malmer published a touchstone analysis of a coin from the Gråträsk find in 1961: 80% Ag.³²⁹ K. Skaare and E. Steinnes, in the first Norwegian series of analyses by neutron activation in 1966, also included two *Triquetra* pennies, which were found to contain 82.6% and 20.0% Ag.³³⁰ Finally, analyses of two pennies found on the Scottish Isles were published by M. Dolley and K. Skaare³³¹ in 1973: 40.2% Ag (neutron activation) and 38% Ag (X-ray fluorescence).

One would have expected, from the *Haraldsslátta* story, a varying silver content within the substantial issue of Harald Hardråde. How far can we

Table 18. *Eleven Triquetra pennies analysed by both touchstone and neutron activation*

	Touchstone analysis (% Ag)	Neutron activation (% Ag)	Deviation of touchstone result from neutron activation result (%)
<i>Schive 1865</i>			
<i>Pl. II 20</i>	14 lod=87.5	93.9	-7
<i>Pl. II 21</i>	14 lod=87.5	66.4	+32
<i>Pl. II 22</i>	13 lod=81.3	77.7	+5
<i>Pl. II 23</i>	14 lod=87.5	82.8	+6
<i>Pl. II 24</i>	14 lod=87.5	62.6	+40
<i>Pl. II 25</i>	9 lod=56.3	25.3	+123
<i>Pl. II 26</i>	9 lod=56.3	40.2	+40
<i>Stenersen 1895</i>			
no. 110	12 lod=75.0	25.8	+191
no. 111	12 lod=75.0	33.0	+127
no. 112	12 lod=75.0	47.0	+60
no. 113	14 lod=87.5	67.7	+29

trust the methods of analysis? A striking feature of these results is the difference between the relatively high silver content found by the touchstone method, and the conspicuously lower silver content found by chemical analysis. There are no results obtained by the touchstone method that are below 56% Ag (9 lod), and no results obtained by chemical analysis that are above this figure.

Two of the results mentioned above actually refer to one and the same coin. This is the penny from the Dunrossness find (186), which is identical with the coin in Pl. II 26 in Schive's work (1865). The analysis by the touchstone method showed, according to Schive, 56% Ag (9 lod); the silver content according to a neutron activation analysis published by Dolley and Skaare was 40.2%. In relation to the neutron activation result, the touchstone method in this case gave a silver content that was 40% too high.

The touchstone method, where a streak of the metal on an abrasive stone is visually examined, can only test the surface of the coin, which may be a source of error. Neutron activation is a method of non-destructive analysis, where the coin is placed in a stream of neutrons which induce radioactivity in the constituent atoms. This radioactivity can subsequently be analysed in terms of energy and half-life. This is a measure of the average lifetime of a nuclear species or isotope, meaning that after one half-lifetime one-half of the original quantity will be left – the other half having decayed into another species. Thus the original composition of the – whole – coin can be discovered. This method of analysis has been used on a variety of coin series, especially silver coins, and has proved its usefulness and reliability.³³²

We have had the opportunity of analysing a fairly high number of Norwegian XI-century pennies by the neutron activation method, including 179 pennies of the *Triquetra* type. Eleven of these particular

coins had previously been analysed by the touchstone method. The results from the two analyses are compared in Table 18.

The figures in Table 18 indicate that the XIX-century touchstone analyses of the *Triquetra* pennies are not reliable. Usually, but not always, they gave too high a silver content. However, the excesses are quite disproportionate, from 5% to 191% higher than the results of the corresponding neutron activation analysis. The excesses tend to be proportionately higher for the coins of low silver content than for the coins of high silver content. The Gråträsk coin analysed by the touchstone method, and published by B. Malmer in 1961, has not been analysed by neutron activation. Two die-duplicates of the coin have been examined by this method and gave 66.1% and 61.1% Ag. The touchstone result, 80.0% Ag, is 21% and 31% in excess of the neutron activation results for the die-duplicates.

We are not in a position to test the results of the chemical analyses directly. The 10 coins in question, all fragments, did not survive the destructive analyses. Only two of these fragments had been classified by a definite Stenersen number and were thus comparable with neutron activation results for their die-duplicates:

	Chemical analysis	Neutron activation analysis of die-duplicates
<i>Stenersen 1895</i> , no. 156	4 $\frac{1}{4}$ lod = 26.7% Ag	21.5, 20.7, 20.2% Ag
<i>Stenersen 1895</i> , no. 155 with same obv. die as no. 156		34.8, 27.3, 24.5, 24.3, 22.9% Ag
<i>Stenersen 1895</i> , no. 160	4 lod = 25.6% Ag	27.8, 24.1, 22.7, 20.2, 20.0% Ag

All the other results of the chemical analysis are within the range of varying silver content found by neutron activation for specimens of the respective groups. The results from this XIX-century chemical analysis seem, from this examination, to be fairly reliable.

The results of the various analyses are published with the individual specimens in the Corpus of Norwegian coins in the present work, but they are also summarized in a graph for the sake of convenience. The 190 coins shown in Figure 3a have been analysed by reliable methods: chemical analysis (10 coins), neutron activation (179 coins), and X-ray fluorescence (1 coin). Specimens from the three chronological groups of hoards are differentiated. In the intermediate group specimens of the Nordrum and Stavenesodden hoards are kept apart from those of the Helgelandsmoen hoard, which contains the majority of all the coins analysed (117 out of 190). The coins from the less datable church finds are separated, as are also the coins found in the old Norwegian overseas territories (Faeroes, Shetlands, and Hebrides). Foreign finds (Denmark, Sweden, and Gotland) and the 10 coins without known find provenance are also marked.

Only nine of the coins (5%) contain more than 90% silver and 137 coins (72%) contain less than 50% silver. Almost half of the coins analysed,

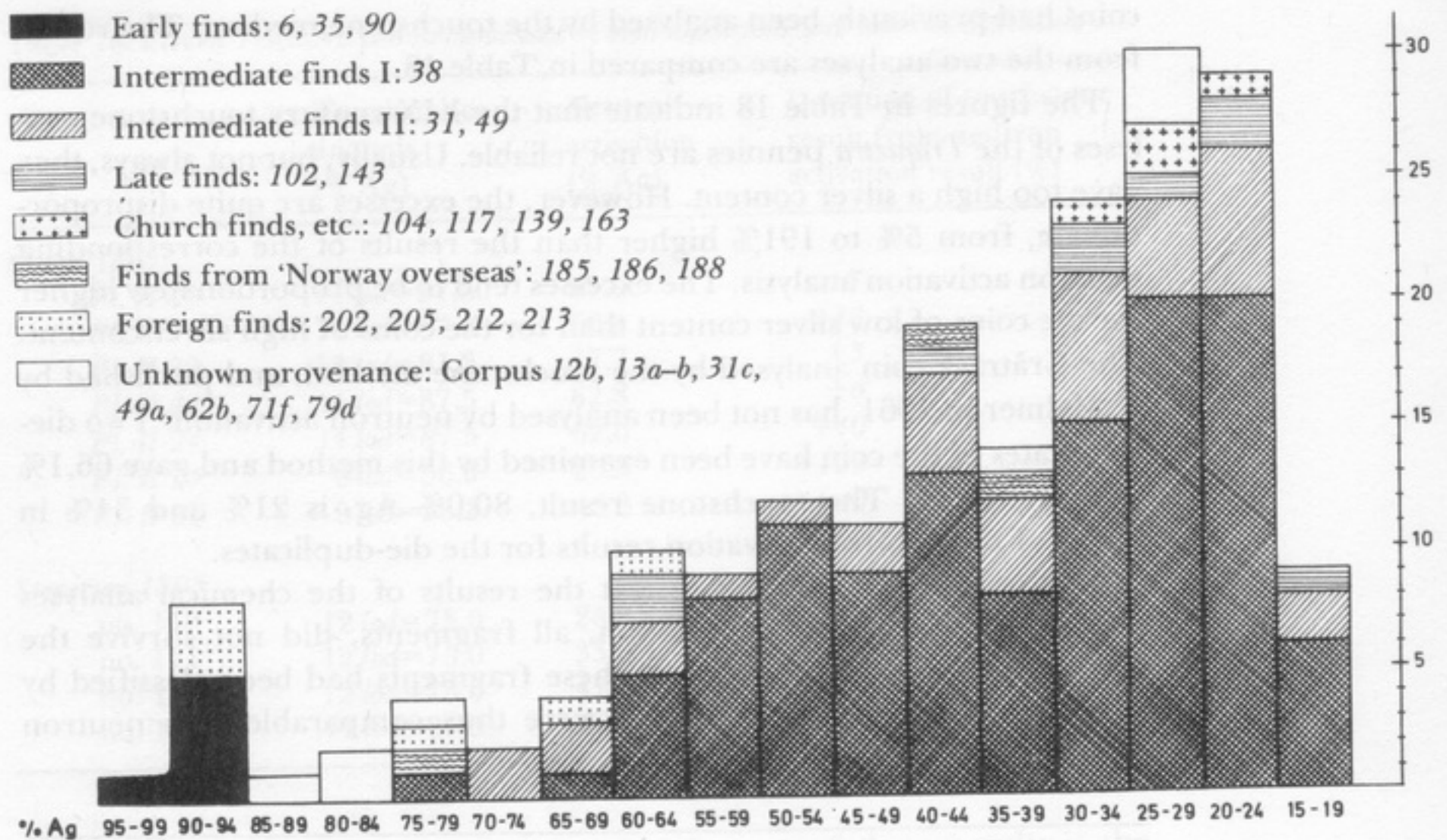


Figure 3a. Silver content of 190 Norwegian Triquetra pennies of different provenance.

92 (48%) have a silver content of less than 35%. Of the 180 coins where the copper content was also measured, 114 (63%) contained more than 50% Cu, thus being literally *meiri lutr copars*, as the saga describes the *Haraldsslátta*. To the same category one may assign the 16 coins (9%), where the content of copper and zinc together constitutes more than 50%. Among the *Triquetra* pennies containing less than 50% silver are the three coins struck at Hamar, two of them bearing the name of King Harald on the obverse (7-8). Their silver content is 33.0% and 25.8% respectively (see Table 18, nos. 8-9). These two pennies provide the most substantial numismatic evidence for the *Haraldsslátta*'s really being connected with King Harald.

We have established, by reliable methods of analysis, that Harald Hardråde issued pennies of highly varying silver content, 96.7-16.0% Ag. Were the pennies of good silver and the pennies of bad silver issued contemporaneously, or was there some development, from pennies of good silver to pennies of bad silver or *vice versa*? We know that Norwegian pennies issued before the time of Harald Hardråde were of good silver. Five analysis results range between 96.1 and 82.6% Ag, the latter being the only result below about 90%. Moreover, the coins struck for Harald in Denmark, before he began to rule Norway, seem to have been of good silver.³³³ We also know that pennies struck in the name of Harald's son and successor Olaf (Kyrre), 1067-1093, were of bad silver. Nine pennies analysed by neutron activation had a silver content between 54.0% and 36.3% Ag,

the median value being 44.5% Ag.³³⁴ Hence, one would be inclined to conclude that the likely development under Harald Hardråde would have been from coins of good silver to coins of bad silver. From modern experience and from various examples from ancient and medieval times this also seems, generally, to be the 'natural' development. Even so, let us examine Figure 3a in search of more conclusive evidence.

From Figure 3a we learn that the *Triquetra* pennies in the early group of the actual Norwegian hoards have a high silver content, 96.7–90.2% Ag. The six coins in question (11b, 12a, 12c–d, 30a–b) represent three *Triquetra* type varieties, which are known in 13 specimens altogether. Six of the remaining coins of this group (11c, 13a–d, 12b), which were also analysed, were found to contain 93.9–79.3% Ag. None of the dies of these coins, three obverses and five reverses, occur in the intermediate hoards, so rich in *Triquetra* varieties, nor are they met with in the later Norwegian hoards.

In the intermediate and late hoards the silver content of the *Triquetra* pennies is markedly lower than in the early hoards. In the Helgelandsmoen hoard the *Triquetra* pennies vary between 77.9% and 16.0% Ag. The coin with the highest silver content (69a), the only pierced Norwegian coin in the hoard, is not connected through die-links with any of the 126 other *Triquetra* pennies in the hoard, all of which have a silver content of less than 66.2%. The penny with the lowest silver content (18l), 16.0% Ag, has a die-duplicate in the hoard (18m) which is also struck of quite base metal: 17.3% Ag. By a reverse die-link these two coins are linked to the penny of which there occur most die-duplicates, nine, in this hoard (18a–f, i–k). Five of these specimens were analysed, showing a silver content of 27.5–20.0% Ag, the median value being 23.9% Ag. A coin next in die-duplicate frequency, with five specimens (82a–e) in the hoard, is also of base silver. Four of the analysed specimens had 34.8–22.9% Ag and the median value was 26.0% Ag. These coins, again, are linked by a common obverse die to a penny that is represented by five die-duplicates in the Helgelandsmoen hoard (83a–e). Four analysed specimens contained 26.7–20.2% Ag and the median value was 21.1% Ag. Fourteen analysed *Triquetra* pennies in the Stavenesodden hoard contained 67.7–20.2% Ag, with a median value of 41.3%. In the Nordrum hoard 20 analysed pennies of this type had a silver content varying between 73.5% and 18.2%, the median value being 32.1% Ag.

The late hoards from Gresli and Måge, probably buried after c. 1080, are rather weak in *Triquetra* pennies. A single specimen in the Måge hoard contained 33.9% Ag. Eight specimens in the Gresli hoard have a silver content between 63.7% and 17.9%, median value: 30.6% Ag. This sample is closely related to those of the intermediate hoards, where no less than five coins, with a silver content of 63.7–20.2%, are die-linked with *Triquetra* pennies in the Helgelandsmoen hoard.

The silver net weights of analysed *Triquetra* coins are shown in Figure 3b. A comparison of Figures 3a and 3b shows that the change in silver net weight is due especially to change in silver content, and less to change in weight.

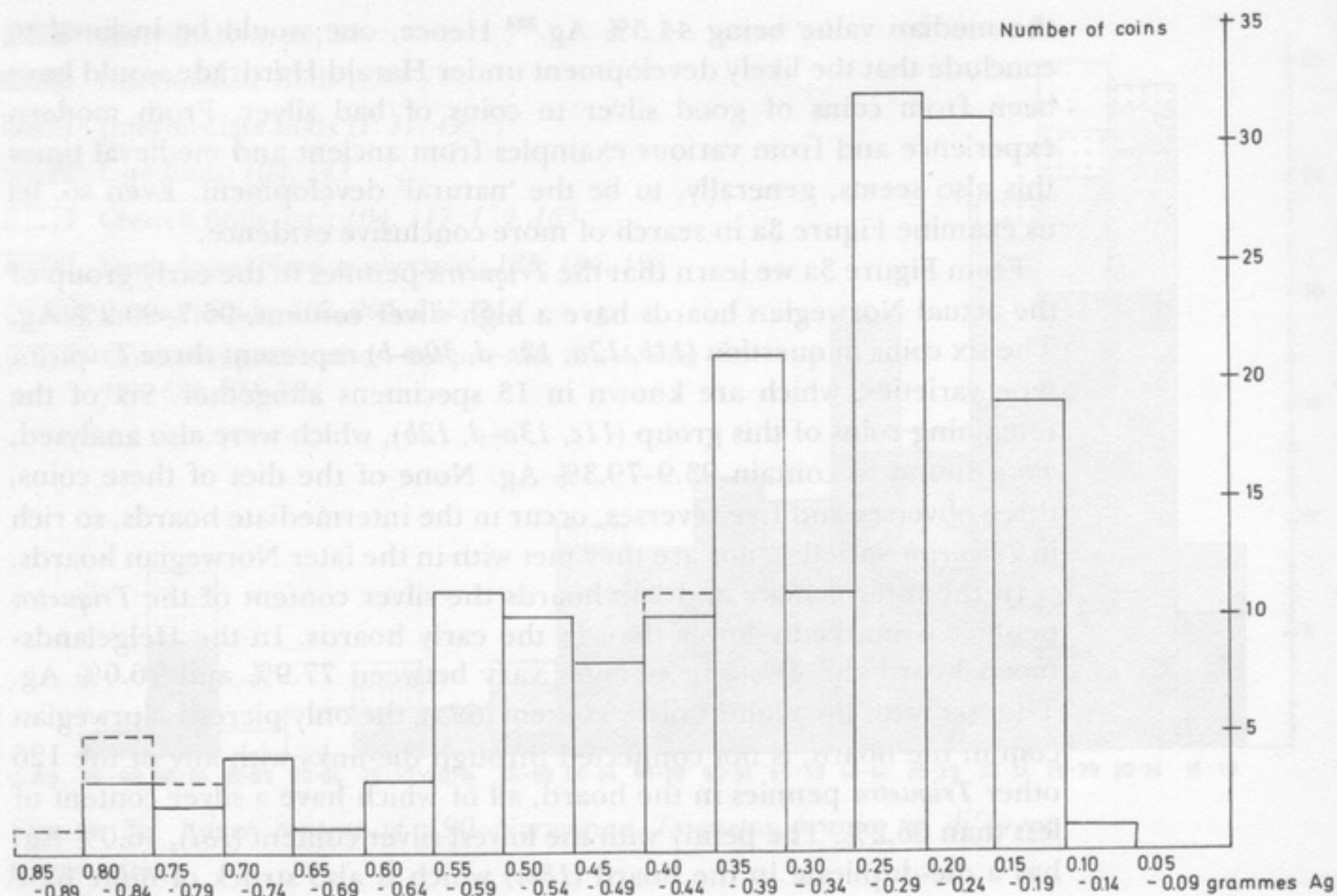


Figure 3b. Silver net weight of 167 specimens of the *Triquetra* group.

Four weights calculated from cut halfpennies are indicated by a broken line.

In conclusion, the *Triquetra* pennies with a silver content above about 80% Ag (79.3% Ag) occur only in the early Norwegian hoards, probably buried before the middle of the 1050's. Pennies die-linked with these coins also have this high silver content. The *Triquetra* pennies of the intermediate hoards, the most closely datable ones, buried after *c.* 1062, have a silver content below 80% Ag and, with one exception (77.9% Ag), even below – and usually far below – 75% Ag. The lowest value found is 16.0% Ag. Pennies among the latest in the Helgelandsmoen hoard have a silver content of about 25–20% Ag. The issue of pennies of good silver, more than 80% Ag, must have taken place during the first five to ten years of Harald Hardråde's reign. During the later part of his reign, some time before 1060, there was an extensive issue of *Triquetra* pennies with a silver content considerably below 80% Ag, varying around a median value of about 33% Ag.

Three Norwegian hoards with *Triquetra* pennies also contain other objects of similarly base silver. In the Måge hoard (102), two of the three small rings, weighing 24 grammes – 1 öre – altogether, are described as being of base silver³³⁵ although they have not as yet been analysed. Six objects, three from each of the two important hoards from Helgelandsmoen (38) and Nordrum (49), have been analysed by neutron activation. From the former hoard three arm rings, all of them evidently adjusted to

Table 19. Analyses of some non-numismatic silver objects compared with analyses of three *Triquetra* pennies of Hamar with the name of King Harald and/or the moneyer Olafr

Objects analysed	Ag %	Cu %	Zn %	Au %
<i>Arm rings</i>				
Find no. 38: C. 17126	35.1	55.2	9.7	0.065
Find no. 38: C. 17127	{ 25.2	{ 63.9	{ 10.8	{ 0.055
	{ 27.8	{ 61.3	{ 10.7	{ 0.076
Find no. 38: C. 17128	28.0	57.9	14.0	0.082
<i>Fragments of arm rings</i>				
Find no. 49: C. 17646	36.8	63.1	<4	0.092
Find no. 49: C. 17646	45.1	54.8	<5	0.12
Find no. 49: C. 17646	27.0	59.5	13.5	0.064
<i>Pennies with the name of Harald and/or the moneyer Olafr</i>				
Find no. 38: Stenersen 1895, no. 110	25.8	61.0	13.2	0.045
Find no. 38: Stenersen 1895, no. 111	33.0	55.0	11.9	0.062
Find no. 38: Stenersen 1895, no. 112	47.0	44.4	8.5	0.091

the weight of 1 öre: 25.4, 24.4, and 24.3 grammes, were analysed together with three fragments of rings from the latter hoard. In Table 19 these results are compared with those of the three Hamar pennies struck in the name of Harald.

It appears clearly from these analysis results that the metal composition of these silver objects³³⁶ – all of them probably used as payment – is very similar to that of Harald's *Triquetra* pennies of low silver content. In fact, the bulk of the anonymous *Triquetra* pennies have a silver content of 45–25 %, more than 50 % copper, and a considerable amount of zinc, 15–3 %. More rarely they are above or below these figures. This affinity in metal content between the coins and the non-numismatic objects cannot be completely accidental. Were the rings made from bullion of melted-down coins or were the pennies struck from bullion of melted-down rings and other objects? Or were the coins and the rings made from bullion of common origin? At present we are not able to answer these questions satisfactorily. Further investigations, especially of the non-numismatic silver, and further and even more detailed analyses of both classes of material are necessary.

One could perhaps suggest that the base silver rings indicate some kind of silver crisis that brought about the striking of bad coins, regardless of the intentions of the authorities. On the other hand, these rings can also be seen as evidence of a lowered monetary standard being – resignedly – accepted.

e. Diameter

The diameter of the *Triquetra* pennies, measured on 208 specimens, varies from 15.8 to 18.7 mm, showing an even distribution on either side of

Table 20. *Diameters of Triquetra pennies and pennies of some subsequent Norwegian coin types*

Diameter in mm:	15.5– 15.9	16.0– 16.4	16.5– 16.9	17.0– 17.4	17.5– 17.9	18.0– 18.4	18.5– 18.9	Median (mm)
All <i>Triquetra</i> pennies (15.8–18.7 mm)	2	21	53	73	43	14	3	17.1
<i>Triquetra</i> pennies with the name of Harald (16.0–18.7 mm)	–	2	3	1	2	4	2	17.75
<i>Triquetra</i> pennies with the signature of Nidarnes (16.0–16.9 mm)	–	2	2	–	–	–	–	16.65
<i>Triquetra</i> pennies with the signature of Hamar (16.5–18.2 mm)	–	–	1	–	1	1	–	17.6
Stenersen F, 98 specimens in the UMK (16.0–18.4 mm)	–	3	17	40	28	10	–	17.4
Stenersen T, 142 specimens in the UMK (16.3–18.2 mm)	–	7	53	51	25	6	–	17.0
Stenersen P (<i>Olafr kunukr</i>), 43 specimens in the UMK (16.0–17.8 mm)	–	7	14	10	12	–	–	17.0
Stenersen J, 23 specimens in the UMK (16.7–18.1 mm)	–	–	10	11	1	1	–	17.1

UMK=University Coin Collection, Oslo.

a median value of 17.1 mm.³³⁷ The detailed distribution and the diameter values of the pennies with intelligible legends are shown in Table 20.

As the only two coins with a diameter of less than 16.0 mm (15.8 and 15.9 mm) have probably had their original sizes somewhat reduced by wear and denting, the diameter of all the *Triquetra* pennies actually ranges within the same values, 16.0 and 18.7 mm, as do the 14 coins bearing the name of Harald. The pennies with the signature of the Nidarnes mint tend to have a smaller diameter than the Hamar coins. But these specimens are too few for any conclusions to be drawn. Furthermore we have other Nidarnes pennies of this period with a diameter quite close to the *Triquetra* median figure: the *Bust/Triquetra* mule (6): 17.1 mm, and the *Levig on Nid* pennies of the Stenersen type T: 17.1, 17.2, 17.2, 17.3, and 17.3 mm.

The maximum value for the *Triquetra* type is found on a specimen with the obverse legend +HARALDRE +NA°. The group as a whole (12–13) tends towards a relatively wide diameter, 17.4–18.7 mm, with a median value of 18.1 mm. The pennies must be among the earliest *Triquetra* pennies if we are to judge from their high silver content (79.3–96.7% Ag)

Table 21. *Thicknesses of Triquetra pennies and pennies of some subsequent Norwegian types*

Thickness in mm:	0.21– 0.30	0.31– 0.40	0.41– 0.50	0.51– 0.60	0.61– 0.70	Median (mm)
<i>Triquetra</i> pennies, all specimens measured	2	49	95	17	2	0.44
<i>Triquetra</i> pennies with silver content higher than 50.0% Ag	2	26	13	1	–	0.37
<i>Triquetra</i> pennies with silver content lower than 50.0% Ag	–	23	82	16	2	0.46
Stenersen type F, 50 specimens in the UMK	–	5	38	6	1	0.45
Stenersen type T, 50 specimens in the UMK	–	11	34	5	–	0.44
Stenersen type P, 45 specimens in the UMK	–	9	31	5	–	0.44
Stenersen type J, 22 specimens in the UMK	–	7	15	–	–	0.43

and their find provenance (35, 90). Varieties of the *Triquetra* type represented by several die-duplicates in the Helgelandsmoen hoard, Stenersen 160 (with 161 and 191) and Stenersen 155 (with 156), and thus assumed to be among the later *Triquetra* pennies, tend towards a smaller diameter: Stenersen 160, etc.: 16.5–17.2 mm, median: 16.9 mm; Stenersen 155, etc.: 16.2–16.7 mm, median: 16.3 mm. Still, we cannot claim a regular reduction of the diameter continuing through the *Triquetra* type. The four Nidarnes pennies (10–11) of high silver content and early find provenance have diameters of less than 17.0 mm, with a median figure of 16.65 mm. The diameter, therefore, does not seem to have chronological relevance within the *Triquetra* group of pennies.

The further development of XI-century Norwegian coinage, until c. 1095, reveals a penny with a diameter on practically the same level as that of the *Triquetra* group (cf. Table 20).

f. Thickness

The thickness of 165 specimens of the *Triquetra* group has been measured by a micrometer. The results vary from 0.29 to 0.70 mm, the median figure being 0.44 mm. The distribution of measures for the *Triquetra* group and some subsequent groups of Norwegian pennies is shown in Table 21.

We see from Table 21 that *Triquetra* pennies of a silver content higher than 50.0% Ag tend to be somewhat thinner than specimens with a silver content below 50.0% Ag. There are, however, specimens of high silver content thicker than the median value, as there are specimens of low silver content thinner than 0.44 mm. The thickness by itself, difficult to measure with full accuracy, cannot therefore be regarded as a factor of definite chronological relevance.

For comparison, the thickness was measured even on specimens of four other types (Stenersen types F, T, P (*Olafsr kunukr*), and J). The pennies of these types were found to have a median thickness practically identical with the median thickness of the *Triquetra* group.

B. Malmer, in her detailed studies on Norwegian XI-century pennies, was the first to pay attention to their thickness.³³⁸ Measuring 126 specimens from two Lapp offering finds, she found a marked difference in the thickness of the Norwegian pennies in these two finds. The median value of the Rautasjaure coins (90 specimens) was given as 0.70 mm, the median value of the Gråträsk coins 0.55 mm. B. Malmer ascribed this difference to the fact that the Gråträsk coins were more worn than those of the Rautasjaure find. The influence of wear on the thickness of coins cannot be denied, but I must question the measuring results as such. The bulk of our material consists of well-preserved specimens. For the later types most of them come from the Gresli hoard (143). The median value given for the Rautasjaure coins, 0.70 mm, reached only by one of our 332 pennies, is never exceeded.

g. Die-axis

The die-axis, the relation between the supposed axes of the obverse and reverse dies of the coin, has been established for 85 specimens of the *Triquetra* group. The obverse type with its *Triquetra* figure precludes a definite orientation along a symmetrical axis. Within this group the die-axis must therefore be measured by the initial crosses of the obverse and the reverse legends.³³⁹ Even blundered legends have been included in this examination, which may add some uncertainty to the results.

For comparison, the subsequent penny types included in the previous paragraphs on diameter and thickness have also had their die-axis studied and Stenersen type C is also included in this examination. Here the obverse types, human figure(s) with sceptre, make it possible to study the correspondence between the symmetrical axis of the obverse and the initial cross/voided cross of the reverse.

I have characterized the die-axis as 'regular' when the axis of the reverse coincides with the axis of the obverse with a divergence of exactly 0°, 90°, 180°, or 270°. With other divergencies between the obverse and reverse axes the die-axis is characterized as 'irregular'. The results are shown in Table 22.

From Table 22 we see that the *Triquetra* group has a proportionately high percentage of coins with an irregular die-axis, although, as already mentioned, the uncertainty connected with the blundered obverse legends must be taken into consideration. Thus all the 16 coins with the name of Harald on the obverse have a regular die-axis. This is also true for the two Hamar pennies of low silver content. Otherwise there seems to be a certain correspondence between low silver content and a relatively high degree of irregularity in the orientation of the axes. Penny types following immediately after the *Triquetra* pennies of low silver content, have a very

Table 22. *Die-axes of Triquetra pennies and some subsequent Norwegian penny types*

	No. of coins examined	Regular die-axis %	Irregular die-axis %
<i>Triquetra</i> pennies, total	85	72	28
<i>Triquetra</i> pennies with more than 50.0% Ag	(41)	85	15
<i>Triquetra</i> pennies with less than 50.0% Ag	(40)	65	35
<i>Triquetra</i> pennies with the name of Harald	(16)	100	–
Stenersen type F	96	86	14
Stenersen type T	140	99	1
Stenersen type C	141	92	8
Stenersen type P	48	100	–
Stenersen types J, K, L, M (=B. Malmer Coin standard period III)	135	79	21
Total	645	88	12

high percentage of regular die-axes, which is close to a figure given for contemporary Danish pennies,³⁴⁰ and even keeps up with the best results within the well-organized late Anglo-Saxon coinage.³⁴¹ There is thus a certain decline in the die-axis regularity of specimens belonging to B. Malmer's coin standard group III. This is due especially to Stenersen type L, where no less than 45% of 60 specimens had irregular die-axes.

On examining the die-axis of the Norwegian pennies in the Swedish offering-place finds, B. Malmer only had three measurable *Triquetra* coins to go on, and, more unfortunately, no specimens at all of Stenersen type L.³⁴² Her view that the regularity of the die-axis within coin standard period III should be slightly better than that of coin standard period II³⁴³ cannot be maintained. On the other hand, her conclusion, that the coining technique did not show any sharp decline in the period of the '*Haralds-slátta*' (here meaning Coin standard period II),³⁴⁴ is corroborated.

h. Centering

In her 1961 study on Norwegian XI-century pennies B. Malmer introduced a new technical element for systematic treatment: the position of the reverse die in relation to the centre of the coin flan.³⁴⁵ This element, called the centering, was measured as the sum of the negative deviation of the coin flan from a circle with a centre coinciding with that of the voided cross and with a radius equal to the distance from the centre to the furthest point of intersection between the cross axes and the coin edge.

The centering has been measured with an accuracy of 0.5 mm. Following B. Malmer, I have divided the centering deviations into three categories:

Table 23. *Centering of Triquetra pennies and some subsequent Norwegian penny types*

	No. of coins examined	Distribution in categories of centering %			
		Good	Fair	Poor	
<i>Triquetra</i> pennies, total	159	15	66	19	
<i>Triquetra</i> pennies with more than 50% Ag	(41)	20	68	12	
<i>Triquetra</i> pennies with less than 50% Ag	(118)	14	65	21	
<i>Triquetra</i> pennies with the name of Harald	(10)	30	50	20	
Stenersen type F	84	23	69	8	
Stenersen type T	188	22	68	10	
Stenersen type C	136	20	68	12	
Stenersen type P	41	29	68	3	
Stenersen type Y	240	48	48	4	
Stenersen types J, K, L, M (= B. Malmer Coin standard period III)	120	55	37	7	
	Total	968	32	59	9

Good centering: 0.0–1.5 mm

Fair centering: 2.0–5.5 mm

Poor centering: 6.0–11.5 mm

The centering has been measured on 159 *Triquetra* pennies. Table 23 shows how the results are distributed among the three categories of centering. The results are compared with the centering of pennies in some of the subsequent Norwegian penny types. Here the prolific Stenersen type Y (B. Malmer, Independent Classes 3) is added to the types dealt with in the previous paragraph.

From Table 23 it seems that the centering of the *Triquetra* pennies was a little more careless than on the subsequent penny types examined here. Thus the greatest deviation measured, 11.5 mm, was found on a *Triquetra* penny. Within this type pennies of higher silver content show a better centering than pennies of lower silver content. There is, however, no dramatic difference between the two groups. Ten *Triquetra* coins with the name of Harald have, roughly, an average distribution among the three categories of centering. The centering of the subsequent penny types – Stenersen types F, T, C, and P – has very much the same standard as the *Triquetra* pennies of higher silver content. It is somewhat peculiar to note an improvement of centering with Stenersen type Y, remarkable for the most barbaric and degenerated obverse design. A further improvement in centering, though very slight, is found among B. Malmer's Coin standard period III.

Again, as in the examination of the die-axis, by studying a bigger group of better preserved material than the Lapp offering finds alone, the differences in the technical standards are, to a great extent, smoothed out.³⁴⁶ The coining techniques of the Norwegian pennies earlier than the

Table 24. *The occurrence of pecks on Triquetra pennies and subsequent Norwegian coins earlier than c. 1095*

	No. of coins examined	Not pecked %	Pecked? %	Pecked %	Pecking intensity: no. of pecks on each coin in percentage of pecked coins			
					1	2-3	4-9	10+
<i>Triquetra</i> pennies, total	159+13	57	2	41	49	27	20	4
<i>Triquetra</i> pennies with more than 50% Ag	35+4	33	3	64	28	32	32	8
<i>Triquetra</i> pennies with less than 50% Ag	120+5	62	2	34	61	25	12	2
Coin standard period II b-c	1,569+5	98	1	1	50	50	-	-
Coin standard period III	129+8	91	4	5	100	-	-	-

weight reduction *c.* 1095 now show a picture of continuity, not a picture of sharp decline and sudden improvement.

i. Secondary treatment

In studying the *Triquetra* pennies, attention has also been paid to signs of secondary treatment, i.e. treatment which has most certainly been given to the coins after they had left the mint and were put into public circulation. We have examined the occurrence of pecking, bending/denting, cut half-pennies and cut farthings, piercing, and looping. For comparison, in order to study their further development, the pennies of the subsequent Norwegian coin groups before the weight reduction of *c.* 1095 have also been included. The examination has been restricted to coins from Norwegian finds. For this period it is assumed that Norwegian coins with a domestic find provenance have suffered this secondary treatment within the country, and that it was mainly done by members of the native population.

Pecking. Various kinds of incisions are found on coins in the Scandinavian Viking-Age hoards.³⁴⁷ We shall here confine ourselves to the so-called pecks, i.e. minute cuts made in the coin surface with a knife or some other suitable instrument. These pecks occur on coins from the later part of the X century onwards, but they are also found on pieces of non-numismatic silver from the Viking-Age hoards. The pecks which occur on both foreign and native coins are generally interpreted as test marks: the pecking was made to see whether the coins were of good silver throughout.³⁴⁸

The results of the study of pecking on pennies of the *Triquetra* type and the subsequent Norwegian coin groups are shown in Table 24. As seen from this table the *Triquetra* pennies from Norwegian finds are not infrequently pecked.³⁴⁹ Two-fifths of all the *Triquetra* coins are certainly pecked. Of these half the specimens have more than one peck each. It might seem puzzling that the pennies of a higher silver content are more

Table 25. *The occurrence of bent and dented coins within the Triquetra group and the subsequent Norwegian penny groups before c. 1095*

	No. of coins examined	Intentionally bent or dented (%)	Moderately, through probably intentionally bent or dented (%)	Not bent or dented (%)
<i>Triquetra</i> pennies, total	159+13	76	9	15
<i>Triquetra</i> pennies with more than 50% Ag	35+4	87	8	5
<i>Triquetra</i> pennies with less than 50% Ag	116+9	74	9	17
Coin standard period II b–c	1,569+5	12	14	74
Coin standard period III	129+8	21	23	56

frequently pecked than those of a lower silver content. This is probably due to the fact that pennies of low silver content were issued later than those of a higher silver content. The decline in the use of pecking, which is quite conspicuous from the results of the subsequent coin groups, has continued regardless of the drastic debasement of the penny silver. Seen in isolation, this may indicate that, in Norway, native coins were now being generally accepted at their face value. However, this explanation is advanced with some reservation, as there seems to have been a general decline in the practice of pecking coins all over Scandinavia in the later part of the XI century.³⁵⁰

Bending and denting. Bending and denting silver coins seems to have been a widespread custom in Viking-Age Norway, as elsewhere in Scandinavia. This treatment, already suffered by the Kufic dirhems in our finds, was especially intensively and frequently meted out to Anglo-Saxon and German pennies of the late Viking Age. The bending and the denting, like the pecking, must have been carried out in order to test the quality of the silver. In several cases there seems to have been a direct connection between the bending and the pecking: some coins have received their pecks in the ridge formed by the bending. Many coins show signs of both bending and denting. The dents may in some cases be the result of biting, an old and widespread method of testing coins.³⁵¹

The bending and the denting have affected the coins to a varied extent. I have not found it worthwhile, though, to attempt any exact measurement of this treatment here. Those coins where there is any doubt as to whether their present appearance is due to deliberate treatment in the XI century at all, are singled out to form a group by themselves. The results are shown in Table 25.

We see from Table 25 that the habit of bending and denting coins shows a development very similar to that of pecking. Within the *Triquetra* group there is still a high percentage of bent and dented coins.³⁵² Again, the occurrence of this way of testing the coins is more frequently found among the pennies of a higher silver content than those of a lower silver content.

Table 26. *The occurrence of halved, quartered, pierced, and looped coins within the Triquetra group and the subsequent groups of Norwegian pennies before c. 1095*

	No. of coins examined	Cut half-pennies		Cut farthings		Pierced coins						Looped coins	
						○		◇		△			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<i>Triquetra</i> pennies, total	159+13	4	2	1	1	1	1	3	2	1	1	-	-
- with more than 50% Ag	35+4	2	5	- } 1*1	-	1	3	1	3	1	3	-	-
- with less than 50% Ag	116+9	2	2			-	-	2	2	1	1	-	-
Coin standard period II b-c	1,569+5	4	0.3	1	0.1	1	0.1	-	-	1	0.1	1	0.1
Coin standard period III	129+8	-	-	-	-	-	-	2	2	-	-	-	-

* This farthing has not been analysed

The habit of bending and denting seems to have been a little more persistent than the pecking (cf. Table 24). In both cases there was an increase in testing frequency with the coin standard period III. It is difficult to say how generally significant this increase was. To some degree it might have been caused by vagaries of individual attitude.³⁵³ We are not able to tell how far the appearance of new penny types with a slightly higher silver content than the massive issues of coin standard period II b-c may have reversed the declining use of pecking and bending/denting.

Halving and quartering. Piercing and looping. These types of secondary treatment were carried out for different reasons. The halving and the quartering of the pennies were certainly done to meet the need for fractional units of payment. On the other hand, pierced and looped coins indicate that these pieces were regarded more as jewelry and/or amulets than as pieces of money. However, the various kinds of secondary treatment mentioned here are rarely found among the *Triquetra* coins and the subsequent Norwegian coin groups. Therefore, for practical purposes, they have been grouped together in Table 26.

From the turn of the millenium a small number of cut halfpennies and cut farthings were included in the currency medium circulating in Norway, mainly Anglo-Saxon and German pennies. In the hoards the cut halfpennies, on an average, represent little less than 5%, the cut farthings only 1%. The proportion of both categories is higher in the Anglo-Saxon group than in the German group.³⁵⁴ It is difficult to determine to what extent the halving and quartering of the foreign coins had taken place in Norway. The fractions of the *Triquetra* pennies seem to have been professionally cut. As already mentioned, there are not many of them, but it may be worth noting that their relative frequency is on about the same level as the average relative frequency of the foreign pennies of the late Viking Age. If permissible when dealing with such a tiny body of material, we can point to a greater proportion in the higher silver content group than among the coins of a lower silver content. The cut halfpennies of the former are both of more than 90% Ag. Within the later groups of

Norwegian XI-century pennies the cut fractions are either extremely rare or non-existent. One wonders if this could be an effect of an actual depreciation of the Norwegian penny with its base silver, a development that could have made values below the penny more superfluous.

In Table 26 we have distinguished three forms of piercing:

○=a circular hole, neatly executed

◇=a roughly executed hole, forming an irregular polygon

△=a triangular perforation, made by the edge of a knife or some similar tool

The first kind of piercing listed was most certainly done to produce a pendant for use as jewelry or as an amulet.³⁵⁵ The last type, occasionally found even in the field of the coin, may have been done, sometimes, merely to test the coin metal. The second form of piercing, making an intermediate stage between the two others, must be chiefly associated with the pendant function of the coin.

All three forms of piercing are represented among the *Triquetra* coins found in Norway, but the occurrence of this kind of secondary treatment must be characterized as relatively rare. This tendency seems merely to have been strengthened during the following period, to judge from the surviving specimens of the subsequent groups of pennies. The native coins were only transformed into pendants as an exceptional occurrence. Thus, among our approximately 1,900 coins there is actually only one real and self-evident pendant: the looped penny, Stenersen type S, from the Mære church (163). Moreover, this is a context which may weaken the significance, chronologically and functionally.³⁵⁶

In conclusion, the study of the secondary treatment of the coins has emphasized the transitional position of the *Triquetra* group in the coin history of Norway, between the international currency medium of the first part of the XI century and the exclusively native series predominant from the last third of the century.

j. Obverse varieties

The *Triquetra* obverse type appears in many varieties in the Norwegian series. The main varieties are shown in Figure 4. The *Triquetra* figure itself takes various forms: from the shape of three blades or 'shields' (1), via what is obviously a knot (2), to the triangle proper (3), or one trefoil within another (5). Within the *Triquetra* figure, or at its points, one to four dots may occur (5, 9–19). The *Triquetra* figure is sometimes supplied with additional symbols placed in the field of the coin: dot(s) (6–8, 15–19), an annulet (26), a crescent (27), and cross(es) (20–24, 29–30). The field may or may not be separated from the legend by an inner circle. When the line of this is missing, it may sometimes be difficult to distinguish the additional symbols of the field from the crosses, the annulets, and the dots belonging to the legend, which is very often extremely blundered.

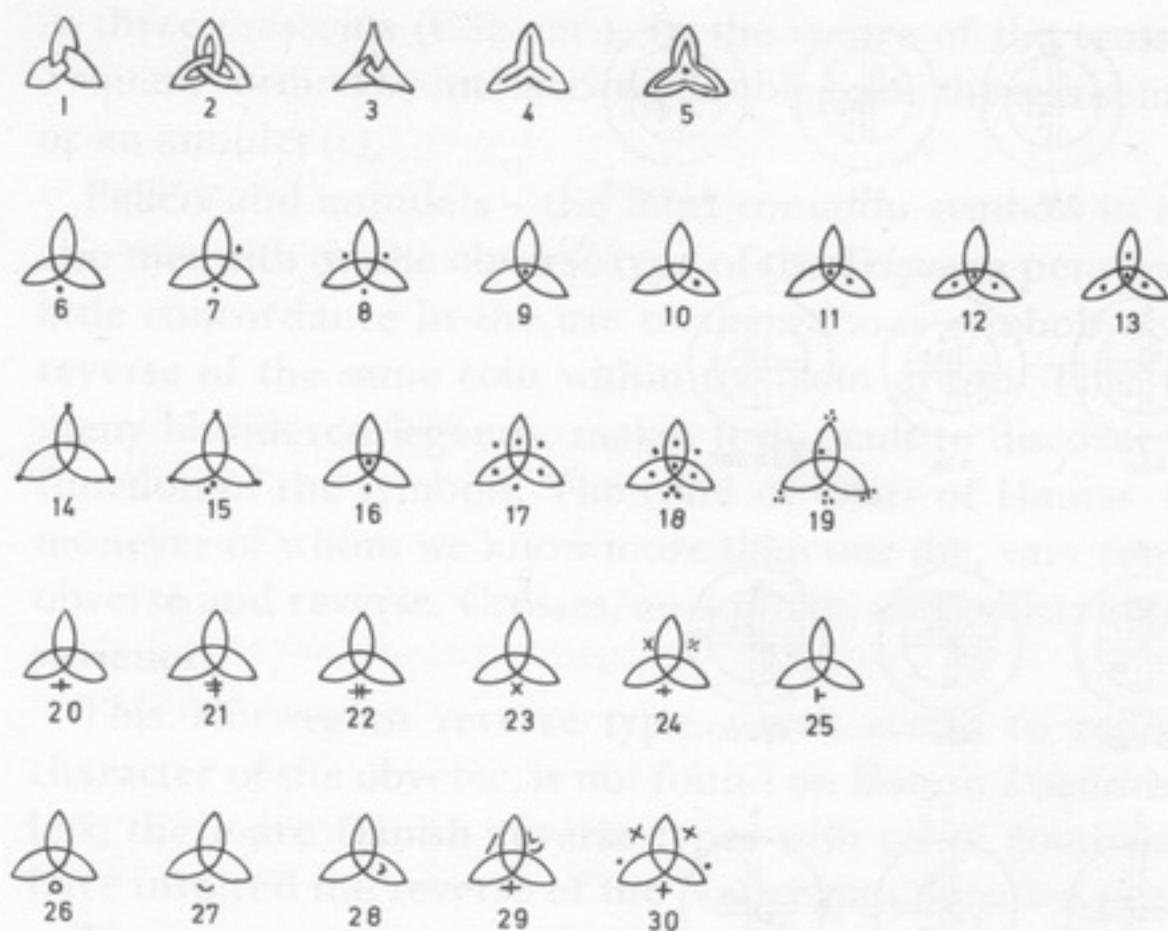


Figure 4. *Varieties of the Triquetra type.*

The number of varieties signifies that the issue of the *Triquetra* coins must have been extensive, either in space or in time. Bearing in mind the evidence of the hoards and the silver analyses, I am inclined to stress the time aspect. Even within the strictly limited body of material comprising coins attributable to particular mints, we can observe varieties: compare the Nidarnes coin no. 10 with no. 11, and the Hamar coins nos. 7–8 with no. 9 of the same mint.

When it comes to the meaning of the varieties and the additional symbols, one is left with simple guesswork. An additional cross may have emphasized the meaning of the *Triquetra* as a Christian symbol, that of the Holy Trinity. A mark – a cross, annulet or dot – repeated three times around the *Triquetra* may have stressed the three-fold character of the motif. However, the great variety in the representations of the *Triquetra* figure may be an indication that its symbolic meaning was rather ill-understood.

We do not know whether the additional symbols could have had any function as distinguishing marks connected with the organization of the minting. This is not very probable. All these symbols may have been inherited from Danish coins, where they are all, except the crescent, found on pennies of the *Triquetra* type.³⁵⁷ The crescent is a symbol frequently used on other Danish pennies of this period.³⁵⁸ In both countries these symbols appear to have been used on coins merely for ornamental purposes.

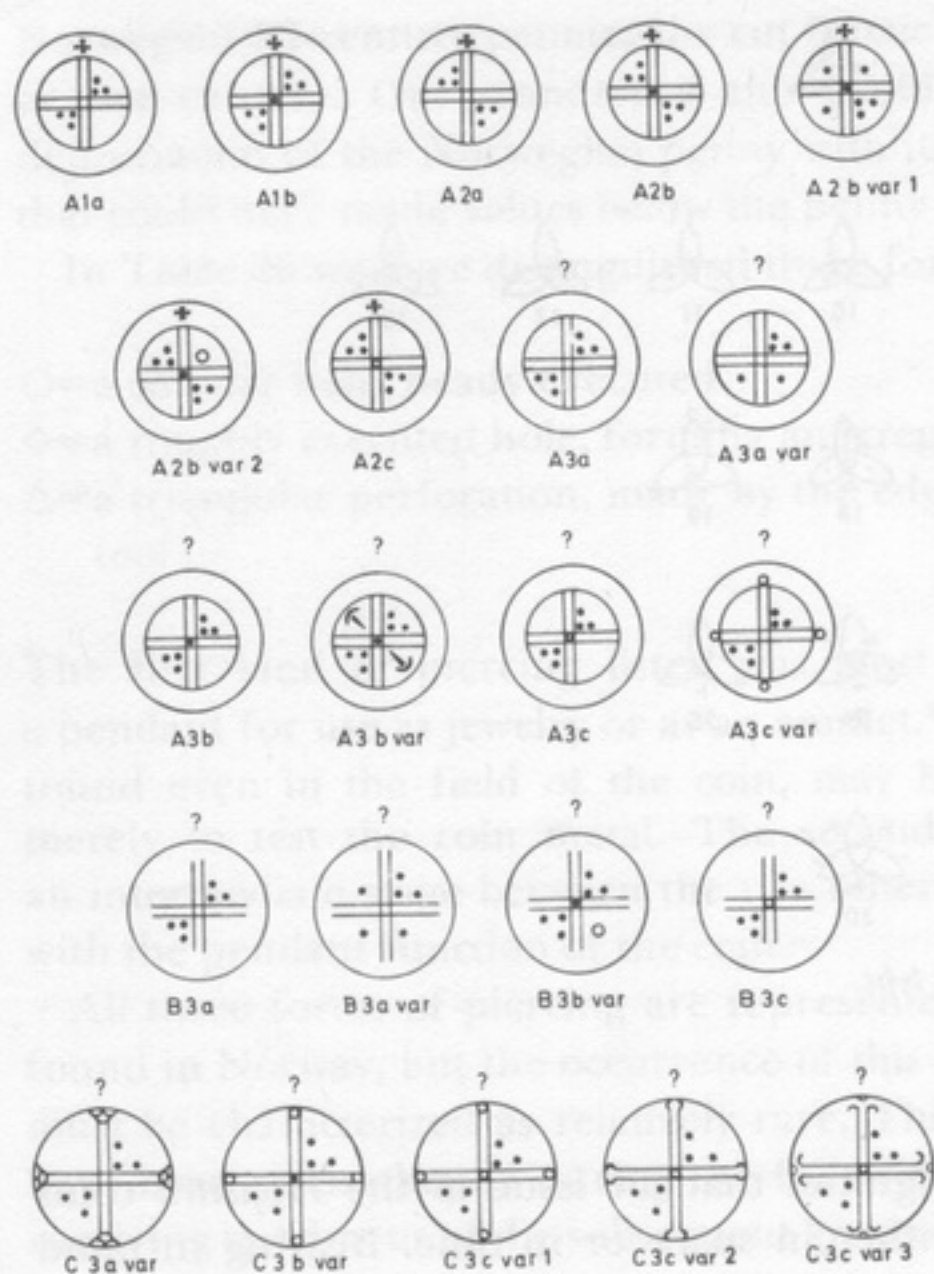


Figure 5. *Reverse varieties.*

k. Reverse varieties

The standard reverse type of the *Triquetra* coins is a short cross voided with three pellets in two opposite quarters (see Figure 5; cf. Corpus, Harald Hardråde, Type II, Key to varieties within the reverse type). The pellets are most frequently found in the second and the fourth quarters – reckoning from the 12 o'clock position – (A2), but they also occur in the first and the third quarters (A1) on a considerable number of coins.³⁵⁹ The field may or may not be separated from the legend by an inner circle. The three pellets, grouped into a triangular formation within their quarter of the field, may vary in size and distance from each other. A few coins have a fourth, smaller pellet added to the group of three. However, it is doubtful whether it was put there intentionally; it is almost certainly a result of purely technical considerations. On three coins, two of them with the Hamar mint signature, there is a group of three pellets in one quarter – and one pellet in each of the other quarters (A2b var. 1). There are also varieties with an annulet in a third quarter (A2b var. 2). One variety has a 'hammer' – or a crescent with a stem – in the two otherwise vacant quarters (A3b var.).³⁶⁰

The cross arms, which are sometimes lengthened beyond the field, may end in curved lines (C3c var. 2–3), in an annulet (C3b var., C3c var. 1), or

in three crescents (C3a var.). In the centre of the cross, which is usually a square formed by intersecting double lines, there is sometimes a pellet (b) or an annulet (c).

Pellets and annulets – the most common symbols in numismatics – are also met with on the obverse type of the *Triquetra* pennies, but there is very little concordance in the use of the various symbols on the obverse and reverse of the same coin within this coin group. This, together with the many blundered legends, makes it difficult to discover the meaning and function of the symbols. The coins of Olaf of Hamar, the only *Triquetra* moneyer of whom we know more than one die, vary considerably on both obverse and reverse. Crosses, an annulet, and pellets are involved in three varieties.

This Norwegian reverse type, which seems to repeat the three-fold character of the obverse, is not found on Danish *Triquetra* coins. Nevertheless, there are Danish reverse types with other combinations which may have inspired the reverse of the Norwegian *Triquetra* pennies.³⁶¹

The many varieties, including those within the reverse type, seem to reveal an extensive coinage, although with a typological stability. Again, I think an extension over time the most reasonable explanation.

1. King's name

Fifteen coins of the *Triquetra* type have intelligible legends with the king's name and title. In these legends, which represent six dies altogether, the king's name is styled *Harald* (10–11), *Haraldr* (7), *Haroldr* (8), *Harald* (12, 13), and *Narld* (14), all followed by the title of *rex*. The legends – except for the Hamar coins (7–8) – end in three different groups of two to three letters, *NO*, *NA°*, and *[O]HOR*, almost certainly abbreviations for the ethnic *Normannorum*.³⁶² This Harald 'King of the Norwegians' can of course be none other than Harald Hardråde.

The name of the king on these Norwegian coins is always spelt with the initial H (sometimes miswritten **H** or N). This letter is omitted on the Danish issues, where all three types have the form *ARALD*.³⁶³ On the two Hamar coins the king's name ends in *R*. This may be a dittography of the initial of the following *REX*, but the punctuation between the two *R*'s does not make this very probable. *R* is the usual nominative ending of the Norse masculine nouns and also of the name of *Haraldr*. The reverse legends of the Hamar coins are written in Norse. Here the obverse legend must also have been exposed to Norse influence. This has contributed to the creation of the peculiar legend *Haroldr rex*, where the Anglo-Saxon form of the name with the Norse nominative ending is combined with the royal title, given in Latin. One coin (14) has the king's name and title as the reverse legend.³⁶⁴

According to the find provenance and the silver content the majority of the Harald coins must be early issues, probably the very earliest. The Hamar coins, with their low silver content and their provenance from a later hoard, where they were found neither bent nor pecked, must be

among the latest *Triquetra* pennies. Thus, the period of issue of the bulk of these coins lies within the date-span of the two groups of Harald coins. The many coins with blundered legends represent some uncertainty. Nevertheless, I am inclined to date the whole issue of the *Triquetra* pennies within the reign of Harald, who is the only king mentioned by name on them.

m. Moneyers' names

We know only eight *Triquetra* coins, representing five reverse dies altogether, with intelligible moneyers' formulae. Three different moneyers are here mentioned: Gerfin (10) and Ulf (11) of Nidarnes, and Olafr of Hamar (7–9). Although all these are Scandinavian names, it is difficult to identify the nationality of the moneyers with complete certainty.

Gerfin (Old Norse *Geirfinnr*) is not otherwise known in this spelling in coin legends of this period, except for one Danish runic coin reading *Kerfin*.³⁶⁵ The same name, usually with the first element anglicized Garfin (or Garvin) – three dies of Harold II have *Gerefine* – is met with on English coins from the Lincoln mint *c.* 991/7, *c.* 1062/5, and 1066–*c.* 1069.³⁶⁶ This name must have represented at least two different people, but only the later one(s) could possibly have been identical with the moneyer Gerfin, who was active at the Nidarnes mint *c.* 1050. This name, usually still in its anglicized form, also appears on Danish pennies struck at Lund for Harthacnut,³⁶⁷ Magnus the Good,³⁶⁸ and Sven Estridsen,³⁶⁹ and later even for St. Cnut (1080–1086)³⁷⁰ and Oluf Hunger (1086–1095).³⁷¹ Even behind the Danish moneyer's name of Garfin(e), two, or even more, people are probably hiding. If any of them are associated with the Nidarnes mint, it must have been the earlier one.

Ulf (Old Norse *Ulfr*) is found in England as a moneyer's name, occasionally even spelt *pVLF*,³⁷² on coins of Ethelred II with the mint signatures of York³⁷³ (*c.* 979/85), Lincoln (*c.* 991/7), and Canterbury³⁷⁴ (*c.* 1009/16). Later, at the mint of Lincoln, a moneyer Ulf signed coins of all the types of Edward the Confessor, except the Pointed Helmet type (*c.* 1053/6), as well as coins of Harold II.³⁷⁵ Even within the Norman series of the same mint this moneyer's name is recorded *c.* 1075–*c.* 1090; i.e. William I's five last types, and William II's two first ones.³⁷⁶ At Lincoln, consequently, there must have been at least three different moneyers of that name. It is rather fascinating to learn that, according to the available evidence, Ulf is absent in the coining period *c.* 1053/6. This gap in the continuous work that Ulf did for Edward the Confessor, though based only on an argument *e silentio*, could have been caused by Ulf going on a special mission to Norway. However, this is only one of several explanations. In Denmark a moneyer called Ulf operated at the mint of Ringsted under Cnut³⁷⁷ and at Slagelse he struck coins attributed to Harthacnut.³⁷⁸ Here one of the types has the *Triquetra* type on the reverse. At Lund a moneyer of that name is known under Sven Estridsen,³⁷⁹ Harald Hein,³⁸⁰ and St. Cnut,³⁸¹ and, finally, at Roskilde under Niels³⁸² (1103–1134).

Thus within the Danish series too there were probably some three different moneyers named Ulf. The Danish Ulf of the 1030's and 1040's, if any, might have been identical with the Nidarnes moneyer.

Olafr, the only Norwegian moneyer's name rendered in the typical Old West Norse form, has as his only namesake and colleague an Onlaf, working at the Lewes mint in the period of the Ethelred Last Small Cross type³⁸³ (c. 1009/16). This Anglo-Saxon Onlaf can hardly have been identical with the Norwegian moneyer Olafr, who held office at Hamar around the year 1060. Considering the national flavour of the Hamar legends, I suggest that Olafr was a Norwegian.

What about the other two *Triquetra* moneyers? Linguistically *Ulf* is actually the Old Danish form,³⁸⁴ as *Gerfin* also seems to be, even though it is thought to be a typical West Norse name.³⁸⁵ However, the international moneyer's formulae of the Nidarnes mint, in contrast to the national language used on the Hamar coins, may have been unsuitable to the *-r* ending of the specifically West Norse form. As just demonstrated, there were moneyers of the same name in England and Denmark, who could have served as moneyers to the Norwegian king for a brief period around or shortly after the year 1050. See also the chapter on blundered legends (E20).

n. Mints

Two mints are named in the intelligible legends of the *Triquetra* pennies. The mint signatures of these moneyer's formulae are

Hamri, Hamr, Ham

Niðarne, Niðarn

Hamri, etc. has been identified with present-day Hamar, a town on the eastern shore of Lake Mjøsa, in the heart of Eastern Norway. Hamar is not known from any other source until it became a bishopric in the XII century (c. 1152/3).

Niðarne, etc. can be identified with Nidarnes, a locality at the mouth of the River Nidelven, where the town of Nidaros/Trondheim, founded, according to the sagas, by Olaf Tryggvason, was growing up.³⁸⁶

As far as the great majority of the *Triquetra* pennies are concerned, the blundered legends fail to give any direct information as to where the coins were struck. There are certain substantial differences between the issues from the Nidarnes mint and those struck at Hamar. The coins differ from each other in silver content, in language, and in letter forms. Pennies with the mint signature of Nidarnes have a high silver content (*11b*, *11c*; cf. *11a*, *6a*), the Hamar coins a low silver content (*7a*, *8a*, *9a*). The moneyers' formulae on the Nidarnes coins have the Anglo-Saxon copulative *on*, while the corresponding Norse preposition *á* is used on the Hamar coins. The legends on the Nidarnes coins were engraved in concave capitals; the Hamar legends have long, straight capitals.³⁸⁷

The sparse mint signatures on Norwegian coins of the later XI century – *Nid*, *Coupam*, *Coupan* – all refer to the town of Nidaros/Trondheim, which also seems to have had *Kaupangr* among its official names.³⁸⁸ Again, the vast majority of the coins are silent about their place of issue. Where Nidaros/Trondheim and Hamar are concerned, we can assume, from the coin material and from history generally, that the former must have been the more important mint. Hamar is only known from the three specimens in the Helgelandsmoen hoard, which was found in the same part of the country. There is, therefore, no reason whatever to attribute the large group of *Triquetra* pennies of low silver content to Hamar.³⁸⁹ On the basis of style and epigraphy, too, there is good reason, in most cases, to prefer an attribution to the Nidarnes mint.

Were there any other mints operating in Norway at that time? Schive, who did not know the Hamar coins, suggested that there was a mint in Oslo or somewhere else in the Viken area, where he thought Harald Hardråde had his inferior coins struck.³⁹⁰ The better coins, Schive thought, were struck at Nidaros/Nidarnes. This view was partly based upon a misinterpretation of a moneyer's formula on some later Norwegian pennies, Stenersen type S. Here, in the runic reverse legend of some coins of low silver content, Schive claimed to have recognized a mint named *Moathisa*, which he wished to place in the Oslo/Viken area. However, the legend in question was only a variety of the moneyer's formula *Gunnarr á mót þisa*, 'Gunnar owns this die'. See also the following paragraph.

o. Blundered legends

As already mentioned, the legends of the *Triquetra* coins are to a very great extent blundered. Of the total of 232 – obverse and reverse – dies so far registered³⁹¹ only 12 (5%) contain intelligible legends. For further discussion I have grouped the blundered legends according to the principles suggested by B. Malmer:³⁹²

- Group 1. Some blundered syllables and letter combinations in legends which are more than half intelligible.
- Group 2. Legends of which less than half are intelligible, though with syllables and letter combinations giving some meaning.
- Group 3. Completely blundered legends consisting of approximately the same number of letters or letter-like symbols as the intelligible legends of the type.
- Group 4. Completely blundered legends, where the number of letters or letter-like symbols deviates from those of the intelligible legends by more than a third.

How the dies are distributed among intelligible legends and the various groups of blundered legends is shown in Table 27. The legends of some worn coins are distributable only to 'groups 3 or 4'.

Table 27. *Intelligible and blundered legends on the dies of the Triquetra pennies*

	Obverse dies		Reverse dies		Total	
	No.	%	No.	%	No.	%
Intelligible legends	5	5	7	6	12	5
Blundered legends, Group 1	—	—	—	—	—	—
Blundered legends, Group 2	6	6	16	13	22	10
Blundered legends, Group 3	47	44	45	36	92	40
Blundered legends, Group 4	23	22	23	18	46	20
Blundered legends, Groups 3 or 4	25	24	35	28	60	26
Total	106	101	126	101	232	101

No less than 86% of all the 232 dies belong to the groups 3 and 4, thus having completely blundered legends. Just under a tenth of all the dies qualify for inclusion in group 2 in its widest interpretation. Our search for possible traces of kings' names, moneyers' names, and mint signatures should be concentrated upon this group. Here we have 6 obverses and 16 reverses, 8 of the latter being incomplete. We should be aware of one complicating factor: the possibility of the king's name and title being placed on the reverse,³⁹³ and the moneyer's formula being placed on the obverse.³⁹⁴ However, one of the obverses (O14) has a legend which is obviously a blundered version of +HARALDREXNO. Even the reverse legend (R20) of the coin in question has an apparently intelligible sequence, the meaning of which, though, is obscure. It is interesting to note that this reverse legend, which seems to be retrograde, is related to the blundered reverse legend of the HARALDRE+NA° coins (13). The other five obverse legends of group 2, to be honest, yield little that is meaningful. Two of them (O9, O13) have the initial E, another (O62) has the combination PER as the third, fourth and fifth letters. This may, perhaps, be reminiscent of the name of the contemporary Anglo-Saxon king Edward the Confessor, the name on whose coins is usually spelt EDPERD. However, this is rather unlikely as this king did not issue coins of the *Triquetra* type.

One should of course keep a special lookout for the names of Harald's successors, Magnus (1066–1069) and Olaf Kyrre (1067–1093). Two obverse legends of group 2 qualify for such an examination. One of them has the initial N, which is sometimes a mistake for M. But the rest of the legend cannot be associated with the name and title of Magnus. The other legend, (O88), begins with the letters OFN) (or ONN) and ends with the letters NO (or NO). This could perhaps be an echo of something like OLAFREXNO, but even here nothing can be said for certain.

Among the reverse legends of our group 2 there are no traces of the kings' names Magnus and Olaf.³⁹⁵ In any case, we are here primarily looking for moneyers' formulae. In eight of these legends we find, in the appropriate place, the letter combination ON, which is identical with

the Anglo-Saxon copulative *on*, so widely used even on Scandinavian coins, and also found among the Norwegian *Triquetra* pennies (10–11). Taking ON as a copulative we get the following ‘moneyers’ formulae’ out of these legends:

Anle on Dnaeorin

Diinoinði on Ldoin

Dndfi on Diciondii (or *Dndfiondici on Dii*)

Eol on N...

Leordnbln on Di

...ndlic on Lide...

...oanh...arnl on D...

...rd on C...roni... (or *...rdon...c...r on I...*)

There are some syllables present here which may be recognized as probable parts of moneyer’s names. The first elements of *An-* and *Leo-* and the endings of *-ði*, *-fi*, *-(l)ic*, *-rd*, and *-c[a?]r* are within a probable onomasticon. However, the other elements of the respective legends are usually blundered to such an extent that even the apparently meaningful syllables are themselves put in an obscure and dubious light.

This is true also for the second parts of these ‘moneyers’ formulae’, which might be expected to give us the mint signatures. In one legend (R18) we find *N...* after the ‘copulative’, with the possible meaning of *Nidarnes*. Even the sequence *...ONI...* (R21) may be an elliptical form of *...ONNI[ÐARNES]* (cf. 10a). Four of these ‘mint signatures’ have the initial *D-*, two of them beginning with *Di-* (R17, R81). The reading of the most complete forms, *Diciondii* and *Dnaeorin*, does not correspond with any suitable Norwegian place-names, nor in any way at all with Norse phonetics. This is also true of the form *Ldoin* (R14). The last one of these ‘mint signatures’, *Lide-*, is not very much better. I therefore think that all these ‘mint signatures’ are certainly blundered forms. Among the single letters occurring in these ‘mint signatures’, the letters I (8 times), D (7 times), and N (5 times) have the highest frequency. These are the first three letters of the name ‘Nidarnes’. The next four letters of the name of this mint are also represented in these legends, where only the letters *Ā*, *L*, and *O* fall outside this scope. Now, the letters *I*, *O*, and also *D* and *N*, occur quite commonly in blundered coin legends of this period. These letters seem to have become favourite symbols with the alphabetic die-cutters. One must therefore be extremely careful when trying to interpret the blundered legends.

In conclusion, the better group of the blundered *Triquetra* legends may contain elements of some moneyers’ names not known from the intelligible legends. A more doubtful possibility is that the blundered legends have real traces of kings’ names or mint signatures that are not known from the intelligible legends.

p. Letter-forms and initial marks

In her monograph on Norwegian XI-century coins B. Malmer made a detailed study of the epigraphy of 122 coins from the offering-place finds.³⁹⁶ She divided the material into four letter groups, with two sub-groups, Ia and IVa.

I. Concave capitals:

Vertical strokes with concave long sides, triangular horizontal strokes, crescent-shaped curves. The ratio of the height of the vertical strokes to their maximum width falls almost without exception between 1:1 and 2:1.

Ia. As the preceding group, but with inconsiderable concavity or none at all.

II. Runes.

III. Long straight capitals:

Straight thin strokes, with a height:width ratio almost without exception falling between 4:1 and 6:1.

IV. Long straight capitals, with *boutonné* serifs.

IVa. Letters with *boutonné* serifs, but with concave strokes or strokes with a width of more than a quarter of their height.

All the *Triquetra* coins from these finds are placed in Group I, but two of the coins also appear in sub-group Ia, one coin even in sub-group IVa.³⁹⁷ We have now examined the epigraphy of all the known *Triquetra* coins. Runes do not occur among these legends, but letter and letter-like symbols of all the other groups were found. The distribution of the coins, and – perhaps more significantly – the dies, in letter groups is shown in Table 28. Here the dividing system of B. Malmer's classification has been employed, for practical purposes.

The legends of the *Triquetra* pennies are dominated by the concave capitals, the classical epigraphy of the late Anglo-Saxon coins. Almost 99% of the *Triquetra* coins whose letter forms can be defined include concave capitals, but only 50% seem to have concave capitals alone. Twelve per cent of the coins had letters of Group Ia, which is more than the figure of 4% found for all the XI-century coins in the offering-place finds.³⁹⁸ As appears from Table 28, these rough and primitive letter-forms occur more frequently on reverse dies than on obverse dies.

Three coins, the very three specimens from the Hamar mint, have letters exclusively of Group III, the long straight capitals. This letter-form is more common among later Norwegian pennies, occurring on 20% of the coins examined by B. Malmer.³⁹⁹ Thus the epigraphy also indicates a late date of issue for Harald's Hamar pennies.

It is interesting to see that in several cases the initial mark, usually a cross – in one instance an X – differs epigraphically from the rest of the legend. This, of course, may be quite coincidental, but it may also reflect a feeling among some makers of the blundered legends that

Table 28. *Letter groups on the Triquetra pennies*

	Coins		Obverse dies		Reverse dies		Dies, total	
	No.	%	No.	%	No.	%	No.	%
Concave capitals=Group I	124	49	75	71	74	58	149	64
- with a straighter and more primitive design=Group Ia	31	12	3	3	10	8	13	6
- with initial symbol of Groups III or IV	30	12	7	6	20	16	27	11
- with some letters tending towards Group III	20	8	9	8	14	11	23	10
- with some letters of Group IVa	24	5	6	6	4	3	10	4
Concave capitals?	14	5	2	2	2	2	4	2
Long straight capitals=Group III	3	1	3	3	3	2	6	3
Letter forms not defined	9	4	1	1	-	-	1	-
Total	255	100	106	100	127	100	233	100

the initial mark was something special. In any case, even the blundered legends of the *Triquetra* pennies usually have an initial mark. The character of the obverse type makes it difficult to define the beginning of a blundered legend with complete certainty. As a cross in such an obverse legend may be a reflection of the letter X of the word REX in an intelligible legend, one cannot be quite sure that the blundered legend begins at this cross-shaped symbol. The definition for the initial mark on the reverse is easier, as B. Malmer has pointed out.⁴⁰⁰

The initial marks could be adequately studied on 88 of the 127 reverse dies of the *Triquetra* type. The results of the examination are presented in Table 29.

Table 29. *Initial marks on 88 reverse dies of the Triquetra type*

	No.	%
Cross pattée	51	58
Plain cross	21	23
Plain cross with (at least two) <i>boutonné</i> terminals	4	5
Vertical concave stroke with one pellet	1	1
Vertical concave stroke, or the letter I	4	5
Horizontal concave stroke	1	1
Annulet or letter O ⁴⁰¹	4	5
Letter \mathcal{N} ⁴⁰²	1	1
X (at one cross arm only)	1	1
Total	88	100

The usual initial mark is the cross, which occurs on 86% of the reverse dies studied. Even the next three symbols listed in Table 29 may be some kind of dismembered crosses. Compared with the results arrived at by B. Malmer,⁴⁰³ the plain cross is shown to be more frequently used as an initial mark on the *Triquetra* coins. On the other hand, the annulet/letter o is more frequently found within her material, where the figures are based on the number of coins and not the number of dies.

In conclusion, the most important result of this epigraphical survey is the demonstration of the special character of the Hamar coins. Taken as a whole, the variation in epigraphy of the *Triquetra* pennies, which may be due partly to the incapacity of the die-cutters, must also be seen as evidence of an extensive coinage.

q. Dies and die-links

The 257 *Triquetra* pennies known to us today were struck from at least 235 dies, 108 obverse dies and 127 reverse dies. Twenty-four obverses and 25 reverses of fragmentary or lost specimens (*11d*, *61a*, *90a*, *92b-w*) could not be satisfactorily determined. The available material gives a ratio of 5:6, or 5 obverse dies to every 6 reverse dies. If the 49 undetermined dies are taken into consideration, the dividend of this ratio must be allowed to vary one sixth, both ways. This means that the ratio of obverse and reverse dies within the *Triquetra* group is somewhere between 2:3 and 1:1, though the reverse dies tend to be more numerous.⁴⁰⁴

The details of the dies' occurrence and combinations can be derived from the *Corpus*. Tables 30 and 31 contain a summary of the pairing and the occurrence of obverse and reverse dies respectively.

From these tables we learn that the tendency to be paired with more than one opposite die is higher among the obverse dies (23%) than among the reverse dies (9%). Furthermore we see that one single reverse die could be coupled with three (Figure 6:E) and four (Figure 6:I) different obverse dies, even of different varieties of the type, and one single obverse die could be coupled with five (Figure 6:P-Q) or seven (Figure 6:B)

Table 30. *Pairing and occurrence of obverse dies of the Triquetra group*

Paired with	No. of coins where represented														Total	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	No.	%
7 different reverse dies	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
6 different reverse dies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 different reverse dies	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	2
4 different reverse dies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 different reverse dies	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	2
2 different reverse dies	-	13	3	2	1	-	-	-	-	-	1	-	-	-	20	19
1 reverse die	66	11	4	1	-	-	-	-	-	-	1	-	-	-	83	77
Total	66	24	7	3	1	2	-	-	-	-	4	-	-	1	108	101

Table 31. *Pairing and occurrence of reverse dies of the Triquetra group*

Paired with	No. of coins where represented														Total	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	No.	%
4 different obverse dies	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1
3 different obverse dies	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
2 different obverse dies	-	2	3	2	3	-	-	-	-	-	-	-	-	-	10	8
1 obverse die	83	20	6	2	2	2	-	-	-	-	-	-	-	-	115	91
Total	83	22	9	5	5	2	-	-	-	-	-	-	-	1	127	101

different reverse dies. This means that dies of either coin side could stay in use for a fairly long time. The die-links discovered within the *Triquetra* group are illustrated in Figure 6.

The relatively large number of dies involved in the striking of the *Triquetra* group is in strong contrast to the very high degree of die identity observed within the types of the earlier Norwegian coinage (1-5). I think I can properly conclude that this reflects the difference between the very limited issues of Olaf Tryggvason and Olaf Haraldsson and the more intensive and sustained striking of Harald Hardråde.⁴⁰⁵

r. Conclusions on the issue of the *Triquetra* pennies

In Norway Harald Hardråde revived the coinage by issuing pennies of the *Triquetra* type. This type, evidently borrowed from Danish pennies, even has non-numismatic parallels of native origin. From the intelligible legends we learn that the *Triquetra* pennies were struck at Hamar, under the moneyer Olafr, and at Nidarnes, under the moneyers Gerfin and Ulf. However, the great majority of the coins have only blundered legends, although the better group of legends may contain elements of some other moneyers' names. Whether the blundered legends can also be shown to have real traces of mint signatures other than those of Hamar and Nidarnes, is more doubtful. From epigraphy and style, one would suggest an attribution of by far the largest proportion of the *Triquetra* pennies to the Nidarnes mint. The three extant Hamar specimens certainly belong to the later part of Harald Hardråde's reign, and I am inclined to date the whole *Triquetra* group to this reign.

The *Triquetra* pennies were struck to a standard of about 0.90 (0.88) grammes, which can probably be identified as the national penny weight of Norway, 1/240 of a *mark* (214.32 grammes, the figure established for the Norwegian *mark* of the XIII century). The silver content of the *Triquetra* pennies varies considerably, from 96 to 16% Ag, according to modern analyses. Pennies of good silver, more than about 80% Ag, were issued during the first five to ten years of Harald Hardråde's reign. Some time before 1060 an intensive issue of *Triquetra* pennies of low silver content began, which varied around a median value of about 33% Ag. The low

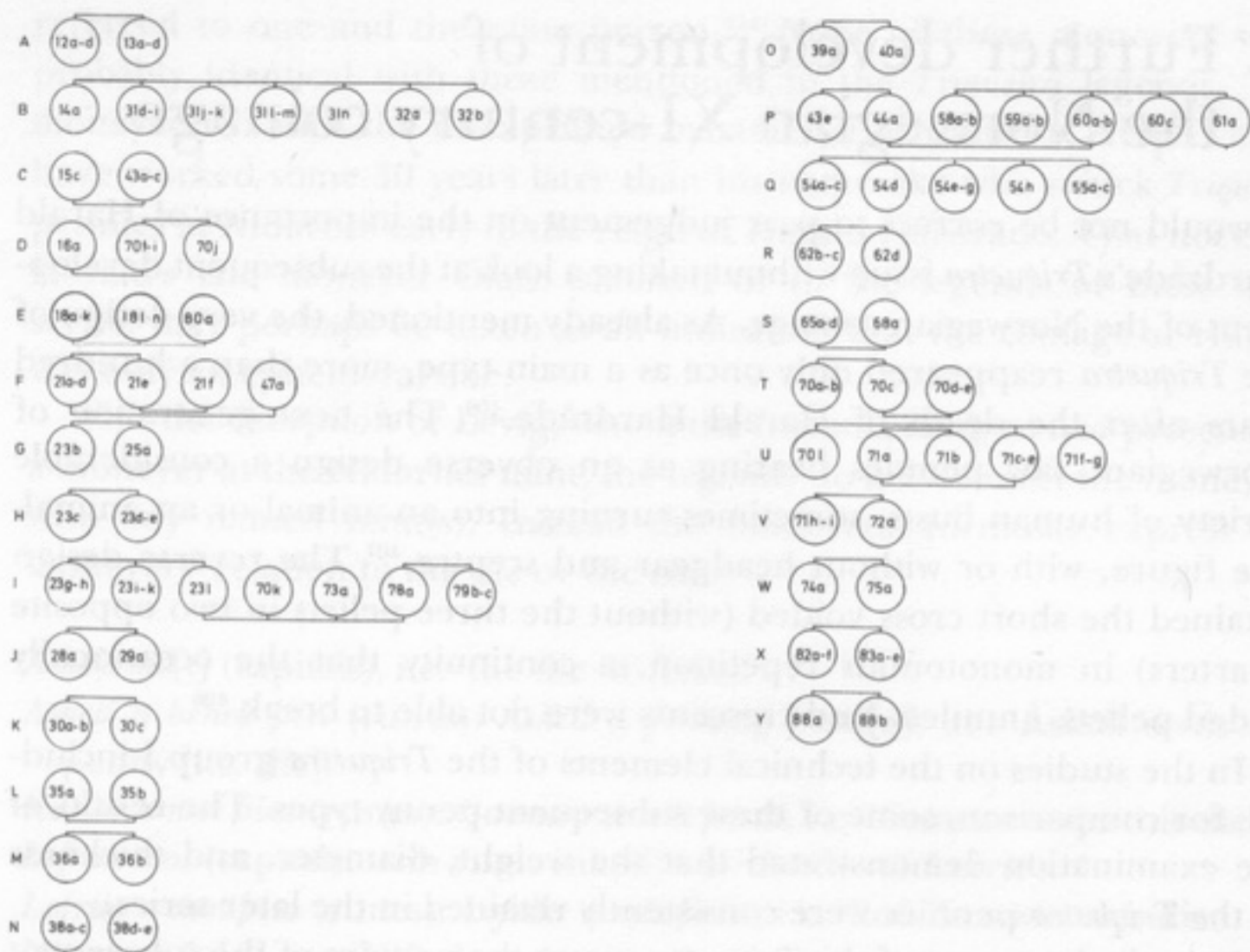


Figure 6. Die-links within the Triquetra group.

silver content, which – like the weight standard – in fact lasted a considerable time beyond Harald Hardråde's reign, was, I believe, initiated by the authorities.

Other technical elements, diameter, thickness, die-axis, centering, also point to continuity and a fairly high standard of coining technique in this group of pennies of low silver content and blundered legends. Within the stability of type the many varieties of both obverse and reverse design, and even variations in epigraphy, seem to speak for an extended time at issue. The relatively large number of dies used to produce the 257 known specimens of the *Triquetra* type also points in this direction. The substantial numbers of *Triquetra* pennies present in two finds from Lapp offering-places in Northern Sweden emphasize the protracted character of the type. The domestic finds demonstrate that *Triquetra* pennies circulated in all parts of Norway. Here the currency medium changed dramatically during the period of the *Triquetra* coins, from hoards overwhelmingly dominated by foreign pennies to hoards of which the majority are native pennies. At the same time, the coins became less subject to secondary treatment such as pecking, bending and denting.

3. Further development of the Norwegian XI-century coinage

It would not be correct to pass judgement on the importance of Harald Hardråde's *Triquetra* issue without taking a look at the subsequent development of the Norwegian coinage. As already mentioned, the very design of the *Triquetra* reappeared only once as a main type, more than a hundred years after the death of Harald Hardråde.⁴⁰⁶ The next generation of Norwegians saw pennies bearing as an obverse design a considerable variety of human busts, sometimes turning into an animal or an animal-like figure, with or without headgear and sceptre.⁴⁰⁷ The reverse design retained the short cross voided (without the three pellets in two opposite quarters) in monotonous repetition, a continuity that the occasionally added pellets, annulets, and crescents were not able to break.⁴⁰⁸

In the studies on the technical elements of the *Triquetra* group I included, for comparison, some of these subsequent penny types. The results of the examination demonstrated that the weight, diameter, and thickness of the *Triquetra* pennies were consistently retained in the later series.

As in the later part of the *Triquetra* group the pennies of the subsequent types were commonly struck from metal of low silver content. Modern analyses, by neutron activation, of 209 coins gave from 95.3%⁴⁰⁹ to 12.1% Ag, the median value of 37.4% Ag being not far from that of the *Triquetra* group, 33.0%. As we have already seen, nine pennies bearing the king's name of Olaf (Kyrre) contained from 54.0% to 36.3% Ag with a median value of 44.5% Ag (cf. note 334). Pennies of the four types included in B. Malmer's coin standard group III had, to be sure, a slightly higher silver content: 95.3–26.6% Ag, but the median value of 52.2% Ag is essentially below the standard of around 65% Ag assumed by B. Malmer.⁴¹⁰

As regards die-axis and centering, I found that the subsequent penny types displayed a better coining technique than the *Triquetra* pennies. This is in sharp contrast to the impression of primitiveness left by the extremely barbaric obverse design used in some of these classes.

The majority of these coins have blundered legends, usually in the letter-forms with the concave capitals. The intelligible legends, which fortunately do also occur among the available material, were usually rendered in long straight capitals, or in runes. The only king's name encountered is Olaf,⁴¹¹ and with the royal title in Latin, *rex*, or in Norse, *konungr* – spelt *kunukr* in the runic legend concerned, which strangely enough is placed on the reverse. This Olaf is, of course, Olaf Kyrre, son of Harald Hardråde and King of Norway 1067–1093.

Nine moneyers' names occur in the legends of these coins: Askell (both in capitals and in runes), Aslak (runes, in obverse legend) Gunnar (runes), Lefric (capitals, with runic initial), Levig (capitals), Lofrikr (runes), Svein (capitals), Thorbjörn (capitals), Ulf 'Canwi' (capitals), and Ulfcel (capitals). Lefric and Lofrikr (cf. the Anglo-Saxon name of Leofric) may have

referred to one and the same person.⁴¹² None of these moneyers were probably identical with those mentioned in the *Triquetra* legends. The moneyer Ulf with the unexplained byname (?) of Canwi (CANPI) must have worked some 30 years later than his namesake who struck *Triquetra* pennies at Nidarnes early in the reign of Harald Hardråde. That not even Harald's late moneyer Olafr is heard of in the legends of these later series, may perhaps be taken as an indication that the coinage at Hamar was only an ephemeral one.

With the exception of Levig, whom the formula *Levig on Nid* presents as a moneyer at the Nidarnes mint, the legends do not connect the moneyers with any named mint(s). Instead the moneyers' formulae express the moneyers' relation to the die or the coin:

Askels mo[t] (capitals), i.e. 'the die of Askell'.

Askell a benek þen (runes): *Áskell á penning þenn[a]*, i.e. 'Askell owns this penny [i.e. die].'

Kunar a mot þisa (runes): *Gunnarr á mót þessa*, i.e. 'Gunnar owns this die.'

Lefrics mot (capitals, with runic initial) i.e. 'the die of Lefric'.

Lofrikr a mot þita (runes): *Lofrikr á mót þetta*, i.e. 'Lofrikr owns this die.'

Ulfcel me fec[it], i.e. 'Ulfcel made me.'

These moneyers' formulae are placed on reverses matched with obverses of completely blundered legends, and so without the king's name. We have seen that B. Malmer has suggested that the coins with this kind of moneyer's formula may have had a different background of organization and coining policy than those 'of high silver content with the king's name' (cf. note 82). Thirty-seven coins with these moneyers' formulae have been analysed by neutron activation. Their silver content was found to vary from 54.1% to 15.9% Ag, the median figure being 34.8% Ag. This is lower than the median value of the coins with the name of Olaf, 44.5% Ag, but the two groups do not differ fundamentally in silver content. I hesitate to believe that these moneyers' formulae, and the rare occurrence of the king's name in the legend around the pictorial representation of him on the obverse, necessarily mean that the king had lost control of the coinage. It is more likely that the classes singled out through detailed numismatic study by B. Malmer to form her Coin standard group III and dated to c. 1080, represent a systematic attempt to improve the billon coinage with the full penny weight retained. The coins of the Coin standard group III are completely without kings' names, but this kind of change in the coinage could not have been brought about very easily by anyone other than the central authorities of the Norwegian state.

This argument in favour of the king having had the decisive influence on the coinage is supported by the drastic reform of the coinage that was carried out at the end of the XI century. The weight of the penny was then reduced to half, about 0.45 grammes, but – at the same time – the silver content of the early *Triquetra* pennies, about 90% Ag, was restored. This reform, previously dated to the reign of Olaf Kyrre, is now attributed to

Magnus Barefoot (1093–1103), whose name is the only king's name to be found on the coins of this group.⁴¹³

Two moneyers' names occur on the coins of the halfpenny standard, Audgrimr (*Outhgrim*) and Sveinn (*Swein*), both recorded as working at the mint of Kaupangr (*Coupan*), which is another name, not infrequently used, for Trondheim/Nidaros. Sveinn is most probably identical with the moneyer of that name working under Coin standard III.

In conclusion, during the later part of the XI century, the Norwegian coinage, generally speaking, seems to have become a permanent institution, an institution that continued smoothly into the following centuries. The institution was actually begun by Harald Hardråde when he introduced pennies of the *Triquetra* type.

F. Conclusions

Within the scope of the currency history of this country from the Roman period onwards, I have examined in detail the principal coinage of Harald Hardråde, King of Norway from 1047 to 1066.

Nearly a thousand years elapsed from the first arrival of foreign coins in the territories of present-day Norway until the beginning of a Norwegian coinage. Roman gold solidi of the Late Empire may have encouraged and contributed to the development of a gold currency in the Early Iron Age. This currency consisted of non-numismatic pieces – especially rings – regulated, at least to some extent, to conform with a weight system of Roman origin. The few Roman coins found in Norway have clearly served as jewels or amulets.

When, from the end of the VIII century, the Norwegians came into closer contact with the Western European kingdoms, they found an established silver currency. This was a coinage for which the centralized organization devised by Charlemagne had served as a model. The coinage of Charlemagne himself, which was imitated in areas on either side of the Scandinavian border, had no immediate effect on the coin history of Norway. The majority of the small group of Frankish deniers and early Anglo-Saxon pennies found in Norway show signs of having been treated as jewels or amulets. The import of Kufic dirhems into Norway from the beginning of the Viking Age had increased considerably at the end of the IX century. At the time these oriental silver coins were certainly generally used as mediums of payment in Norway, whence they were even taken to the British Isles.

The unified kingdom of England developed a centralized and well-organized coinage. The Laws of Athelstan expressed the concept of an exclusive coining policy: *Placuit nobis, ut una moneta sit in totum regis imperium*. The reform of the coinage and of its administration carried out in the middle of the 970's left it strong enough for Athelstan's ideas to be realized and to sustain the heavy burdens of the *danegeld* payments during the reign of Ethelred II.

There then began a period of large imports of Anglo-Saxon coins into Scandinavia. Even the idea of coining and the concept of coinage crossed the North Sea, and so did Anglo-Saxon moneyers. Olaf Tryggvason, who as commander of the Viking army had been the recipient of *danegeld*, instituted the Norwegian coinage after he became king (995–1000). He was assisted by a moneyer bearing the Anglo-Saxon name of Godwine, who

struck coins imitating the current Anglo-Saxon penny type. This first Norwegian issue was probably a very limited one.

Similar attempts at coinage were made during the reign of Olaf Haraldsson (1015–1030). Again, Anglo-Saxon pennies were the main prototypes. With the exception of two pennies of Olaf Haraldsson struck on square flans, these earliest Norwegian coins seem to have been struck to the contemporary Anglo-Saxon standard. It appears from the hoard material that these native issues were of little or no importance for the coin circulation in the country during the first part of the XI century. Anglo-Saxon and German pennies formed the principal part of the coined money then in general use in Norway, together with non-numismatic silver.

It was left to Harald Hardråde (1047–1066) to establish a more permanent coinage. Pennies of his main type, the *Triquetra* type, were struck over several years, at two or more mints, by three (four? Cf. 6a) or more moneyers. The *Triquetra* pennies appear to be the first coins struck to the national penny weight of around 0.90 grammes, as 1/240 of the Norwegian *mark*. The silver content of Harald Hardråde's pennies, being at first of the international standard of about 90% Ag, was drastically reduced. This happened some time before 1060, when the silver content of the Norwegian penny varied around a median figure of 33% Ag.

It has been demonstrated that there were pieces with the king's name among the pennies of base silver. In spite of the majority of pennies having completely blundered legends, there is every reason to believe that the king fully retained control of the coinage, even after Harald's reign. The reduction of the silver content, therefore, must have occurred with the king's consent if not directly at his order. From hoards buried at the end of Harald Hardråde's reign we learn that the proportion of native coins had grown radically. This tendency was still further intensified and the Norwegian issues achieved complete dominance during the last third of the XI century and for the next 200 years. This, I believe, reflects a definite monetary policy. It was then, along with so many other impulses from the Anglo-Saxon coinage, that the idea of an exclusive minting policy came to Norway. Harald Hardråde, a man of broad international experience and evidently a prince with fixed plans for a strong national kingdom, was ready to adopt these ideas, all the more so as they implied some profit. The weights of the actual coins varied within a range large enough to show that a valid coin must have been overvalued in relation to its metallic value. For the Anglo-Saxon penny H. B. A. Petersson has suggested an overvaluation of 1/3, not without criticism from numismatists (cf. B. Malmer 1969 and Lyon 1971). On the basis of the extant material, it is impossible to define the overvaluation of the Norwegian pennies. Here the manipulation of the silver content may have brought additional gain.

People seem to have accepted the native pennies, even those of base silver. They were hoarded and used all over the country. They were less affected by testing than the foreign coins of high silver content that so frequently circulated in Norway until the early 1050's. Here I feel it is relevant to cite the story of the *Haraldsslátta*, which seems to reflect

the problems Harald Hardråde had to face when he carried out his minting policy 'which sons of noblemen accept[ed]'. The import of foreign coins and the spread and development of payment in silver during the Viking Age had made people – or certain groups of people – in Norway accustomed to coins as a convenient medium of payment. However, this alone could not create a coinage. To introduce and maintain a coinage of the Charlemagne–Athelstan tradition royal power was necessary. Strong royal power, I hasten to add.

The introduction of coins struck in the king's name was remarkably parallel in Denmark, Sweden, and Norway. In the first phase, *c.* 995–*c.* 1030, the Scandinavian coinage continued with considerable interruptions. After this, the Danish coinage, under the North Sea kings, was produced more continuously, the Norwegian coinage was discontinued for some twenty years and the Swedish coinage ceased for more than a century. Against this background the reopening of the Norwegian mints, the introduction of a coinage on a larger scale, and the establishment of a national, exclusive currency was an achievement of outstanding importance.

16 *Samfundslitteratur* 1962, 174. According to J. Christensen 1957, no. 658, this Danish coin had been established in Norway by Svein, the son of Canute the Great and August, governing 1090–1093. Cf. on the other hand *Norðmanna Saga* or *Harald Gudbrand*, Ch. 7.

17 This method of weighing the find material is adopted by M. P. Møller 1955, 182–83, where the Scandinavian finds of gold bracteates are treated.

18 Cf. find no. 7, see also Møller 1955, no. 182–83.

19 *Norðmanna Sögu* or *Vingings Saga*, Ch. 8. Concerning burial of dead man's goods on the feet of the deceased, see *Norðmanna Saga* or *Harald Gudbrand*, Ch. 103.

20 *Samfundslitteratur* 1967, 186.

21 Cf. *Samfundslitteratur* 1967.

22 Cf. *Dallas of Norway*, II, 156–57 and *ibid.*, *Index*, 1969, 10–11.

23 E.g. *Samfundslitteratur* 1967, nos. 11, 16, 63, 105, 123, 161, 162, 192, 195, 205, 213, 230, 264, 271, 275, 280, 315, 351, 417, 589, 655.

24 On a map of islands at the back of the book.

25 *Norðmanna Saga* or *Harald Gudbrand*, Ch. 1. The explanation is *Norðmanna Saga* or *Harald Gudbrand*, Ch. 133 (1), *Saga of Harald Hardråde*, Ch. 26 (2).

26 Cf. on the other hand P. Møller 1961. This is an important work with essential contributions to Norwegian coin history in the XI century. With an partly innovative approach to the problems, it was according to the author's intention, first and foremost meant as a scientific study of the possibilities to establish the chronology of coinage or particularly coinage, especially with regard to Scandinavian coinage in the early Middle Ages (p. 277).

27 *Samfundslitteratur* 1967, 187. See also *ibid.*, *Index*, 1969, 10–11.

28 Cf. *ibid.*, PL XXVIII B, 12. *Samfundslitteratur* 1967, 187 and 188.

29 *Samfundslitteratur* 1967, II, 11–16.

G. Notes

I am grateful to Professor E. Fjeld-Halvorsen and Dosent F. Hödnebö for a couple of useful suggestions concerning the written sources.

Entries in the find catalogues (Chapters I, J) and the *Corpus* (Chapter K) are very often referred to, in both the text and the notes, by numbers only. These numbers are printed in italics in both cases, but references to the *Corpus*, where not identifiable from the context, can be recognized by the small letter succeeding the number (e.g. 11a).

- 1 E.g. *Annales Bertiniani s.a.* 845, 860, 862, 866, 877; cf. *Joranson* 1923, and *Nielsen* 1957.
- 2 *Anglo-Saxon Chronicle s.a.* 991, 994, 1002, 1007, 1009, 1012. Cf. also three local tributes in the IX century: *op.cit. s.a.* 865, 872, 876.
- 3 *Anglo-Saxon Chronicle s.a.* 994. In 991, when the Viking army received a tribute of 10,000 pounds, Olaf Tryggvason was also the commander.
- 4 *Birkeland* 1954, 16 (Ibn Rustah), 19–20 (Ibn Fadlān).
- 5 *Op.cit.*, 17 (Ibn Rustah).
- 6 Receipt of 'geld' in England is mentioned on some Swedish runic stones, in formulae like 'Dan and Huskarl and Sveinn raised this stone in memory of Ulfrik, their grandfather. He received geld twice in England.' *Wessén & Jansson* 1940/3, no. 241, cf. no. 194.
- 7 These law texts are published in the original Old Norse in *Norges gamle Love* I, Christiania 1846. As regards gold ring money in the system of fines, see *Frostatingslov* VI 3–11; cf. *Brögger* 1921, 34–45. Information on coin reckoning is given *inter alia* in *Frostatingslov* X 35.
- 8 E.g. *Heimskringla*, Saga of Olaf Haraldsson, Chs. 139 and 185; Saga of Harald Hardråde, Ch. 24; Saga of Harald Gråfell, Ch. 16 (Iceland); Saga of Olaf Haraldsson, Ch. 143 (the Faeroes).
- 9 *Jónsson* 1932, 149–51. The existing MS was probably written in the later part of the XIII century, based on an original work composed c. 1220; some of the sagas are certainly taken from originals written in the last quarter of the XII century; see *Jónsson* 1932, I–II, VIII–IX.
- 10 *Jónsson* 1932, 148–55. Cf. *Heimskringla*, Saga of Harald Hardråde, Ch. 36.
- 11 *Jónsson* 1932, 200 (*Morkinskinna*, Ch. 73).
- 12 *Heimskringla*, *prologus*. Halldórr Snorrason, by the way, was the grandfather of a great grandfather of Snorri Sturluson.
- 13 One further instance is recorded, where *máli* is given to the men on New Year's Day: 'Earl Eirik Håkonsson gave his men payment on the eighth day after Christmas, as is the custom among princes in foreign countries. He gave Björn a gold ring weighing half a mark.' See *Bjarnar saga Hítðælakappa*, 117.
- 14 The story (*páttr*) of the relations between the king and Halldórr Snorrason is regarded as an interpolation, but from a rather old original, owing to the archaic forms of language; see *Jónsson* 1932, XX.
- 15 Cf. *H. Holst* 1936D, *Galster* 1948, and *C. A. Christensen* 1957.
- 16 Code of Magnus Lagaböte, Ch. VI 16, see *Norges gamle Love* II, 101–2. Cf. the older code of the *Gulatingsslov* 148: 'Every man shall have the treasure that he finds in his own ground, even if dug out by another.' On the other hand, the Saga of Harald Hardråde records a quarrel between the king and the chieftain Einar Tambarskjelve about a treasure found in the ground. The latter did not question the king's right to treasure-trove when the owner is not known, but here he claimed to be the owner of the treasure, which should have belonged to his father-in-law: cf. *Jónsson* 1932, 174. According to *C. A. Christensen* 1957, col. 638, this 'Danish' law had been established in Norway by Svein, the son of Cnut the Great and Ælfgifu, governor 1030–1035. Cf. on the other hand *Heimskringla*, Saga of Harald Gråfell, Ch. 1.
- 17 This method of treating the find material is inspired by *M. P. Malmer* 1963, 182–92, where the Scandinavian finds of gold bracteates are studied.
- 18 Cf. find no. 4; see also *Skaare* 1965C, 93 note, 96.
- 19 *Heimskringla*: *Ynglinge Saga*, Ch. 8. Concerning burial of dead man's goods (in the land of the Karelians), see *Heimskringla*, Saga of Olaf Haraldsson, Ch. 133.
- 20 *Stenberger* 1947; 1958.
- 21 Cf. *Rasmusson* 1961.
- 22 Cf. *Dolley & Metcalf* 1961, 156–7, and *H. B. A. Petersson* 1969, 10–11.
- 23 E.g. *Stenberger* 1947, nos. 11, 16, 63, 105, 123, 162, 182, 192, 198, 207, 215, 232, 254, 287, 295, 300, 335, 351, 457, 559, 583.
- 24 *Op.cit.*, map of hoards at the back of the book.
- 25 *Heimskringla*: Saga of Harald Gråfell, Ch. 1 (the explanation 2), Saga of Ólaf Haraldsson, Ch. 133 (1), Saga of Harald Hardråde, Ch. 69 (3).
- 26 Cf. on the other hand *B. Malmer* 1961. This is an important work with essential contributions to Norwegian coin history in the XI century. With its purely numismatic approach to the problems, it was, according to the author's introduction, 'first and foremost meant as a method[ological] study of the possibilities to establish the chronology of completely or partly anonymous coinages, especially with regard to Scandinavian conditions during the early Middle Ages' (p. 227).
- 27 *Beskrivelse* 1791, 107–8 nos. 1–3, 8, Pl. XXVIII 1–3, 8.
- 28 *Op.cit.*, Pl. XXVIII 8, cf. *Hauberg* 1900, 212 no. 38 var.
- 29 *Schive* 1865, Pl. I 17–20.

- 30 *Ramus* 1826, 302–12.
 31 *Schive* 1865, 29, Pl. III 44.
 32 *Ramus & Devegge*, Pl. XXXVII.
 33 *Skaare* 1965B, 73–4. Cf. also *Herbst* 1878; *Stenersen* 1881; 1889; 1895; *Fonahn* 1926; *Jammer et al.* 1956; *B. Malmer* 1961; *Skaare* 1966A.
 34 *Skaare* 1966A, 180–9.
 35 *Deichman Coll.* 1790.
 36 *Suhm* 1775; *Ström* 1784; *Lund* 1785.
 37 E.g. *Klüwer* 1823, and *Nicolaysen* 1862/6 with supplements.
 38 *Stenersen* 1881.
 39 Finds nos. 4, 6, 15, 19, 22, 26, 31, 39, 54, 60, 83–5, 91–2, 94, 110, 123, 129, 137, 140, 155, 157, 176–7, 180. Cf. *Grieg* 1929, 177.
 40 *H. Holst* 1936C.
 41 *H. Holst* 1944A.
 42 *Holmboe* 1841; a second edition, *editio nova recognita*, appeared in 1854.
 43 *Holmboe* 1846.
 44 *Holmboe* 1865.
 45 *Holmboe* 1841, 10.
 46 *Op.cit.* 10–11; *Holmboe* 1846, 36.
 47 *Holmboe* 1841, 11; 1846, 13, 36–7; 1865, XXVII note 2.
 48 *Holmboe* 1846, Pl. I 5.
 49 *Holmboe* 1841, 18; 1846, 19–20.
 50 *Holmboe* 1846, 10–11; cf. *Holmboe* 1865, XI.
 51 *Holmboe* 1846, 21, 37; 1865, XVI.
 52 *C. Holst* 1847, 8, 10–19.
 53 *Op.cit.*, 24–5.
 54 *Schive* 1865, 3.
 55 *Schive* 1867B, 314.
 56 *Schive* 1867A, 252.
 57 *Schive* 1865, 29.
 58 *Loc.cit.*
 59 *Schive* 1865, *Rettelser og Tillæg til Myntbeskrivelsen* without pagination; supplement to page 29.
 60 *Herbst* 1866.
 61 *Schive* 1867B, 323–4.
 62 *Stenersen* 1881, 71.
 63 *Morgenstjerne* 1904, 51.
 64 *Morgenstjerne* 1877.
 65 *H. Hildebrand* 1885, 124–7; *Morgenstjerne* 1904, 49; *Fonahn* 1926, 282.
 66 *H. Holst* 1936A, 95.
 67 *Loc.cit.*
 68 *Op.cit.*, 99.
 69 *Op.cit.*, 102.
 70 *Op.cit.*, 100.
 71 *Op.cit.*, 102.
 72 *H. Holst*, 1944B, 217.
 73 *Galster* 1930, English translation in *Coins and History*, 79–104.
 74 *B. Malmer* 1961, 256.
 75 *Op.cit.*, 229–40.
 76 *Jammer et al.* 1956, 202.
 77 *B. Malmer* 1961, 360–1.
 78 *Op.cit.*, 354–6. See especially Pl. 17, which also includes the results arrived at by N. L. Rasmusson's study of the post-1100 Norwegian coins in the Lapp offering finds, cf. *Jammer et al.* 1956, 205–9.
 79 *B. Malmer* 1961, 290.
 80 *Op.cit.*, 290–3.
 81 Cf. *op.cit.*, 366–8.
 82 *B. Malmer* 1966C.
 83 *Suchodolski* 1972. S. Bolin has also, in a brief outline, touched upon the beginning of a Scandinavian coinage, where he pointed out the transition that took place in Denmark during the XI century: from a non-coin-producing area to a state with a coinage of the feudal character of Western Europe, *Bolin* 1961.
 84 *Bull* 1931, 116–19. H. Koht, in a standard biographical article on Harald Hardråde published the same year, mentioned the coinage of the king only parenthetically – almost as a curiosity, *Koht* 1931, 468.
 85 A Greek tetradrachm struck c. 190–150 BC in the Ionian city of Lebedos, a relatively rare coin, is said to have been found in a mound near the church of Tjølling, Vestfold; *Hanssen* 1901, 225–6. This is, however, a very questionable find.
 86 *Balling* 1963, 6–9.
 87 *Op.cit.*, 6 no. 1, 10 no. 3.
 88 *Balling* 1967.
 89 *Breitenstein* 1946.
 90 *Bolin* 1926. Cf. *Hauberg* 1895, 332–8. The Gotland finds of Roman denarii are at present being studied at the Royal Coin Cabinet, Stockholm. The material which has turned up since 1926, according to information kindly supplied by Mr. L. Lind, shows the same chronological distribution as did the material of Bolin.
 91 *Bolin* 1926 (133–9) nos. 17, 67, 69–70, 83, 97, 100, 138; (138) ill.
 92 The hoard from Oxarve, Hemse s., Gotland, buried after 1120 and containing 79 Roman denarii, AD 70–192, is especially noteworthy; *Stenberger* 1947, no. 295; *G. Hatz* 1974, no. 374, cf. nos. 277, 290, 344, 356. See also finds nos. 206, 224, cf. no. 227. Further examples are given by *Galster* 1930, 285 note 1.
 93 *Fagerlie* 1967.
 94 *Breitenstein* 1943A.
 95 *Fagerlie* 1967, 149. *Fagerlie* did not include Norway in her studies.
 96 *Op.cit.*, XXV.
 97 From the old Norwegian province of Båhuslen, which now belongs to Sweden (Bohuslän), two imitations of Roman multiple solidi are recorded. These pieces, which are both framed and looped, were found at Lilla Jored, Kville s. (SHM 421; *Mackeprang* 1952, 110 no. 14, Pl. 2:7), and at an unknown place in Svartaborgs s. (SHM 11019; *Mackeprang* 1952, 110 no. 15, Pl. 2:8).
 98 Find no. 81: 5.01 grammes, including the loop. Find no. 131: 4.60 grammes, excluding the loop, which is loose, but including the beaded border.
 99 As the coins proper and their frames and borders are of about the same thickness, the relation between the area of the coin proper and that of the whole piece would be approximately the same as the relation between the cubic volume and hence the weight of the two. We assume that the fineness of the gold

- is approximately the same. The true weights of these imitations calculated according to this method are usually equal to or below that of the corresponding genuine multiple, even before subtracting the weight of the loop, roughly estimated.
- 100 Cf. *Rasmusson* 1945, 213–14.
- 101 *Historia Francorum* VI 2, 245–6. Cf. *Grierson* 1959, 133.
- 102 Cf. *Berghaus & Schneider* 1967, 20.
- 103 The frame of a multiple solidus found in Hjortsøy, Öster Lisberg, Jutland, Denmark, is of the same type. Cf. *Breitenstein* 1943B, 91 Fig. 1, 93 Fig. 2.
- 104 C. J. S. *Marstrander* 1924, 16–18; cf. *Brögger* 1921.
- 105 *Herteig* 1955, 60–2.
- 106 *Shetelig* 1908.
- 107 *Böe* 1926, 64 no. 299, 82.
- 108 *Op.cit.*
- 109 *Böe* 1921.
- 110 The standard work on the Scandinavian gold bracteates is *Mackeprang* 1952. See also G. *Gjessing* 1929, *Galster* 1953A, and M. P. *Malmer* 1963, 76–221.
- 111 *Mackeprang* 1952, no. 125.
- 112 *Op.cit.*, no. 128; *Slomann* 1973, 207–17.
- 113 *Böe* 1921; 1926.
- 114 Cf. *Mackeprang* 1952, 96–101, the chapter on the technique of bracteate striking. In the find from Övre Tøyen 13 bracteates of two different flan sizes are all shown to have been struck by the same die, *Slomann* 1973, 212 Figs. 1–3.
- 115 See especially the bracteate from Hov, Fosnes, Nord-Trøndelag, *Mackeprang* 1952, no. 175, Pl. 3:5 and Plate I 10 below.
- 116 Cf. *Galster* 1953A, 6. In a few cases two bracteates are joined together to a two-sided, coin-like piece; see *Mackeprang* 1952, Pl. 3: 10a–b, 9:2, and M. P. *Malmer* 1963, 105, 123, 127–8, 130, 155. There is no reason to think, however, that these 'double-bracteates' had a different function from the one-sided bracteates.
- 117 *Berghaus* 1965 gives a brief survey of the Merovingian and Carolingian coinage.
- 118 *Vercauteren* 1961, 279: 'environ 5000'; *Berghaus* 1965, 150: 'mit 2000 nicht zu hoch gegriffen'.
- 119 *Grierson* 1965A.
- 120 *Bolin* 1939.
- 121 *Grierson* 1965A, 529–30.
- 122 Cf. *Kent* 1972, 74. The dating of *Kent* 1961, 9–11, c. 675, is now abandoned.
- 123 *Blunt* 1961, 40.
- 124 Cf. *Grierson* 1961.
- 125 Cf. *Welin & Granberg* 1956.
- 126 *Grierson* 1960.
- 127 *Op.cit.*, 253–4.
- 128 *Skaare* 1966C, 407.
- 129 Cf. the comments on find no. 152, see Chapter C1b.
- 130 *Linder* 1938.
- 131 *Welin* 1942.
- 132 K.-G. *Petersson & Welin* 1963.
- 133 *Galster* 1934.
- 134 *Hauberg & Östrup* 1914.
- 135 *Granberg* 1966, 30–50.
- 136 *Op.cit.*, 50–122.
- 137 *Miles* 1960. Cf. an analysis in *Sawyer* 1971, 219–31, of Russian coin hoards from S. *Bolin's* unpublished work *Studier över Mynt och Myntfynd i östra och norra Europa under vikingatiden*.
- 138 K. *Bendixen* 1972; 1974. Another Merovingian tremissis was found on Jutland, even further north, at Gadegård, Hellingsö, at Limfjorden. One tremissis is also known from each of the two North Frisian Islands of Sylt and Föhr, *Kersten & La Baume* 1958, 85, 226, 462; Pl. 116:1, 119:1; cf. K. *Bendixen* 1974, 98 note 50. A Frisian sceatta was found at Hedeby, see G. *Hatz* 1965. Even on Helgö in Lake Mälaren in Central Sweden a Frisian sceatta was recently found, see unprinted annual report 1974 on *Helgöundersökningen* from *Riksantikvarieämbetet och Statens Historiska Museum*, Stockholm.
- 139 *Welin* 1974.
- 140 In this site find, Kaupang, one of the Anglo-Saxon pennies was found together with one of the Frankish deniers, *Skaare* 1960A.
- 141 Cf. no. 41, Reine; the lost silver coin 'with an inscription in Latin characters' might have been a Frankish denier of an epigraphical type.
- 142 The stycas were made of very base metal. Analyses of five specimens have given a silver content varying between 3 and 13%. Copper, besides a certain amount of zinc, 1.6–16.8%, is by far the dominant metal in the alloy; see *Hall & Metcalf* 1972, 434.
- 143 *Lyon* 1956.
- 144 Lead weights with bronze ornaments are rather common in finds from Norway and other territories within the Norse sphere of influence, see *Brögger* 1921, 25 Fig. 10, 77–82 Figs. 19–38. For other ornamental uses of stycas, see *Stevenson* 1966, Pl. I 22, 43.
- 145 See *Hävernick* 1953; 1961; *Grierson* 1954; *Berghaus* 1959; *Morrison* 1961.
- 146 *Grierson* 1951.
- 147 *Op.cit.*, 25–6 Type I (I)c–d.
- 148 B. *Malmer* 1966A, 247. This is the standard work on the pre-1000 Scandinavian coins.
- 149 *Skaare* 1964; A. E. *Christensen jr.* 1964.
- 150 B. *Malmer* 1966A, 238–41; 1966B.
- 151 B. *Malmer* 1966A, 298 *Samling* 1.
- 152 *Op.cit.*, 303 *Samling* 30.
- 153 *Rasmusson* 1934; cf. *Skaare* 1960A.
- 154 Cf. no. 41, Reine. Scandinavian parallels are the finds from Lerchenborg, Zealand, Denmark, and Kettilstorp, Önum, Västergötland, Sweden, *Rasmusson* 1937, 128; *Montelius* 1873, cf. *Welin* 1974, 24 note 5; *Völckers* 1965, 118 no. LVII.
- 155 *Welin & Granberg* 1956.
- 156 Seven bars are with the hoard today, but one of the two carrying the same inventory number, [C.] 26387gg, is probably intrusive.
- 157 *Brögger* 1921, 80–5. The four additional weights are: 48 Kaupang: 26.2, 25.4, 24.1 grammes; 65 Bringsvær: 24.1 grammes.
- 158 Ab. 1867, 83–5; cf. *Brögger* 1921, 83 note 1.
- 159 *Brögger* 1921, 84.
- 160 *Op.cit.*, 23, 25 Fig. 10.

- 161 *Op.cit.*, 74–6. This weight, by the way, would conform closely to the weight of the Kufic dirhem.
- 162 Analyses of seven Sāmānid dirhems (AD 898–911) in the Copenhagen collection, showed 97–95.9% Ag. Galster 1934, 42; these results, according to information kindly provided by G. Galster, were obtained by chemical analysis. By X-ray fluorescence analysis of 14 Kufic dirhems ('mid-IX century'–c. 932) from Scottish finds, the silver content was found to vary from 98% to 91%, Hall & Metcalf 1972, 209. Four dirhems from the Norwegian find material were analysed by neutron activation:
Umayyad, 742/3 (find no. 5): 99.7% Ag
ʿAbbāsīd, 807/8 (136, note): 99.8% Ag
Sāmānid, 916/17 (147): 96.6% Ag
Ḥamdānid, 961/70 (36): 88.4% Ag.
By kind permission of Universitetets Oldsaksamling, Oslo, I was even able to submit some non-numismatic items, from the Teisen (12) and the Grimestad (43) hoards, to neutron activation analysis:
Ring of 98.50 grammes ('4 öre'): 95.4% Ag (43)
Ring of 48.36 grammes ('2 öre'): 94.9% Ag (43)
Ring of 48.04 grammes ('2 öre'): 96.5% Ag (12)
Ring of 45.36 grammes ('2 öre'): 94.2% Ag (12)
Ring of 31.48 grammes ('1 1/3 öre'): 94.8% Ag (12)
Fragment of ring, 25.93 grammes ('1 öre?'): 95.2% Ag (43)
Bar of 19.94 grammes (denomination?): 94.2% Ag (43)
- 163 See Grierson 1965A, 509 note 43, about rings having their weight expressed in (weight of) coins.
- 164 Cf. also an Icelandic find with weights and one dirhem, cut and pierced, Magnússon 1966.
- 165 *Icelandic finds of Kufic coins:*
'Mjóidalur', place of uncertain location. Before 1840. Hoard. 2 Sāmānids, 917/18–926/7. *Eldjárn* 1948, 41.
Gaulverjabær, Árnesýsla. 1930. Hoard. 5 dirhems. 2 ʿAbbāsīds, 869/70–919/20; 2 Sāmānids, 892/902–913/42; 1 not classified. *Eldjárn* 1948, 57.
Keta, Skefilsstaðahreppur, Skagafjarðarsýsla. 1952. Hoard.
4 dirhems: 1 Sāmānid, 913/32; 3 not classified. *Eldjárn* 1953.
Vatnsdalur, Patreksfjörður. 1964.
Grave find. 1 dirhem, c. 850/950. Magnússon 1966.
- 166 *Scottish finds of Kufic coins:*
Talnotrie, Kirkcudbrightshire. 1912. Hoard.
2 ʿAbbāsīd dirhems, 846/62–? Stevenson 1966, nos. 693–4.
Ardeer, Ayrshire. Stray find?
1 dirhem, early X century. Stevenson 1966, no. 696.
Trotterish, Skye, 1891. Hoard.
18 dirhems: 17 Sāmānids, 899/900–932/42; 1 imitation of Sāmānid (907/14). Stevenson 1966, nos. 697–714.
Skail, Sandwich, Orkney. 1858. Hoard. 19 dirhems: 3 ʿAbbāsīds, 915/16–945/6; 10 Sāmānids, 896/7–941/2; 6 not classified, probably Sāmānids. Stevenson 1966, nos. 715–33.
- 167 *Irish finds of Kufic coins:*
Lugga, Meath. C. 1843. Hoard.
1 Sāmānid dirhem, 914. Thompson 1956, no. 263.
Drogheda, Louth. 1846. Hoard.
3 dirhems, not classified. Thompson 1956, no. 129.
Kildare. 1840. Hoard.
1 dirhem. Thompson 1956, no. 205.
Claremont, Dublin. 1838. Hoard.
2 (or more) dirhems. Thompson 1956, no. 89.
- 168 *Finds of Kufic coins from the eastern shore of the Irish Sea:*
Goldsborough, Yorkshire. 1858. Hoard.
37 dirhems: 11 ʿAbbāsīds, 889–910.
2 Ṣaffārīds, 17 Sāmānids, 895–913/32; 7 not classified. Thompson 1956, no. 175.
Cuerdale, Lancashire. 1840. Hoard.
31 dirhems: 1 ʿAbbāsīd, 880; 1 Spanish Umayyad, 869/70; 29 not classified, mostly fragments. Thompson 1956, no. 112.
Bangor, Caernarvonshire, North Wales. 1894.
Hoard. 5 dirhems: 3 Sāmānids, 899–909; 1 not classified; 1 imitation of dirhem. Thompson 1956, no. 32.
- 169 Welin 1952, 4–5; cf. Jammer et al. 1956, 201.
- 170 Even a piece with reversed and rather barbaric legends, in the Grimestad hoard, can be classified by prototype.
- 171 Cf. Welin 1967.
- 172 Welin & Granberg 1956, col. 183; Arwidsson et al. 1957, 27; K.-G. Petersson & Welin 1963, 308.
- 173 Jammer et al. 1956, 198–9, 201; cf. Granberg 1966, 176 no. 1434.
- 174 Cf. find no. 136. A Kufic dirhem, dated 440 A. H. = 1049/50, belongs to a somewhat uncertain find, no. 136. The import of Kufic coins from Western Arab countries to Norway and other Scandinavian territories seems to have been very slight; cf. Welin 1965, and finds nos. 103 (Tunisia), 125 (Spain), 136 (Spain), 167 note (the Idrisid dirhem from Morocco). The dirhem of find no. 93 was wrongly attributed to Tunisia by Shetelig 1913, who generally overestimated the importance of Western Arab coins in Norway. Early Kufic dirhems of western provenance may even have come to Scandinavia via eastern routes, cf. Welin 1965, 24–5.
- 175 Find no. 90; cf. find no. 162.
- 176 Cf. Butler 1961.
- 177 Rasmusson et al. 1957.
- 178 B. Malmer 1968, 29.
- 179 Golenko 1965.
- 180 B. Malmer 1965, 55–6, Pl. 5.
- 181 Rasmusson et al. 1957.
- 182 See Chapter C 3.
- 183 B. Malmer 1966A, 136 Table 14; cf. 247, Table 37.
- 184 Rasmusson 1934; Galster 1964, 25–6 nos. 3–11; Skaare 1966C.
- 185 The seven Anglo-Saxon pennies, 924/39–946/55, from the isolated Rönnvik hoard (171) probably did not arrive in Norway before c. 950.
- 186 Cf. Dumas-Dubourg 1971, 30–40.
- 187 *Op.cit.*, 40–5.
- 188 Cf. Grierson 1964, ix; Blunt 1961, 54; Butler 1961,

- 214; *North* 1963, 192–3; *H. B. A. Petersson* 1969, 234–5.
- 189 Cf. *Hall & Metcalf* 1972, 205–8.
- 190 *Dolley & Metcalf* 1961.
- 191 *H. B. A. Petersson* 1969, 84–7, suggests a septennial cycle for the period between Eadgar's reform and Cnut's death.
- 192 *Dolley & Metcalf* 1961, 145, 150–1 Figs. II–III, and personal communication with M. Archibald, London.
- 193 *G. Hatz* 1974, 257.
- 194 Cf. *loc.cit.*; *Dannenberg* 1876; 1894; 1898; 1905; *Jammer* 1952; *Albrecht* 1959.
- 195 *Kraume & V. Hatz* 1961.
- 196 *Jammer* 1952, 27–33.
- 197 *Op.cit.*, 55–6.
- 198 *G. Hatz* 1974, 48–9.
- 199 Cf. *op.cit.*, 639–40 Map. 3–4, 653 Graph 9.
- 200 This decline is commonly explained by Edward the Confessor's abolition of the *heregeld* in the year 1051, see *Anglo-Saxon Chronicle D s.a.* 1052 (1051). The *heregeld*, introduced by Ethelred II at the end of his reign, was a tax levied for the purpose of supporting mercenary troops, preferably Scandinavians.
- 201 *Dolley & Skaare* 1961, 13.
- 202 Cf. Table 9.
- 203 See finds nos. 3, 35, 38, 49, 78, 90, 95, 102, 110, 127, 135, 143, 159; Plate V 4, 15, VII 8–9, VIII 6, 11, 20–1, X 10 below.
- 204 See below Pl. V 4, 15, VII 8–9, VIII 6, 8, 11, 20–1, IX 10, X 10.
- 205 Cf. Pl. V 21, VI 11, VII 5, 18 below.
- 206 Pierced coins, see finds nos. 36, 38, 49, 110, 135, 143, 159.
- Looped coins, see find no. 179.
- 207 *G. Hatz* 1974, 97–9.
- 208 Cf. *Galster* 1957, 18, 21.
- 209 Cf. *B. Malmer* 1965; *Lagerqvist* 1968.
- 210 See the next chapter.
- 211 Cf. on the other hand *B. Malmer* 1973.
- 212 See Chapter C1b.
- 213 *Dolley* 1958B, 85 and *passim*.
- 214 Håkon the Good: cf. *Schive* 1865, II; *Timm Coll.* no. 293. Earl Håkon Sigurdsson ('Håkon the Bad'): *Holmboe* 1846, 34–5; *Parsons* 1926, 6; cf. *Schive* 1865, 11–12.
- 215 *Tillæg til Beskrivelsen* 1794, 4 note 2.
- 216 *Lauerentzen* 1710; cf. *Ramus* 1826, 282 note.
- 217 *Keder* 1722, 70–1.
- 218 *G. Hatz et al.* 1968. The Onlaf coin might, nevertheless, have been a part of the Näs hoard. A major part of the hoard (2.6 out of 4.3 kg) was returned to the finder. Moreover there was some suspicion that the original find was not delivered to the authorities in its entirety; *op.cit.*, 290–1, cf. find no. 199.
- 219 *Ramus* 1826, no. 1 on plate facing page 275.
- 220 *Holmboe* 1846, Pl. I 2.
- 221 *C. Holst* 1847, 19.
- 222 *Schive* 1865, Pl. I 5.
- 223 Plates to unfinished work on Norwegian coins and seals, by A. Kall (1743–1821), Danish professor of history.
- 224 *Ramus & Devegge* (1867), Pl. XXXVII 1.
- 225 *H. Hildebrand* 1885, 122–7; 1887, 779. *Fonahn* 1926, 208.
- 226 *B. Malmer* 1961, 230–1, 235 Pl. I 1 a–b.
- 227 *B. Malmer* 1965, 47–8.
- 228 The moneyer's name of Godwine is known from 21 English mints during the reign of Ethelred II, see *North* 1963, 114–17; *Smart* 1968, 266–8.
- 229 *Erslev* 1875, 120.
- 230 *Wilcke* 1950, 563–8.
- 231 *Person* 1936, 140 note 6.
- 232 *Butler* 1961, 214, presumes a standard of 25.5 grains (1.65 grammes) for the *Crux* type. *H. B. A. Petersson* 1969, 197, gives the average weight of 22.9 grains/1.48 grammes for the same type.
- 233 Cf. *Hall & Metcalf* 1972, 411, 433.
- 234 *van der Meer* 1961, 186–7, with cited literature. According to the chronology suggested by *H. B. A. Petersson* 1969, 87, the transition from the *Crux* type to the Long Cross type took place in 995 or 996.
- 235 *Butler* 1961, 214, suggests a standard of 27.5 grains (1.78 grammes) for the Long Cross type; *H. B. A. Petersson* 1969, 212, gives the average weight of 24.3 grains/1.57 grammes for the same type; cf. note 232.
- 236 M. Dolley dates the beginning of the quite parallel Hiberno-Norse coinage at Dublin to the autumn of 997, *Dolley* 1973A, 27 notes 1–2, with cited literature.
- 237 Some coins of the *Crux* type with the obverse legend HEINRICVSCOM[ES], earlier attributed to Earl Eirik Håkonsson, Governor of Trøndelag 1000–1015, belong in fact to the coinage of Count Henry the Good of Saxony, cf. *Dannenberg* 1894, 642.
- 238 *Lyon et al.* 1961.
- 239 *Hauberg* 1900, Pl. II 23 var.
- 240 *Lyon et al.* 1961.
- 241 Difficulties arise in studying the Anglo-Saxon and Scandinavian coinages of the first half of the XI century as the mint signatures of the two important mints of London and Lund in Scania are very often identical.
- 242 *Hauberg* 1900, Pl. II 6, III 36.
- 243 *Dolley* 1958A, 37.
- 244 *Lagerqvist* 1968, 410.
- 245 *Hauberg* 1900, Pl. II 14, VI 48; *Lagerqvist* 1968, nos. 7–10, 17–19.
- 246 Personal communication with Professor R. H. M. Dolley, Belfast.
- 247 Cf. also *Hauberg* 1900, Pl. III 29.
- 248 *B. Malmer* 1966B, 213–14 Figs. 2–3.
- 249 The reading *Dominadus me fecit* suggested by *Parsons* 1926, 36, must be rejected.
- 250 *Hauberg* 1900, Pl. III 38, III 38 var., cf. III 39.
- 251 *Butler* 1961, 214, suggests two or more parallel standards, 22.5–16.0 grains (1.46–1.04 grammes). *H. B. A. Petersson* 1969, 215–16 gives the average figures 16.4 grains/1.06 grammes for the Quatrefoil type of Cnut.
- 252 See note 162.
- 253 One of the Sigtuna coins in the name of Cnut has the obverse legend CNVTIREXANO, *Lagerqvist*

- 1968, 393 type VII no. 16. This is certainly not meant to be the Norwegian title, but is only some blundered version of the ethnic ANĠ[LORVM].
- 254 *Holmboe* 1836/7, 28–9. *Thomsen Coll.* no. 11259. [*Dolley*] 1956.
- 255 *Reichel Coll.*, 270 nos. 5–6. Cf. the 'Cnut'/Asthriþ pennies, this chapter, above.
- 256 *Hauberg* 1900, Pl. VII 38.
- 257 *Holmboe* 1846, 36; *Schive* 1865, 20; cf. *Herbst* 1866, 381 no. 30.
- 258 *Logos nouthetetikos pros Basilea*, Ch. 246. Cf. *Storm* 1884, 360.
- 259 *Heimskringla*, Saga of Harald Hardråde, Ch. 3.
- 260 *Logos nouthetetikos pros Basilea*.
- 261 Cf. *Hendy* 1970, 193.
- 262 *Logos nouthetetikos pros Basilea*, Ch. 246. *Manglavitae*, literally 'strap-carriers', performed their services at the imperial palace, leading processions and assisting in other ceremonies, *Storm* 1884, 369.
- 263 *Logos nouthetetikos pros Basilea*, Ch. 246. Cf. *Storm* 1884, 369–71.
- 264 Quotation from Harald Hardråde's scald Tjodolf Arnorsson in *Heimskringla*, Saga of Harald Hardråde, Ch. 14.
- 265 *Logos nouthetetikos pros Basilea*, Ch. 246.
- 266 *Heimskringla*, Saga of Harald Hardråde, Chs. 5, 16.
- 267 *Op.cit.*, Ch. 16.
- 268 *Hendy* 1970, 193 note 2.
- 269 *Stender-Petersen* 1953, 151–64.
- 270 *Op.cit.*, 164.
- 271 *Adam Bremensis*, 196. This is only a gloss, not very convincing.
- 272 *Hendy* 1969, 6.
- 273 *Skaare* 1965D. The sixth coin is an unpublished penny in the Stockholm collection, a die-duplicate of *Skaare* 1965D, 100–1 no. 4, weight: 1.00 grammes. This coin originates from the 1880 Äspinge hoard, Hurva parish, Gotland (SHM 6620), cf. *G. Hatz* 1974, no. 147.
- 274 *Hauberg* 1900, 190 no. 3, 192 no. 16; cf. *Skaare* 1965D, 103.
- 275 *Hauberg* 1900, 222 no. 54.
- 276 *Skaare* 1965D, 100 nos. 1–2, 107.
- 277 *Hauberg* 1900, 217 nos. 28, 30; *Moltke* 1950, 7.
- 278 Cf. *B. Malmer* 1961, 356. *Skaare* 1965D, 110–11.
- 279 *Hauberg* 1900A.
- 280 *Grierson* 1966B, 130–8.
- 281 *Prou* 1892, 578 no. 2884, Pl. XXXVI 28.
- 282 *Hill* 1955, 16; Pl. II 26, 28, IV 26, 30, 32, 34. Cf. *Lyon* 1956, 228.
- 283 *B. Malmer* 1966A, Pl. 33:4, Pl. 34:9–10; cf. Pl. 33:6.
- 284 *Dolley* 1958B, 45 Fig. 2, 46 Fig. 3–4, 47 Fig. 5, 74.
- 285 *Dannenberg* 1876, Pl. 41: 933, Pl. 10:222.
- 286 *Op.cit.*, Pl. 19: 433–4, 437, 439–40, 442, 448.
- 287 *Op.cit.*, Pl. 15:337; Pl. 16:360, 364, 368, 381a; Pl. 17:385A, 386a–b.
- 288 *Dannenberg* 1905, Pl. 114:2040.
- 289 *Dannenberg* 1876, Pl. 57:1291. *Jammer* 1952, 90.
- 290 *Hauberg* 1900, Pl. III 32–3, 35, 38, 40.
- 291 *Op.cit.*, Pl. V 32–4.
- 292 *Op.cit.*, Pl. VII 20–1.
- 293 *Op.cit.*, Pl. IX 38, XI 72.
- 294 *Op.cit.*, Pl. V 32, 34, VII 20.
- 295 *Grierson* 1966B, 128.
- 296 *Op.cit.*, 129.
- 297 *Schive* 1865, Pl. VIII 3 and 76.
- 298 *Stenersen & Brögger* 1912, 10 no. 99, Pl. II.
- 299 *Lindqvist* 1941, 94, Figs. 80–1, 83, 85–6, 94–5, 97, 110, 112; 1942, 68, 72, 83–9, 92–3, 98–9, 121–3, 128–9, Figs. 417, 440–1, 448, 510, 512, 522–3.
- 300 *Brögger & Shetelig* 1953, 99, 139; here the figure is called 'three interlocking triangles'.
- 301 *Friis Johansen* 1912, 192. *Welin* 1956, 165. See *Dolley* 1958B, 32 for the dating of the hoard.
- 302 *Skovmand* 1942, 95 no. 37, 96 Fig. 20.
- 303 *Stenberger* 1947, 43–4 no. 104 Fig. 20.
- 304 *Op.cit.*, nos. 222, 224, 445, 491, 493, 502, 525.
- 305 *Nörlund* 1924, 47–9 Fig. 32.
- 306 *Huitfeldt-Kaas* 1899, no. 922.
- 307 *Erslev* 1875. *Dannenberg* 1876, 21. *Friedensburg* 1913, 17–21; 1922, 163. *Galster* 1929, 411–12. *Dolley* 1958B, 69.
- 308 *B. Malmer* 1961, 318–19; the find place is here called Stavenes.
- 309 *Loc.cit.*
- 310 *Op.cit.*, 318–20.
- 311 *Op.cit.*, 242–4.
- 312 *Schive* 1867B, 324–5. *B. Malmer* 1961, 250, 317–19.
- 313 Cf. note 2 following find no. 201. *G. Hatz* 1974, 247, 249.
- 314 *Nöbbe* 1936, 134 no. 10.
- 315 An Anglo-Saxon penny, c. 1053/6, *Nöbbe* 1936, 134 no. 11, may be contemporary with the *Triquetra* specimen.
- 316 *Heimskringla*, Saga of Harald Hardråde, Ch. 34.
- 317 Within numismatic metrology there has been some methodological discussion as to whether the median weight or the average (mean) weight is the most reliable figure to work on in metrological investigation of coin groups of unknown standard. Cf. *B. Malmer* 1961, 282–3 note 64, *Grierson* 1963, ii–v, and *H. B. A. Petersson* 1969, 15–25, who in his work on the late Anglo-Saxon coinage gives preference to the average weight. In the present study both the median and the average weights are usually given. In the case of the *Triquetra* pennies the two figures are shown to be practically identical.
- According to earlier theory the maximum weight, i.e. the highest weight recorded, was to be the correct standard weight, in this case 1.21 grammes. A modification of this theory is based on the so-called corrected maximum weight, i.e. the value to which the coin weights in centigrammes rise in sequence from the lightest. The corrected maximum weight of the *Triquetra* group is 1.13 grammes. However, both these methods must now be rejected, at least for early medieval pennies, cf. *H. B. A. Petersson* 1969, 15–16.
- The three *Triquetra* pennies from the excavations in Trondheim 1975 (find no. 148a) came too late to be included in the metrological investigation.
- For the silver net weight of the *Triquetra* coins, see Figure 3b.
- 318 From experience of modern coins and from some

references to ancient and medieval hoard material Grierson 1963, xiv, vaguely concludes: 'One should probably be prepared for the possibility of corrections of anything between 1 per cent and 15 per cent according to the nature and condition of the material involved.'

319 The influence of a touchstone analysis on the weight may be gathered from four coins in *Stenersen* 1895, 17:

No.	Weight according to Stenersen (grammes)	Present weight (grammes)	Loss of weight (grammes)		
110 } 111 }	1.80	0.894 } 0.870 }	1.764	0.036	2.0%
112	0.78	0.761		0.019	2.4%
113	0.82	0.815		0.005	0.6%

The weighing was carried out by means of two different weighing instruments.

320 See Chapter D.1-2.

321 *H. B. A. Petersson* 1969, 196-8.

322 *B. Malmer* 1961, 347-59.

323 *Hauberg* 1900, 152-5.

324 *Norges gamle Love* I, 225 (*Frostatingslov* X 35), 333 (*Bjarköyrett* 162).

325 *A. Steinnes* 1936, 90.

326 See Table 13.

327 *Schive* 1865, 31 nos. 18, 20-6.

328 *Stenersen* 1895, 17, 24, 29. Letter of 18 April 1895 from Professor T. Hiortdal, Chemical Laboratory, University of Kristiania.

329 *B. Malmer* 1961, 290.

330 *Skaare & E. Steinnes* 1966, 85, cf. 86-7.

331 *Dolley & Skaare* 1973, 224.

332 *Hall & Metcalf* 1972, *passim*.

333 Two specimens from the Danish coinage of Harald Sigurdsson have been analysed by neutron activation:

Skaare 1965D, 100 no. 2: 88.8% Ag.

Skaare 1965D, 101 no. 5: 83.7% Ag.

334 *Stenersen* 1881, Type D no. 1: 36.3% Ag.

Stenersen 1881, Type E no. 1: 46.9% Ag, no. 2: 41.5% Ag.

Stenersen 1881, Type P nos. 1-14: 54.0% Ag, 52.3% Ag, 46.3% Ag, 44.5% Ag, 40.6% Ag, 36.5% Ag.

335 *Stenersen & Brögger* 1912, 4.

336 Cf. *Grieg* 1929, 237 no. 53.

337 Cf. *B. Malmer* 1961, 288-9.

338 *B. Malmer* 1961, 289-90.

339 Cf. *B. Malmer* 1961, 306.

340 *Op.cit.*, 308-9.

341 *Dolley* 1955, 168-9.

342 *Jammer et al.* 1956, 189. No. 176 has a questionable attribution to *Stenersen* type L, which seems to have been abandoned, cf. *B. Malmer* 1961, 261.

343 *B. Malmer* 1961, 308-9.

344 *Op.cit.*, 309.

345 *Op.cit.*, 310-12; note especially the instructive illustration on page 311 Pl. 7.

346 Compare Table 23 with *B. Malmer* 1961, 311 Table 9.

347 Cf. *Welin* 1956, especially pp. 151-3. Graffiti, notches, and nicks are less relevant to the groups of Norwegian pennies examined here. See also *Welin* 1968, and *G. Hatz* 1974, 99-101.

348 This method of testing the silver is even touched upon in the written sources:

lögsilfr þat, er meiri litr sé silfrs á en messingar ok þoli skor ok sé jafnt utan ok innan, Grágás II 141⁷; (*silfrþeningr*) *hvítr í skor, Codex Frisianus* 95:28.

349 For comparison, the pecking frequency of some Norwegian hoards may be instructive: Find no. 36, Tråen: all the German and Anglo-Saxon coins were pecked. Find no. 147, Dronningens gt.: 84% of the Anglo-Saxon coins and 99% of the German coins were pecked.

350 *G. Hatz* 1974, 101.

351 *Al-Hamdāni*, 334-5. *G. Hatz* 1974, 99.

352 For comparison, here is the frequency of bent and dented coins in some earlier Norwegian hoards. Find no. 36, Tråen: all the German and Anglo-Saxon coins were more or less bent and/or dented. Find no. 147, Dronningens gt.: 85% of the Anglo-Saxon coins and all the German coins were more or less bent and/or dented.

353 E.g. there is a higher frequency of bent and dented coins in the Måge hoard than in the Gresli hoard.

354 The average figures are:

cut halfpennies: 5.6% for the Anglo-Saxon coins;
2.9% for the German coins
cut farthings: 1.5% for the Anglo-Saxon coins;
0.5% for the German coins

355 In some cases, though not among the surviving examples of Norwegian pennies currently under discussion, there are coins bearing two, three or more holes distributed round the edge. These coins were probably attached to clothes or other equipment of cloth or leather.

356 In the finds from the Lapp offering-places of Rautasjaure and Gråträsk in Northern Sweden the *Triquetra* coins, like all the other complete coins (with one exception) in these finds, were pierced or looped: 1 ○, 8 ◇, 18 △, 2 looped; 4 fragments without traces of piercing or looping. All or at any rate almost all this secondary treatment must be localized to the finding area and its inhabitants at the time in question. Some of the pierced coins, even those with a triangular perforation, were found with traces of woollen thread in their holes. Among these nomads the coins were primarily used as pendants, contrary to the usage in the homeland of the coins.

357 *Hauberg* 1900, Pl. III 32-3, 35 (dots), V 34 (cross), IX 38 (annulets). Cf. also Anglo-Saxon pennies of the York mint with annulets in the cross angles of the reverse. SCBI, Ashmolean Museum, nos. 775-9, 819-22, 857-61.

358 *Hauberg* 1900, Pl. IV 54, VI 41-3, VII 13, 16, 29, 30, IX 20, 31-5.

- 359 22 out of 85; many coins fail to provide evidence useful to this investigation, owing to the blundered legends without any marked initial symbol.
- 360 'Hammers' or Crescent with stem in otherwise vacant quarters.
- 361 Cf. *Hauberg* 1900, Pl. VII 35, X 57, and XI 66-7.
- 362 Cf. the forms *Anglorum*, *Danorum*, and *Normannoru[m]* on coins struck in the first part of the XI century.
- 363 On coin no. 6, linked to the *Triquetra* group through the reverse type, the obverse legend ARA//R// gives only traces of the king's name and title.
- 364 Cf. the same phenomenon on pennies of Olaf Kyrre, *Stenersen* 1881, 39-41.
- 365 *Moltke* 1950, 34 no. 258.
- 366 *Mossop et al.* 1970, Pl. IV 21-33, V 1-6, LXXIX 2-4, LXXX 16-18, and 25-6.
- 367 *Hauberg* 1900, 202 no. 28 (Garfine).
- 368 *Op.cit.*, 207 no. 1.
- 369 *Moltke* 1950, 34 no. 258.
- 370 *Hauberg* 1900, 227 no. 3.
- 371 *Op.cit.*, 228 no. 1, Pl. XII Oluf Hunger: 1.
- 372 *B. E. Hildebrand* 1881, Ethelred II no. 244 (Type A), Edward the Confessor nos. 389-90; *BMC* nos. 689-90. Cf. *Smart* 1970, 22.
- 373 *B. E. Hildebrand* 1881, Ethelred II no. 960.
- 374 *Op.cit.*, Ethelred II nos. 241-4.
- 375 *Mossop et al.* 1970, Pl. LXVII 14-18, LXIX 21-5, LXXII 1, 28-9, LXXIII 21, LXXV 4-5, LXXVII 3, LXXVIII 8-13, LXXIX 13-19, LXXX 4-5, 20.
- 376 *Op.cit.*, Pl. LXXXII 6-7, LXXXIII 2, 13, 18, 25-31, LXXXIV 1-4, 7-10, 15.
- 377 *Hauberg* 1900, 195 nos. 36 (VLIF) and 37, Pl. III 36-7.
- 378 *Op.cit.*, 204 nos. 34, 36-8, Pl. V 34, 36-8.
- 379 *Op.cit.*, 218 nos. 32-32a.
- 380 *Op.cit.*, 225-6 no. 1.
- 381 *Op.cit.*, 227 no. 3.
- 382 *Op.cit.*, 231-2 no. 9.
- 383 *B. E. Hildebrand* 1881, Ethelred II nos. 1468-9.
- 384 *Smart* 1968, 236, cf. 241.
- 385 *Op.cit.*, 241, 235.
- 386 *Heimskringla*, prologus.
- 387 Cf. *B. Malmer* 1961, 263-9.
- 388 *Seip* 1931, 3-4.
- 389 Norwegian pennies of this period with low silver content have now been identified as struck at Nidarnes/Nidaros: specimens of *Stenersen* type T reading LEVIGON/VIQ.
- 390 *Schive* 1867, 315 note 1.
- 391 24 obverses and 25 reverses, chiefly of lost specimens and fragments, could not be satisfactorily examined.
- 392 *B. Malmer & Rasmusson* 1960, col. 146.
- 393 Cf. 14a and *Stenersen* 1881, 39-40, Pl. IV 116. cf. *Hauberg* 1900, Pl. III 29, IV 51.
- 394 *Stenersen* 1881, 42, Pl. V 129.
- 395 One legend, R106 (35a), surviving only in part, begins with Mo-, two others, R16 (58) and R105 (59), begin with N.
- 396 *B. Malmer* 1961, 263-74.
- 397 *Op.cit.*, 265-6, see even Pl. 4.
- 398 *Op.cit.*, 267.
- 399 *Loc.cit.*
- 400 *Op.cit.*, 299. *B. Malmer's* definition runs: 'In blundered legends by "initial symbols" those symbols are understood which are placed straight in line with the arms of the voided cross. If the symbol is not a cross or an "I" flanked by two pellets it is required that at least two symbols, in the offering-place material exclusively "o", are placed symmetrically at either extremity of one arm of the cross.'
- 401 On three of these dies the 'annulets' are directly attached to the respective cross arms. On three other dies, where the plain cross is a little off the initial position, the two lines of each cross arm are extended into curves.
- 402 Even when in accordance with the definition in note 400, one doubts whether this letter is really meant as an initial mark at all.
- 403 *B. Malmer* 1961, 301.
- 404 In the late Anglo-Saxon coinage the normal ratio between obverse and reverse dies is supposed to have been 1:2, cf. *Dolley* 1961, 156-7.
- 405 Cf. *B. Malmer* 1966A, 160-1.
- 406 *Schive* 1865, Pl. VIII 3.
- 407 *Op.cit.*, Pl. II 28-42, III 1-43. *Stenersen* 1881 Pl. I-VIII. *B. Malmer* 1961, 260-1, 363 Pl. 16.
- 408 Cf. *Stenersen* 1881, Pl. I 16-17, 19-24, II 42, 44-45, V 137. *B. Malmer* 1961, 304-5, 300 Pl. 6:18-21.
- 409 Nine especially high figures, 95.3-71.2% Ag, all found with specimens from the Måge hoard (102), may be due to some secondary silver enrichment.
- 410 *B. Malmer* 1961, 361.
- 411 *Stenersen* 1881, 11-12, Pl. 14 (Type D), 12-13, Pl. I 16 (E), 39-41, Pl. IV 115-18, 120, V 121-5 (P). The supposed reading of the king's name of Magnus [Haraldsson] on some coins of this period, *Stenersen* 1881, 19-21, and *H. Holst* 1936A, 101 cf. *B. Malmer* 1961, 339-42, cannot be maintained.
- 412 *Olsen* 1960, 215. Cf. *Smart* 1968, 242, 253, 259.
- 413 *Skaare* 1970.

H. Introduction to the catalogues

The first section (I, nos. 1–184 including three additional entries: *12a*, *90a*, and *148a*) of the catalogue of finds comprises all the known Norwegian finds of coins – with a few related, coin-like objects – earlier than *c.* 1100. The second section (J, nos. 185–229) enumerates foreign finds containing Norwegian coins earlier than *c.* 1100. The territory concerned in section I is Norway proper, with her post-1660 boundaries. Finds from old Norwegian provinces or from territories dominated by the Norwegians in the Viking Age/Middle Ages are briefly mentioned in note 97 (cf. notes 165–8), if they are not included in section J, the catalogue of foreign finds. See especially 201, note 2.

The Norwegian finds in Chapter I are grouped geographically, from the south (south-east) to the north. Within each *fylke* (county), which is the first subdivision, the finds are arranged according to the ecclesiastical division into *prestegjeld* (abbreviated *pgd.*, parish served by one priest) and the sometimes identical, but usually smaller *sogn* (abbreviated *s.*). Finds from the same *sogn* are listed in alphabetical order. The name of the find spot, given in capital letters, is usually that of a farm. In other cases, e.g. a church or a churchyard, this is especially mentioned. Some finds can only be localized to a *sogn*, a *prestegjeld*, or to an even larger district. Finds from cotter's farms and other small farms, which are or have originally been parts of larger farms, are named after the smallest possible unit. If the name of the larger farm is a quite different one, this name is added. Some names of find spots, on the other hand, may correspond with two or more neighbouring farms today. It has not been found worthwhile in this connection, to enter upon all kinds of detailed historico-topographical studies in trying to localize the find spot in each case. When the find has been called by quite a different name – often that of the larger farm or that of the district – in earlier records and literature, this is mentioned. The time of the discovery of the find is indicated as precisely as possible. This may be of some importance, e.g. in tracing dispersed specimens.

The present whereabouts of the find is, when known, recorded by the usually abbreviated name of the museum(s) in question. This is done even in those cases where the coins are merged with the main collections and have therefore not been identifiable. To the museum's name is added, in parentheses, the inventory number, if the find has one, or other references. The inventory numbers of the museums are preceded by special signatures; see *Abbreviations and Definitions* (Chapter M1).

A Government Decree of 30 June 1906 and a Royal Decree of 10 October 1906, as supplements to the Antiquities Act of 13 July 1905, authorized the museums in Kristiania (Oslo), Stavanger, Bergen, Trondheim, and Tromsø to act on behalf of the state in their respective districts. Universitetets Myntkabinett, Oslo, was granted the right to the coin finds from what are now the following counties (*fylker*): Östfold, Oslo, Akershus, Hedmark, Oppland, Buskerud, Vestfold, Telemark, Aust-Agder, and Vest-Agder. Coin finds from the rest of Norway, like other national antiquities, go to the Stavanger Museum (Rogaland *fylke*), to the Bergen University Historical Museum (Hordaland *fylke*, Sogn og Fjordane *fylke*, and Sunnmøre in Møre og Romsdal *fylke*), to Det Kongelige Norske Videnskabers Selskabs Museum, Trondheim (Romsdal and Nordmøre in Møre og Romsdal *fylke*, Sør-Trøndelag *fylke*, Nord-Trøndelag *fylke*, and Helgeland – except Lurøy, Rödøy, and Meløy *prestegjeld* in Nordland *fylke*), and to the Tromsø Museum (Lurøy, Rödøy, and Meløy *prestegjeld*, Salten, Lofoten, and Vesterålen in Nordland *fylke*, Troms *fylke*, and Finnmark *fylke*). The Antiquities Act of 29 June 1951, with the Royal Decree of 5 December 1952, repeats, as far as coin finds are concerned, the provisions of 1905–6.

The context of the find and the circumstances in which the find came to light are briefly described. The references to non-numismatic items do not pretend to be complete; they are only meant to serve as a background to the coins. Special attention is paid to containers of hoards, purses, blanks, non-numismatic silver and gold, weights, and items which in finds from graves may help to identify the sex of the buried person.

The burial date of a hoard is indicated by the earliest possible minting date of the latest coin. Then follows a concise list of the coins, arranged in groups in the following sequence, which to a certain extent corresponds with the general development of coin history:

Roman	Polish
Byzantine	Russian
Kufic	Anglo-Saxon
Frankish	Hiberno-Norse
Italian	Early Scandinavian
German	Danish
Bohemian	Swedish
Hungarian	Norwegian

Imitations are placed immediately after their prototypes. Of the many different imitations of Roman gold coins the catalogue only lists the two-sided ones. Finds of the uniface gold bracteates (see Chapter C 1b) are not included. Impressions in metal foil made directly from original coins (Roman and Kufic respectively) are met with in two finds (41, 131).

The references section comprises both published and unpublished records and other literature, but must not be regarded as a complete

bibliography. If a find is simply mentioned in passing by an author, usually no reference is made.

The catalogue on the foreign finds containing Norwegian coins earlier than c. 1100 (Chapter J) is arranged according to very much the same principles as the catalogue on Norwegian finds (Chapter I). For practical purposes the two catalogues are numbered consecutively. Notes on find circumstances are left out of catalogue J, and the coins, except for the Norwegian ones, are more briefly summarized. The references section is less detailed than in the catalogue on Norwegian finds and does not in any way aim at completeness.

In both find catalogues, reference is made to the *Corpus of Norwegian coins c. 995-c. 1065* that follows them. This corpus, concluding with the *Triquetra* type of Harald Hardråde, contains 273 specimens. The types, briefly named after the type or a detail of the obverse or the reverse, have roman numerals. The varieties, with a more detailed description, have arabic numerals. Within one variety there may be one or more pair of dies. The individual dies are indicated by the letter O (obverse) and R (reverse) followed by an arabic numeral. The sequence of the die numbers begins with the dies of intelligible legends, but is not otherwise bound to any strict system. The legends of the single dies are rendered in drawings, as far as is practically possible. Those parts of legends that are illegible owing to wear and poor striking are indicated by hatching.

The single coins are numbered with small letters and alphabetically arranged according to their place of disposition. The provenance is given by find number, referring to the catalogues I-J. For six more important finds there are even references to the individual number of the coin in the original publication; *Stenersen* 1895 for finds nos. 31, 38, and 49; *Stenersen* 1881 for find no. 143; *Jammer et al.* 1956 for finds nos. 190 and 192.

The single specimens are published with the weight in grammes, the silver content in per cent and the diameter in millimetres as far as I have been able to find this out. The die-axis is given only when the number of degrees can be measured. Finally, remarks on cut pieces, fragments, breakages, and piercing are added.

I. A catalogue of Norwegian finds of coins and some related objects earlier than *c.* 1100

Östfold

1. LEKUM, Eidsberg s. & pgd. 1844

Disposition: UMK (AC 16 December 1844), not identified.

Roman silver coin found on the site of the so-called Corpus Christi Cloister.

1 Roman denarius, AD 138/61

H. Holst 1929, 119; 1935 A, 116 no. 1; 1944 A, 59 no. 1.

2. BÖLER, Trömborg s., Eidsberg pgd. 1867

Disposition: dispersed.

'Thin gold coin with a ring' found in a burial mound where it was placed on some burnt bones in a soapstone vessel. This vessel is supposed to date the grave to the Late Iron Age. The 'coin' was sold to a Swedish tramp.

1 gold coin, Roman period or later, or gold bracteate? 'with a ring': framed, with beaded border and/or looped?

Ab. 1868, 80. *Montelius* 1869, 40 no. 285. *Böe* 1926, 7 no. 3. *G. Gjessing* 1929, 164. *J. Petersen* 1943, 13. *Mackeprang* 1952, 96 note 2.

3. FUGLEVIK, Kråkerøy s. & pgd. 1880

Disposition: UMK (FC no. 52:10 and 20 August 1880); *UO* (C. 10131).

About 80 silver coins found – as reported – behind a slab of rock together with a small silver bar (weight: 2.8 grammes). 'Several' coins are said to have been destroyed by the finder in testing the silver. Total weight of (61) coins: 57.98 grammes.

Burial: after *c.* 991; cf. note.

1 German penny, end of X century/*c.* 1000

About 62 Anglo-Saxon pennies, including 6 small fragments of uncertain type(s), *c.* 979/85–*c.* 991/7, cf. note; 1 cut halfpenny, 1 cut fragment, 24 fragments

About 17 ('several') silver coins, not classified

Ab. 1880, 202 no. 133. *Grieg* 1929, 210 no. 13. *H. Holst* 1936 C, 8 no. 3. *J. Petersen* 1940, 145 no. 1. *H. Holst* 1944 A, 60, 62–5 no. 5a–b. *Jammer* 1952, 131 no. 94.

Note. In the find list of the UMK FC, by L. B. Stenersen, one of the Anglo-Saxon pennies is recorded as 'H[ildebrand, first ed. no.] 614 Type C'. Hildebrand no. 614 is, in fact, of type D, now dated *c.* 997/1003. In any case, the coin seems to have disappeared, so it is difficult to tell which description is correct.

4. NEDRE STRÖMSHAUG, Råde s. & pgd. 25 November 1826

Disposition: UMK, 8 solidi (AC 12 November 1827; 1831 nos. 272-7); HMB, 2 solidi. 14 Byzantine gold coins found under a stone that was blasted while clearing a field for cultivation. On the same occasion several silver coins, partly broken, are said to have been found: 'so many that the finder could have quite a solid spoon made thereof'. The actual spoon, still kept on the farm, bears the date 1830 and the inscription: 'This silver was found on the farm Strömshaug October 1827 [sic]'. The discrepancy of the dates seems to indicate two different discoveries and may even indicate two different hoards. The weight of the spoon is 39.24 grammes, the silver content 78% Ag (neutron activation).

Burial: after 945.

14 Byzantine solidi, 921/7-945/59

Unknown number of ('several') silver coins, not classified

Christie 1834, 192-3. *O. Rygh* 1877 B, 120-1 no. 2. *H. Holst* 1928 B, 89-90; 1935 A, 116 no. 2; 1936 C, 8 no. 1; 1939 A, 133-4; 1942, 40-1; 1944 A, 60 no. 3.

5. OS CHURCHYARD, Halden s. & pgd. 1841. 1842. (1859)

In earlier records the find spot is sometimes called *Fredrikshald kirkegård*.

Disposition: UMK (AC 4 June 1841; 1 February 1842); UO (C. 2409).

2 Kufic silver coins found at the same place as a silver ring with a loop loosely attached (weight: 171 grammes). Total weight of coins (including one loop): 5.71 grammes.

Burial (of this small remnant(?) of a hoard): after 16 January 834.

2 Kufic dirhems: 1 Umayyad, 742/3

1 °Abbāsīd, 834/5; looped

Tornberg 1848, XLIX note. *Nicolaysen* 1862/6, 2. *Ab.* 1875, 248. *O. Rygh* 1877 B, 120 no. 1; 1885, 27 no. 486, ill. 486. *Markov* 1910, 101 no. 12. *Grieg* 1929, 203 no. 3. *H. Holst* 1944 A, 60 no. 4.

6. ST. OLAVS VOLL, Sarpsborg. 1852

In earlier records the find spot is sometimes called *Sarpsborg*.

Disposition: UMK (AC 19 May 1853, 8 August 1853, 27 December 1889).

45 silver coins, probably the greater part of a hoard, found in the so-called St. Olavs Voll (i.e. the rampart) of the medieval town of Borg (the present Sarpsborg).

Burial: after 1047.

1 Byzantine miliaresion, 976/1025; pierced ○

39 German coins, 38 pennies and 1 obol, 936/62-1039/47, 1031/51; 30 fragments

3 Anglo-Saxon pennies, c. 1029/35-c. 1044/6; fragments

1 imitation of Anglo-Saxon penny (c. 997/1003); fragment

1 Norwegian penny, 1047/c. 1055

Grimsgaard 1862. *O. Rygh* 1877 B, 121 no. 3. *H. Holst* 1929, 117-18; 1935 A, 116 no. 3; 1936 C, 8 no. 2. *J. Petersen* 1940, 145 no. 2. *H. Holst* 1944 A, 59-60, 64-5 no. 2a-d; 1954 B. *Albrecht* 1959, 189 no. 441.

Corpus 11b

K. Corpus of Norwegian coins c. 995–c. 1065

Olaf Tryggvason 995–1000

Type I: 'CRVX', c. 995–8

Mint: – Moneyer: Godwine

1. O. Bust to l. with sceptre;
all within linear circle
- R. Short cross voided within linear circle;
in quarters C–R–V–X

O1 **✠ONLAFRE**NOR*** R1 **✠GOBPINEM-ONO:**

a. Berlin	227	1.54 g	19.5 mm	180°
b. Lund	198	0.98 g chipped	17.8 mm	0°
c. Visby	214	1.64 g/93.2% Ag	19.7 mm	270°

O?

R?

- d. Whereabouts
unknown 199

Olaf Haraldsson 1015–1030

Type I: Long Cross, c. 1017–25

Mint: – Moneyer: Asðrið

2. O. Bust to l.
- R. Long cross voided; each cross arm
terminating in 3 crescents; pellets in
cross centre

O1 **✠VNLAFFI**ANOR*** R1 **✠AS ðRI ðMO *NOR***

a. Bergen	135	(0.30 g) fragm.		0°
b. Helsinki	216	1.06 g	20.4 mm	90°
c. Oslo	226	1.04 g	19.7 mm	90°
d. Stockholm	197	0.88 g	19.9 mm	0°
e. Stockholm	208	0.96 g/91.8% Ag	20.0 mm	90°
f. Stockholm	213	1.23 g	20.2 mm	0°

O? '... EXANOR'

R? '... DMONOR'

- g. Whereabouts
unknown 228

cut halfpenny

Type II: Facing Bird, c. 1019–28

Mint: – Moneyer: –

3. O. Bust to l. with sceptre
- R. Facing bird with outstretched wings
and head turned upwards to l.

O1 *OLEFRE+NORTI-NORV R1 * I H J N I I V I V O H

a. Oslo	39	1.01 g/90.2% Ag	20.4 mm	210°
b. Oslo	39	0.96 g/82.6% Ag	20.7 mm	90°

Type III: Pointed Helmet, c. 1023-8

Mint(s): - Moneyer(s): -

4. O. Bust to 1. with pointed helmet and sceptre R. Short cross voided

O1 *ONLAFER+NORMANORV R1 + Γ F : 7 V + DOMINADSR

a. Stockholm	213	3.04 g/96.1% Ag	22.0×21.7 mm reg. (270°?) struck on square flan
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5. O. As no. 4 R. Short cross voided over saltire crosslet

O1 R2 + V O E T + // I I V L I I I I I G O

a. Oslo	39	2.40 g	21.2×21.1 mm reg. (180°?) struck on square flan
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Harald Hardråde 1047-1066

Type I: Helmeted Bust, c. 1047-55

Nidarnes: 'Gereiða'

6. O. Helmeted bust to 1. R. Short cross voided within inner linear circle; 3 pellets in second and fourth quarters

O1 ARA H R1 + D E K E I D ^ C \ N I D

a. Copenhagen	195	0.78 g/89.5% Ag	17.1 mm	0°
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Type II: Triquetra; First issue (pennies of silver content above about 75% Ag): c. 1047-55; Second issue (pennies of silver content below about 75% Ag): c. 1055-65

Key to varieties within the reverse type:

- A Short cross voided within inner lineal circle
- B Short cross voided
- C Long cross voided

- 1 Three pellets in first and third quarters
- 2 Three pellets in second and fourth quarters
- 3 Three pellets in two opposite quarters (beginning of reverse legend not determined)

- a No symbol in cross centre
- b Pellet in cross centre
- c Annulet in cross centre

A. PENNIES WITH INTELLIGIBLE LEGENDS

Hamar: Olaf

7. O. Triquetra within linear circle R. A; 3 pellets in first quarter, 1 pellet in the 3 others

O4 **†HVKVYDĪHE** R3 **†OLAF..AHMIR**

a. Oslo 38 110 0.87 g/25.8% Ag 17.6 mm 180°

8. O. As no.7 R. A b; 3 pellets in second quarter, 1 pellet in the 3 others

O5 **†R·R(L)ORAN†** R4 **†OLAF R·AHMIR**

a. Oslo 38 111 0.89 g/33.0% Ag 16.5 mm 0°

9. O. Triquetra surrounded by 3 crosses and 2 pellets (accessory symbols or 'legend'?) R. A2a

O8 **† · † † ·** R5 **†OGVET· HVWĪ**

a. Oslo 38 112 0.76 g/47.0% Ag 18.2 mm

Nidarnes: Gerfin

10. O. Triquetra; below pellet R. Ala

O2 **†HARALDRE†NO** R2 **†KFINONIDARĪ**

a. Leningrad 220 0.92 g 180°

Nidarnes: Ulf

11. O. Triquetra R. A2a

O1 **†HARALDREXNO** R1 **†VLFONNIDARNE**

a. Copenhagen 202 0.77 g/87.5% Ag ('14 lod') 16.9 mm 180°

b. Oslo 6 0.82 g/90.8% Ag 16.9 mm 90°

c. Stockholm 213 (0.43 g)/92.7% Ag cut halfpenny 16.4 mm 90°

O? R?

d. Whereabouts unknown 200

Mint(s): - Moneyer(s): -

12. O. Triquetra; below cross R. A2a

O3 **†HARALDRE†ND** R7 **†:NIOYNKIMIA:1**

a. Oslo 35 0.90 g/90.2% Ag 17.9 mm 180°

b. Oslo, ex O. C. Björnstad Coll. 0.82 g/82.6% Ag 18.6 mm 180°

c. Stavanger 90 (0.46 g)/96.7% Ag cut halfpenny approx. 17.4 mm 0°

d. Stavanger 90 (0.43 g)/91.8% Ag cut halfpenny 18.7 mm 90°

13. O. As no. 12 R. Ala

O3 R8 **†:NIOYNKIMIA:1**

a. Oslo, ex O. C. Björnstad Coll. 0.83 g/85.7% Ag 18.2 mm 90°

b. Oslo		0.90 g/79.3% Ag	18.1 mm	90°
c. Stockholm	212	0.87 g/91.7% Ag	18.2 mm	90°
d. Stockholm	213	0.88 g/93.9% Ag	18.1 mm	90°

14. *O. Triquetra*; pellet in the field R. A2a

O7 †•••••IOMIKI:JLKI R6 †H/RLDRB*ONOR

a. Oslo	31 113	0.82 g/67.7% Ag	17.4 mm
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B. PENNIES WITH BLUNDERED LEGENDS ONLY

15. *O. Triquetra* R. A2a

O44 †•••••IOMIKI:JLKI R55 †(•)IMOI)EII)MIIII'

a.-b. Oslo	38 159	0.91 g/64.3% Ag	17.8 mm;
		0.95 g/63.3% Ag	17.7 mm

O47 R58 †IOMIKI:JLKI

c. Copenhagen	38 163	0.75 g/29.3% Ag	16.7 mm chipped
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16. *O. As no. 15* R. Ala

O50 †•••••IOMIKI:JLKI R61 †•••••IOMIKI:JLKI

a. Oslo	49 165	0.81 g/53.9% Ag	17.2 mm
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17. *O. As no. 15* R. A3b

O50 R59

a. Oslo	38 164	0.90 g/20.7% Ag	17.6 mm
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18. *O. As no. 15* R. A3c; each cross arm extended into an annulet

O45 (IOL) (IOL) (IOL) R56 †NΣRΣ^•RΣxRΣXΣ

a. Copenhagen	38 160	1.02 g/22.7% Ag	16.5 mm
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b. Hilleröd,

L. E. Bruun Coll. no. 8856

	38 160	0.97 g	16.5 mm
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c. Lund 38 160 0.66 g chipped

d.-f. Oslo	38 160	0.84 g/27.8% Ag	17.0 mm
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0.94 g/24.1% Ag 17.1 mm

0.92 g/20.0% Ag 16.9 mm

g.-h. Oslo	31 160	0.70 g/20.2% Ag	16.6 mm
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0.71 g/25.5% Ag 16.9 mm

i.-j. Whereabouts

unknown 38 160

k. Destroyed by chemical

analysis in 1895 38 fragm. 25.0% Ag fragm.

O46 †•••••IOMIKI:JLKI R56







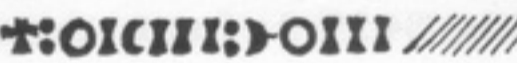

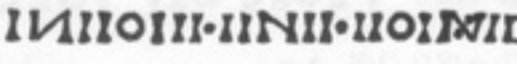
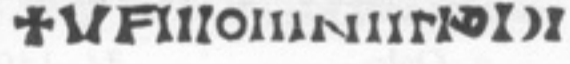



l.-m. Oslo	38 161	1.06 g/16.0% Ag	17.2 mm
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0.97 g/17.3% Ag 16.6 mm









n. Oslo	143 B3	1.07 g/23.8% Ag	17.2 mm
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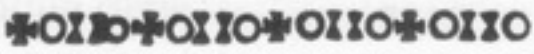




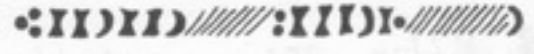

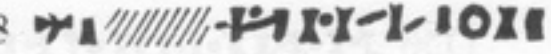



O46 R57





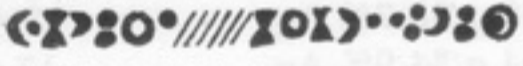



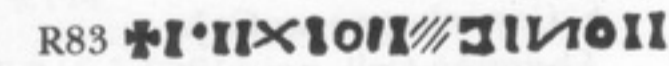



o. Oslo	38 162	0.86 g/27.7% Ag	16.8 mm chipped
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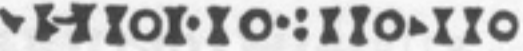

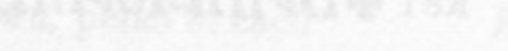

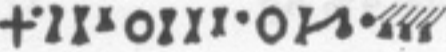
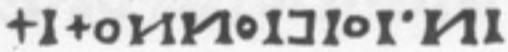











19. O. As no. 15			R. A; 3 pellets in 2 quarters, and, apparently, 1 pellet in the other 2 quarters	
	O49		R60	
a. Oslo	38 164a	1.12 g/24.2% Ag		18.0 mm
20. O. Triquetra within circle			R. A2a	
	O95		R113	
a. Stockholm	190 149	(0.55 g) 16.6 mm chipped and broken; pierced $\Delta\Delta$		
21. O. As no. 20			R. A2b	
	O15		R21	
a. Copenhagen	38 126	0.91 g/39.3% Ag		17.0 mm
b. Stockholm	190 145	(0.69 g) fragm.; pierced \circ		
c. Stockholm	192 42	(0.42 g) 17.2 mm fragm., broken		
d. Stockholm	192 43	(0.26 g) 18 mm fragm., broken; pierced Δ		
	O15		R22	
e. Oslo	38 132	1.05 g/45.5% Ag		17.5 mm
	O101		R22	
f. Copenhagen	186	0.64 g/40.2% Ag		16.8 mm
g. Trondheim	148a	0.84 g		16.9 mm
				Overstrike: obverse on reverse and vice versa
	O20		R27	
h. Oslo	49 133	0.86 g/21.3% Ag		17.1 mm chipped
22. O. As no. 20			R. Ala	
	O23		R31	
a. Oslo	38 137	0.72 g/31.3% Ag		16.9 mm
23. O. As no. 20			R. Alb	
	O17		R23	
a. Oslo	38 128	0.89 g/36.2% Ag		17.0 mm
	O19		R25	
b. Oslo	49 130	0.87 g/30.8% Ag		17.1 mm
	O21		R28	
c. Oslo	38 134	0.77 g/29.1% Ag		16.3 mm
	O21		R29	
d. Oslo	38 135	0.75 g/26.7% Ag		16.8 mm
e. Oslo	49 135	0.80 g/29.5% Ag		16.6 mm
	O22		R30	
f. Oslo	38 136	1.07 g/22.8% Ag		16.3 mm

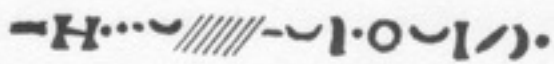
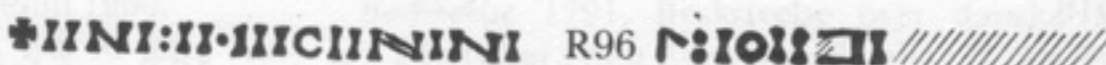


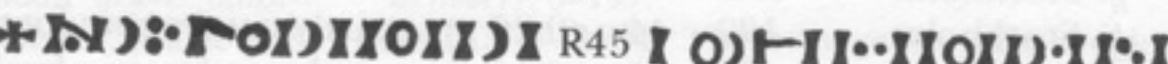

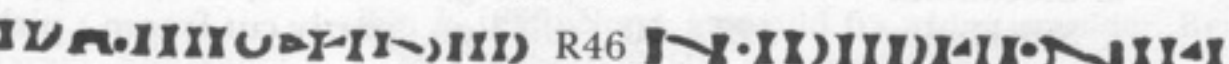

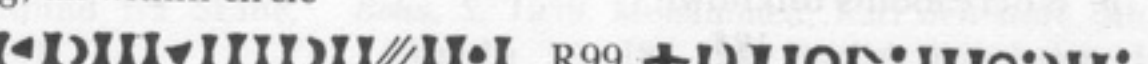



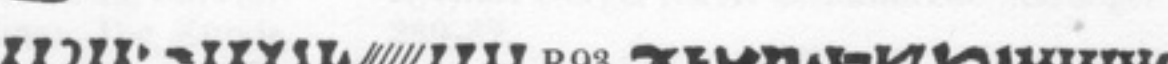
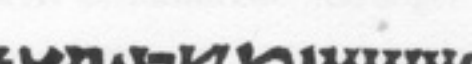
	O24		R32		
	g. Oslo	38 138	0.81 g/41.2% Ag		17.3 mm
	h. Oslo	143 B4	0.91 g/44.8% Ag		16.6 mm broken
	O24		R33		
	i.-k. Oslo	38 139	0.90 g/50.0% Ag		16.7 mm
			0.86 g/47.9% Ag		16.6 mm
			0.89 g/44.1% Ag		16.6 mm
	O24		R34		
	l. Oslo	31 201	0.90 g/40.6% Ag		17.1 mm
	O30		R40		
	m. Oslo	49 145	0.70 g/45.8% Ag		17.8 mm chipped
	O86		R100		
	n. Oslo	143 B7	0.85 g/17.9% Ag		17.0 mm
	O87		R101		
	o. Oslo	143 B6	0.85 g/31.5% Ag		17.4 mm
	O98		R116		
	p. Stockholm	190 156	0.69 g		17.2 mm pierced \diamond
24.	O. As no. 20		R. A3a		
	O27		R37		
	a. Oslo	49 142	0.98 g/27.4% Ag		17.2 mm
	O89		R103		
	b. Bergen	117	1.21 g/20.7% Ag		17.3 mm
25.	O. As no. 20		R. A3b		
	O19		R26		
	a. Oslo	49 131	(0.39 g)/34.3% Ag		fragm.
	O105		R126		
	b. Bergen	104	0.76 g/31.9% Ag		16.4 mm
26.	O. As no. 20		R. A3c		
	O25		R35		
	a. Oslo	31 140	0.87 g/30.2% Ag		17.1 mm
27.	O. As no. 20		R. A3b var.		
	O26		R36		
	a. Oslo	38 141	1.03 g/21.1% Ag		17.1 mm
	O94		R112		
	b. Stockholm	190 148	0.84 g		16.9 mm chipped; pierced Δ
	c. Stockholm	190 157	0.85 g		16.7 mm pierced Δ

28. *O.* As no. 20 R. B3a
Triquetra var. 3
 O78  R95
 a. Oslo 38 200 0.81 g/23.1% Ag 16.3 mm
29. *O.* As no. 28 R. C3b; each cross arm terminating in 1 annulet
 O78 R94
 a. Oslo 38 199 0.98 g/23.8% Ag 16.7 mm
30. *O.* *Triquetra*; pellet in the field R. A2a
 O6  R9 
 a. Stavanger 90 0.83 g/94.1% Ag 17.8 mm
 b. Stavanger 90 (0.61 g)/93.2% Ag 17.8 mm; fragm.
- O6 R110 
 c. Copenhagen 204 0.71 g 17.5 mm
31. *O.* As no. 30 R. A2b
 O13  R19 
 a. Oslo 38 120 0.72 g/38.6% Ag 16.8 mm
 b. Oslo 49 120 (0.73 g)/38.8% Ag 17.5 mm, chipped; pierced \diamond
 c. Oslo, ex G. Andresen Coll., Oslo 1962 0.89 g/38.3% Ag 18.2 mm
- O7  R10 
 d.-g. Oslo 38 122 0.90 g/56.9% Ag 17.8 mm
 0.76 g/51.1% Ag 17.8 mm
 1.15 g/51.0% Ag 17.6 mm
 0.94 g/41.1% Ag 17.1 mm
 h. Stockholm 192 39 (0.50 g) 17.0 mm chipped; pierced \circ
 i. Stockholm 192 40 (0.58 g) 17.6 mm chipped; pierced \triangle
- O7 R12 
 j. Oslo 38 124 0.92 g/57.8% Ag 17.3 mm
 k. Uppsala 1.02 g 17.1 mm
- O7 R13 
 l. Oslo 38 125 0.83 g/63.6% Ag 17.6 mm
 m. Oslo 31 125 0.83 g/64.9% Ag 17.4 mm
- O7 R111 
 n. Helsinki 218 0.73 g 17.2 mm
32. *O.* As no. 30 R. Alb
 O7 R11 
 a. Oslo, H. Rui Coll. 38 123 0.81 g 17.4 mm
- O7 R120 
 b. Copenhagen 203 0.70 g 17.6 mm

41. *O. Triquetra* var. 5; pellet in centre R. B3c
 O80  R97 
 a. Oslo 38 204 1.05 g/31.4% Ag 17.2 mm
42. *O. As* no. 41 R. C3c; each cross arm terminating in 1 annulet
 O81  R98 
 a. Oslo 38 205 1.03 g/42.4% Ag 17.7 mm
43. *O. Triquetra* with pellet in 1 wing R. A2b
 O51  R58
 a.-c. Oslo 38 166 0.84 g/19.9% Ag 17.7 mm
 0.67 g/33.1% Ag 17.4 mm
 0.72 g/32.4% Ag 17.8 mm
- O28  R38
 d. Oslo 38 143 0.74 g/29.6% Ag 16.9 mm
- O29 R39
 e. Oslo 49 144 0.93 g/29.4% Ag 17.0 mm chipped
- O107 R39
 f. Trondheim 148a 0.70 g 16.9 mm
44. *O. As* no. 43 R. Alb
 O29 R17 
 a. Stockholm 190 147 0.69 g/16.9 mm chipped; pierced Δ
- O100 R118 
 b. Bergen 139 0.73 g/25.3% Ag 16.9 mm
45. *O. As* no. 43 R. A3a
 O31 R41
 a. Oslo 49 146 1.09 g/24.1% Ag 17.4 mm
46. *O. As* no. 43 R. A3b
 O92 R108
 a. Stockholm 192 53 0.63 g 16.6 mm chipped; pierced \diamond
47. *O. Triquetra* with pellet in centre and in 1 wing; all within circle R. A2b
 O16  R21
 a. Oslo 31 127 0.82 g/36.6% Ag 16.7 mm
- O91 R107
 b. Stockholm 192 48 (0.48 g) 16.3 mm chipped; pierced Δ
48. *O. As* no. 47 R. Alb
 O11  R15 
 a. Oslo 38 116 0.93 g/29.6% Ag 17.0 mm

64. *O. Triquetra*; pellet in centre and in each wing; 3 pellets in 1 outer angle, 1 pellet in the other 2 R. A3c
 O63 R77 
 a. Oslo 38 182 0.92 g/28.8% Ag 18.1 mm
65. *O. Triquetra*; pellet in centre, 3 pellets at each point; 3 pellets in 1 outer angle R. A2a
 O9 R14 
 a.-b. Oslo 38 114 0.92 g/61.1% Ag 17.8 mm
 0.78 g/66.1% Ag 17.0 mm
 c. Stockholm 192 37 0.65 g 17.3 mm pierced Δ
 d. Stockholm 207 0.76 g 17.4 mm
66. *O. Triquetra*; pellet at each point R. A2b
 O64  R78 
 a.-b. Oslo 38 183 0.88 g/28.6% Ag 16.9 mm
 0.78 g/26.0% Ag 17.1 mm
67. *O.* As no. 66; 2 pellets in 1 outer angle R. A3a
 O65  R79
 a. Oslo 38 184 0.92 g/21.1% Ag 16.0 mm
68. *O. Triquetra*; cross in the field R. A2a
 O10  R14
 a. Oslo 49 115 (0.81 g)/73.5% Ag 18.2 mm chipped; pierced ◇
 O108 R127
 b. Trondheim 148a (0.54 g) 17.0 mm
69. *O.* As no. 68 R. Ala
 O14 R20 
 a. Oslo 38 121 0.72 g/77.9% Ag 17.8 mm pierced ○
70. *O.* As no. 68 R. Alb
 O69  R83 
 a. Oslo 38 187 0.89 g/54.9% Ag 17.6 mm
 b. Oslo 143 B2 0.85 g/63.7% Ag 18.6 mm
 O84  R83
 c. Oslo 143 B1 0.91 g/60.8% Ag 17.9 mm
 O69 R84 
 d. Oslo 38 188 0.88 g/57.2% Ag 17.5 mm
 e. Oslo 31 188 0.88 g/65.1% Ag 17.7 mm
 O70  R61

74. *O. Triquetra*; R. B3b
 + in the field annulet in 1 quarter
 O74  R90
 a. Oslo 38 206 0.91 g/34.2% Ag 16.7 mm
75. *O. As no. 74* R. A2b; annulet in first quarter
 O74  R89
 a. Oslo 49 195 0.87 g/33.3% Ag 17.0 mm
76. *O. Triquetra*; R. A3c
 cross (?) in the field
 O75  R91 
- a. Oslo 38 196 1.01 g/25.9% Ag 16.9 mm
77. *O. Triquetra* with cross in the R. Ala
 field; all within circle
 O93  R109 
- a. Stockholm 209 0.80 g 17.8 mm
 b. Stockholm 215 0.77 g 17.8 mm
78. *O. As no. 77* R. Alb
 O38  R34
 a. Oslo 49 203 0.73 g/58.5% Ag 16.8 mm
79. *O. As no. 77* R. A2b
 O37  R47 
- a. Oslo 38 151 0.93 g/52.1% Ag 18.4 mm
- O38  R48 
- b. Oslo 38 152 0.79 g/49.8% Ag 17.3 mm
 c. Stockholm 207 0.75 g 17.3 mm
- O39  R49
- d. Oslo, unknown
 provenance, before 1881 0.84 g/27.4% Ag 16.4 mm
 e. Oslo 38 153 0.90 g/25.3% Ag 16.9 mm
- O40  R50 
- f. Oslo 38 154 0.84 g/29.0% Ag 17.3 mm
80. *O. Triquetra* var. 4; R. A3c; each cross arm extended into
 × in field an annulet
 O71  R56
 a. Oslo 38 191 0.78 g/24.4% Ag 16.9 mm
81. *O. Triquetra*; in outer angles R. A3a
 + + +
 O76  R92 
- a. Oslo 38 197 0.82 g/18.5% Ag 17.8 mm chipped
82. *O. Triquetra*; in the field † R. A3b
 O41  R51 
- a. Hilleröd, L. E. Bruun
 Coll. no. 8855 38 155 0.89 g 16.7 mm

	b.-e. Oslo	38 155	0.82 g/24.7% Ag	16.2 mm
			0.97 g/27.3% Ag	16.3 mm
			0.72 g/34.8% Ag	16.3 mm
			0.94 g/22.9% Ag	16.3 mm
	f. Oslo	31 155	0.86 g/24.3% Ag	16.6 mm
83.	<i>O. As no. 82</i>		R. C3c; each cross arm terminating in 2 expanding curves, each with a pellet at the end and with a crescent between them	
	O41		R52 	
	a.-c. Oslo	38 156	1.01 g/21.5% Ag	16.2 mm
			0.96 g/20.2% Ag	16.6 mm
			0.83 g/20.7% Ag	16.7 mm
	d. Whereabouts unknown	38 156		
	e. Destroyed by chemical analysis in 1895	38 26.7%	Ag fragm.	
84.	<i>O. Triquetra</i> ; annulet in the field		R. A3b	
	O79 		R96 	
	a. Oslo	49 202	0.77 g/28.3% Ag	17.3 mm
	b. Oslo	31 202	0.69 g/30.0% Ag	17.0 mm chipped
85.	<i>O. Triquetra</i> ; crescent in the field; all within circle		R. A2a	
	O34 		R44	
	a. Oslo	38 148	0.90 g/32.5% Ag	16.7 mm
86.	<i>O. As no. 85</i>		R. Ala	
	O35 		R45 	
	a. Oslo	38 149	0.81 g/19.0% Ag	16.4 mm
87.	<i>O. As no. 85</i>		R. A3b	
	O36 		R46 	
	a. Oslo	38 150	0.94 g/26.3% Ag	16.4 mm
88.	<i>O. Triquetra</i> with crescent in 1 wing; all within circle		R. Alb	
	O85 		R99 	
	a. Oslo	143 B5	0.83 g/29.7% Ag	16.6 mm
	O85		R117 	
	b. Trondheim	163	0.78 g/25.7% Ag	16.7 mm
	O99		R117	
	c. Stockholm	190 158	0.93 g	17.0 mm pierced Δ
89.	<i>O. Triquetra</i> ; in outer angles + 		R. A3b	
	O77 		R93 	
	a. Oslo	38 198	0.99 g/21.6% Ag	16.2 mm

OBVERSE VARIETY DIFFICULT TO DETERMINE

90. *O. Triquetra* with pellets within the figure and perhaps even in the field R. A3b
 O? R?
 a. Edinburgh 188 0.71 g/38% Ag
91. *O.* As no. 90 R. B; 3 pellets in 1 quarter, 1 pellet in the 3 others
 O66 R88
 a. Oslo 49 185 (0.97 g)/18.2% Ag 17.6 mm chipped

OBVERSE AND REVERSE VARIETIES DIFFICULT TO DETERMINE

92. *O. Triquetra* with or without accessory symbols R. Voided cross with pellets in some quarters
 O18 R24
 a. Oslo 49 129 (0.35 g)/46.0% Ag 16.8 mm fragm.
 O? R?
 b. Oslo 38 (0.11 g) fragm.
 c. Stavanger 92 fragm.
 d. Stockholm 190 146 (0.24 g) cut fragm.; pierced Δ
 e. Stockholm 190 151 fragm.; broken
 f. Stockholm 190 152 (0.38 g) fragm.; pierced Δ
 g. Stockholm 192 41 (0.43 g) partly cut fragm.; looped
 h. Stockholm 192 44 (0.26 g) partly cut fragm.; looped
 i. Stockholm 192 45 (0.12 g) partly cut fragm.; broken
 j. Stockholm 192 46 (0.22 g) fragm.; broken; pierced \diamond
 k. Stockholm 192 49 (0.24 g) cut halfpenny; chipped; pierced Δ
 l. Stockholm 192 50 (0.33 g) partly cut fragm.; pierced \diamond
 m. Stockholm 192 51 (0.16 g) partly cut fragm.
 n. Stockholm 192 52 (0.16 g) fragm.; pierced Δ
 o. Stockholm 192 54 (0.18 g) partly cut fragm.; pierced \diamond
 p. Whereabouts unknown
 185
 q.-u. Destroyed by chemical analysis in 1895 38 56.3% Ag; 50.0% Ag; 50.0% Ag; 42.7% Ag; 42.0% Ag fragm.
 v.-w. Destroyed by chemical analysis in 1895 49 23.4% Ag; 17.9% Ag fragm.

L. Bibliography

- Adam Bremensis*. Magistri Adam Bremensis gesta Ham-
maburgensis ecclesiae pontificum. Ed. W. Trillmich.
Ausgewählte Quellen zur deutschen Geschichte des
Mittelalters 11. Darmstadt 1961, 135–503.
- Albrecht, G.* 1959. Das Münzwesen im niederlothring-
ischen und friesischen Raum vom 10. bis zum be-
ginnenden 12. Jahrhundert. Numismatische Studien 6.
- Anglo-Saxon Chronicle, The*. Translated with an introduc-
tion by G. N. Garmonsway. Everyman's Library 624.
Last reprinted (revised edition) London 1960.
- Annales Bertiniani & Annales Vedastini*. Ed. R. Rau. Aus-
gewählte Quellen zur deutschen Geschichte des Mittel-
alters VI. Darmstadt 1969.
- Arne, T. J.* 1926. Ett gravfält från vikingatidens slut i
norra Ångermanland. Fv. 21, 85–103.
- Arwidsson, G., Berghaus, P., Dolley, M., Malmer, B. &
Welin, U. S. L.* 1957. En vikingatida silverskatt från
Gandarve i Alva på Gotland. GA 1957, 22–57.
- Atlas 1857*. Atlas for nordisk Oldkyndighed fremstillen-
de Prøver fra Bronzealderen og fra Jernalderen. Atlas
de l'archéologie du Nord représentant des échantil-
lons de l'âge de bronze et de l'âge de fer, publié par
la Société royale des antiquaires du nord (Copen-
hagen).
- Aubert [L. C. M.]* 1869. Om en antik Guldmedaillon.
Forh. Vid. Selsk. Chria. 1868, 342–4.
- Bakka, E.* 1968. Eit gravfunn frå Haram, Sunnmøre.
Nicolay 4, 11–16.
- Balling, J.* 1963. De romerske møntfund fra Jylland.
NNÅ 1962, 5–78.
- Balling, J.* 1967. De romerske møntfund fra Skåne,
Halland og Blekinge. NNÅ 1966, 5–81.
- Bauer, N.* 1929, 1930, 1935. Die russischen Funde
abendländischer Münzen des 11. und 12. Jahr-
hunderts. ZfN 39, 1–187; 40, 188–228; 42, 153–73.
- Bendixen, B. E. R.* 1881. Iagttagelser paa en stipendie-
reise i Söndmøre 1880. Ab. 1880, 18–63.
- Bendixen, K.* 1968. Lidt mere om Hedebymønter. NNÅ
1967, 5–10.
- Bendixen, K.* 1972. Mønterne fra Dankirke. Nationalmu-
seets Arbejdsmark, 61–6.
- Bendixen, K.* 1974. The first Merovingian coin-treasure
from Denmark. Mediaeval Scandinavia 7, 85–101.
- Berghaus, P.* 1959. Ein karolingischer Münzring von Her-
brum (Kreis Aschendorf-Hümmeling). Die Kunde,
Mitteilungen des Niedersächsischen Landesvereins für
Urgeschichte, Neue Folge 10, 90–7.
- Berghaus, P.* 1965. Das Münzwesen. Karl der Grosse
Werk und Wirkung. Düsseldorf, 149–56.
- See also *Arwidsson, G. et al.*
- Berghaus, P. & Schneider, K.* 1967. Anglo-friesische
Runensolidi im Lichte des Neufundes von Schwein-
dorff (Ostfriesland). Arbeitsgemeinschaft für For-
schung des Landes Nordrhein-Westfalen, Geisteswis-
senschaften, 123. Sitzung am 20. April 1966 in
Düsseldorf 134.
- Bergsøe, S. A.* 1882. Zur norwegischen und dänischen
Münzkunde. ZfN IX, 339–42.
- Beskrivelse 1791*. Beskrivelse over danske Mynter og
Medailler i den Kongelige Samling (Copenhagen).
- Birkeland, H.* 1954. Nordens historie i middelalderen et-
ter arabiske kilder. Skr. utg. av Det Norske Viden-
skaps-Akademi i Oslo 2, Historisk-Filosofisk klasse 2
(Oslo).
- Bjarkøyrett*. Den ældre By-Lov eller Bjarkö-Ret.
Norges gamle Love I, 301–36.
- Bjarnar saga Híttdælakappa*. Íslenzk Fornrit III. Borg-
firðingasögur. Reykjavik 1938.
- Blindheim, C.* 1969. Kaupang – gravningsoversikt. Viking
XXXIII, 3–137.
- Blunt, C. E.* 1961. The coinage of Offa. Anglo-Saxon
Coins, 39–62.
- Bøe, J.* 1921. Norske guldfunn fra folkevandringstiden.
Berg. Mus. Aarb. 1920/1. Hist.-ant. rekke No. 2.
- Bøe, J.* 1926. Norsk gravguld fra ældre jernalder. Berg.
Mus. Årb. 1926. Hist.-ant. rekke No. 2.
- Bolin, S.* 1926. Fynden av romerska mynt i det fria
Germanien. Studier i romersk och äldre germansk his-
toria (Lund).
- Bolin, S.* 1939. Mohammed, Karl den store och Rurik.
Scandia 12, 181–222. English translation 1953 in
The Scandinavian Economic History Review 1:1,
5–39.
- Bolin, S.* 1961. Die Anfänge der Münzprägung in
Skandinavien. Moneta e scambi, 387–410.
- Breitenstein, N.* 1943 A. De romerske Møntfund fra Gud-
me Herred. NNÅ 1942, 69–98.
- Breitenstein, N.* 1943 B. En nyfunden romersk Guld-
medaillon. Fra Nationalmuseets Arbejdsmark, 91–4.
- Breitenstein, N.* 1946. De romerske Møntfund fra Born-
holm. NNÅ 1944, 1–85.
- Brögger, A. W.* 1911 A. Et myntfund fra Foldøen i
Ryfylke, Norge, fra XI aarhundrede. Aarbøger 1910,
239–82.
- Brögger, A. W.* 1911 B. Angelsaksiske mynter fra VIII
og IX aarhundrede i Norden. Hist. Tidsskr. 5:1,
334–48.
- Brögger, A. W.* 1912 A. Anglo-Saxon silver coins from the

- XIth century in a silver-hoard from Ryfylke, Norway. *Saga-Book of the Viking Club* 7, 1911-12, 232-46 (London). Reprinted in *Spink's Numismatic Circular* 1913, cols. 572-81.
- Brögger, A. W. 1912 B. Deutsche Münzen aus dem XI. Jahrhundert in dem Münzfunde von Ryfylke, Norwegen. *Berl. Mzbl.* 1912, 3-14, 255-7, 280-5, 305-9.
- Brögger, A. W. 1921. Ertog og öre. Den gamle norske vegt. *Vid. Selsk. Skr. II, Hist.-filos. kl. 3* (Kristiania).
- Brögger, A. W. 1928. Hälöygenes Bjarmelandsferder. *Festskrift til Rektor J. Qvigstad, Tromsø Mus. Skr. II*, 27-36 (Oslo).
- See also *Stenersen, L. B. & Brögger, A. W.*
- Brögger, A. W. & *Shetelig, H.* 1950. *Vikingskipene, deres forgjengere og etterfølgere* (Oslo). English edition 1953: *The Viking ships, their ancestry and evolution* (Oslo).
- Bugge, S. 1891/1903. *Norges Indskrifter med de ældre Runer I* (Kristiania).
- Bull, E. sr. 1931. *Fra omkring 1000 til 1280. Det norske folks liv og historie gjennom tidene II* (Oslo).
- Butler, V. J., see *Smart Butler, V. J.*
- Carstens, M. C. 1882. Et lidet Myntfund fra Gaarden Sand i Værdalen. *KNVS Skr.* 1881, 73-6.
- Christensen, A. E. jr. 1964. Birka-Hedeby myntene som kilder til skipets historie på 800-tallet. *Norsk Sjøfartsmuseum 1914-1964*, 80-6.
- Christensen, C. A. 1957. Danefæ. *KL II*, 1957, cols. 638-9.
- Christie, W. F. K. 1834. Beretninger om Fund af Oldsager i Norge, især i Bergens Stift. *Urda I*, 175-97.
- Codex Frisianus*. Ed. C. Unger. Kristiania 1871.
- Dannenberg, H. 1876. Die deutschen Münzen der sächsischen und fränkischen Kaiserzeit [I] (Berlin).
- Dannenberg, H. 1877. Der Münzfund von Lübeck. *ZfN IV*, 50-124.
- Dannenberg, H. 1894. Die deutschen Münzen der sächsischen und fränkischen Kaiserzeit II (Berlin).
- Dannenberg, H. 1898. Die deutschen Münzen der sächsischen und fränkischen Kaiserzeit III (Berlin).
- Dannenberg, H. 1905. Die deutschen Münzen der sächsischen und fränkischen Kaiserzeit IV (Berlin).
- Deichman Coll.* 1790. Cancellie-Raad Carl Deichmans Samlinger af Böger, Naturalier, Mynter med mere skænket til offentlig Brug i Christiania (Christiania).
- Devegge, O., see *Ramus, C. & Devegge, O.*
- Digre, O. A. 1951. Myntfunnet fra Dronningens gt. 10. Trondheim. En foreløpig meddelelse. *KNVSM Årsb.* 1950, 91-6.
- Disponible doubletter af Græslidfundet.* (In the UMK.)
- Dolley, R. H. M. 1955. The significance of die-axis in the context of the later Anglo-Saxon coinage. *BNJ* 27, 167-72.
- [Dolley, R. H. M.] 1956. The Anglo-Saxon mint at Newark. In *memoriam Hans Holst*. *NNUM*, 215-19.
- Dolley, R. H. M. 1958 A. Some reflections on Hildebrand Type A of Æthelræd II. *Antikvariskt Arkiv* 9 (Lund).
- Dolley, R. H. M. 1958 B. The Post-Brunanburh Viking coinage at York - with some remarks on the Viking coinage which preceded the same. *NNÅ* 1957/8, 13-88.
- Dolley, R. H. M. 1961. The relevance of obverse die-links to some problems of the later Anglo-Saxon coinage. *Commentationes I*, 153-72.
- Dolley, R. H. M. 1966. *The Hiberno-Norse coins in the British Museum*. SCBI (London).
- Dolley, R. H. M. 1969. A Viking-Age coin of Norway discovered in Shetland. *Proceedings of the Society of Antiquaries of Scotland* 100, 193-5.
- Dolley, R. H. M. 1973 A. An unexpected Irish dimension of the Anglo-Saxon coinage of Winchester. *NNÅ* 1972, 27-48.
- Dolley, R. H. M. 1973 B. Some Irish evidence for the date of the *Crux* coins of Æthelred II. *Anglo-Saxon England* 2, 145-54.
- See also *Arwidsson, G. et al.*, and *Lyon, C. S. S. et al.*
- Dolley, R. H. M. & *Metcalf, D. M.* 1961. The reform of the English coinage under Eadgar. *Anglo-Saxon Coins*, 136-68.
- Dolley, R. H. M. & *Skaare, K.* 1961. Nytt lys over Skandinavias nordligste skattefund med angelsaksiske og kufiske mynter. *NNÅ* 1960, 5-24.
- Dolley, R. H. M. & *Skaare, K.* 1973. To penninger fra Harald Hardråde funnet på Vesterhavsøyene. *NNUM*, 221-6.
- Dumas-Dubourg, F.* 1971. *Le trésor de Fécamp et le monnayage en France occidentale pendant la seconde moitié du Xe siècle. Mémoires de la section d'archéologie I. Ministère de l'éducation nationale, comité des travaux historiques et scientifiques* (Paris).
- Eldjárn, K.* 1948. *Gaulverjabœr-fundet og nogle mindre islandske møntfund fra vikingetiden*. *NNÅ*, 39-62.
- Eldjárn, K.* 1953. *Et nyt sølvfund på Island*. *NNUM*, 153-5.
- Ernst, A.* 1948. *Lidt om Carl Deichmans Samlinger*. *NNÅ*, 109-18.
- Erslev, K.* 1875. *Roskildes ældste Mønter. Studier i dansk Mønthisorie*. *Aarbøger*, 117-87.
- Evans, J.* 1893. *Find of coins at Nesbø, Norway*. *NC* 3:13, 36-9.
- Fagerlie, J. M.* 1967. *Late Roman and Byzantine solidi found in Sweden and Denmark*. *NNM* 157 (New York).
- Fett, P.* 1950. *Förhistoriske minne på Sunnmøre: Borgund prestegjeld; Vanylven prestegjeld; Stranda prestegjeld; Örsta prestegjeld; Haram prestegjeld; etc.* (Bergen).
- Fett, P.* 1951 A. *Förhistoriske minne på Sunnmøre: Volda prestegjeld; etc.* (Bergen).
- Fett, P.* 1951 B. *Förhistoriske minne på Sunnmøre. Tillegg* (Bergen).
- Fett, P.* 1954 A. *Förhistoriske minne i Hardanger: Ullensvang prestegjeld; etc.* (Bergen).
- Fett, P.* 1954 B. *Förhistoriske minne i Sogn: Leikanger prestegjeld; Solund prestegjeld og Hyllestad prestegjeld; etc.* (Bergen).
- Fett, P.* 1956 A. *Förhistoriske minne i Sunnhordland: Kvinnherad prestegjeld* (Bergen).
- Fett, P.* 1956 B. *Förhistoriske minne på Voss: Voss prestegjeld; etc.* (Bergen).
- Fett, P.* 1960. *Förhistoriske minne i Fjordane: Selje og Vågsøy prestegjeld; Gloppen prestegjeld; Innvik prestegjeld; etc.* (Bergen).

- Fett, P. 1965 A. Förhistoriske minne i Sunnhordland: Fjelberg prestegjeld (Bergen).
- Fett, P. 1965 B. Förhistoriske minne i Nordhordland: Haus prestegjeld; etc. (Bergen).
- Fett, P. 1970. Förhistoriske minne i Nordhordland: Hamre prestegjeld og Åsane prestegjeld; etc. (Bergen).
- Fiala, E. 1895. Česká denárý (Prague).
- Fonahn, A. 1926. Notes on a hoard of medieval coins found at Stein, Ringerike, Norway. *NC* 5: 6, 279–86.
- Friedensburg, F. 1913, 1922. Die Symbolik der Mittelaltermünzen I–III (Berlin).
- Friis Johansen, K. 1912. Sølvs-katten fra Terslev. *Aarbøger* 1912, 189–363.
- Frostatingslov. Den ældre Frostathings-Lov. *Norges gamle Love* I, 119–258.
- Galster, G. 1929. Roskildemønter. Fra Københavns Amt, 409–38.
- Galster, G. 1930. Møntfundet fra Store Frigaard. *Aarbøger* 1929, 283–315. English translation in *Coins and History* 1959, 79–104.
- Galster, G. 1934. Møntfundet fra Over Randlev. *NFM*, 18–22, 33–42.
- Galster, G. 1937. Møntfund i Danmark og Norge 1739–1780. *NNÅ*, 39–96 (Copenhagen).
- Galster, G. 1944. Mønterne af 1. Classe i Beskrivelsen af 1791. *NNÅ* 1943, 21–55.
- Galster, G. 1948. Forordningerne af 1737 og 1752 om Danefæ. *NNÅ* 1946, 105–15.
- Galster, G. 1953 A. De nordiske guldrakteater. En anmeldelse. *NNÅ* 1951, 1–16.
- Galster, G. 1953 B. Karolingiske mønter fundne i Danmark. *NNÅ* 1951, 28–40. English translation in *Coins and History*, 65–78.
- Galster, G. 1957. Fremmed indflydelse på Danmarks møntvæsen i middelalderen. Fra Nationalmuseets Arbejdsmark, 15–24.
- Galster, G. 1964. Royal Collection of Coins and Medals, National Museum, Copenhagen, I, Ancient British and Anglo-Saxon Coins before Æthelred II. SCBI (London).
- Gjessing, G. 1929. De norske gullbrakteatene. *UO Skr.* II, 127–75.
- Gjessing, H. 1923. Aust-Agder i forhistorisk tid. Arendal fra fortid til nutid, 1–56 (Kristiania).
- Golenko, K. 1965. Die Tamaner Gruppe der Nachahmungen byzantinischer Miliarensia. *Dona Numismatica*, 87–94.
- Grágás. Isländisches Recht, Die Graugans. Ed. A. Heusler. *Schriften der Akademie für Deutsches Recht, Gruppe Rechtsgeschichte, Germanenrechte* 9. Weimar 1937.
- Granberg, B. 1966. Förteckning över kufiska myntfynd i Finland. *Studia orientalia* edidit Societas Orientalis Fennica XXXIV (Helsinki).
- See also Welin, U. S. L. & Granberg, B.
- Grieg, S. 1929. Vikingetidens skattefund. *UO Skr.* II, 177–311.
- Grieg, S. 1968. Da staten innlöste Hon-skatten i 1834. *Viking* XXXII, 111–29.
- Grierson, P. 1951. The gold solidus of Louis the Pious and its imitations. *Jaarboek voor Munt- en Penningkunde* XXXVIII, 1–41.
- Grierson, P. 1954. Zum Ursprung der karolingischen Goldprägung in Nordwest-Europa. *HBN* 8, 199–206.
- Grierson, P. 1959. Commerce in the Dark Ages: a critique of the evidence. *Transactions of the Royal Historical Society* 5:9, 123–40.
- Grierson, P. 1960. The monetary reforms of ‘Abd al-Malik. Their metrological basis and their financial repercussions. *Journal of Economic and Social History of the Orient* III:2, 241–64.
- Grierson, P. 1961. Coinage and money in the Byzantine Empire 498–c. 1090. *Moneta e scambi*, 411–53.
- Grierson, P. 1963. Coin wear and the frequency table. *NC* 7:3, i–xvi.
- Grierson, P. 1964. Weight and coinage. *NC* 7:4, iii–xvii.
- Grierson, P. 1965 A. Money and coinage under Charlemagne. Karl der Grosse I. *Persönlichkeit und Geschichte*, 501–36 (Düsseldorf).
- Grierson, P. 1965 B. The interpretation of coin finds (1). *NC* 7:5, i–xiii.
- Grierson, P. 1966 A. The interpretation of coin finds (2). *NC* 7:6, i–xv.
- Grierson, P. 1966 B. Harold Hardrada and Byzantine coin types in Denmark. *Byzantinische Forschungen* I, 124–38.
- Grimsgaard, J. P. B. 1862. Om en Mynt fra Harald III Sigurdsson (Haardraade). *Ab.* 1861, 11.
- Grunthal, H., see Morrison, K. J. & Grunthal, H.
- Gulatingslov. Den ældre Gulathings-Lov. *Norges gamle Love* I, 1–118.
- Gustafson, G. 1890. Eweböfundet og nogle andre nye gravfund fra Gloppen. *Berg. Mus. Aarsb.* 1889, No. 1.
- Gustafson, G. 1891. Myntfundet fra Nesbø. *Berg. Mus. Aarb.* 1891, No. 7.
- Gustafson, G. 1893. Sur une monnaie rare du grand duc Iaroslav I (also in Russian). *Trudy moskovskago numizmaticheskago obchestva*, 91–6 (Moscow).
- Gustafson, G. 1896. Sølvfundet fra Horr samt tillæg og rettelse til et par tidligere indkomne myntfund. *Berg. Mus. Aarb.* 1896, No. 15.
- Hagen, A. 1967. *Norges Oldtid* (Oslo).
- Hall, E. T. & Metcalf, D. M. 1972. Methods of chemical and metallurgical investigation of ancient coinage. A symposium held by the Royal Numismatic Society at Burlington House, London on 9–11 December 1970. *Royal Numismatic Society Special Publication* No. 8 (Oxford).
- Al-Hamdāni. Die beiden Edelmetalle Gold und Silber. Ed. C. Toll. *Acta Universitatis Upsaliensis, Studia Semitica Upsaliensia* 1. Uppsala 1968.
- Hanssen, J. 1901. Antike Mynter fundne i Jarlsberg og Bratsberg Amter. *Ab.* 1900, 225–9.
- Hartmann, B. 1900. Myntfundet fra Sand i Værdalen. *KNVS Skr.* 1899, No. 6.
- Hartmann, B. 1908. Ny meddelelse om myntfundet fra Sand. *KNVS Skr.* 1907, No. 10.
- Hartmann, B. 1914. Meddelelse om to kufiske myntfund. *KNVS Skr.* 1913, No. 4.
- Hartmann, B. 1918. De kufiske myntfund fra Holte, Orkedalen, og Herten, Alstahaug. Med et tillæg av T. Petersen. *KNVS Skr.* 1916, No. 9.
- Hatz, G. 1965. Münzfunde aus Haithabu 1962. *Offa* 21/22, 1964/5, 74–9.

- Hatz, G. 1974. Handel und Verkehr zwischen dem Deutschen Reich und Schweden in der späten Wikingerzeit. Die deutschen Münzen des 10. und 11. Jahrhunderts in Schweden (Lund).
- Hatz, G., Welin, U. S. L., Malmer, B., Meer, G. v. d. & Rasmusson, N. L. 1968. A hoard from Näs, Österåker, Uppland, found in 1704. *Commentationes II*, 277–372, Pls. 22–43.
- Hatz, V., see Kraume, E. & Hatz, V.
- Hatz, V. & Welin, U. S. L. 1968. Deutsche Münzen des 11. Jahrhunderts nach byzantinisch-arabischem Vorbild in den schwedischen Funden der Wikingerzeit. *Commentationes II*, 1–38.
- Hauberg, P. 1895. Skandinaviens Fund af romersk Guld- og Sølvmynt for Aar 550. *Aarbøger* 1894, 325–76.
- Hauberg, P. 1900. Myntforhold og Udmyntninger i Danmark indtil 1146. *Det Kongelige Danske Videnskabs Selskabs Skrifter*, 6. Række, Historisk og filosofisk Afdeling V:1 (Copenhagen).
- Hauberg, P. 1900 A. De l'influence byzantine sur les monnaies du Danemark au XIe siècle. *Mémoires du congrès internationale de numismatique de 1900*, 335–45 (Paris).
- Hauberg, P. & Östrup, J. 1914. Terslev-Fundets Mønter. *Aarbøger*, 63–75.
- Hävernäck, W. 1953. Die Anfänge der karolingischen Goldprägung in Nordwesteuropa, *HBN* 6/7, 1952/3, 55–60.
- Hävernäck, W. 1954. Die karolingischen Münzreformen. Ende der alten Zustände oder Beginn einer neuen Entwicklung? 22. Versammlung deutscher Historiker in Bremen 17.–19. Sept. 1953. Beiheft zur Zeitschrift 'Geschichte in Wissenschaften und Unterricht', 13–15 (Stuttgart).
- Hävernäck, W. 1961. Zur Münzgeschichte der Karolingerzeit und des 10./11. Jahrhunderts. *HBN* 15, 5–12.
- Heimskringla. Snorri Sturluson. *Heimskringla, Noregs konunga sögur*. Ed. F. Jónsson. Copenhagen 1911.
- Hendy, M. F. 1969. Coinage and money in the Byzantine Empire 1081–1261. *Dumbarton Oaks Studies XII* (Glückstadt).
- Hendy, M. F. 1970. Michael IV and Harold Hardrada. *NC* 7: 10, 185–97.
- Herbst, C. F. 1866. Sandö Fundet. *Annaler* 1863, 376–93.
- Herbst, C. F. 1878. Nogle hidtil ukjendte norske Mynter fra Middelalderen. *Forh. Vid. Selsk. Chria*. 1878 No. 10.
- Herteig, A. E. 1955. Gilefunnene på Östre Toten. *Viking* XIX, 49–72.
- Hildebrand, B. E. 1846, 1881. *Anglosachsiska mynt i Svenska Kongl. Myntkabinettet, funna i Sveriges jord*. 1 and 2 ed. (Stockholm).
- Hildebrand, H. 1885. Nordens äldsta mynt. *KVHAA Månadsblad*, 122–34.
- Hildebrand, H. 1887. Sveriges mynt under medeltiden. *Sveriges Medeltid I*, 770–927 (Stockholm).
- Hill, P. V. 1955. The Animal, 'Anglo-Merovingian', and miscellaneous series of Anglo-Saxon sceattas. *BNJ* 27, 1–38.
- Historia Francorum*. Gregorii episcopi Turonensis historia Francorum ed. W. Arndt. *Scriptores rerum Merovingiarum I. Monumenta Germaniae historica*. Hannover 1885, 1–450.
- Holmboe, C. A. 1835 A. *Descriptio ornamentorum et numorum maximam partem aureorum et numorum saeculi VIIIvi et IXni, in praedio Hoen in parochia Eger in diocesi Norvegiae Agershusiensi, anni MDCCCXXXIV mense augusto repertorum* (Christiania).
- Holmboe, C. A. 1835 B. *En mærkverdig Samling af Smykker, for Størstedelen af Guld og Mynter fra 8de og 9de Aarhundrede fundne i August Maaned 1834 paa Gaarden Hoen i Egers Prestegjeld i Agershuus Stift i Norge* (Christiania).
- Holmboe, C. A. 1836/7. *De numis MD medii aevi nuper in Norvegia repertis I–II* (Christiania).
- Holmboe, C. A. 1837. *Mynter fra Middelalderen, fundne ved Egersund*. *Urda I*, 329–68.
- Holmboe, C. A. 1841. *De prisca re monetaria Norvegiae et numis seculi duodecimi nuper repertis* (Christiania).
- Holmboe, C. A. 1845. *Münzfund in Norwegen*. *Koehnes Zeitschrift für Münz-, Siegel- und Wappenkunde*, V, 31–3 (Berlin, Posen and Bromberg).
- Holmboe, C. A. 1846. *Das älteste Münzwesen Norwegens bis zum Ende des 14ten Jahrhunderts*. *Koehnes Zeitschrift für Münz-, Siegel- und Wappenkunde VI*, 65–112.
- Holmboe, C. A. 1850. *Trouvailles de monnaies du 10me siècle, faites en Norvège en 1848*. *Mémoires de la Société impériale d'archéologie IV*, 361–70 (St. Petersburg).
- Holmboe, C. A. 1864. *Om Vægtlodderne i Nummelandsfundet*. *Forh. Vid. Selsk. Chria*. 45–52.
- Holmboe, C. A. 1865. *Indledning indeholdende Oversigt over Norges Mynt- og Pengevæsen i Middelalderen*. *Schive* 1865, I–LXXXIII.
- Holmboe, C. A. 1866. *Bemærkninger angaaende to smaa Myntfund*. *Forh. Vid. Selsk. Chria*. 1865, 316–18.
- Holmboe, C. A. 1869. *Brøholtfundet. Mynter fra 10de og 11te Aarhundrede*. *Forh. Vid. Selsk. Chria*. 1868, 194–236.
- Holmboe, C. A. 1872. *Et lidet Fund af Mynter fra 11. Aarhundrede*. *Forh. Vid. Selsk. Chria*. 1871, 464–8.
- Holmboe, C. A. 1875. *Guldmynten fra Aak. Om dens Forbillede*. *Forh. Vid. Selsk. Chria*. 1874, 107–13.
- Holst, C. 1847. *Om Norges ældste Myntvæsen* (Christiania).
- Holst, H. 1927. *The obverse legend on the oldest Norwegian coin*. *NC* 5:7, 307–12.
- Holst, H. 1928 A. *Numismatica II. The Roman-Byzantine coins of the Hoen-Find*. *Symb. Osl.* VI, 74–6.
- Holst, H. 1928 B. *Numismatica III. Roman and Byzantine gold coins, found in Norway*. *Symb. Osl.* VII, 83–91.
- Holst, H. 1929. *Numismatica IV. Three unpublished Roman and Byzantine silver coins, found in Norway*. *Symb. Osl.* VIII, 114–19.
- Holst, H. 1930. *Numismatica V. Roman bronze coins, found in Norway. Charon's obolus*. *Symb. Osl.* IX, 106–14.
- Holst, H. 1931 A. *Numismatica VI. A Hadrian denarius from a Norwegian find*. *Symb. Osl.* X, 146–7.

- Holst, H. 1931 B. A denarius subaeratus from the Emperor Augustus, found in Norway. *Serta Rudbergiana*, 30–5 (Oslo).
- Holst, H. 1931 C. On the coins of the Hoen-find. *Norsk Numismatisk Forenings Småskrifter* (Oslo).
- Holst, H. 1935 A. *Numismatica VII*. Roman and Byzantine gold and silver coins, found in Norway. *Symb. Osl.* XIV, 115–18.
- Holst, H. 1935 B. Bemerkninger til en Stamford-penning fra Knut den mektiges tid. *KNVS Forh.*, No. 29, 103–6.
- Holst, H. 1936 A. Norges mynter til slutten av 16. århundre. *Nordisk Kultur XXIX*, 93–138 (Stockholm).
- Holst, H. 1936 B. 5te meddelelse om myntfundet fra Sand. *KNVS Forh.*, No. 38, 131–4.
- Holst, H. 1936 C. Funn av myntskatter i Norge inntil slutten av 19. århundre. *NNÅ*, 5–26.
- Holst, H. 1936 D. Myntfunn i Norge, lovbestemmelser, praksis og publisering. *NNÅ*, 27–33.
- Holst, H. 1936 E. De kufiske mynter i sølvfunnet fra Grimestad i Stokke, Vestfold. *NNÅ*, 42–52.
- Holst, H. 1938 A. *Numismatica VIII*. A Roman gold coin from a previously unknown find in Norway. *Symb. Osl.* XVIII, 124–6.
- Holst, H. 1938 B. 'Moneta' in old English, 'Mót(peningr)' in old Norwegian coin-inscriptions. *Transactions of the International Numismatic Congress 1936*, 315–19 (London).
- Holst, H. 1939 A. *Numismatica IX*. A Byzantine gold coin, found in Norway. *Symb. Osl.* XIX, 133–4.
- Holst, H. 1939 B. En nyopdaget romersk gullmynt fra et norsk gravfund. *NNUM*, 97.
- Holst, H. 1939 C. Gerhard Schönings optegnelser om myntfunn i Norge. *KNVS Skr.* 1939, No. 10.
- Holst, H. 1942. Les collections gréco-romano-byzantines du Cabinet des médailles de l'Université d'Oslo pendant 125 ans (1817–1942). *Serta Eitremiana*, 34–42 (Oslo).
- Holst, H. 1944 A. Uten- og innenlandske mynter i norske funn nedlagt for år 1100. *NNÅ* 1943, 56–112.
- Holst, H. 1944 B. Funnmynten fra Hjerkin og andre samtidige norske mynter. *Viking VIII*, 215–21.
- Holst, H. 1946. Danske mynter fra 12. til 17. århundre, funnet i Norge. *NNÅ* 1944, 158–72.
- Holst, H. 1948. Myntfunnet fra Slögstad. *Berg. Mus. Årb.* 1946/7. Hist.-antikv. rekke, No. 4.
- Holst, H. 1949. Myntfunnet fra Nedstrand. *Stav. Mus. Årb.* 1948, 40–7.
- Holst, H. 1951. Bemerkninger til Honfunnet: Litteratur, sted og tid, riss og runer, nedlegning. *Norges innskrifter med de yngre runer: Buskerud*, 132–40 (Oslo).
- Holst, H. 1953. Nye bidrag til belysning av Honfunnets mynter. *NNÅ* 1951, 17–27.
- Holst, H. 1954 A. To hittil ubeskrevne norske myntskatter fra vikingtiden. *NNÅ* 1952, 1–10.
- Holst, H. 1954 B. Myntfunnet fra St. Olavs Voll i Sarpsborg. *NNUM*, 110–14.
- Holst, H. 1955. Numismatiske kirkefunn i Norge. *NNÅ* 1953, 1–30.
- Holst, H. 1957. Pengefunnet fra Kaldal. *NNÅ* 1955, 93–105.
- Holst, H. 1958. Brøholtfunnene, revidert, omarbeidet og supplert beskrivelse. *NNÅ* 1957/8, 89–114.
See also *Rasmusson, N. L. et al.*
- Holst, H. & Skaare, K. 1956. Nye bidrag og nye funnstykker til Grimestadskattens mynter. *NNÅ* 1954, 58–62.
- Hougen, B. 1944. Gamle fjellstuetufter. *Viking VIII*, 183–214.
- Huitfeldt-Kaas, H. J. 1899. *Norske Sigiller fra Middelalderen* (Kristiania).
- Jammer [Hatz], V. 1952. Die Anfänge der Münzprägung im Herzogtum Sachsen (10. und 11. Jahrhundert). *Numismatische Studien* 3–4.
- Jammer [Hatz], V., Welin, U. S. L., Malmer, B. & Rasmusson, N. L. 1956. Mynten i de lapska offerplatsfynden, in *Serning, I.* Lapska offerplatsfynd från järnålder och medeltid i de svenska lappmarkerna. *Acta Lapponica XI*, 185–222 (Uppsala).
- Jansson, S. B. F., see *Wessén, E. & Jansson, S. B. F.*
- Jónsson, F. 1932. Morkinskinna. Udgivet for Samfund til Udgivelse af gammel nordisk Litteratur LIII (Copenhagen).
- Joranson, E. 1923. The danegeld in France. *Augustana Library Publications* 10 (Rock Island, Ill.).
- Keder, N. 1722. Nummus aureus antiquus atque perrarus Othinum, cev probabile est sacrorum ac mysterior signa et indicia exhibens e museo Nicolai Kederi, Holmiensis, regii antiquitatum Sveo-Gothicas collegii assessoris, cum huiusce commentatione editus (Leipzig).
- Kent, J. P. C. 1961. From Roman Britain to Saxon England. *Anglo-Saxon Coins*, 1–22.
- Kent, J. P. C. 1972. Gold standards of the Merovingian coinage, A.D. 580–700, in *Hall & Metcalf* 1972, 69–74.
- Kersten, K. & La Baume, P. 1958. *Vorgeschichte der nordfriesischen Inseln* (Neumünster).
- Klüwer, L. D. 1823. *Norske Mindesmærker aftegnede paa en Reise igjennem en Deel af det Nordenfjeldske* (Christiania).
- Koht, H. 1931. Harald Hardraade. *Norsk biografisk leksikon V*, 463–9.
- Korzuchina, G. F. 1954. Russkie klady 9–13.vv. *Akademia Nauk SSSR, Institut Istorii Materialnoj Kultury* (Moscow-Leningrad).
- Kraume, E. & Hatz, V. 1961. Die Otto-Adelheid-Pfennige und ihre Nachprägungen. *HBN* 15, 13–23.
- La Baume, P., see *Kersten, K. & La Baume, P.*
- Lagerqvist, L. O. 1968. The coinage at Sigtuna in the names of Anund Jacob, Cnut the Great and Harthacnut. *Commentationes II*, 383–413.
- Langebekske Myntetegninger.* (In the KMMS archives.)
- Larsen, B. I. 1934. Et arabisk smykke i en vikingetids grav. *KNVS Forh.* VI, No. 9.
- Lauerentzen, J. 1710. *Museum Regium seu Catalogus rerum naturalium, quam artificialium, quæ in Basilica Bibliothecæ Augustissimi Daniæ Norwegiæq; Monarchæ Frederici Quarti Havnæ asservantur etc.* (Copenhagen).
- Linder, U. S., see [Welin] *Linder.*
- Lindqvist, S. 1926. Birkamynten. *Fv.* 21, 307–34.
- Lindqvist, S. 1941/2. *Gotlands Bildsteine I–II* (Stockholm).

- Logos nouthetetikos pros Basilea. Cecaumeni strategicon et incerti scriptoris de officiis regis libellus.* Ed. B. Wasiliewsky & V. Jernstedt. St. Petersburg 1896, 91–104.
- Lorange, A. 1875. Samlingen af norske Oldsager i Bergens Museum (Bergen).
- Lorange, A. 1882. Antikvariske undersøgelser i Søndhordland 1881. Ab. 1881, 48–67.
- Lund, J. M. 1785. Forsøg til Beskrivelse over Övre-Tellemarken i Norge (Copenhagen).
- Lundh, G. F. 1834. Efterretning om en i Ullensakers Præstegjeld i Hösten 1833 undersøgt Gravhöi. Urda I, 288–92.
- Lundström, L. 1969. Fyrkantiga silverbleck i vikingatida skatfynd. NNÅ 1968, 11–20.
- Lundström, L. 1973 A. Bitsilver och betalningsringar. Studier i svenska depåfynd från vikingatiden påträffade mellan 1900 och 1970. Theses and papers in North-European Archaeology 2 (Stockholm).
- Lundström, L. 1973 B. Silverringar som pengar under vikingatiden. Num. Medd. XXXI, 11–33.
- Lyon, C. S. S. 1956. A reappraisal of the sceatta and styca coinage of Northumbria. BNJ XXVIII, 227–42.
- Lyon, C. S. S. 1971. Variation in currency in late Anglo-Saxon England. Mints, Dies and Currency. Essays dedicated to the memory of Albert Baldwin, ed. R. A. G. Carson (London).
- Lyon, C. S. S., Meer, G. v. d., & Dolley, R. H. M. 1961. Some Scandinavian coins in the names of Æthelræd, Cnut, and Harthacnut attributed by Hildebrand to English mints. BNJ XXX:ii, 235–51.
- Mackeprang, M. B. 1952. De nordiske Guldraketeater. Jysk Arkæologisk Selskabs Skrifter II (Århus).
- Magnússon, P. 1966. Bátumlið í Vatnsdal í Patreksfirði. Arbók hins Íslenska Fornleifafélags, 5–32.
- Malmer, B. 1961. A contribution to the numismatic history of Norway during the eleventh century. Commentationes I, 223–376.
- Malmer, B. 1965. Olof Skötkonungs mynt och andra Ethelred-imitationer. Antikvariskt Arkiv 27 (Lund).
- Malmer, B. 1966 A. Nordiska mynt före år 1000. Acta Archaeologica Lundensia, Series in 8° No. 4 (Lund).
- Malmer, B. 1966 B. Sveriges äldsta mynt. Fv. 61, 208–18.
- Malmer, B. 1966 C. MOT. KL XI, cols. 708–9.
- Malmer, B. 1968. Mynt och människor (Uddevalla).
- Malmer, B. 1969. Anglosaxisk myntpolitik. [Svensk] Historisk Tidskrift, 530–42.
- Malmer, B. 1973. Bidrag til studiet av ethelredimitationer med obegripliga inskrifter. Num. Medd. XXXI, 34–45.
- Malmer, B. 1974. King Canute's coinage in the northern countries. Dorothea Coke Memorial Lecture in Northern Studies delivered 30 May 1972 at University College, London.
- See also Arwidsson, G. et al., Hatz, G. et al., and Jammer, V. et al.
- Malmer, B. & Rasmusson, N. L. 1960. Förvirrade inskrifter. KL V, cols. 146–50.
- Malmer, M. P. 1963. Metodproblem inom järnålderns konsthistoria. Acta Archaeologica Lundensia, Series in 8°, No. 3 (Lund).
- Markov, A. 1910. Topografiya kladov vostochnikh monet, sasanidskikh i kuficheskikh (St. Petersburg).
- Marstrander, C. J. S. 1924. Spredte bidrag til vægtens og vægtterminologiens historie hos germanerne. Vid. Selsk. Skr. II Hist.-filos. Kl. No. 9.
- Marstrander, S. 1951. Den antikvariske afdelings tilvekst 1950. KNVSM Årsb. 1950, 97–174.
- Marstrander, S. 1962. Et nytt vikingetidsfund fra Romsdal med vesteuropeiske importsaker. Viking XXVI, 123–59.
- Marstrander, S. 1965. A new Norwegian find from the Viking Period with Western European imported goods. Lochlann III. Norsk tidsskrift for sprogvidenskab Suppl. Vol. VIII, 7–42 (Oslo).
- v. d. Meer, G. 1961. Some corrections to and comments on B. E. Hildebrand's catalogue of the Anglo-Saxon coins in the Swedish Royal Coin Cabinet. Anglo-Saxon Coins, 169–87.
- See also Hatz, G. et al. and Lyon, C. S. S. et al.
- Metcalf, D. M., see Dolley, R. H. M. & Metcalf, D. M. and Hall, E. T. & Metcalf, D. M.
- Miles, G. C. 1960. Trésor de dirhems du IXe siècle./A ninth century hoard of dirhems found at Susa. Mémoires de la Mission archéologique en Iran XXXVII, 67–145 (Paris).
- Möllenhus, K. R. 1954. En germansk gullmedaljong fra Inderøy KNVSM Årb. 1953, 73–9.
- Moltke, E. 1950. De danske runemønter og deres prægere. NNÅ, 1–50.
- Montelius, O. 1869. Från Jernåldern I (Stockholm).
- Montelius, O. 1873. Ett fynd af frankiska mynt i Sverige. KVHAA Månadsblad, 169–72.
- Morgenstierne, B. 1877. Om et Fund af 19 Mynter fra Harald Haarderaade på Gaarden Thjore i Haalands Præstegjæld paa Jæderen. Forh. Vid. Selsk. Chria. 1876, No. 5.
- Morgenstierne, B. 1904. Vort mynt- og pengevæsens udvikling. 'For Alle' 1905, norsk kalender udgivet af Chria. Journalistklub 8, 49–66 (Kristiania).
- Morkinskinna, see Jónsson 1932.
- Morrison, K. F. 1961. The gold medallions of Louis the Pious and Lothaire I and the Synod of Paris (825). Speculum 36:4, 592–9.
- Morrison, K. F. & Grunthal, H. 1967. Carolingian coinage. NNM 158 (New York).
- Mossop, H. R. et al. 1970. The Lincoln mint c. 890–1279. (Newcastle).
- Museum Mütterianum 1839. Museum Mütterianum Pars III numos Byzantinorum aliquorumque et antiquitates varii generis continens (Copenhagen).
- Nicolaisen, O. 1920. Sölvfundet fra Rönvik. Tromsø Mus. Årsh. 42, No. 1.
- Nicolaysen, N. 1862/6. Norske Fornlevninger (Christiania).
- Nicolaysen, N. 1867. Tillæg til Norske Fornlevninger. Ab. 1866, 54–78.
- Nicolaysen, N. 1868. Tillæg til Norske Fornlevninger. Ab. 1867, 72–115.
- Nicolaysen, N. 1870. Tillæg til "Norske Fornlevninger" m.m. Ab. 1869, 117–69.
- Nicolaysen, N. 1872. Tillæg til "Norske Fornlevninger" m.m. Ab. 1871, 118–63.
- Nicolaysen, N. 1876. Antikvariske notiser. Ab. 1875, 216–48.

- Nicolaysen, N.* 1877. Udgravninger i Fjære 1876. Ab. 1876, 117-39, Pl. V. 31-2.
- Nielsen, H.* 1957. Danegæld. KL II, cols. 639-41.
- Nöbbe, E.* 1936. Münzfunde vom Stadtplatz Haithabu 1905-31. Festschrift zur Hundertjahrfeier des Museums vorgeschichtlicher Altertümer in Kiel, 131-5 (Neumünster).
- Nordbö, J. H.* 1974. Romerske medaljonger i norsk eie. NNUM, 57-63.
- Norges gamle Love indtil 1387.* Ed. R. Keyser & P. A. Munch I-II, Christiania 1846-8.
- Nörlund, P.* 1924. Buried Norsemen at Herjolfsnes. An archaeological and historical study. Meddelelser om Grönland LXVII, 1-270.
- North, J. J.* 1963. English hammered coins I (London).
- Olsen, M.* 1960. Runemynter. Norges innskrifter med de yngre runer V, 213-19 (Oslo).
- Östrup, J.* 1938. Catalogue des monnaies arabes et turques du Cabinet des médailles (Copenhagen).
- See also *Hauberg, P.* & *Östrup, J.*
- Parsons, H. A.* 1926. The earliest coins of Norway. NNM 29 (New York).
- Person [Gamby], E.* 1936. Bidrag till Olof-Skötkonungsmyntens kronologi. NNÄ, 135-51.
- Petersen, J.* 1927. Et nyt sølvmyntfund fra Rogaland. Jösangfundet. Stav. Mus. Aarsh. 1924/5, No. 4.
- Petersen, J.* 1928. Vikingetidens smykker (Stavanger).
- Petersen, J.* 1940. Coins of Western Europe from the Viking Period found in Norway. Viking Antiquities in Great Britain and Ireland V, 145-52.
- Petersen, J.* 1943. To gullbrakteater fra Fure i Ryfylke. Stav. Mus. Årsh. 1942/3, 9-16.
- Petersen, J.* 1955. Vikingetidens smykker i Norge (Stavanger).
- Petersen, T.*, see *Hartmann, B.* 1918.
- Petersson, H. B. A.* 1969. Anglo-Saxon currency. King Eadgar's reform to the Norman Conquest (Lund).
- Petersson, K.-G.* & *Welin, U. S. L.* 1963. The Slubbemåla hoard. Medd. LUHM 1962/3, 286-323.
- Prou, M.* 1892. Les monnaies mérovingiennes. Catalogue des monnaies françaises de la Bibliothèque Nationale (Paris).
- Ramus, C.* 1824. Beretning om en i Jorden i Sjælland i Sommeren 1822 funden Samling af gamle Mynter. Det skandinaviske Litteraturselskabs Skrifter 20, 151-203.
- Ramus, C.* 1826. Om nogle gamle Mynter, der sandsynligen ere at ansee som de ældste, der i de nordiske Riger, eller i nordiske Regenters Navne ere slagne. Det skandinaviske Litteraturselskabs Skrifter 21, 275-318.
- Ramus, C.* & *Devegge, O.* [1867] (The incompleated work on Danish and Norwegian medieval coins. Copenhagen.)
- Rasmusson, N. L.* 1934. Nordens tidigaste import av engelska mynt. Fv. 29, 366-72.
- Rasmusson, N. L.* 1937. Kring de västerländska mynten i Birka. Från stenålder till rokokö. Studier tillägnade Otto Rydbeck den 25 augusti 1937, 113-35 (Lund).
- Rasmusson, N. L.* 1945. Were medals of merit used and worn in antiquity? Acta archaeologica XVI, 211-22.
- Rasmusson, N. L.* 1957. Vikingatidens skattefynd. En orientering. Nordisk tidskrift, 241-51. Revised edition in English translation 1961: An introduction to the Viking-Age hoards. Commentationes I, 3-16.
- See also *Hatz, G. et al.*, *Jammer, V. et al.*, and *Malmer, B.* & *Rasmusson, N. L.*
- Rasmusson, N. L.*, *Holst, H.* & *Rosenstock, L. H.* 1957. Byzantinska mynt. KL II, cols. 428-31.
- Reichel Coll.* Die Reichelsche Münzsammlung in St. Petersburg V. St. Petersburg 1842.
- Ronander, V.* 1923. 4de meddelelse om myntfundet fra Sand. KNVS Skr. 1922, No. 4.
- Rosenstock, L. H.*, see *Rasmusson, N. L. et al.*
- Ross, I.* 1880. Indberetning om archeologiske undersøgelser i Fjeldberg, foretagne sommeren 1879. Ab. 1879, 160-8.
- Rundquist, G. H.* 1948. Två silverskatter från vikingatiden i småländsk jord. NNÄ 1946, 35-74.
- Rygh, K.* 1877. Indberetning om undersøgelser af gravhauge i Klæbu og ved Levanger. Ab. 1876, 95-103.
- Rygh, K.* 1879. Aarsberetning for Oldsagsamlingen. Beretning om Oldsagsamlingens virksomhed. KNVS Skr. VIII, 165-92.
- Rygh, O.* 1872. Fund af romersk mynt i Norge. Ab. 1871, 164-5.
- Rygh, O.* 1873. To norske oldsagsfund. Forh. Vid. Selsk. Chria. 1872, 344-60.
- Rygh, O.* 1877 A. Norske myntfund fra det niende aarhundrede. Forh. Vid. Selsk. Chria. 1876, No. 10.
- Rygh, O.* 1877 B. Om den yngre jernalder i Norge. Aarbøger 1877, 101-94.
- Rygh, O.* 1880. Gravundersøgelser paa Spangereid. Ab. 1879, 21-53.
- Rygh, O.* 1885. Norske oldsager (Christiania).
- Salmo, H.* 1948. Deutsche Münzen in vorgeschichtlichen Funden Finnlands. SMYA-FFT 47.
- Sawyer, P. H.* 1971. The Age of the Vikings. 2 ed. (London).
- Schetelig, H.*, see *Shetelig, H.*
- Schive, C. I.* 1865. Norges Mynter i Middelalderen (Christiania).
- Schive, C. I.* 1867 A. Fremstilling af engelske og nordiske Mynters Vægt fornæmmelig i 9de och 10de Aarhundrede etc. Forh. Vid. Selsk. Chria. 1866, 220-56.
- Schive, C. I.* 1867 B. Bemærkninger til den i Annaler for nordisk Oldkyndighed for Aaret 1863 side 376-393 optagne Beskrivelse over en Deel norske Mynter, antrufne i et Fund paa den til Færøerne hørende Sandö. Forh. Vid. Selsk. Chria. 1866, 312-25.
- Schive, C. I.* 1870. Fortegnelse over Mynter fra Middelalderen, fundne i Aaret 1866 ved et Sted kaldet Hammeren paa Huusmandspladsen Sletheids Grund under Gaarden Thjore i Haalands Præstegjeld på Jæderen. Forh. Vid. Selsk. Chria. 1869, 87-106.
- Schive, C. I.* 1874. Om et lidet Fund af Mynter fra 11te Aarhundrede fra Stange paa Hedemarken. Forh. Vid. Selsk. Chria. 1873, 344-59.
- Schneider, K.*, see *Berghaus, P.* & *Schneider, K.*
- Schwach, C. N.* 1842. Udsigt over de tre nordiske Rigers Myntvæsen fra de ældste Tider til nuværende, samt Grundriss af Heraldikken (Trondheim).
- Seip, D. A.* 1930. Trondhjems bynavn (Trondheim).
- Seip, D. A.* 1931. Trondhjems bynavn. Resymé og tillegg (Oslo).

- Shetelig, H.* 1908. Færgepengen. Spor av en græsk gravskik i Norge. Sproglige og historiske afhandlinger viede Sophus Bugges minde, 1-7 (Kristiania).
- Shetelig, H.* 1909. A coin of Offa found in a Viking-Age burial at Voss, Norway. *BNJ* V, 51-4.
- Shetelig, H.* 1912. Vestlandske graver fra jernalderen. *Berg. Mus. Skr.* II, No. 1.
- Shetelig, H.* 1913. Arabiske mynter på Vestlandet. *Oldtiden* III, 25-32.
- Shetelig, H.* 1914. Arkeologiske tidsbestemmelser av ældre norske runeindskrifter. *Norges indskrifter med de ældre runer* III, 1-76 (Kristiania).
- See also *Brøgger, A. W. & Shetelig, H.* 1950.
- Skaare, K.* 1960 A. Et myntfunn fra Kaupang. *UO Årb.* 1958/9, 106-19.
- Skaare, K.* 1960 B. Vikingtidsmynter fra Kaupang, en handelsplass ved Oslofjorden. *NNUM*, 195-7.
- Skaare, K.* 1960 C. Myntfunn og datering. *Viking* XXIV, 69-91.
- Skaare, K.* 1962. Angelsaksiske mynter, i britisk mynt-historie og i norske vikingtidsfunn. *Viking* XXVI, 81-122.
- Skaare, K.* 1963. Nye mynter fra Kaupang. *UO Årb.* 1960/1, 151-5.
- Skaare, K.* 1964. Skipsavbildninger på Birka-Hedeby mynter. *Norsk Sjøfartsmuseum 1914-1964*, 75-80.
- Skaare, K.* 1965 A. Tre middelaldermynter i Stavanger Museum. *Stav. Mus. Årb.*, 64-76.
- Skaare, K.* 1965 B. "Schive" er hundre år. *NNUM*, 69-74.
- Skaare, K.* 1965 C. En ny norsk erkebispemynt. *Num. Medd.* XXX, 92-102.
- Skaare, K.* 1965 D. Heimkehr eines Warägers. Die Münzprägung Harald Hardrådes in Dänemark. *Dona Numismatica*, 99-111.
- Skaare, K.* 1966 A. Harald Hardråde som myntherre. *St. Hallvard* 44, 163-90.
- Skaare, K.* 1966 B. Myntklumpen fra Kongsgården i Gamlebyen. *St. Hallvard* 44, 212-15.
- Skaare, K.* 1966 C. Die karolingischen Münzfunde in Skandinavien und der Schatzfund von Hon. *HBN* 20, 393-408.
- Skaare, K.* 1968. Vikingtidsmynt fra et loft i Drammen. *Drammens Museums Årbok 1953-62*, 3-11 (Drammen).
- Skaare, K.* 1969 A. Myntfunnene. *Kaupanger Stavkirke. Fortidsminner* LVI, 63-70 (Oslo). Also printed in *Ab.* 1968.
- Skaare, K.* 1969 B. Haramfunnet: avtrykk av romerske mynter. *Nicolay* 5, 17-20.
- Skaare, K.* 1970. "Olav Kyrres" myntreform. *NNÅ* 1969, 21-36.
- Skaare, K.* 1974 A. The Viking Age coin finds of North Norway. *T. Sjøvold. The Iron Age settlement of Arctic Norway* II, 378-83 (Oslo).
- Skaare, K.* 1974 B. Olav den helliges utmyntning. I forskningens lys, utgitt ved Norges almenvitenskapelige forskningsråds 25 års-jubileum 1974, 441-54.
- See also *Dolley, R. H. M. & Skaare, K.* and *Holst, H. & Skaare, K.*
- Skaare, K. & Steinnes, E.* 1966. Mynter i atomreaktoren - aktiveringsanalyse av norske middelaldermynter. *NNUM*, 81-9.
- Skovmand, R.* 1942. De danske Skattefund fra Vikingetiden og den ældste Middelalder indtil omkring Π 50. *Aarbøger*, 5-275.
- Slomann, W.* 1973. Gullhalskjeden fra Tøyen på Høland. Noen tanker om gullfunn. *Honos Ella Kivikoski, SMYA-FFT* 75, 207-17.
- [*Smart*] *Butler, V. J.* 1961. The metrology of the late Anglo-Saxon penny: the reigns of Æthelræd II and Cnut. *Anglo-Saxon Coins*, 195-214.
- Smart, V. J.* 1968. Moneyers of the late Anglo-Saxon coinage 973-1016. *Commentationes* II, 191-276.
- Smart, V. J.* 1970. A note on the moneyers of the mint of Lincoln, in *Mossop et al.* 1970, 20-7.
- Steinnes, A.* 1936. Mål, vekt og verderekning i Noreg i millomalderen og ei tid etter. *Nordisk Kultur* XXX (Stockholm).
- Steinnes, E.*, see *Skaare, K. & Steinnes, E.*
- Stenberger, M.* 1958, 1947. Die Schatzfunde Gotlands der Wikingerzeit I-II (Stockholm, Lund).
- Stender-Petersen, A.* 1953. *Varangica* (Aarhus).
- Stenersen, L. B.* 1880. Notiz über einen norwegischen Münzfund. *ZfN* VII, 378-81.
- Stenersen, L. B.* 1881. Myntfundet fra Græslid i Thydalen. Festprogram i anledning av Deres Kongelige Høiheder Kronprins Oscar Gustav Adolfs og Kronprinsesse Sophie Marie Victorias formæling den 20de september 1881 (Christiania).
- Stenersen, L. B.* 1889. Om et myntfund fra Imsland i Ryfylke. *Forh. Vid. Selsk. Chria.* 1889, No. 6.
- Stenersen, L. B.* 1895. Om et Myntfund fra Helgeland i Hole. *Vid. Selsk. Skr. II Hist.-filos. klasse* 1895, No. 3.
- Stenersen, L. B.* 1907. Der Denarfund von Numedal in Norwegen. *Berl. Mzbl.* XXVIII, 462-3.
- Stenersen, L. B.* 1908. Myntfundet fra Traaen i Numedal. Sproglige og historiske afhandlinger viede Sophus Bugges minde, 232-9 (Kristiania).
- Stenersen, L. B. & Brøgger, A. W.* 1912. Et myntfund fra Maage i Ullensvang. *Berg. Mus. Årb.* 1912, No. 7.
- Stevenson, R. B. K.* 1966. Anglo-Saxon coins with associated foreign coins. *National Museum of Antiquities I, SCBI* (London).
- Storm, G.* 1884. Harald Haardraade og Væringerne i de græske Keiseres Tjeneste. *Hist. Tidsskr.* II 4, 354-86.
- Straume, E.* 1962. Nordfjord i eldre jernalder. *Univ. Berg. Årb. Hum. ser.* 1961, No. 4.
- Ström, H.* 1784. *Physisk-Oeconomisk Beskrivelse over Eger-Præstegjeld i Aggerhuus-Stift i Norge; tilligemed et geografisk Kort over samme* (Copenhagen).
- Suchodolski, S.* 1972. Die Anfänge der Münzprägung in Skandinavien und Polen. *NNÅ* 1971, 20-37.
- Suhm, P. F.* 1775. *Critisk Historie af Danmark* II (Copenhagen).
- Svarstad, C.* 1962 A. Myntfunnet fra Kinsarvik kirke. *Ab.* 1961, 113-16.
- Svarstad, C.* 1962 B. Myntfunnene fra Urnes stavkirke. *Ab.* 1961, 117-19.
- Thompson, J. D. A.* 1956. *Inventory of British coin hoards.* Royal Numismatic Society Special Publications No. 1 (Oxford).

- Thomsen, C. J. 1855. Om Guldbracteaterne og Bracteater-
nes tidligste Brug som Mynt. *Annaler*, 265-347
(Copenhagen).
- Thomsen Coll. 1876. Description des monnaies du moyen-
âge de Christian Jürgensen Thomsen. Catalogue de
la collection de monnaies de feu Christian Jürgensen
Thomsen 2: III (Copenhagen).
- Tillæg til Beskrivelsen over danske Mynter og Medailler i
Den Kongelige Samling. Copenhagen 1794.
- Timm Coll. 1831. Fortegnelse over Georg Friderich
Timms udmærkede Mynt- og Medaillesamling. I.
Deel. Indeholdende de tre nordiske Rigers Medailler
og Mynter, hvortil er föiet nogle Efterretninger om det
danske og norske Myntvæsen (Copenhagen).
- Tornberg, C. J. 1848. Numi cufici regii numophylacii
holmiensis quos omnes in terra Sveciae repertos
(Uppsala).
- Trotzig, G. & Welin, U. S. L. 1967. Silverskatten från
Karls i Tingstäde. GA 39, 61-80.
- Undset, I. 1878. Norske Oldsager i fremmede Museer,
en oplysende Fortegnelse (Kristiania).
- Undset, I. 1881. Fra Norges ældre Jernalder. Aarbøger
1880, 89-184.
- Vercauteren, F. 1961. Monnaie et circulation monétaire
en Belgique et dans le nord de la France du VIe au
XIe siècle. *Moneta e scambi*, 279-311.
- Völckers, H. H. 1965. Karolingische Münzfunde der
Frühzeit (751-800). Pippin, Karlmann, Karl der Grosse
(I. und II. Münzperiode). *Abhandlungen der
Akademie der Wissenschaften in Göttingen, phil-hist.
Kl., dritte Folge, No. 61* (Göttingen).
- [Welin] Linder, U. S. 1938. En uppländsk silverskatt från
800-talet. NNA, 109-24.
- Welin, U. S. L. 1942. Ein grosser Fund arabischer
Münzen aus Stora Vellinge, Gotland. NNA 1941,
74-120.
- Welin, U. S. L. 1952. De kufiska mynten i silverskatten
från Slögstad i Stranda. Univ. Berg. Årb. 1951. Hist.-
ant. rekke, No. 2.
- Welin, U. S. L. 1956. Graffiti on oriental coins in
Swedish Viking Age hoards. *Medd. LUHM*, 149-71.
- Welin, U. S. L. 1965. Spanish-Umayyad coins found in
Scandinavia. *Num. Medd.* XXX, 15-25.
- Welin, U. S. L. 1967. Volgabulghariska furstar i svenska
silverskatter. NNUM, 170-2.
- Welin, U. S. L. 1968. Proberärr. KL XIII, cols. 467-70.
- Welin, U. S. L. 1974. The first arrival of Oriental coins
in Scandinavia and the inception of the Viking Age
in Sweden. *Fv.* 69, 22-9.
- See also Arwidsson, G. et al., Hatz, G. et al., Hatz, V. &
Welin, U. S. L., Jammer, V. et al., Petersson, K.-G. &
Welin, U. S. L., and Trotzig, G. & Welin, U. S. L.
- Welin, U. S. L. & Granberg, B. 1956. Arabiska mynt.
KL I, cols. 182-94.
- Wessén E. & Jansson S. B. F. 1940/3. Upplands runin-
skrifter I. Sveriges runinskrifter utgivna av Kungl.
Vitterhets Historie och Antikvitets Akademien VI
(Stockholm).
- Widén, H. 1937. Varnhemfyndet 1873. En komplet-
terande undersökning. *Fv.* 32, 181-90.
- Wilcke, J. 1950. Renæssancens Mönt- og Pengeforhold
1481-1588 (Copenhagen).

M. Abbreviations and definitions

1. In the text

A.	signature of Arendal Museum, now Aust-Agder-Museet (Museum of Aust-Agder), Arendal	<i>fynd</i>	(Swedish) find
AAM	Aust-Agder-Museet (Museum of Aust-Agder), Arendal	German (coins) etc.	coins from the German Empire, including (small numbers of) Bohemian, Hungarian, Polish and/or Russian coins
AC	Acquisition catalogue (<i>Tilvekstkatalog</i>) of the UMK	GF	signature of Gotlands Fornsal (Gotland Museum of Antiquities), Visby
A.H.	<i>Anno Hegirae</i> 'in the year of separation', AD 622, the starting date of Moham-medan chronology	G.P.	<i>Gave-Protokol</i> , donation protocol of the KMMS
B.	signature of Bergens Museum, now Historisk Museum, Universitetet i Bergen (Historical Museum, University of Bergen)	grave find	coin find from a grave or a burial mound
B.P.	<i>Bytte-Protokol</i> , exchange protocol of the KMMS	HMB	Historisk Museum, Universitetet i Bergen (Historical Museum, University of Bergen)
C.	signature of Universitetets Oldsaksam-ling, Christiania/Oslo	hoard	five coins or more, that – from the find circumstances – must have been con-cealed, or lost, as a group; occasionally used for less than five coins when they are found together with non-numismatic silver
centering	see Chapter E2h for definition and method of measuring	KMK	Kungliga Myntkabinettet (Royal Coin Cabinet), Stockholm
church find	coin find from a church or at church ruin	KMMS	Den Kongelige Mønt- og Medaillesam-ling (Royal Collection of Coins and Medals), Copenhagen
circulation (of coins)	any transfer or transport of coins	KNVSM	Det Kongelige Norske Videnskabers Selskab, Museet (The Royal Norwegian Society of Sciences and Letters, The Museum), Trondheim
Coin Cabinet AC	Coin Cabinet acquisition catalogue, KNVSM	KVHAA	Kungliga Vitterhets Historie och Antikvitets Akademien (Royal Aca-demy of Letters, History and Anti-quities), Stockholm
coin standard periods I–IV	subdivisions of B. Malmer's chrono-logical arrangement of the Norwegian coinage 1947–c. 1110; see Chapter B3	LUHM	Lunds Universitets Historiska Museum (Historical Museum, University of Lund), Lund
cumulative find	find of coins evidently brought to a spot, or a limited area, over a period of time	medieval	the medieval period of Norwegian history is usually defined as c. 1050–1536, from the Viking Age to the Reformation; in this work the word is also used in the European meaning: AD 500–1500
currency	coins and other money in current use	monetary	of or relating to money
decorative element	element of the design and style of a coin	national coinage	a coinage based on a national monetary standard
early Scandi-navian coins	anonymous coins struck at Hedeby and/or elsewhere in south(-eastern) Scandinavia c. 825–60, c. 900–95; the same as <i>nordiska mynt</i> in B. Malmer 1966A	NMAS	National Museum of Antiquities of Scotland, Edinburgh
ertog	Scandinavian unit of weight and value, = 1/24 <i>mark</i> = 1/3 <i>öre</i> = 10 pennies		
FC	Find catalogue (<i>Funnkatalog</i>) of the UMK		
F.P.	<i>Fund-Protokol</i> , find protocol of the KMMS		
<i>fylke</i>	Norwegian administrative district, equivalent to English county		

NMH	Nationalmuseum (National Museum of Finland), Helsinki	SHM	Statens Historiska Museum (Museum of National Antiquities), Stockholm
non-monetary	see 'monetary'	site find	coin find from the site of a house, a church or a market-place
non-numismatic	see 'numismatic'	SM	Stavanger Museum, now Arkeologisk Museum i Stavanger (Archaeological Museum of Stavanger), Stavanger
numismatic	phenomena concerning coins and cognated struck (and cast) objects	stray find	find of less than five coins that have probably come into the ground quite unintentionally
O	obverse	T.	signature of the KNVSM, Trondheim
öre	Scandinavian unit of weight and value, = 1/8 mark = 3 ertoger = 30 pennies	technical element	element of the fabric of a coin
peck	minute cut made in the coin surface, probably to test the metal	treasure	any accumulation of coins and/or other objects of precious metal, buried or not
pgd.	<i>prestegjeld</i> , parish	Ts.	signature of Tromsø Museum, Tromsø
pierced	having any kind of secondary perforation	UMK	Universitetets Myntkabinett (University Coin Collection), Oslo
pow.	<i>powiat</i> , Polish administrative district	UO	Universitetets Oldsaksamling (University Museum of National Antiquities), Oslo
<i>prestegjeld</i>	parish	Viking Age	See Introduction for dates
R	reverse	<i>woj.</i>	<i>województwa</i> , Polish administrative district
S.	signature of Stavanger Museum, now Arkeologisk Museum i Stavanger (Archaeological Museum of Stavanger), Stavanger		
s.	<i>sogn</i> (Danish and Norwegian) or <i>socken</i> (Swedish), parish, in Norway sometimes part of a <i>prestegjeld</i>		
<i>samling</i>	collection		

2. In the Bibliography

- Aarbøger for nordisk Oldkyndighed og Historie (Copenhagen)
- Ab. Foreningen til norske fortidsminnesmerkers bevaring. Årsberetning (Christiania/Oslo)
- Acta Archaeologica (Copenhagen)
- Anglo-Saxon Coins Studies presented to F. M. Stenton on the occasion of his 80th birthday, ed. R. H. M. Dolley. London 1961
- Anglo-Saxon England (Cambridge)
- Annaler for nordisk Oldkyndighed og Historie (Copenhagen)
- Antikvariskt Arkiv, KVHAA (Stockholm)
- Antiqvarisk Tidskrift (Copenhagen)
- Berg. Mus. Årb. Bergens Museums Årbok (Bergen)
- Berg. Mus. Årsb. Bergens Museums Årsberetning (Bergen)
- Berg. Mus. Skr. Bergens Museums Skrifter (Bergen)
- Berl. Mzbl. Berliner Münzblätter (Berlin)
- BNJ The British Numismatic Journal (London)
- Budstikken. Et Ugeblad af statistiskøkonomisk og historisk Indhold (Christiania)
- Byzantinische Forschungen. Internationale Zeitschrift für Byzantinistik (Amsterdam)
- Coins and History, selected numismatic essays by Georg Galster, 1889 May 17th 1959. Århus 1959
- Commentationes de numis saeculorum IX–XI in Suecia repertis I, eds. N. L. Rasmusson and L. O. Lagerqvist, KVHAA Handlingar, Antikvariska serien 9. Lund 1961; II, eds. N. L. Rasmusson and B. Malmer, KVHAA Handlingar, Antikvariska serien 19. Uppsala 1968
- Dona Numismatica Walter Hävernicks zum 23. Januar 1965 dargebracht, eds. P. Berghaus and G. Hatz. Hamburg 1965
- Drammens Museums Årbok (Drammen)
- Forh.Vid. Forhandlinger i Videnskabs-Selskabet i Selsk.Chria. Christiania (Christiania)
- Frá haug ok heiðni. Tidsskrift for Rogalands arkeologiske forening (Stavanger)
- Fv. Fornvännen. Tidskrift för svensk antikvarisk forskning (Stockholm)
- GA Gotländskt Arkiv (Visby)
- HBN Hamburger Beiträge zur Numismatik (Hamburg)
- Hist.Tidsskr. [Norsk] Historisk Tidsskrift (Christiania/Oslo)
- Jaarboek voor Munt- en Penningkunde (The Hague)
- Journal of Economic and Social History of the Orient (Leiden)
- KL Kulturhistorisk leksikon for nordisk middelalder (Copenhagen)
- KNVS Forh. Det kongelige Norske Videnskabers Selskabs Forhandlinger (Trondheim)
- KNVSM Årb. Det Kongelige Norske Videnskabers Selskab, Museet. Årbok (Trondheim)
- KNVSM Årsb. Det Kongelige Norske Videnskabers Selskab, Museet. Årsberetning (Trondheim)

- KNVS Skr. Det Kongelige Norske Videnskabers Selskabs Skrifter (Trondheim)
- KVHAA Månadsblad Kungl. Vitterhets Historie och Antikvitets Akademiens Månadsblad (Stockholm)
- Medd.LUHM Meddelanden från Lunds Universitets Historiska Museum (Lund)
- Mediaeval Scandinavia (Odense)
- Moneta e scambi nell' alto medioevo. Settimane di studio del centro italiano di studi sull' alto medioevo 8. Spoleto 1961
- Nationalmuseets Arbejdsmark [Fra] (Copenhagen)
- NC The Numismatic Chronicle (London)
- NFM Numismatisk Forenings Medlemsblad (Copenhagen)
- Nicolay, arkeologisk tidsskrift (Oslo)
- NNÅ Nordisk Numismatisk Årsskrift (Copenhagen, Helsinki, Oslo, Stockholm)
- NNM Numismatic Notes and Monographs (New York)
- NNUM Nordisk Numismatisk Unions Medlemsblad (Oslo och Copenhagen)
- Nordisk Kultur (Stockholm)
- Numismatische Studien, ed. W. Hävernack (Hamburg)
- Num.Medd. Numismatiska Meddelanden (Stockholm)
- Offa. Berichte und Mitteilungen aus dem Schleswig-Holsteinischen Landesmuseum für Vor- und Frühgeschichte in Schleswig, dem Landesamt für Vor- und Frühgeschichte von Schleswig-Holstein in Schleswig und dem Institut für Ur- und Frühgeschichte an der Universität Kiel (Neumünster)
- Oldtiden. Tidsskrift for norsk forhistorie (Stavanger, Kristiania/Oslo)
- SCBI Sylloge of Coins of the British Isles (London)
- SMYA-FFT Suomen Muinaismuistoyhdistyksen Aikakauskirja/Finska Fornminnesförningens Tidskrift (Helsinki)
- Speculum. A Journal of Medieval Studies (Cambridge, Mass.)
- Stav.Mus.Årb. Stavanger Museums Årbok (Stavanger)
- Stav.Mus.Årsb. Stavanger Museums Årsberetning (Stavanger)
- Stav.Mus.Årsh. Stavanger Museums Årshefte (Stavanger)
- St.Hallvard. Tidsskrift for Oslos og Kristianias historie (Kristiania, Oslo)
- Symb.Osl. Symbolae Osloenses auspiciis societatis graeco-latinae (Oslo)
- Tromsö Mus.Årsh. Tromsö Museums Årshefte (Tromsö)
- Tromsö Mus.Skr. Tromsö Museums Skrifter (Tromsö)
- Univ.Berg.Årb. Universitetet i Bergen. Årbok (Bergen)
- UO Årb. Universitetets Oldsaksamlings Årbok (Oslo)
- UO Skr. Universitetets Oldsaksamlings Skrifter (Oslo)
- Urda, et norsk antiqvarisk-historisk Tidsskrift (Bergen)
- Vid.Selsk.Skr. Videnskabs-Selskabet i Christiania. Skrifter (Christiania)
- Viking. Tidsskrift for norrøn arkeologi (Oslo)
- ZfN Zeitschrift für Numismatik (Berlin)

N. Indices

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Map 1. Norwegian finds of coins and some related objects earlier than c. 1100. The numbers refer to the find catalogue



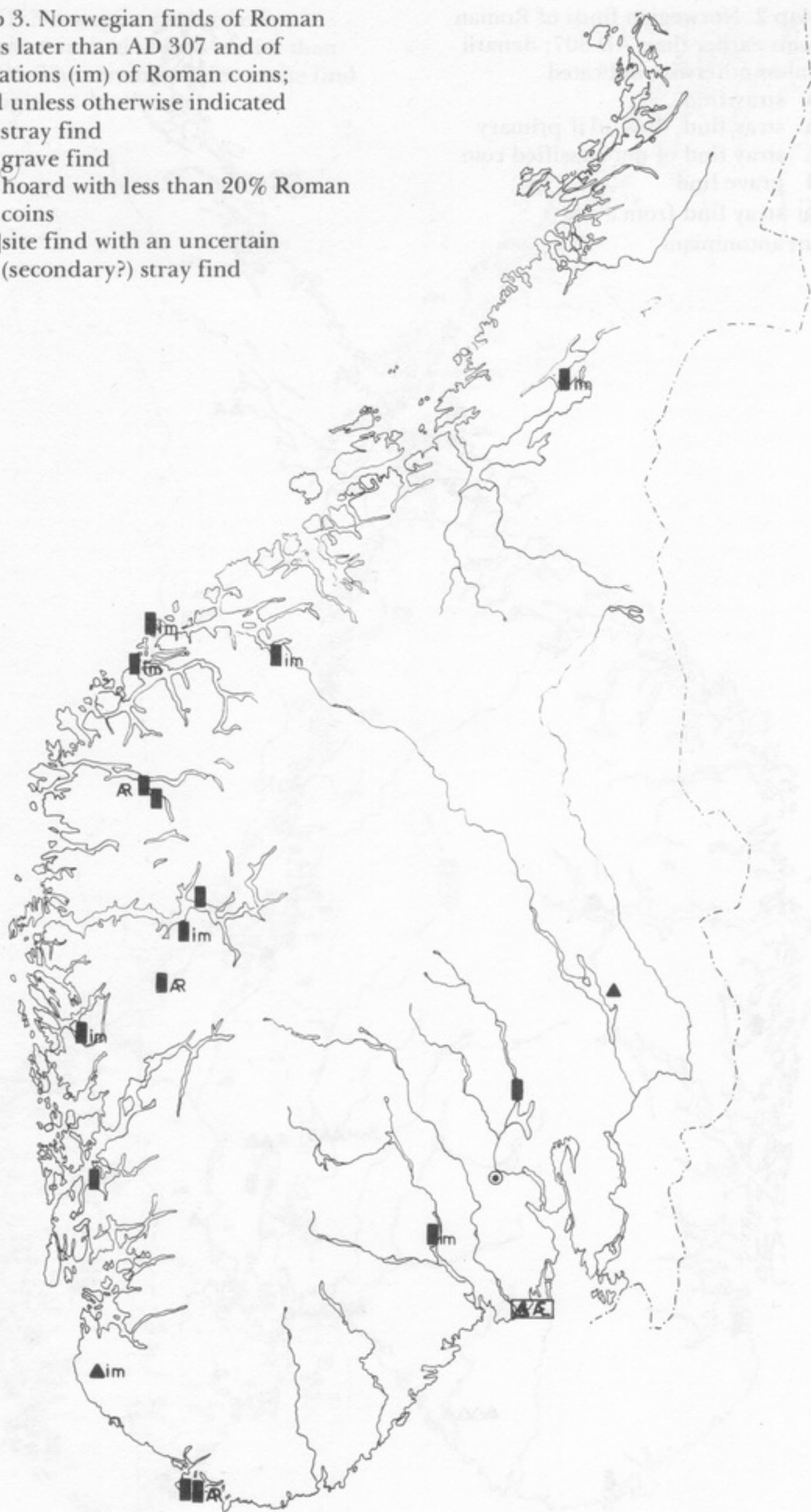
Map 2. Norwegian finds of Roman coins earlier than AD 307; denarii unless otherwise indicated

- ▲ stray find
- △ stray find, doubtful if primary
- △ stray find of not-classified coin
- grave find
- ▲ stray find from a site
ant antoniniani



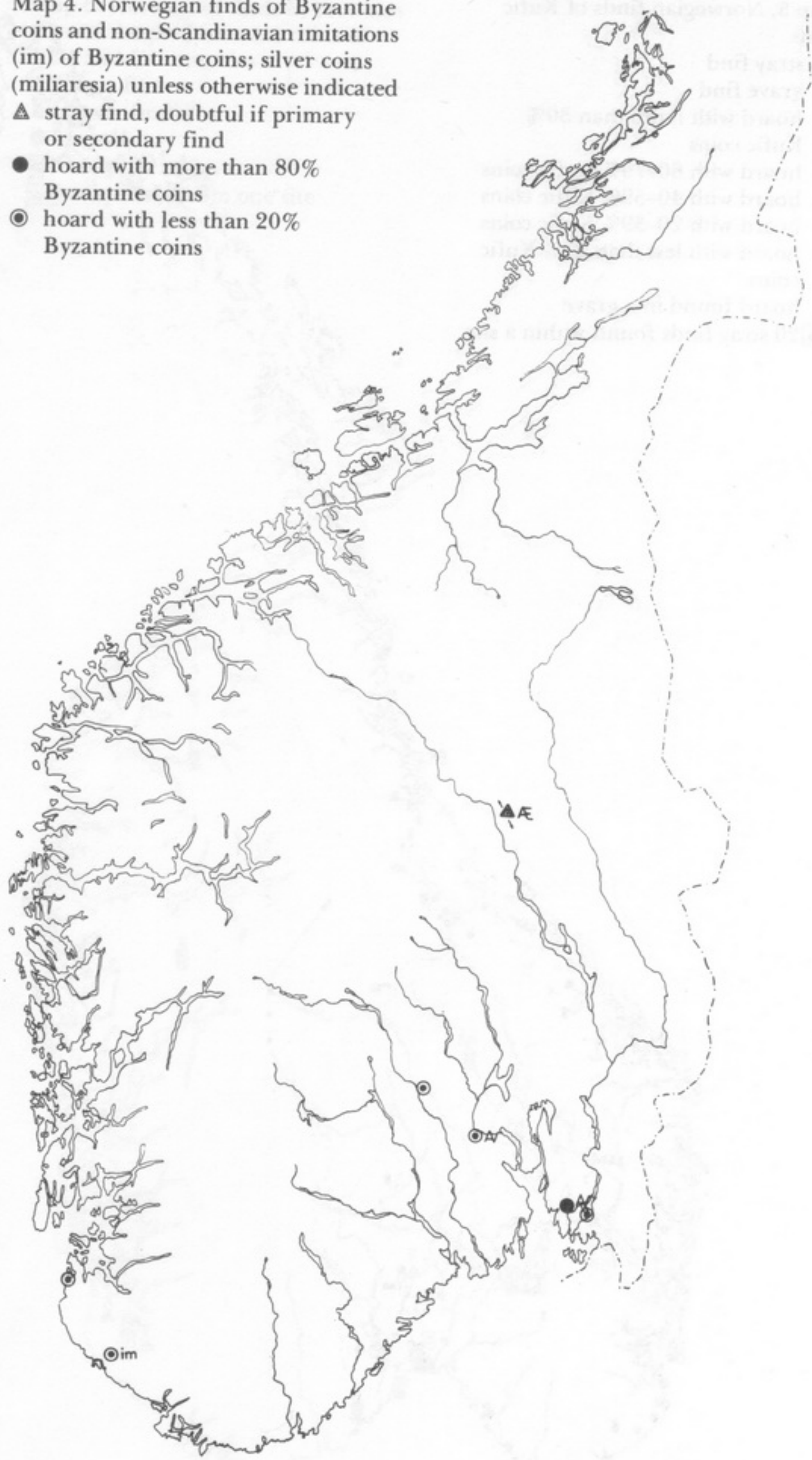
Map 3. Norwegian finds of Roman coins later than AD 307 and of imitations (im) of Roman coins; gold unless otherwise indicated

- ▲ stray find
- grave find
- ◎ hoard with less than 20% Roman coins
- ⊠ site find with an uncertain (secondary?) stray find



Map 4. Norwegian finds of Byzantine coins and non-Scandinavian imitations (im) of Byzantine coins; silver coins (miliaresia) unless otherwise indicated

- ▲ stray find, doubtful if primary or secondary find
- hoard with more than 80% Byzantine coins
- ⊙ hoard with less than 20% Byzantine coins



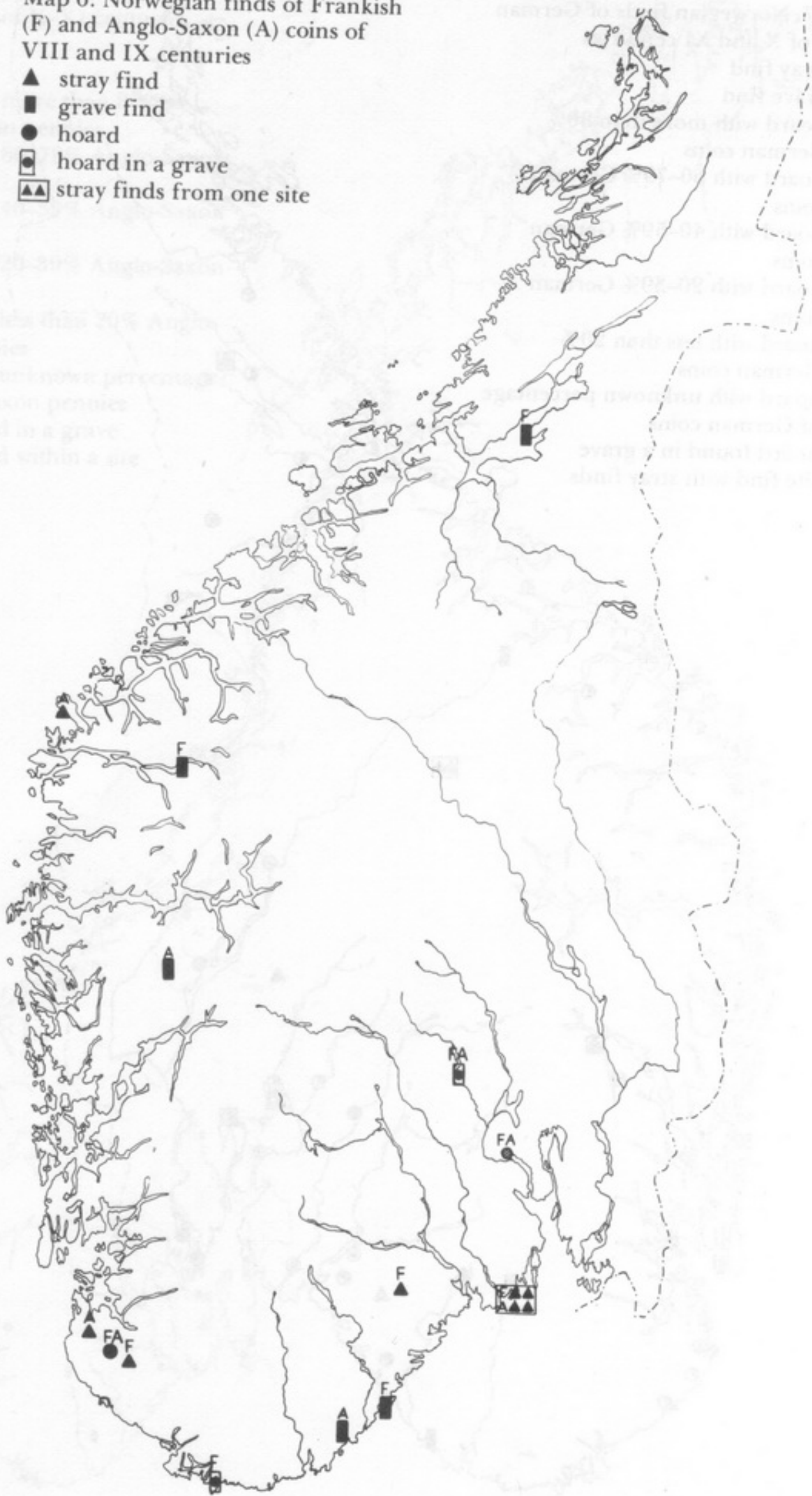
Map 5. Norwegian finds of Kufic coins

- ▲ stray find
- grave find
- hoard with more than 80% Kufic coins
- hoard with 60–79% Kufic coins
- hoard with 40–59% Kufic coins
- hoard with 20–39% Kufic coins
- hoard with less than 20% Kufic coins
- ◻ hoard found in a grave
- 20▲ 20 stray finds found within a site



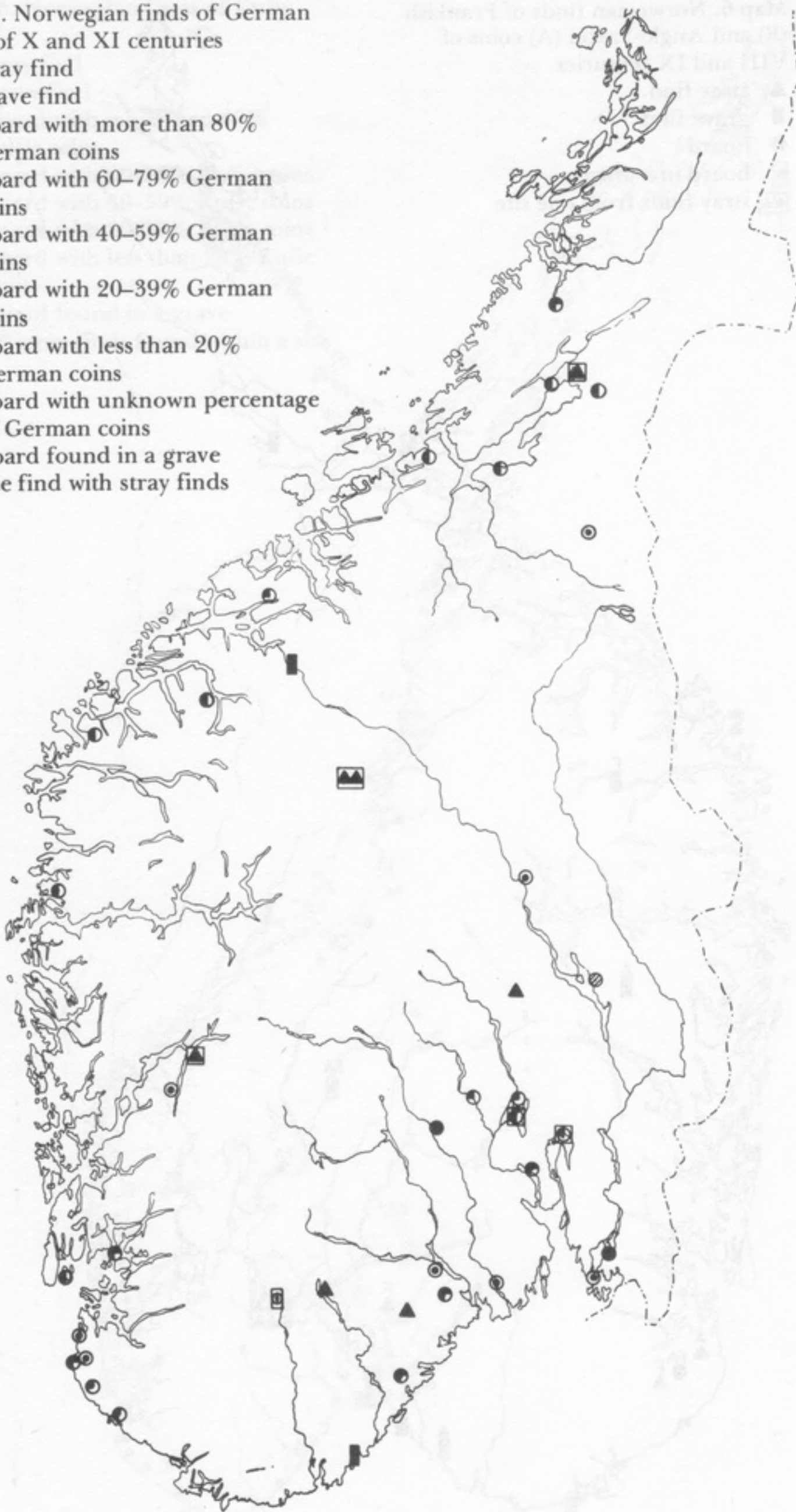
Map 6. Norwegian finds of Frankish (F) and Anglo-Saxon (A) coins of VIII and IX centuries

- ▲ stray find
- grave find
- hoard
- ◻ hoard in a grave
- ◼◼ stray finds from one site



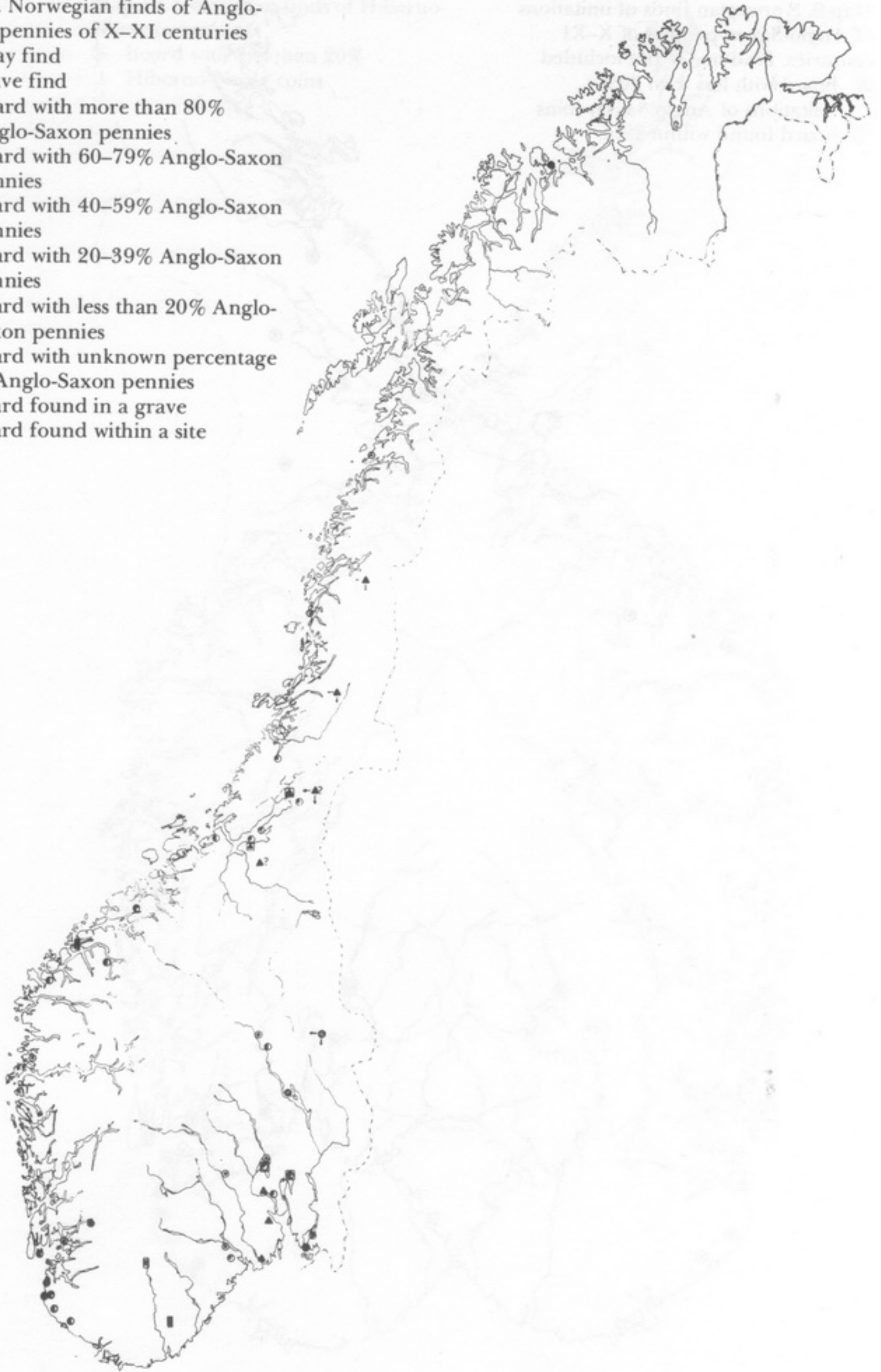
Map 7. Norwegian finds of German coins of X and XI centuries

- ▲ stray find
- grave find
- hoard with more than 80% German coins
- ◐ hoard with 60–79% German coins
- ◑ hoard with 40–59% German coins
- ◒ hoard with 20–39% German coins
- ◓ hoard with less than 20% German coins
- ◔ hoard with unknown percentage of German coins
- ◕ hoard found in a grave
- ▲▲ site find with stray finds



Map 8. Norwegian finds of Anglo-Saxon pennies of X–XI centuries

- ▲ stray find
- grave find
- hoard with more than 80% Anglo-Saxon pennies
- hoard with 60–79% Anglo-Saxon pennies
- hoard with 40–59% Anglo-Saxon pennies
- hoard with 20–39% Anglo-Saxon pennies
- hoard with less than 20% Anglo-Saxon pennies
- hoard with unknown percentage of Anglo-Saxon pennies
- ☐ hoard found in a grave
- ☐ hoard found within a site



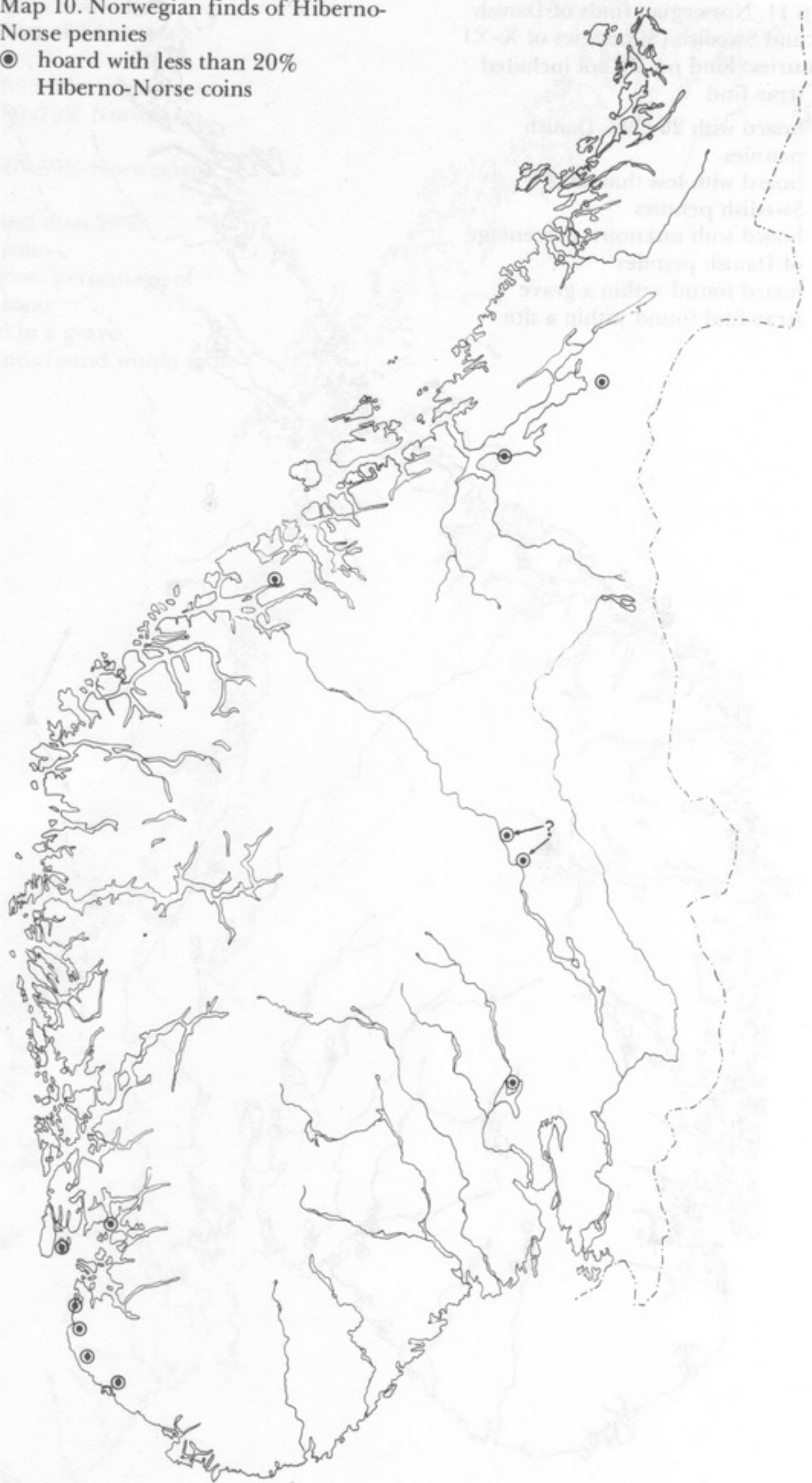
Map 9. Norwegian finds of imitations of Anglo-Saxon pennies of X-XI centuries. Find no. 24 not included

- hoard with less than 20% imitations of Anglo-Saxon coins
- ◻ hoard found within a site



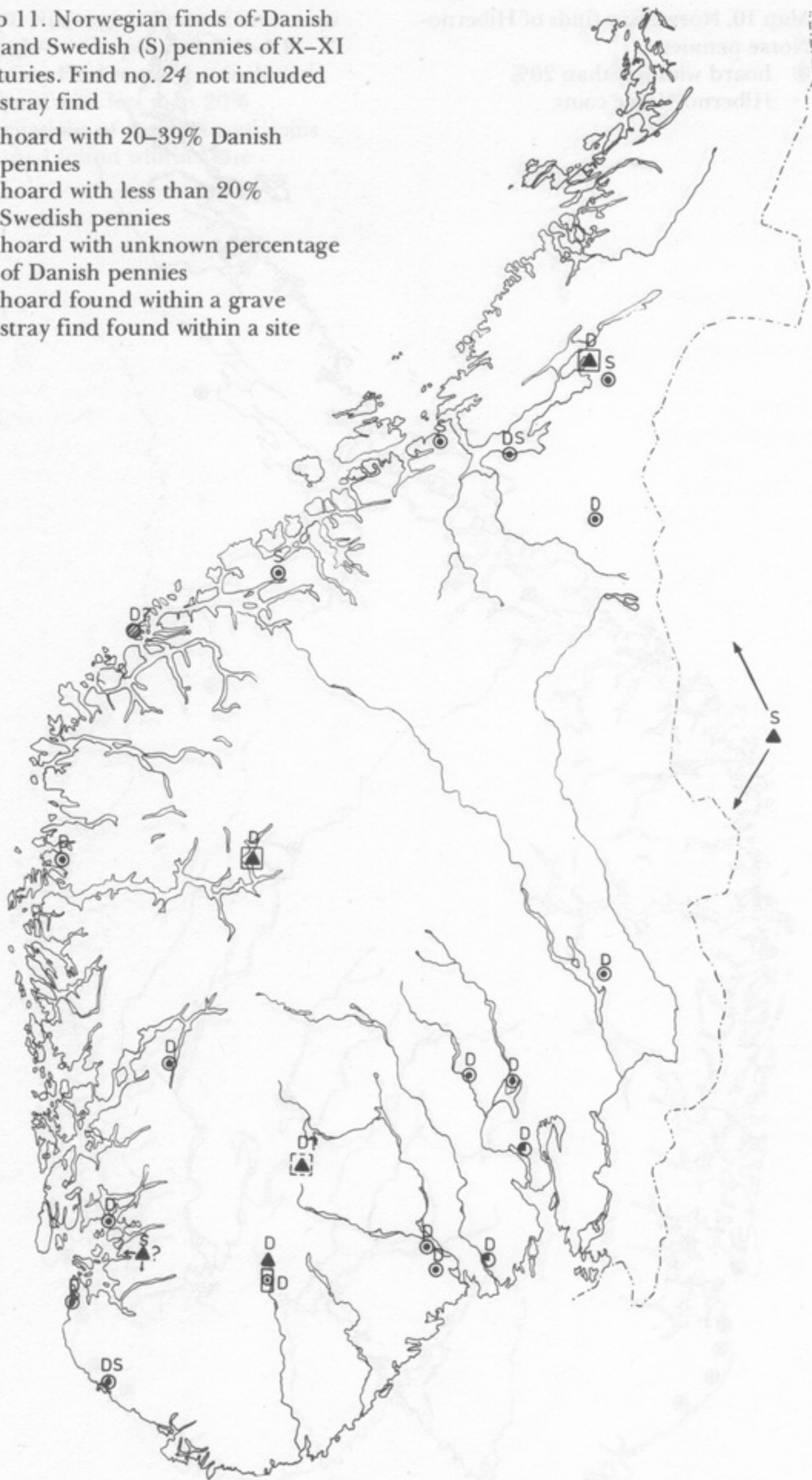
Map 10. Norwegian finds of Hiberno-Norse pennies

- hoard with less than 20% Hiberno-Norse coins



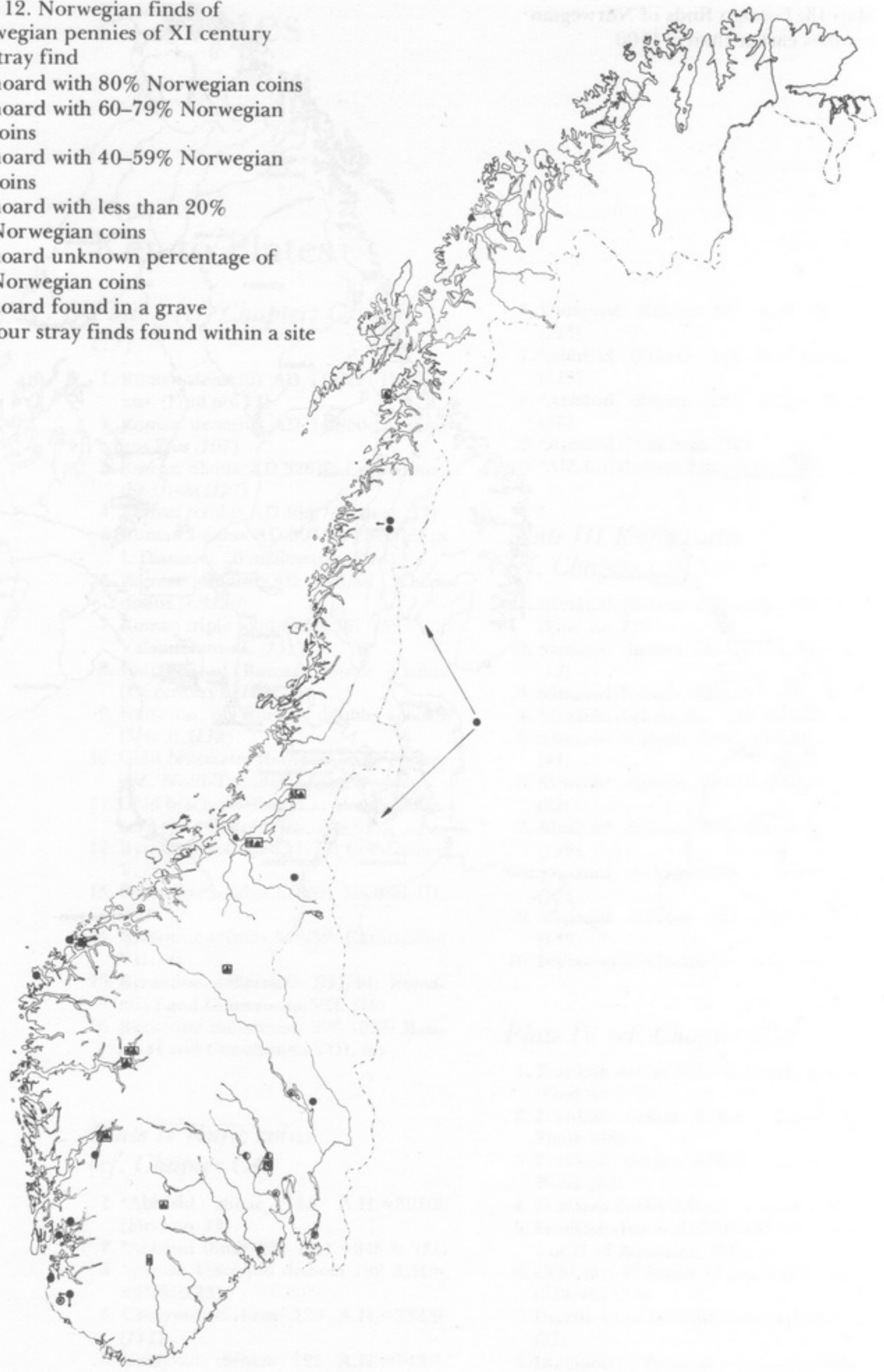
Map 11. Norwegian finds of Danish (D) and Swedish (S) pennies of X–XI centuries. Find no. 24 not included

- △ stray find
- ^D hoard with 20–39% Danish pennies
- ^S hoard with less than 20% Swedish pennies
- ^D hoard with unknown percentage of Danish pennies
- ⊠ hoard found within a grave
- ▲ stray find found within a site

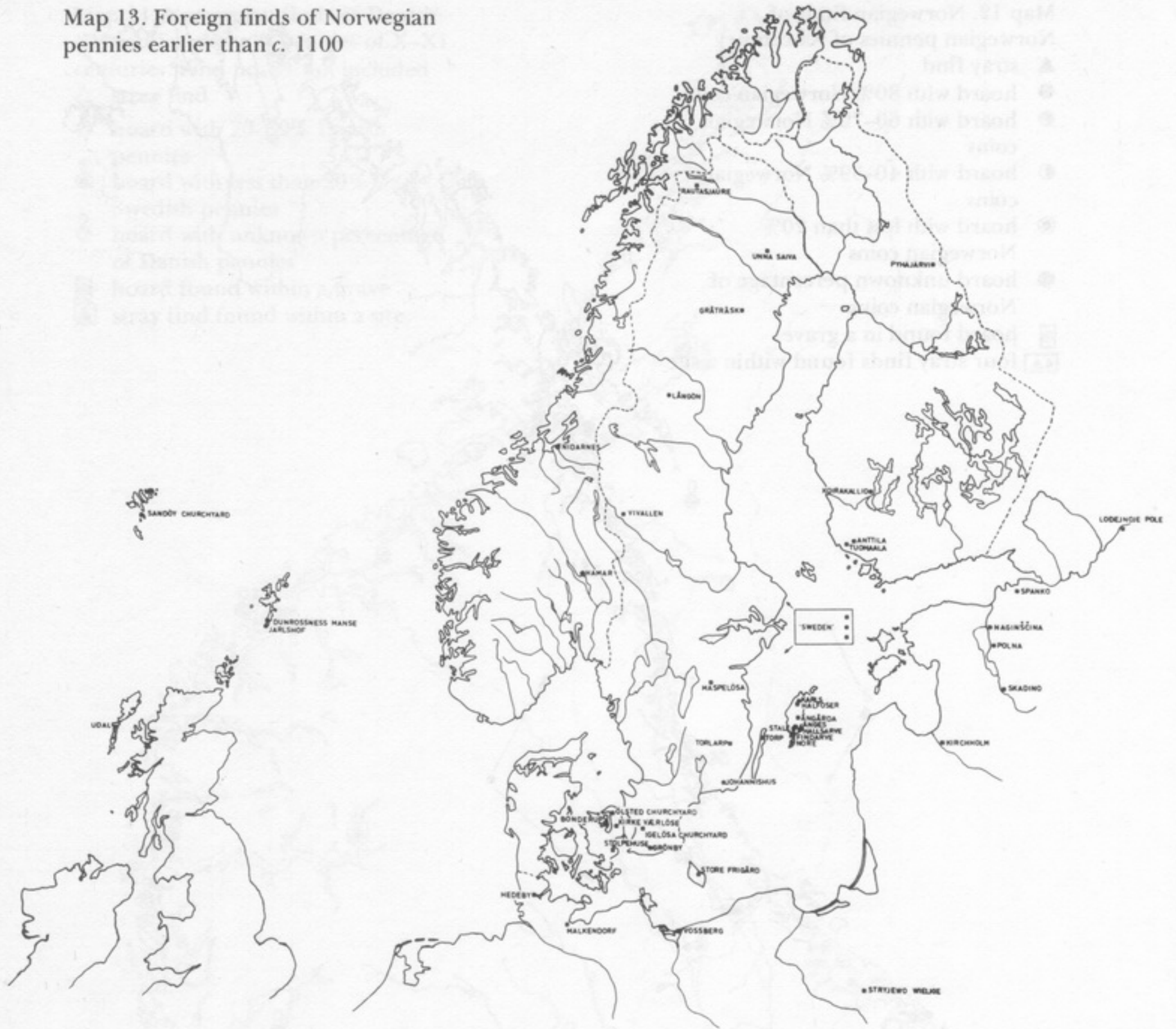


Map 12. Norwegian finds of
Norwegian pennies of XI century

- ▲ stray find
- hoard with 80% Norwegian coins
- hoard with 60-79% Norwegian coins
- hoard with 40-59% Norwegian coins
- hoard with less than 20% Norwegian coins
- hoard unknown percentage of Norwegian coins
- ⊙ hoard found in a grave
- 4▲ four stray finds found within a site



Map 13. Foreign finds of Norwegian pennies earlier than c. 1100



P. Plates

Key to Plates

Plate I (cf. Chapters C1 and C5)

1. Roman denarius AD 119/22: Hadrianus. (Find no. 73)
2. Roman denarius AD 149/50: Antoninus Pius (107)
3. Roman siliqua AD 326/7: Constantine the Great (121)
4. Roman solidus AD 364/7: Valens (33)
5. Roman solidus AD 393/5: Theodosius I. Diameter 20 millimetres. (114)
6. Roman solidus AD 425/30: Theodosius II. (120)
7. Roman triple solidus AD 367/75: Valentinianus I. (76)
8. Imitation of Roman double solidus (IV century). (108)
9. Imitation of Roman double solidus (350/3). (132)
10. Gold bracteate, found at Hov, Fosnes *pgd.*, Nord-Trøndelag *fylke*, Norway
11. Gold bracteate, found at Sletner, Eidsberg *pgd.*, Östfold *fylke*, Norway
12. Byzantine solidus 751-74: Constantine V. (33)
13. Byzantine solidus *c.* 852: Michael III. (33)
14. Byzantine solidus 945/59: Constantine VII. (4)
15. Byzantine miliaresion 931/44: Romanus I and Constantine VII. (36)
16. Byzantine miliaresion 976/1025: Basilus II and Constantine VIII. (6)

Plate II Kufic coins (cf. Chapter C4)

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2. °Abbāsīd dinar 234 A.H.=848/9. (33)
3. Spanish Umayyad dirhem 192 A.H.=807/8. (125)
4. Umayyad dirhem 120 A.H.=738/9. (111)
5. Umayyad dirhem 125 A.H.=742/3. (5)

6. Umayyad dirhem 127 A.H.=744/5. (113)
7. °Abbāsīd dirhem 146 A.H.=763/4. (113)
8. °Abbāsīd dirhem 182 A.H.=798/9. (47)
9. °Abbāsīd (?) dirhem. (48)
10. °Abbāsīd dirhem 219 A.H.=834/5. (5)

Plate III Kufic coins (cf. Chapter C4)

1. Sāmānid dirhem 286 A.H.=899/900. (Find no. 12)
2. Sāmānid dirhem 286 A.H.=899/900. (12)
3. Sāmānid dirhem 292 A.H.=904/5. (43)
4. Sāmānid dirhem 293 A.H.=905/6. (43)
5. Sāmānid dirhem 300 A.H.=912/13. (43)
6. Sāmānid dirhem 301 A.H.=913/14. (62)
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10. Imitation of Sāmānid dirhem. (140)

Plate IV (cf. Chapter C3)

1. Frankish denier 805/14: Charlemagne. (Find no. 153)
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3. Frankish denier 814/40: Louis the Pious. (72)
4. Frankish denier 840/55: Lothar. (33)
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8. Imitation of Frankish solidus (814/40). (33)

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11. Anglo-Saxon penny *c.* 810: Archbishop Wulfred of Canterbury. (33)
12. Anglo-Saxon styca *c.* 830/840-1: Eanred of Northumbria. The coin is mounted on a lead weight. (67)
13. Anglo-Saxon styca *c.* 830/840-1: Eanred of Northumbria. The coin is mounted on a lead weight. (67)

Plate V German coins (*cf. Chapter C6*)

Upper Lotharingia

1. Verdun. Emperor Conrad II, 1027-1039, and Bishop Rambert I, 1024-1039. Penny. (Find no. 147)
2. Trier. Emperor Henry II, 1014-1024, and Archbishop Poppo, 1016-1047. Penny. (110)
3. Andernach. Duke Dietrich of Lotharingia, 984-1026. Penny. (95)

Lower Lotharingia

4. Flanders. Count Balduin IV, 989-1036. Cut halfpenny. (95)
5. Cologne. Otto I, 936-962. Penny. (159)
6. Cologne. Emperor Otto I, 962-973. Penny. (147)
7. Cologne. Emperor Conrad II, 1027-1039, and Archbishop Herman II, 1036-1039. Penny. (35)
8. Duisburg. Emperor Conrad II, 1027-1039. Penny. (95)
9. Utrecht. Bishop Bernold, 1027-1054. Penny. (35)
10. Deventer. Emperor Conrad II, 1027-1039. Penny. (95)
11. Deventer. Bishop Bernold, 1046-1054. Penny. (90)
12. Tiel. Emperor Henry II, 1014-1024. Penny. (147)
13. Leeuwarden. Emperor Henry III, 1046-1054, and Count Bruno, 1038-1057. Penny. (38)

Saxony

14. Dortmund. Otto III, 983-996. Penny. (159)
15. Dortmund. Henry II, 1002-1014. Cut halfpenny. (95)
16. Vreden? Count Wichman III, 967-1016. Penny. (90)
17. Stade. Count Henry the Good, 976-1016. Penny. (95)
18. Lüneburg. Duke Bernhard I of Saxony, 973-1011. Penny. (159)

19. Otto-Adelheid-Pfennig: Otto III and Adelheid. Penny. (36)
20. 'Otto-Adelheid-Pfennig': Otto III and Adelheid. Obol. (159)
21. Otto-Adelheid-Pfennig: Otto III and Adelheid. Penny. (127)

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2. Magdeburg. Otto III, 983-996. Penny. (159)
3. Magdeburg. C. 1025-50. Penny. (95)
4. Sachsen-Pfennig. Penny. (159)
5. Sachsen-Pfennig. Penny. (159)

Franconia

6. Würzburg. Emperor Otto III, 996-1012. Penny. (159)
7. Mainz. Henry II, 1002-1014. Penny. (91)
8. Worms. Emperor Henry III, 1046-1056. Penny. (35)
9. Speyer. Emperor Conrad II, 1027-1039. Penny. (35)

Swabia

10. Strasbourg. Henry II, 1002-1014. Penny. (90)
11. Esslingen. Henry II, 1002-1014. Penny. (90)
12. Augsburg. Henry II, 1002-1014. Penny. (90)

Bavaria

13. Regensburg. Duke Henry III, 985-995. Penny. (90)
14. Regensburg. Henry II, 1009-1014. Penny. (90)
15. Regensburg. Duke Henry V, 1017-1026. Penny. (110)

Bohemian coin

16. Boleslav Chobry, 1003-1035. Penny. (147)

Hungarian coin

17. Stefan I, 1001-1038. Penny. (90)

Russian coin

18. Kiev. Yaroslav I, 1016-1054. Sbrenik. (135)

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2. Eadgar, 959–975. Penny *c.* 973/5, struck at Maldon. (127)
3. Ethelred II, 978–1016. Penny *c.* 979/85, London. (36)
4. Ethelred II, 978–1016. Penny *c.* 985/91, London. (159)
5. Ethelred II, 978–1016. Penny *c.* 985/91, Winchester. (36)
6. Ethelred II, 978–1016. Penny *c.* 991/7, Maldon. (159)
7. Ethelred II, 978–1016. Penny *c.* 991/7, Oxford. (36)
8. Ethelred II, 978–1016. Cut farthing *c.* 991/7, Winchester. (159)
9. Ethelred II, 978–1016. Cut halfpenny *c.* 991/7. (159)
10. Ethelred II, 978–1016. Penny *c.* 997/1003, Cambridge. (91)
11. Ethelred II, 978–1016. Penny *c.* 997/1003, Northampton. (91)
12. Ethelred II, 978–1016. Penny *c.* 997/1003, Norwich. (91)
13. Ethelred II, 978–1016. Penny *c.* 997/1003, Southwark. (91)
14. Ethelred II, 978–1016. Penny *c.* 997/1003, Wallingford. (95)
15. Ethelred II, 978–1016. Penny *c.* 1003/9, Exeter. (82)
16. Ethelred II, 978–1016. Penny *c.* 1003/9, Ilchester. (82)
17. Ethelred II, 978–1016. Penny *c.* 1003/9, York. (91)
18. Ethelred II, 978–1016. Penny *c.* 1009, Derby. (135)
19. Ethelred II, 978–1016. Penny *c.* 1009/16, Lincoln. (82)
20. Ethelred II, 978–1016. Penny *c.* 1009/16, London. (91)
21. Ethelred II, 978–1016. Penny *c.* 1009/16, Winchester. (82)

Plate VIII Anglo-Saxon coins
(*cf. Chapter C6*)

1. Cnut, 1016–1035. Penny *c.* 1017/23, struck at Lewes. (95)
2. Cnut, 1016–1035. Penny *c.* 1017/23, Lewes. (95)
3. Cnut, 1016–1035. Penny *c.* 1017/23, Norwich. (95)
4. Cnut, 1016–1035. Penny *c.* 1017/23, Stamford. (95)
5. Cnut, 1016–1035. Penny *c.* 1023/9, Canterbury. (95)
6. Cnut, 1016–1035. Cut halfpenny *c.* 1023/9, Chester. (95)
7. Cnut, 1016–1035. Penny *c.* 1023/9, London. (95)
8. Cnut, 1016–1035. Cut halfpenny *c.* 1029/35, London. (35)

9. Cnut, 1016–1035. Penny *c.* 1029/35, Winchester. (90)
10. Harold I, 1035–1040. Penny *c.* 1037/40, Castle Gotha. (90)
11. Harold I, 1035–1040. Cut halfpenny *c.* 1037/40. (90)
12. Harthacnut, 1040/1042. Penny, London. (90)
13. Edward the Confessor, 1042–1066. Penny *c.* 1042/4, Stamford. (90)
14. Edward the Confessor, 1042–1066. Penny *c.* 1044/6, Lewes. (35)
15. Edward the Confessor, 1042–1066. Penny *c.* 1044/6, Lincoln. (35)
16. Edward the Confessor, 1042–1066. Penny *c.* 1046/8, London. (90)
17. Edward the Confessor, 1042–1066. Penny *c.* 1048/50, London. (35)
18. Edward the Confessor, 1042–1066. Penny *c.* 1050/3, London. (90)
19. Edward the Confessor, 1042–1066. Penny *c.* 1050/3, York. (90)
20. Edward the Confessor, 1042–1066. Cut halfpenny *c.* 1056/9, London. (38)
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2. Imitation of Anglo-Saxon penny (*c.* 997/1003). (135)
3. Imitation of Anglo-Saxon penny (*c.* 997/1003). (147)
4. Imitation of Anglo-Saxon penny (*c.* 997/1003). (147)
5. Imitation of Anglo-Saxon penny (*c.* 997/1003). (147)
6. Imitation of Anglo-Saxon penny (*c.* 997/1003). (147)
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10. Imitation of Anglo-Saxon penny (*c.* 1009/16). Cut halfpenny. (78)
11. Imitation of Anglo-Saxon penny (*c.* 1009/16). (95)
12. Imitation of Anglo-Saxon penny (*c.* 1009/16). (147)
13. Imitation of Anglo-Saxon penny (*c.* 1009/16). (147)
14. Imitation of Anglo-Saxon penny (*c.* 1017/23). (95)
15. Imitation of Anglo-Saxon penny (*c.* 1017/23). (95)
16. Imitation of Anglo-Saxon penny (*c.* 1023/9). (95)

17. Imitation of Anglo-Saxon penny (c. 1029/35). (147)

Hiberno-Norse coins

18. Sihtric Silkbeard, 989–1029. Penny c. 997/1003, struck at Dublin. (91)
 19. Sihtric Silkbeard, 989–1029. Penny c. 997/1003, Dublin. (90)
 20. Sihtric Silkbeard, 989–1029. Penny c. 1009/16, Dublin. (82)

Plate X

(cf. Chapters C3 and C6)

1. Early Scandinavian coin, c. 825. (72)
 2. Early Scandinavian coin, c. 825. (72)
 3. Early Scandinavian coin, c. 825. (72)
 4. Early Scandinavian coin, from c. 825. (48)
 5. Early Scandinavian coin, from c. 950. (136, note)
 6. Early Scandinavian coin, c. 975/80. (36)

Danish coins

7. Cnut, 1018–1035, Penny struck at Lund. (82)
 8. Cnut, 1018–1035. Penny, Viborg. (95)
 9. Cnut, 1018–1035, or Harthacnut, 1035–1042. Penny, Lund. (35)
 10. Harthacnut, 1035–1042. Cut half-penny, Lund. (35)
 11. Harthacnut, 1035–1042. Penny, Viborg. (35)
 12. Magnus the Good, 1042–1047. Penny, Lund. (35)
 13. Period of Struggle: 'Johannes'? Penny c. 1045, Odense. (35)
 14. Harald Hardråde, King of Norway. Penny c. 1047, Odense.
 15. Harald Hardråde, King of Norway. Penny c. 1047, Odense.
 16. Sven Estridsen, 1047–1074. Penny, Lund. (35)
 17. Sven Estridsen, 1047–1074. Penny, Lund. (35)
 18. Sven Estridsen, 1047–1074. Penny, Roskilde. (35)
 19. Sven Estridsen, 1047–1074. Penny, Hedeby. (35)

Swedish coins

20. Olof Skötkonung, c. 994–1022. Penny c. 995/1005.
 21. Anund Jakob, c. 1002–1050. Penny c. 1025/30. (147)

Plates XI–XXII

Norwegian coins

(cf. Chapters D, E2 and K)

illustrate, following the catalogue numbers, all the specimens in the *Corpus of Norwegian coins*, except for no. 71h, some lost specimens (2g, 18i–k, 38c, 83d–e, 92p–w), and some smaller fragments (92c, 92e, 92l–m, 92o).

Plates I-XXII





1



2



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4



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6



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10



11



12



13



14



15



16



1



2



3



4



5



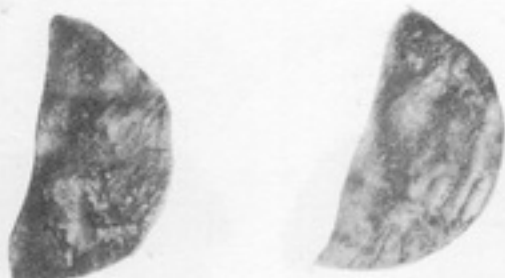
6



7



8



9



10



1



2



3



4



5



6



7



8



9



10



11



12



13

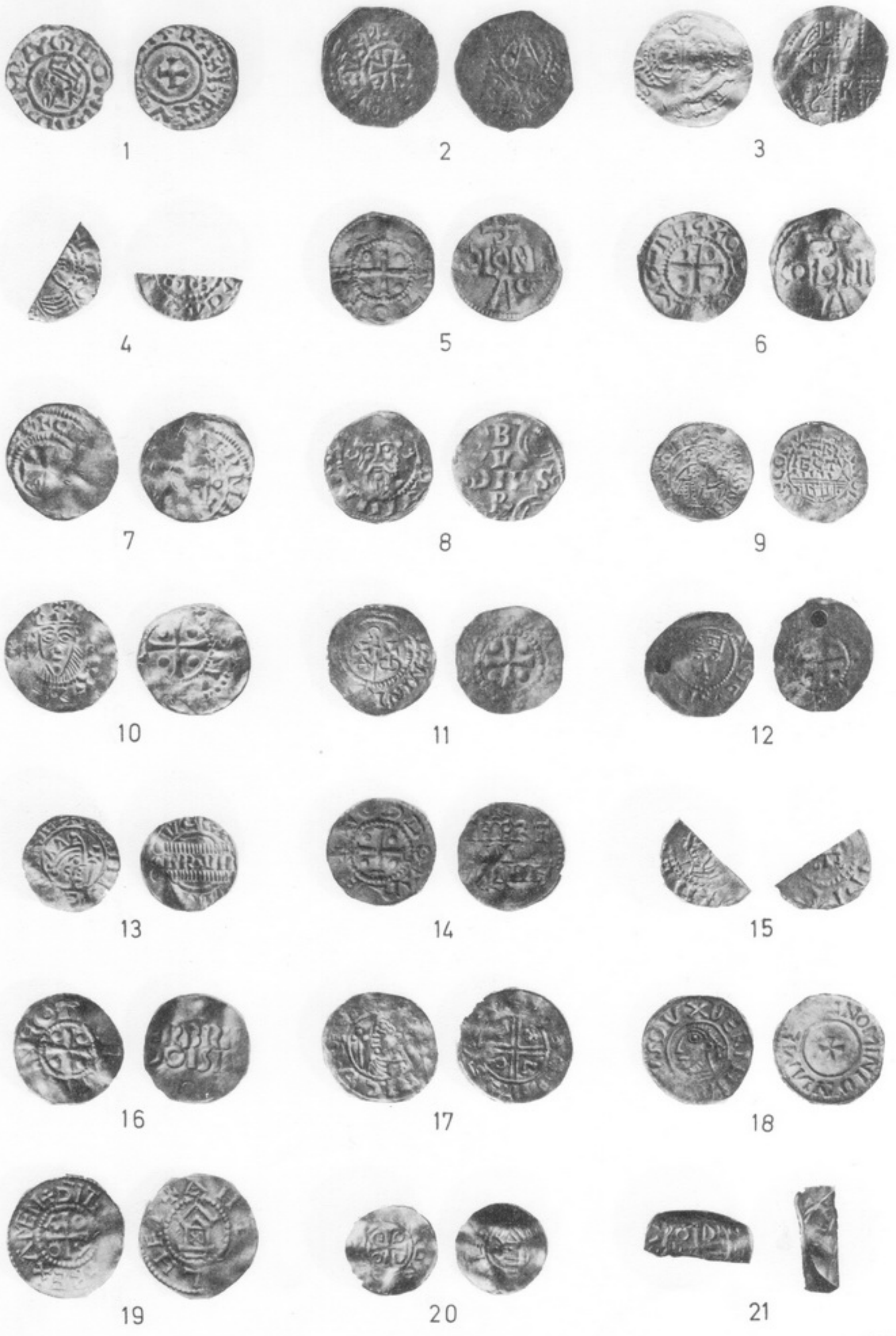


PLATE VI



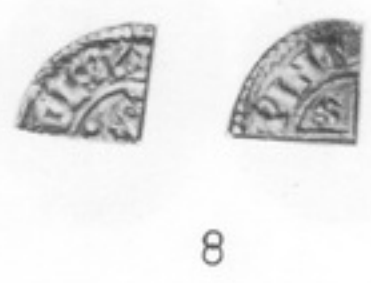


PLATE VIII





1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



20

PLATE X



1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



20



21



1a



1b



1c



2a



2c



2e



3a



3c



3e



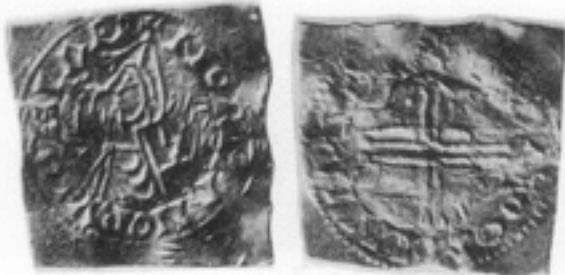
4a



4c



4e



5a



5c



5e



6a



6c



6e



7a



7c



7e

PLATE XII



11c



11d



12a



12b



12c



12d



13a



13b



13c



13d



14a



15a



15b



15c



16a



17a



18a



18b



18c



18d



18e



18f



18g



18h



18l



18m



18n



18o



19a



20a



21a



21b



21c



21d



21e



21f



21g



21h



22a



23a



23b



23c



54f



54g



54h



55a



55b



55c



56a



57a



58a



58b



58c



58d



58e



59a



59b



60a



60b



60c



61a



62a



62b

PLATE XX



70h



70i



70j



70k



70l



71a



71b



71c



71d



71e



71f



71g



71i



71j



71k



72a



72b



72c



73a



74a



75a



84a



84b



85a



86a



87a



88a



88b



88c



89a



90a



91a



92a



92b



92d



92f



92g



92h



92i



92j



92k



92n