

Coin Imitations as Jewelry in Eleventh Century Finland

In a paper published in the Festschrift for Ella Kivikoski, Pekka Sarvas for the first time presented evidence which shows that coins were in the eleventh century struck also in Finland (Sarvas 1973; cf. also Sarvas 1966 and Talvio 1978A). The idea itself was not entirely new: Hjalmar Appelgren had already in 1898 suggested that some very primitive uniface imitations of Kufic dirhams might be of Finnish origin, and the attribution has since won the acceptance of Ulla S. Linder Welin, who discusses the material in the publication of offering place finds from Lapland (Appelgren 1898; Serning 1956, 198-9). There are more of these Kufic imitations than was first thought — a listing of the twelve specimens known to the present writer is given here as Appendix 1 — but they do not seem to constitute a uniform group. They can, however, be compared to the bracteate imitations of Byzantine type, one of which (Sarvas 1973, no. 34) is of very crude work. It is also worth noting that one of the two-sided Byzantine imitations (Sarvas 1973, no. 24, today known only from a 19th century publication) has a reverse which imitates a dirham, perhaps of the Marwanid or the Uqailid type belonging among the latest in Finnish finds of Oriental coins. Seventeen specimens of the miliaresion imitations are known.¹ Compared to the nineteen² genuine

¹ To the material published in Sarvas 1973 must be added a die-duplicate of nos. 19—21 in Paris (Morrison 1970, 611, and of nos. 31—3 in Turku Historical Museum; cf. recension of Sarvas 1973 in a forthcoming issue of *Hamburger Beiträge zur Numismatik*.

² It must be pointed out that Sarvas's publication includes 6 unprovenanced imitations, 3 of which are only known from 19th century literature. Not included, however, are 3 unprovenanced genuine miliaresia (2 of John I, 1 of Basil II) which very probably also derive from Finnish finds. — Byzantine ('Greek') coins are also mentioned as found in 1686 at Uskela, cf. Dijkman 1686, III.1.

Byzantine coins found in Finland this is a high figure which, taking into account the scarcity of such imitations in the neighbouring areas, is in itself suggestive of the local origin of the imitations.

Sarvas's paper is mainly concerned with presenting the material and discussing its origin, but he also comments on the frequent occurrence of Byzantine coins, both genuine and imitative, in Finnish graves, and their apparent popularity as jewelry (Sarvas 1973, 182; cf. Grierson 1973, 103, n. 317). The aim of the present note is to suggest that the main reason why such a minor group as Byzantine coins was in Finland deemed worthy of imitation was probably that the coins were used as pendants and perhaps even as religious amulets. In the case of the Kufic coins, the latter function cannot perhaps be taken into account (unless the Arabic script was assigned some magical significance by the heathen Finns), but the use of dirhams in necklaces was common, and imitations apparently began to be produced soon after the import of Oriental silver in the first decade of the eleventh century had been definitely cut off. We begin with a summary of the Byzantine and pseudo-Byzantine material published in 1973.

The coins of Basil II and their imitations

Aside from five earlier coins — two of Constantine VII, one of Nicephorus II, and two of John I — and one later, of Constantine IX, the material of true Byzantine coins published as being found in Finland consists of thirteen miliaresia of Basil II. Even elsewhere in the north this is the commonest type, apparently because of the length of Basil's reign (976—1025) and the scarcity of silver coin in Byzantium in the eleventh century. Philip Grierson has divided the miliaresia of Basil II into four classes, the first and third of which are very rare and need not be taken into account here. Coins of class II and IV belong to the same main type: on the obverse there is a cross on steps between the facing busts of Basil II and his brother Constantine VIII, while the reverse has an inscription on five lines with an ornamental pattern above and beneath (Grierson 1967, 180—7; Grierson 1973, 609—12). Class II is more common, and all the thirteen coins found in Finland belong to it. The Basil II type imitations published by Sarvas as Finnish nevertheless clearly seem to be based on coins of Grierson's class IV, which is characterized by a reverse ornament in the form of —— and by the large diameter of its coins. The two-sided imitations all show the typical reverse ornament, which is not recorded from coins of Grierson's class II. Illustrated here as Fig. 1 is one of the six specimens, which are from two obverse and three reverse dies (Sarvas 1973, nos. 19—23, and the specimen in Paris, note 1 above). The bracteate

imitations — four specimens from two dies (Sarvas 1973, nos. 25—8) — imitate the obverse side, but on both dies the base of the cross is decorated with a floral ornament (Fig. 2), and this is again a characteristic feature of class IV. That coins of this class were chosen as prototypes for imitations is scarcely surprising: they are large, and belong late within the series, as seems to be indicated by their absence from the Eastonian Vella hoard buried around the millenium (Grierson 1973, 611; Sokolova 1961). It can be assumed on the basis of hoards that the import of silver to the Finnish mainland began relatively late,³ and thus it is more natural for a post-1000 type to be imitated here. It is even so quite remarkable that so many imitations are found of a coin type of which not a single original has been recorded from Finland. The situation is similar regarding imitations of later types.

Types with the Virgin and the emperor

In contrast to the earlier relatively simple designs in most cases based on a cross and an inscription, the rare *miliaresia* struck at Constantinople during the reigns of Romanus III and his successor show a series of standing figures of the Virgin and the emperor. Only one post-1025 *miliaresion* has been found in Finland, the coin of Constantine IX from Karkku (Sarvas 1973, no. 29). It is actually the only coin of this ruler found in the northern countries, with the exception of the Oxarve hoard from Gotland. This included 98 whole and 6 fragmentary *miliaresia*, 97 of them from the reign of Constantine IX (e.g. Hatz 1974, 23, n. 88). However, one two-sided (Fig. 4) and one bracteate (Fig 5) imitation of this coin have been found in Finland (Sarvas 1973, nos. 30, 34), and no fewer than four specimens are recorded of an imitation which is from the same reverse die as the above-mentioned two-sided imitation (Fig. 4), but has an obverse (Fig. 3) copied from a coin of Romanus III (Sarvas 1973, nos. 31—3, and the specimen in Turku, note 1 above).

These two-sided imitations form a picturesque group in Finnish archaeological material of the late heathen period. Their style, though not without a certain charm, must clearly be termed barbarous. The figure of Virgin Orans, for example, has a moustache, and her breasts are indicated with pellets (Fig. 4). Should we perhaps think that the die-cutter had given her the moustache

³ There is at the moment no up-to-date discussion of the Finnish hoards, but it can be constated that there are in the National Museum at the moment some 5000 West-European coins found on the Finnish mainland, and only about 250 or 5 % of them derive from hoards deposited before c. 1020.

inadvertently, and then tried to neutralize the effect by stressing her femininity? More significant certainly are the other additions that have been made on the two obverses: the Virgin Hodegetria (Fig. 3) is flanked by a cross and a crozier, while the Virgin Orans has a cross and an unidentified object (a book?) in her outstretched hands. The long-shafted cross appearing on both obverses has probably been borrowed from the reverse figure, but the crozier is an emblem of the Western Church and as such not found on Byzantine coins. It may, however, have been copied from German coins, on which it appears often (e.g. Salmo 1948, Pls. 5, 15—16). The die-cutter, who has wanted to associate it with the image of the Virgin, must have recognized it as a Christian symbol.

The dating of the imitations

The miliaresion of Romanus III with the Hodegetria observe has been assigned by Grierson to the year 1030 (Grierson 1973, 713), but the Finnish imitations, or at least those which are now known, must belong later than 1042 because of their reverse being copied from a coin of Constantine IX. Sarvas's dating of the group to c. 1050 (Sarvas 1973, 186), however, seems unnecessary late, and his dating of the Basil II imitations to c. 1025 can also be considered somewhat uncertain. The present writer at least cannot avoid seeing in the two-sided imitations of Sarvas's group 2 (Fig. 1) affinities with the Romanus III/Constantine IX imitations (Figs. 3—4): the robust lettering is produced with the same kind of punches, and on the reverse of the latter type of imitation there is an annulet between the emperor's feet as if as a reminiscence of the ornament found in the Basil II imitations. It would seem natural to assume that there was a close continuation from the earlier two-sided imitations to the later, even if no die-links are at present known. This would give a relatively late date for the Basil II type, but apparently the circulation of Byzantine coins in Finland was long, as is shown by a summary of their occurrence in hoards (Table 1).

Hoard	Terminus post quem	Const. VII	John I	Basil II
Saltvik, Åsgårda	958	1		
Asikkala, Pätäälä	1014		1	
Hattula, Ellilä	1024			3
Nousiainen, Nikkilä	1035		1	2
Hattula, Luurila	1036	1		2
Lieto, Anttila	1060			2

Table 1. Byzantine coins in Finnish hoards



Fig. 1.



Fig. 2.

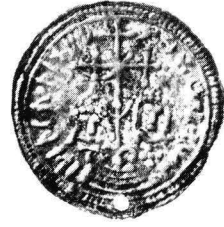


Fig. 3.



Fig. 4.



Fig. 5.

- Figs. 1—2 Two-sided and bracteate imitations of miliaresia of Basil II
 Fig. 3 Imitation of the obverse of a miliaresion of Romanus III
 Fig. 4 Imitation of a miliaresion of Constantine IX
 Fig. 5 Fragment of a bracteate imitation of a miliaresion of Constantine IX



Figs. 6—14 Bracteate imitations of Kufic dirhams

There is no apparent reason, then, why all the two-sided imitations could not be regarded as a single group dating from a few years on both sides of 1040. Despite the barbarous appearance, they display a degree of professionalism, as is shown by the use of punches for lettering and the aligned dies — all the twelve two-sided imitations have regular die-axis. Perhaps there was a single master (one hesitates to say mint-master or moneyer), whose training had been acquired abroad? Even though the striking of coins in itself is a simple procedure, the regular die-axis suggest familiarity with traditional minting methods.

By contrast, the bracteate imitations of both Byzantine and the Kufic type are much cruder work, and their pseudo-legends are produced without proper die-cutter's tools. They may have been fabricated at various times during the eleventh century by ordinary silversmiths.

Coins in graves

Coins occur in graves both as ornaments and as the contents of purses, and even the possibility of offerings to the dead has to be taken into account. When whole coins with suspension loops are found on the breast of the deceased, they must of course be seen as jewelry, whereas fragmentary pieces near the lower part of the body were probably buried as means of payment in the afterlife. Naturally the distinction is often less clear, especially in the case of cremation burials. In the following summary the material is presented without specifying the functions of the coins, but it is assumed that the more common a coin type is in graves, the more it has been used as jewelry, as it seems that this was the main purpose for placing coins with the dead (Sarvas 1972, 7—8).

Of the twelve imitations of Kufic type listed in Appendix 1, four are stray finds or unprovenanced, and eight derive from burials. The connection of these very primitive imitations with necklaces, such as for example the one illustrated on Pl. 92 of Kivikoski's *Atlas* (Kivikoski 1973), is more or less self-evident. We shall now turn our attention to the more numerous and more coin-like imitations of Byzantine type. All the specimens published by Sarvas with satisfactorily recorded provenances are from graves. Two of the unprovenanced bracteates, however, have been assumed to derive from the very poorly documented Janakkala/Turenki hoard of 1832, and this theory has recently gained support from an unpublished report by Bror Emil Hildebrand of his visit to Helsinki in 1857 (Talvio 1978B, 33—4). Some of the imitations which are known to have been in the collection of Lt.col. Carl Gustaf Tamelander (1792—1861) may also come from hoards; he is known to

have been involved in the dispersal of the 1841 Paimio find (Talvio 1979, 6, *passim*). It may not be without significance that the two bracteates as well as two of Tamelander's three coins (known through old drawings) show traces of detached loops, a feature often found among coins in hoards. (The loops were detached apparently because they were of base metal). However, the fact remains that the imitations are mainly found in graves.

Furthermore, genuine Byzantine coins are in Finland surprisingly often among the grave goods: this is true of six coins out of nineteen, 32 % of the material. With the West-European coins the situation is quite different, as should be made clear by the following examination.

The recent *Sylloge* publication of Anglo-Saxon and related coins in Finnish collections comprises 1130 specimens (Talvio 1978D). Many of them lack provenances, but certainly at least 1100 of the coins have been found in Finland. Only 40 coins, or less than 4 %, are from graves, and the picture cannot be significantly affected by the fact that a few of the unprovenanced coins may also have belonged to burials.

The German material is even more dominated by hoards. Only 22 of the 3988 coins published by Helmer Salmo are from archaeologically investigated cemeteries — in other words less than 0.5 % (Salmo 1948). Again the relation cannot be modified more than slightly by the coins found in recent excavations at Eura and elsewhere.

Where the Kufic coins are concerned, the matter is more complicated. If the material is seen as a whole, the percentage of coins from burials is about five, but in this case this approach is senseless, for the Åland finds must be studied separately from those of the mainland. There are nine hoards from Åland, with a total of 1328 preserved coins, but only one grave find with two coins is known from the whole group of islands (Granberg 1966, 13—151). The mainland finds present a totally different picture: 89 Kufic coins are from graves, 62 from hoards (Granberg 1966, 156—22; finds from outside the present Finland and post-1966 material not included here). The explanation must be that, in the ninth and tenth centuries, when Oriental silver was abundant on Åland, it was used as means of payment only and not as jewelry, while on the Finnish mainland coins were scarce and for that reason also worn as personal ornaments.

By the millenium the situation changed, and mainland Finland, instead of Åland, became rich in silver, but apparently not too rich for the fashion of using coins as pendants to die out. The Kufic dirhams, however, had now been replaced by West-European pennies, which were smaller and less impressive as display pieces. Without doubt it was in this situation that Byzantine coins began to be singled out of the mass: many of them are large as dirhams, and whereas the dirhams are uniconic, the miliaresia have



Fig. 15 Slab of limestone with incised patterns for the casting of various ornaments, among them one derived from a dirham. Found at Bertby on Åland



Fig. 16 Fragment of a necklace with a miliaresion of Basil II

pictorial designs which must have aroused interest. The extent to which their essentially Christian motifs may have influenced their popularity is naturally difficult to assess. The imitations of the Virgin/emperor type, which have been made even more religious by adding figures of cross and crozier, nonetheless give reason to believe that there is a connection between the choice of types and the new religious ideas, which during the eleventh century must have been strongly in progress of becoming current in Finland (cf. Cleve 1948).

Of the nineteen genuine Byzantine coins published by Sarvas, fifteen are pierced or have loops, and in the case of the imitations this is true of all but one (the coin in Paris, note 1 above) of the sixteen whole specimens. Even the one fragment was found in a grave. It is indeed difficult to escape the conclusion that the imitations were principally made to satisfy a demand for coin jewelry. Their non-monetary character becomes even more apparent when they are compared with the three Scandinavian coinages that emerged in the 990s: the Danish, Norwegian, and Swedish coins were also imitative, but they were struck in the names of native rulers and followed more or less closely on Anglo-Saxon prototypes, which around the year 1000 constituted the commonest type of coin in Scandinavia. Likewise the anonymous imitations of Anglo-Saxon coins must have been made to be used alongside their prototypes. Political and/or economic reasons were thus present. In Finland, on the other hand, the imitations cannot be seen as a national coinage initiated by a king for political reasons, and they were based on prototypes which, being scarce, could only be considered worth imitating for reasons other than their intrinsic value as currency.

Appendix

The imitations of Kufic coins

In a numismatic commentary to Inga Serning's publication of the Lappish offering place finds, Ulla S. Linder Welin discusses four fragments of bracteate imitations of Kufic dirhams found at Gråträsk (Serning 1956, 189–90). She notes that while there are no other finds of similar material from Sweden, such imitations are not unknown in Finland, and she mentions the imitations found at Köyliö, Akaa, and Perniö. The two latter finds had already in 1898 been published by Hjalmar Appelgren, who considered these primitive imitations to be of Finnish origin (Appelgren 1898, 29). Common features of the group are the bracteate fabric and the transformation of the Kufic script into a simple decorative pattern. Nothing, in fact, survives of the script itself, which is represented by horizontal and circular rows of short strokes. The size of

the bracteates varies, and there is no clear borderline between relatively 'good' imitations like that from Kokemäki (no. 8 below), and the ornamental round discs of silver sheet used as jewelry still in the 12th century. By way of definition it could be stated, however, that a coin imitation must be stamped with a die, the diameter of which corresponds more or less with that of the finished product. This criterion is filled by all the imitations listed here, except no. 6, which has a margin ornamentation added separately.

Grave finds

1. Perniö, Yliskylä (NM 2912:108). Remains of suspension loop. The coin was not available but is illustrated in Appelgren 1898, 26.
2. Köyliö, cemetery C (NM 8723:419). Part of necklace. 1.11 gm. Fig. 6.
3. Eura, Luistari (NM18000:991). Remains of suspension loop. 3.10 g. Fig. 7.
4. Eura, Luistari (NM 18000:1357). Same die as last. Remains of suspension loop, chipped. 2.81 gm. Cf. Lehtosalo 1973, 104—5.
5. Eura, Luistari (NM 18000:1332). Very similar to last but different die. Two fragments with remains of suspension loop. 0.61 gm. Fig. 8.
6. Akaa, Mainiemi (NM 3131:12). Suspension loop. 2.25 gm. Fig. 9.
7. Akaa, Mainiemi (NM 3131:13). Margin decorated with a row of triangular stamps. For a discussion of similar decoration on brooches see Lehtosalo 1973. Suspension loop. 3.32 gm. Fig. 10.

Stray finds

8. Sysmä, Siivolanpelto (NM 17181:3). Fragment. 0.69 gm. Fig. 11.
9. Kokemäki, Kalvomäki (NM 4448:6). Remains of suspension loop. 2.47 gm. Fig. 12.
10. Hollola, Kapatuosianmäki (NM Coin Cabinet 62075; for the circumstances of the find see Talvio 1978C, 59). Fragment. 0.12 gm. Fig. 13.
11. Hollola, Kapatuosianmäki (NM Coin Cabinet 62075). Small fragment which can be compared to nos. 3—5 and 7 above. 0.02 gm. Without provenance but probably found in Finland
11. University of Helsinki Collection (now in NM Coin Cabinet). Two fragments with remains of suspension loop. Published in Geitlin 1862, 64, no. 82. 1.02 gm. Fig. 14.

All the twelve imitations are struck, which is the normal method for producing coins. No cast imitations are known from Finland, but in his 1898 article Appelgren published a slab of limestone with engraved patterns for the casting of various types of small ornaments, among them a pendant with a design based on a dirham. The stone is here illustrated as fig. 15. It comes from Bertby on Åland, but as is noted by Appelgren, it belongs to a species that is not found on this side of the Gulf of Finland, and the forms of most of the ornaments point to an Ingrian origin (Appelgren 1898, 27—9). It must remain for future finds to show if moulds were used in Finland for producing cast jewelry based on dirham design.

Appendix 2

The necklaces with coins as pendants

An interesting category of coin jewelry found in Finland is formed by a special type of necklace made of plaited silver wire with small rings as joints and coins attached to the rings. Two such necklaces, both unbroken and of fine work, belong to the late eleventh century hoards from

Hauho and Hämeenlinna, and there are fragments of similar chains in the boards from Nousiainen (Fig. 16), Lieto, and Hattula/Luurila, likewise deposited in the eleventh century. One necklace of basically identical type also belongs to the Estonian Paunküla hoard, and on a recent visit to Tallinn the writer saw another similar chain (with two Byzantine coins) in the collection of the Institute of History of the Estonian Academy, provenance not mentioned. In 1905, Appelgren published a detailed study of this kind of necklaces, considering them to be of Finnish origin (Appelgren 1905). The Estonian finds were then not known, but when writing of the Paunküla hoard in 1962, E. Tõnisson was willing to accept Appelgren's attribution (Tõnisson 1962, 225). C. A. Nordman, however, rejected it in his paper 'Schatzfunde und Handelsverbindungen in Finnlands Wikingerzeit' (Nordman 1942, 282—3). Citing Otto Alcenius, who had pointed out that there are unexpectedly many — actually four — Byzantine coins attached to the chains (Alcenius 1901, 10), he refuted their Finnish origin on the basis of the scarcity of Byzantine coins in Finnish finds, and suggested that the chains perhaps were made in Sweden. However, this type of necklace is still unknown in Swedish material, and Byzantine coins are no more common in Sweden than in Finland in relation to other types of coins appearing in the finds. On the basis of the above, one certainly cannot reject the idea of the necklaces being of Finnish origin because Byzantine coins are attached to them.

ABBREVIATIONS AND LITERATURE

- FM *Finskt Museum*
 NM The National Museum of Finland
 SMYA *Suomen Muinaismuistoyhdistyksen Aikakauskirja —
 Finska Fornminnesföreningens Tidskrift*

- Alcenius 1901 Otto Alcenius, 'Fyra anglosachsisk-tyska myntfynd i Finland (1894—1897)', *SMYA* XXI.2.
 Appelgren 1898 Hjalmar Appelgren, 'Barbariska efterbildningar af orientaliska mynt', *FM* 1898, pp. 24—29.
 Appelgren 1905 Idem, 'Die vielreihigen Gliederketten in finländischen Funden', *SMYA* XXIII.2.
 Cleve 1948 Nils Cleve, 'Spår av tidig kristendom i västra Finland,' *FM* 1947—1948, pp. 67—85.
 Dijkman 1686 Petter Dijkman, *Observationer, Som kunna gifwa någon anledning till dhe forna Swenskars och Göthers Penninge Räkninges beskaffenhet*, Stockholm, 1686 (1687).
 Granberg 1966 Beatrice Granberg, *Förteckning över kufiska myntfynd i Finland, Studia Orientalia*, XXXIV, Helsinki, 1966 (1967).
 Grierson 1967 Philip Grierson, 'The Gold and Silver Coinage of Basil II', *The American Numismatic Society, Museum Notes*, 13, pp. 167—187.
 Grierson 1973 Idem, *Catalogue of the Byzantine Coins in the Dumbarton Oaks collection*, III.2, Washington, 1973.
 Hatz 1974 Gert Hatz, *Handel und Verkehr zwischen dem Deutschen Reich und Sweden in der späten Wikingerzeit*, Lund, 1974.
 Kivikoski 1973 Ella Kivikoski *Die Eisenzeit Finnlands*, Neuausgabe, Helsinki, 1973.
 Lehtosalo 1973 Pirkko-Liisa Lehtosalo, 'Luistarin hopeasolki', *SMYA* 75, pp. 103—113.

- Morrisson 1970 Cécile Morisson, *Catalogue des monnaies byzantines de la Bibliothèque Nationale*, II, Paris, 1970.
- Nordman 1942 C. A. Nordman, 'Schatzfunde und Handelsverbindungen in Finnlands Wikingerzeit', *Acta Archaeologica*, XIII, pp. 272—293.
- Salmo 1948 Helmer Salmo, *Deutsche Münzen in vorgeschichtlichen Funden Finnlands*, SMYA XLVII.
- Sarvas 1966 Pekka Sarvas, 'Kaiser und Jungfrau Maria. Barbarische Darstellungen auf einigen in Finnland gefundenen Nachahmungen byzantinischer Münzen', *Suomen Museo*, 1966, pp. 5—13.
- Sarvas 1972 Idem, Länsi-Suomen ruumishautojen raha-ajoitukset, *Helsingin yliopiston arkeologian laitos, Moniste* 6, Helsinki, 1972.
- Sarvas 1973 Idem, 'Bysanttilaiset rahat sekä niiden jäljitelmät Suomen 900- ja 1000-lukujen löydöissä', *SMYA* 75, pp. 176—186.
- Serning 1956 Inga Serning, *Lapska offerplatsfynd från järnålder och medeltid i de svenska lappmarkerna*, *Acta Lapponica*, 11. Appendix: V. Jammer — U. S. Linder Welin — B. Malmer — N. L. Rasmusson, 'Mynten i de lapska offerplatsfynden', pp. 183—222.
- Sokolova 1961 I. V. Sokolova, 'Vizantijskie monety klada Vella', *Numizmatika*, 2, *Trudy Gosudarstvennogo Ermitaša*, IV, pp. 10—22.
- Talvio 1978A Tuukka Talvio, 'A Finnish(?) Imitation of an Anglo-Saxon Penny', *Numismatic Chronicle*, 1978, pp. 183—185.
- Talvio 1978B Idem, 'B. E. Hildebrand Helsingissä — numismaattinen vierailu sadan vuoden takaa', *Suomen Numismaattinen Yhdistys, Tiedotuslehti*, 1978:2, Helsinki, pp. 32—35.
- Talvio 1978C Idem, 'Hollolan Mömmölän hopea-aarre', *Kotiseutu*, 1978:3, Forssa, pp. 37—40.
- Talvio 1978D Idem, *The National Museum, Helsinki, and Other Public Collections in Finland, Anglo-Saxon, Anglo-Norman, and Hiberno-Norse Coins, Sylloge of Coins of the British Isles*, 25, London, 1978.
- Talvio 1979 Idem, 'Om det finska fyndet av Sven Tveskäggs mynt', *Nordisk Numismatisk Unions Medlemsblad*, 1979:1, pp. 5—7.
- Tõnisson 1962 E. Tõnisson, 'Eesti aardeleiud 9.—13. sajandist', *Muistsed kalmed ja aarded, Arheoloogiline kogumik*, II, Tallinn, 1962, pp. 182—274.