

LUISTARI

II

The Artefacts

by

PIRKKO-LIISA LEHTOSALO-HILANDER

SUOMEN MUINAISMUISTOYHDISTYKSEN AIKAKAUSKIRJA
FINSKA FORNMINNESFÖRENINGENS TIDSKRIFT

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Coin-list and *Plates* were published in connection with Luistari I.

All the material discussed in this book is presented in Luistari I according to graves. Because of that there are only occasionally references to plates in the text. All the Luistari grave finds are referred to with the grave number and with the sub-number of the catalogue of the Prehistoric Office of the National Board of Antiquities. The principal number is, except for a couple of artefacts from grave 17 and graves 419–421, the same for all – 18000, and therefore it is not always mentioned. All the finds without the name of the museum belong to the collections of the National Board of Antiquities in Helsinki (Kansallismuseo – National Museum).

PREFACE

This second part of the Luistari study, concerning the material of the Luistari burial-ground and its chronology, was chiefly written in 1979, although some of the chapters were already included in my licenciate work of 1976. Considerably more material is now included than at that time, but textiles have not been treated exhaustively; I shall return to them together with some other organic remains later.

Most of this work was translated into English before February 1980, so that later literature is referred to only exceptionally. The translation has been mainly carried out by Mr Jyri Kokkonen M.A. I myself wrote chapters A and 6.7. directly in English; I have had to make several additions and changes elsewhere. The language of the work has been checked by Mr Philip Binham M.A., who has also translated this foreword. In questions of terminology I have been helped by Mrs Leslie Webster of the British Museum. I would like to express my warm thanks to them, and also to thank Professor David M. Wilson, Director of the British Museum, through whom I made contact with Mrs Webster.

My foreign friends have helped me with information and sent me literature. I would like especially to mention Charlotta Blindheim and Birgit Heyerdahl-Larsen from Oslo, Anne Stalsberg Alsvik from Trondheim, Anne-Sofie and Bo Gräslund and Ingmar Jansson from Uppsala, Monica Modin, Inger Zachrisson, Lena Thålin-Bergman, Björn Ambrosiani, Jan-Peder Lamm and David Damell from Stockholm, Birgitta Hårdh from Lund, Silvia Laul and Jüri Selirand from Tallinn, Anna Zarina from Riga and Aleksanderi Saksa from Leningrad, as well as L. A. Golubeva, Natalia Schlygina and other prominent Soviet scholars who have helped me to deal with the Eastern contacts of the Finns. I am especially happy to include the drawings of the Zalahtovie finds I received from Natalia Hvoshinskaya among the illustrations to my work.

Many colleagues in Finland have also helped me in my work. Among them I would only mention Leena Tomanterä, with whom I have experienced the miracle of finding silk, Anna-Liisa Hirviluoto

and Matti Bergström, who have generously given information from their own material, and Christian Carpelan, with whom I have had many discussions on ceramics. I have troubled Tuukka Talvio and Pekka Sarvas with numismatic queries, and Osmo Vuoristo and Eero Naskali concerning various tools. With Professor Niilo Valonen I have also frequently exchanged opinions. Matti Huurre has ensured that my contact with new finds has not been interrupted, even though I have been immersed in the world of Luistari, and as an examiner of my licenciate work Professor Unto Salo helped me to go forward with his comments. I cannot forget either Kaisa Dauchs and Marja Puhakainen, who conjured forth the artefacts I needed from the storerooms of the Finnish National Museum. Very many thanks are due to Rauno Hilander for his drawings and other help.

Academician Kustaa Vilkuna and Dr Helmer Salmo are no longer with us to receive my thanks. The notice that the former gave to my work was encouraging, and my discussions with the latter together with the collection of photographs he gave me aroused my interest in the study of weapons. The fact that on some points I have found myself in disagreement with him in no way lessens my esteem for his life-work. Helmer Salmo was one of those who acquainted me with the refinements of excavating graves, the other was Anna-Liisa Hirviluoto.

I have once even from a single sentence been recognized as a student of Professor Ella Kivikoski. I hope she will not be ashamed of the result of her teaching. I have also, however, been a student of Professor C.F. Meinander, and learnt from him years ago such skills as the drawing of maps. The topographical thinking that he emphasized can probably be seen in this work. In conclusion, I am grateful to the Archaeological Society of Finland for including this book in its series and for meeting the cost of most of the translation work and thus making it possible to dedicate it to all those who have taught me.

Helsinki, May 1981

Pirkko-Liisa Lehtosalo-Hilander

A. OBJECT OF THIS STUDY

A cemetery like Luistari with burials from several hundred years has generally its own internal order and a chronology in accordance with it. The interments were begun from one part of the area and they were terminated in some other part, and later graves were dug on top of the earlier ones. A complete relative chronology for Luistari could perhaps be possible with the help of details like these alone, particularly if the cemetery had been excavated in its entirety. However, this is not the fact, and because a great number of the Luistari graves were furnished, a more exact method for dating is opened on the basis of the artefacts. Some parts of the material from the later Iron Age in Finland have been studied with some care, and although not all of the Luistari artefacts are Finnish types, they can be said to represent the form world current in Finland during the later Iron Age. So it is easy to connect the Luistari material to the results of the preceding studies. However, no earlier excavated burial-ground in Finland affords material so extensive and from so long a period as Luistari, and for this reason it has been impossible for me to accept as the absolute truth any facts in contradiction to the Luistari cemetery's own internal chronology. Accordingly I shall compare every dating accepted for a certain artefact type with the cemetery chronology of Luistari presented in the first part of this work. The ultimate result of the material analysis will not be a map with graves dated on the basis of the types of brooches or weapons as usual, but a grouping in accordance with as many details as possible, and the distribution of every group of artefacts will be compared with the zones presented in Luistari I (p. 47). This will be the test of the zone division on the basis of the artefacts.

No type of ornaments or weapons could have been in use hundreds of years without any alterations in the shape. Artefacts with no real fashioning, such as the simple penannular brooches with rolled up ends, are perhaps an exception to the rule, but the artefacts of a more complicated nature undergo during their existence a number of transformations. The longer the period of use of a certain type is and the greater the number of the workshops producing it, the more numerous are these changes. The development of an artefact type is not a simple course from phase to phase, but a complicated history of individual creation and

recreation and mediocre and unskilled copying. In spite of this, or perhaps for this very reason, typology has its interest, but it is not and could not be the only base for dating. Because of the deficiency of the material available for examination all the phases are not known, and so it has often been safer to date some types roundly to a long period. A type can certainly be lasting, but for example the fact that a specimen of the type appears together with a late coin does not make an artefact of the same type but of quite another development phase of this particular type late. Coins are rather common in Finland in the graves of the 11th century, and there is a danger that when an artefact is once found in a grave from that period, all the type represented by it is connected to the 11th century, although the artefact in question is perhaps the last representative of its kind. For this reason the analysis of the Luistari material, containing finds from different centuries, will also be the test of the traditional datings of the Finnish later Iron Age types.

The later Iron Age in Finland is generally divided into three periods. The Merovingian period, called the later Migration period by some archaeologists in Finland following Montelius, largely corresponds to the Vendel period in Sweden. The Viking period is the same as the Viking period in Scandinavia, and the period following it and existing only in Finland and in some parts of the Eastern Europe as a prehistoric conception, is called the Crusade period because of the legendary three Crusades made by the Swedes to the different parts of Finland.

Scientists have had differing opinions about the time of the beginning and the end of these periods; on the one hand the years 575 and 600 have been proposed as the starting point of the Merovingian period in Finland (Cleve 1943 p. 170; Salmo 1938 p. 320, 1952 p. 214), on the other hand the year 550 A.D. (Kivikoski 1939 p. 238). After the very important new finds from Cologne and St. Denis in Paris (see e.g. Werner 1964), western European scientists seem to date the beginning of style II, which is of importance for Nordic chronology, as not later than 570 A.D. If, however, the artefacts found in the grave of Queen Arnegunde in the Cathedral of St. Denis are not representatives of the most original style, and style II is in fact Scan-

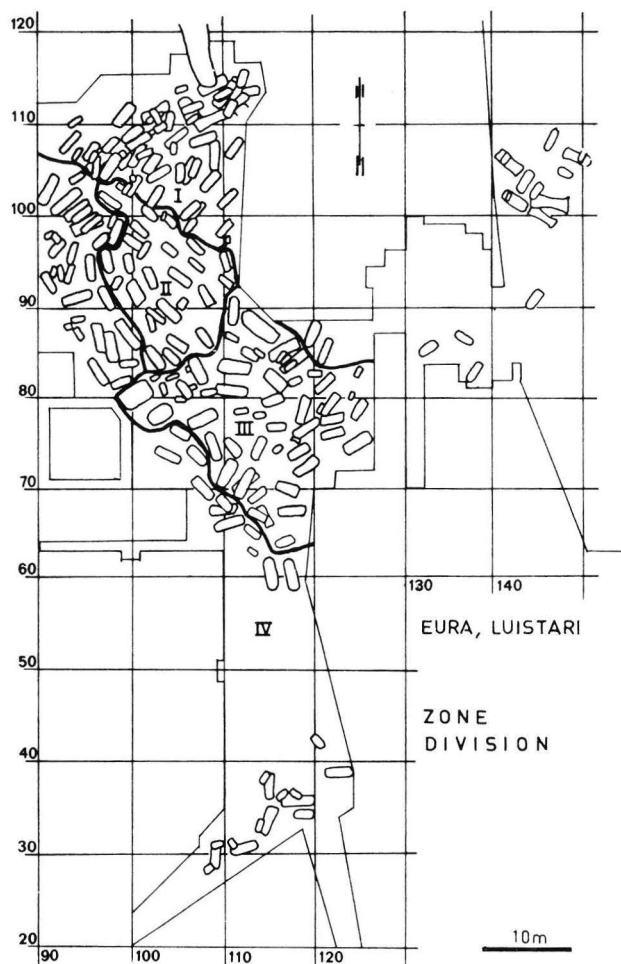


Fig. 1. Zone division presented in Luistari I.

dinavian in origin, as has been claimed, it must be still older in the North, and perhaps have been in existence during the first half of the sixth century (Speake 1980 pp. 28–29, 94, see also pp. 17–37, where a concise account of various problems and opinions has been presented). Possible new datings for the Vendel graves adapted to these facts would probably also affect the Finnish chronology.

It is, however, worth noticing that Günther Haseloff (1981 pp. 647, 673, 709–710) in his newly published work supports the old chronology, according to which style II was fully developed not earlier than the end of the sixth century or around 600 A.D. Like Åberg (1947 p. 38) he considers the Mediterranean interlace ornamentation dominant in style II. According to him interlace patterns spread in the middle of the 6th century among the Franks and Alemanni and fused with the animal

motives so that style II came into being. Haseloff is of the opinion that the Alemannian area fits best as the birth-place of style II. From there it spread fast and embraced the areas of the Lombards in Italy, of the Burgundians, Franks and Anglo-Saxons, and reached as far as Scandinavia. It seems in the light of these differing opinions that other methods besides stylistic ones must be sought in fixing the chronology of the Merovingian period.

According to some archaeologists the Viking period (800–1050 A.D.), the time limits of which have been adapted to the Scandinavian chronology, should begin later and end earlier in Finland. The years 825 and 850 have been proposed as starting points (Cleve 1943 p. 172, 1934 p. 405), and Leppäaho (1949 p. 92) has suggested the year 1000 as a fitting limit date for the end on the basis of the weapon finds. Sarvas (1972 p. 50) on the other hand has claimed, appealing to the coin finds, that the change in ornaments occurred about 1025 A.D. The ending of the Crusade period in Western Finland is not as unambiguous as imagined either. The summary date of the first Crusade to Finland in 1150 has been regarded as a limit, but it seems as if that date is not appropriate in archaeology, because there are graves furnished in heathen fashion from Western Finland that must be dated later than that (Sarvas 1971 pp. 54–61, 1972 p. 52; Lehtosalo 1973c p. 38).

It is not yet possible with the help of the Luistari finds to answer the question about the beginning of the Merovingian period and the end of the Crusade period, when the cemetery is not totally excavated, but on the subject of the Viking Age this will also be a test of the traditional period division.

The role of weapons in the Eura area is dominating, and they display the contacts of the Luistari population with the outer world, so it is fitting to begin with them. Tools and household implements tell us about the means of procuring an everyday living, and although they give little support for datings as unconnected artefacts, their appearance in closed finds is always suggestive. Finally ornaments and other details of dress are the reflection of the cultural community to which the Luistari population belonged, and through them the facts obtained for the Luistari material most clearly contrast with the datings earlier accepted. Accordingly they form a suitable starting point for final conclusions concerning the chronology.

B. ARTEFACT ANALYSIS

1. WEAPONS

1.1. SWORDS (figs. 2–4)

The following swords and sword fragments were found in the Luistari cemetery:

of the pommel bent outwards (Petersen 1919 pp. 159–160, 162, 165–166). Kivikoski (1973 p. 113, fig. 837) has divided the Finnish swords of type X into two groups on the

Table 1

Grave and number	Length mm	Hilt length mm	Knob mm	Guard length mm	Blade length mm	Blade width mm	Notes
15:1162	850	125	76 × 32 × 20	119	725 D	56	Wooden grip » handle
52:1184 ¹⁾	790				752	50	
17:1201	838	145	81 × 42 × 39	99	693	48	
:17847:1							
90:2029	860	138	79 × 37 × 26	113	722	53	In pieces
208:2891–2 ²⁾			63 × 35 × 20	86		44	
:2894–5							
281:3170	965	138	62 × 38 × 23	138	827 D	56	Fragments
283:3216	770	156	60 × 29 × 30	122	614 D	55	
299:3470						45	
348:3880	990	132	62 × 33 × 41	148	858 D	65	

1) From the filling of grave 17 D = damascened inscriptions
2) From the filling of grave 210

With the possible exception of the blade found in the filling of grave 17, the swords with double-edged blades are from Viking period finds. Three of these have semicircular one-part knobs designating them to Petersen type X (1919 pp. 158–167). They differ from each other, however, in several respects. The difference in length of the longest (from grave 348) and the shortest (from grave 283) swords is over 220 mm. In both of these the guard is of similar form, being of equal width and with rounded ends (cf. Petersen 1919 fig. 99, M-type sword). The sword from grave 281, on the other hand, has a guard with tapering ends bent downwards (cf. Petersen 1919 fig. 125). The underside of the knob of this sword appears to be bent inwards. The pommel of the sword from grave 348 is very thick, almost semi-spherical in shape. On typological grounds Petersen has maintained that the knobs of this form are of a later date than those of the former. He also claims that the guard of equal width is of later date than the tapering form. In this connection he does not, however, mention any find combinations in support of his claims. Type X is dated by him to a time-span from the beginning of the 10th century to the end of the Viking period. Within this group he goes on to identify as a group of their own the medieval swords with long guards and with the underside

basis of the curvature of the knob in the very latest swords. She mentions a total of 26 swords of the earlier group and 15 of the later one. The material cited by her does not mention the Luistari finds nor four others (NM 2361 Eura, Vähä-Vahe, 4448:3 Eura, Osmanmäki, 20541:1 Eura, Yli-Nuoranne and TM 7235 Tyrvää). However, the swords from Vähä-Vahe and Osmanmäki, mentioned in connection with this type by Salmo (1952 p. 492), are in my opinion preferably of the uncommon type N, which certainly is closely similar to the type X (cf. Petersen 1919 pp. 126, 160; Heyerdahl-Larsen 1981 pp. 156–157, Pl. 7:1). The actual number of type X swords is in any case close to fifty in Finland. Eight of them have been found in Eura, one of these from Kauttua (NM 70) seems to be a late variant of the type. The map p. 14 shows that nearly half of the swords of this type have been found in the Satakunta region, and that most of them are of the earlier variant. There is a distinct concentration of these in the Eura–Köyliö region. Kivikoski (1939 pp. 209–210) has pointed out that in Finland type X occurs in finds that can be dated to the beginning of the 10th century. This claim appears to be borne out by the Luistari material; the spearheads from graves 281 and 348 are variants of type E, and grave 348, containing a sword typologically later than the two others, was coin-

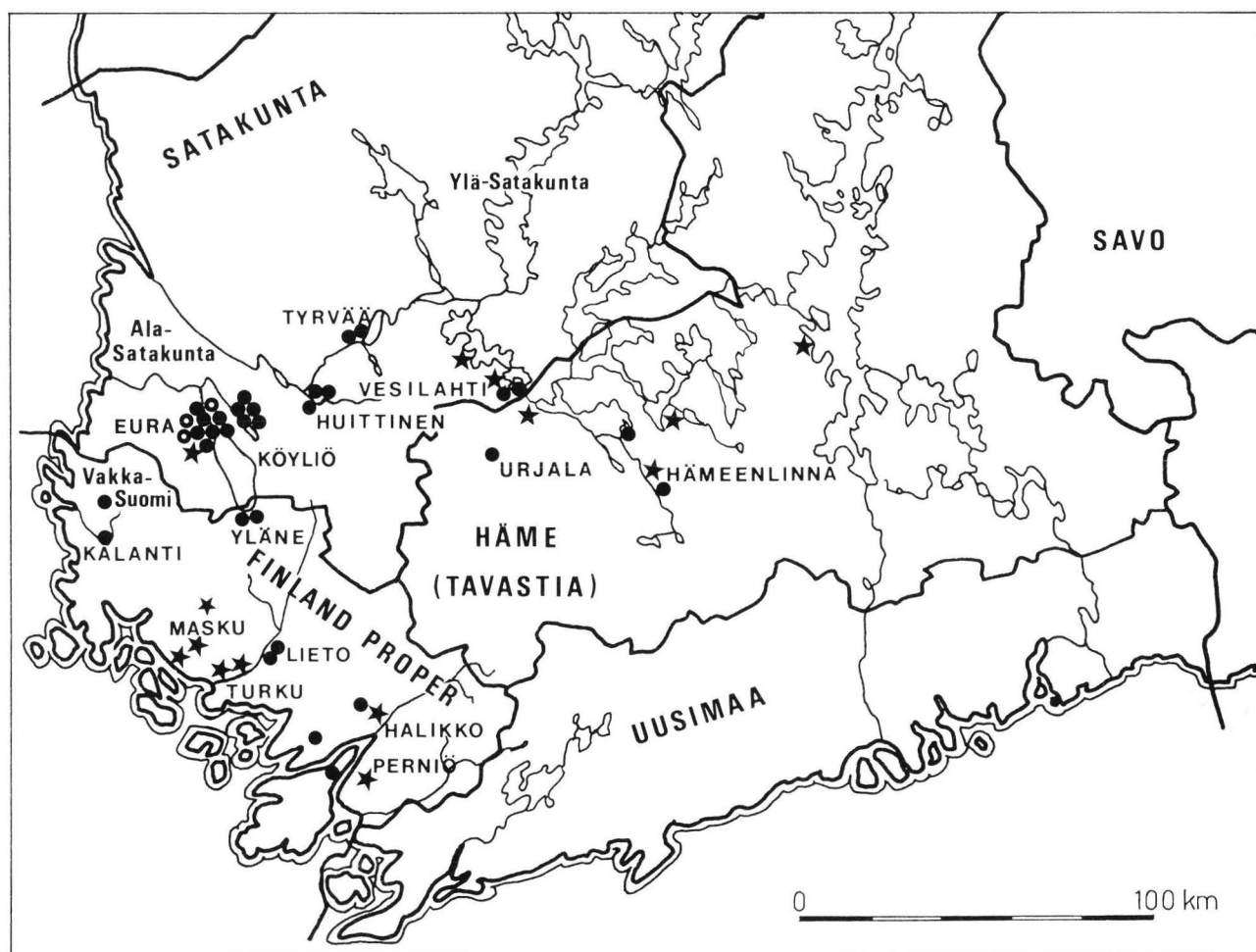


Fig. 2. Distribution of swords of types N and X in Western Finland.
 o type N • type X ★ type X, later variant.

dated to the second quarter of the 10th century (coin-list Nos. 68–73). Also at Kaupang this type seems to occur at the beginning of the 10th century (Heyerdahl-Larsen 1981 pp. 158–160).

The spearhead from grave 283 is unique in Finland, but in Latvia the same type can be dated to before the 10th century (cf. 1.3.11.). The firesteel from the same grave is of a type dated in Norway to the Merovingian period and the ninth century (Petersen 1951 p. 434; cf. 4.6.). The penannular brooch with faceted ends is of a type found mainly in ninth century burials (see 6.1.7.3.). The sword from grave 283 may therefore be one of the earliest representatives of type X in the Nordic finds, possibly dating from the ninth century or from roughly the year 900 A.D. at the latest. The type itself was apparently first manufactured during the Carolingian period (Arbman 1937 p. 228; cf. also Ruttkay 1976 pp. 250–51, 264).

The swords found in graves 15 and 90 are without doubt of Petersen type Y (1919 pp. 167–173), with a one-part knob bent outwards at its lower end, and having a small peak in the centre on the upper side. The guard of the sword from grave 90 re-

sembles those of type X from graves 283 and 348 (Petersen 1919 fig. 99), whereas the guard of the sword from grave 15 is flat and bent slightly downwards at both ends (Petersen 1919 figs. 129, 132). The sword from grave 208 can be regarded as a variant of type Y, with a nearly pentagonal knob and a short, straight guard (Kivikoski 1973 p. 113, fig. 838).

Petersen (1919 pp. 171–172) has dated type Y from the first half of the 10th century to the end of the Viking period, which is also the date arrived at by Arbman (1937 p. 229) on the basis of the Swedish finds. In the Finnish material type Y is not very common; swords that could be classified to it were only 11 in number before the Luistari excavation, and none of these were from closed finds (Kivikoski 1939 pp. 211–212, 1973 p. 113 note 54). The three type Y swords from Luistari are in this respect an important addition to the previous material, especially since all are from graves with coins. Grave 15 is from a date later than the year 991 (coin-list No. 2), grave 208 from a date later than 1038 (coin-list Nos. 38–62). Accordingly two of the swords of type Y are from graves dating to

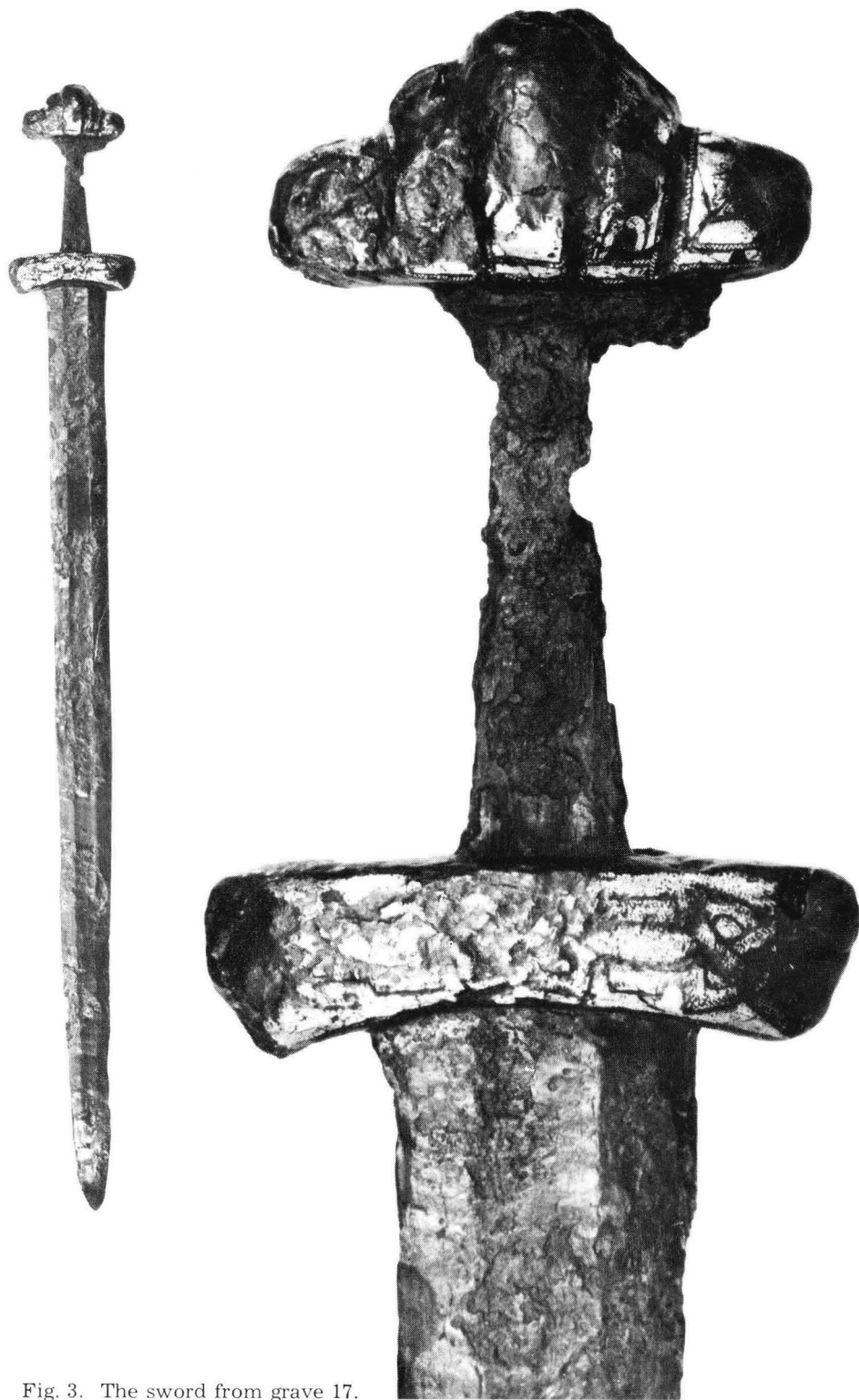


Fig. 3. The sword from grave 17.

the end of the Viking period. In both of these there was a spearhead of type M along with the sword. On the other hand, the spearheads in grave 90 were of type E, and a date as late as the one mentioned above does not seem suitable (cf. p. 30). There is also a fragment of a coin from the first half of the 10th century among the finds from this grave (coin-list No. 32). It was mentioned above that the guard of this sword resembled those of type X swords, and it is probably chronologically closer to these.

The sword from grave 17 is the only one with silver ornamentation. With a five-part knob, it

mainly resembles Petersen type S (1919 pp. 142–149), but without a pommel bar. However, the form and ornamentation of the guard with the knotted cross as the main motif resemble the ornamentation of certain swords of type S (cf. Petersen 1919 fig. 116, and Müller-Wille 1972 fig. 28) and therefore the sword can be classified in this group. In other connections type S has been dated to the 10th century (Petersen 1919 pp. 146–148), but grave 17 is probably from the year 1000 at the earliest (coin-dates of the surrounding graves 13, 56, 58, Luistari I p. 45).

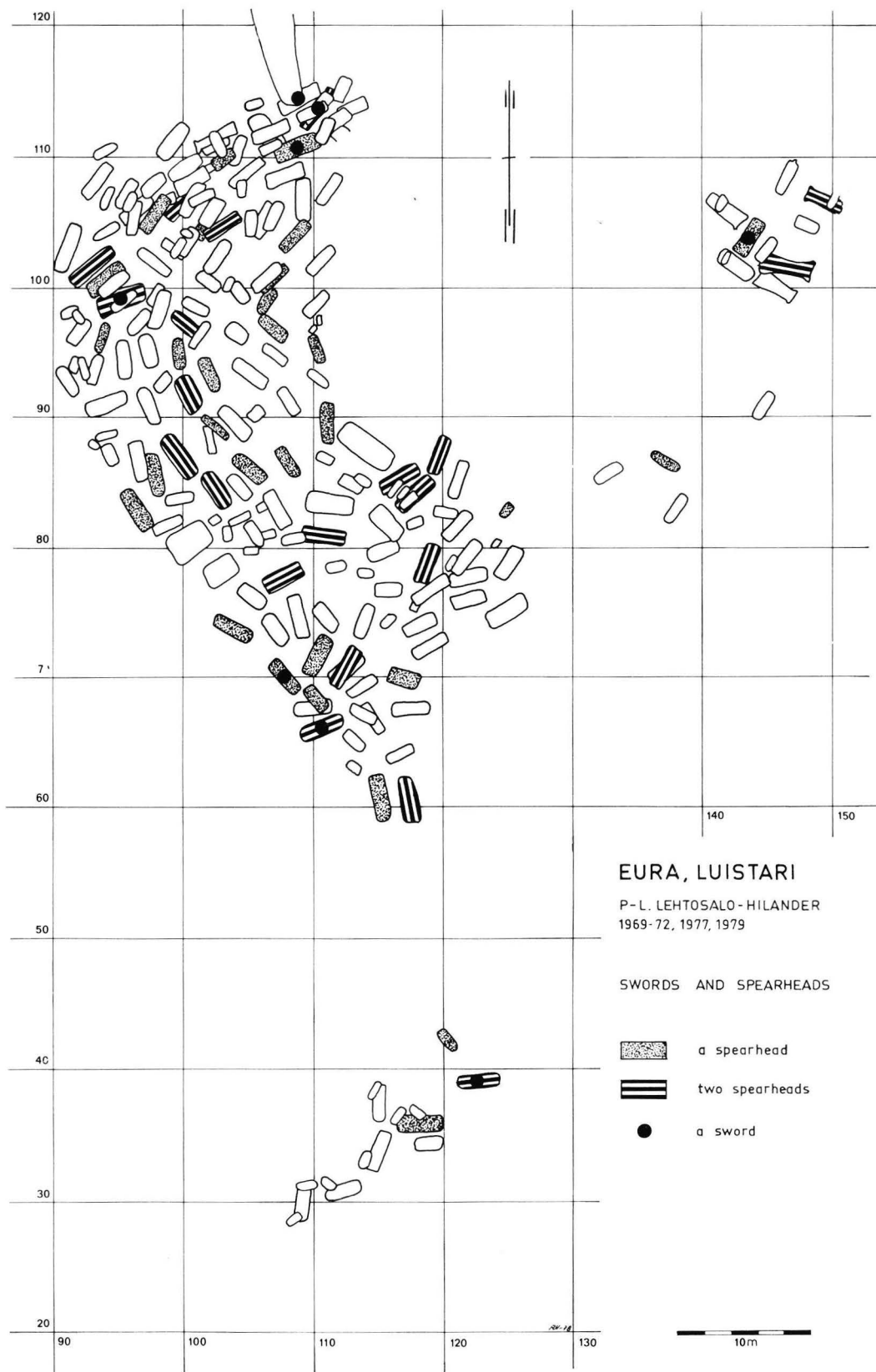


Fig. 4. Distribution of swords and spearheads in the Luistari cemetery.

Petersen has compared the ornamentation of the sword from Vesterhaug, similar to this Luistari specimen, with patterns in French miniatures and regards this as proof of the Frankish origin. As further evidence he presents the inscriptions on the blades (1919 p. 149). Traces of lettering have been found on the blades of several of the Luistari swords, but so far it has not been possible to decipher them. It is possible that all of the swords dealt with above are of West-European origin.

The sword-blade found in the filling of grave 17 was probably part of the original furnishings of grave 52. It has a very shallow fuller and the handle was probably of wood, as there were a few splinters joined by rust to the tang. As there is no actual hilt, it is difficult to place the artefact in any definite type, but it can be seen to differ from the other Luistari sword-blades because of its equal width. With the exception of the sword from grave 283, the blades of all the other swords clearly taper towards the point. Only the swords from graves 281 and 348 have longer blades than this hiltless weapon, and the blade of the sword from grave 283, on the other hand, is considerably shorter. On the basis of its measurements it could be classified among the so-called »hiltless swords» from the Merovingian period (see Cleve 1943 pp. 112, 184, Pl. I:22, 76; Salmo 1938 pp. 61–63). This period is also suggested by the shield-boss with rounded top found next to the blade. A fragment of a two-edged blade, found in grave 299, was of such small size that no conclusion could be reached regarding the type.

The swords were placed in the graves in different positions. In graves 15, 90 and 348 the sword-blade was laid on top of a scythe-blade. In grave 348 the pile also contained a pair of shears and in grave 90 there were two more spears. In grave 281 the sword was placed on top of the corpse laid on its side, and only in grave 283 was the sword placed by itself at the side of the corpse beneath the waist. In graves 17 and 208, both partly damaged, the original position of the sword was hard to determine, but it is apparent that its place had been on the right-hand side of the body. It was also placed on the right-hand side in graves 15 and 283, while in the others, possibly also in grave 52 from the Merovingian period, it was laid on the left-hand side. With the possible exception of grave 283 the sword was definitely not joined to the belt or even placed in a position suggesting this. The hilt was in all unambiguous cases near the head or shoulder of the corpse. The point was always towards the feet.

It is to be noted that the sword was placed on the right-hand side in all of the late graves in the

northern end of the cemetery, while this was the case in only grave 283 in the western part. It seems that in earlier burials it was the practice to place the sword on the left hand side of the corpse, and that the opposite position was adopted at the end of the Viking period. In the Merovingian period graves in Köyliö, the sword was generally placed on the left-hand side (Cleve 1943 p. 50). This was also the case in the Merovingian period grave V/1966 in the Kärjämäki cemetery in Eura, and in the Viking period graves 10/1905 and 20/1905 in the Osmanmäki cemetery. In the Pappilanmäki graves, as well as in grave VII/1912 at Osmanmäki, the swords were on the right-hand side. Both practices seem to have been in use in the Köyliö C-cemetery and in the Anivehmaanmäki cemetery in Yläne (on the right-hand side e.g. in graves 19, 30 and 81 at Anivehmaanmäki and in Köyliö grave C2 and on the left-hand side in the Anivehmaanmäki graves 12, 48 and possibly 33 and 51, in Köyliö in graves C3 and C17, Cleve 1978 p. 85). In the above cemeteries the placing of the sword does not seem to have been as consistent a practice as at Luistari. At Birka, on the other hand, the swords were generally placed on the right-hand side. This was the case in 21 of the 28 graves with swords. In three cases at Birka (graves 496, 731, 823) the sword was placed above the head of the corpse, and in only three cases (graves 520, 850, 977) was the sword on the left-hand side, once (grave 581) behind the back of the corpse (Arbman 1943, descriptions of graves). Placing the sword on the left-hand side, though, was a common practice in the Gauja-Livonian area (Tönnisson 1974 p. 97).

It has been suggested (Salmo 1938 pp. 312–313) that in prehistoric times mounted men wore their swords on the right-hand side, and that this practice was reflected in the burial custom. Although the Birka graves often contained horses and these, on the other hand, do not occur in the Finnish and Livonian graves, it is possible that the different position of the swords in the graves had nothing to do with horsemanship. Swords were joined to the belt in only exceptional cases when the deceased was put in the grave (Pälsi 1928 figs. 3 and 4). The sword is a weapon used with the right hand and when it was not joined to the belt it was natural to place it on the right-hand side. If the swords were placed on the left-hand side in only a few cases, these might indicate the burials of left-handed persons. When swords were found along with other artefacts in small groups, as was the case in the Luistari cemetery, the place of the sword was no longer important, but rather that of the whole group of artefacts. Such a collection of objects has no connection with the reality of everyday life, and its position in the grave does not have

any importance as a source of details of the everyday practices of the living. The sword must have been on the left-hand side in the only Luistari sword-grave (52) that also contained horsegear (a pair of bits).

1.2. SEAXES (fig. 15)

Ten seaxes were found at Luistari:

	Length	Blade
52:1182-83	c. 310	280 × 33 × 6 mm, bent and in two pieces
90:2049	280	207 × 18 × 6 mm
270:3099	323	216 × 21 × 5 mm
281:3179	410	315 × 20 × 9 mm
300:3479	263	173 × 27 × 7 mm
304:3509	717	564 × 57 × 8 mm
317:3582	300	190 × 24 × 6 mm
348:3888	442	322 × 26 × 7 mm
378:4289	430	335 × 33 × 8 mm
380:4296	320	240 × 22 × 7 mm

The weapon from grave 304 could also be described as a one-edged sword. It is of heavy build, measuring more than 700 mm in length, with two parallel fullers or grooves running near the back of the blade. The fuller on the side of the edge turns towards the back of the blade about 16 cm from the point, with the other fuller ending just before this. Cleve (1943 p. 114) has used the term »one-edged short swords» for these artefacts. Salmo (1938 p. 127) uses the term »scramasax» of all that are less than 80 cm long. The Luistari weapon in question is so wide and heavy that the term sword seems to be more appropriate. In only a few one-edged swords have I seen wider blades than in this (e.g. NM 3336:66, Kalanti, Pietilä; 2766:3, Vehmaa, Pappila, Salmo 1938 Pl. XVII:3; Gjessing 1934 Pl. XXVb).

According to Salmo (1938 p. 137) most of the straight-backed seaxes date from the latter half of the Merovingian period (8th c.). Gjessing (1934 p. 75) dates the heavy broad one-edged swords principally to the second half of the 8th century, and Cleve (1943 pp. 190–192) mentions that one-edged short swords become common during the second phase of the Merovingian period as defined by him, and that they still occur during the latter half of the 8th century. Thus the weapon found in grave 304 can be assumed to date from the 8th century. The tanged spearhead with a tapering blade found in the same grave suggests the end of the century (cf. Cleve 1943 p. 191, phase III).

Also all the other seaxes found at Luistari have straight-backed blades. They are somewhat narrow, the width varying from 18 to 33 mm (6–16 % of the

length). The seaxes found in graves 270 and 317 resemble each other to a large degree; on the edge-side the blades are tapered along the length. In both knives the end of the tang is bent at a right angle, and there are signs of heavy wear directly beneath the handle. The weapons from graves 378 and 380 have similar blades, although wear is not apparent. All of these have the offset of the grip only on the side of the back of the blade; on the opposite side the edge bends slightly inwards or the tang is evenly tapered. The weapons are typical representatives of the Merovingian period seaxes and mainly belong to the 8th century (Salmo 1938 p. 137).

The knife found in grave 300 is probably connected to the above, although the back of the blade bends slightly at the tip and the blade is relatively wide. A knife found in the Vähävainio cemetery in Kalanti has a similar tip (Salmo 1938 Pl. XII:6). This artefact has been described by Salmo as a straight-backed scramasax. The badly twisted fragments found in the filling of grave 17 (probably originally from grave 52) are from a scramasax but the blade seems to be bent outwards. According to Salmo this is an uncommon feature, but he does present an illustration of a weapon of this shape found at Kokemäki (1938 Pl. XXIV:6). There is also another knife (NM 2675:543) in the collections of the National Museum in Helsinki in which the curvature can be observed for about half the length of the blade. It was found near the Lempäälä church, and the conditions of the actual find are unclear. Because of its narrow blade of equal width it may be from the Viking period. The Kokemäki scramasax on the other hand was acquired along with typical Finnish angons, a dagger-like spearhead and other Merovingian period artefacts (Salmo 1938 pp. 31–32). The Luistari knife is of a form somewhere between that of the Kokemäki and Lempäälä scramasaxes, and if it is originally from grave 52, as I assume, it can be dated to the 7th century. This dating can be arrived at on the basis of an angon and a shield-boss with a rounded top found in the grave (see 1.3.1. and 1.5.).

The straight-backed scramasaxes usually had wooden handles (Salmo 1938 p. 133). The large weapon from grave 304 must have had a handle over 150 mm long, judging from the length of the tang. Also in two others, found in graves 270 and 317, the length of the handle was more than 10 cm. In the other knives the tangs were less than 10 cm long. There is however no bend at the end of the tang. This would suggest a handle longer than the actual tang.

The remaining three seaxes are from Viking period connections. They are all straight-backed, long, narrow and of nearly equal width up to the

tip of the blade. The widest part of the knife from grave 348 is only 70 mm from the point, although the blade is over 300 mm long.

The handle of bone or antler in the knife found in grave 281 was in a nearly complete state of preservation. It was 93 mm long and 25 mm thick and riveted at the upper end. There were no mounts nor were there signs of any other decoration. The seax found in grave 348, which was otherwise longer, must also have had a longer handle, the tang measuring more than 120 mm. The smallest of these, the knife from grave 90, seems to have had its handle hafted in a different manner since the tang is only 70 mm long and cannot have reached to the end of the handle.

According to Salmo (1938 p. 160 note 2, 1952 p. 393, list p. 494) these scramasaxes with broad-backed narrow blades were placed in graves during the Viking period, most often in the Häme and Satakunta provinces. In different connections Salmo has listed 18 Viking period seaxes, but this is not the actual total of the present finds. Salmo (1952 p. 394) claims that the narrow-bladed type is common as early as the 10th century. All of the Luistari graves with seaxes are from the earlier half of the 10th century; they contained type E spearheads and swords of types X and Y. Grave 19 in the Yläne cemetery, which also contained a seax, has been dated by Hirviluoto (1963 p. 78) to as late as the turn of the 10th and 11th centuries or to the end of the 10th century. This date is perhaps too late when one takes into account the ringed pin of Borre type found in the same grave, even though the artefact is a late variant of its type. Grave 2 in the Köyliö C-cemetery dates however from the latter half of the 10th century at the earliest (Cleve 1978 p. 195; cf. Table 7, note 4).

In the area where inhumation cemeteries occur, the narrow-bladed seax seems to concur with certain other artefacts. In at least four cases it was found with a sword of type X (Luistari graves 281 and 348, Anivehmaanmäki grave 19, Köyliö C2), also in four cases with a penannular brooch with funnel-shaped ends (Luistari 281, Osmanmäki 1912/VII, Köyliö C2, Anivehmaanmäki 46), and at least five times with a type E spearhead (Luistari 90, 281, 348, Osmanmäki 1912/VII, Anivehmaanmäki 46). The artefact seems to belong to a period when type E spearheads were still in use, but when type X swords and the above-mentioned penannular brooches were already in fashion, i.e. the first half of the 10th century. This is also suggested by the coin-dates obtained from graves 90 and 348. In most cases, as also at Luistari, these seaxes are found in graves with a sword and even two spearheads, indicating that they belong to the furnishings of the richest graves.

The Viking period seaxes from Finland are best compared with those found at Birka, although the former do not have any bronze sheath mounts (Arbman 1940 Pl. 6:5). The general circumstances of the Birka finds are similar to the Finnish ones. On the other hand, the Finnish seaxes do not correspond to the requirements defined by Petersen (1951 p. 188) for combat knives. According to him a seax must be at least 30 cm in length and its blade at least 30 mm wide. Only a few of the Viking period seaxes from Finland fulfill even the required length, and hardly any of them the required blade-width. The fashion that defined the appearance of knives was apparently different in Western Scandinavia from the one in the Baltic region.

In addition to the Finnish and Swedish mainland, narrow-bladed seaxes have been found at least in Gotland, Estonia, Latvia, Lithuania, and in different parts of Russia (Arne 1931 p. 298, 1934 p. 63 and Pl. XIX:5, Stenberger 1962 fig. 48, on the right; Latvijas PSRA Pls. 55:25, 60:28 and 64:16; Mandel 1977 pp. 240–242 and Pl. III). This refutes Salmo's claim (1952 p. 394) that seaxes were used only in Finland during the Viking period. The seax, on the contrary, is a feature that emphasizes the similarity of Finnish armament with that used in Eastern Scandinavia and the whole Baltic region.

1.3. SPEARS (figs. 4–14)

The spearheads form a very large single group of artefacts in the Luistari finds. A total of 74 have been found so far. There are, in addition, a couple of fragments of points (1045, 1376). 23 of these are from Merovingian period graves, the rest are of later date.

1.3.1. Angons

Tanged spearheads with long shanks and barbed blades, defined as angons by Salmo (1938 pp. 210–216) and the most common type of spearhead in Finland during the Merovingian period, were found in six graves:

	Total length	Tang	Shank	Blade
52:1577	555	90	370	95 × 23 × 6 mm
301:3483	377	70	184	123 × 19 × 7 mm
20:1221	628	88	372	168 × 22 × 6 mm
378:4288	515	94	220	201 × 22 × 8 mm
269:3092	527	111	216	200 × 29 × 7,5 mm
380:4293	441	84	146	227 × 28 × 7 mm

The first three in the list above belong to the later b variant of the so-called Finnish angon (Kivi-

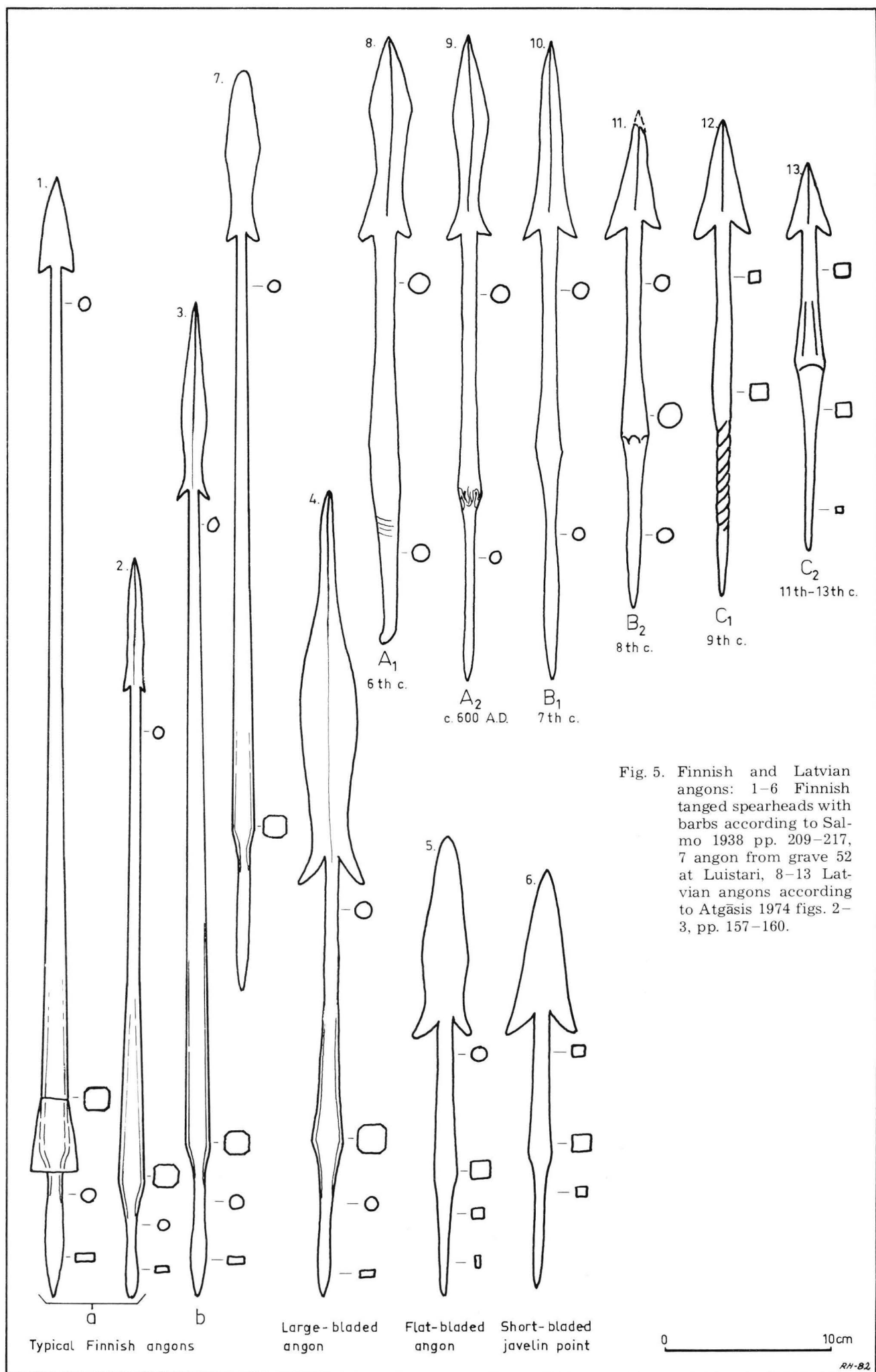


Fig. 5. Finnish and Latvian angons: 1-6 Finnish tanged spearheads with barbs according to Salmo 1938 pp. 209-217, 7 angon from grave 52 at Luistari, 8-13 Latvian angons according to Atgāsis 1974 figs. 2-3, pp. 157-160.

koski 1973 fig. 550). In this artefact the edge of the blade bends to form a gradually sloping S-shape. The point is lacking from the spearhead found in grave 52, and it is possible that such a point never existed originally, as is the case in group A of the Latvian angons (cf. Atgāzis 1974 fig. 2:3–5). Otherwise its blade is quite identical to that of the Finnish b variant. Salmo (1938 pp. 221–222) describes this variant as having a blade in the form of a sorrel leaf, and dates it to the latter half of the 7th and the beginning of the 8th centuries. Cleve (1943 pp. 168, 172) has mainly agreed with this dating, having classified the younger variant of the Finnish angon to phase II of the Merovingian period in Finland (650–750 A.D.). He seems, however, to be of the opinion that variant b belongs to the end of the 7th century, as he has dated all of the Kōyliö graves with these artefacts to this period.

The Luistari graves with Finnish angons were in the northern part of the cemetery, in the first, third and fourth NW–SE oriented grave rows, with little more than 10 m distance between the outermost ones.

The large-bladed angons (Kivikoski 1973 fig. 552) are clearly related to the previous group, and especially in the Luistari finds the difference is hard to distinguish. In fact the Luistari angons form a series in which the size of the blade gradually increases. In the above list the width of the blade clearly distinguishes the last two spearheads from the others, whereas in the last three the length of the blade is more than 200 mm. The angon from grave 378 with its long and narrow blade could be classified in the above group, but Salmo seems to have classified very similar artefacts as large-bladed angons (cf. 1938 Pl. XIII:9). There are numerous intermediary forms, and Cleve (1943 p. 132) regards the large-bladed angons as only a sub-group of variant b of the Finnish angons.

Salmo (1938 p. 222) has dated the large-bladed angon mainly to the first half of the 8th century, although some finds suggest the end of the century. On the other hand, Salmo is uncertain whether the type was in use already during the previous century. According to Cleve it was mainly used at the end of the 7th and the beginning of the 8th centuries. It is one of the artefact forms typical of phase II of the Merovingian period as defined by Cleve (1943 p. 133 and Table 2).

At Luistari all of the graves with large-bladed angons were in the fourth NW–SE oriented row of graves.

1.3.2. Short-bladed javelin points

A group of four spearheads can be classified as

short-bladed javelin points, although these are not quite typical specimens:

	Length	Tang	Shank	Blade
317:3581	397	96	222	102 × 46 × 6 mm
333:3756	286	88	95	116 × 41 × 8 mm
337:3782	222	65	80	80 × 24 × 7 mm
338:3786	285	114	83	102 × 47 × 8 mm

These spearheads have blades that are almost flattened, and except in the spearhead from grave 337 the barbs are pointed markedly outwards. The shank is rounded at the upper part and four-sided at the base, except in the same spearhead from grave 337, in which it is completely four-sided and the tang is also quadrangular in section. In the other spearheads the tang is rounded at the upper part. The spearhead from grave 317 is longer than any described by Salmo, and in the others there is an accentuated junction where the tang joins the shank, which according to Salmo (1938 p. 216) is an uncommon feature.

A total of c. 70 short-bladed javelin points have been found in Finland, and Salmo (1938 pp. 224–225) has dated them mainly to the end of the Merovingian period, although he does mention that they were already in use at the end of the 6th century. In Cleve's (1943 p. 133) opinion both the angon-like spearheads from the Migration period as well as the actual angons contain specimens which could also be described as short-bladed javelin points. He suggests that the spearheads of the end of the 8th century are only a later and clumsier variant of the angons. On the other hand, Cleve (1943 pp. 191, 203) has emphasized that this spearhead type and the spearheads found together with it are related to similar Latvian arms. A recent Latvian study lists nearly 160 tanged and barbed spearheads found in Latvia (Atgāzis 1974 pp. 156–160, figs. 2–4). This is nearly half of the Finnish specimens of the type. They are however dated to a considerably longer period than the Finnish spearheads, the latest dating from the 13th century. About 90 spearheads have however been dated to the period from the end of the 6th to the beginning of the 9th centuries.

The Latvian spearheads differ from the Finnish material above all because of the round section of the shank and tang. Angular sections are to be observed only in late spearheads of types C and D. The earliest Latvian type (A), dated partly to the 6th century, has been compared by Atgāzis to the Finnish angons, but even the oldest of the Finnish spearheads have shanks of angular section (cf. Salmo 1938 Pl. XXXVI:8 and fig. 57). It is to be noted also that in Latvia the oldest angons have curvilinear blades, and Atgāzis (1974 pp. 156, 162) has compared these to the large-bladed variants of

the Finnish angons. The Latvian angons do not seem to have the long tip-part of the Finnish variant b and of the large-bladed angons, but their blades resemble that of the spearhead found in Luistari grave 52. The Latvian type B angons on the other hand include specimens the blades of which resemble those of the Finnish variant a and the short-bladed javelin point. At the moment it seems that the courses of development in Latvia and in Finland went in opposite directions. In Finland the straight-edged blade developed into the elegantly curvilinear and long pointed blade. In Latvia, on the other hand, the S-shaped curvilinear form developed into the straight-edged blade. In Finland the chain of development is continued by a straight-edged blade in the form of the short-bladed javelin point. The course of development would seem parallel if the Finnish variant a is not taken into consideration. The datings that have been obtained do not however support this, as the Latvian angons of type A, according to Atgāzis (1974 p. 158), though only half a dozen in number, can be dated to as early as the 6th and the very beginning of the 7th century. The Finnish specimens with curvilinear blades are of later date.

If type A were a form occurring in large numbers in Latvia, it could be supposed that the Finnish angons with curvilinear blades came about under their influence, but as the finds so far are few further results must be awaited. The co-occurrence of angons in both Latvia and Finland is an interesting detail, but at least at this stage the direction of influence is not clear. The question does however merit further attention.

1.3.3. Spearheads with dagger-like blades

Tanged spearheads with dagger-like blades were found in two Luistari graves:

	Length	Tang	Blade
269:3093	358	138	220 × 49 × 10 mm
419:20189:213	277	115	162 × 40 × 7 mm

The spearhead from grave 269 is especially worth mentioning. It is probably the longest of all found so far (cf. Salmo 1938 p. 233). The spearhead from grave 419 is shorter than normal. The former was found as the pair of a large-bladed angon, the latter was by itself.

Spearheads with dagger-like blades are fairly common in Finland. By the beginning of the 1970's over 60 had been found (Kivikoski 1973 fig. 555, p. 80), but none of these were from the Turku region. About 10 % of the total have been found in Eura.

According to Salmo (1938 pp. 234–235), the spearhead with a dagger-like blade came into being at the beginning of the 7th century, but most of them

date from the end of the Merovingian period. According to Cleve (1943 pp. 189, 213, Table 2) this type belongs to phase II (650–750 A.D.) and is purely Finnish. The location of the Luistari graves containing these was such that it suggests the end of phase II and possibly the beginning of phase III; grave 419 was laid in a NW–SE direction.

1.3.4. Tanged spearheads with tapering blades

Tanged spearheads with tapering blades are six in number, and they are from five Luistari graves:

	Length	Tang	Shank	Blade
33:1406	337	105	60	172 × 34 × 6 mm
304:3510	310	95	84	131 × 34 × 6 mm
329:3733	319	100	68	151 × 32 × 7 mm
:3739	352	90	74	188 × 31 × 7 mm
331:3749	352	103	76	173 × 33 × 5 mm
353:4016	354	98	77	179 × 37 × 7 mm

Only the spearhead from grave 353 has an evenly tapering blade, in the others the widest part of the blade is on the tang side of the middle part; there is no midrib. The section of the shank in the spearheads from graves 33 and 353 is almost rectangular, and rounded in the others. The tang is rounded in section at its upper part, rectangular at its lower part, except for the spearheads from graves 33 and 331 in which it is angular throughout. The shorter spearhead from grave 329 (NM 18000:3733) has a similar expansion of the tang as often occurs in the Finnish angons (cf. Salmo 1938 p. 212, fig. 55). According to Salmo (1938 pp. 242–243), a clear border at the junction of the shank and the tang is not common, and may be the result of careful handiwork. This feature can be seen in both spearheads from grave 329 and in the spearhead from grave 304. They also have a neat and well-made appearance.

Tanged spearheads with tapering blades are over 120 in number in the Finnish finds (Kivikoski 1973 fig. 554, p. 80). Next to the angons they are the most common type of spearhead in the material of the Merovingian period. At least 16 have been found in the Eura area, which suggests that it is one of the main regions of occurrence of this type. Apart from Finland this type of spearhead has also been found in Latvia, Lithuania, Estonia, and there is at least one from Gotland (Salmo 1938 p. 244; Volkaite-Kulikauskiene 1970 pp. 221–223, fig. 38:1, 2). According to Salmo (1938 pp. 245–247), the type came into being during the Migration period, but it was mainly in use during the 8th century. The Latvian finds are mainly from the end of the 8th century, but there as well as in Lithuania it can be found in later connections (Kulikauskas–Kuli-

kauskiene–Tautavičius 1961 p. 425, fig. 297; Latvijas PSRA p. 157). According to Cleve (1943 pp. 130, 203, 215, Tables II–III), most of these are from the 8th century, and in his lists of material the main emphasis is on phase III; only one spearhead of this type could be placed in phase II. Cleve maintains that the type is domestic, although it has similarities with the Latvian spearheads. At Luis-tari these spearheads were found in the SW–NE oriented grave rows II, III and V. This location suggests the end of the Merovingian period as a suitable date. This is also indicated by the other artefacts found in the same connection, a cart-wheel shaped brooch, a large seax and a penannular brooch of iron (see 1.2., 6.1.4. and 6.1.7.1.).

1.3.5. Socketed spearheads with tapering blades

A spearhead type that may have been at least partly the model for the above-mentioned spearheads, the so-called socketed spearhead with tapering blade, was found in two graves:

	Length	Socket	Blade
317:3580	370	118	252 × 38 × 8 mm
333:3755	244	107	137 × 33 × 8 mm

The spearhead from grave 317 is typical in appearance, with a long blade with a rounded base tapering evenly to the point. The spearhead from grave 333 is short, with a slightly blunt point. Both spearheads were found along with a short-bladed javeling point.

According to Salmo (1938 p. 239), the main distribution of this type of spearhead is in the province of Finland Proper. In Satakunta they have been found only in Eura. The Eura finds are however 20 % of the total of all of these (Table 2). Salmo maintains that it is possible that these spearheads were imported from Central Europe, as there is one damascened specimen from Estonia. This cannot be taken into account any longer, as the spearhead in question has subsequently been dated to the 11th century (Kustin 1962 p. 82 and note 122; Selirand 1975 Table No. 36). On the other hand scholars in the East-Baltic region maintain that damascened weapons were manufactured also in Scandinavia, Latvia and Estonia (Selirand 1975 pp. 184–186 and quoted literature). Accordingly the socketed spearheads with tapering blades need not necessarily derive from Central Europe.

According to Kivikoski (1939 p. 129) it is apparent that spearheads of this type were also manufactured in Finland even though they were based on Central European models as assumed by Salmo. Cleve (1943 p. 203) suggests that the type is from the East-Baltic region. The question of origin is hard to settle, as there are no exact datings of the East-

Baltic material at hand, and no clear distinction has been made between these and certain spearheads with oval tapering blades. Kulikauskiene (1970 fig. 40, pp. 225–226), for example, deals with these spearheads and a group of longer-socketed and wider-bladed spearheads not found in Finland as one group. It is thus impossible to know to what extent the given datings and areas of distribution refer to precisely this spearhead type. It seems however probable that Lithuania is the second main area of distribution of the type. Moreover, in Lithuania it is found together with tanged spearheads with tapering blade and combat knives similar to the Finnish scramasaxes, as well as with bow fibulae with poppy heads, all suggesting several similar traits.

According to Salmo (1938 p. 239), a few spearheads of this type have been found in Estonia. Six are from the Grobin area in Latvia (Nerman 1958 figs. 69, 72, 76, 152, 190, 191), and at least two have been found from Gotland (Nerman 1969 Pl. 301: 2363, 2364). The second of the last-mentioned strongly resembles the longer spearhead found at Luistari. At least three have been found in the Memel area (Salmo 1938 figs. 44, 45), and half a dozen are depicted from Lithuania (LAB 1961 figs. 202, 297:2, perhaps 298:9; Kulikauskiene 1970 fig. 40:1, 2, pp. 225–226). They are probably more numerous. The artefacts from Grobin and from Gotland have been dated by Nerman (1958 p. 177) to the latter half of the 8th century or to the very beginning of the Viking period. In Lithuania they were used during the Viking period, too, and spearheads that closely resemble these have been dated in Poland to as late as the 11th century (Nadolski 1954 Pl. XXIV:4). In Finland the type however belongs completely to the Merovingian period. Both Salmo (1938 pp. 240–241) and Cleve (1943 pp. 172, 191) have dated these spearheads, 36 in number at present, to the end of the 8th century. The Luis-tari spearheads correspond well to this dating, having been found in the second and fifth SW–NE-oriented grave rows.

1.3.6. Socketed wide-bladed spearhead

A thick socketed and wide-bladed spearhead was found in a single grave:

	Length	Socket	Blade
380:4292	243	60	183 × 47 × 11 mm

It is a solid artefact of competent handiwork with a 30 mm wide socket tapering sharply towards the point and extending considerably along the blade. In its proportions it resembles certain spearheads of Vendel type from Gotland (e.g. Nerman 1969 Pls. 138:1210 and 139:1227; Gjessing 1934 Pl.

Xa), but also certain spearheads regarded as domestic by Salmo (1938 fig. 53). It differs however from the latter in its accentuated form. The thick socket as well as the form of the junction of the socket and blade relate the Luistari spearhead to Scandinavian models, but the indentations typical of the so-called Vendel type are lacking. On the other hand, these are not to be found in all Swedish spearheads of this type either (see Serning 1966 p. 21, Pl. 106:15).

Gjessing (1934 pp. 48–50) has shown that the Vendel type derives from Central Europe and has dated it to the 7th century in the Nordic area. Salmo (1938 pp. 178–179) maintains that it occurs at least in Gotland until the end of the Merovingian period, which seems to be borne out by the illustration published by Nerman (1969 Pl. 300:2358–59, 301:2360). Most of the spearheads of Vendel type which resemble the Luistari spearhead have been classified by Nerman to his period VII:2 (600–650 A.D.). The chronological position of the wide-bladed Finnish spearheads is not clear; they were in use partly at the end of the 7th century and partly at the end of the Merovingian period (Salmo 1938 pp. 201–203). Cleve mentions a couple of spearheads of this type in his Table II (1943), which suggests the middle of the Merovingian period. The last-mentioned dating is perhaps the best possible for the Luistari spearhead, as it was found as the pair of a large-bladed angon in grave 380 in the fourth NW–SE-oriented grave row.

1.3.7. Spearhead with a narrow rhomboid blade

A spearhead with a narrow rhomboid blade was found at Luistari:

	Length	Socket	Blade
52:1578	257	120	137 × 24 × 7 mm

It is in many respects similar to the Viking period spearheads with narrow blades and distinct sockets, referred to in this study as spearheads with accentuated junction. The blade does however have a flatter general appearance and the edges are slightly concave from the point of inflexion to the tip. I have not been able to find any exact parallels to this in the collections of the National Museum in Helsinki, but there is a similar artefact, only slightly longer, from Gotland. This has been classified by Nerman (1969 Pl. 301:2362) to phase VII:5 (750–800 A.D.). In Central Europe narrow spearheads with rhomboid blades were however in use from the beginning of the sixth century (Veeck 1931 p. 81; these are not to be confused with those defined as rhomboid-bladed by Salmo, which have long shanks). This suggests that the Luistari

spearhead may be considerably older. The angon found with it, a later variant of the Finnish angon (or a Latvian angon of type A?), points to Cleve's phase II, and the location of grave 52 at the very north end of the cemetery suggests the earlier part of the phase in question.

1.3.8. Spearhead with a fullered blade

A narrow spearhead with a fullered blade was also found:

	Length	Socket	Blade
315:3565	253	85	168 × 25 × 7 mm

It has the same contours as a small spearhead of Petersen type E, but the fullers running lengthwise give the middle part the impression of a midrib. The socket is short and the widest part of the narrow blade is from the middle to the point. Only two or three spearheads classifiable in the same group as this have been found previously in Finland. In addition to the spearheads from Ristimäki in Kaarina (NM 6746:7, Salmo 1938 Pl. V:18) and Pietilä in Kalanti (NM 3336:32), there is possibly a spearhead from Jokipelto in Lieto, Ylipää (NM 5890:2), classified by Kivikoski (1939 p. 215) as belonging to Petersen type E. It is similar in form to the spearheads in question but there are only very poorly distinguishable fullers. The length of the spearheads varies from 210 mm (the Lieto spearhead) to 285 mm (the Ristimäki spearhead), and the width of the blade from 19 to 25 mm.

The type is, according to Salmo (1938 pp. 247–248), of general European character, and can be dated to the end of the Merovingian period. During the same period certain other spearhead types such as the socketed and tanged forms with tapering blades have been fullered. This detail is regarded by Salmo to be only of ornamental character, with no practical use. M.J. Swanton (1973 pp. 117–118) has combined the fullered spearheads from the Alemannian graves and the Finnish finds with certain fullered spearheads of Anglo-Saxon or British Celtic character. In this connection he has proposed the term »pseudo-midribbing». The purpose of this was, according to him, to lighten the spearhead and save raw material, at the same time maintaining the strength of the artefact. It may be necessary to lighten large artefacts, but the idea does not seem to be logical with regard to the light and delicate Finnish spearheads. In my opinion this is a fashion in which an ornamental detail has been transferred to an artefact which does not require it as a practical addition. The fact that this detail occurs in artefacts found as far apart as Southern Germany on the one hand (Werner 1935 p. 26, Pl. 26:3; Veeck 1931 Pl. 73B:3, p. 189)

and Finland on the other, is not surprising considering that during the period of use of these Finnish spearheads weapons were not placed in graves in most parts of Europe, and therefore we have no or only little evidence of their form. The Finnish spearheads need not derive from Southern Germany; these finds far apart from one another indicate that this detail was widely distributed at the end of the 8th century, a period of which the Central European archaeological material does not bear much witness. In fact, similar designs appear on certain arrowheads of the same period from Gotland (Nerman 1969 Pl. 303:2371–2373).

1.3.9. Variants of Petersen types A and E

1.3.9.1. Short and broad variant (fig. 6)

Spearheads were found in 34 of the Luistari Viking period graves. The most numerous type is a flat-bladed flowingly contoured spearhead with an unaccentuated junction of the blade and socket. Most of these spearheads correspond to Petersen type E (1919 pp. 26–28), but there are also shorter

and broader specimens. In the Finnish material these have been compared to Petersen type A (Salmo 1938 pp. 248–250, 1952 pp. 385–386; Kivikoski 1955 p. 130). Spearheads of the latter type were found in four of the Luistari graves:

	Length	Socket	Blade
68:1924	284	75	209 × 33 × 7 mm
90:2027	270	60	210 × 32 × 8 mm
348:3910	234	75	159 × 37 × 7 mm
400:4482	281	70	211 × 32 × 7 mm

The circumstances of the finds make it apparent that these cannot be dated within the chronological limits of type A. Grave 348 was coin-dated to the second quarter of the 10th century, grave 90 dates from the end of the 930's at the earliest (Luistari I:4, coin-list Nos. 68–73, 32). The spearheads from graves 68 and 400 could be of a somewhat earlier date, but not to any great degree, at least on the basis of their location. Type A is dated to the end of the Merovingian period and the beginning of the Viking Age (Petersen 1919 p. 23), giving a possible difference of about 100 years to the datings. It is

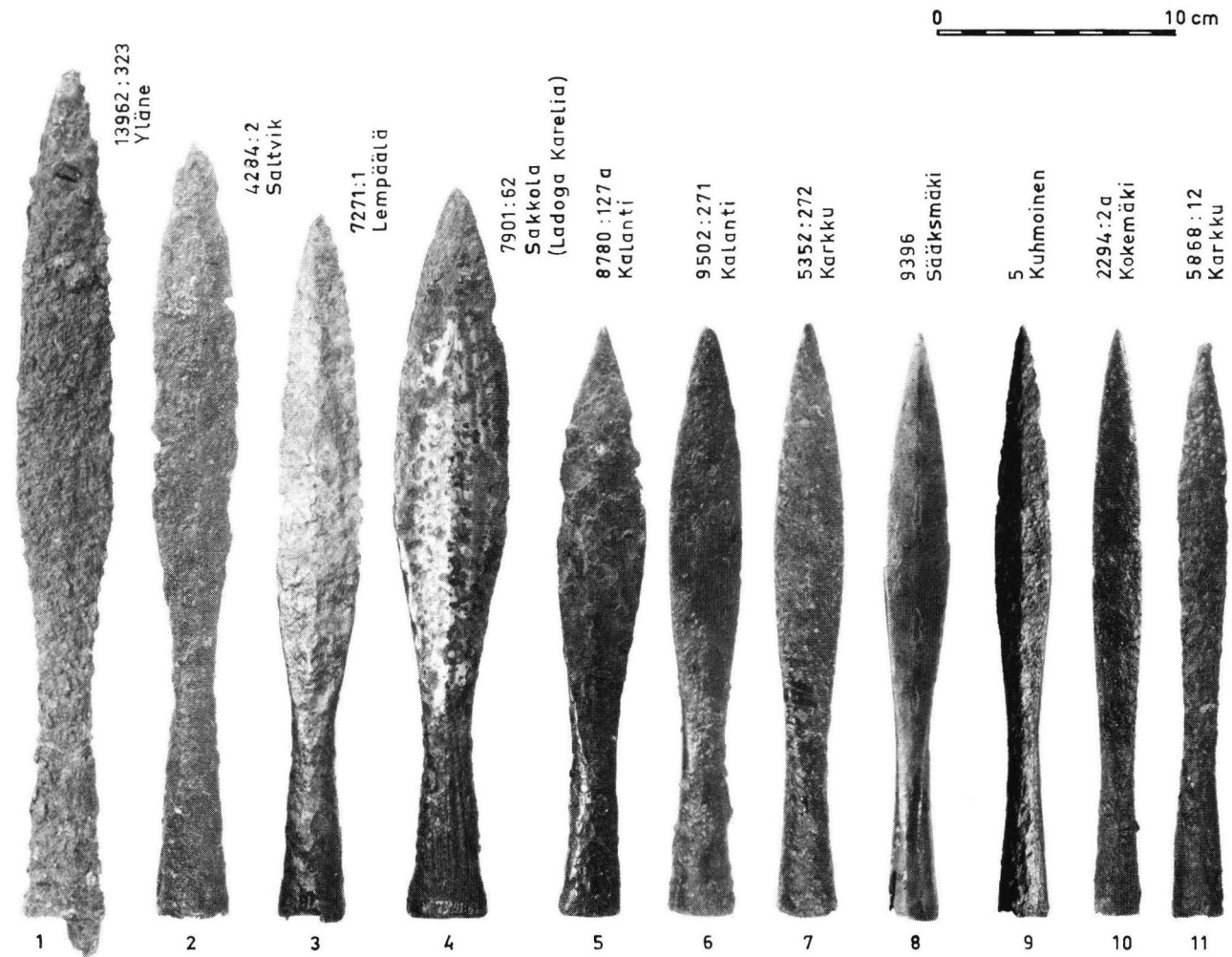


Fig. 6. Finnish Viking period short spearheads compared with the Petersen type A. On the left damascened spearheads of Petersen type A, on the right Finnish short spearheads from broad to narrow ones.

of course possible that the type remained in use here in a variant form, but as definite damascened spearheads of type A are very rare in the Finnish mainland material – two have been found in Western Finland (NM 7471:1 from Lempäälä and 13962:323 from Yläne) and two in Ladoga Karelia (7901:62 Sakkola, 11375 Metsäpirtti) – it is less than probable that they would have left behind them a domestic group that could have lasted long. It is more probable that the short broad spearhead developed as a variant of the more popular type E. The Finnish material displays many intermediary forms, from the long and narrow type E spearheads to the short broad ones. In the form of the spearhead from grave 348 the latter does however differ distinctly from type E, and about twenty parallels for this can be cited.

1.3.9.2. Variant with ornamental grooves (fig. 7)

Five of the type E spearheads from Luistari have ornamental grooves on the socket:

	Length	Socket	Blade
135:2383	449	90	359 × 33 × 9 mm D
145:2480	342	75	267 × 24 × 8 mm
165:2603	468	95	373 × 30 × 9 mm D
348:3911	522	110	412 × 27 × 6 mm
400:4484	273	91	182 × 27 × 7 mm

D = damascened

The one from grave 348 is the longest known so far in Finland. It was found as the pair of the short broad spearhead mentioned above. A similar combination was found in grave 400. In this case, the grooved spearhead was exceptionally short. A grooved spearhead was found by itself in grave 165; in graves 135 and 145 these were accompanied by type E spearheads with smooth sockets. Only two of the grooved spearheads were damascened (spearheads from graves 135 and 165). The others displayed no signs of this. Jan Zak, a Polish scholar, has suggested (1960 pp. 140–141, 147–148) that these grooved but not damascened spearheads were manufactured in Birka. Undamascened specimens are known also from Norway and Sweden, but if Zak's lists of material from these countries are as full of errors as they are with regard to Finland, not much can be deduced from them. Four of the eleven Finnish spearheads listed by Zak (1960 p. 144) are in fact damascened (in Zak's list Nos. 125, 127, 129, 130) and two have no grooves whatsoever (Nos. 126, 128). Of the 66 grooved spearheads found in Finland known by me, at least 36 are of damascened steel and 26 are with certainty not damascened. The rest belong to the collections of provincial museums and have not yet been x-rayed.

1.3.9.3. Smooth-socketed variant of type E (figs. 8, 9)

Spearheads that can be classified in the smooth-socketed variant of Petersen type E are 19 in number at Luistari:

	Length	Socket	Blade
40:1480	375	80	295 × 29 × 6 mm
51:1565	300	90	210 × 26 × 9 mm D
51:1567	444	90	354 × 33 × 8 mm D
75:1947	398	95	303 × 25 × 8 mm
80:2004	385	92	293 × 34 × 8 mm
90:2026	322	85	237 × 29 × 7 mm
100:2187	368	85	283 × 27 × 9 mm
135:2384	368	80	288 × 30 × 9 mm
145:2470	350	75	275 × 22 × 7 mm D
281:3156	273	63	210 × 22 × 9 mm
281:3158	440	85	355 × 24 × 10 mm
281:3159	255	60	195 × 20 × 7 mm
282:3203	323	110	213 × 23 × 8 mm
288:3280	245	70	175 × 25 × 11 mm
289:3301	274	90	184 × 21 × 8 mm
292:3366	335	80	255 × 29 × 8 mm
318:3597	374	105	269 × 24 × 11 mm
323:3634	445	85	360 × 34 × 9 mm
325:3693	343	93	250 × 27 × 7 mm

D = damascened

Three are of damascened steel (one from grave 145 and two from grave 51) and are apparently imported artefacts; it is generally held that the damascening technique was not known in Finland during prehistoric times (Salmo 1938 p. 252).

The smooth-socketed spearheads of damascened steel are very rare in the Finnish finds. There is a fourth one from Lauhianmäki in Eura (NM 7702) and two others from Urjala (NM 6703:3) and Sääksmäki (NM 11717:9). Selirand (1975, list of spearheads Nos. 4, 34, 86, 189) mentions four undecorated damascened type E spearheads from Estonia. These have only a thin line (Selirand 1975 p. 173, figure group 1) and do not have the ornament in the form of a head of barley (fig. 11) typical of the corresponding Finnish material. In this respect they are more similar to the narrow spearheads of Selirands group III:C (1975 Table IV:3), although these have the short socket and flat blade of type E.

As Lena Thålin's study of the Swedish spearheads has not yet been published, it is not possible to say to what extent comparable material occurs in the Swedish finds. According to Selirand (1975 p. 177 note 25), nearly all of the Birka spearheads that are distinctly of type E are of damascened steel. These include about 10 undecorated specimens (in connection with graves 495, 510, 547, 558, 725, 727, 801, 830, 855, 894B and 1098 it is either noted that the spearhead is undecorated or the decoration is not mentioned). It would be in-

teresting to compare the type E spearheads from Birka, numbering slightly less than the Luistari spearheads, with the results of the study of the Finnish material. In the meantime it seems probable that the smooth-socketed damascened type E spearheads are parallels to the decorated damascened spearheads, and can be dated along with them mainly to the 9th century (Zak 1960 pp. 139

–140), and not to the 10th or 11th centuries as suggested by the Estonian scholars (cf. Selirand 1975 p. 177).

Two distinct groups are to be found in the rest of the smooth-socketed spearheads. The first group (spearheads from graves 75, 281, 282, 289, 318) is distinguished by a very narrow midribbed blade, the point of which almost forms a spike. The

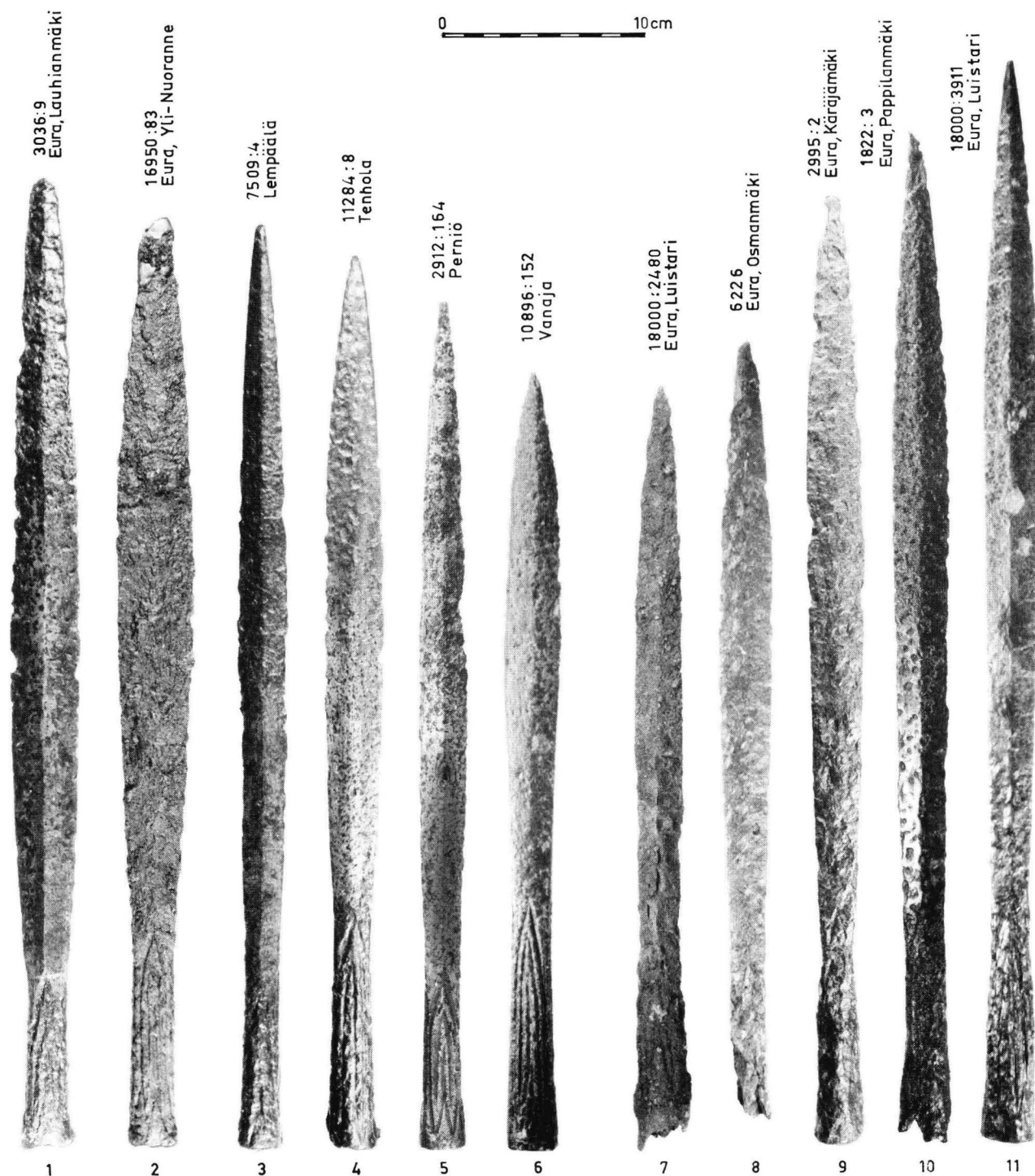


Fig. 7. Some damascened (1–6) and undamascened (7–11) groove-ornamented spearheads of Petersen type E.

spearheads of the other group (from graves 80, 90, 325) have a fairly broad flat blade with the widest part above the middle. The latter group is paralleled in both the domestic (NM 567c Janakkala, 6464 Uskela, 13575 Turku, 14641:3 Nokia) and foreign material (e.g. Festin 1914 fig. 1:1; Stenberger 1962 fig. 27), whereas the spike-pointed type E spearheads seem to be limited to a very small area. In addition to the five Luistari spearheads, I know of only three others in the Finnish finds: one from Pappilanmäki in Eura, NM 9855:1, one from Anivehmaanmäki in Yläne, 13962:558, and one from Jaatsi in Tyrvää, 3574:510. A narrow spearhead, very similar to the one from grave 281,

has been found in Othem, Gotland (Geijer-Arbman 1940 fig. 5). Chronologically this group can be placed at the very end of the period of use of the type E spearhead. This is supported by the fact that Luistari grave 75 can be coin-dated to the first half of the 10th century (coin-list No. 30), and grave 281 is hardly older than this, because a penannular brooch with funnel ends was found in it (cf. 6.1.7.5.). Graves 282, 289 and 318 can be placed in the same group on the basis of their location. There was also a penannular brooch with funnel ends in grave 46 at Anivehmaanmäki (13962:559), as well as a scabbard chape decorated in the Borre style (13962:557, Kivikoski 1973 fig. 846, p. 114) which also

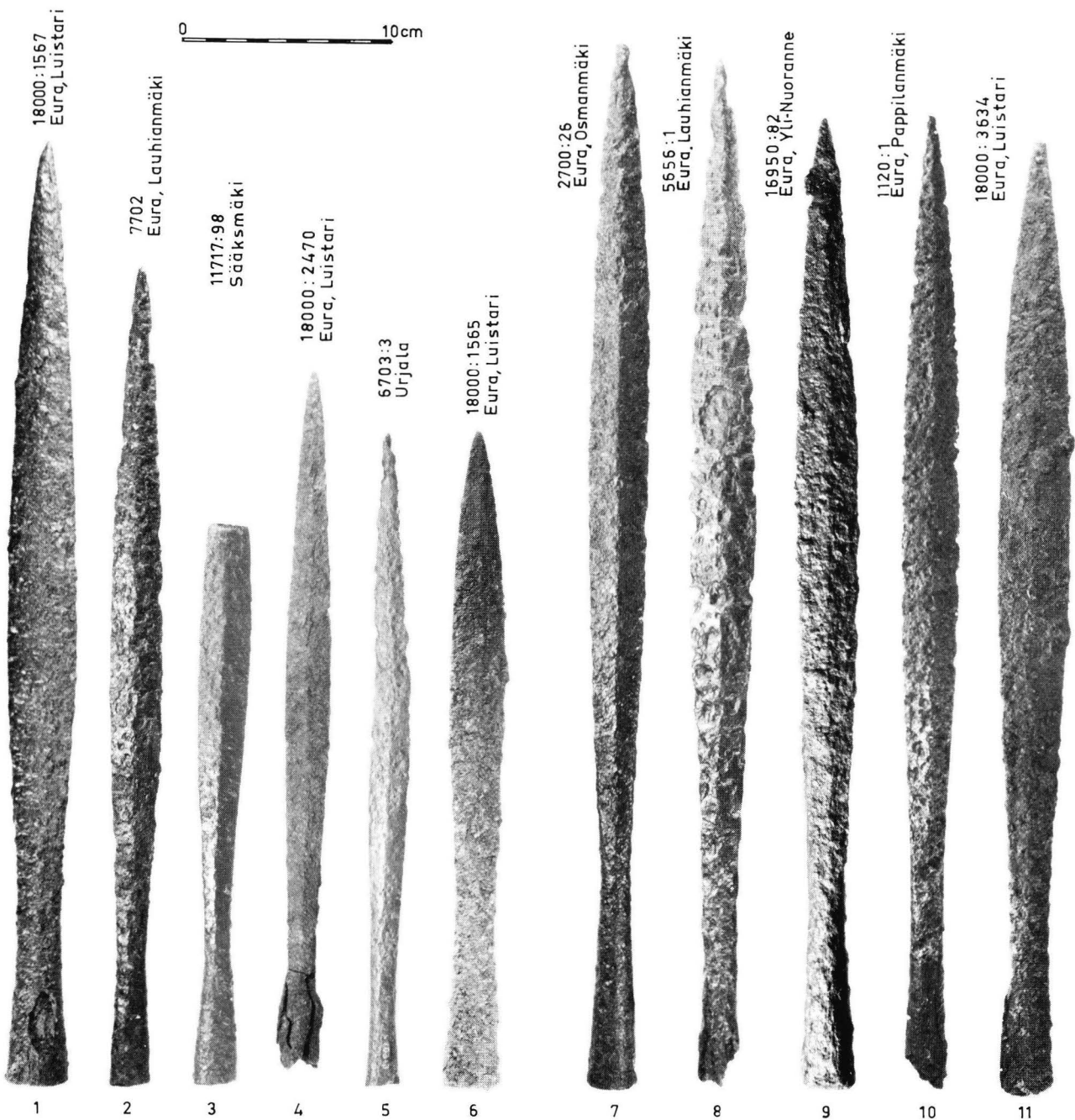


Fig. 8. Damascened smooth-socketed spearheads from Finland (1–6) and large smooth-socketed type E spearheads from Eura (7–11).

suggests the 10th century. The Tyrvää spearhead was found together with spearheads with accentuated junctions (Kivikoski 1973 fig. 855). These are also 10th century material, and will be discussed in a later connection (1.3.9.5.). The whole group in question can be dated to the first half of the 10th century.

The spearhead from grave 90 broadening to the point can also be regarded as a later variant of type E. Grave 90 can be coin-dated to about 940 A.D. (coin-list No. 32), and the Swedish finds mentioned above can also be given late datings (Festin 1914 p. 182, cf. Petersen 1919 p. 28; Stenberger 1962 p. 37). The third late variant of type E (proper) is

one which has a short socket joined to a long narrow blade with a distinctly accentuated junction (fig. 9:8). This dates from the 10th century and can be regarded as an intermediary form between the type E spearheads and those with accentuated junctions. A spearhead of this variant was found also in grave 281 (3156).

The spearhead from grave 288 differs somewhat from the majority of the type E material. It is short and solid but with a narrow blade. Along with it were found a spearhead of the tanged variant of type E (Kivikoski 1973 fig. 854) and a penannular brooch with faceted ends (Kivikoski 1973 fig. 694). Both of these are artefact types of the 9th century,

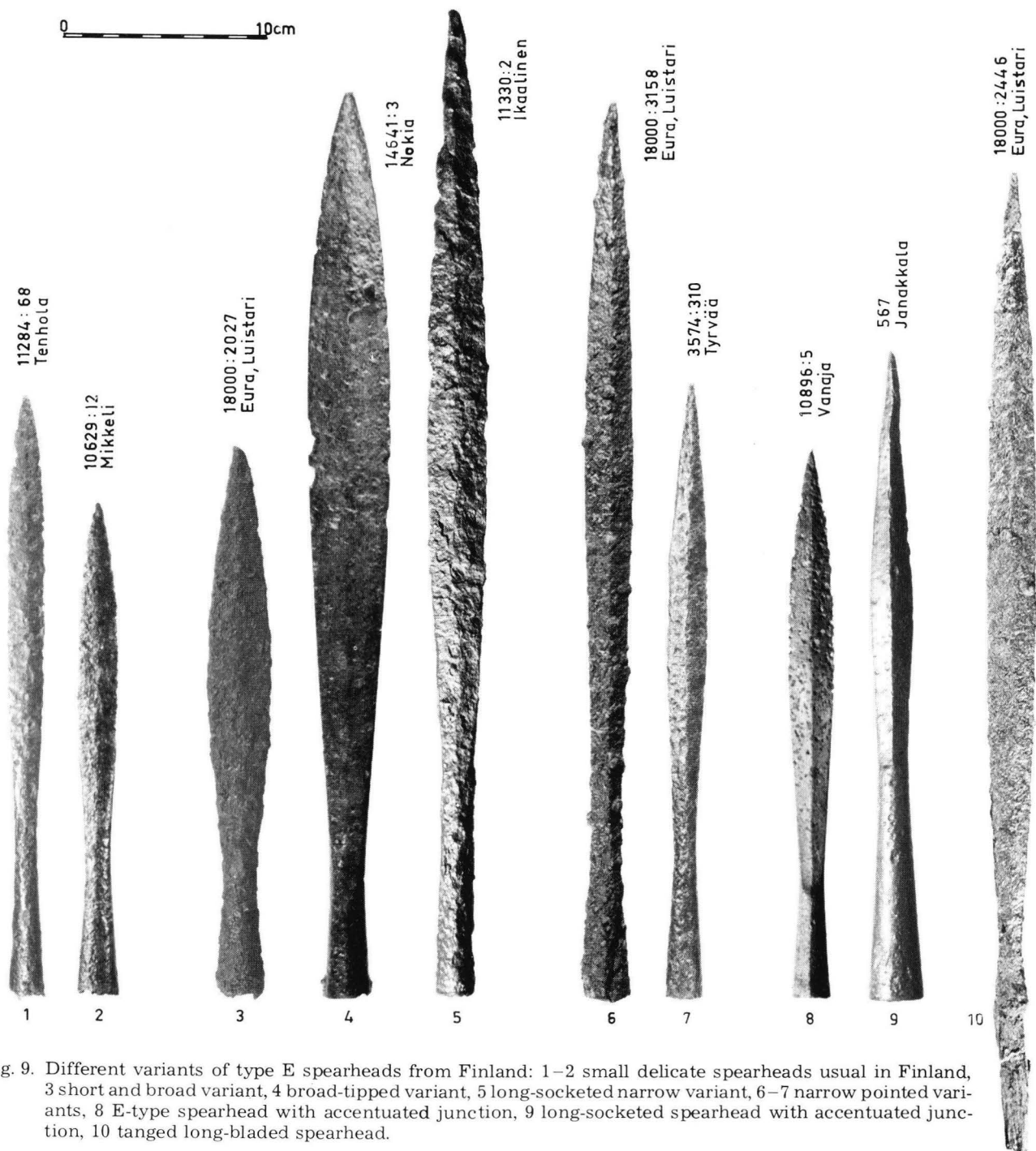


Fig. 9. Different variants of type E spearheads from Finland: 1–2 small delicate spearheads usual in Finland, 3 short and broad variant, 4 broad-tipped variant, 5 long-socketed narrow variant, 6–7 narrow pointed variants, 8 E-type spearhead with accentuated junction, 9 long-socketed spearhead with accentuated junction, 10 tanged long-bladed spearhead.

which suggests that the spearhead is an early variant of type E. No exact parallels are known from the Finnish finds.

The rest of the undecorated type E spearheads from Luistari correspond to the general impression of the Finnish material of the type, although the spearheads from graves 135 and 292 show a tendency towards having broad tips (fig. 9:4). On the other hand, the small delicate flat-bladed type E spearheads, common in the rest of the Finnish finds (fig. 9:1, 2), do not occur in the Luistari find material nor in the material from the Eura district in general. The only exception is the third spearhead from grave 281 (3159) measuring only 255 mm in length (the tip is evidently broken) and 20 mm in width.

A small flat-bladed spearhead is worth mentioning in connection with type E:

	Length	Socket	Blade
325:3694	202	70	132 × 22 × 7 mm

It is of fairly even width and has a point resembling a beaver's tail. This appearance is probably the result of resharpening, but taking even this into consideration, it does not correspond to

the prototype of the type E spearhead and suggests local manufacture.

Petersen (1919 pp. 26–28) dated spearheads of type E in Norway to the very beginning of the Viking period, but in Finland the type was in use much longer. Salmo (1938 p. 251) considered the ornamented specimens younger than the smooth-socketed ones, while Kivikoski (1939 p. 215, 1963 p. 109) is of the opinion that the ornamented ones belong to the 9th century, and only the unornamented ones can derive from the 10th century. Finds from Luistari show however that both variants were in use as late as the 10th century, and the damascening of blades is probably more important for the dating than the ornamentation of the sockets. All the spearheads with damascened blades were found in zone III, although grave 135 with an ornamented spearhead like this probably belongs to the second period of use of this part of the cemetery, and accordingly dates from about 900 A.D. (cf. 6.2.4.).

1.3.9.4. *Tanged long-bladed spearhead* (fig. 9:10)

Five tanged long-bladed spearheads, regarded as the Finnish variant of type E (Kivikoski 1973 fig.

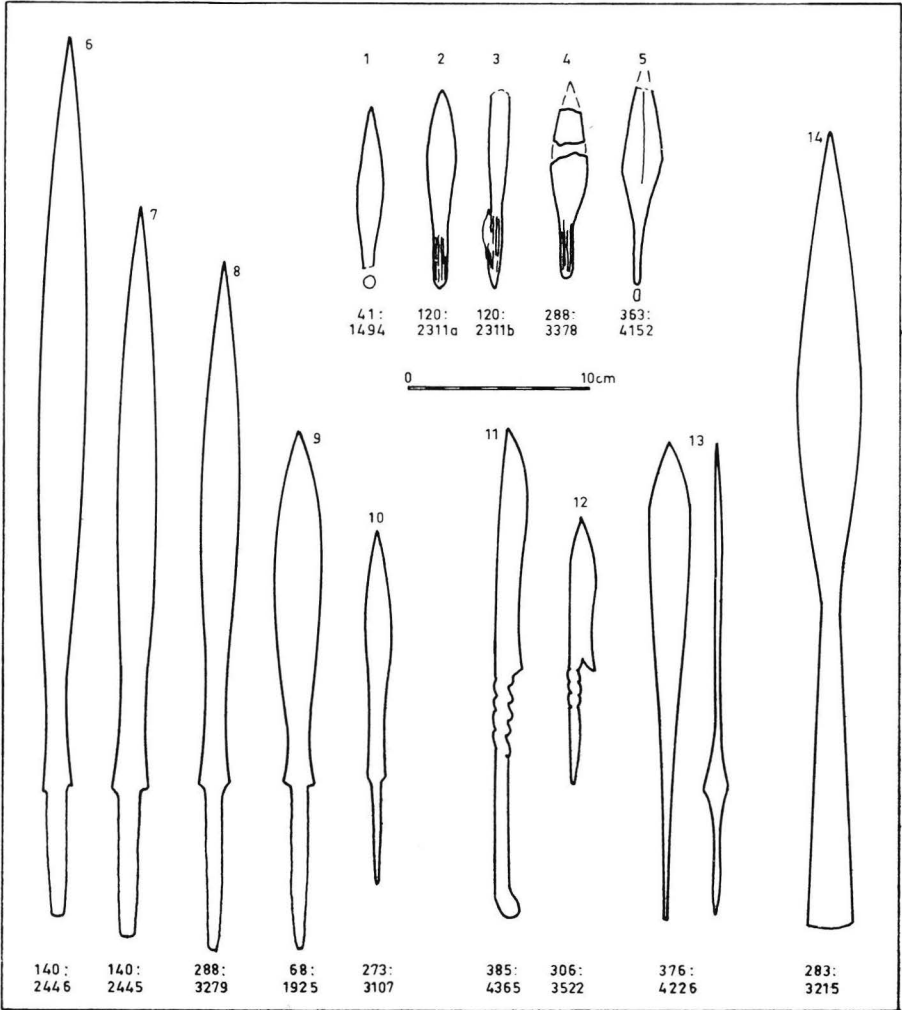


Fig. 10. Tanged spearheads, arrowheads and the unusual socketed spearhead from grave 283 at Luistari.

854, p. 115; Salmo 1938 pp. 252–253), were found from Luistari. They are from four graves:

	Length	Tang	Blade
68:1925	360	90	235 × 27 × 6 mm
140:2445	395	93	270 × 23 × 7 mm
:2446	510	102	370 × 25 × 7 mm
273:3107	189	54	100 × 19 × 5 mm
288:3279	375	90	270 × 22 × 6 mm

The spearheads from graves 140 and 288 are long and narrow and represent the common form of the type, whereas the one from grave 273 is of miniature size and the spearhead from grave 68 appears to have been modelled after the short and wide spearhead found with it. It is possible that this is somewhat younger than the others, and can be dated to roughly the year 900, while the others can be dated along with the majority of the specimens of the type to the 9th century (Salmo 1938 p. 253). It is to be noted that the coin from the Lauhianmäki grave 7 in Eura has been re-dated 65 years older (Sarvas 1972 p. 55), and if this is the youngest known grave with a tanged long-bladed spearhead, the type can be dated to the first half of the 9th century. So early a date is hardly possible for Luistari grave 68, but grave 140 on the other hand is quite probably from the beginning of the 9th century (cf. 6.1.7.).

1.3.9.5. *Spearhead with accentuated junction*
(fig. 9:9)

Another variant of type E common in Finland is a narrow relatively long-socketed spearhead with an accentuated junction of the socket and blade (Kivikoski 1973 fig. 855). The socket is often thicker than its width at its upper part, thus differing distinctly from the sockets of type E spearheads which flatten gradually from the socket to the blade. For the sake of brevity I have termed this narrow, midribbed and generally long-socketed variant as the spearhead with accentuated junction. Five spearheads of this group were found in four Luistari graves:

	Length	Socket	Blade
68:1917	199	68	131 × 13 × 7 mm
76:1995	137	65	72 × 15 × 9 mm
:1997	298	126	172 × 24 × 9 mm
225:2956	235	70	165 × 18 × 9 mm
330:3743	195	73	122 × 18 × 10 mm

In addition of these there is also the spearhead from grave 281, described above as an intermediary form between this variant and type E. There are about 25 spearheads of this intermediary form from Finland; the total of all of the typical spearheads with accentuated junctions rises to more than 100; about 17 % of the latter are from the Eura region. The main area of distribution of these variants falls

in the provinces of Satakunta and Häme. There are at least 50 spearheads with similar sockets from Satakunta and about 40 have been found in Häme. Slightly less than 30 have been found in Finland Proper and only stray finds are known from elsewhere in Finland. By 1974 sixteen spearheads of this type had been found in Estonia (Selirand 1974 p. 113, Pl. XII:1), and although they are rare in Norway (Petersen 1919 fig. 26, p. 35) they occur in Sweden, Latvia and possibly Lithuania as well as in some other parts of the Soviet Union (Nordman 1943 p. 55; Tönnisson 1974 p. 150, Pl. XXIX:1, 2; Kirpičnikov 1966 p. 12; Latvijas PSRA p. 244, Pl. 64:10); I have no information at my disposal as to the exact number of the finds.

In the Luistari finds these spearheads belong chronologically to the 10th century. The spearheads from graves 76 and 225 are definitely from the latter part of the century; grave 76 can be coin-dated to the period after 951 A.D. (coin-list No. 31), and the spearhead from grave 225 was accompanied by one of Petersen type K (1919 p. 33), dated to as late as the later Viking period (cf. however Heyerdahl-Larsen 1981 p. 167). The find combination in grave 68 suggest an earlier date, but it is to be noted that while the other spearheads were on the bottom level, the one with an accentuated junction was found placed under a stone at one end of the grave, which suggests that it may be later than the others. The concealment may have taken place in connection with the burial, but also possibly long after it, indicating a difference of a few decades in the manufacture of the artefacts. Nordman (1924 p. 104) has, however, suggested that spearheads of this form were in use already during the earlier Viking period.

None of the Luistari spearheads with accentuated junctions are damascened. Although no systematic x-raying of all spearheads of this type has yet been attempted, the above observation applies to one fifth of the material.

Variants with accentuated junctions have on the one hand been found along with later variants of type E (graves 68 and 281 at Luistari, grave 46 at Anivehmaanmäki, grave 1912/7 at Osmanmäki), and on the other hand the fully-developed form of the long-socketed spearhead with accentuated junction has in a couple of cases been found with spearheads of type K-I (grave 225 at Luistari, find 15434:1–3 from Raisio). They seem to have a clear chronological position at the junction of the earlier and later phases of the Viking period. On the other hand spearheads of this form have not been found with ones of types G or H, and there are no grounds for dating it in Finland to the end of the Viking period, although a coin-date from an Estonian find suggests the 11th century for this form and for a

type E spearhead with accentuated junction (see Schmiedehelm 1938 pp. 648–649). Petersen (1919 p. 35) maintains that this type belongs to the beginning of the medieval era, but in Finland it is clearly a Viking Age type. Apparently it belongs also in Sweden to the 10th century (Serning 1966 p. 39; Engström 1973 p. 13). In the light of the present material it seems that when type E proper went out of use during the first half of the 10th century it was replaced for a few decades by the spearhead with accentuated junction until a new fashion, represented in Finland by the spearhead of type G, came into wide use.

1.3.10. Spearhead of Petersen type K

Spearheads of Petersen type K were in use partly at the same time as those with accentuated junctions (see above), but only one type K spearhead has so far been found at Luistari:

	Length	Socket	Blade
225:2957	452	152	300 × 39 × 10 mm

The blade has distinct basal angles, and x-ray studies revealed lines which, according to Lena Thålin (1969 p. 192), are typical of type K spearheads. The dating of type K to the middle of the Viking period is supported by the fact that spearheads of this type were found at Birka, where again type G is completely lacking (Simonsson 1969 pp. 56, 60). In Sweden type K seems to be the most common spearhead type of the later Viking period (Serning 1966 p. 39), and apparently it was in use in Norway as early as the first half of the 10th century (Liestøl 1971 p. 508; Heyerdahl-Larsen 1981 pp. 164–168). In Finland the type is not as common as types E and G, but it does amount to a total of about 60 spearheads. This group along with c. 100 spearheads with accentuated junctions is enough to fill the gap between the periods of use of types E and G.

1.3.11. Spearhead with a tapering blade and long socket (fig. 10:14)

A spearhead of a form hitherto unknown in Finland was also found:

	Length	Socket	Blade
283:3215	425	170	255 × 34 × 7 mm

It has a long socket but the blade is flat and resembles the type E blades, tapering evenly at both ends. Similar spearheads with somewhat wider blades have been found in Latvia, where they have been dated to the Middle Iron Age, c. 400–900 A.D. (Latvijas PSRA Pl. 39:1, p. 157). The Luistari specimen is from a grave with a type X sword

and a penannular brooch with faceted ends. These brooches occur already at the beginning of the 9th century (see 6.1.9.), but the sword of type X is regarded as a 10th century form. Arbman (1937 p. 228) has on the other hand suggested that the type derives from the Carolingian period. The location of grave 283 suggests the middle phase of the Viking period, roughly the year 900 A.D.

1.3.12. Spearheads of Petersen type G

Three of the Luistari spearheads correspond clearly to Petersen type G:

	Length	Socket	Blade
215:2924	471	90	381 × 55 × 10 mm
349:3973	296	60	236 × 36 × 8 mm
407:4629	296	75	221 × 40 × 7 mm

The spearheads found in graves 349 and 407 have sockets with silver ornamentation, while the large spearhead from grave 215 is undecorated. None of these are damascened.

The silver inlays on the spearhead from grave 349 were preserved so well that the forms of two almost identical runic animals could be distinguished. It appears that the animals are in a twisted pattern in the form of a figure 8, and they did not have feet or neck-tufts, instead of which the typical braiding of the composition is formed with a separate band joining both animal figures. Traces of silver in the spearhead found in grave 407 suggest a similar composition (fig. 12).

Only one silver-ornamented type G spearhead has been previously found in Finland with similar band-like animals without additional twistings. This spearhead is found from Osmanmäki in Eura, and according to Leppäaho (1964 p. 94) its figures are exceptional in the runic animal style of the 11th century. Although the Luistari spearheads differ from the one from Osmanmäki, having a separate band, the like of which I have not seen in any other spearhead, the simple band-like bodies of the animals correspond to the figures on the spearhead from Osmanmäki (cf. Leppäaho 1964 Pl. 45:2a and fig. 12:2). The heads of the animals seem exceptional, but rust has lifted the ornamentation to such an extent that the details have been distorted and do not give an accurate picture of the original form.

In only one of the spearheads described by Leppäaho (1964 Pl. 55:1) is the body of the animal in a figure eight position similar to the one found on the Luistari spearhead from grave 349. This artefact was also found in the Eura region at either Osmanmäki or Käräjämäki (Turku Museum No. 4337, Appelgren-Kivalo 1907a). The animal figures on its socket, however, have more band-

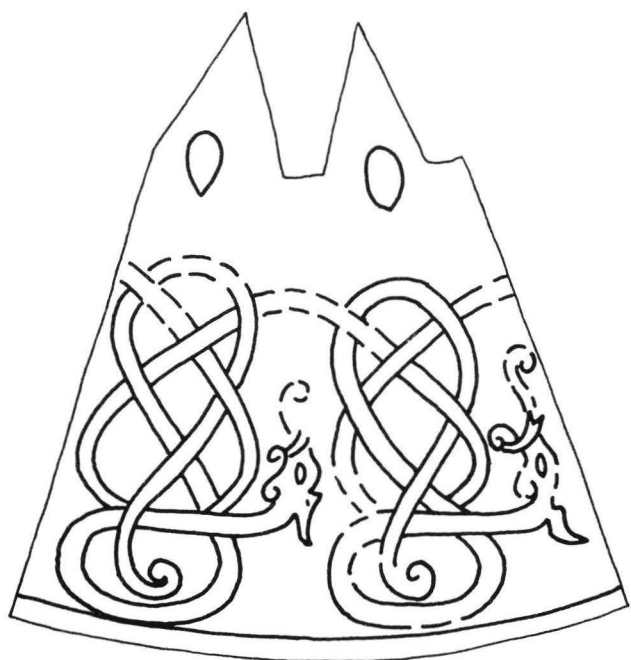


Fig. 11. Damascening of two E-type spearheads from Eura (Osmanmäki 2700:19, Yli-Nuoranne 16950:83). C. 2/1.

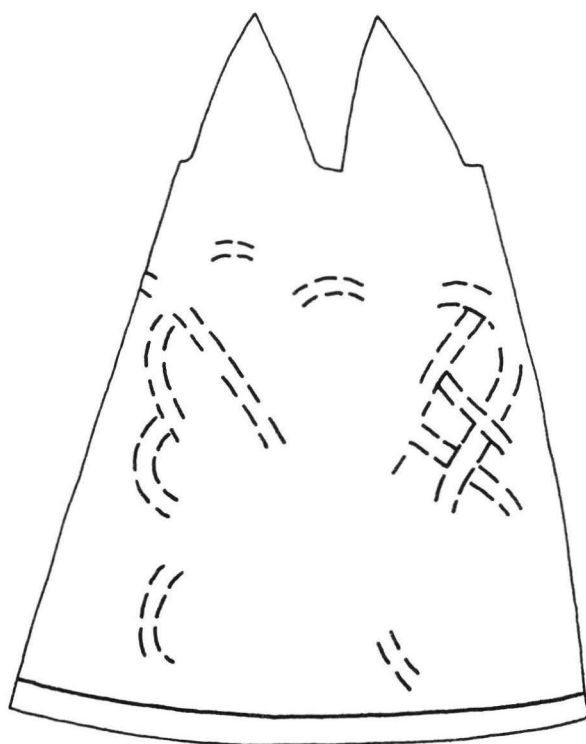
Fig. 12. The animal-ornamented and silver-plated spearhead sockets from Luistari.



1. 18000:3972 G.349



2. 18000:3973 G.349



3. 18000:4629 G.407

like protuberances than usual. These are braided with one another and surround the animal figures. The blade is damascened in a very impressive manner. Similar animal figures have been found on spearheads from the Estonian islands (Kustin 1962 Pl. XII:1; Nerman 1929 fig. 107).

About 120 spearheads of type G have been found in Finland, but only two-thirds of these are of typical form. At least 54 (45 % of the total) have silver ornamentation. These are generally dated to the 11th century (Kivikoski 1939 p. 218; Nerman 1929 p. 116). In addition to the silver-ornamented spearhead, grave 407 at Luistari contained a German coin struck in the period 1039–1056 (coin-list No. 108). In grave 349 the type G spearhead was accompanied by a similarly silver-ornamented spearhead with a rounded base to the blade (see 1.3.15.). The cloak of the deceased was probably affixed by a silver penannular brooch with long rolled ends dated to the first half of the 11th century (Kivikoski 1939 p. 141). It seems that the ornamented type G spearheads from Luistari mainly date from the middle of the 11th century.

The spearhead from grave 215 differs from the above by its larger size and because it is not decorated. The size of the Finnish spearheads of type G varies to a great extent, the longest measuring more than 500 mm in length, the shortest less than 200 mm. The spearhead from grave 215 is one of the largest, while the silver-ornamented spearheads are among the shortest in their group; the mean length of the silver-ornamented type G specimens is c. 400 mm.

A spearhead similar to the one found in grave 215 has been found in Köping in Västmanland (Simonsson 1969a fig. 4). It seems slightly shorter than the Luistari spearhead but in other respects it is nearly identical to it. It has similar convex edges of the blade to those of the Luistari specimen, an uncommon feature in the Finnish type G spearheads. The grave in which this Swedish spearhead was found was dated to the first decades of the 11th century (Simonsson 1969a p. 88).

1.3.13. Spearheads of Petersen type M

Three spearheads of Petersen type M (1919 pp. 34–35) were also found:

	Length	Socket	Blade
15:1157	405	100	305 × 32 × 11 mm
208:2842	418	110	308 × 37 × 9 mm
215:2925	480	138	342 × 54 × 9 mm

The spearhead from grave 215 was found as the pair of the large type G spearhead described above. It was decorated with two ridges on the socket junction, which has been regarded as a late feature.

It has been claimed that spearheads with this detail occur in the finds until as late as the 12th century in Karelia (Nordman 1924 p. 138), although no suitable grounds for this claim have been presented. The orientation and appearance of the Luistari grave both suggest that it dates from either the end of the 10th century or from the beginning of the 11th. It is regrettable that one end of the grave was destroyed as a result of road works, and a complete picture of the furnishings cannot be obtained.

Both of the other type M spearheads are of the relatively narrow variant, often referred to as an intermediary form between types K and M (cf. Kivikoski 1951a p. 17, fig. 807–808). It has often occurred that the same artefact has at times been classified in type K and at times in type M. For example Salmo (1952 p. 494) classified NM 9855:11 from Pappilanmäki in Eura as a type M spearhead, while according to Sarvas (1972 p. 59) it belongs to type K. In outward appearance the close relationship of these to the Petersen type M spearheads is so apparent that they could be regarded as variants of type M. The high position of the basal angles is a feature typical of type M (Petersen 1919 p. 35), when on the other hand type K is represented by spearheads with relatively sharp basal angles, and in them the tapering of the base is limited to only a small area (e.g. Kivikoski 1973 fig. 862). Despite this distinction some intermediary forms remain (e.g. NM 11175:2 from Hattula) in which the widest part of the very narrow blade is located some distance above the junction of the blade and socket. Generally the width of the type K blades is less than that of type M blades, but for example the type M spearheads from graves 15 and 208 at Luistari are considerably narrower than the type K blade found in grave 225. Both types as well as types I and F are identical with regard to their inner structure, as shown by Lena Thålin (1969 p. 192). The seam of the blade, mentioned by her, is clearly visible in all of the Luistari spearheads of types K and M except the specimen from grave 15. The construction of the socket in the latter is more similar to that in the type K spearhead from grave 225 than to that of the type M spearheads. It has a close parallel in the spearhead from Pappilanmäki in Eura discussed above. X-ray analysis has shown that a socket encircling the base of the blade as in these is a rare feature.

Both grave 15 and grave 208 can be coin-dated, thus giving three coin-dates to type M spearheads in the Finnish material. Grave III in Pappilanmäki in Eura, containing the spearhead of intermediary form discussed above, also revealed an Otto-Adelheid denar dated to the period 990–1050 A.D. (Sarvas 1972 p. 45). There was only one coin from

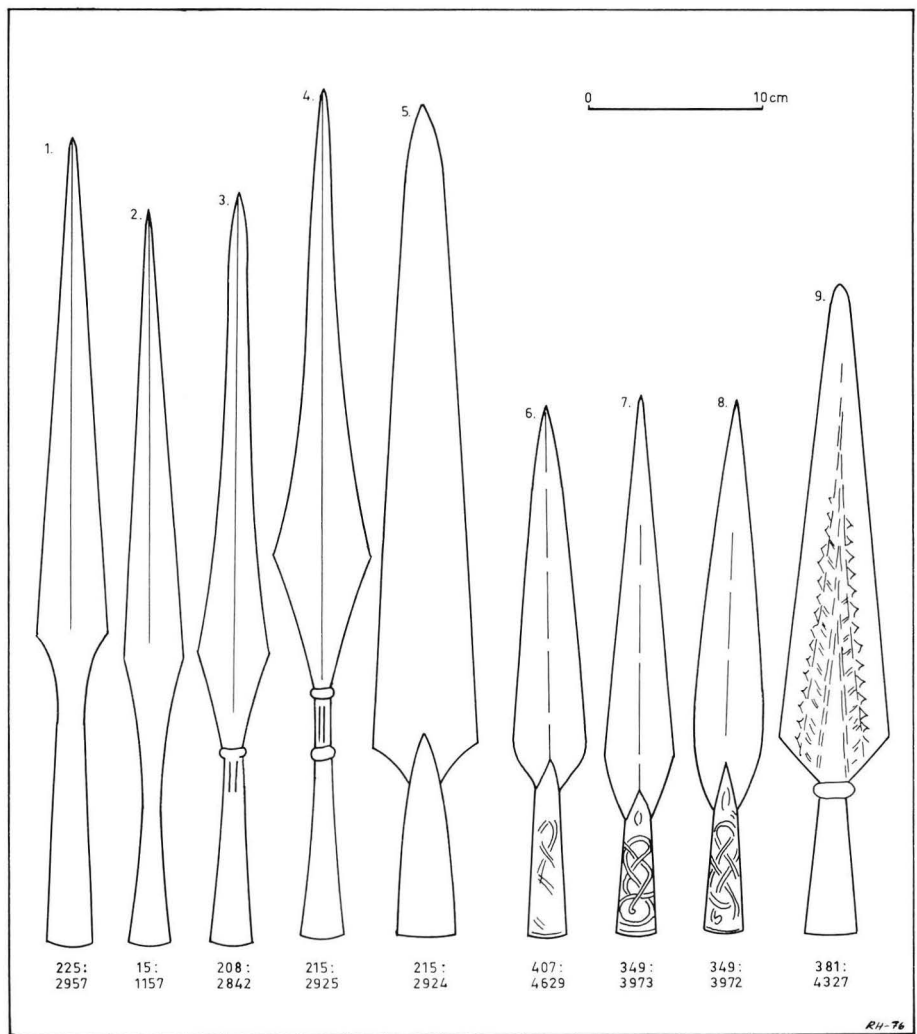


Fig. 13. Spearheads of the later Viking Age from Luistari. The bent spearhead from grave 15 is straightened in the picture.

grave 15 at Luistari, a crux-type of Ethelred II (991–998 A.D.), but a total of 25 fragments from grave 208. The youngest identifiable one of these is from Cologne from the reign of Herman II (1039–1056). All of these datings support the present view that the type M spearheads are of the 11th century and its first half in particular (Petersen 1919 p. 35; Nerman 1929 p. 116; Nordman 1943 p. 56).

1.3.14. Spearhead of Petersen type H

Two of the remaining spearheads are closely linked to type G. The first is an impressively damascened specimen of a form rare in the Finnish material:

	Length	Socket	Blade
381:4327	355	81	274 × 61 × 8 mm

Petersen (1919 p. 29, 31) has defined the form type H, but the Luistari specimen differs from type G only in that the socket does not extend as a triangle on top of the blade but has a thickened part at its upper end right under the base. Both the form as well as the length and thickness of the blade

correspond to the features of type G. The damascening technique is the same as in the type G and H spearheads described by Thålin (1969 fig. 1). Almost identical spearhead of type H has been found in Kehala in Estonia. Selirand (1975 p. 178, Pl. II: 3) has dated this on the basis of the Finnish material to the 11th century. A coin found in grave 381 at Luistari brings it to the period after 1068 A.D. (see coin-list No. 101). It is thus probable that the spearhead in question was manufactured during the latter half of the 11th century.

1.3.15. Spearhead with a rounded base

One spearhead with a rounded base was found at Luistari:

	Length	Socket	Blade
349:3972	290	73	217 × 38 × 9 mm

It was the pair of the type G spearhead in grave 349, and has a silver-ornamented socket decorated with animal figures similar to those on a type G spearhead from Taskula in Maaria (Leppäaho 1964

Pl. 51:2). Four or five silver-ornamented spearheads of this type have previously been found in Finland (Kivikoski 1973 fig. 860, p. 116; in addition to those listed by Kivikoski there are NM 9142:4 from Nousiainen and perhaps Satakunnan Museo 12082 from Mynämäki); the total of the spearheads with rounded bases is about 40. For the most part they, like type G, date from the 11th century (Salmo 1952 p. 391).

J. Selirand has recently studied the spearheads with rounded bases. According to him they are at least 30 in number in Estonia, and there are about 20 from the Gauja-Livonian area (Selirand 1975 pp. 179–180 and note 41; in addition to the 24 damascened spearheads mentioned in his article there are at least five of this type from Estonia that are not damascened, see Selirand 1974, list p. 282). In general most scholars have linked the round-based spearheads to type G, but Selirand (1975 p. 180) maintains, in agreement with Kirpičnikov, that these should be regarded as a separate type. The designs on the silver-ornamented type G spearheads and the round-based ones are however similar to such a degree that, in my opinion, they must be products of the same workshops. A common feature in most of the representatives of both forms is the extension of the socket as a triangle on top of the blade. This is not to be found in any other Viking period spearheads. Moreover, they are not far apart chronologically, and Selirand's own lists (cf. 1975 p. 177 Table 3) of the damascening patterns show that the most common pattern group is the same (6) in both the round-based and the type G spearheads.

1.3.16. Tanged spearheads with knife-like blades

Two tanged spearheads with knife-like one-edged blades were also found:

	Length	Tang	Blade
306:3522	147	70	77 × 16 × 5 mm
385:4365	265	130	135 × 20 × 6 mm

In the small spearhead from grave 306 the tip ends in a small barb. This does not occur in the spearhead from grave 385; the tang is twisted in both artefacts. Spearheads of this type have previously been regarded as harpoon-heads (e.g. Salmo 1952 pp. 392–393), but they have since been classified in the East-Baltic region as javelin points. Artefacts of this kind are rare in Finland; according to Kivikoski (1973 fig. 993, p. 127) they are 18 in number and date from the end of heathen times. A grave at Saramäki in Maaria, containing an artefact of this form, has been coin-dated to the end of the 11th century (Sarvas 1972 p. 95), which suggests

that at least partly these can be dated to that century. In Estonia they are quite common in the finds, and Selirand (1974 pp. 114–115) has dated them there to the 12th and 13th centuries. Kustin (1962 p. 84), on the other hand, suggests that the earliest representatives of these date from the 10th and 11th centuries. The type also occurs in Latvia (Latvijas PSRA p. 244, Pls. 47:8, 51:3, 60:25) and, according to Selirand (1974 p. 115), in other regions of the Soviet Union. Kirpičnikov does not however mention the type, which suggests that it does not play an important part in the find material.

Two fragments of spearhead points were found in the northern end of the cemetery:

	Length	Breath	Thickness
18000:1045	52	13	7 mm (Plate 2:19)
18000:1376	118	22,5	6 mm (Plate 13:10)

Both are from the very end of the blade and were found in the filling of graves. The fragments are narrow and midribbed, mainly indicating spearheads of type K or M, or possibly the spike-pointed variants of type E (fig. 9:6, 7). It can be assumed that they are from the grave that was destroyed when grave 15 was being laid (Luistari I p. 58).

1.3.17. Spearshafts and shaft-rings

The spearshafts usually left no traces. In grave 325 they were however better preserved than usual and gave a rough indication of the length of the actual spears. In this case the spearshafts were at least 240 to 250 cm long, the length of the whole spear being considerably more than 2.5 m. On the other hand, if it is assumed that the spears were not broken on being placed in the grave or before, then there were spears less than 2 m long in graves 304, 333 and 385. Consequently spears measuring c. 2 m in length were placed in graves 80, 90 (the shorter spear), 165, 323, 329 and 353. In graves 315 and 317 the position of the spears was such as to indicate a length of only 130 cm, and it is quite certain that in these cases the spearshafts were broken. The joining of the tanged spearheads to the shaft was in some cases secured with thin cord.

Spiral-like rings of bronze wire were wound around several spearshafts, and within these the material was preserved also in graves where the shafts would have disintegrated otherwise. The pieces of wood from inside the rings was analysed at the research department for forest biology of the Forest Research Institute of Finland, and they were mostly defined as ash. Thus the same species seems to have been used in Finland as in general in the other Nordic countries (Salmo 1938 p. 254). The remains of the spearshafts from grave 325 seem to

have been of some other species, fir or yew. The better state of preservation of these may be because of the durability of coniferous species as opposed to the deciduous ones.

It seems evident that ash was the most common material used in speararms, and that other species were used only in exceptional cases. When of 34 spears from the older Viking period with the spearheads in their original position in the graves 10 samples were analysed, 8 of these proved to be of ash. These represented 7 different spears. In addition, samples were obtained from graves 45, 120, 295, 299 and 320, where pieces of possible shafts were found encased in bronze wire, but no actual spearheads. All of these graves show signs of later pits, indicating that they may have originally contained also spearheads. If these samples are accepted as proof of the spearshaft material, we arrive at a ratio of 12 samples of ash : 2 of other species in the Luistari material. The spearshaft found inside a ring from Osmanmäki in Eura (4633:49) was also of ash.

Eleven bronze rings were found that were originally placed on the spearshafts:

	Diameter (mm)
45:1525	23
68:1920	22–23
90:2037	22
120:2307	26–27
140:2450	23
145:2660	20
283:3222	27
295:3405	25
299:3472	24–25
320:3623	26
348:3901	in pieces

Their diameters varied from 20 to 27 mm, corresponding to the varying thicknesses of the speararms. The fragment of the spearshaft from Osmanmäki, referred to above, was said to have originally been 30 mm thick. It has subsequently shrunk and the ring is in fragments.

These rings resemble the spiral finger rings found in graves of the same period in both form and decoration and not all of them are larger than the finger-rings. Simple spiral rings of triangular section were found in graves 45, 68, 140 and 145. Of these only the object from grave 68 was decorated with zigzag lines accentuating the midrib. The other rings have a wide and flat central part decorated with either engraved or stamped squares. The ring from grave 90 was decorated with ringed dots and the ring from grave 120 had a midribbed shield part with engraved horizontal lines on both sides of the midrib.

Shaft rings were found in graves with type E

spearheads, tanged long-bladed spearheads or broad A-E spearheads. One was also found in grave 283 along with a long-socketed spearhead with a tapering blade. No rings were found in any of the graves with spearheads of younger Viking period forms. These seem to occur however in late Viking period graves in the Livonian area and in Lithuania (Tõnisson 1974 p. 104; Vaitkunskiene 1979 fig. 3).

In graves where both a spearhead and a ring were found they were not more than 100 to 120 cm from each other. The ring was located roughly at the middle of the spearshaft, perhaps indicating the right place to grip when preparing to throw. The bronze ring would thus correspond to the cord bindings or studs which marked the point of balance in spears from the Danish bog finds (Salmo 1938 p. 255; Oakeshott 1960 p. 119). It is to be noted that in graves with two spears only one of these had a ring.

In grave 348 linen tabby was placed under the ring and around the spearshaft (Plate 96:8); in grave 299 the spearshaft was encased in what was probably birch bark. A plait of horse-hair (see Plate 19/45:1) ran under the ring lengthwise with the speararm in grave 45, suggesting a throwing-loop. According to Salmo (1938 p. 255) there is no certain proof of the use of throwing-loops in spears in Central and Northern Europe, although aiding the throw with a cord was very common in Antiquity. In the Danish bog finds there are however several spears with remains of what some scholars interpret as »throwing-straps», and the Nordic sagas also tell of »corded spears» (cf. Nordman 1943 pp. 25–26; Ellehaug 1948 p. 16; Oakeshott 1960 p. 119). It is possible that even in Finland this method of throwing was known.

1.3.18. Spears: conclusion

In summary, it can be said of the Luistari spears that they range from 200 to 300 cm in length and were furnished with iron spearheads. The thickness of the spearshafts varied from 20 to 35 mm; they were at their thickest at the end of the Viking period. During the older Viking period the spearshaft was often encircled by a bronze ring.

The spears were usually placed pointing to the head end of the grave. The opposite direction was quite common during the Merovingian period, and again after the year 900. In the oldest Viking period graves, the spearheads were usually found next to the head of the corpse. Only in grave 329 were the spearheads placed pointing in opposite directions.

The spearheads form a uniform series from roughly the middle of the 7th century to the 12th century. All of the spearhead types common in Finland during this period are represented; only

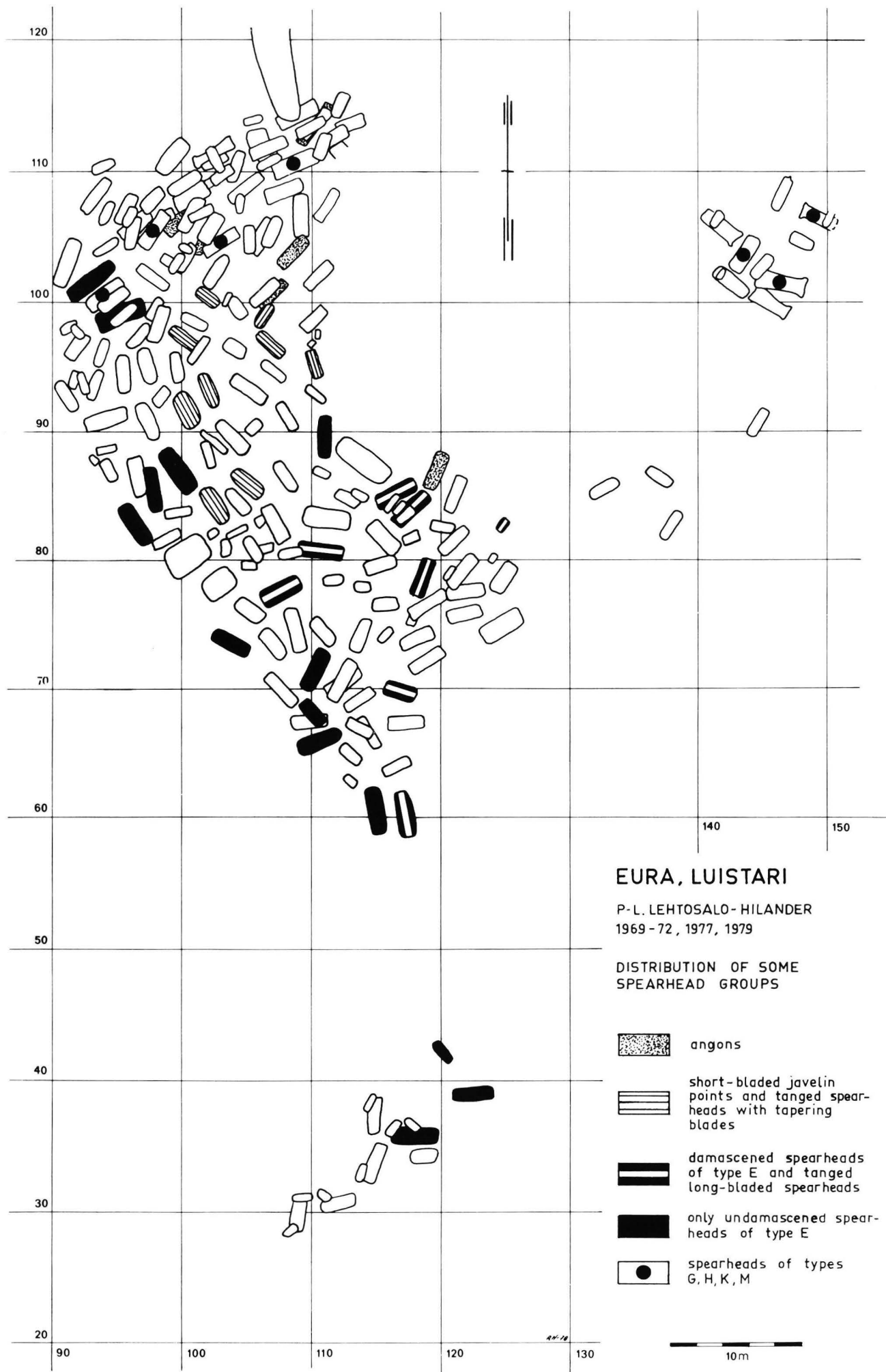


Fig. 14. Distribution of different spearhead types at Luistari.

the spearheads of phase I of the Merovingian period are lacking so far. The spearheads are for the most part among the best specimens in the Finnish material as a whole. This is especially true of the material from the end of the Merovingian period and from the Viking period. Especially in connection with the latter, one is struck by the pure forms of the different types in comparison for example with the finds from the neighbouring district of Köyliö. In the Köyliö finds the Viking period spearheads are all of more or less exceptional forms, whereas the Luistari spearheads and the Eura spearheads in general mostly correspond to Petersen's type definitions.

The excavations of the Luistari cemetery have considerably supplemented the spearhead material from Eura, but already before these it was substantial. The table below consists of material found principally before 1975, and although it is not quite complete, it shows how important this area is for the studies concerning weapons, especially those from the earlier Viking period. It also shows how the Eura area at times was a distinct part of the Satakunta region, and how it sometimes connected with Vakka-Suomi (during Cleve's phase II) or followed the fashion in Finland Proper (at the end of the Merovingian period and at the beginning of the Viking period).

Table 2

SPEARHEAD TYPES OF THE LATER IRON AGE		Åland	Southern Finland Proper	Vakka-Suomi	Eura	Other parts of Satakunta	Häme	Other parts of Finland	North-western Ladoga Karelia	Total
Finnish angons		2	33	16	10	96	41	29		227
Socketed spearheads of Cleve's phase I		1	17	3	12	58	24	27	2	144
Large-bladed and flat-bladed angons	Cleve II	2	10	34	10	1	3	4		64
Spearheads with dagger-like blades			1	8	6	32	5	10		62
Short-bladed javelin points	Cleve III	1	16	13	7	15	10	4		66
Tanged spearheads with tapering blades		1	26	6	16	40	16	11	7	123
Socketed spearheads with tapering blades			23	1	7			5		36
Other probable Merovingian period spearheads			3	3	2	1		4		12
Total		7	129	84	70	243	99	94	9	735
			213		313					
Petersen types A–E ¹⁾	Earlier Viking period	34	105	18	76	74	49	30	13	399
Tanged long-bladed spearheads		2	22	8	10	6	7	1	1	57
Spearheads with accentuated junction	Middle Viking period	2	15	4	18	28	34	1	3	105
Petersen type F		1			6	4	1			12
Petersen type K	Later Viking period		14	1	5	12	22	3	3	60
Petersen type M			9	5	8	24	22	9	14	91
Petersen types G–H			39	1	11	31	27	11	6	126
Spearheads with rounded base			14		1	11	7	3	7	43
Other spearheads of the Viking period type			13	1	6	19	6	5		50
Total		39	231	38	141	209	175	63	47	943
			269		350					

¹⁾ Spearheads of Petersen types B, C and D are not known from the Finnish mainland, and only one spearhead of Petersen type B was found from Åland.

1.4. ARROWS (figs. 10:1–5, 13?)

Only six arrowheads have so far been found at Luistari:

	Size	Weight
41:1494	89 × 15 × 5 mm	c. 10 g
120:2311a	111 × 17 × 4 mm	c. 16 g
120:2311b	111 × 14 × 6 mm	c. 17,5 g
288:3278	105 × 24 × 4 mm	c. 15 g
363:4152	108 × 25 × 5 mm	c. 22 g
375:4226	265 × 24 × 4 mm	c. 59 g

All of these are tanged, and a couple of these had traces of binding cord at the upper part of the tang.

The point found in grave 375 was so large that it is probably from either a throwing spear or a set bow (cf. Wegraeus 1972–73 p. 206). It is of elegant form, long, slender, broadening to the point and abruptly narrowing again. The artefact resembles an arrowhead of a much more clumsy form found at Lopotti in Kurkijoki, Karelia (Kivikoski 1973 fig. 869). The arm has a small transverse flat part right beneath the blade (cf. Serning 1960 Pl. 34:9). The blade is not, however, of two parts as in Wegraeus' type C (1972–73 fig. 3).

One of the arrowheads (2311b) from grave 120 is somewhat similar, although smaller than the above-mentioned. The point of this is broken and it appears to be flat-convex in section. The edges are not sharp but blunt, which suggests that the artefact may have had a transverse point. This is not certain of course, and so far I have not been able to find a direct parallel to this arrowhead.

The blade of the other arrowhead from grave 120 resembles a willow-leaf, and there is a similar one from grave 41. The arrowhead from grave 288 is also flat-bladed and it is slightly broader, while the arrowhead found in grave 363 has a nearly rhomboid blade with sharp edges and a distinct midrib. The points of both are broken. The point of the former was, however, broken first during conservation, so that its length is known. The original length of all four of these arrowheads varies from 100 to 120 mm, the width from 15 to 25 mm and the weight from 10 to 22 g, but both the lightest and the heaviest arrowheads are fragmentary, making it necessary to add a gram or two to the weight.

There is a parallel to the arrowhead from grave 363 from Stensele in Northern Sweden. This Swedish artefact was found together with an axe dated to the end of the Viking period or to the early Middle Ages (Serning 1960 Pl. 35:10, pp. 52, 149). This fits well with the date obtained for the Luistari arrowhead; the coins found in grave 363 indicate the middle or latter half of the 11th century (coin-

list Nos. 87–89). The flat-bladed arrowheads, on the other hand, are from graves which, on the basis of their location, would seem to be from the earlier Viking period; this is also suggested by the long-bladed tanged spearhead found in grave 288. As a type these arrowheads cannot be dated, as tanged arrowheads with blades of willow- or laurel-leaf shape are known to have occurred at different periods (Kivikoski 1973 fig. 868, p. 116; Serning 1960 p. 52, Pl. 35:5–7). The arrowheads found in graves 41 and 120 are more slender than the others, which, with reference to the spearhead material, would seem to be a trait peculiar to the older Viking period. All four arrowheads can be mainly classified to Wegraeus' type A₁, although they do not have a distinct shank and the tang continues directly into the blade. According to Wegraeus (1972–73 pp. 202–203), arrowheads of this type were used both in war and in hunting, while the arrowheads that the two first-mentioned Luistari specimens represent are from arrows used in the hunt.

Of the graves in which arrowheads were found, only grave 288 had other weapons, two spearheads. It is possible that also grave 120 originally contained a spear, but in the other graves, two of which were definitely children's burials, the arrowhead was the only weapon. In the children's graves the arrow may have been placed as a substitute for the spear. There are several examples of miniature weapons from other children's graves, and the arrow seems a suitable substitute for the larger spear.

The small number of arrowheads in Finnish graves has been referred to in several connections. Cleve (1943 p. 135) has pointed out that most of the arrowheads were of bone, which is not preserved in the Finnish soil, but taking even this into account the number of iron arrowheads found in Finland is exceptionally small (according to Hiekkanen 1979 pp. 133–154, c. 410 from the whole Iron Age) compared for example with the Swedish finds, and only in exceptional cases have whole bundles of arrowheads been found. Salmo (1938 p. 258) has suggested that in Finland the bow was not used as a combat weapon but mainly in hunting. This does not necessarily mean that bows and arrows were not placed in graves. The Viking period graves contain material relating to other forms of livelihood. It is however possible that hunting weapons were not held to be the strictly personal property of the deceased, and that they were used by several persons, and for this reason they were not regarded as suitable objects to be placed in the grave. The arrow may be lost when shot from the bow, but the sword, spear and knife as well as the sickle and scythe are indis-

pensible aids in the hand of a man, and might for this reason have followed him into the grave.

1.5. SHIELDS

Five shield-bosses were found at Luistari:

	Height	Diam-	Flange	Waist	Rivet
		eter			holes
20:1225	91	132	17	30	4
52:1185	90	130	20	23	1 preserved
269:3091	95	133	20	25	4
378:4287	96	132	20	25	4
380:4294	75	205	45	20	5

The shield-boss from grave 380 is low in profile with a wide flange, and is of a form unique in Finland. I have not found exact parallels for it in the foreign literature, but there are certain similarities between it and some Central European shield-bosses of low, rounded form (e.g. Veeck 1931 Pl. 75B:11). It can possibly be compared also to shield-boss II from grave 6 at Valsgårde (Arwidsson 1942 Pl. 10:138) or to the second shield-boss from grave 7 in the same cemetery (Arwidsson 1977 Pl. 10:976). The latter artefact is lower still in profile with a height of 55 mm, and it has a bronze list around the edge. The Valsgårde shield-bosses have five wide-headed rivets affixed to the flange. The Luistari shield-boss in question does not have any rivets, but there are five holes in the flange. The shield-bosses are somewhat similar in appearance; their diameters are 218 mm, 200 mm and 205 mm, and the width of the flange is more or less the same, 48 mm, 43 mm and 45 mm. Grave 6 at Valsgårde was dated to c. 750, grave 7 to 675 (Arwidsson 1942 p. 132, 1977 p. 131), both to a period coinciding with Cleve's (1943 p. 212) second phase of the Merovingian period. As the large-bladed angon found with the Luistari shield-boss suggests the same period (see 1.3.1.), it is not impossible that the Luistari shield-boss is a simplified version of the Valsgårde type.

The four others are so-called shield-bosses with rounded tops common in Finland and Scandinavia as well as elsewhere in Europe. Nearly 90 of these have so far been found in Finland (Salmo 1938 p. 349; Kivikoski 1973 fig. 532, p. 78; besides at least two from Mahittula in Raisio and four from Luistari). They are usually very similar in size and appearance; the differences are in the height of the top and in the length and form of the waist. In some shield-bosses the waist is nearly straight, while in others it tapers upwards. The shield-boss from grave 20 is of the latter variant, which perhaps is more similar to Central European prototypes (cf. Salmo 1938 p. 300); the others are of the former.

According to Salmo (1938 pp. 300–301), metal rivets have never been found in shield-bosses of this type, and he has suggested that either they were sewn to the shield or affixed with wooden nails. Neither rivets were found with the Luistari shield-bosses. A fairly large amount of wood was found on the underside of the shield-boss from grave 20, but no traces of the method of joining were found. Both Salmo (1938 p. 300) and Cleve (1943 p. 142) assume that these bosses belonged to shields of more or less flat shape, the actual form or size of which can only be guessed at.

Salmo (1938 pp. 293–295) has dated the shields with round-topped bosses mainly to the late Merovingian period, to the 8th century. According to Cleve (1943 p. 142), the type becomes common during the latter half of the 7th century and goes out of use during the latter half of the 8th century. At Luistari all the shield-bosses were found in SW–NE-oriented graves in zone I, which suggests that the shield with iron boss was not in use right up to the end of the Merovingian period.

It seems that the fact that this shield-boss type is lacking in the finds from Ristimäki in Kaarina (cf. Kivikoski 1939 p. 127) may have the same explanation. The Ristimäki cemetery does not date from the same period as the widest use of shield-bosses with rounded tops, as Kivikoski has assumed. This cemetery is mainly from the third phase of the Merovingian period, when shields were no longer placed in graves or they were made completely of organic materials. The bulk of the older cemetery at Ristimäki in Kaarina and the NW–SE-oriented Luistari graves are phenomena of the same period, which is indicated by similar spearhead material (e.g. tanged and socketed spearheads with tapering blades and short-bladed javelin points).

Only one Viking period grave at Luistari has revealed remains of what may be a shield. Two thin wooden boards (17:1200, 1203) covered with leather were found with bronze mounts riveted to each side. The length of the better-preserved mount on the front side is 93 mm and the width is c. 13 mm, the size of the other is now about 72 × 15 mm, but it was originally considerably larger than the former. The opposite mounts were joined to each other by rivets. There were five rivets in one and six in the other. A small iron rivet was found by itself; this too may have belonged to the mounts. The thickness of the wood with its leather covering could not have been originally more than 7 mm. I have not found any parallels to the mounts, but the leather-covered board brings to mind a shield. At least the shield from Nousiainen, described by Leppäaho (1937 p. 55), was covered with leather, although on the other hand Salmo (1938 pp. 268–269) maintains that leather coverings were rare in

shields and are not at all to be found in the Mero-
 vingian period material. Chronologically the finds
 from grave 17 at Luistari are closer to the Nousiain-
 nen find; grave 17 dates from around the year 1000
 (cf. 1.1.), and it is thus possible that the objects in
 question are parts of a shield related to the one
 from Nousiainen.

The pieces of board with mounts were found at a
 distance of 60 to 65 cm from each other. Part of the
 grave was destroyed in digging a trench, and this
 may have also destroyed part of the assumed
 shield. It is possible that it originally had other
 metal parts besides the preserved bronze mounts.

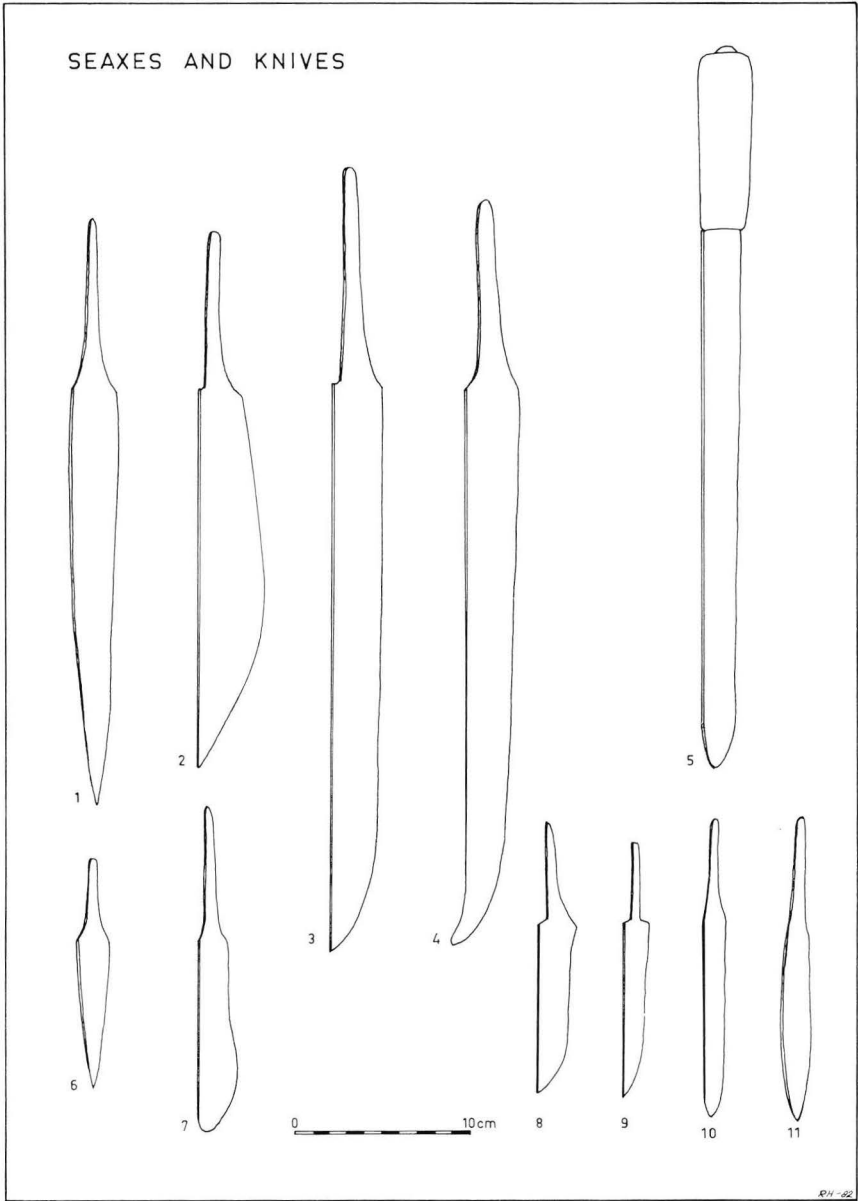


Fig. 15. Seaxes and knives: 1 seax with pointed tip, 2 Finnish scramasax, 3 straight-backed scramasax, 4 seax with curved tip, 5 narrow-bladed Viking period seax, 6 knife with pointed blade, 7 knife with a blade broadening to the tip, 8 straight-backed knife with distinct offset, 9 knife with tang in the middle, 10 knife with indistinct tang and narrow blade, 11 knife with curved back.

2. TOOLS

2.1. KNIVES (fig. 15)

A total of more than 100 knives and knife fragments were found at Luistari. Of these c. 80 can be connected to graves, the rest are either from the surface or the filling of the graves. During the Merovingian period knives seem to have been equally common in both male and female burials (in certain cases the ratio is 5 male: 4 female burials), but during the Viking and Crusade periods they occur considerably more often in men's than in women's graves (31 male: 16 female burials). It must however be noted that in nearly all of the richly furnished Viking period women's graves knives were also found. There are also 11 knives from children's graves.

There were no smaller knives in any of the Merovingian period graves with seaxes, while a smaller knife was also included in the Viking period ones, and there were even two in grave 348. Also grave 349 may have contained two smaller knives in addition to a larger one. There are two knives from grave 212, a probable male burial, and perhaps also from the male grave 301 and from women's graves 95 and 404. The general rule is however that of one knife to a burial.

The lengths of the knives found in the graves vary from 100 to 170 mm, but these measurements do not in themselves indicate anything, as the length of the tang varies considerably. The tangs are often fragmentary, but originally there were both long- and short-tanged knives. For example, the lengths of the tangs of the knives from graves 140, 195, 273 and 323 are from 90 to 100 mm, while in others the length of the tang may be from 40 to 50 mm, in some even as short as 30 mm (in graves 208, 302). It is for this reason that it is useful to imagine a handle for the knives when assessing their original length.

The longest preserved knife-handle in the Luistari finds is from grave 56. It is 120 mm long, to which an iron carrying-loop with spiral-ended mounts is to be added. The knife-handle from grave 404 was nearly as long, but in the knife from grave 208, which was still whole when found, the length of the handle was only c. 80 mm. The longest tangs mentioned above and the several preserved pieces of handles were from 90 to 100 mm in length. Also in modern carving knives as well as in other tools

a 100 mm handle seems to be the most common size. In cutting knives the handle may be longer; the shortest possible but still usable handle is about 80 mm long. It can reasonably be supposed that the lengths of the handles of the ordinary knives from Luistari vary from 80 to 120 mm, and they were usually c. 100 mm in length.

72 knives were found in a state of complete or nearly complete preservation. Of these the blades of 68 knives can be compared, the others are without points. 31 of these knives are from men's graves, 19 from women's graves and 9 from graves of children. Two knives were found in collective burials and 7 outside the graves. The mean length of their blades is 78 mm, which suggests that the length of a knife was from c. 170 mm to 180 mm.

2.1.1. Merovingian period knives

Eleven knives were found in probable Merovingian period graves:

	Length	Tang	Blade
39:1468, 1470	98	48	50 × 22 × 3 mm
269:3094	111	45	66 × 21 × 5 mm
301:147	116	40	76 × 20 × 4 mm
301:3482	134	42	92 × 20 × 5 mm
315:3566	192	78	114 × 25 × 9 mm
331:3751	161	57	104 × 23 × 6 mm
333:3760	155	60	95 × 21 × 7 mm
335:3772	196	78	118 × 20 × 5 mm
343:3803	166	74	92 × 19 × 4 mm
346:3859	175	55	120 × 24 × 5 mm
352:4011	160	70	90 × 22 × 6 mm

Most of these are longer than the mean length mentioned above. The knives from graves 315, 331, 335 and 346 when fitted with a 10 cm handle should be classified as seaxes, their length amounting to more than 200 mm, the limit set by Salmo (1938 p. 127). Two of these are however from women's graves, and therefore all of them will be discussed in this connection. The fact that long-bladed knives were found also in women's graves gives reason to modify the schematic division between scramasaxes and long knives on the one hand and household knives on the other.

Cleve (1943 p. 120) has remarked that Merovingian period knives partly resemble seaxes, but otherwise they are hard to classify because of their

varying forms. Also at Luistari some knives are related to certain types of scramasax. There is from grave 301 a knife with a tapering point (3482), and the knife from grave 315 has the same form as the Finnish scramasaxes (cf. Kivikoski 1973 figs. 524, 526–27). This is an interesting detail, as this type of seaxes does not occur in the Luistari finds nor in the whole of the Eura region. Also there is only one specimen from Köyliö (Cleve 1943 p. 118). Possibly the knife from grave 315, despite its present length (192 mm), can be classified as a scramasax (it was the only sharp-edged weapon in the grave), as may be the case with the knife found in grave 39, although it is so worn that its original length can only be guessed at. The knife is c. 21 to 22 mm wide at the base of the handle, and there was an iron mount with a triangular bronze knob at its end. These have been found in knives and seaxes in Gotland especially from Nerman's periods VII:1 and VII:2 (550–650 A.D., see Nerman 1969 Plates 46:483, 129:1164).

The backs of the blades in the knives from graves 335 and 352 are slightly bent, and the tang seems to continue from the blade without any distinct border. The knife from grave 335 has an equally wide blade, while the latter knife is considerably wider near the handle and tapers towards the point. When fitted with a handle it may have been quite similar to the short wide-bladed knife from grave 269, in which the narrowing of the tang is completely on the side of the cutting edge.

The second knife (147) from grave 301 is of a special form. Also in this case, the tang narrows on the side of the cutting edge and the back of the blade seems to be slightly bent inwards. The straight extension of the tang on the side of the back of the blade is a detail common to this and the grooving knife, as described by Cleve (1943 Pl. 8:27), from grave A 3 at Köyliö. In the Luistari knife however the point is broken and the blade does not seem to be bent enough for it to be an actual grooving knife. A smaller knife found as a stray find (NM 18000:54) is slightly similar to the knife from grave A 2 at Köyliö, mentioned by Cleve (1943 Pl. 6:18, p. 146) in connection with the grooving knives, but the actual function of the artefact is not clear.

The other knives from Merovingian period graves are with straight-backed blades. The widest part of the long blade of the knife from grave 346 is near the handle, and the tang tapers almost evenly from both the side of the back and the side of the edge. The blade is unusually wide, 24 mm, and no other knife from Luistari is of exactly the same form. The end of the tang of the knife from grave 331 also tapers evenly, resembling the knife from grave 55. This was found along with a round convex brooch of type A (Appelgren 1897), and the former grave

contained a tanged spearhead with a tapering blade dated mainly to the Merovingian period (Kivikoski 1973 fig. 554). The knives from graves 333 and 343 belong to a type with a distinct offset on the side of the back of the blade, preceding the form common in later graves.

Two features are of note in the Merovingian period knives found at Luistari: most are from NW–SE-oriented graves, i.e. from the end of the Merovingian period, and the knives from women's and children's graves are equal in size to those found in men's graves.

2.1.2. Viking period knives

During the Viking period and later the men's knives appear to have considerably longer blades than those of women or children. The mean blade length of the men's knives is close to 85 mm, that of the women's knives is 70 mm, and the children's knives have a mean length of only 55 mm, although the children's knives include a large-sized artefact from grave 401 with a blade more than 100 mm in length. The knife from grave 56 with a handle twice the length of the blade can be mentioned as an example of the women's knives, even though proportions as exaggerated as these are exceptional.

Men's graves from the Viking period and later date contained 31 knives. If a 100 mm handle is imagined affixed to all knives where such is lacking, seven knives stand out (from graves 9, 40, 100, 135, 302, 323 and No. 3975 from grave 349). Their original length was probably between 208 and 230 mm. Accordingly they were slightly larger than ordinary carving-knives, and none of these were from graves with swords or scramasaxes. Only the large knife from grave 349 was found with other knives, so that these big knives were usually the only sharp-edged weapons in the graves in which they were found. In their form they are related on the one hand to seaxes and to household knives on the other.

Knives have usually been classified according to the form of the blade and the position of the tang (Petersen 1951 pp. 188–198; Cleve 1943 pp. 121–122; cf. Arrhenius 1970 pp. 48–50). Although Finnish archaeologists have not usually attempted this (cf. Cleve 1943 pp. 120–121; Kivikoski 1939 pp. 220–221, 1963 pp. 115–116), in my opinion the post-Merovingian period Luistari material is so large that it merits at least an attempt. The classification is naturally hindered by the fact that many details are covered by organic materials and rust has deformed the artefacts. The knife from grave 359 has not been removed from its sheath, and certain others are disintegrated so that closer scrutiny is

not possible. Many of these have however been drawn immediately after the finding, and we thus have some idea of the appearance of the knives found whole.

2.1.2.1. *Straight-backed knives with distinct offset*
(fig. 15:8)

The largest group are the knives with straight-backed blades with a distinct offset at the junction of the blade and the tang. As mentioned above, these occur already during the Merovingian period. All in all they have been found in 18 graves, and there is one stray find:

	Length	Tang	Blade	
118:2287	105	57	48 × 13 × 5	Bronze wire binding
135:2388	163	45	118 × 20 × 7	
155:2559	180	94	86 × 16 × 7	Remains of handle, ring
175:2652	102	42	60 × 16 × 8	
281:3185	135	70	65 × 16 × 9	
292:3361	108	56	52 × 17 × 8	Remains of handle
302:3492	132	30	102 × 17 × 5	
309:3533	100	58	52 × 10 × 6	
321:3630	80	50	30 × 13 × 5	Point is lacking
333:3760	155	60	95 × 21 × 7	
343:3803	166	74	92 × 19 × 4	
345:3841	100	40	60 × 18 × 8	Point is lacking
347:3869	125	45	80 × 12 × 8	
349:3974	145	50	95 × 12 × 7	
358(373):				
4207	96	30	66 × 14 × 8	
363:4150	95	47	48 × 15 × 5	Remains of sheath
383:107	93	33	60 × 10 × 5	
383:108	132	55(85)	77 × 10 × 7	Tang with hook end, bronze ring (105)
383:4355	144	67	77 × 19 × 5	
403:4530	107	50	57 × 11 × 7	
404:4588	83	35	48 × 12 × 5	Remains of handle
18000:133	132	58	74 × 12 × 4	

Cleve (1943 pp. 121–22) has mentioned that a typical feature of the Viking period household knives is the position of the upper edge of the tang on the central axis of the knife. Such an accentuated position of the tang on the side of the edge does not occur in the Luistari knives. Although the offset is distinct, the tang may bend or curve

toward the side of the back of the blade, having at its end the same central axis as the blade. The tang of the knife found on the surface of grave 383 (108) has an S-shaped curve with the end forming a hook at the end of the handle part.

In the Luistari graves these knives can be dated to a very long time-span; the youngest are from the middle of the 11th century (from graves 349, 363, 383, 403) or even later (from graves 347, 358). The length and width of the blades seem to be details of chronological importance only in so far as the Merovingian period knives are among the largest.

The knife from grave 302 can be regarded as a variant of the above type. In it the tang continues straight on the side of the edge and curves slightly on the side of the back of the blade, though not forming any distinct offset. The grave can be dated to the 11th century on the basis of mounts with animal-head figures (see 6.6.3.).

2.1.2.2. *Knives with tang in the middle* (fig. 15:9)

Straight-backed knives with the tang as an extension of the central axis of the blade forming offsets on both sides have been found in 8 graves and as two stray finds:

	Length	Tang	Blade	
26:1364	79	31	48 × 14 × 3 mm	(From the surface layer)
49:1541	94	18	76 × 16 × 5 mm	
57:1798	66	40	26 × 17 × 4 mm	Point is lacking
212:2905	110	52	58 × 12 × 7 mm	Knob at the end
212:2907	145	45	100 × 16 × 4 mm	
391:30	160	70	90 × 17 × 7 mm	
402:4508	92	45	47 × 17 × 7 mm	
404:4583	103	37	66 × 16 × 5 mm	Bone handle, ring
18000:140	135	30	105 × 22 × 7 mm	
18000:4685	85	25	60 × 15 × 7 mm	
Possibly:				
56:1704	205	?	50 × 15 × 7 mm	Handle with bronze wire binding, double spiral pendants
208:2855	160	30?	78 × 15 × 6 mm	Handle, bronze wire binding

Although knives of this type occur in the material since the Earlier Roman Iron Age (Kivikoski 1973 fig. 67), it seems that at Luistari they are to be found in only the very youngest graves. All of these knives have been found at the northern end of the

cemetery, and grave 404 can be coin-dated to the 12th century as well (coin-list No. 107).

Most of the knives of this group have completely straight-backed blades; a slight curvature is to be observed in only a couple of specimens (from graves 26 and 404). The knife from grave 402 has the special detail that the edge-side of the blade continues higher than the back. The smaller knife from grave 212 (2905) has a tang ending in a disc-shaped knob.

2.1.2.3. *Knives with indistinct tang and narrow blade* (fig. 15:10)

The third distinct group is formed by the knives with relatively narrow blades of equal width in which the junction of the blade and the tang is hard to distinguish. The back of the blade is often slightly curved near the point, and in their general form these knives resemble miniaturizations of Viking period seaxes (cf. Salmo 1952 p. 394). There are knives of this group from 8, possibly 11 graves, in addition to one stray find:

	Length Tang		Blade		
40:1483	172	40	132 × 16 × 7	mm	
90:2050	153	63	90 × 15 × 8	mm	
95:2078	130	65	65 × 8 × 5	mm	
95:2093	100	35	65 × 12 × 6	mm	
100:2191	215	?	105 × 17 × 9	mm	Remains of handle
281:3172	144	51	93 × 17 × 9	mm	
282:3207	160	?	74 × 12 × 8	mm	Remains of handle
323:3637	198	85	113 × 16 × 7	mm	
401:4500	188	73	100 × 17 × 8	mm	Link at the handle end
18000:4672	112	35	77 × 13 × 4	mm	

Possibly:

41:1493	76	40	36 × 13 × 3	mm
394:4466	92	60	32 × 12 × 7	mm
289:3300	130	55	75 × 14 × 8	mm

This type seems to have been in use for only a relatively short period. Grave 323 can be coin-dated to the end of the 9th century, graves 90 and 100 to the first half of the 10th century (coin-list Nos. 63, 32, 33), grave 95 contained convex round brooches of type A-B, and six of the graves in question contained spearheads of type E, all indicating the earlier Viking period (see 6.1.6. and 1.3.9.).

2.1.2.4. *Knives with indistinct tang and curved back* (fig. 15:11)

The junction between the blade and the tang is also quite indistinct in a small group of knives in which the back of the blade is slightly curved:

	Length Tang		Blade		
9:1013,	177	57	120 × 21 × 11	mm	
1015–16					
35:1432	180	?	85 × 20 × 9	mm	Remains of handle
59:1847	?	?	65 × 14 × 6	mm	Tang is lacking
283:3220	150	70	80 × 15 × 8	mm	Remains of handle
290:3319	90	45	45 × 11 × 5	mm	Remains of handle
303:3502	126	60	66 × 15 × 9	mm	
348:3936	168	80	86 × 16 × 11	mm	Remains of handle
366:4160	136	50	86 × 17 × 5	mm	

Possibly:

359:4119 (In the sheath, only the point visible)

The knife from grave 9 has the most distinct curvature, and it is also the largest. The oldest are probably the knives from graves 283, 303 and 348, all dated to the former half of the 10th century (see e.g. 1.1. and 6.1.10.). Graves 9, 35, 290 and 366 are all possibly from as late as the 11th century (6.1.7., 6.1.6., 2.2., coin-list No. 90). There are apparently similar knives from cemetery C at Köyliö, although Cleve (1978 p. 171) mentions these only in passing.

There is a stray find of a knife (18000:643) with a blade that has a markedly curved back. This is possibly older than the cemetery and is originally from the destroyed dwelling-site layer. The closest parallels are from the Earlier Roman Iron Age (Lehtosalo-Hilander 1977 p. 31, fig. 4:5), but this detail occurs also in finds from later contexts (Cleve 1943 p. 121; cf. also Petersen 1951 p. 193, fig. 105).

2.1.2.5. *Knives with long tangs and other unusual forms*

There are eight knives that cannot be classified in the groups mentioned:

	Length Tang		Blade		
68:1923	170	90	80 × 13 × 12	mm	
77:2000	135	70	65 × 17 × 5	mm	Remains of handle
140:2448	162	98	64 × 15 × 5	mm	
195:2779	190	95	95 × 20 × 9	mm	Remains of handle
273:3109	132	100	32 × 18 × 7	mm	Point is lacking
306:3523	106	44	62 × 14 × 6	mm	Remains of handle
348:3893	113	65(90)	48 × 12 × 5	mm	Tang ending in a hook
406:4609	114	35	79 × 20 × 6	mm	

The straight-backed knives with long tangs from graves 140 and 273 do not actually belong to any of the above groups, although if fitted with handles they resemble those of the first group. The offset is small and the tang is clearly on the side of the back of the blade. The same detail occurs in the short-tanged knives from graves 306 and 406, which are completely different in other respects. The small knife from grave 306 has a blade of fairly even width and a rounded point, the knife from grave 406 has a thick blade tapering from both sides to the point. Both are of a late form, whereas the long-tanged knives were found with the long-bladed tanged spearheads, thus belonging to the beginning of the Viking period (see 1.3.9.4.). The third long-tanged knife is probably from grave 68, which contained a similar spearhead, but this knife is in such a state of disintegration that only the long tang can be distinguished.

A small straight-backed knife in which the tang narrows abruptly on the side of the edge ending in a hook was found in grave 348. The blade is less than 50 mm long and 12 mm wide, and it has probably been put to some special use as there was another knife in the same grave. I do not know of any similar specimens in other finds, but a similar hook end appears in a knife from grave 383 (108).

The handle of the knife from grave 77 was preserved to such extent that the form and position of the tang cannot be observed. The blade is similar to those in broad Merovingian period knives. Remains of the handle also cover the tang of the large knife from grave 195. The knife is straight-backed and is 20 mm wide up to the point, differing in this respect from all other Viking period knives. Although the knives from graves 56 and 208 also have handles, it is possible to see that they belong to either the first or second type. The knife inside the sheath from grave 359 appears to have a blade with a curved back and represents the fourth type (see above).

2.1.3. Knife forms: conclusion

In dealing with the knives found in Birka and Helgö, Birgit Arrhenius (1970 pp. 49–50, figs. 1a–b, 3) mentions the straight-backed form, knives with curved backs and knives tapering right at the point. She maintains that the curved and straight-backed knives are actual types, but she is not certain whether the last-mentioned detail can be considered as the basis of a type classification. At Luistari this form of knife point along with a wide tang seems to be a chronologically distinct phenomenon, although the tapering point does occur also in later connections (e.g. grave 406).

A large number of Luistari knives resemble modern carving knives if fitted with handles. The knife from grave 195 is similar to a small Lapp knife (*leuku*) with a wide blade at the point, and the above-mentioned bend of the back of the blade near the point can also be seen in present-day knives, e.g. the Swedish Mora-knives (cf. Pälvi 1955 pp. 86, 98–99).

The conclusion of this study is that the knives with distinct offsets on the side of the back of the blade, which Cleve (1978 p. 171) holds to be common during the earlier Viking period, were in fact in use from the end of the Merovingian period to the end of pagan times. The knives with tapering points in which the narrowing of the tang occurs only on the edge-side, claimed by Kivikoski (1973 fig. 178, p. 39) to have been in use in Finland throughout the whole Iron Age, are at least in the light of the Luistari finds very rare. Two distinct chronological groups of knives can be distinguished, the broad-tanged form with a blade of equal width sometimes tapering at the point from the beginning of the Viking period, and a later form with a straight-backed blade and a distinct tang. It is possible that the Viking period knives with slightly curving backs form their own group chronologically somewhere in between the other two.

2.1.4. Knife handles

The knife handles were of wood, bone or antler, with metal parts rarely used. Only one male grave contained a handle with metal ornamentation. The knife from grave 208 has a piece of bronze plate at the junction of the blade and the handle; above this about twenty turns of bronze wire were wound. The wire was in this case so thin that it has subsequently disappeared, and only the traces left by it can be seen. Knife handles with bindings of bronze wire have also been found in three woman's graves (25, 55, 56) and in a child's grave (118). The iron wire binding (2560) from grave 155 is possibly also from a knife.

In addition to the bronze wire binding the handle of the knife from grave 56 is decorated with two double spiral pendants of iron suspended from the handle end. Fragments of similar iron pendants have also been found from grave 377 (4245, 4263–64), and they are also known from cemetery C at Köyliö in both iron and bronze (Cleve 1978 pp. 173–174, Pl. 9:153).

Knife handles with wire bindings have been previously found in the Satakunta region (Salmo 1952 p. 395; Cleve 1978 p. 172), and in the Birka finds various kinds of metal wire decorations on the knife handles seem to have been common

(Arbman 1940 Pl. 179). These are known also from elsewhere in Sweden and further from the East-Baltic region at least in the seaxes (e.g. Stolpe-Arne 1912 Pl. XXII:11; Stenberger 1962 fig. 84; Mugurevičs 1977 Pl. XLVII:19).

Three of the ornamented knives from Luistari are from indisputable 11th century graves (25, 56, 208, coin-list Nos. 3–6, 12–23, 38–62), but the practice of decorating knife handles with wire is from a considerably older period. Grave 55 is located in an area where there are mainly graves from the earlier Viking period, and the grave itself contained among other objects a type A convex round brooch (see 6.1.6.). A knife with bronze wire binding was found in the Kvarnbacken cemetery in Åland in a grave dated to as early as the Merovingian period (Kivikoski 1963 Pl. 16:14b).

Eight knives have some kind of hanging device, ring or loop at their ends:

25:1353	Only handle preserved, bronze loop and ring
56:1704	Iron loop with pendants
155:2559	Iron ring
306:3523–24	Iron ring
359:4119	Iron ring
383:108	Iron hook, bronze ring
401:4500	Iron loop
404:4583	Iron ring & bronze ring

One of the knives with rings probably belonged to a young boy (grave 306), and a knife with a loop is from a child's grave 401, but all of the others are from women's graves. There are no rings found in men's graves that can be linked to knives.

2.1.5. Knife sheaths

The knife sheaths were usually of leather, and for this reason only small pieces of them were found joined with rust to iron blades. In the child's grave 363 the tip of a leather sheath (4150) was found, and in it a simple stitch can be seen, but otherwise the details of the plain leather sheaths remained obscure. A find from Käräjämäki in Eura (NM 17250:85) as well as a sheath found in the city excavations in Turku (Kivikoski 1973 fig. 1229) show evidence of decorated leather. Accordingly bronze mounts are not the only ornamental details on the later Iron Age sheaths.

Large bronze-plated knife sheaths (Kivikoski 1973 fig. 968) or fragments of such were found in four graves:

35:1020, 1029, 1030, 1035,	
1037–39, 1050, 1442, 1444	Fragments
56:1703	
354:4031	Fragments
377:4254?, 4271	Fragments

The sheath from grave 56 was intact when found, while the sheath from grave 35 was broken when grave 10 was laid. Most of its fragments were found in the filling of the latter.

There are only a few fragments from grave 354, and the sheath from grave 377 was probably destroyed when a large stone next to the grave was exploded. Only a piece of the edge-mount and fragments of the ornamented plate of the front face and the mouth-mount (4254) were retrieved. It is however evident that in this case, as also in graves 35 and 56, there was a sheath of the type in question. All these are women's graves.

The sheath from grave 56 measures 250 × 70 mm and is one of the largest found in Finland. In contrast to the knife-sheaths from Köyliö cemetery C, described by Cleve (1978 pp. 173–174), this sheath did not have birch bark under the bronze plate but was lined with furry leather. It seems that the inner part of the sheath was made of two pieces of leather from which the fur had not been removed. The piece on the underside with a fold for the knife had the fur on the inside and the front part outwards against the bronze plate. The groove-like mounts of the edges and the mouth consisting of two lists are similar to those in other specimens of this type. The light bronze plate covering the front face is decorated at its lower part with beaten hemispherical bulges encircled with beaded lists and with groups of lines imitating basketry. The upper part is decorated only with rows of bulges with beaded lists, and there is a single row of similar bulges between these parts, bordered on one side by a pattern similar to plaiting and on the other by two plaits. The mount at the mouth of the sheath is ornamented with three-dot triangles and stamped lines, and on the front side of the carrying link there are encircled dot stamps. The sheath from grave 35, which appears to have had a birch bark lining like the ones found previously, had only ring stamps on the carrying link and the mouth mount.

It seems that the ornamentation of the front plate is very similar in Finnish sheaths of this type; there is only some variation in the number of plaited bands in the middle part. On the other hand, the ornamentation on the mouth mount and the carrying link varies from sheath to sheath. In the sheath from grave 56 this was executed with care and skill, in other cases it is clearly more maladroit. Cleve (1978 p. 174) has pointed to the remarkable similarity of the ornamentation of the sheaths, which is not at all strange when a sheath from Osmanmäki in Eura is presented in his study as having been found in grave 28 of the C cemetery in Köyliö (cf. Appelgren-Kivalo 1907 Pl. II:8 and Cleve 1978 Pl. 9:152). The similarities are not as striking

as this, but no doubt Cleve is right in assuming that the manufacture of the sheaths was limited to a few workshops.

According to Cleve (1978 p. 70 No. 520, 173) these wide sheaths were found in at least 8 graves in the K  yli   C cemetery. He does not however present any illustrations of these, and the length of only one is mentioned (23 cm). There are also several sheaths from the Humikkala cemetery in Masku, and at least five sheaths are known from the Aura river valley. There are fragments from several graves, e.g. Pappilanm  ki, grave 14, in the Eura region, in addition to the three sheaths from Luistari and the one from Osmanm  ki. There are also fragments from Myllym  ki in Nousiainen and Rikala in Halikko. All in all about twenty sheaths can be linked to burials, and numerous fragments have been found as stray finds (Kivikoski 1939 p. 222, 1951a fig. 1149; Sarvas 1972 p. 47).

Kivikoski and Cleve, in agreement with her, seems to be of the opinion that the wide sheaths belong to the period after the year 1000. On the other hand, Sarvas has claimed that the oldest sheaths of this type are from as early a date as the mid-tenth century (see Cleve 1978 p. 174 and mentioned literature). Luistari grave 56 can be co-dated to the 1020's at the earliest (coin-list Nos. 12 – 23), and grave 35 is partly on top of it. Thus the sheaths from these are from the very end of the Viking period. Grave 377 has an earlier coin-date (coin-list Nos. 99 – 100), but as coins are not the only grounds for dating I refer to Tables 6 and 11 (pp. 97 – 98, 159 – 160).

Similar knife sheaths have also been found in Estonia in finds from the beginning of this millennium. The general form of the Estonian sheaths of equal width is the same as in the Finnish finds, but the order of the decoration is different. There also seem to be two carrying links instead of one in the Estonian specimens. The Estonian sheaths most similar to the Finnish ones have been dated to the beginning of the 12th century and later (Selirand 1970 fig. 1:1–2, p. 174). This does not confirm the explanation that the type was derived from Estonia, especially with regard to Sarvas' claim that the sheaths were already in use in Finland at the end of the 10th century. It is possible that the design was adopted in Finland around the year 1000, but in this case the Finnish form of ornamentation would have had to have developed immediately. The fact that it bears the same motifs that were in use in Estonia during the 12th century cannot be explained in the light of the present datings with simple recourse to Estonian influences.

It is perhaps worth noticing that there are similar line groups in an ornamented rather broad leather

sheath from York in England connected to the Vikings to those in these. Finnish sheaths (see Graham-Campbell & Kidd 1980 p. 117 fig. 65). Thus it seems possible that the idea for this decoration was obtained from leather ornamentation and not at all from bronze artefacts.

On the basis of the finds from grave 56 the large sheath was worn transversely on the stomach tied to the apron-strings.

Apart from the above, there are only a few sheaths with metal parts found at Luistari:

17:1180?, 17847:2, 3	Edge mounts, small rivets, fragments
155:2556, 2557, 2559	Small bronze rivets and rings
349:3971	Edge mount fragments
355:4039	Point mount
359:4119	Sheath with mounts

The best preserved of these was found in grave 359, which contained the corpse of a woman. The leather sheath was held riveted between a double edge mount broadening towards its upper end. This was further strengthened by five transverse mounts, of which the one at the mouth is the widest. The mount at the point is lacking. The edge and mouth mounts have embossed ornaments (cf. Kivikoski 1973 fig. 1220), and there is a hole with a piece of a leather strap in the upper part. The construction of the sheath is probably the same as in Heikel 1889, fig. 14, but with a narrower mount at the point. The almost complete oxidization of this part of the artefact cannot be accounted for in any other way.

The remains from graves 17 and 349, both male burials, are probably from sheaths similar to the one described above. Among the artefacts found before the beginning of the excavation were an edge-mount and part of a leather sheath (17847:2, 3). It was claimed that these were from the same place as a sword found at the same time. The lost point of this sword was found in situ in grave 17, which suggests that, if the information relating to these finds is correct, the fragments of the sheath are from this grave. The fragments from grave 349 are only of an edge mount and the leather joined to it. The fragments from both graves show, however, that the sheath was hung from the upper corner and, at least in this respect, these were similar to the sheath from grave 359. A point mount of poor manufacture was found in the filling of grave 355, and it is possible that it was from the same sheath as the edge mount from grave 349.

Remains of a leather sheath were found in grave 155 with bronze rings clamped into the edge. Only a few of these were preserved, so it is possible that this ornamentation was more common, but the thin rings have usually disintegrated leaving no traces.

Only the last-mentioned sheath, which also has metal parts, can be dated to as early as the earlier Viking period (grave 155 was located in zone III). All of the graves with sheaths with bronze mounts are from the end of the Viking period, as demonstrated by the coin-datings of graves 56, 359 and 377 (coin-list Nos. 12–23, 79–86, 99–100).

2.1.6. Position of knives in graves

The knives were usually found near the waist, which suggests that they were mainly joined to the belt. In a few cases a knife was found at the right shoulder (graves 335, 41, 331), behind the head (343, 366, 404) and at the foot of the grave (graves 39, 269, 306, 347, 383). In these cases it is not however certain that the location is the original one. In grave 35 the knife was at the foot of the grave along with a clay vessel, shears and two spinning whorls. One of the knives (2093) from grave 95 was found at the throat of the corps. The knife in grave 315 was in the middle of the stomach pointing towards the feet. Otherwise the knives are distributed according to their location and position in the manner shown in the following table (the children's graves have been reclassified in the male and female categories according to the estimated sex of the deceased):

Table 3

POSITION OF KNIVES		Men's graves				Women's graves			
		Me	EV	LV&C	Total	Me	EV	LV&C	Total
Point downwards	On the right		4	1	5 17 %				
	On the left		1	5	6 21 %				
Point upwards	On the right		2		2 7 %				
	On the left		5		5 17 %	2	3		5 46 %
Transversely	Handle on the right	1	3	2	6 21 %		1	3	4 36 %
	Handle on the left		5		5 15 %		1	1	2 18 %
Total		1	20	8	29 100 %	2	5	4	11 100 %

Me = Merovingian period
EV = Earlier Viking period
LV&C = Later Viking period and Crusade period

As shown above, over 40 % of the men's knives were found at the waist pointing downwards, while no women's knives were in this position. These were either transversely at the waist or were found on the left-hand side pointing upwards. This indicates that the practice of tying the knife to the apron bands, as was the case in grave 56 (Lehtosalo-Hilander 1978 fig. 6), was in common use. There were no instances where the knife was hung from the breast chains.

The transverse position of the knives in the men's graves suggests that they were worn in this position

on the belt, and that also those knives which were found pointing towards the head may originally have been in a sheath in this position. A sheath tied in this fashion, on the other hand, would less frequently tip into such a position that it would point downwards, as for example in grave 100. The position of the knife next to the pelvis suggests that it was in a sheath tied in an upright position. It seems that there were two ways of joining the knives to the belts, transversely on the one hand and upright on the other. All six knives found in a transverse position with the handle pointing left were from the graves in zone III (40, 77, 140, 288, 292, 309), while the only grave (135) in this area with a knife placed upright belongs to the second stage of use of the area. It seems that a new way of joining the knives to the belts came into fashion at the same time as the coins and weights, viz. the beginning of the 10th century (cf. 4.5.4.).

Kustaa Vilkkuna (1964 p. 64, 81) has claimed that all prehistoric knives were worn in a horizontal position, and that the vertical or upright position dates from the time of the Hansa. The Luistari graves however give a different picture. Here the vertical position was used along with the horizontal or transverse one already at the middle of the Viking period. Also Vilkkuna's claim (1964 p. 65) that the Sakkola and Tuukkala knives were hung from

two points does not hold true. The knives Vilkkuna refers to are women's knives, and could easily have been hung from one link from the shoulder brooches. Hanging from two links would place them in a very uncomfortable position. This can be seen for example in a woman's grave from Latvia (Latvijas PSRA fig. 118), in which the knife was hung horizontally from the breast chains. The knife points uncomfortably upwards, which shows that in breast chains this way of suspension was not the most useful one. In the Birka knife sheaths there was also one hole for suspension, but it was in the

lower part, leaving the artefact hanging in an oblique position (Arbman 1940 Pl. 180).

The East Finnish knives were not however the first vertically suspended ones in Finland as Pälvi has suggested (1955 p. 37). Even if the Eura material is not taken into consideration, the suspension link, for example, of a sheath from Ihala in Raisio (Kivikoski 1973 fig. 1227) is on the wrong side for horizontal or transverse suspension. The Ihala graves are from the Crusade period, but are probably older than the East Finnish ones mentioned above.

A grave in the Laukskola cemetery in Latvia contained a knife hung from the belt by a hole in the upper corner of the edge mount of the sheath (Latvijas PSRA fig. 119). On the basis of a type S sword, penannular brooches with poppyhead ends and type M spearheads, the grave dates from the 11th century (see 1.1., 1.3.13. and 6.1.11.). The practice of suspending knives vertically is without doubt of prehistoric origin, and the claim that it came into use in Finland already during the 10th century, as suggested by the Luistari finds, should be supported by new sheath finds if close observations are made when excavating.

2.2. AXES (fig. 16)

Six shaft-hole axes have so far been found in the Luistari graves:

	Height	Width of blade
35:1447	98	55
290:3317	115	77
302:3490	180	114
385:4358	195	205
404:4586	105	61
404:4587	145	99

The first of these was clearly from a woman's grave, the second from the grave of a small boy. These axes were both small in size. Grave 302, a male burial, contained a bearded axe of normal size, and a large battle-axe was found in a man's grave 385. The two remaining axes were found at the foot of grave 404, a woman's grave, along with the crammed remains of a male (?) skeleton. The axes thus comprised both tools and weapons, and they are not limited to male graves. As so few axes were found at Luistari, I have dealt with all of them here. The socketed (gouge) axe will be discussed in a later connection (2.5.).

The axes in graves 290 and 302 were bearded axes of very similar appearance. Both had a curving front face and were furnished with clear extensions on the shaft side. In the axe from grave 302 these were originally tongue-like, but broke during the conservation process (the photograph in Plate 80

was taken before conservation). The neck part of both axes is narrow and gives a graceful general appearance. The head is flat and the shaft-hole of the axe from grave 302 is almost rectangular in form; in the axe from grave 290 it is nearly pentagonal. These axes mainly belong to the group known as »curved-backed Estonian axes» as defined by Vuolijoki (1972 pp. 9–11). The term in my opinion seems to be an unsuccessful one, as Selirand (1974 pp. 87–93) does not even mention this axe type. Even if the straight-backed and curved-backed variations were regarded as belonging to the same type, another term would have been more suitable, as the Estonian axes, 26 in number (Selirand 1974 p. 89) are paralleled by about 170 axes from other parts of the Soviet Union and by about 110 axes found in Finland. The term »Finnish-Russian axe», suggested by Kirpichnikov (1966 p. 38) seems more appropriate.

I have not seen any illustrations of exact parallels to the Luistari axes, but they can be compared with certain axes found in the area E and SE of Lake Ladoga (see e.g. Nordman 1924 fig. 116, Salmi, Papru village; Raudonikas 1930 fig. 40, Saoserje, mound 6, find group 5; Kirpichnikov 1966 Pl. XVII:9, Sjasniga, kurgan 60, find group 2; from Finland: e.g. NM 1935:5 Kangasniemi, Paatsalo and 17208:140, Tampere, Vilusharju). The strong curvilinear form of the Luistari axes and the inward curvature of the beard edge make them reminiscent of the axe from grave 158 of the cemetery at Ihre (Stenberger 1962 fig. 33); this however does not have extensions of the above-mentioned kind. Kirpichnikov (1966 table pp. 108–109, Nos. 141 & 150) dates the Sjasniga and Saoserje axes to the 10th century A.D. and the whole group to the period comprising the 10th to the 12th centuries (ibid. p. 38). Vuolijoki (1972 p. 10), on the basis of some uncertain finds, dates the curved-backed type to the end of the Viking period and the Crusade period. Nordman (1924 p. 139) regards the Salmi axe as belonging to the 11th century. The straight-backed (?) Estonian axes are dated to the same period by Selirand (1974 p. 89). The Ihre axe, to which the blades of the Luistari axes show a definite affinity is from a grave dated to the younger Viking period (Stenberger 1962 p. 40).

The above-mentioned Luistari axes were found in graves which were located at the western end of the cemetery among graves which could be dated to the beginning of the 10th century at the latest (E-type spearheads among other things). Graves 290 and 302 were however laid in a different orientation (nearly W-E), and the size of grave 302 did not correspond to that of the other graves in the immediate vicinity; grave 290 was that of a child. It seems that these graves belong to the later phase

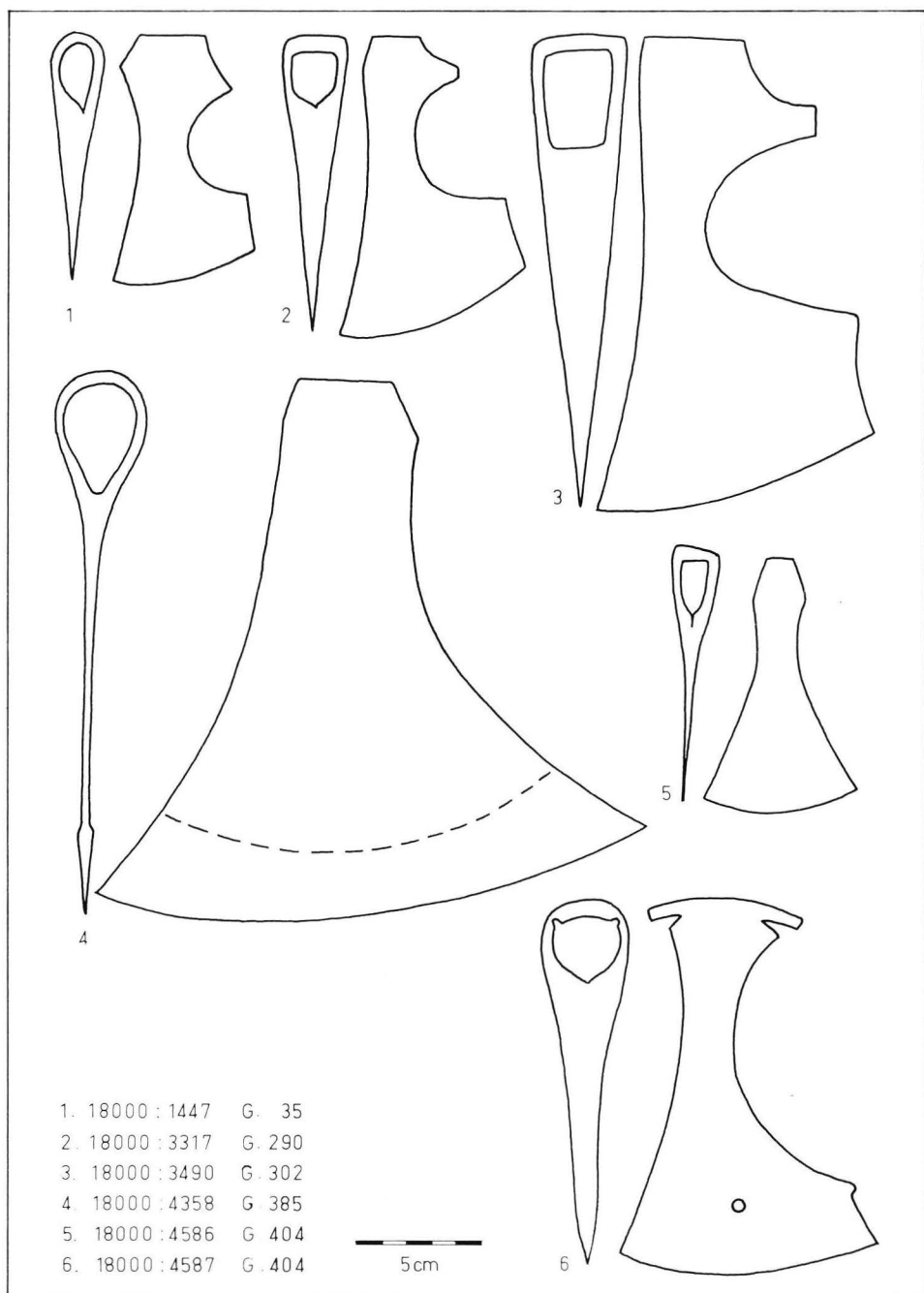


Fig. 16. Axes from Luistari.

of use of the cemetery, which is also indicated by the fact that a strap-divider with an animal head mount was found in grave 302. This is an artefact type that was common in Finland during the 11th and 12th centuries A.D. (Kivikoski 1973 fig. 893, p. 119). It is therefore probable that these curved-backed axes are from a period later than the year 1000, and that the dating suggested by Vuolijoki is borne out by these.

The axe found in grave 35 is similar to the above-mentioned but it has distinct extensions also on the front side and the axe-head is also relatively longer and rounded. The shaft-hole is oval, tapering downwards. The axe can be compared most closely to the one depicted in Kivikoski's illustration 880

(1973) but it has a wider blade. Selirand (1974 Pl. III:3, p. 89) has described a fairly adequate parallel to this Luistari axe, and according to him about 20 axes of this type have been found in mainland Estonia. About 60 axes of this type, called Scandinavian bearded axes by Vuolijoki, have been found in Finland, representing several variations (Petersen's types B, D, E, F and others, Vuolijoki 1972 p. 11; Kivikoski 1973 p. 118). Petersen (1919 pp. 38–43) has dated the above-mentioned axe types to the 9th and 10th centuries. Paulsen (1956 p. 24) claims that it was only in the 11th century that bearded axes spread into Finland, the East Baltic region, Eastern Germany and the Slavic areas. Kirpičnikov (1966 p. 38 and table p. 110 Nos.

168–177) mentions 155 of these being found in Russia and dates them mainly to the 11th century, although he does mention some finds already from the 10th century. Earlier Finnish finds suggest a dating of about 1000 A.D. or later (Vuolijoki 1972 pp. 12–13). The Luistari axe is from a grave which contained convex round brooches of type D (Kivikoski 1973 fig. 659) dating to the first half of the 11th century and thus supporting the generally held view.

The fourth bearded axe was found from grave 404. It is a wide-bladed and thin-necked specimen having a lengthened head and small flaps underneath. The head is rounded and the shaft-hole of the axe is wide, nearly round but narrowing at its lower part. The blade of the axe has a hole and there is a small extension at the corner connecting to the beard. The artefact in question is a so-called Baltic bearded axe which has numerous parallels in the East-Baltic region, Poland, Russia and to some extent also in Sweden (Paulsen 1956 pp. 27–28; Selirand 1974 pp. 90–91, Pl. III:4; Tönnis 1974 p. 110, Pls. XVI:4, XVII:6; Kirpičnikov 1966 e.g. Pl. XIII; Latvijas PSRA pp. 234–235, Pls. 47:22, 51:15, 54:9, 60:30 and 64:12). Kirpičnikov (1966 pp. 36–37) regards this axe type as being typically Russian and mentions about 270 of them originating from Russia and a total of 86 axes from Estonia, Latvia and Lithuania. This axe type is markedly rare in Finland. In addition to the Luistari axe, a possible three or four have been found (NM 3245:4 from Alastaro, Hämeenlinna Museum 2448 from Hattula and perhaps two from the Mahittula cemetery in Raisio, 19000:60, 3233). According to Kirpičnikov (1966 p. 37) the oldest axes of this type in Russia date already from the 10th century and the spread of this axe type began in the Kiev region around the year 1000. Probably these were made also in Estonia (Selirand 1980 pp. 210–211).

In the same connection as the above-mentioned axe, a small straight-sided axe was found. This had a very short flat head and only small flaps on both sides of the shaft-hole. The shaft-hole is almost triangular. The artefact is similar to Petersen's A type axe (1919 pp. 37–38), but it has a clearly wider blade than other axes of the said type. The small size of the flaps indicate a difference with regard to axes of Petersen's type G (1919 p. 43). The axe shown in Kivikoski's illustration 875 (1973), also compared to the type A axes, is somewhat similar to the Luistari axe, but it is thicker and more asymmetrical. There appears to be no clear parallel to the small Luistari axe, but it was probably made on the model of a Scandinavian axe.

Grave 404, from the foot end of which the two above-mentioned axes were found, is coin-dated to the first half of the 12th century (coin-list No.

107). The axes may be from the same period, but they may also be older as pointed out earlier (Luistari I, 3.1.) or even possibly younger, though in this case neither to any great extent, as the colour of the earth in the pit where they were found differed in no way from the filling of grave 404. It is most probable that the axes are from the Crusade period.

The sides of the battle-axe found in grave 385 are strongly curved outwards, forming a wide blade, and there are only small flaps on the front side. It resembles most closely the axes of Petersen's type M (1919 pp. 46–47), but it cannot be regarded as a typical specimen in all respects. The head is rounded and the shaft-hole is pear-shaped, and it lacks the tongue-like flaps common in Finnish axes of this type (Kivikoski 1973 fig. 874, p. 117). This type occurs in Finland from about the year 1000 until the medieval period (Salo 1957 p. 50), and it is represented by almost 100 axes to date. The wide-necked axes similar to the Luistari specimen are usually from the Crusade period (Vuolijoki 1972 p. 28).

The Luistari battle-axe is the first known axe of type M from Eura, where few axes have otherwise been found. Before the Luistari excavation only seven axes had been found in the Eura region, five of these were from the Osmanmäki cemetery, one from Turajärvi and one from the Kauttua rapids. The Luistari finds have added to the number of axes found in the Eura region by a half. Of these 13 axes nine resemble the Scandinavian types, one is of the Russian type, two Finnish-Russian and one is a Finnish straight-sided axe (Vuolijoki 1972 pp. 48, 50, 52). Of the axes mentioned by Vuolijoki (1972 p. 40) 45 % are more or less Scandinavian in type; so as a whole the shaft-hole axes of the Finnish Iron Age bear a strong Scandinavian character. This however seems on the basis of present finds to be more clear in the case of the Eura axes, although the percentual figure of 70 in this case may be a mere coincidence. On the other hand, it may indicate that the axes in graves are foreign element at Eura. According to Vuolijoki (1972 pp. 12, 19, 20), most of the axes previously found in the Eura region correspond to the Petersen classification (types E, H & L), so they could be Scandinavian products. The Russian axe in grave 404 at Luistari is in any case a definite import.

The reason for the scarcity of axes in the Eura finds might on the other hand be that the use of axes as weapons was a relatively late practice in Finland. This was perhaps at the stage when weapons were no longer placed in graves in the Eura region. On the other hand the working-axe may not have been so personally linked to its

owner that it merited being alongside him in the grave. The axe was perhaps a tool hung on the wall or struck in a chopping-block, available to all in the household (cf. bows). It was a common and impersonal tool in daily use, and a farmer engaged in field agriculture may not have regarded it as necessary as would one engaged in burn-beating. Five of the Eura axes are of small size, probably linked to special purposes and thus more closely to their owners, and for this reason placed along with them in the grave. One of the small Luistari axes was in a child's grave (290), where it may have represented weaponry.

2.3. SICKLES AND SCYTHES (figs. 17, 18)

A total of over 30 sickle and scythe blades have been found at Luistari; 24 of these were in a fairly whole state of preservation, the others being in fragmentary condition:

	Length & blade width
13:1106	410 & 30 mm
15:1164	395 & 45 mm
26:1367, 1368	Fragments
36:1452	Tang end fragment
55:1602	290 & 35 mm
56:1728	220 & 26 mm
58:1840, 1846	Fragments
64:1902	Tip end fragment
68:1921	455 & 37 mm
73:1971	Fragmentary
90:2038	480 & 50 mm
135:2397	235 & 45 mm
141:2456	245 & 40 mm
145:2478	450 & 35 mm
155:2558	225 & 30 mm
180:2684	185 & 31 mm
200:2801	Tip end fragment
246:3061	251 & 23 mm
281:3157	500 & 40 mm
283:3223	308 & 45 mm
334:3765	214 & 28 mm
343:3804	192 & 26 mm
346:3860	233 & 27 mm
348:3887	440 & 41 mm
349:3979	490 & 30 mm
358:4077	Tang end fragment
359:4111	200 & 28 mm
362:4138	Tip end fragment
377:4275	188 & 34 mm
383:4356	Fragmentary
386:4372	250 & 33 mm
404:4584	212 & 30 mm
410:4639	Fragmentary
413:4323	Tip end fragment
20189:6	150 & 17 mm

Eight of these artefacts can be regarded as scythes, their length varying from 410 to 500 mm. All of these were in men's graves (Nos. 13, 15, 68, 90, 145, 281, 348, 349). In addition to these, two sickle-like objects were also found in men's graves 135 and 283, the lengths of which are only 235 and 308 mm, but which are markedly broad (45 mm) and because of their thickness clearly differ from the sickles found in the women's graves. The length of these vary from 180 to 290 mm, the width from 20 to 35 mm. The artefact 20189:6, found on top of the cairn excavated in 1979, is probably a miniature and may not date at all from the later Iron Age.

To some extent the wide-bladed Luistari sickles resemble the blades of short-handled scythes found at Illemose in Denmark and dated to the younger Roman Iron Age. These were also rather short, varying from 23 to 30 in length (Steensberg 1943 p. 106, fig. 38). The distinct tang of these is a feature which does not occur in the Viking period blades from Luistari, but once hafted they may not have differed much from these. If the length of 32 cm, as suggested by Hackman (1938 p. 163), is accepted as the border-line between scythes and sickles, the wide-bladed tools from Luistari must be regarded as sickles, excepting the possibility of their being billhooks (cf. fig. 17a).

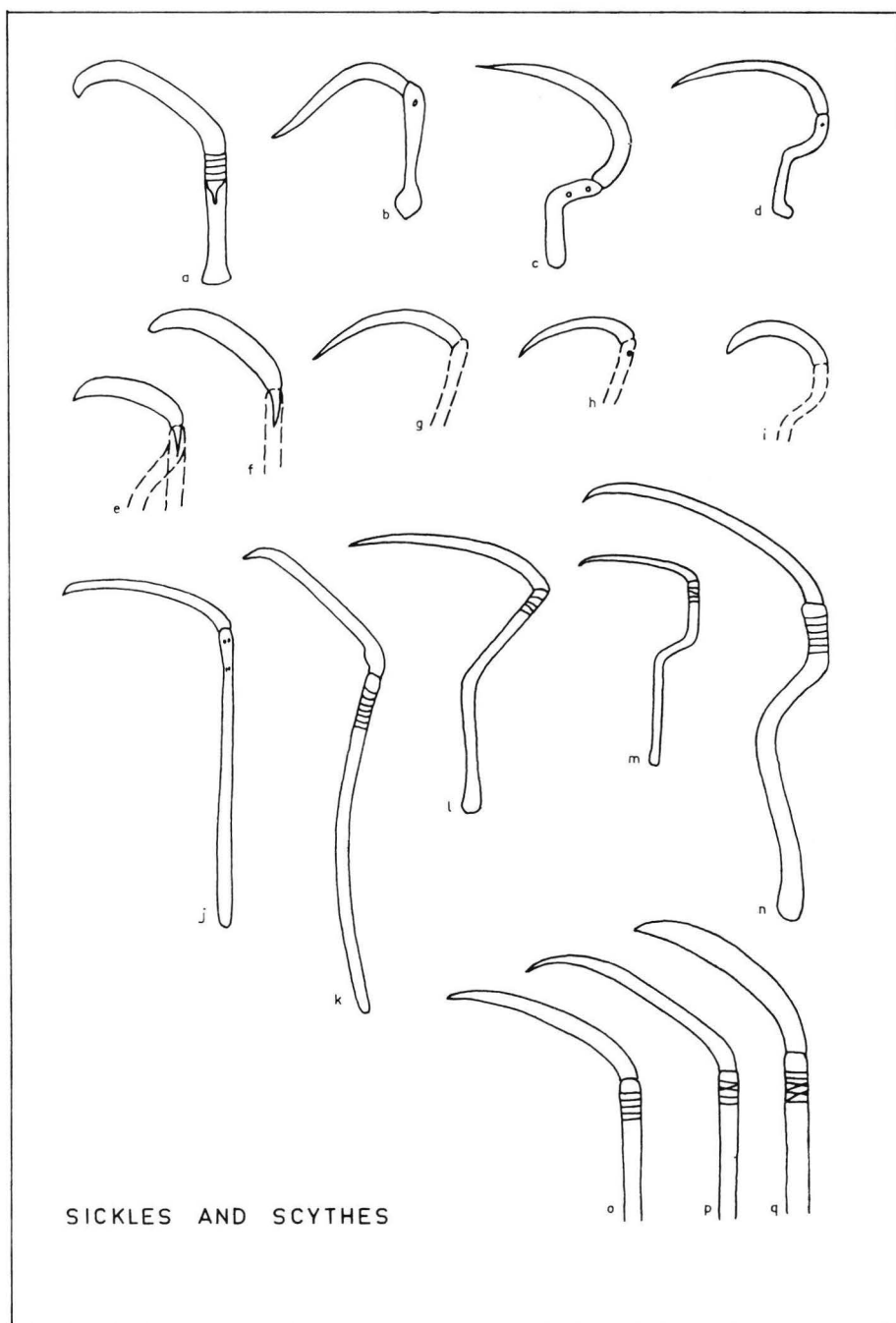
The Luistari scythes all correspond to somewhat the same form, common both in Finland and in the neighbouring countries (Kivikoski 1973 fig. 989; Petersen 1951 fig. 88; Steensberg 1943 fig. 41; Selirand 1974 Pl. V:10, pp. 94–95; Latvijas PSRA Pl. 68:16, 17). Petersen regards the scythe-blades as a Norwegian artefact-form of the younger Iron Age, claiming that they are not found from either Denmark or Sweden (1951 p. 149). This view is not quite accurate, but it is true that farming tools are not usual in graves in Sweden (cf. Selinge 1977 p. 350). There is only one small sickle from Birka (Arbman 1940 Pl. 185:18), which is to be expected in the case of an »urban» cemetery, but neither sickles nor scythes belong to the furnishings of the Västmanland cemeteries as described by Simonsson. I have found only one such artefact in his tables (Simonsson 1969 Table 6, Norrby sn., Sörbäck). Jan Peder Lamm mentions 30 prehistoric scythes in the collections of Statens Historiska Museum in Stockholm. These are from 10 different finds, mostly hoards, and dating possibly to the Viking period (Lamm 1977 p. 111). There are also a few Viking period scythe-finds from Denmark (Steensberg 1943 pp. 111–114).

In both Norway and Finland scythes seem to occur only in men's graves (Petersen 1951 p. 145; Hackman 1938 pp. 172–173). In Estonia a scythe has been found at least in one instance in a woman's grave (Selirand 1974 p. 95). Sickles,

Fig. 17. Sickles and scythes

- a) A billhook (Nikkilä p. 18 fig. 151)
- b) West Finnish sickle (Vilkuna 1934 fig. 1)
- c-d) Sickles called »kamp-pi» in Finnish (Vilkuna 1934 figs. 1, 9)
- e-f) Sickle-like blades from Luistari men's graves 135 and 283
- g-i) Sickles with remains of wooden shaft from Luistari graves 334, 404 & 377
- j) Reconstruction of a Norwegian Viking Age scythe (Steensberg 1943 fig. 16)
- k) Chermisssian scythe (Manninen 1934 p. 134)
- l) West Finnish scythe with curved handle
- m-n) Carelian scythes with curved handles (Manninen 1934 figs. p. 133)
- o-q) Scythe blades from Luistari graves 145, 349 and 90 fitted with straight shafts like the Norwegian reconstruction. It seems that this type of shaft is not suitable for all of the Luistari scythe blades.

Scale 1 : 10 in the Luistari artefacts, in the others varying.

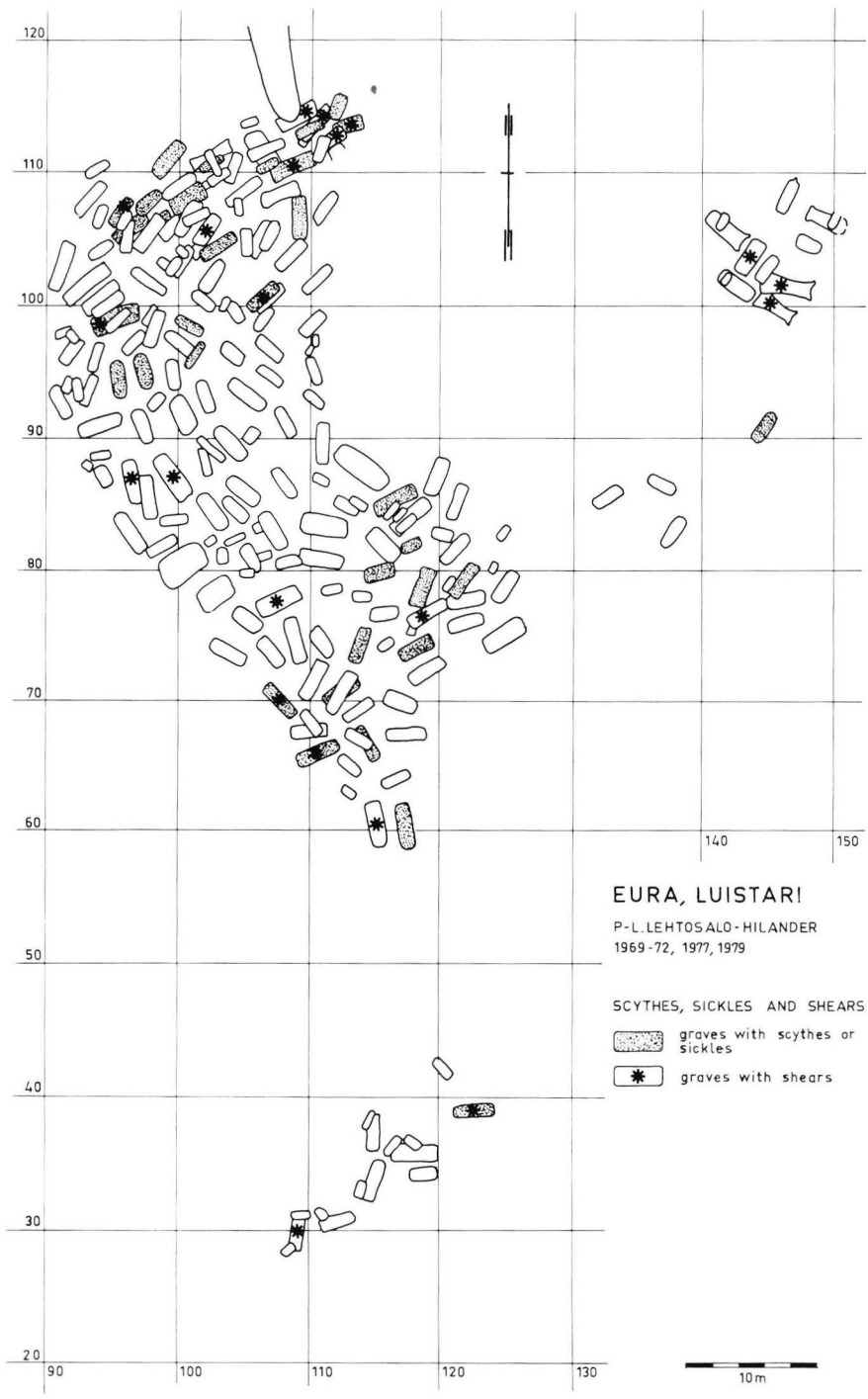


according to Hackman (1938 p. 173), have been found in roughly equal numbers in graves of both sexes. The ratio is much the same in the Norwegian finds (Petersen 1951 pp. 142-143). At Luistari the situation is clearly different, as of the 26 possible sickles only two are from male graves and 16 from ones with furnishings of a definite female character. In this instance the sickle could be regarded as a woman's tool.

No scythes were found in any of the Merovingian period men's graves, while sickles did occur in women's graves of this period (Nos. 26, 246, 343?, 346, 410). Most of the material however dates from the Viking period, and half of the men's graves (90, 135, 281, 283, 348) containing sickles or scythes can be dated to the 10th century. Graves 68 and

145 are possibly from the ninth century, and graves 13 and 349 are probably from the 11th century. Grave 15 is from roughly the year 1000 (coin-list No. 2). The emphasis is thus on the latter half of the Viking period. There were sickles on the other hand in women's graves dating from the Merovingian period to the 12th century. The clearest difference in these implements of different date can be seen in the fact that both scythes and sickles from the 9th and 10th centuries seem to be wider-bladed than the Merovingian period ones and those from the 11th century. For example, the scythes found in graves 13 and 349 are only 30 mm wide, while the width of the others varies from 35 to 50 mm. The width of the Viking period sickles is usually more than 30 mm (see sickles in graves

Fig. 18. Distribution of scythes, sickles and shears in the Luistari cemetery.



55, 73, 141, 155, 180, 377 and 386), whereas the Merovingian and Crusade period Luistari sickles were clearly less than 30 mm in width. Only the sickles found in graves 359 and 404 had a rivet joining the handle to the blade, otherwise the blades were joined so that the hook at the end of the blade was lodged in wood while the handle was tied with a withe or twine. Traces of bindings were found in some of the sickle blades (twine in grave 155, withe in grave 386).

The most common location of the scythes and sickles was at the foot of the grave. In only one case was a sickle in a man's grave (No. 283) placed next to the head of the corpse. In four cases a sickle or

scythe was found at the side of the body, once by itself (grave 135) and in three cases as part of a group of tools and weapons (graves 15, 90, 348). In the women's graves of latest date (Nos. 359, 383 and 404) the sickles were placed above the head, but in both Merovingian and Viking period graves the sickle was usually found right at the foot of the grave or laid on top of the legs. In one grave (No. 334) the sickle was by the hips of the corpse.

Sometimes the scythe (or sickle) was placed in the grave so that it was possible to estimate the length of the handle. For example, the positions of the scythe blades in graves 15, 68 and 348 were such that only a handle of a certain length could

have been fitted into the grave pit without breakage. The shafts could only have been 70 to 90 cm in length. According to Hackman (1938 pp. 171–172) the lengths of the short-handled Finnish scythes in the collections of the National Museum in Helsinki vary from 46 to 80 cm, and he believes that the Iron Age scythe blades found in Finland were joined to a short slightly curved handle. On the other hand, there is a Danish reconstruction of an Iron Age scythe where the handle is completely straight (Steensberg 1943 p. 21, fig. 16). The length of this handle is 79,5 cm, and an object of this length could have been fitted into the above-mentioned Luistari graves. It is impossible to say which form of handle was in use or whether both were at use at the same time, as there are few remains of the wooden parts of scythes from Luistari. It is certain, though, that all of the Luistari scythes were of a short-handled form, as the angle of the blade is markedly obtuse (cf. Manninen 1934 p. 134). The blade form is suitable for both the straight, slightly bent handle and for the double-jointed bent handle (cf. scythes j, k, n and o-q in fig. 17). It is remarkable that although the long-handled scythe was already known in Central Europe during the Roman period, it does not seem to have gained a foothold in Scandinavia before the Middle Ages, reaching Finland much later still, in the 18th century (Steensberg 1943 pp. 223–232; Vilkkuna 1934 p. 223).

In reconstructing the handles of the Luistari scythes, recourse must be made to material available elsewhere, but in dealing with the sickles, we may use observations gained in the excavation itself. Although the sickle-handles were well preserved in only three graves (Nos. 334, 377, 404) already two distinct forms can be observed. The sickle-handle in grave 377, a woman's grave from the Viking period, was, according to the excavation observations, clearly bent. This corresponds mainly to Vilkkuna's type C (1934 figs. 1 and 9). A sickle of this type in the collections of the Ethnographic Museum in Leningrad parallels completely the Luistari sickle. The only difference is that in this artefact the handle was joined to the blade with rivets, whereas the Luistari sickle was joined with a binding (cf. Vilkkuna 1972 fig. 13a–b). On the other hand, the sickle-handles from the Crusade period graves 334 and 404 seem to have been fairly straight as is the case in Western Finnish sickles of Vilkkuna's type b (1934 fig. 1b).

The type c sickle, called »kamppi» in certain dialects of Finnish, is regarded by Vilkkuna (1934 pp. 229–232) as archaic on philological grounds, and, referring to the wide blades of prehistoric sickles, he regards them as possibly being the blades of just this type of sickle. The tool in ques-

tion was used in a striking fashion, while the sickle was used to cut and shear, and in striking a heavier and wider blade is more practical. It has already been mentioned that the blades of the Viking period sickles from Luistari were wider than others, and this may indicate the use of a curved-handled sickle. Type b, straight-handled and probably of Western origin, was according to the Luistari finds already in use during the Crusade period, but the question of whether the narrow sickle-blades found in the Merovingian period graves also belong to this type must be left unanswered for the time being. The »kamppi», which has parallels in the Estonian islands, can however be dated in Finland to the Viking period. Whether it was also in use in Estonia at that time is difficult to determine, as there are no finds of later Iron Age sickles from the Estonian islands and only a few from the mainland (Selirand 1974 p. 95–96).

2.4. SHEARS (fig. 18)

A total of 21–22 pairs of shears have been found in the Luistari graves:

	Length	
15:1161	149 mm	One edge tip broken
17:1204	248 mm	» »
23:1304	190 mm	» »
35:1431	210 mm	» »
56:1727	175 mm	
75:1948	229 mm	
90:2028	217 mm	
97:2102	230 mm	
150:2505, 2508, 2512, 2513, 2516, 2518 }		Fragments
208:2852	165 mm	Both edge tips broken
225:2960	225 mm	
229:2995	200 mm	
281:3162	240 mm	Both edge tips broken
283:3224	147 mm	
287:3273	Fragment	
288:3277	249 mm	
324:3672	256 mm	
325:3699	175 mm	
348:3935	221 mm	
367:4166	184 mm	Both edge tips broken
377:4276	195 mm	
404:4585	239 mm	

All of these belong to the Viking period ring-ended type (Kivikoski 1973 fig. 976). Ten are from distinct women's graves or from either women's or children's graves, eleven are from indisputably male graves containing weapons (Nos. 15, 17, 75, 90, 208, 225, 281, 283, 288, 325, 348). These include the richest graves in the cemetery, among these

all seven Viking period graves with swords. Shears were also found in the most richly furnished women's graves (Nos. 35, 56, 377, 404), but on the other hand these were to be found also in graves that could be described as poorly furnished (Nos. 97 & 229). Kivikoski's hypothesis (1955 p. 133) that shearing was exclusively women's work is not born out by these finds.

On the other hand the shears found in the graves could have been used for purposes other than the shearing of wool. Some of these were very small and fragile; the shears found in graves 15 and 283 were less than 150 mm in length, thus being less practical in cutting thick wool. Petersen (1951 p. 316) discusses sewing shears or scissors (*broderisakser*), but the existence of small shears in men's graves and especially ones containing weapons does not seem to indicate a link with this practice. A more probable use would be the cutting of cloth as in the case of a trader or personal uses such as trimming the beard or hair. Only the shears from grave 281 correspond in thickness and size to those of later date.

According to Petersen more than half of the shears found in Norway are between 19 and 25 cm in length. Two thirds (14 pairs) of the Luistari shears are of this same size, six are shorter (found in graves 15, 56, 150, 283, 325 and 367). Only one pair was more than 250 mm in length. Three or four of the small shears were found in men's graves, one pair probably belonged to a woman and one pair to a child, indicating that these were not primarily linked to such practices as sewing. On the other hand a pair of shears measuring up to 210 mm in length were found in grave 35 along with two spinning-whorls, linking them quite consequently to the chain of labour from shearing to weaving.

The location of the shears in the graves varied according to their size and the sex of the buried. Five of the largest pairs of shears found in men's graves, were placed at the foot of the grave (graves 17, 75, 225, 281, 288) whereas three small pairs of shears were placed either above the head of the corpse or next to it (graves 15, 283, 325). In two instances shears were located along with weapons and tools on the left-hand side of the body (graves 90 and 348), and once along with the sword on a man's right-hand side (grave 208). Placing the small shears near the head indicates, in my view, a use different from that of the large wool-shears, which were located at the foot of the grave.

The shears in the women's graves were placed at the foot-end, three times along with a clay vessel, twice with a sickle and a vessel and once with a vessel, two spindle-whorls and a knife. In graves 56 and 367 the shears were probably placed on the

lower limbs of the corpse, but in other graves they were clearly set apart from these. The shears may have been near the head in grave 150, the female occupancy of which is quite uncertain. The glass beads found in the grave may be from grave 183, an older one which was destroyed, and there are no other artefacts of definitely feminine character in the grave in question. Also in this case the shears were of apparently small size, although their exact length cannot be determined, since they had disintegrated completely as the result of a pit dug on the spot. The shears from graves 56 and 367, mentioned above, were also of small size (lengths 175 and roughly 180 mm respectively). These were placed in the hems of the deceased.

In the Luistari material two groups of shears can be distinguished on the basis of their placing in the graves: small shears placed near the heads of the corpses or in their laps, apparently related to sewing or personal hygiene, and large shears placed at the foot of the grave, primarily used for shearing wool. These latter shears could of course have been used also for other purposes, whereas the small shears had their own more limited use.

It has already been mentioned above that the Luistari shears are all of the same main type. In such a large mass of material it is however possible to distinguish variations, perhaps also lines of development. The shears found in grave 325 resemble Merovingian period shears most in form, as the narrowing under the ring is almost undistinguishable. Also in shears from grave 288 this is small, whereas in others the ring is clearly distinguishable from the handles. Most of the Luistari shears have an oval and fairly wide upper part, the upper corners of the blades are slightly bent into round handles and the outer sides of the blades are curved. In some of them the shear-rings are almost round, but the blades are of the above form. There are shears in the youngest, definitely Crusade period graves (Nos. 367 & 404) where the small, more or less round handle-ring is connected to long narrow blades with a straight outer edge and an upper corner forming an almost 90° angle. Closer inspection of shears from different localities indicates that the straight outer edge of the blade is probably a late phenomenon. Both the shears (or shear-like implements) from the Viking period described by Petersen (1951 p. 303, figs. 167–170) and those found at Birka (Arbman 1940 Pls. 174:3, 175:1, 176:3) have blades with curved outer edges, while some Crusade period shears are of straight-edged form (Kivikoski 1951a fig. 1164; Latvijas PSRA Pl. 69:26). At this stage no clear line can be drawn between these forms, as there are also shears with one straight-edged and one curved-edged blade (e.g. Luistari grave 229; Shetelig 1912

p. 197, fig. 453 and p. 193, fig. 444). It may be worth noting in the future the extent to which these shears with small rings and straight-edged blades are to be found in purely Viking period connections.

There are shears from roughly 70 graves at Birka (Arbman 1943 table on pp. 490–529), but only two of these are men's graves (Nos. 624 & 832) and in the latter the shears were found in the filling. There are also shears from two double burials with both a male and a female corpse in each, but in these they were on the female side or in a separately placed chest (graves 644 & 750). At Birka the shears were definitely a woman's tool.

It is impossible to obtain a complete picture of the size of the Birka shears, as most of them were in fragments. A superficial survey indicates that they were of small size, less than 190 mm in length, which is the limit set by Petersen (1951 p. 314) in his studies of the Norwegian material. Also in Norway small shears were generally placed in women's graves, large ones were in men's graves, and these tools were markedly more common in female burials (Petersen 1951 p. 318). At Luistari the shears occurred slightly more often in men's graves, and the smallest shears were found in them, indicating different uses here than in the neighbouring countries. According to Hackman's calculations (1938 pp. 157–159) shears were generally more common in men's than in women's graves. The placing of shears in graves was, according to Hackman, especially common at the time of the period shift from the Merovingian to the Viking periods. It is to be noted that at Luistari shears have not been found in any Merovingian period graves, and that most of these are from graves that are dated to the 10th century or the beginning of the 11th (coin-dated graves 15, 56, 75, 208, 348 & 377). The only probable 9th century grave with shears is No. 288, indicating that the placing of shears in the graves cannot be regarded to have been in practice from the beginning of the Viking period.

At least 25 pairs of shears have previously been found in the Eura region. At least 11 of these are from men's graves (NM 2995:3, 4 & 6127:65 from graves 3 & 4/1894 and 3/1912 at Käräjämäki, 2700:21 & 4633:32, 119 from graves 1/1890, 10 & 19/1905 at Osmanmäki, 2698:40 from grave 7 at Lauhianmäki, 9854:20 & 16950:67 from Yli-Nuoranne, 11063:275, 838 from graves 4 and 18 at Pappilanmäki) and possibly only two or three pairs from women's graves (NM 4633:85 & 6127:15 from graves 14/1905 and 3/1912 at Osmanmäki, 11063:835 from grave 13 at Pappilanmäki). The ratio is much the same in the finds from the Anivehmaanmäki burial-ground in Yläne, where nine pairs of shears

were found along with male artefacts (graves 14, 15, 18, 28, 30, 33, 50, 51 and find 13277:4). These are equalled by only two finds from women's graves (13962:183 from grave 24 and 13962:455 from grave 41). According to Cleve (1978 p. 177) there are 14 pairs of shears from cemetery C at Köyliö, but nine of these are stray finds. In two cases the shears belonged to men's graves (grave 1, 8602:137, and grave 15, 8723:157) and three pairs were placed in women's graves (8602:84, grave B; 8613:1, grave N; 8723:41, grave 4). The great number of stray finds however reduces the importance of these numbers. Cemetery A at Köyliö revealed shears in graves A2 (male) and A7 (female), both from the Merovingian period; there is only one other pair of certain Merovingian period shears from the whole area of inhumation burial (2001c:1 from Käräjämäki in Eura; also stray find 8721:9 from Osmanmäki is of an early type). The shears mentioned in Hackman's list (1938 p. 158, Nos. 2995:3 & 4) are from Viking period graves.

When the area of inhumation cemeteries is taken as a whole it can be observed that twice as many shears have been found in men's graves as in female graves (ratio 34:17). As only excavated graves and indisputable find combinations have been taken into account, the ratio given seems to be quite clear and cannot be attributed to e.g. more men's grave goods being retrieved (cf. Petersen 1951 p. 318). In comparison to this the almost equal occurrence of shears in the Luistari graves of both sexes is an exceptional trait. According to Hackman, shears were equally common in graves of both sexes in Finland during the Viking period, just as was observed at Luistari, but Hackman's catalogue lists as women's such graves as e.g. Osmanmäki 10/1905 containing a Z-type sword and 19/1905 with a set of scales and parts of a belt and also Lauhianmäki 7 with two spearheads. This gives reason for caution in using his lists, and does not give cause to claim that the occurrence of shears in the Luistari finds resembles the situation in the whole of Finland more than in the area of inhumation burial, although ignoring the Eura–Köyliö finds in the Hackman's lists gives a ratio 9:7 in favour of male burials (cf. Hackman 1938 p. 158, note 1). There are four shears from the Viking period part of the Kvarnbacken cemetery in Åland; only one pair of these is from a woman's grave (Kivikoski 1963 p. 116), indicating that also in this instance they belonged more often to men. At Långängsbacken they were also in men's graves (Kivikoski 1980 p. 41).

Although the placing of shears in graves is apparently, as Hackman (1938 p. 162) has suggested a feature common to Norway, Sweden and Finland, the actual practice seems to have differed in the

various areas already during the Viking period. In Scandinavia large and small shears were mainly an artefact form belonging to women's graves, often being suspended from chains hung at the breast, while in Finland, and seemingly also in Åland, they occurred as often or clearly more often in some cases in men's graves. In the East-Baltic region they seem to have remained relatively rare grave goods until the end of the Iron Age (e.g. Selirand 1974 and Tönnison 1974 do not deal with them at all. However, see Tonisson *op. cit.* fig. 16:3 and Pl. XXVI:11 and Tallgren 1925 p. 132).

2.5. Carpenter's tools

Some artefacts probably linked to carpentry were also found at Luistari:

- 145:2472 Gouge-bladed socketed axe, 105 × 47 × 21 mm
- 145:2473 Iron blade with curved edge and tapering base, the narrow top of which is rolled up into a ring, 129 × 48 × 6 mm
- 145:2474 Iron blade with curved edge and tapering base, the tip of which turns into a spike, 72 × 63 × 7 mm
- 145:2475 Long and narrow whetstone (see 2.9.)
- 145:2476 Blade of a plane-iron, 70 × 82 mm
- 145:2477 Rectangular artefact, sharpened on one long side, 79 × 33 mm
- 147:2492 Chisel, 37 × 21 mm
- 373:4201 Chisel, 42 × 30 mm (originally grave 358?)

Possibly:

- 57:1803 Plane-iron fragment? (from the filling)
- 373:4200 Plane-iron fragment? (originally grave 358?)

The artefacts from grave 145 were found in one group and they were probably originally in a bag or tied together (Luistari I, Photos 31, 32). About 10 cm of the haft of the gouge-bladed socketed axe was preserved, and seems to have been more or less perpendicular in relation to the blade. It was hardly more than 40 cm in length, as a haft of that size was the longest that could have fitted between the blade and the side of the coffin, supposing the axe was originally in the same position as when found. The joint between the blade and the haft was apparently strengthened with twine, remains of which have remained at the mouth of the blade. Similar gouge-bladed axes have been found in Norway (more than 60 specimens), and it is thought that they were used there for carving wooden vessels and shoes. About 50 of these have been dated as they are from graves. Their chronological position with respect to the Merovingian and Viking periods is the following: the largest group of 22 artefacts is from graves dating to the 9th

century (43 %); there are 11 axes from the Merovingian period and 17 from the 10th century. With one exception they are all from men's graves (Petersen 1951 fig. 118, pp. 222–224). An artefact resembling these was also found in Sweden in the Vendel cemetery (grave VII) but it was interpreted as a hoof-pick (Stolpe-Arne 1912 p. 31, Pl. XXI:1). Despite the fact that grave 145 also contained bits, there is no doubt that the Luistari artefact is a gouge-axe comparable to the Norwegian finds, and it is to be interpreted as a carpenter's tool.

The above hypothesis is supported by the find of the plane-iron (2476) which was use-worn, as was also the above-mentioned axe. It also lacked the second arm. These tools were used in smoothing the inside surface of wooden vessels, and eight specimens of these have previously been found in Finnish cemeteries. Six date from the Merovingian period, two others from as early as the younger Roman Iron Age and the Migration period (Cleve 1943 p. 147; Kivikoski 1973 fig. 622, p. 86). The Luistari tool in question is the first so far found in a Viking period connection, but some iron fragments from graves 57 and 373 might also be from plane-irons. In Norway these occur in both Merovingian and Viking period graves (Petersen 1951 pp. 217–220).

The rectangular artefact (2477), sharpened on one long side can be compared to a kind of plane (sikli), used to smooth wood surfaces. There are clear traces of wood on the other long side of the implement, leaving only c. 5 mm of the blade free, and the traces continue past the ends of the blade so that the wooden handle must have been somewhat longer than the blade. The modern equivalents to this tool have a different blade and are without handles, but it is known that ones with handles have existed. I have not found parallels for this implement in the prehistoric material.

The situation is almost the same with two triangular blades found in this grave; only an artefact from Mikkeli, Ala-Vakkola (14074) could perhaps be compared with these. Both have traces of wood only on one flat side. In the longer one they extend to about 20 mm from the edge, in the shorter one to a distance of 32 mm from the edge, which had been sharpened only on one side. The cutting-edges of both artefacts are curvilinear, that of the longer to only a small degree, that of the shorter considerably. The last-mentioned may be from a finishing tool for smoothing concave surfaces; the long blade would be suitable for a conventional plane. The possibility that this also could have been a finishing tool must however be taken into account. All three, both the rectangular and triangular blades were, as opposed to the axe and the plane-iron, quite new when placed in the grave.

Tools are relatively rare in the Finnish finds, which makes the tool kit from grave 145 an interesting contribution to our Viking period material, especially when it is kept in mind that during historical times the northernmost area of the province of Finland Proper, called Vakka-Suomi (= Bushel-Finland), and also the hinterland of the town of Rauma as far as Säkylä and Köyliö, had specialised in woodcraft (Vilkuna 1935 p. 192). This activity has apparently prehistoric roots in the Eura-Köyliö region, and craftsmanship was probably held in esteem, as no other reason can be suggested for the placing of tools in the graves of prosperous persons. The Merovingian period Köyliö grave A3, in which was found a tool-kit indicating carpentry, also contained both a sword and a shield (Cleve 1943 pp. 22–24), and Luistari grave No. 145 can also be regarded as well furnished with its contents of two spears, bits and scythe, despite the fact that more than half of it was destroyed.

The artefacts from graves 147 and 373 are chisel-like blades. The artefact found in grave 373 has a straight blade with a width of c. 30 mm, and was fixed to a shaft or handle by means of a tongue. A similar implement was previously found in the cemetery of Eura, Osmanmäki (Salmo 1952 fig. 382), and chisels of various forms are known from Finnish finds from the Migration period to the Crusade period (Kivikoski 1973 figs. 979, 980; Salmo 1952 figs. 387–390, pp. 423–425).

The iron artefact from grave 147 has a blade 21 mm in width, the curvature of which resembles the Stone Age so-called nail-chisels or adzes. The perpendicularly bent end of the tongue is on the side opposite to the curve of the blade, indicating that the shaft or handle rested on the tongue, if the implement was used for example for scraping. It seems probable that it was used for some such purpose.

Neither of the chisel-like blades can be dated. Grave 373 was laid on top of grave 358, breaking up the latter, and it is possible that all of the artefacts found in the filling of grave 373 are from grave 358, which according to the coin-date is from the beginning of the 12th century (coin-list Nos. 74–78). This however is not quite certain, as there may be objects in the filling originally from several different connections. Grave 147, which because of its small size was probably that of a child, did not contain any other artefacts in addition to the chisel. This grave was however laid on top of grave 200 in zone III of the cemetery, where overlaying burials begin to appear in the course of the 10th century (Luistari I, 4.). Grave 147 and the accompanying chisel can thus be judged to be from a period later than the year 900.

2.6. FISHING-SPEAR

Only one artefact connected to fishing was found at Luistari:

20552:240

It is a quite small three-branched fishing-spear, and was obtained as a stray find from the northern part of the cemetery. Some Viking period fishing-spears are previously known from Finland (Kivikoski 1973 fig. 994, p. 128), and they are three-branched just like this Luistari specimen; on the other hand, the form is also known from later connections (SKK I Plate II:2, 3).

2.7. KNITTING-HOOK-LIKE ARTEFACT

A singular knitting-hook-like artefact was found from a grave:

303:3498

It is about 120 mm long with a wooden handle, and it ends in a small flat semicircular plate. Seemingly it is some kind of a tool, but its actual purpose is so far unclear.

2.8. SPINNING-WHORLS

Only two spinning-whorls were found, both from the same grave belonging to a woman:

35:1434, 1435

One is almost undamaged, but from the other there is only a fragment. Both are made of limestone and of the same type, with a flat underside and a more or less arched upper surface. There are fairly similar spindle-whorls from the cemetery at Ihre in Gotland, and according to Stenberger (1962 pp. 86–87) there were often two whorls in the same spindle (cf. op. cit. fig. 89, where the middle whorl is quite similar to the Luistari whorl 1434). So it is possible that the spindle from Luistari grave 35, which both in material and seemingly also in construction is similar to the ones from Gotland, originates from that island.

The spinning-whorls previously found in Finland are mostly made of bone, burnt clay or slate (Kivikoski 1973 figs. 69, 175, 379, 380, 629, 973–4, 1232–3). I have not seen specimens made of similar substances to the Luistari ones published, but on the other hand no special study has been devoted to them in Finland. In Norway, where Petersen (1951 pp. 302–311) has studied them, the spinning-whorls from the Later Iron Age are mostly of steatite, and also other stone materials were used, likewise burnt clay. There are surprisingly few made of bone, and some are made of lead, iron and glass. The form with the widest

part a little above the base as in the preserved Luistari specimen, is in Norway more common during the Migration period than during the Later Iron Age. The Luistari spinning-whorls were found together with convex round brooches of type D, and are consequently from the first half of the 11th century (6.1.6.).

2.9. WHETSTONES

Altogether ten whetstones were found:

17:1178	65 × 12 × 7 mm	Broken at the hole
37:1455	103 × 30 × 12 mm	Fragmentary
59:1838	66 × 13 × 6 mm	Fragmentary
145:2475	269 × 12 × 12 mm	
303:3499	80 × 17 × 11 mm	
310:3548	Fragmentary	
348:3897	76 × 12 × 6 mm	With an iron ring
375:4277	60 × 17 × 7 mm	
385:4362	76 × 20 × 13 mm	In a pouch
407:4620	54 × 17 × 5 mm	

Six of these are from men's graves, the seventh is from grave 303, in which a child was buried along with an adult corpse; two others are from the filling of graves 37 and 59. Graves 17, 303, 348 and 375 contained small pendant whetstones; the whetstones from graves 385 and 407 are of the same size but do not have a hole for suspension. Grave 145 contained a narrow and very long whetstone which was found along with carpenter's tools. The artefacts from graves 310, 37 and 59 are fragmentary, and there are clear traces of use in the last-mentioned one.

The Luistari pendant whetstones are long and narrow and they mainly resemble fig. 983 in Kivikoski 1973. They all taper to some extent downwards and differ in this respect from e.g. those found at Birka, the lower end of which is generally wider than the upper. The only downward-tapering whetstone described in the Birka finds was from grave 674, which in addition to the whetstone contained only a knife (Arbman 1940 Pl. 188:13, 1943 p. 234). This whetstone resembles the one from Luistari grave 17 although it may be somewhat larger. According to Petersen (1951 p. 255) there are also downward-tapering pendant whetstones from Norway, although the opposite form is more common.

According to Petersen (1951 p. 256) pendant whetstones belong to the younger and youngest stages of the Viking period. Over a hundred pendant whetstones have been found in Norway, but only 43 of these can be determined according to date. Eight are from the ninth century, 35 from the 10th century and the beginning of the 11th. There are no known pendant whetstones from the

Merovingian period and it is possible that their use continued until the medieval period. The Luistari pendant whetstones fit into this chronological ordering well, as graves 303 and 348 are from the 10th century and the other two from either the very end of the Viking period or the Crusade period. In both graves 303 and 375 the whetstone was probably hung from the neck, and also in grave 17 it was found at the head end. The whetstone in grave 348 on the other hand was clearly suspended from the belt along with a small knife and a firesteel.

Long narrow whetstones such as the one found in grave 145 at Luistari are paralleled by finds from Birka (Arbman 1940 Plates 186:1, 187:1–3) and from Norway, where several whetstones of this type have been found (Petersen 1951 fig. 141, pp. 254–255). Köyliö grave A3, with also carpenter's tools, contained a fragment of a similar whetstone (Cleve 1943 pp. 22–24, Plate 8:39). Because of this it seems possible that a long narrow whetstone of this form was necessary especially in connection with woodworking (cf. also Andersen, Crabb & Madsen 1971 p. 135).

Attention has not generally been paid to small whetstones of simple form, as for example those found in graves 385 and 407, because when they are found outside of any definite combination it is easy to confuse them with fragments of larger and later whetstones. These two artefacts indicate however that at the period shift from the Viking to the Crusade period men may have carried in their pouches whetstones which correspond in size to the pendant whetstones and sometimes may resemble these in form (e.g. in grave 407). Petersen has made the same observation regarding the Norwegian material (1951 p. 256).

2.10. GRINDING-STONES (?)

Two slightly faceted roundish stones were found from a Luistari grave:

99:2140	83 × 76 × 75 mm
:2155	89 × 85 × 67 mm

Both of them are of grey stone. They were found outside the coffin, so it is not impossible that they derived from the settlement layer. Similar stones are known from different periods in Finland and also from the surrounding areas (Kivikoski 1973 figs. 190, 991, pp. 39, 127; Latvijas PSRA 1974 Plate 68:13). Although they are called »kuutiokivet» (cube stones) in Finland and »knackstenar» in Sweden, they were possibly used in grinding grain. There is a third similar stone (20552:11) from Luistari found in the cairn excavated in 1979, and an almost round one (20775:37) was found on the site of the Kauttua village.

3. HORSE HARNESS

3.1. BITS (fig. 19)

There are whole or fragmentary bits from eight graves at Luistari:

20:1226
52:1579, 1804?
53:1584
56:1729
145:2471
280:3135, 3139
329:3732
400:4487

The ringed bit from grave 145 has rings of round section and a three-jointed mouth-piece. There was a similar ring and a fragment of a mouth-piece in grave 56. These may have been included in the grave from earlier burials, but their location at the foot end may link them to this particular grave and they may have been broken by the digging of grave 54 and the missing pieces were thus dispersed. Also grave 280 contained only fragments, two iron rings of rectangular section, which may be from bits. Grave 145 contained a male corpse, in grave 280 there was a multiple burial with at least one male, but in grave 56 the deceased was a female. All these graves are from the Viking Age.

The four Merovingian period graves (20, 52, 53, 329), which contained ring-bits or fragments of them, are all male burials. The rings in grave 329 are of round section like the Viking period ones, the others are flat in section. The diameter of these rings varies from 65 to 82 mm. The Viking period ones are from 50 to 62 mm in diameter, although

the ring fragments in grave 56 suggest a considerably larger ring.

Grave 400 is also a male burial containing two clamp-like objects and three inter-linking joints. The joints at the extreme ends show traces of organic material, horn or bone, and there is similar material in the hooks of the clamps. Supposing that these traces are from bone or horn plates or rods, the bit in its entirety can be reconstructed (fig. on p. 63). This resembles the bar-bit Kivikoski 1973 fig. 1002, although the one in question has three joints. Similar metal parts were found in grave 3 of the Yli-Nuoranne cemetery at Eura excavated in 1965 (NM 16950:125), but in these the bars seem to have been of wood. Bone and horn bits and parts of bits are known to some extent in the ethnographic material (Sirelius 1919 p. 411 fig. 403; Taavitsainen 1976 p. 40).

Only two of the Luistari bits were found intact (objects from graves 145 and 329), and these are both three-jointed with rings of round section (Kivikoski 1973 figs. 632, 999). This type of bit was common in Finland in the Merovingian and Viking periods; there is also one from the Migration period. There are 56 bits of this type in the material studied by Jussi-Pekka Taavitsainen (1976 p. 9, 25) for his graduate paper. According to him three-jointed bits are more common in Finland during the Merovingian period than in the Viking period. They are generally associated with the younger Iron Age in neighbouring countries.

The Luistari material does not support Taavitsainen's claim (1976 p. 54) that bits are linked to some kind of upper-class burial. Only grave 52 from the Merovingian period probably contained a

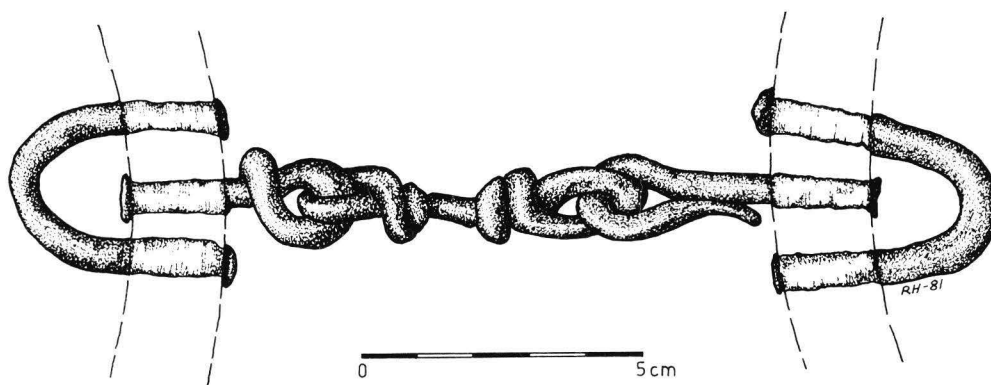


Fig. 19. Reconstruction drawing of the bits from grave 400.

sword, and there are no bits in any of the rich Luistari men's graves from the Viking period. It must be remembered that grave 145, which was well-furnished, contained along with spears and a scythe artefacts related to handicraft, which cannot very well be linked to an upper-class personage. Grave 280 from the Viking period and No. 53 from the Merovingian period do not even have spears. If bits can be definitely linked to the furnishings of grave 56, a woman's grave, this, in addition to grave 52, which contained a sword, is the only one which can be regarded as belonging to an exceptionally rich person. This body was however also furnished with both shears and a sickle, so the occupant of this grave cannot have been a person totally supported by the labour of others. I at any rate cannot imagine an aristocracy with sickles in their hands.

3.2. BRIDLE MOUNTS (?)

Some of the graves contained remains which could be interpreted as parts of bridles:

25:1327, 1329, 1351	Sheet-bronze mounts
:1334, 1346, 1350	Bronze sleigh bells
209:2881, 2885	Sheet-bronze mounts
:2884, 2886	Bronze sleigh bells
358(373):4204	Cruciform mount
403:4525, 4526	Cruciform mounts
:4523–24, 4527–28	Lozenge-shaped mounts, leather
:4522	Small tin studs

There were two cruciform mountings of thin bronze plate, eight lozenge-shaped bronze mounts and pieces from a leather strap c. 15 mm wide from grave 403. In addition to these about 30 grey stains c. 10 mm in diameter were observed in this grave. These were apparently the remains of oxidized tin studs. Parts of about a dozen of these could be secured. The artefact to which these mounts originally belonged was in such a state of disintegration that its original appearance could not be discerned. Judging from the fact that similar cruciform mounts have in other connections belonged to harnesses (Kivikoski 1973 fig. 934, p. 123), these may also be horse-gear. Although the number of studs is too small to imply a head ornament like the one found in grave 832 at Birka (Arbman 1940 Pl. 20:1 and 21) something similar is however suggested by the find.

There is a cruciform mount from grave 373 (probably originally from grave 358, a multiple burial), parallels to which have been found affixed to the rings of bits (Kivikoski 1973 fig. 1000, p. 128). Round mounts with embossed ornamentation

were found in the same vicinity (see 6.6.4.). These may also have been part of the bridle (Kivikoski 1973 fig. 933, p. 123, note 68). Both have parallels in Estonia, especially the Estonian islands (Kustin 1962 fig. 10:7 and Pl. IX:6, pp. 78, 87; Selirand 1974 Pl. XVII:2, p. 124), where they are regarded as being of Scandinavian origin. The cruciform mounts from Birka, referred to in this connection, are however mainly of the same type as the mounts in Luistari grave 403, whereas these others are more massive, cast.

Mounts of thin bronze plate were found in grave 25, a woman's burial, as well as in grave 209, probably female. Leather straps were affixed behind these. In the same graves there were also small bronze sleigh bells joined to leather straps by double mountings. Iron bells of similar form have been interpreted as belonging to a harness (Tallgren 1925 fig. 172; Salmo 1952 fig. 365; Kustin 1962 p. 87, Pl. XIV:6; Kivikoski 1951a fig. 908 p. 24, 1973 p. 110), so it is possible that these mounts and bells were also originally parts of horse-gear. Grave 25 is from the beginning of the 11th century (Lehtosalo 1973a p. 105). Grave 209 is probably of the same date, as, in any case, it is later than the end of the 10th century, transecting grave 225 dated to this period (see 1.3.9.5.). It is possible that the mounts and bells were originally placed in grave 225, a male burial, which was destroyed when grave 209 was laid, but, taking into account the fact that the bottom of grave 225 is nearly 20 cm deeper than grave 209, this does not seem probable.

3.3. SADDLE?

Two ring-headed iron spikes were found in a grave: 288:3281

They were struck as deep as the ring parallel to one another into a wooden object. Several ring-headed spikes were found in grave 713 at Birka, and Arbman (1943 p. 248, fig. 198b) has suggested that these belong to a saddle. There was no other horse-gear from this Luistari grave, but the pit was large enough to accommodate a saddle. If the stirrups were also of wood, as Sirelius (1919 pp. 414–415, figs. 411, 412, the Sipoo and Aunus saddles) mentions that they were in peasant use, some rings would have been the only metal parts of the whole saddle (cf. Schetelig 1908 No. 15, fig. 10, p. 14). Naturally the rings in grave 288 could have been from some other wooden artefact than a saddle; the streaks in the bottom of the grave might also point to a ledge (see Luistari I:2.4.3.). If, however, a saddle had been placed in the grave it would apparently have been used as a head-rest for the body, as the rings discussed above were found immediately next to the head of the deceased.

4. ACCESSORIES AND USEFUL IMPLEMENTS

4.1. CRAMPONS

Crampons were found in two graves:

68:1916

218:2937

Grave 68 contained male furnishings including a scythe and spearheads, grave 218 was otherwise without artefacts. It is possible that the crampon also came to be placed in the filling of grave 218 from e.g. grave 217, an earlier burial, but there are also other possible explanations, as grave 218 is one of the latest in the cemetery.

Both crampons are of the same three-branched type (Arbman 1940 Pl. 40:1–2; Petersen 1951 fig. 55). Petersen (1951 pp. 64–66), among others, interprets these as horse-worn artefacts («horse-stings»), whereas some Swedish finds indicate that they have been in human use (e.g. Kjellmark 1939 pp. 42–43). Grave 831 at Birka contained an exactly similar object placed near the foot of the corpse (Arbman 1940 Pl. 40:1c). The type is also known in the Latvian finds (Latvijas PSRA Pl. 37:4, 71:29, 79:16). In Finland they are known by ethnographers to have been used in hauling seine nets in autumn or winter (Sirelius 1919 p. 379, Pl. XIV:6). Crampons are quite common in finds of the younger Iron Age on the Åland Islands, and they have been found to some extent also on the Finnish mainland. They are however mostly of a differing band-like type which has only one prong placed in the middle (Kivikoski 1973 figs. 996, 1246).

4.2. COMBS

There were remains of combs in five Luistari graves:

90:2032

100:2175

295:3416

324:3645, 3669

345:3840

It is possible that combs were originally more numerous, as only those which were in contact with bronze artefacts were preserved.

The combs in graves 90 and 100 were one-sided, made of three pieces, and joined together with rivets. Only the back part of the comb in grave 90

was preserved. Originally it was probably c. 110 mm in length and it had six, probably seven bronze rivets. The back-plates seem to be of uniform width, and no decoration can at least any longer be observed. The comb from grave 100 had iron rivets at both ends and seven bronze rivets in the central part. It shows clearly how the spikes were sawed only after the plates were affixed, as they too were indented. The length of this comb was originally c. 90 mm, and no ornaments can be observed in this either. Both of these combs may be simple versions of such decorative ones as Kivikoski 1973, fig. 941, which are rare in western Finland. However, the fragments from the Luistari grave 324 are in all probability from an ornamented comb of this type, which was in common use in Scandinavia during the Vēndel and Viking periods. These are numerous also in the Åland finds, but are rare in the East-Baltic region. It is interesting to note in this connection that e.g. of the 30 graves with combs in the cemetery at Saltvik, Kvarnbacken, only one was a male burial (Kivikoski 1963 pp. 114–115), whereas the Luistari combs are mostly from men's graves.

The comb from grave 345 is two-sided, only 51 mm in length, and strengthening plates were affixed to its central part with seven rivets. Two-sided combs have been found previously in the cemeteries of the late Viking period and of the Crusade period in Finland. In its simple form the comb from grave 345 resembles the comb from Kaukola, Kekomäki of the Crusade period, illustrated in Kivikoski 1973, fig. 1212.

All of these combs were found near the waist of the body, suggesting that they were either hung from the belt or were in a pouch joined to the belt.

Only a small fragment of bone or horn decorated with bronze rings was found in grave 295; possibly it is from a comb, although counterparts cannot be mentioned so far.

4.3. LOCKS AND KEYS

Among the Luistari finds there is a small cubiform iron artefact, which was badly rusted when found:

348:3881

It was found on the left hand side of the corpse next to the grip of the sword. Apparently it is a small hanging lock, mainly of the same type as

Kivikoski 1973 fig. 959, but considerably smaller (cf. Arbman 1940 Pl. 273:4–6). According to Arne (1914 p. 200) the model of lock in question is eastern in character and it arrived in Scandinavia via trade.

Only half a dozen locks of this type have been found in Finland, one from Rusko (16951:37), one from Kalanti, one from Yläne (13839:283), one from Ylöjärvi, two from Kokemäki and two from Eura (cf. Kivikoski 1973 p. 125). They seem to occur mainly in the same region as most of the firesteels with a horsemen motif handle.

Keys were found in four graves:

212:2408

359:4118a, b

363:4144

377:4246, 4252?, 4258–59

The iron key found in grave 212 is large, length c. 120 mm, and of simple form. The shaft is of round section and it is bent at the upper end to form a ring. The blade of the key extends from the shaft in a rectangular form and at its extreme end there are two extensions bent sideways. It can chiefly be compared to the large iron keys of the Crusade period (Kivikoski 1973 fig. 1216, p. 147) and it is probably of the same date as these.

The key from grave 363 is of somewhat the same type as the previous one, but it is smaller (105 mm) and more decorative. The iron blade of the key has three teeth and cruciform patterns in between these. The shaft continues as a prong underneath the blade. The handle was probably rounded at its upper end and tapering downwards, but part of it has broken away. There is a thickening of bronze at the lower part of the handle serving a decorative purpose with a round stamp on two sides. I have not found any exact parallel, but the key resembles bronze keys used in the SE Ladoga region and dated to the 11th and 12th centuries (Kočkurkina 1973 fig. 2:8, pp. 31–32). Grave 363 is coin-dated to the middle of the 11th century (coin-list Nos. 87–89), which makes the dating appropriate.

Grave 359, which belonged to a woman, contained two keys. One of them (4118a) and the key from grave 377, also a woman's grave, have flat spade-like blades with three perforations; the blade of the other key in grave 359 is nail-like with three indentations. The blade is not broken as one might imagine, or if it had been damaged it was modelled afterwards, because it is evenly tapered to the edge of the indented side. The shafts of the keys from grave 359 are round in section, that of the key from grave 377 was probably flat, although there is from this grave also an iron rod fragment (4252), which could be from a round key shaft. Perhaps there were two keys in grave 377. These keys resemble

in form the keys in Kivikoski 1973 figs. 955–956, but the keys from grave 359 differ mainly because of the asymmetrical form of the blade. I have not found any exact parallels, and it is possible that when used, these artefacts had a different shape.

Grave 359 is coin-dated to the latter half of the 11th century (coin-list Nos. 79–86), grave 377 to the last decades of the 10th century (coin-list Nos. 99–100), so that all graves with keys are later than the middle of the 10th century.

4.4. BALANCES (fig. 20)

The following balance fragments were found at Luistari:

?:113	A balance beam
176:2658	A tongue (originally in grave 145?)

359:4093, 4096, 4115 Fragments of two scales

The first-mentioned piece is a balance beam found in an earth pit not so far from grave 359, and since the balance in this was in pieces and without a beam, it is possible that the beam is from it. The balance tongue found from the filling of grave 176 is hardly from the same balance, because the find place was in quite an other part of the cemetery. It could originate from grave 145, but no other balance fragments were found from the surrounding area, so the connection is not clear.

Accordingly a balance was found with certainty only in grave 359, a woman's grave. Although the scales are now quite fragmentary, one of them was in shape when found and it was about 60 mm in diameter and with three edge holes. About a half of the edge pieces of the other scale have been recovered and in one of them (4096) some yarn is visible in a hole. Probably these scales were hung with cord.

More than 25 balances have been found in Finland, and almost a half of them are from Lower Satakunta (Kivikoski 1973 fig. 823 and p. 111). According to Cleve (1978 p. 180), Köyliö C-cemetery has yielded parts from five balances; there are two both from Huittinen and Kokemäki, and apart from the Luistari finds Osmanmäki cemetery in Eura contained a balance with a set of weights (4633: 136–137). Also in this balance the scales were suspended with cords, but the scale edges had four holes instead of three as in the Luistari balance. The Osmanmäki balance has been dated to the 11th century (Salmo 1952 p. 409), and according to coins in the pouch (coin list Nos. 79–83) the Luistari scales are from the latter half of the same.

Bronze balances have been used in weighing silver. T. I. Arne (1914 pp. 177–178), and several

other researchers after him have considered them to originate from the Orient, but Helmer Salmo (1952 p. 409) has claimed that they came from trade centres on the Elbe and the Rhine. Finnish finds have mostly been dated to the 11th century (Kivikoski 1939 pp. 195–196, see however 1961 p. 203), but similar balances were used in Birka earlier (Arbman 1940 Pl. 126:1a–b), and if the balance tongue found at Luistari originates from grave 145, it must have belonged to a balance of the 9th or the very earliest 10th century (there was a damascened spearhead of type E in this grave, see 1.3.9.3.). Since on the other hand Luistari finds testify that both weights and Arabian coins were used in trade at least as early as the beginning of the 10th century in Finland, Salmo's argument that balances here connect with German coins falls down, and the theory of the eastern origin of the scales and weights gains support.

4.5. POUCHES AND THEIR CONTENTS

4.5.1. Pouches

Eleven of the Luistari graves contained remains which may be judged to be from pouches:

76:1964	Leather remains with a bronze mount
90:2033	» » » »
100:2173	Leather remains
207:2835	» »
208:2862	» »
323:3639	» »
348:3883	Leather remains with bronze fittings
:3927	Leather remains
359:4123	» »
363:4149	» »
367:4164	» »
385:4360	» »

The best preserved pouches were in grave 348, where two were found. One of these (3927) was a leather pouch of simple form, at least 110 mm in length. It contained a number of weights and three whole and three fragmentary Arabian silver coins from the beginning of the 10th century (coin-list Nos. 67–72).

The other pouch in grave 348 (3883) is much more imposing, straight at one end, rounded at the other and bordered with bronze mountings all along its sides. The straight end has a groove-like mounting both at the sides and at the end, the rounded end has a bar-like mounting riveted to the edges. A bronze loop was observed in the centre of the other side; this may have been for the purpose of hanging the pouch. The conservation process of the pouch

has not yet been completed, and the construction has therefore not been completely discovered but it does seem to differ from the pouches with bronze mountings previously found in both Sweden, the USSR and Hungary, and also from the one specimen from Finland (Kivikoski 1973 fig. 962, 1949 pp. 22–25 and the quoted literature; Sörling 1939 figs. 1–7; A.-S. Gräslund 1975 figs. 2–4). The form itself is the same as in the pouches from Birka, but they do not have groove-like mountings. It is the view of the present author before the final analysis that the grooved mountings lined the bottom of the pouch and that the rounded part lined with bronze was folded as a flap, although this was straightened out when found. The three pieces of flint found in the pouch were in the part lined by the grooved mountings. This seems to indicate the bottom of the pouch.

The Luistari pouch appears strange compared to the known reconstructions, but it was definitely not unique. A mount from Grobin, Latvia, described by Sörling (1939 fig. 9) could well be from a similar pouch. There are also other finds from Eura worth mentioning in this connection. In the immediate vicinity of a group of weights, coins and pieces of flint in the Luistari grave 90 there was a grooved mount joined to a piece of leather which might correspond to the end mounting of the pouch found in grave 348. There are two layers of leather joined with short stitches, and the mounting is clamped to protect them. In this case the pouch was otherwise of leather only. The fragment found in grave 76 could be from a similar pouch, although the meaning of the bronze ring surrounding it remains obscure; it would be better in keeping with the explanation that the fragment is from a knife sheath. A fragment of a curved mounting from Yli-Nuoranne (NM 16950:99) might well be from the flap of a pouch similar to the one found in the Luistari grave 348. Accordingly pouches with bronze mountings may have been more common in Finland than generally assumed. Ella Kivikoski (1963 p. 107) has already suggested that some of the grooved mountings commonly found in cremation burial-grounds may be from pouches.

All the other pouches from Luistari mentioned above were solely of leather, and only small pieces of them were retrieved in connection with bronze weights and silver coins. So it can be assumed that there were pouches in a considerably larger number of graves than these, as material which was found in the above-mentioned ones and which can generally be supposed to have been kept in purses such as coins, hacksilver, weights and pieces of flint, were in several other graves.

4.5.2. Coins in pouches

Coins found at Luistari were partly perforated and furnished with a riveted suspension loop, partly whole or cut to pieces and accordingly used as means of payment. The former group will be discussed in connection with pendants, but the coins of the latter group and all from the men's graves will be dealt with here. They were found in 19 graves:

	Coin-list No.
13:1114	Imitation of an Arabian coin 1
15:1158	Anglo-Saxon (with a loop!) 2
75:1957	Arabian 30
76:1993	» 31
90:2031c	» 32
100:2174	» 33
120:2375	» ? 34
208:2857	» & Western coins 38–62
323:3639	» 63
348:3912–17	» 68–73
359:4124a–f	German 79–83
363:4142a, b, 4148	» 87–89
366:4158	» 90
367:4164	» 91–98
373:4211	» (orig. in grave 358?) 77
381:4320	» 101
403:4521	» 106
407:4627	» 108
412:64, 4654	» 109–10

Fourteen of these are men's graves, two (363 and 367) are children's graves, there were several burials in grave 358, and only graves 359 and 366 contained a female corpse. Accordingly coins as means of payment were definitely more a male than a female attribute.

In the men's graves which were preserved intact, coins were always to be found in the pouches, which suggests that this was their original location also in other cases. Also in the woman's grave 359 they were definitely in a purse, but in the damaged grave 366 coin fragments were found at the foot end of the grave and their original location is not clear. Apparently also in graves 363 and 367 the coins were in purses, and although the other coins with suspension loops in grave 358 were probably from a neck-band, the coin mentioned above had no loop and no hole either.

Grave 208 contained the largest number of coin fragments along with a few pieces of hacksilver. There were more than 25 fragments of coins from over a period of about a hundred years. One coin was Arabian, the others Western in origin. As mentioned earlier, there were three whole and three fragmentary Arabian coins in grave 348, but

the other graves with Arabian coins in pouches contained only one fragment each. The Western coins, on the other hand, were often whole. All coins were in pieces in grave 208 and in grave 367, where a number of fragments of Western coins were found in a small leather bundle; two fragments were found in grave 366 and in grave 403 only one. Graves 15, 381 and 407 contained one Western coin each, there were possibly a coin (pierced!) and a fragment in the badly damaged grave 412, and a coin and fragments of at least two in grave 363, the burial place of a small boy. The pouch in the woman's grave 359 contained two coins and four fragments.

A comparison of the occurrence of coins in Luistari graves with that observed in Birka shows that here as well as in Birka most of the graves contained only one coin or fragment of such (on the Birka coins, see A.-S. Gräslund 1967 pp. 178–180; Kyhlberg 1973 p. 204). On the whole more coins were found per grave at Luistari than in Birka, the ratio there being 188 coins/107 graves, while at Luistari about 110 coins or fragments were found in possibly only 28 graves. The 107 graves with coins in Birka comprise about 10 % of all studied, the Luistari graves with coins total one-sixth of the sum of the furnished graves. Coins are thus relatively more common in the Luistari graves than in Birka, but this may be because the Birka graves date from before the period of the influx of Western silver, whereas at Luistari this phenomenon too is reflected in the material. Two-thirds of the coin-bearing graves are with certainty from a later date than the year 1000.

It is however worth noticing that at Luistari several graves from the earlier Viking period contained Oriental coins in pouches. Thus the opinion often repeated that Cufic dirhams were used on the Finnish mainland only as ornaments (Granberg 1952 p. 15; Cleve 1978 p. 84; Talvio 1978 pp. 27, 33, 1980 pp. 173–174; cf. however Salmo 1948 p. 420) is wrong. At Luistari only two graves (139, 344) from the early 10th century contained coins as ornaments, while there were cut-up coins in at least five graves of the earlier Viking period. And also taken as a whole there had probably been more graves with coins in purses than in necklaces; at least original Cufic dirhams were used as pendants only in five graves (56, 58, 139, 344 & 377), while they appeared in seven or eight purses (graves 75, 76, 90, 100, 120?, 208, 323 & 348).

4.5.3. Weights

Weights or objects possibly used as such total 39 in the Luistari finds; 21 of these were found in pouches (see table 4).

In alla cases where weights were found scattered or in unusual places, the graves had been damaged by the digging of subsequent pits. It is to be noted however that although pouches were usually found at the waist of the corpse, in grave 385 the remains of a pouch were found above the head. Thus weights found elsewhere than at the waist may also have been originally in pouches, and need not

necessarily have shifted from their original location.

The weights were clearly placed in pouches in graves 90, 207, 208, 348 and 385 as well as in grave 359, which was a female burial, with also the remains of a pair of scales. The largest number of weights was in grave 348 (8 pieces along with a piece of bronze probably also used as a weight),

Table 4

WEIGHTS AT LUISTARI		Spherical			Cubic	Disc-shaped			Cylindrical	Temporary forms	Notes
		Bronze	Bronze- plated	Iron		Bronze		Iron			
						Round- ed	Flat	Flat			
Grave and number	Weight										
9:1003	25.53			1							
:1008	2.87							1?			Fragment
13:1100	35.95	1									
:1113	16.34	1									
16:1170	9.27	1									Orig. G. 15?
23:1266	5.96			1							} Orig. G. 13?
:1270	22.16			1							
:1272	2.24			1							
90:2031a	2.48						1				} In a pouch
:2031b	0.32						1				
207:2833a	23.62		1								} In a pouch
:2833b	8.56						1				
:2833c	5.65				1						
:2833d	5.02							1			} In a pouch
208:2859	6.30							1			
221:2945	15.11		1								Orig. G. 207?
318:3595	2.44						1				
348:3918	29.36				1						} In a pouch
:3919	3.53				1						
:3920	3.26				1						
:3921	1.85				1						
:3922	1.72				1						
:3923	1.35				1						
:3924	3.13					1					
:3925	0.84					1					
:3926	0.57								1		
349:3988	6.64			1							} In a pouch
359:4123a	24.06		1						1		
:4123b	5.09										
:4123c	3.74									1	
363:4142	9.52			1							} Orig. G. 358
372:4191	9.26			1							
:4194	6.80							1			
381:4328	16.68		1								} In a pouch
385:4359a	16.71			1							
:4359b	7.64			1							
407:4618	23.58			1							
:4628	12.91			1							
? :580	11.85							1			

Fig. 20. Distribution of scales and weights at Luistari.



followed by grave 13 (5? weights), grave 207 (4 weights besides one from the filling of grave 221) and grave 359 (2 weights and a fragment of a brooch used as a weight). The others contained only one or two pieces each (two in graves 9, 90, 372 = 358?, 385 and 407, one in graves 16 = 15?, 208, 318, 349, 363 and 381). Probably these as well as the coin fragments have had symbolic significance. Whole series of weights were also rare in the Birka finds (Kyhlerberg 1973 p. 210).

For the most part, weights of spherical shape were found at Luistari. Only three of these were completely of bronze, two from grave 13 and one from the filling of grave 16, perhaps originally from

grave 15. The largest of these (1100) weighed nearly 36 g. and was marked on one flat side with five and on the other six dots. The other one from grave 13 was similarly marked (2 + 2 dots) and the weight from grave 16 was marked 2 + 1. Dot markings were observed only on one other spherical weight; the bronze plated iron weight from grave 359 has three dots on one flat side, with the other side completely covered with rust.

Bronze-plated weights were also found in graves 207, 221 and 381, but it is not impossible that some of the spherical iron objects found at Luistari may have also had a covering of bronze. These were found in graves 9, 13, 349, 363, 372, 385 and 407,

and they still require further laboratory studies.

Of the seven weights cubic in form, six were found in grave 348. The smallest of these weighed 1.35 g. and the largest 29.36 g. It must be noted, however, that of these six weights, three weigh less than 2 g., and two slightly more than three grams, which does not indicate any kind of consecutive series. The other weights found in the pouch do not give any more information, as two rounded discoid weights weighed 0.84 and 3.13 g. and a piece of bronze of indefinite shape from the same connection weighed only 0.57 g. It must be noted, however, that by moving small weights from one scale-cup to another, this combination permitted weighing from c. 0.5 g. to more than 50 g. The basic weight used was roughly 7.5 g. This amount was arrived at when the weights in question were combined in different ways, although none of the weights themselves weighed exactly 7.5 g. The cubic weight from grave 207 added with one of these (3921) gives the same result.

The largest weight of cubic shape had nine »bull's eye« marks, one had no markings and the others had from 9 to 20 small dots marked on them. The number of markings does not seem to correspond to the relative weights of the pieces. The dots were not marked regularly and there are different numbers of them on different sides.

According to Kampman (1928 p. 55), dice-shaped (= cubic) weights weighed considerably less than an »äyrytinen«, a Finnish measure of weight from 7 to 9 g. In Sarvas' list (1964 pp. 26, 29) two cubic weights of more than 7 g. are mentioned (Salla, Aatservainen No. 37:10 7.95 g. and Köyliö Cemetery No. 8723:840 8.33 g.), but despite this the large cubic weight from grave 348 is a unique find in the Finnish material. There are no comparable weights of this shape from Birka either, the largest cubic weight of which exceeds 4.5 g. (Kyhlgberg 1973 p. 210). At the same time the series of weights from grave 348 is the first found in Finland where weights of cubic form are more numerous than others, and which contain rounded disc-shaped weights. It is also the first series of weights which can be dated to as early a period as the first half of the 10th century.

Grave 207 contained the largest assortment of different types of weights. In addition to a weight of cubic form, the pouch contained a flat disc-shaped weight of bronze, a disc-shaped one of iron and a bronze-plated spherical weight. It is possible that the spherical weight found in the filling of grave 221 was also originally from this grave.

Disc-shaped weights of bronze found in graves 90 and 318 are of interest because of their small size: the smaller one from grave 90 weighed only 0.31 g.

and both the others weighed less than 2.5 g. Only these weights were found in both graves.

Grave 359, a female burial, contained, in addition to a bronze-plated spherical weight, two unusual weights, a cylindrical iron weight and a lump of cubic form bent from the end of an equal-armed brooch apparently also used as a weight. An interesting detail of the latter object is that it is originally from a brooch of the so-called Ljones type (see 6.1.1.), mainly in use during the 9th century (Kivikoski 1973 fig. 677, 1938 p. 16), whereas the pouch in which it was found contained coins from the latter half of the 11th century. If this had been a cremation burial the right explanation could hardly have been arrived at.

Disc-shaped weights of iron were found, apart from grave 207, also in graves 208 and 372 (possibly originally from grave 358). A piece has been removed from that found in the latter, giving it a segment-like appearance, and the weight, of course, is not nearly the same as that of the original. Also the weight discovered as a surface find is of this type.

On the whole the distribution of weights in the cemetery shows a definite concentration in zones I and IV (see map fig. 20), giving the weights in graves a later date than roughly the year 900 A.D. The distribution of various types of weights shows that spherical weights as well as disc-shaped ones of iron do not occur at all in zone IV. On the other hand disc-shaped weights of bronze and cubic weights occur only in grave 207 in zone I. Rounded discs were found only in grave 348. It seems apparent that the Luistari weights can be divided into two groups, an older one with discoid and cubic weights of bronze, and a younger one with spherical, discoid and cylindrical weights of iron. Grave 207 may be from an intermediate stage, as it contains weights of both groups. The coins found in graves 90 and 348 indicate that the weights of the older group came into use during the earlier half of the 10th century. The coins from graves 208, 359, 363, 381 and 407 show that the younger group was in use during the 11th century. Perhaps grave 207 dates from about the year 1000.

According to Pekka Sarvas' graduate paper from 1964, all in all about 280 weights had been found in Finland by that date. Of these, 235 were spherical, 19 of cubic shape, 6 disc-shaped and 9 of ball-shaped form, which is the term used by Sarvas for iron balls. In addition to these there were also 11 objects of temporary and indefinite form made from other objects (Sarvas 1964 p. 5). Since Sarvas' paper, the total number of weights found in Finland has risen to about 350, the new finds coming, with the exception of Luistari, from at least the cemeteries at Ylöjärvi, Mikkola and Raisio, Mahit-

tula. The lightest weights mentioned by Sarvas were of cubic form or drop-shaped bronze lumps, apparently used as weights (e.g. NM 13839:307 from Anivehmaanmäki, weight 0.69 g.). Among these there was also a light weight of disc-shape from Vilusenharju grave 42 (NM 17208:333, weight 2.90 g.) which, however, is not as light as the disc-shaped weights found at Luistari.

According to Sarvas (1964 pp. 4–5), scales and weights studied by him derive from 24 dateable finds, of which only four can be assigned to the 10th century, and of these two are from about the year 1000 A.D. Most of the finds are from the 11th century; there are five finds from the Crusade period. Only one disc-shaped weight, from Vöyri, Gullydynt, can be dated to an earlier date than the Viking period. The three Luistari graves (90, 318 and 348) with weights dating from the first half of the 10th century are thus an important addition to the earliest history of weights in Finland.

4.5.4. Tinder flint, beads and whetstones in pouches

Pieces of flint were found from 25 graves:

	Location
1:977	In the filling
17:1198	»
55:1623	»
75:1962 (2 pieces)	»
90:2031e (5 pieces)	In a pouch
99:2160	In the filling
109:2219 (small fragment)	»
135:2396, 2401 (2 pieces)	In a pouch?
145:2488 (small fragment)	In the filling
165:2611	Near the waist
168:2624 (small fragment)	In the filling
171:2635	»
176(145?):2668	»
179:2682	»
290:3316	Near the left shoulder
292:3377 (2 pieces)	In the filling
294:3403	»
302:3487 (2 pieces)	In a pouch?
345:3839	» »
347:3866	Near the head
348:3883 (3 pieces)	In a pouch
349:3991	Near the legs
385:4363	In a pouch
402:4506	Near the head
406:4611	Near the waist

As shown by the list above, flints were found at least in three, but perhaps in 7–8 pouches. All the graves in which flint can be said to occur in burials and not in the filling belong to men, and most of them were situated in zones I and IV. Often these

graves contained also a firesteel, but at least in grave 385 where a piece of flint was definitely in the pouch there was no such object.

Beads may have been placed in the pouches found in graves 135, 208 and 318 (see 2396, 2843–45, 2847, 3592) and the pouch in grave 385 contained a small whetstone (2.9.), as well as small pieces of bronze (4359). The latter were probably placed in the pouch as a substitute for money or perhaps as additional weights. The whetstone found in grave 407 was possibly also in a pouch, and it has been mentioned earlier that combs could also have been placed in pouches (4.2.).

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The oldest certain burial with a pouch is grave 323, where the pouch contained a fragment of an Arabian coin from the last quarter of the 9th century (coin-list No. 62). There are several of these from the 10th century, and it was most common to place a fragment of an Arabian coin in a pouch with the deceased. At the same time weights and also tinder flint start to appear as well as beads, which perhaps were used as money. During the first half of the 11th century Western coins and the weights of the younger group become common in the graves. Flint occurs most often in the youngest graves.

4.6. FIRESTEELS (fig. 21)

A total of 20 to 25 firesteels were found in the Luistari graves:

9:1009–10, 1012, 1017	Oval, in fragments
63:1891	Lyre-shaped
80:2005	Lyre-shaped, fragmentary
90:2030	Bronze-handled with two horsemen
135:2386	Lyre-shaped
208:2854	Lyre-shaped
225:2953	Simple longitudinal?
283:3221	Curved
290:3318	Oval
299:3464	Oval, in fragments
:3474	Simple longitudinal
302:3488	Simple longitudinal?, fragmentary?
303:3500	Curved
318:3591	Simple longitudinal?
320:3626	Simple longitudinal?
325:3704	Curved
341:3798	Oval, in fragments
348:3937	Bronze-handled with two horsemen
349:3986, 3993	Oval, fragmentary
358:4084	Oval? (only a fragment)

359:4120	Oval
363:4140	Oval, fragmentary
391:4447	Oval, fragmentary
402:4505	Oval, fragmentary
421:20552:1	Oval, with angulated ends

Ten or eleven of these are oval in form, four lyre-shaped, three are curved at both ends, five are of a simple longitudinal shape and two have a horse-men-motif. Of the firesteels listed above, 15 are from men's graves and three from those of small boys (graves 63, 290, 363). One is from grave 303 which had two corpses; one was found in the filling of grave 421 and one from the filling of grave 341. If the latter was originally from grave 306, it too would have belonged to a small boy. Only two firesteels were found in female burials: one in the filling of the Merovingian period grave 421, the other in grave 359. The corpse in the last-mentioned grave was otherwise furnished in a manner differing from the others (a set of scales, a pouch, etc.). The firesteel is thus clearly a male-linked artefact form.

The oldest known oval firesteel in Finland is from the burial ground A in Köyliö and is dated to the beginning of the Merovingian period (Cleve 1943 pp. 152–153). The type becomes common during the Viking period and it is very numerous during the last centuries of the prehistoric era (cf. Kivikoski 1973 fig. 642, p. 88, and fig. 1007, pp. 128–129). Most of the oval firesteels in the Luistari finds are from the graves in the northern part of the cemetery which are dated to the very end of the Viking period or to the Crusade period. Only graves 299 and 341, from which fragments of oval firesteels were found, were located in the central parts of the cemetery, and only the firesteel from grave 421 is perhaps from the Merovingian period (it differs from the others because of its angulated ends, cf. Kivikoski 1973 fig. 642 from Ristimäki in Kaarina). The Luistari finds thus support the previous observations.

The lyre-shaped firesteels are very common during the Viking period, but they occur already earlier (Cleve 1943 p. 152; Kivikoski 1973 fig. 641, p. 88). All of the Luistari graves which contained them may be supposed to be from the Viking period; the latest is coin-dated to the middle of the 11th century (grave 208, coin-list Nos. 38–62). Also Petersen (1951 p. 433), on the basis of the Norwegian material, states that the type in question occurs already during the Merovingian period, but the material that he lists shows that the type seems to become common at a later time. He refers to 12 artefacts from the Merovingian period, 26 from the 9th century and 38 from the 10th century.

There were remains of wood in the extensions of the firesteels with curved ends found at Luistari.

This appears to indicate a wooden handle, and there seems to have been a bronze ring for hanging in the artefact from grave 283. These may be related to firesteels such as Kivikoski 1973 fig. 644 and Petersen 1951 fig. 232. Kivikoski (1973 p. 88) includes only three Finnish artefacts in this type, but in Norway it seems to have been more common. Petersen (1951 pp. 434–435) regards it as an early form, stating that more than half of the finds that can be dated (15 finds) are from the Merovingian period, 11 are from the 9th century and only two from the 10th century. In England there are, at least in the 7th century finds, iron artefacts which resemble these or the lyre-shaped firesteels, but there they have been interpreted as purse-mounts (Swanton 1974 figs. 61e and 76h, for the dating see pp. 52 and 101; cf. Cleve 1943 p. 152, note 4). The Luistari artefacts of this type are however fairly certainly firesteels, and the form with slightly curved ends seems to appear in the finds from the end of the 9th and the beginning of the 10th centuries.

Simple longitudinal iron rods have been interpreted, although with reservations, as strike-a-lights partly because of their grave location and partly because they resemble the iron part of the firesteels with a horse-men motif. One of these (from grave 320) has remains of wood on one side, which could indicate a handle. Also Petersen (1951 p. 435) mentions a couple of these and he regards them as being of Merovingian period date. At Luistari they were found in graves that were dated mainly to the 10th century; grave 302 may be of a considerably later date.

The bronze-handled firesteels with horse-men, found in graves 90 and 348, resemble to a large degree an artefact found at Kokemäki, Leikkimäki (Kivikoski 1973 fig. 1011). There is a casting error in the other horsehead in the firesteel from grave 90, so that there are no ears and the riders have no beards, but the position of the horses and the stylized form of their heads as well as the grooves in the lower part of the handle are identical to those in the Kokemäki artefact. The firesteel from grave 348 resembles the Leikkimäki piece in all its details, in addition to which it is also decorated with a ringed dot pattern. In this respect it resembles a fragment of a firesteel found at Gnezdovo (Sizov 1902 Pl. VII:15) which displays other common features with Finnish strike-a-lights. It seems probable that the firesteels from Gnezdovo and from Luistari grave 348 are from the same forge. It is interesting to note that a third horse-men-firesteel found in the Eura region (9854:17 from Yli-Nuoranne) is of the same variant as the Luistari artefacts; it also has one horsehead without ears. Both grave 90 and grave 348 are dated to the first

FIRESTEELS WITH TWO HORSEMEN

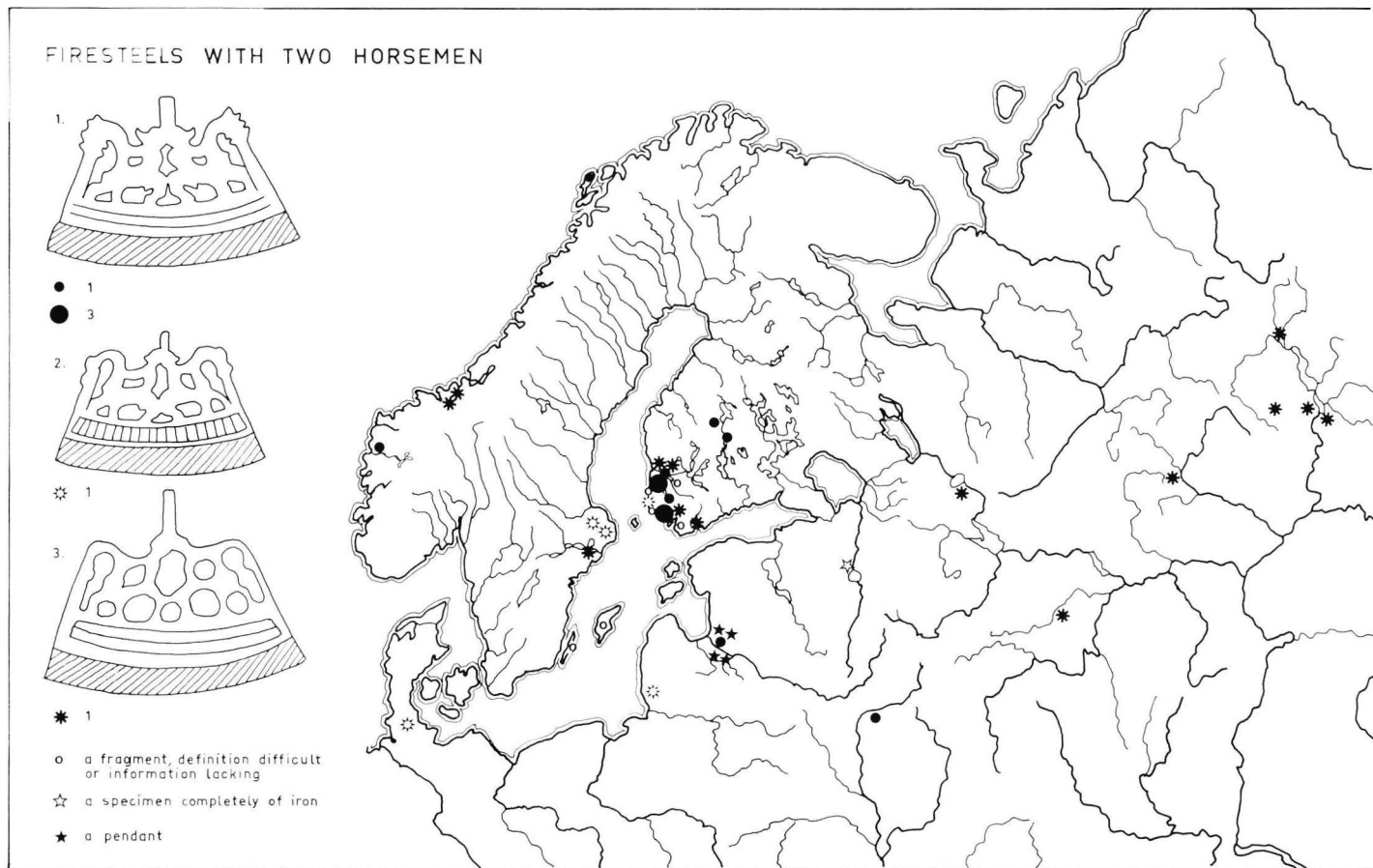


Fig. 21. Distribution of firesteels with two horsemen (cf. Cleve 1930 fig. 2; Golubeva 1964 fig. 1; Capelle 1968 map 29; new finds added).

half of the 10th century (coin-list Nos. 32 and 68–73) and the Yli-Nuoranne firesteel is probably of the same date, as it was found together with type E spearheads among other artefacts.

Firesteels with horsemen were 15 in number in Finland prior to the year 1970 (Kivikoski 1973 fig. 1011, p. 129; in addition to the ones listed there were also the following: Satakunnan Museo 9212, Kokemäki, Vuolle and NM 9222:250 and 451, Lieto, Merola). Four were known in Norway by 1951; according to Petersen (1951 fig. 236, p. 436) they are all from the latter half of the 10th century. By 1969 five such artefacts were known from Sweden (Käks p. 156) and one from Hedeby (Capelle 1968 Pl. 17:2). There is one from Lithuania and one from Latvia, from where there are also at least four pendants modelled after these (Kuncienė 1972 fig. 11; Mugurevičs 1965 Pl. XXIX:9; Ginters 1939 fig. 29; Zarina 1974 fig. 5:4, 8). At least ten firesteels with horsemen have been found in Russia, six of these in the Kama region (Golubeva 1962 fig. 5 and 6:3, 1964 pp. 130–131; Sedova 1978 Pl. 2:18, p. 78).

The number of these firesteels in Finland is 19 after the finds from Luistari, from the Mahittula cemetery in Raisio (in 1975) and from Oravisaari in Jyväskylä (in 1981). This is nearly half of all the

firesteels with horsemen. In addition to this, the firesteels found at Luistari, Yli-Nuoranne and Leikkimäki, and also the fragments from Mahittula are very similar. They display strongly built horses, mostly identifiable as stallions with a strongly stylized head. These traits are typical of many other firesteels found in Finland (e.g. 9222:250, 481 and 13204:164 from Lieto; the latter is somewhat originally formed). The existence of a Finnish group of firesteels with horsemen seems evident, and the newest finds support a previously-held view that a place of manufacture for these existed in western Finland (Kivikoski 1938a pp. 244–245; Käks 1969 p. 155). The motif is regarded as having come from the Kama region (Cleve 1930 pp. 58–59), but the new finds have given rise to the problem that the Luistari pieces are from graves dated to the first half of the 10th century, while the Russian finds are dated to the latter half of the 10th century and to the 11th century (Golubeva 1964 p. 131). The Finnish group seems at this stage to be the oldest, which, combined with the fact that these firesteels occur in Finland more numerous than elsewhere, makes the problem of origin truly difficult. The distribution of the other bronze-handled firesteels is clearly of an eastern character (Golubeva 1964 map 1), which means that it would be daring to

claim that those with horsemen are of Finnish origin. A vigorous Finnish manufacture based on an eastern model would explain the existence of the western group. This however presupposes the existence of a model that could be dated to the 9th century or to the beginning of the 10th. So far none have been found.

In this connection it is interesting to note that there is in the Museum in Novgorod a firesteel found from that town, which is almost completely similar to these bronze-handled strike-a-lights but is made totally of iron.

It seems that during the Merovingian period and even in the 9th century, placing firesteels in graves was not a common practice among the population which used the Luistari cemetery. It is only from the end of the 9th century that firesteels begin to appear often in the graves: the oldest are curved at the ends or are simple flat iron rods, these are followed by lyre-shaped firesteels and the oval ones are youngest (the firesteel from grave 421 is an exception). There are firesteels with bronze handles from a couple of the richest graves in the

cemetery, indicating them as a symbol of either wealth or of distant travels, and they can be dated to the stage when placing firesteels in graves seems to become common practice among the Luistari population. Perhaps this is also an indication of new impulses arriving in the area.

4.7. GAME PIECE?

A conical clay artefact was found from the filling of a grave:

284:3245

It is 30 mm high and in form very similar to bone pieces found from different cemeteries in Åland and considered to be game pieces (Kivikoski 1951a figs. 878, 879). These have not been found on the Finnish mainland, but this does not necessarily mean that games using pieces were unknown; wood was the natural material for small articles like these in Finland. The Luistari artefact was found from zone IV.

5. VESSELS AND BOXES

5.1. METAL VESSELS

Only one bronze vessel has so far been found in the Luistari cemetery:

345:3843

When found it was badly damaged, but reconstructed it measures c. 100 mm in height and c. 210 mm in width, and it seems to be a kettle with an even bottom, the upper rim of which turns outwards at almost a right angle. The vessel tapers slightly towards the bottom, and apparently it was very old when buried, because it has been repaired many times over. The handle is of iron.

A few bronze kettles have previously been found in Finland. A couple of them are from the Merovingian period, the others from the Viking and Crusade periods (Kivikoski 1963 Plate 29:1, 1973 figs. 1016, 1254–1255, p. 129). The Viking period kettle from Osmanmäki in Eura (1913:1) and the kettle from the Vilusenharju grave 42, dated to the beginning of the 12th century (Nallinmaa-Luoto 1978 p. 202), are rather similar to the vessel from Luistari. Grave 345 in which the Luistari kettle was found was located in zone I.

An iron fragment with the edge turned double (18000:1234) found on top of the Merovingian period grave 21 could also be from a kettle, but its connection with this grave as well as the original form of the vessel have remained obscure.

5.2. CLAY POTS (figs. 22, 23)

The ceramic material from Luistari is large and varied. Besides the finds from the inhumation burials it also includes the material from the earlier dwelling site and the cremation burials. In this connection it is my aim however to concentrate only on the material from the inhumation burials. I shall discuss the pottery from the cremations in another connection, and with regard to the dwelling site I refer to my article in *Suomen Museo* 1977 (pp. 26–36).

No vessels found in the inhumation graves were turned on a wheel. It is not impossible, however, that some kinds of moulds were used (Carpelan 1980 p. 193). The ornamentation is most often on one horizontal zone, and this is usually in the upper part of the vessel; in only one case was ornamentation

to be found on the widest part of the vessel in the middle (2103 from grave 97). Cord impressions are the most common decoration (in 29 vessels of the total of 80, cf. table 5). Alongside of this there are also straight, wavy and zig-zag lines as well as diagonal hatching (in the vessel from grave 25), horizontal lines and indentations which have the appearance of having been drawn by fingers. In the following the last-mentioned will be called »finger lines». The term »wavy lines» will be used also for ornaments called by Selling (1955 p. 34) »Zickzackband» and »Arkadenband», because those different variants can appear in one and the same band (cf. the vessel from grave 76).

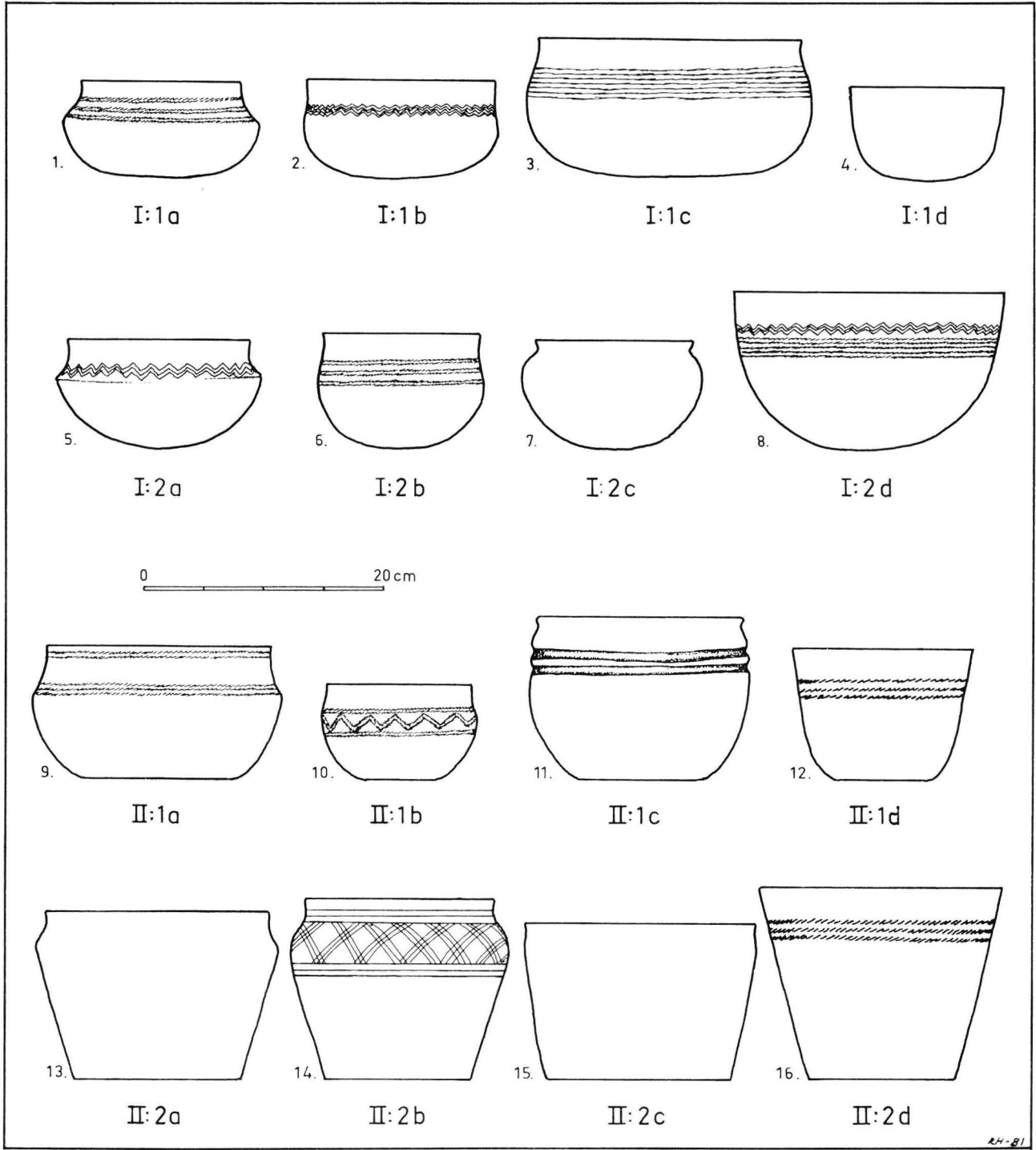
There are 32 undecorated vessels. Among both these and the decorated vessels there are ones of both polished and dark-surfaced ware and ones of coarse clay matter. The size of the vessels varies considerably; the smallest have a volume of 3–4 dl (2730, 3452 and 150 from graves 190, 297 and 359), the largest (4305 from grave 413) perhaps 4 l. Mainly however they can be divided into two size groups, ones with a volume of 1–1.5 l and ones with a volume of 2–4 l. There were perhaps 37 vessels of the former size (with badly fragmentary ones it has been difficult to calculate the volume), of which 26 have rounded bottoms, and there are 28 of the latter, of which only six are round-bottomed (groups I:1c and I:2d below). The flat-bottomed vessels from graves 98, 280, 342 and 370, of which three last-mentioned ones are only in fragments, probably contained slightly less than 2 l, and there are seven vessels (from graves 41, 190, 191, 195, 297, 316 and 359) with a volume considerably less than a litre.

In form the vessels from the later Iron Age are either round or flat-bottomed. Both these groups can be further subdivided into two variants, the round-bottomed into ones with only a slight curve and ones with a distinctly rounded bottom. The flat-bottomed ones can be further divided into ones in which the wall is so curved that the bottom angle is hardly observable, and on the other hand ones in which there is a clear angle at the junction of the wall and the bottom. The first-mentioned variants of both groups are quite close to each other, whereas the latter ones differ considerably. In further following the form of the wall and other details the groups below could be obtained:

I:1a	Small vessels with curved bottom and distinct shoulder, restricted		I:2d	Vessels with rounded bottom and inflected contour, unrestricted	
	95:2097	Cord impressions		76:1996	Cord impressions and wavy lines
I:1b	Small vessels with curved bottom and inflected or straight contour, slightly restricted		II:1a	Flat-bottomed vessels with rounded walls and corner point, restricted	
	63:1896	Horizontal and wavy lines		17:1191 (from the filling)	Horizontal ridge, cord impressions
	73:1941	Wavy lines		28:1390	
	99:2151			41:1498	
	139:2437			200:2640, 2808?	Cord impressions
	145:2479, 2661, 2694	Cord impressions		294:3393	
	145:2481, 2661–63, 2694	Wavy lines		294:3394	Horizontal and zig-zag lines
	175:2501, 2654			305:3516, 3518	Cord impressions
	190:2730			410:4638	Horizontal ridge and lines
	191:2751				
	330:3744	Cord impressions			
I:1c	Large vessels with curved bottom and inflected contour with only a small intake under the orifice		II:1b	Flat-bottomed vessels with rounded walls and inflected contour, slightly restricted	
	23:1576	Cord impressions		170:2628	Cord impressions
	64:1904, 1913, 1979	Cord impressions	II:1c	Flat-bottomed vessels with rounded walls, restricted with a straight or outwards turning rim	
	225:2958	Cord impressions		23:1299	Cord impressions
	289:3304			75:1952	
	324:3654	Cord impressions		118:2298	Finger lines
I:2a	Vessels with rounded bottom and corner point, restricted			155:2563	
	55:1619	Wavy lines		330:3744	
	97:2103	Wavy lines		342:3799	
	170:2629	Wavy lines		370:4176	
	292:3367	Wavy lines		377:4278	
	295:3423	Wavy lines		392:4452	Finger lines
I:2b	Vessels with rounded bottom and inflected contour, slightly restricted		II:1d	Small flat-bottomed beakers with rounded walls, unrestricted or slightly restricted with inwards turning rim	
	15:1159			183:2534, 2699	
	15:1160	Finger lines		195:2780	Cord impressions
	51:5168	Cord impressions		316:3576?	
	115:2263	Wavy lines		348:3875	Cord impressions
	135:2391	Cord impressions	II:2a	Flat-bottomed vessels with straight walls and corner point, restricted	
	297:3452	Cord impressions		–	(Two vessels from Köyliö, Cleve 1943 Plate 28:151 & 159)
	320:3619	Cord impressions			
	344:3828	Cord impressions	II:2b	Flat-bottomed vessels with straight walls but rounded shoulders and upwards or outwards turning rim, restricted	
	348:3874	Cord impressions		23:1281	Horizontal and zig-zag lines
	386:4373	Wavy lines		25:1363	Horizontal and crossing lines
	387:4381			359:150	Zig-zag lines
	387:4384	Cord impressions			
	394:4465				
	401:4499				
I:2c	Vessels with rounded bottom and inflected contour, restricted with intake just under the orifice				
	118:2296				

II:2c	Flat and large-bottomed vessels with straight walls, slightly restricted or unrestricted	II:2d	Flat and small-bottomed vessels (»flower pot») with straight walls, unrestricted
17:1187		35:1436	
90:2057		56:1770	Cord impressions
225:2959		98:2124	Cord impressions
280:3130		207:2830	Cord impressions
295:3429	Finger lines	208:2864	Cord impressions
349:4000		226:2978, 2981a	Cord impressions
389:4392, 4467		226:2978, 2981b?	
413:4305		324:3667	Cord impressions
		359:4127	
		377:4278	Cord impressions

Fig. 22. Clay vessel form series, mostly illustrated by the vessels from Luistari (exceptions I:1d and II:2a). Scale 1 : 5.



Form and ornamentation do not correspond in all cases, neither form and raw material, nor raw material and ornamentation. Vessels with wavy line ornaments which belong to groups I:1b and I:2a, b, d are mostly of fine dark material with an almost black and lustrous surface. Apparently they were polished and burnt in restricted heat. In form also these dark-coloured vessels can be divided into two groups (I:1b and I:2a), and wavy line decoration occurs besides in two vessels of completely different clay and with unpolished surface (97:2103 and 386:4373). It also occurs in the large vessel from grave 76, of light brown polished matter, which in addition has cord-impressed ornaments. Another vessel with other ornamentation together with wavy lines was found in grave 63. It has horizontal lines on the rim. Many of these vessels have a pit in the bottom, in others it is a ring-like impression, in others a clearly-edged round pit.

Wavy line ornamentation occurs in clay vessels in the coastal zone from Kirkkonummi to Vakka-Finland, and in the interior it has been found at least in Yläne (e.g. 13962:185, 14196:274, 284, 295–96) and in Eura, where previously vessels completely similar to those from Luistari have been found (4633:87, 5901:9, 8721:5, 14132:10 from Käräjämäki and Osmanmäki). There are also some finds from Sweden (Selling 1955 Plates 34–36). According to Kivikoski (1939 p. 200) the oldest fragments of vessels decorated in this manner can be dated to the boundary of the Merovingian and Viking periods, and also at Luistari the dark surfaced vessels seem to belong to the earlier phase of the Viking period. Graves 55 and 73 contained early convex round brooches and graves 292 and 145 type E spearheads. On the other hand the wide-mouthed vessel with a distinctly curved bottom from grave 76 belongs to the latter half of the 10th century (coin-list No. 31). Vessels decorated in this manner were not found in Merovingian period graves, but ceramic is otherwise rare in graves of the period, and we know only a small part of the forms that had been originally in use.

Cord ornamentation occurs on the one hand in vessels of very thin walls and polished surface (e.g. 17:1191, 324:3654, 3667, 344:3828, 348:3874) and on the other hand in thick-walled vessels of fairly coarse make (group II:2d). Part of it was made with a thin cord and part with a very thick cord. Groups I:1b and I:2b include vessels of dark material and with cord ornamentation, which because of their polished surface and careful design correspond to the wavy line ornamented vessels mentioned above. This is the very same cord impressed pottery which is known from the Swedish Viking

period finds (Selling 1955, group AIII, pp. 149–152).

Round-bottomed, cord-impressed small bowls seem to first appear in the Luistari finds at the same time as the vessels ornamented with wavy lines (grave 95 contained early round shoulder brooches and grave 51 type E spearheads), but the main period of occurrence of these at Luistari seems to be the 10th century, as is also the case in Sweden (Selling 1955 pp. 147–148). From the 10th century there are the thin-walled vessels with twin cord impressions from graves 344 and 348, and the bowl ornamented with six deeply-impressed cord lines from grave 135, which represents the cord-impressed vessels at their best. No round-bottomed vessels with cord impressions were found in any distinctly 11th century graves; the youngest graves are those with spearheads with accentuated junctions.

According to Kivikoski (1939 pp. 199–200 with notes), cord-ornamented vessels are also to be found in the Aura River valley, and they were used at least from the end of the Merovingian period to the 11th century. The 11th century find of grave D (according to Cleve C) in cemetery C at Köyliö was not however dug under expert supervision, and the evidence is not completely trustworthy. Cord impressions are however also on the vessels of flowerpot shape (group II:2d) to be discussed later. Part of these can be dated to the first half of the eleventh century, and it seems that the method of decoration remained in use longer than the round-bottomed vessel shape to which it is usually linked.

Groups I:1a and I:2a occur only in zone III, and most of group I:1b is also from this zone, indicating that heavily profiled contours on the one hand and low flat bowls on the other were popular at the time when this zone came about. The round bottom combined with a slightly restricted profile, group I:2b, on the other hand occurs in vessels from both zones III and IV. From the last-mentioned there is also the uncommon variant I:2c. Vessels of group I:1c have been found in zones I and IV. In contrast to the other round-bottomed vessels, these are quite large in size. Cord decoration is to be observed in the vessels from graves 23, 225 and 324, and it is probable that cord impressed fragments from grave 64 are also of a vessel of this kind. Along with the vessels from graves 23, 225 and 324 there were flatbottomed jars, and it seems possible that most of these vessels are from the 10th century.

Vessels of group II:1a were found in zones I–III. The wide and shallow vessel from grave 410, made of coarse raw material, is actually an intermediary form between the round-bottomed and flat-bot-

tomed ones, because although it has a flat base there is no angle at the junction of the bottom and the wall. There is an ornamented ridge at the shoulder and two grooved lines under the orifice. The vessel resembles to some degree certain vessels found in the Kvarnbacken cemetery in Saltvik (Kivikoski 1963 Pls. 22:1, 43:1), of which at least the one from grave 52 is of the Merovingian period (Kivikoski 1963 p. 125). The vessel with dark and polished surface from grave 28 at Luistari is also from the Merovingian period, and possibly also the one from grave 305, which is light with a thin wall. It has two corded lines at the mouth and three just above the shoulder. It can be compared to the vessel from grave 50 at Kvarnbacken dated by Kivikoski (1963 p. 125, Pl. 19:1) to the Merovingian period. In both material and form there is a similar one, although smaller from grave 294. This vessel is decorated with a double zig-zag line between two horizontal double lines. The undecorated vessel from this grave is also similar, and as the grave can be dated to the boundary of the Merovingian and Viking periods (Lehtosalo-Hilander 1976 p. 78), we evidently have in this a vessel type belonging to the Merovingian period and the very beginning of the Viking Age.

The fragments (1191) found in the filling of grave 17 may be from a vessel similar to the above. They are of very thin light brown ceramic. There is an ornamented ridge under the fairly long neck part and three corded lines adjacent to it, besides two lines under the orifice. The vessel must have been fairly small, with a volume of perhaps one litre; there are no sherds from the bottom and it may have equally well been round or flat. Since however no vessels like this have yet come to light in the numerous Viking period graves in Eura, it is possible that it belongs to the rare vessels of the Merovingian period. A flat-bottomed vessel with a strongly profiled contour was also found in grave 41, and the cord-impressed sherds with a shoulder corner found in grave 200 may also be from a vessel belonging to this group.

The small beaker in group II:1b is reminiscent, apart from its flat base, of the round-bottomed vessels. It has distinctly rounded walls, and at the thickest part there is a figure executed with double cord impressions in which a wavy line undulates between straight lines. The raw material is greyish brown and the rim is slightly bent outwards. It was found with a vessel of group I:2a in grave 170, and is probably from the 9th century.

Vessels of group II:1c were found in all zones, and they resemble pots that are still in present-day use, i.e. they are household pottery of ageless type. Only three vessels of this group are ornamented. The pot from grave 23 has a carelessly executed

double cord line, the vessel from grave 392 two finger lines, and the vessel from grave 118 one finger line. The profiled contours of the mouths vary somewhat, and the vessel from grave 370, only partly preserved, may have been shallower than others. A couple of these vessels were only one litre in volume, whereas the largest (from graves 75 and 330) have a volume of over three litres. There are only bottom sherds from grave 342, but they suggest a vessel of this kind. The oldest vessels of this shape are from the 9th century, the youngest from graves from around 1000 A.D.

There are four small beakers of group II:1d, which, with the exception of the vessel from grave 348, were found in zone III. Three of these are of dark surface and polished, the fourth (from grave 316) is of very maladroit handiwork, badly fired and apparently not meant to be a finished artefact. In the vessel from grave 348 the rim turns slightly outwards, but the whole beaker broadens to the mouth. In the vessel from grave 183 the rim turns inwards, in the one from grave 195 the rim has disappeared. It was broken so that one cord impression is visible, and it may have been similar to the one from grave 348 with three cord lines. The vessels from graves 183 and 316 are undecorated. Grave 348 has a coin-date to the first half of the 10th century (coin-list Nos. 68–73), the others are probably already from the 9th century.

There are no vessels of group II:2a from Luistari, but this form is worth notice, because two Merovingian period vessels from Köyliö belong to it (see the list above). A complete series presumes also the form I:1d, not in existence at Luistari (see fig. 22:4).

The vessels of group II:2b, all from the first zone, do not differ very much from the tallest vessels of group II:1c, but there is the clear difference that there is a distinct angle at the junction of the bottom and the wall and the contour starts to become round only at the shoulder. All of the vessels of this kind found so far at Luistari are in addition of dark surface and fine ceramic, and they have ornamentation at the shoulder. Thus they are quite distinct from the simple household ware of the said group. The vessel from grave 25 is decorated with a hatched band bordered on both sides by three horizontal lines. Sherds from grave 23, probably of a similar vessel, have a zig-zag design of five lines between the groups of lines. Similar ornamental zones occur also in polished ceramics from Latvia and there are also sherds of similar vessels from Saarenmaa (Cimermane 1974 figs. 5:1 & 8 and 6; Kustin 1962 Pl. XV:6). The small vessel (150), found in fragments at the head of grave 359 but which was reconstructed, is decorated with a zig-zag design of three lines. In all of these vessels



Fig. 23. Distribution of some clay vessel groups at Luistari.

the figures are formed of groups of straight lines and not of continuous angular lines as in the round bottomed vessels mentioned above. Both grave 25 and grave 359 have coin-dates (coin-list Nos. 3–6, 79–86), one to the beginning and the other to the

latter half of the 11th century, and grave 23 was probably from either the 11th century or the very end of the 10th century.

I have placed into group II:2c vessels in which there is variation of the profiled contour of the

Table 5

CLAY VESSELS AT LUISTARI Grave and number	Size				Polished	Decoration					Bottom pit	Form groups												Plate (in Luistari I)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	Height	Largest diameter	Mouth diameter	Bottom diameter		Wavy lines	Straight lines	Cord im- pressions	Finger lines	Other orna- ments		Round-bottomed vessels						Flat-bottomed vessels																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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mouth but to which a simple design is common as well as large size and thick walls. Only the vessel from grave 295 decorated with finger impressions is of lighter make. There is a distinct narrowing under the orifice in the vessel from grave 389, but the others are only slightly profiled. The sherds found near grave 17 are from a vessel which was apparently equally wide from the base to the mouth, all the others broaden upwards somewhat. Only the vessel from grave 225 was preserved whole. There is ornamentation in only the above-mentioned vessel with finger impressions, and this group is the straight-walled equivalent of group II:1c. It is probable that most of the undecorated vessels from the Iron Age cremation burial grounds belong either to this or to the group represented by II:1c. At Luistari these occur in the Viking period graves, of which numbers 295 and perhaps 280 are from as early as the 9th century, 349 definitely from the 11th century and the others from perhaps the 10th century.

The vessels of group II:2d are from zones I and IV. These vessels, of a shape resembling that of a flower pot, broaden distinctly towards the mouth, only rarely have profiled contours and often bear cord-impressed ornaments. The vessel found in grave 324 differs from the others because of its thin wall, light polished surface and fine cord impressions, and the cord ornamentation of the

vessel from grave 98 is beneath the fairly distinctly profiled part. The vessels from graves 56, 207, 208 and 377, decorated with thick cord, are nearly identical, and to these can be linked the vessels from grave 226, which however are of different raw material. The vessels from graves 35 and 359 are undecorated. The last-mentioned is less than a litre in volume, the one from grave 98 less than two litres but the others are 2,5–3 l in volume. The coin-dates of graves 56, 208, 359 and 377 (coin-list Nos. 12–23, 38–62, 79–86, 99–100) show that this is a design of the 11th century, but the differing vessels from graves 324 and 98 are probably older; at least the material of the vessel from grave 324 is an indication of this.

15 graves contained more than one vessel. In only four graves (15, 145, 226?, 387) were the vessels of the same group (in three cases with round bottoms), in all other cases a flat-bottomed vessel was found as the pair of either a round-bottomed vessel or a flat-bottomed one of another form. The most usual combination was that of an ornamented and an unornamented vessel; in no cases were two unornamented vessels found together. In four graves (145, 170, 324, 348) there were two ornamented vessels, in one (23) possibly three. The second vessel was most usually flat-bottomed with a rounded wall, and it occurred together with the round-bottomed variants and the vessels of

flower pot from. On the other hand a vessel of the last-mentioned form was found as the pair of a round-bottomed one in grave 324, but these were both of very similar material and were similarly ornamented. The material seems to be very similar also in the vessel pairs from graves 23, 118 and 225, which gives rise to the thought that vessels were made for the express purpose of being placed in graves. This explanation would seem to be most probable also with respect to the small badly-fired cup-like vessel from grave 316.

Soot-marks were found only on the bottom of the large vessel from grave 410, and it is not possible to connect the other vessels with cooking activities. Small beakers and bowls could have been used as drinking vessels, and it can be imagined that milk or porridge could have been contained in the small cups found in the children's graves. The shallow bowls could have been suitable food vessels, and the tall large-sized jars could best have served as storage vessels. There is no clear picture of what they contained when placed in the grave. Only in one grave (349) was a kind of bonepaste found in conjunction with the sherds, and even in this case it is not certain whether the bones had been in the vessel.

Of a total of 80 clay vessels found in the Luistari inhumation burials, 30 were of polished ware, and it can be maintained that generally vessels of quite good quality were placed in graves. Decorated vessels are numerous, but ornamental designs are few, and in this respect the Luistari material corresponds to the picture previously obtained of the pottery of the Eura region. Decorated vessels form 60 % of the total at Luistari, whereas in the Viking period ceramics from Eura, Köyliö and Yläne studied by Christian Carpelan (1963), the decorated vessels are only 44 % of the total. In Carpelan's Eura material, cord-impressed vessels are 71 % of the total; the corresponding figure at Luistari is 60 %. Wavy line ornamented vessels form 25 % of the ornamented pottery at Luistari; in Carpelan's material from Eura they amount to 17 %. Carpelan mentions one finger groove ornamented vessel, there are four of these from Luistari. The differences are caused in my opinion by the fact that the earlier Viking period, during which it seems to have been common to decorate vessels in different ways, is well represented at Luistari. This period is also well represented in the Anivehmaa cemetery at Yläne, where there are numerous vessels with wavy line ornamentation.

In the Luistari graves some flat-bottomed vessels with rounded walls and corner point seem to be from the Merovingian period. It is of special interest to note that these include a vessel of dark and polished surface (from grave 28) which may be

dated to as early as the 7th century. The later vessels of strong curvature are clearly of forms developed from this, and in this respect the claim that the type came from the East-Baltic region at the end of the Merovingian period, as put forth by Cleve (1978 p. 193), does not seem probable. During the earlier phase of the Viking period, vessels with rounded bottoms seem to have been put into graves. These are also of dark surface and decorated with wavy lines, and are usually of very thin ceramics. The middle phase of the Viking period is on the other hand dominated by cord-decorated, roundbottomed vessels, and in the later Viking period vessels are of flower pot shape and with flat bottoms. Household ware of simple form occurs in the graves of the cemetery in all periods, but it totals only one fifth of all ceramics found.

5.3. ARTEFACTS OF BIRCH-BARK AND WOOD

Some graves revealed traces of what apparently were objects of birch-bark:

343:3801
359:4113
374:4223
381:4300
404:4589

There are holes in the edges of the pieces of birch-bark from graves 374, 381 and 404, judging from which they are from artefacts made by joining pieces of different shape together. Traces of thread could be seen in the holes of the pieces found at the foot of grave 404. The edges of the pieces are curved and they may be from a birch-bark vessel c. 20 cm wide or from a similar object. There are bronze rings in the holes on the edge of the fragment from grave 359. It was found next to the skull of the deceased and it was possibly some kind of head decoration. The fragments from grave 381 are band-like and found together with small rivets and remains of bronze sheet and leather, but it is not possible to identify the artefact in question.

There are not many earlier observations of birch-bark artefacts. Remains of oval- or round-bottomed birch-bark boxes and vessels have been found from Köyliö C-cemetery (Cleve 1978 pp. 31, 185) and from Rikala cemetery in Halikko (12841:18). Some fragments derive also from Masku and Nousiainen, and there are ornamented pieces from Pappilamäki in Eura (9855:18) and from a bog find in Keuruu (Valonen 1952 p. 287 note 7). The latter consists of two round boxes dated to the end of prehistoric times or to the beginning of the Middle Ages (Pälsi 1934 pp. 215–222).

Schvindt (1893 pp. 147–48, 151) mentions in

connection with the cemetery at Hovinsaari in Rääksälä (Ladoga Karelia) that a plate of birch-bark was found beneath a kettle and certain plates of birch-bark pictorially ornamented have been interpreted by him as pouches. It is possible that this interpretation applies to the pieces found in Luistari grave 374 with bronze chain connected to them.

Three small birch-bark rolls from grave 343 were less than 50 mm long and tightly twisted, and naturally one thinks of the famous Novgorod rolls in a connection like this. It is however probable that Luistari rolls derive from birch-bark covers twisted in heat; the wooden constructions in this grave were charred. Similar rolls were found from a grave in the Maaria-Saramäki-cemetery in excavations in 1961 (report by P-L. Lehtosalo).

Without doubt there were more bark objects in the graves than have been preserved, which also applies to objects of wood. As there were almost never remains of pots together with animal remains, pieces of meat were possibly placed on a piece of wood or birch-bark which has disintegrated completely. On the basis of the observations made at the Yli-Nuoranne cemetery in Eura (excavation report in 1965–66) and in Köyliö C-cemetery (Cleve 1978 pp. 34, 189–190) there may also have been dish-like vessels of wood in the graves (see also Schvindt 1893 p. 150). Accordingly the fact that clay vessels were not found in all of the graves does not necessarily mean that vessels were completely lacking.

Remains of small chest or box were found in one grave:

324:3658–3665, 3675–76

This consisted of a large amount of decomposed wood and fragments of 11 nails or rivets at the foot of the grave in an area c. 40 × 50 cm. A nail (3662) found in the middle of this had a head of singular form with a knob, and there were also two very long rivets (3658 49 mm, 3665 60 mm). The

remains were probably of a small chest, but the construction could not be ascertained. At Birka, chests were quite common in the graves, and there is a mount suggesting a chest from the C-cemetery at Köyliö, albeit a stray find (Cleve 1978 p. 190). Usually chests have been identified just by mounts of certain form, but at Luistari these were not found.

Iron mounts and rivets from some smaller wooden artefacts were found from three graves:

20:1220

21:1239

359:4118

The mount from grave 20 was found at the head end of the grave. It is now about 185 mm long (originally c. 35 mm longer) and 18–22 mm wide; it is bent double and was fixed with two rivets around some wooden artefact. There are from the other Merovingian period grave 21 a clamp, two iron list fragments and two rivets found also at the head end of the grave. These fragmentary artefacts resemble the mount pictured by Cleve (1943 Pl. 24:150, pp. 43, 156) and supposed by him to be a mount of a vessel or a casket.

The two small rivets (length c. 15 mm) from grave 359 belonged to some little box hanging from the large iron ring (4121) together with the keys and the knife at the waist. Perhaps it was for a comb or for some other artefact totally disintegrated.

Nails and rivets were found from many other Luistari graves, and perhaps all of them were not from coffins. They total almost 200, but most of them are so fragmentary that it is not possible to give any exact measurements. It is however quite clear that rivets have also been used in coffins (e.g. in graves 98, 324, 411). Some curious nails with rolled heads (1420, 1542, 1831) were found from the filling of graves 35 and 58. Because the earth in and around these graves was very mixed, it is possible that these nails were later than the graves.

6. ORNAMENTS AND DRESS DETAILS

6.1. BROOCHES AND FIBULAE (fig. 33)

6.1.1. Equal-armed brooches (figs. 24, 51)

So far 16 equal-armed brooches have been found in the Luistari cemetery. Twelve of these are different variants of Merovingian period brooches:

21:1237	
27:1383	(Originally grave 26?)
37:1457	(Originally grave 26?)
57:1794	(From the filling)
60:1864	(Originally grave 28?)
327:3718	
352:4008	
:4009	
359:4101	(Originally grave 376?)
368:4168	
419:20189:212	(From the filling)
421:20552:3	

Their length varies from c. 30 mm to 46 mm, the narrowest (from grave 368) is only 11 mm wide and the broadest (from grave 327) 22 mm. All differ from one another, but two pairs are to be found, one from grave 352 and one from apparently grave 26, although the brooches from this were found scattered in the fillings of graves 27 and 37, laid on top of it. They resemble each other to a great extent and differ from all other brooches in the cemetery finds, and it is thus natural to assume that they were originally together.

Only one brooch was found in each of graves 21, 327, 368 and 421. The other brooches are from the fillings of later graves; the ones from graves 60 and 359 were probably originally from graves 28 and 376. Only the brooch from grave 327 seems to belong to the clearly later variants. Also the pair from grave 352 is probably of later date than the others. They have long ornamented middle parts and short ends; the others were mainly of the type depicted in Kivikoski 1973 fig. 400. There are however numerous variants among these.

The oldest of these are with all probability the small brooches from round and about grave 26. They are only 30 mm long and the middle part is plump, ornamented with a furrow and lines in the middle. The ends are narrow with transverse grooves. Both Åberg (1953 figs. 138–139, pp. 135–136) and Orsnes (1966 fig. 92, pp. 116, 207) have described similar ones and have dated them to the

beginning of the Vendel period. The similarity of the Luistari brooches with these is so evident that it seems possible to date them to the first half of the 7th century and even to the beginning of the said century. The brooch found in the filling of grave 57 is with certainty also of early date, as a similar specimen has been found in Sweden along with a button decorated in Style I (Åberg 1953 p. 137, figs. 151–152; the button was discussed in Erä-Esko 1965 pp. 83–84, fig. 58). The brooch of clumsy form from grave 368 and the skilfully-made brooch from the filling of grave 419 both have furrows in the middle part. They are also with probability from the 7th century.

With respect to their form the brooches decorated solely with chased lines from graves 21, 28, 359 (376) and 421 are all different. There are also differences in the ornamentation. On the brooch from grave 28 there are two separate groups of three lengthwise lines, indicating that the composition of the line ornaments remained the same even when there was no furrow. The brooch from grave 21 has five parallel lengthwise lines in the middle and the brooch from grave 421 has six. The ornamentation of the brooch from grave 359 (376) is so worn that it cannot be made out. This artefact resembles a brooch from Kvarnbacken in Saltvik, Åland dated to the 7th century (Kivikoski 1963 Plate 3:9, p. 125). This however has a furrow in the middle. A common feature of all of these is the widening of the ends and the oblique position of the end plate which occurs in a couple of brooches (from graves 368, 419) of the former group too. Åberg (1953 p. 134) claims that this feature is characteristic of the Vendel period.

I have not found exact parallels for the pair of brooches from grave 352. On the basis of the length of their bow parts they can be linked to the brooches of the type portrayed in Kivikoski 1973, fig. 402, but they are of relatively small size, 35 and 36 mm in length. There is no rich ornamentation, only transverse lines at the ends. They probably belong somewhere between the small line-ornamented brooches and the large broad-ended ones.

The brooch from grave 327 is 46 mm in length and is considerably larger than the above-mentioned brooches. There is a lengthwise ridge in the middle part and in addition to line ornaments there are ringed dots at the catch-end. I have not found exact parallels for it, but it can be assumed to

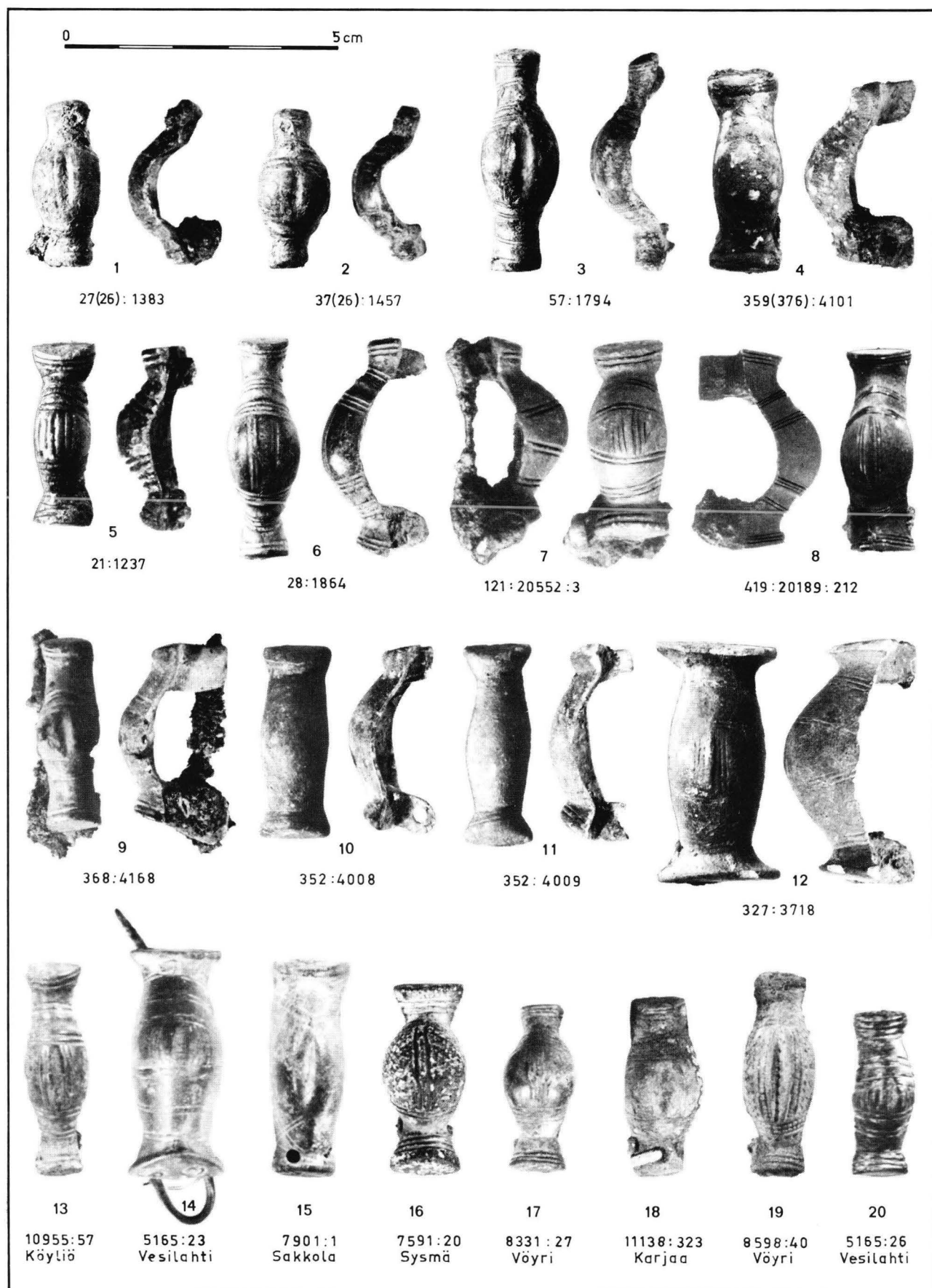


Fig. 24. Variants of small equal-armed brooches: 1–12 all the Luistari brooches in order according to grave rows, 13 a long and slender inner Finnish variant, 14–15 two differing very late specimens, 16–20 very small early variants from various parts of Finland.

belong to the same late group as the brooches from graves 49, 54 and 55 at Kvarnbacken in Saltvik and like these can be dated to the period 750–800 A.D. (Kivikoski 1963 p. 125, Pls. 16:7, 23:6–9). Several specimens of this variant, totalling almost a hundred and twenty, have been found on the Finnish mainland.

Only four equal-armed brooches of the Viking period type were found at Luistari:

56:1665

95:2080

291:3326

359:4123c

The brooch with nine knobs and line ornaments, found in grave 95, and the fragment from grave 359, belong to Kivikoski's Viking period group 4 (1938 pp. 15–17), i.e. Petersen's Ljones type (1928 p. 77), more than ten specimens of which have been found in Finland (Kivikoski 1973 fig. 677, p. 93). The type is of general Scandinavian character, and several scholars have dated it mainly to the 9th century and even its first half, although there is evidence that some of these were placed in graves as late as the 10th century (Kivikoski 1938 p. 16, 1963 p. 78; Petersen 1928 p. 78). Birgit Arrhenius (1973 pp. 108–109, 111), who has studied this brooch type widely, maintains that it derives from West European influences and regards the decoration as a Nordic simplification of Carolingian plant ornamentation. She has dated the harbour layer of Birka, from where a piece of a casting mould of a brooch of this type has been found, to c. 850 or preferably earlier. In connection with the same study, Björn Ambrosiani (1973 p. 239) has studied the distribution of the different variants of the Ljones type, reaching the conclusion that the variant to which the undamaged Luistari specimen mainly belongs occurs together with bead material characteristic of the Birka find layer mentioned above. This is according to him a younger find combination of the 9th century, and may even be dated to the latter part of it. In dealing with Scandinavian oval tortoise brooches, Ingmar Jansson (1972 pp. 77–78) has also paid attention to the combinations in which the Ljones type is to be found, and has reached the conclusion that although all 11 of the Birka graves with these contain artefacts that can be dated only to the 9th century, three of the five certain find combinations from elsewhere contain 10th century artefacts. Thus the dating of the Ljones type to the 9th century would not be at all categoric outside Birka.

In this connection it is worth noting the evidence afforded by grave 359 at Luistari. In this grave the fragment of the brooch of the variant with loose knobs was bent and found together with weights

and silver coins, and evidently it had been used as a weight. In no way can it be regarded as a parallel to the brooch from grave 95, which was part of the ensemble of brooches and ornaments. Nor can the date of the coins found along with it (coin-list Nos. 79–86) to the middle or latter half of the 11th century be regarded as satisfactory with regard to the period of manufacture and use of the brooch type, although this is an extreme example of a closed find (along with coins inside a pouch) and dug under expert supervision. In this case it does not represent a brooch, but a bronze piece of definite weight. In all cases that differ from normal circumstances the function of the artefact find should be explained, but in cremation burials this is often impossible. Only evidence from inhumation burials is in these cases acceptable.

The brooch from grave 291 the iron pin of which is missing is ornamented with 13 knobs and with grooved lines. It belongs mainly to Kivikoski's group 6 (1938 pp. 18–20), derived by her from the Ljones type, although the ends are not as clearly formed as in the brooch from Osmanmäki in Eura cited as an example of the type (cf. Kivikoski 1973 fig. 678, p. 93). About 20 brooches of the same type have been found in Finland. In Kivikoski's opinion the group is purely Finnish, and she assumes that the oldest specimens are from as early as the 9th century, as the similarity with the Ljones type is striking. Kivikoski states however that nothing conflicts with the assumption that they were used also in the next century.

Grave 291 contains a double burial with the corpses of two women or girls; the rest of the finds include spiral apron ornaments, a knife (?), rings, beads and pieces of rod chain. Of chronological importance is perhaps the fact that it is located next to grave 289 and has the same orientation as this. Grave 289 revealed a type E spearhead along with a penannular brooch with funnel ends, which suggests that it belongs to the graves of the first half of the 10th century (cf. 6.1.7.4.). It is possible that also grave 291 and the equal-armed brooch found in it are from the same period.

The latest of the equal-armed brooches was found in grave 56. It is a slender artefact narrowing in the middle and decorated with five knobs. The brooch clearly belongs to Kivikoski's group 8, 14 specimens of which have been found so far (Kivikoski 1973 fig. 680, p. 94). Köyliö grave C28 (see Cleve 1978 Pl. 8) and Luistari grave 56 show that brooches of this group were used as third brooches along with convex round brooches of type D. On the other hand there is a grave from Rikala in Halikko in which equal-armed brooches of this type (12690:154, 156) were used at the shoulders. According to Kivikoski (1938 p. 26) the type is

completely domestic, and no parallels or prototypes are known from elsewhere. She has dated it to the 11th century. Referring to a coin-date, Sarvas (1972 p. 17) maintains that the group should be given an earlier date, but K  yli   grave C28 is with certainty from the 11th century, preferably from a few decades after the turn of the century, because it was on top of grave C29 (Cleve 1978 p. 43, cf. also p. 94) dated to the last quarter of the 10th century at the earliest (see Sarvas 1972 p. 89). Luistari grave 56 has a coin-date to the 1020's at the earliest (coin-list Nos. 12–23), and this for the time being is the most definite fixed point for the absolute dating of Kivikoski's group 8.

Both the Merovingian period and Viking period equal-armed brooches are of Scandinavian origin, and their occurrence in Finland has been regarded as evidence of the importance of Swedish influences (Cleve 1943 p. 75; Kivikoski 1938 p. 10, 1939 pp. 82–83, 137–140). The Merovingian period type became popular in Finland within a short time, and actual import objects are few in number, whereas among the Viking period brooches the Scandinavian character is more evident. Even if the finds from   land are not taken into account, the number of objects of Scandinavian type is quite large, about a quarter (at least 28 specimens) of the total. However, as copies of these were made after a short while, it is not clear whether all of these are actually imported artefacts. For example this is not at all certain in connection with the fairly common brooches of the Lj  nes type (Kivikoski 1938 p. 17).

The origin of the influences is clearly Central Sweden. In addition to the artefact groups dealt with by Kivikoski, also an equal-armed brooch of special form from Haimionm  ki in Lieto has Central Swedish parallels (cf. Kivikoski 1973 fig. 684 and Modin 1973 fig. 30, p. 50; Arrhenius 1973 p. 109; H  bener 1972 fig. 16:4); however, similar ones have also been found from Estonia (from Iru hill-fort, AJ 4051, and from Ridak  la, AJ 3964:21). The only equal-armed Viking period brooch with parallels from further away is a fragment with a lion figure from Rupakallio in S   ksm  ki (Kivikoski 1973 fig. 683). It is matched by a find from Kaupang in Norway (UO   1945–48 pp. 262–264 nr. C 27740c; Blindheim–Heyerdahl–Larsen–Tollnes 1981 pp. 30–31, Plate 65c).

A rare Luistari brooch with four horsehead figures is in a sense also of equal-armed form:
175:2653

Only one corresponding specimen has so far been found at Haimionm  ki in Lieto (Kivikoski 1973 fig. 686). There is an extra ring at one end of the Lieto brooch, and it does not have the zig-zag lines which can be seen on the necks and bridles of

the horsehead figures of the Luistari specimen; otherwise the brooches are similar. The Lieto brooch is from a cremation cemetery laid on level ground, and thus cannot be given an exact date. The location of the Luistari grave in question in zone III suggests the earlier Viking period, and the design of the brooches can be matched with chain holders with horsehead figures from both Merovingian and Viking period connections. Horseheads facing in opposite directions were a very popular motif in the east, especially in the Kama region, from where it apparently spread to Finland during the Merovingian period. That it was popular also here is shown by the Luistari and Lieto brooches, which so far do not have any parallels from outside Finland (Lehtosalo-Hilander 1976 pp. 76–77, fig. 5).

6.1.2. Fibulae with band-shaped arches and hinges (fig. 25)

Iron fibulae with band-shaped arches and hinges were found in three graves:

- 300:3478
- 346:3858
- :3861
- 353:4015

A pair of these was found in grave 346 in a position suggesting the function of shoulder brooches. The fibulae have wide arches and the pin is joined to a hole in one end of the arch, the other end flattens into a band and forms first a catch and then the spiral characteristic of the type. Two fibulae of approximately the same variant have previously been found in grave XVII at Pappil  nm  ki in Eura (11063:674a, b), and although they belong to an older damaged grave there is reason to believe that they formed a pair similar to the Luistari fibulae. Accordingly it seems that these fibulae were also used by women and not only by men as assumed previously (Nerman 1958 p. 98; Str  mberg 1971 p. 253).

The fibula from grave 353 is of the same variant as the above, whereas the large and wide-arched fibula from grave 300 has spirals at both ends. These both belonged evidently to men, as the former was accompanied by a tanged spearhead with a tapering blade and the latter by a seax (see 1.3.4. and 1.2.).

All of the Luistari graves with fibulae with band-shaped arches and hinges were located close to one another in zone II in the second and third SW–NE-oriented grave rows, and they were with all probability manufactured within a short period. At Luistari they can be dated quite clearly to Cleve's phase III of the Merovingian period.

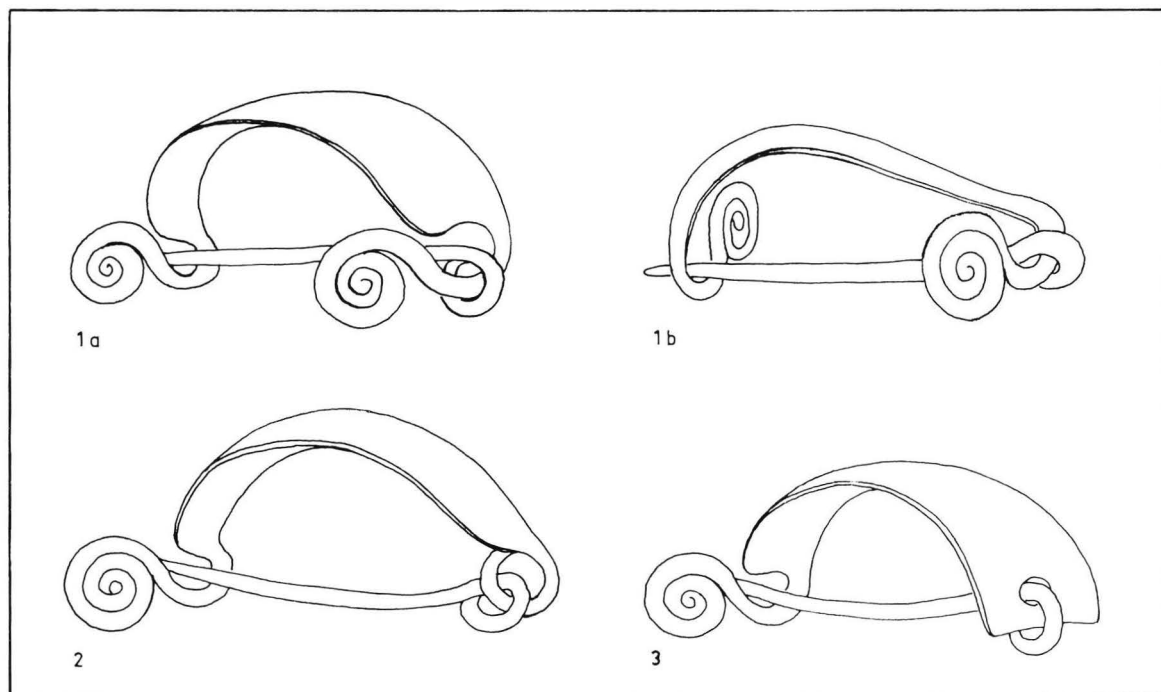


Fig. 25. Variants of iron brooches with band-shaped arches and hinges. Schematic sketch.

The fact that four fibulae with band shaped arches and hinges were found at Luistari mean that the total of finds of this type in Eura is now eight, nearly one third of all known in Finland (total 27–28). Kivikoski has previously (1939 p. 90) divided these fibulae into two variants, those with spirals at both ends and those with the spiral only at the catch end. Despite the small number of fibulae, several more variants could be mentioned. Of these at least three groups can be distinguished, when Kivikoski's second group is divided into two. These are: 1) fibulae with two spirals, 2) fibulae in which also other end tapers into a band, but instead of a spiral forms a simple hook, 3) fibulae in which the pin is joined to a hole in the plate.

This division shows that the group with holes includes five wide-arched specimens from Eura, one from Karkku (4573:3) and one from Pälkäne (6096:73), clearly connected to these, and possibly a wide-arched specimen from Långängsbacken in Sund, Åland (AM 367:49, Kivikoski 1980 Pl. 2:5), of which however the catch end is missing. Two other fibulae with holes from Huittinen (3574:92) and Saltvik (AM 336:36, Kivikoski 1963 Pl. 7:3) are exceptional. In the one from Huittinen the hole is bored transversely (cf. also the curious brooch from Lieto, 13705:181), and in the Saltvik one there is a round flat plate at the joining end of the pin and a knob on the bow. Five of these ten fibulae are from Eura and all are of the same variant. It can thus be assumed that the place of origin of this variant has been found.

Of the fibulae with hooks and spirals, three or four have been found in Huittinen (3574:89–91, 93) and two in Eura (2700:11 from Osmanmäki, 11063:358 from Pappilanmäki). They have been found singly in Kokemäki, Vöyri, Vähäkyrö, Nokia and Mynämäki (2501:17, 7744:8, 4279:1, 11282:77, 9750:76). The find places are spread out on the map, but the main centre of distribution is still in Satakunta.

The fibulae of the group with two spirals are evenly divided between the provinces of Satakunta and Southern Ostrobothnia. Three fibulae from Vöyri (2996:74, 8077:29, 77) are matched by two from Kokemäki (2001:15, 7980:8) and one from Eura (Luistari grave 300). It is to be noted that among the fibulae from Southern Ostrobothnia there are specimens of four-sided section (8077:29, 77, Kivikoski 1973 fig. 424) and ones in which the ends are turned in opposite directions (2996:74, 4279:1), while the fibulae from Satakunta are band-like, often with wide bows, and the ends are always bent in the same direction. This seems to indicate that these were manufactured also in Southern Ostrobothnia. A fibula from Maaria, Finland Proper, is completely exceptional (see 7275:75, Kivikoski 1939 Pl. XV:4), but the idea of the design is the same as in a specimen from Skåne (Strömberg 1971 fig. 11a). Both of these are of a rod bent into a loop so that the bow is formed of two parallel rods, and the pin is attached to the end of the loop.

In Finland these fibulae are concentrated in the Satakunta area and especially in Eura, but they have also been found outside Finland. According

to the literature on the subject, at least 17 have been found on the Swedish mainland, one in Gotland, two in Norway and one in Grobin in Latvia (Selling 1955 p. 158; Serning 1966 p. 26; Strömberg 1971 pp. 252–253; Arrhenius 1970 pp. 385–386; Gjessing 1934 p. 162, note 1; Nerman 1958 p. 96). The simple form with a hook and one spiral is the most numerous one, totalling at least 9. There are at least four fibulae with spirals at both ends. Some exceptional variants have also been found, but only the fibula from Ränningsvallen in Härjedalen (Festin 1914 Pl. VII, p. 111) and possibly the one from Transtrand in Dalarna (Serning 1966 Pl. 101:9) can be matched with the wide-arched Eura fibulae, in which the pin is connected to a hole in the end of the bow. The possibility that they are originally from Finland should be taken into account.

The Swedish dates for the fibulae with band-shaped arches and hinges vary from the 7th century to the Viking period (Kjellmark 1910–1913 p. 2; Festin 1914 p. 111; Serning 1966 p. 26). According to Nerman (1958 p. 96) there are not enough grounds for the later dates. He has dated Ihre grave 139 with a fibula of this type to the period 650–750 A.D. and suggests that the others are also from the Vendel period. Some Swedish scholars (Serning 1966 p. 26; Arrhenius 1970 pp. 385–386; Strömberg 1971 p. 253) still maintain that these fibulae were still in use during the Viking period, but in Finland Kivikoski does not agree any longer with this, and has placed them in the preceding period (cf. 1939 p. 91 and 1963 p. 75, 1973 p. 64). With the help of the Luistari finds the dating can be further specified to the last phase of the Merovingian period.

Kivikoski (1939 p. 91) regards the fibulae with band-shaped arches and hinges as a Finnish-Swedish form. Gjessing (1934 p. 162 note 1) has linked the Norwegian specimens to the Finnish finds, and Meinander (1950 p. 103) regards the fibulae of this type from Southern Ostrobothnia as part of the finds of Finnish character in the area. On the other hand, Serning (1966 p. 26) is of the opinion that the affinity of the Transtrand fibula with Swedish artefact forms is evident. The northern Swedish fibulae show, however, strong indications of Finnish character. Apart from the fact that the Transtrand and Ränningsvallen specimens resemble the Eura fibulae, there is also a fibula from Hackås (Kjellmark 1910–1913 fig. between pp. 4 & 5) which is the only Swedish specimen that I have seen in which the ends are turned in the opposite directions as in the ones from Southern Ostrobothnia. Helgö is a possible place of origin for the simple variant with hook and spiral ends, because some of this variant have

been found there (Helgö I Pl. 32:8, Helgö II Pl. 33:1–3; Arrhenius 1970 fig. 22), but the type has certainly been made also in several other places, in Finland at least in Eura and Southern Ostrobothnia.

6.1.3. Round brooch with downwards bent edge

Twenty round brooches have been found at Luistari, and the oldest of these is with all probability one that was retrieved as a surface find:

20189:4

It is of bronze and measures only 25 mm in diameter, and has in the centre a hollow surrounded by a ridge. This hollow may have contained an ornamental plate of bone or glass. The edge is bent downwards in a round shape and part of it is missing. The clasping parts are missing too, and the artefact appears to have been damaged by fire. A few similar small brooches have been found in Southern Ostrobothnia (Meinander 1950 fig. 101, p. 101 and note 97), but only one has been previously found in Southern Finland, at Myllymäki in Kokemäki (Salmo 1952 fig. 36, p. 225). It is a Scandinavian type regarded by Aberg (1953 fig. 148, p. 147) as Gotlandish, as there are only a few from the Swedish mainland and apparently several more from the islands. Nerman (1969 Pl. 106:900–902) has placed the specimens from Gotland in his period VII:2, and Gjessing (1934 p. 125, Pls. XXXIa, XXXIIId) has dated the coniform brooches closely related to these in Norway to the turn of the 6th and 7th centuries. It is thus an early form of the 7th century, the occurrence of which in the Luistari finds shows that the oldest stages of the cemetery have not yet been sufficiently excavated. This was also suggested by a few equal-armed brooches which appear to be of early date (see 6.1.1.).

6.1.4. Cart-wheel-shaped brooches

Among the more rare brooches at Luistari is a cart-wheel-shaped specimen:

329:3737

It is quite large, 72 mm in diameter, and decorated with engravings and ringed dots. The width of the rim varies, and the outermost part is bent downwards. The brooch is of open-work, forming what appears to be a cross superimposed by a ring cross, forming the impression of a spoked wheel. The pin had been of iron.

A brooch of exactly similar form although with less ornamentation has been found at Papinsaari in Kuhmoinen (Nordman 1924 p. 130, fig. 108). Kivi-

koski (1973 fig. 428, p. 65) has linked this specimen to a brooch found at Kvarnbacken in Saltvik, which however has only six spokes. A cross-ornamented brooch from Ilmoila in Hauho (18468:867) is with certainty a variant of the same type, as are also specimens from Jämsä (16736:1), Pielisjärvi (7218, Nordman 1924 fig. 107) and Ruokolahti (7012, Hackman 1918 p. 48), all three nearly identical with one another. These have a parallel in an East Karelian find which included among other artefacts two double-shelled Scandinavian tortoise brooches and a neck-ring with a loop and a knob at the ends (Kockurkina 1978 figs. 7–9, p. 119). The oval brooches are of the type Petersen fig. 51, indicating 10th century (Petersen 1928 p. 64; cf. Jansson 1970 pp. 55–57). It is possible that this date is also appropriate for the last-mentioned variant of the round brooch. The Luistari and Papinsaari brooches are however considerably older. The Papinsaari find is dated to c. 800 A.D. (Nordman 1924 p. 113), and along with the Luistari brooch two tanged spearheads with tapering blades were found. These indicate the last phase of the Merovingian period. The brooch type and its different variants seem to have been in use from the end of the Merovingian period to the 10th century. The Luistari and Kvarnbacken finds show that the cart-wheel-shaped brooch was used in Finland in men's cloaks. Kivikoski (1963 p. 75) links it to brooches which bear witness of influences from the Memel region (cf. Lietuvos TSRAA 1978 fig. 39 and pp. 66–67), but judging from the variants the type became completely domestic in Finland.

A small open-work brooch found in a child's grave may be related to the above:

118:2291

It is 38 mm in diameter and slightly convex. There is a cross design in the centre with three or four openings between the spokes (totalling four), as also in the brooches described above. Ringed-dot stamps accentuate the arms of the cross, but they are to be found also in other parts. It is of maladroit handiwork and the brooch has an unfinished appearance. It has two quite close parallels, one from Pärkkö in Laitila and one from Keisala in Alavus. The Pärkkö brooch also has ringed-dot ornaments, but the one from Keisala is undecorated except for a knob in the centre (Kivikoski 1973 fig. 668, p. 92). The Alavus find, which Hackman holds to be a depot, includes a penannular brooch with rolled ends, a penannular brooch with funnel-shaped ends, a convex round brooch with two animal figures and an equal-armed brooch regarded by Kivikoski (1938 p. 24) as a variant of her group 7. Meinander (1950 p. 162) has suggested that the Alavus find is from as late as the 11th

century, but the preceding century is a more credible date in my opinion. The Pärkkö brooch is from a cremation cemetery laid on level ground, and thus does not give grounds for the dating. Luistari grave 118 was next to grave 100, which has a coin-date to the first quarter of the 10th century (coin-list No. 33). The same coin-date (coin-list Nos. 35, 36) has been given to grave 139, in which there were bracelets similar to those from grave 118. Accordingly the first half of the 10th century seems to be an appropriate date for the brooch from grave 118 at Luistari.

6.1.5. Round brooches with lions and birds

Also in the so-called Lion brooch, one of which has so far been found at Luistari, the surface is divided into four sectors by a cross-figure:

62:1876

The brooch is only 58 mm in diameter, and belongs to the smaller variants of the Lion brooches. The artefact is flat and the animal figures are hard to recognize. The Luistari brooch is evidently not among the best specimens of its type.

The Lion brooch came into being around 800 A.D. as a result of West European stylistic influences, but the form itself is domestic (Lehtosalo-Hilander 1976 pp. 71–75 with notes). About 40 similar brooches have so far been found in Finland. More than half of them are from the province of Finland Proper (Kivikoski 1973 fig. 664, p. 92; Salmo 1952 pp. 307–308, 481). There are remarkably few specimens from Satakunta; they were only six in number there before the Luistari brooch was found, and this was the first found in Eura. The Luistari find as well as grave 62 at Anivehmaanmäki in Yläne (Hirviluoto 1958 pp. 54–55, fig. 8) show that Lion brooches were used in women's attire as third brooches. Kivikoski (1939 p. 136, 1973 p. 92) dates the type in its entirety to the 9th century.

A rare brooch with bird figures can be matched with the Lion brooches:

294:3390 (fig. 59)

It measures 64 × 61 mm, and also its surface is divided by a cross, but instead of a lion each sector has a twin bird figure portrayed standing beak to beak. The figures have parallels in certain East Scandinavian pendants which have also been found in Finland, and it is possible that the brooch was designed on the base of these. Stylistic features indicate that the brooch can be placed at the end of the Merovingian period or the very beginning of the Viking period. The fact that it was found along with a convex round brooch of Appelgren

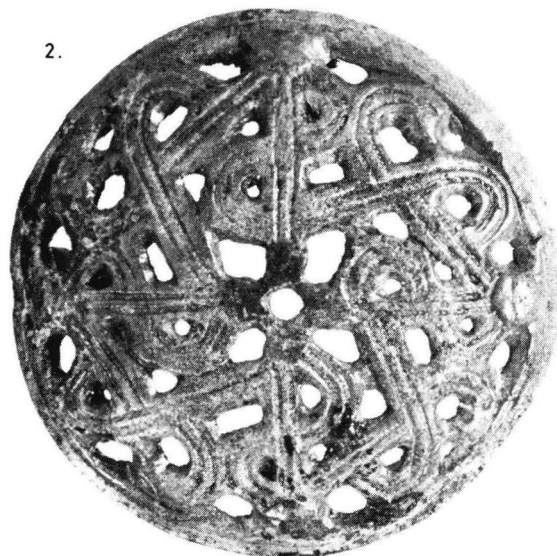
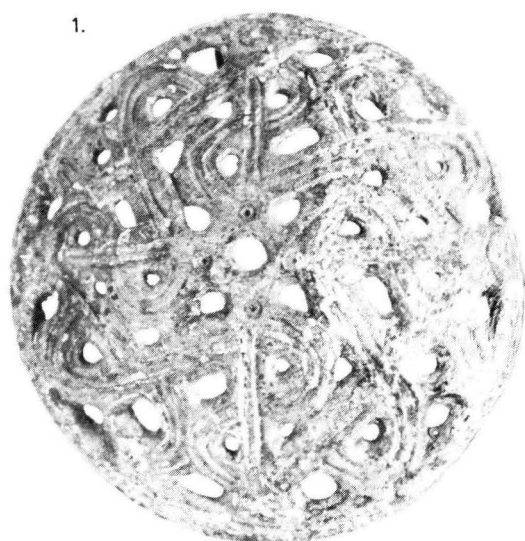


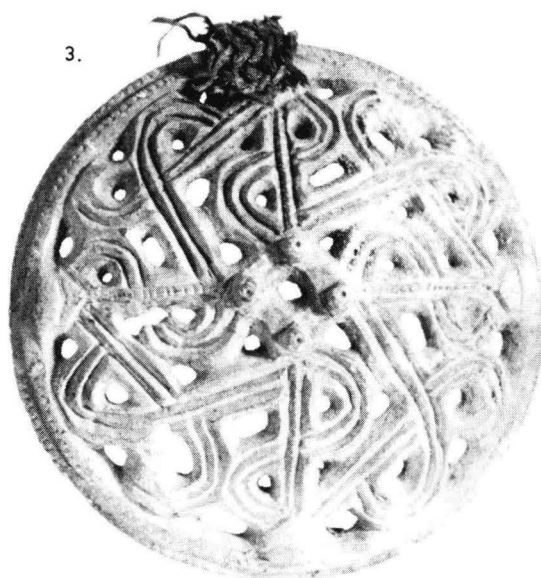
Fig. 26. Convex round brooches of types A–C from Luistari (18000:2085, 1939, 1874).

type B (see the following chapter) suggests the latter date. The brooch is so far unique, and it was possibly used in grave 294 as the pair of the type B brooch at the shoulders of the dress (Lehtosalo-Hilander 1976 pp. 71–75, 78). A leather strap and a woollen band tied to the brooch may have had household objects suspended from them. These were not however found in the grave.

6.1.6. Finnish convex round brooches (figs. 26–30, 34)

The Finnish convex round brooches are products of the same period as the above ornaments. Animal figures borrowed from Vendel styles C and D are to be seen in twisted form on the surface of these brooches (Arwidsson 1940 pp. 121–128, 1942a pp. 56–59). Snake-like animal figures of style D occur on the four-animal brooches classified by Appelgren (1897 pp. 1–13) into six types (A–F) already at the end of the 19th century. The figures are at first twisted under and above the cross-figure dividing the field, later they are overshadowed by the cross and in the end completely geometricized. In the two-animal brooches there are two style C animal figures back to back and partly entwined with each other.

Appelgren uses the term type A of small brooches with S-shaped animal figures entwined alternately under and over the cross. In type B the animals can still be clearly recognized, but the cross is the dominating motif and there is a looped cross design in the centre. In type C this figure has been replaced by four pegs, and the animal figures are more indistinct. In type D there are pegs also at the ends of the cross-arms, and the open-work holes previously left in casting are now partly drilled. In type E there are eight pegs as in the previous type,



but no holes, and the animals are so indistinct that the design in some cases closely resembles a flower, and in type F there are 12 pegs placed so that they are also in the middle parts of the cross-arms (Kivikoski 1973 figs. 656–661, pp. 90–91). Attempting to find in the brooches other distinctive traits listed by Appelgren only leads to finding more exceptions than typical specimens among the more than 350 brooches known to date. This is quite natural when it is remembered that these brooches were made for a period of over 200 years in several places, including those where Scandinavian animal ornamentation was never adopted. In my opinion, e.g. in conjunction with types C and D, more weight should be given to the number of pegs than the development of the foreign animal figures.

Eura is one of the regions where numerous (29 specimens) convex round brooches have been found. They represent all of the above groups ex-

cept type F. At Luistari they have been found in 12 graves:

10:1034 (Originally grave 35?)
14:1144 (Originally grave 25?)
35:1445
55:1612
56:1652
 :1660
62:1874
 :1875
73:1939
95:2085
 :2091
180:2688
294:3391
370:4181
284:4357 (Outside the grave)

The brooch from grave 55 corresponds in size to Appelgren type A (diameter 59 mm), but the animal figures are not quite regular, the eyes are missing and the bands forming the cross transverse the animal figures in the centre. The holes are very small and are missing in several places, and the artefact cannot be classified among the brooches of type A proper.

The brooches from graves 73, 95, 180 and 294 are quite large, 70 to 73 mm in diameter, but otherwise they differ from one another; the brooches from grave 95, however, clearly form a pair. All of the brooches are of open-work but none are as decorated as the specimen cited by Appelgren as an example of type B (1897 fig. 3). There is no beaded line ornamentation in the brooch from grave 180; in the brooch from grave 294 it is to be found only on the cross-arms. In the brooches from grave 95 it is visible only in places and in the brooch from grave 73 it has been replaced by an ornamental engraving in the grooves. The plaiting of the bands in the centre is quite distinct in the other brooches, but in the centre of the specimens from grave 95 there are only four ringed dots, which is a feature of type A (cf. Appelgren 1897 fig. 2). They must therefore be referred to as an intermediary form between types A and B.

This is the first case in which so many brooches belonging to the oldest forms of the convex round brooches have been found in closed finds, and for this reason a closer investigation of their find circumstances is called for. In grave 55 the brooch was accompanied by a neck-band consisting of open-work bronze pendants with knotted cross designs, multipart bronze beads and bronze spirals. In grave 73 there were cylindrical glass beads; grave 76, laid on top of this, is coin-dated to later than 951 A.D. (coin-list No. 31). Grave 180 contained also cylindrical beads and large bronze spirals. In

grave 294 there was a bird-ornamented brooch as the pair of the type B brooch. The bird-ornamented brooch could be connected stylistically with the very beginning of the 9th century (Lehtosalo-Hilander 1976 pp. 71–75). The third brooch in grave 95 was an equal-armed brooch of Ljones type, specimens similar to which belong mainly to the first half of the 9th century according to Kivikoski (1938a p. 235, see however 1963 p. 78 and the differing opinions in 6.1.1.). In addition, this grave contained four massive lozenge-ornamented bracelets and a neck-band with multi-part bronze beads, open-work pendants with knot-cross designs and cylindrical glass beads. The lozenge-ornamented bracelets have been regarded by Hirviluoto (1958 p. 51) as the earliest variant of the massive bracelets. The cylindrical beads, on the other hand, can be dated to the end of the 9th century according to the new Birka studies (Danielsson 1973 pp. 78–80), but beads of this type were found in grave 62 at Yläne dated by Hirviluoto (1958 p. 51, fig. 6) to the beginning of the 9th century. According to Callmer (1977 pp. 77, 89) the blue cylindrical beads (Callmer F051) first appear in larger numbers around the middle of the 9th century, although they occur sporadically already around 800 A.D. Thus the artefacts found with the brooches of types A and B at Luistari have in other connections been dated – although the opinions of the exact datings differ – mainly to the 9th century, and it seems evident that the brooches are also of this period.

The early dating of types A and B to the 8th century by Appelgren (1897 pp. 8–9) has generally been discarded (see Kivikoski 1939 pp. 132–133 with notes) and Cleve, who previously suggested that the convex round brooches come into being only in the middle of the 9th century, seems to have later agreed with Nordman's, Kivikoski's and Hirviluoto's opinion that the brooch type came into being around 800 A.D. (cf. Cleve 1934 p. 405 and 1978 pp. 92–93). This is also suggested by grave 294 at Luistari, which in addition supports the assumption that types A and B are contemporaneous (Lehtosalo-Hilander 1976 p. 78). The length of time these brooch types were in use will be dealt with in a later connection.

The brooches from grave 62 belong to Appelgren type C. They are c. 71 mm in diameter with distinct designs. The cross-arms are beaded and there are also two beaded lists at the brims of the brooches. The pegs are round and high with ringed dots at the ends. A pair of brooches with distinct figures, resembling the artefacts in question, was found in the Vänniä cemetery at Kaukola in Tyrvää (6390: 4, 5; Kivikoski 1973 fig. 658), but it seems that brooches of type C proper are few in number. It is for this reason that the dating of type C has

remained unsolved. On typological grounds Appellgren (1897 p. 9) suggested that type C belongs to the 10th century, but he did not offer a more accurate date. Floderus (1931 p. 19), who has studied the convex round brooches found in Sweden, dates type C to the end of the 10th century and the beginning of the 11th century, but all of the type C brooches referred to by him are of a different stage of development than the Luistari brooches. All of them have eight pegs (cf. Floderus 1931 fig. 1–3), and they must be regarded as intermediary forms between types C and D or as representatives of a narrow-brimmed variant of type D, which will be discussed later. Cleve (1934 pp. 408–409), on the other hand, has linked a brooch found near Novgorod, described by him as an intermediary form of types C and D, to the direct contacts which he assumes to have existed between Western Finland and the Russian centres of trade at the end of the 9th century and during the first half of the 10th century. Thus the datings given to type C and its variants differ to a great degree from one another.

Grave 62 at Luistari does however offer some fixed points for the dating of the type. It was laid on top of grave 64, which contained knot-cross ornamented pendants which occur together with type A and B brooches at Luistari. A large part of the beads from the same grave belong to types (E060, F031, F051, A176) regarded as early by Callmer (1977 pp. 88–89) and which he claims are numerous especially around the middle of the 9th century. Also small green beads (groups F060, F070) found in this grave may occur sporadically

as early as this, but there are also certain yellow, light blue and violet beads (E030, F051, F041) which, according to Callmer (1977 pp. 77, 80, 88–89) should be from a later date than the middle of the 10th century. It is however probable that grave 64 is not of such a late date, but belongs to the period suggested by the earlier bead material, because also the beads from grave 62 (mostly F051) suggests Callmer's (1977 p. 77) bead period III (845–860 A.D.). The grave also contained a Lion brooch and a massive lozenge-ornamented bracelet, which are both types mainly of the 9th century (cf. 6.1.5. and 6.4.2.3.). It would thus seem most probable to date grave 62 and the type C brooches found in it to the latter half of the 9th century or to c. 900 A.D. On the other hand the location of the grave in zone IV suggests the first half of the 10th century, and the date ± 900 A.D. would seem to be appropriate. It is evident that the type C brooches in the stage of development represented by the Luistari specimens belong to forms of the earlier Viking period.

Six convex round brooches of type D have been found at Luistari. They were found in pairs in graves 35 and 56 and singly in graves 25 and 370. All of these have wide brims. The brooches from graves 35 and 56 are of very good handiwork, while the brooch from grave 25 has clearly much more indistinct figures. The brooch from grave 370 is nearly oval, and it could of course be imagined that the edges were damaged, but the occurrence of several elliptic brooches of this type in the West Finnish finds (e.g. 13204:49 Lieto, 2496:114 Laitila, 2659:3 Akaa, 12043 Urjala, 10201:4a,b Sääksmäki)

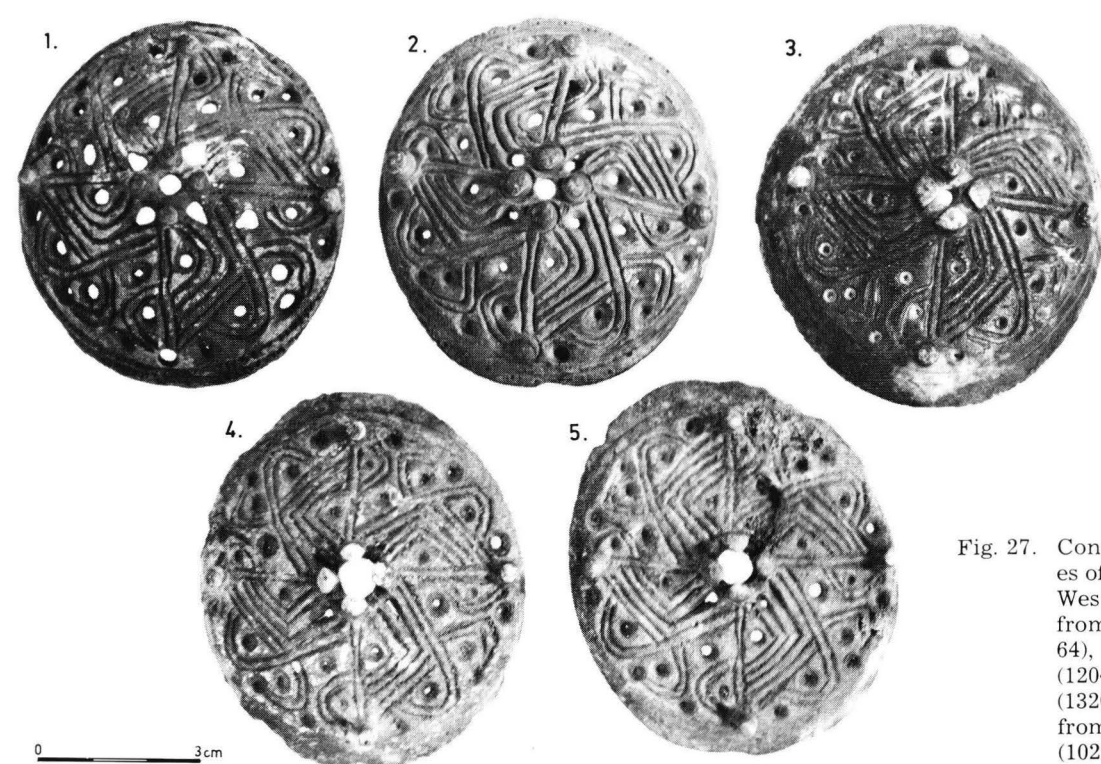


Fig. 27. Convex round brooches of elliptic form from Western Finland: 1 from Kangasala (9220:64), 2 from Urjala (12043), 3 from Lieto (13204:49) and 4–5 from Sääksmäki (10201:4a,b).

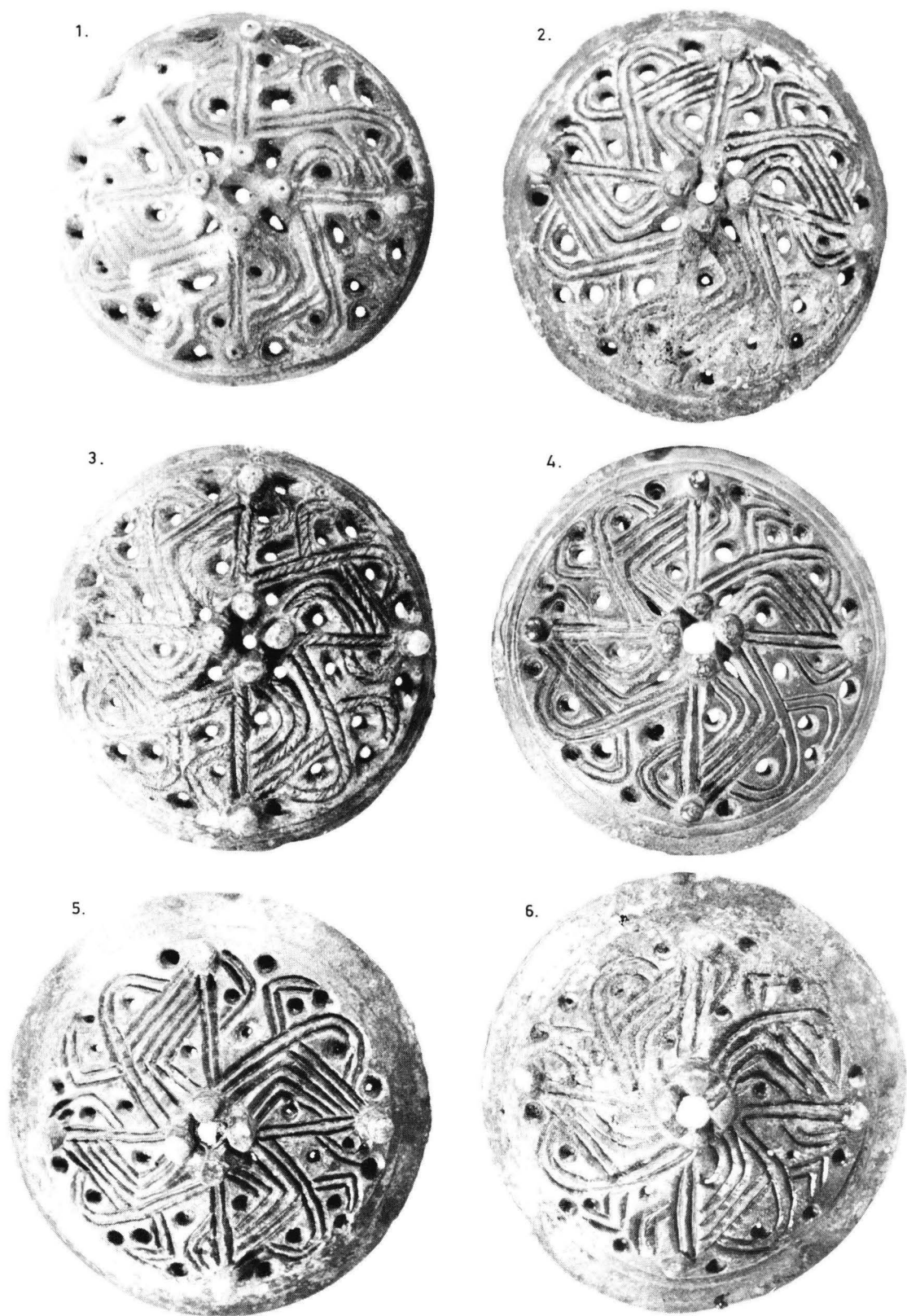


Fig. 28. Convex round brooches of type D: 1 intermediary form C-D (11837:1 Lammi, Vanhakartano), 2-4 narrow-brimmed variants of type D (16240 Nokia, 11063:320 Eura, Pappilanmäki, 2548:817 Laitila, Kansakoulumäki), 5-6 wide-brimmed variants of type D (18000:1660, 1144 Eura, Luistari).

Table 6.

GRAVES WITH CONVEX ROUND BROOCHES OF TYPE D			Other brooches				Chain holders							Ring-or- naments					Neck-band pendants			Coin-datings
			Convex round brooches	Equal-armed brooch Kivikoski 1973 fig. 679	Equal-armed brooch Kivikoski 1973 fig. 680	Bronze penannular brooch	Silver penannular brooch	Iron rod holder	Bronze rod holder					Cast bronze holder	Iron rod chains	Bronze chains			Animal-shaped pendants	Bear's tooth pendants	Sleigh bell pendants	
Cemetery and grave																						
Eura, Pappilanmäki Köyliö C	5 Da B Da 1 Da 4 Da 29 Da 39 Da				x				x	x	x	x	x	x	x			x	x			?
Yläne, Anivehmaa	78 Da 82 Da	x												x	x	x			x			971–974 (Sarvas 1972 p. 76) 965–983 (Sarvas 1972 p. 74) ? 979–999 (Sarvas 1972 p. 89) 980–994 (Sarvas 1972 p. 91)
		8x	2x	1x				4x	5x	6x	2x	1x	3x	5x	2x		3x		3x	4x	2x	990–1050 (Sarvas 1972 p. 136)
Eura, Luistari	25 Db 35 Db 56 Db					x					x				x	x		x	x			1000– (Luistari I, coin-list Nos. 3–6)
Köyliö C	370 Db E Db L Db		x				x				x			x	x	x		x?	x	x	x	1018– (Luistari I, coin-list Nos. 12–23)
	28 Db	x			x	x		x		x			x		x	x		x	x	x	x	999–1044 (Sarvas 1972 p. 77) 1014–1024 (Sarvas 1972 p. 79) 976/7 (Sarvas 1972 p. 88)
	Maaria, Saramäki Kaarina, Kirkkomäki	6 Db Db				x					x					x	x	x		x	x	1000–1025 (Talvio 1978a p. 185)
		9x	1x	2x	1x	3x	1x	3x	2x		8x			2x	7x	3x	7x	5x	5x	5x	4x	

Kk = Kivikoski 1973

suggests that the transition to oval tortoise brooches in Häme in the 11th century (cf. af Hällström 1948 pp. 63–67) left its mark on these also.

Grave 56 is coin-dated to the 1020's at the earliest, and also grave 25 can be given a roughly corresponding coin-date (coin-list Nos. 3–6, 12–23). Grave 35 is with certainty younger than these, because when it was laid grave 56 was damaged. It is possible that also the brooch from grave 370 in which a cross and swastika design is accentuated by corded lists is a late variant. It seems that all of the type D brooches at Luistari were placed in graves mainly as late as the second quarter of the 11th century.

Appelgren (1897 pp. 9–10) dated type D to the end of the 10th century. Kivikoski (1939 p. 133) regards c. 1000 A.D. or the first half of the 11th century as an appropriate date, which is also the conclusion reached by Salmo (1952 p. 315), although he is of the opinion that they were possibly still worn at the end of the 11th century. Sarvas

(1972 pp. 19–20), on the other hand, maintains that on the basis of the coin-dates they should be dated to the period 975–1025 A.D. Although the coin-dates of graves 25 and 56 fit within Sarvas' limits, grave 35 shows clearly that brooches of type D were still in use at a later date.

In the Luistari material it is to be noted that there seems to be a considerable time-gap between the brooches of types C and D, more than 100 years. Partly this is because the Luistari cemetery has not been completely excavated, and not all of the female graves contained shoulder brooches. It seems, however, also evident that there are several intermediary stages between the groups represented by the Luistari type C brooches and the wide-brimmed type D brooches, and that only distinguishing these will give more exact datings.

Graves 28 and 29 of the Köyliö C-cemetery are especially important for the study of these intermediary stages. Grave 28 was laid on top of grave 29, which was damaged as a result. In grave 29

a narrow-brimmed type D brooch was found as well as a wide bracelet with crescent-shaped stamped impressions, cast chain-holders with spiral ends and a wide bronze-plated knife sheath, whereas in the later grave (number 28) there were two wide-brimmed convex round brooches of type D, an equal-armed brooch of Kivikoski's group 8 (1938 p. 26), spiral armrings, a wide sheath and a neck-band with silver sheet pendants, consequently a collection of artefacts closely resembling the finds from Luistari grave 56. Grave 29 is coin-dated to 979–999 A.D., and it could have been made in the last quarter of the 10th century. Grave 28 on the other hand is with all probability from the 11th century, although the coin-date is 976–977 A.D. The grave is definitely younger than grave 29 (cf. Cleve 1978 pp. 41–44, 94, 116 and Sarvas 1972 pp. 87–89) and there cannot be decades intervening between it and Luistari grave 56.

It seems thus that the narrow-brimmed form of the type D brooches may be a product of the 10th century and that the wide-brimmed ones belong to the beginning of the 11th century at the earliest. The table showing the inhumation burial finds including type D brooches seems to support this assumption, and it also shows that both variants seem to be followed by partly different combinations of artefacts. The narrow-brimmed variant is accompanied by wide bracelets, iron rod chains, bird-figure and bear's tooth pendants, and neck-bands with coin ornaments. The wide-brimmed variant on the other hand is accompanied by spiral bracelets, late equal-armed brooches and silver penannular brooches, silver and bronze rings with wide middle-parts, neck-bands with silver sheet pendants, chain holders made of metal rod and a West Finnish veil with bows of bronze rings in combination with an apron ornamented with heavy spiral borders, in other words, the rich ornamentation and impressive attire of the 11th century (cf. Cleve 1978 p. 200). There is most probably a chronological difference between the narrow-brimmed and the wide-brimmed variant of the D-type brooch, and their dissimilarity is not only caused by a different production centre as Cleve (1978 p. 93) seems to suppose.

So far only one two-animal brooch has been found at Luistari. It was found in a passage dug by a mole next to grave 384, and its original location can only be guessed at. It was probably not from grave 384 as this was structurally similar to the very latest graves in the cemetery. Grave 386 is a possibility, because the passage began there, but there is of course no certainty of this. The brooch is small, 55 mm in diameter. The contours of the animal figures were accentuated with beaded lists, and there are also three beaded lists on the brim.

The ornamentation thus links it to the Luistari brooches of type B and C, but it is not made in open-work.

Appelgren (1897 p. 12) has linked the two-animal brooch in a chronological relationship to the four-animal brooches of types A and B. Kivikoski (1939 p. 134), on the other hand, has presented a few two-animal brooches with peg ornaments and compared these to the brooches of type C–E, and referred in this connection also to grave 18 at Osmanmäki in Eura, in which a four-animal brooch of type C–D was the third brooch along with a pair of two-animal brooches. In referring to the same combination, Salmo (1952 p. 315) suggests that convex round brooches with two-animal figures were made during the first half of the 11th century. Keskitalo (1963 p. 40) has dated a grave at Ruskeenkärki in Hattula with a pair of two-animal brooches to c. 1000 A.D. Cleve (1978 pp. 91–92), on the other hand, is of the opinion that the type was in use for most of the Viking period and came into being as early as the beginning of the 9th century. Seemingly there are excellent grounds for this supposition, because on the one hand the two-animal brooches represent several differing variants, and on the other hand a sword pommel with a similar animal turning backwards has been found in the Laitila–Kylämäki cemetery (16165:409), and it most probably dates from the last decades of the 8th century; the animal on the other side of the pommel is band-like as in Salin's style III (cf. 1904 pp. 263–264, 272–281 and figs. 581, 600g, 603, 612), and both this and the enamel ornamentation, appearing in both animals' eyes, connects the pommel with Vendel style D (Arwidsson 1942 pp. 22–24, 72–73). Considering that Vakka-Suomi is thought to be the native place of convex round brooches, this find certifies still better than the earlier ones (cf. Kivikoski 1939 pp. 132–133) that stylistic elements copied in them were known there precisely during the period required.

Although the two-animal brooch from Luistari can be regarded mainly as a stray find, it is from zone IV, which on the basis of the Luistari chronology came into being in the first half of the 10th century (see Luistari I p. 47). Graves 344 and 348 were in the immediate vicinity of the find place. These graves have coin-dates (coin-list Nos. 64–73) to this period, and I do not believe that the Luistari two-animal brooch is much younger than them.

It must also be noted that the Ruskeenkärki grave in Hattula is coin-dated to the end of the 9th century, and according to Sarvas (1972 pp. 18–19) the convex round brooches should not be given dates that differ from the actual coin-dates. Partly I agree with Sarvas' opinion, although I would not

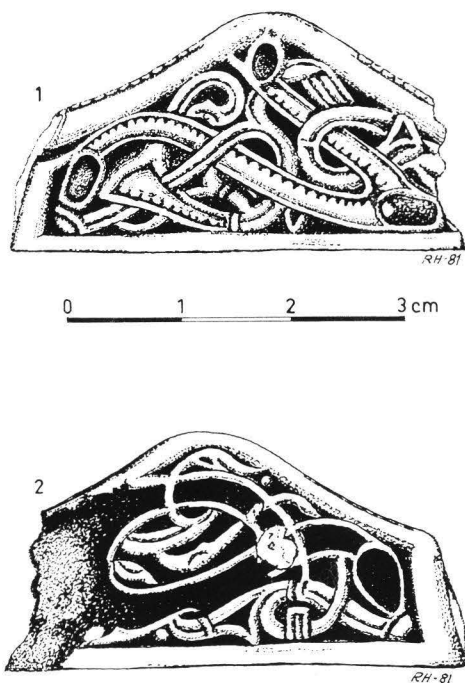


Fig. 29. Sword pommel from the Laitila, Kylämäki cemetery (16165:409).

accept the evidence of a single Arabian coin when other facts do not support it. However, I do not believe that the Ruskeenkärki brooches were made after 950 A.D., as also the cylindrical beads from the same grave are typical of the earliest phase of the Viking period (cf. 6.5.7.1.). The artefacts found along with the convex round brooches in grave 18/1905 at Osmanmäki, a lozengé-ornamented bracelet and a neck-band mostly of cylindrical beads, suggest also the earlier part of the Viking period. The cornelian beads found among the other beads may be a reflection of Birka, where they are well represented in the finds of the first half of the 10th century (Danielsson 1973 pp. 80–81; Ambrosiani 1973 p. 240; cf also Heyerdahl-Larsen 1979 p. 155). Besides, the ornamental pegs referred to by Kivikoski came into use already at the beginning of the 9th century, and there is a new find from Kalomäki in Hauho, where they decorate a brooch otherwise resembling the type B variant (18468:2141).

The dating which I suggest for the convex round brooches on the basis of inhumation burials at

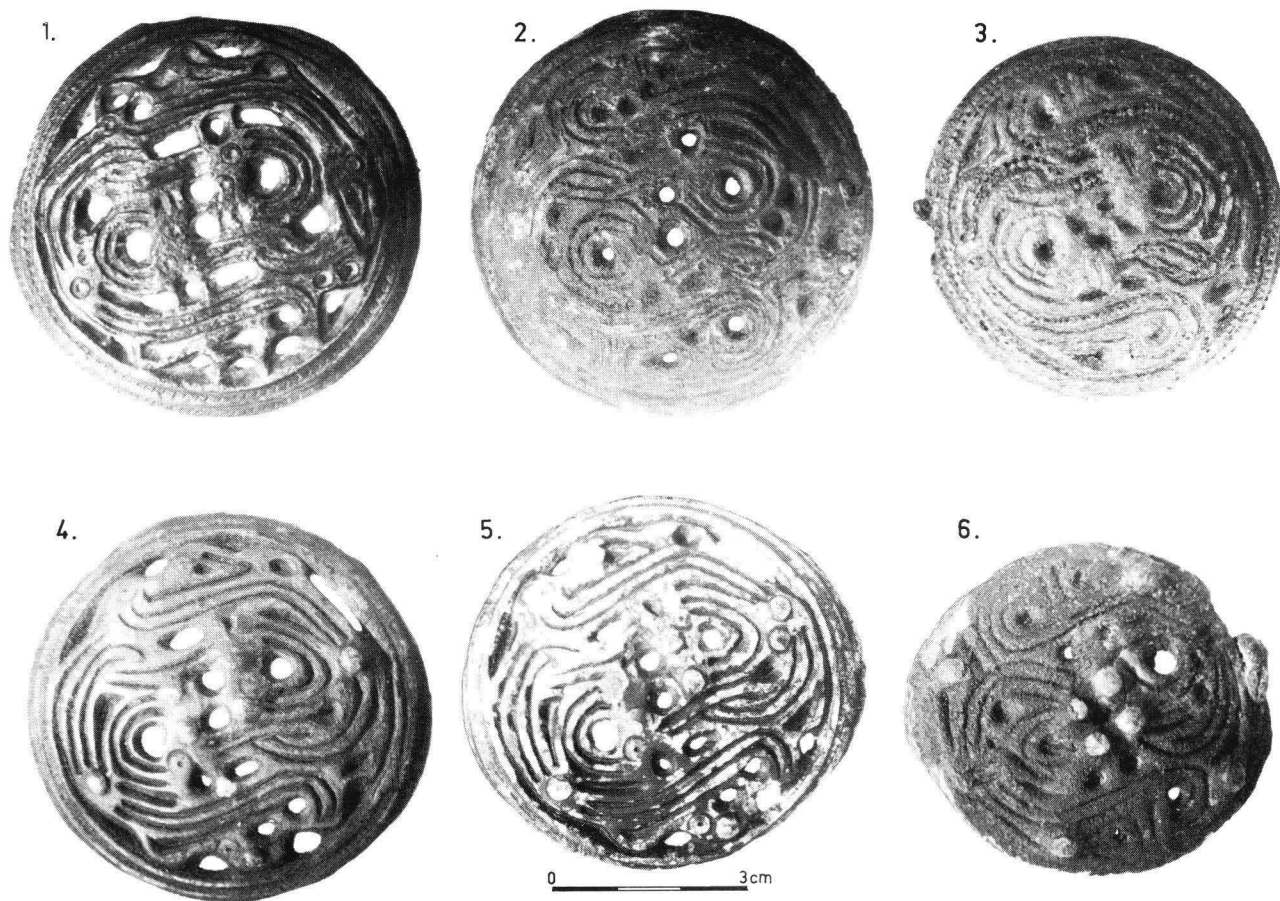


Fig. 30. Two-animal brooches with and without pegs: 1 from Eura, Kirkonkylä (2729), 2 from Huittinen, Hiukkavainionmäki (3149:48), 3 from Eura, Luistari (18000:4357), 4 from Kalanti, Pietilä (2524:3), 5 from Kalanti, Kalmumäki (9365:84) and 6 from Karkku, Tulonen (5203:44).

Luistari and other cemeteries is the following:

Type A }	9th century, perhaps only
Type B }	the period 825–875 A.D.
Type C	875(900)–925(950) A.D.
Two-animal type	(800)825–950 A.D.
C–D intermediary form	925–975? A.D.
D narrow-brimmed	950–1000 A.D.
D wide-brimmed	1000–1050 A.D.

It is in my opinion clear that type D was in use for a longer period only because of its large numbers (about 80 narrow-brimmed and 40 wide-brimmed brooches found so far). On the other hand dividing it into two variants clarifies the matter. It is possible that both types E and F started to develop at the same time as type D, and that they are thus at least partly parallel forms. This can be seen in the fact that on the one hand there are non-open work brooches with eight or twelve pegs and in which the animal figures are nearly as distinct as in type C (e.g. 567a Janakkala, 5897:99 Kangasala) and, on the other hand, ones that can be compared with the wide-brimmed type D brooches (e.g. 10246:3 Lieto, 1763:16 Kokemäki, 18556:642 Tampere, 18316 Tuulos, 11929 Äänekoski). The latter include the small brooches of type E from Pappilanmäki (11063:174). These were however unfortunately stray finds.

6.1.7. Penannular brooches

6.1.7.1. Penannular brooches with rolled ends

Penannular brooches were the most in number in the Luistari finds. They seem to have been in common use in men's cloaks. They are 42 in number and can be divided into several types, of which the ones with rolled ends are the most numerous. These have been found in 12 graves and there are also two stray finds:

9:1001	Bronze
140:2447	Iron
207:2828	Iron
295:3418	Bronze
317:3577	Iron
331:3750	Iron
349:3984	Silver
371:4187	Bronze
390:4398	Bronze
402:4503	Bronze
404:4543	Bronze
407:4626	Bronze
18000:2	Bronze
18000:112	Silver

Three of them are of iron and quite large, the one from grave 140 is 64 mm in diameter, the ones from graves 317 and 331 74 and 77 mm in diameter.

The fourth iron brooch, from grave 207, is considerably smaller than the above, the diameters are 49 and 40 mm, and the pin is relatively longer, 56 mm. All are of round section and the rolled ends are not much wider than the actual ring.

Salmo (1956 p. 18) has mentioned that no iron penannular brooches of round section have been found in Finland that are younger than the 9th century, but he is of the opinion that these were probably in use also at a later date. The large iron brooches from Luistari seem to be from the end of the 8th and the beginning of the 9th century. Graves 317 and 331 contained spearheads of phase III of the Merovingian period (a socketed spearhead with a tapering blade and a short-bladed javelin point from grave 317 and a tanged spearhead with a tapering blade from grave 331, see 1.3.2., 1.3.4. and 1.3.5.). Grave 140 on the other hand contained two long-bladed tanged spearheads, and, according to Salmo (1938 p. 253), some specimens of this type can be dated to the period shift between the Merovingian and Viking periods.

The brooch from grave 207 must be regarded as a very late specimen, mainly because of the weights found in the grave; in the Luistari material these begin to occur only after the year 900, and round weights flattened at the ends, like the one from grave 207, are from graves of the later Viking period (see 4.5.3.).

An iron rolled end fragment (1543), probably from a penannular brooch, was found in the mixed earth to the south of graves 10 and 35. On the basis of the find location it could also be from a brooch of late date.

The stray find bronze brooch with rolled ends and the brooches from graves 371 and 390 are with a ring of round section. They are all of small size, 33–42 mm in diameter. The rolled ends of the first mentioned one are decorated with a pair of lines. The brooch from grave 371 is completely unornamented and the one from grave 390 has stamped lines only at the base of the pin. According to Salmo (1956 p. 22), the round section is a dominant feature of the oldest bronze brooches with rolled ends, dated at the end of the Merovingian period and the beginning of the Viking period, but the form is so simple that it was preserved for a long time along with the others, and it still occurs sporadically during the Crusade period (cf. Kivikoski 1973 fig. 1034, p. 13). In the Soviet Union brooches of this type are numerous, and they are dated to the period from the 10th to 13th century (Malm 1967 p. 152).

Grave 390 was located in zone IV near graves 344 and 348, and it may be from the first half of the 10th century. The very small size of the separately found brooch suggests a later date. Similar simple

ornamentation of the rolled ends occurs for example in a brooch from grave III at Pappilamäki in Eura, dated to the first half of the 11th century (Salmo 1956 fig. 6; Sarvas 1972 p. 59). The brooch from grave 371 is with certainty of a still later date than this. The grave was laid on top of grave 354, which in turn was laid on top of grave 359, coin-dated to the latter half of the 11th century (coin-list Nos. 79–86). The brooch from grave 371 is with certainty from the Crusade period.

The bronze brooches from graves 402, 404 and 407 have flat rings, they are ornamented and are of small size. There is a fourth flat-ringed brooch from grave 295, a collective burial. It is 45 mm in diameter and the ring is decorated with a sloping zig-zag line. The brooch from grave 404 is very small (31 × 29 mm) and can be coin-dated to as late as the 12th century (coin-list No. 107). The rolled ends are in all of these brooches slightly wider than the rings; in the brooch from grave 407, barely of the same width. In the last-mentioned artefact the base of the pin is quite wide, while in the others it broadens only slightly (grave 404) or is very narrow (graves 295, 402). In the brooch from grave 402 the pin is unusually long, although it is broken at the tip.

The penannular brooches of bronze with flat rings and rolled ends are somewhat rare in Finland, but there are some specimens from previous finds (Salmo 1956 p. 23; also 14349:110 Kaarina–Ristimäki and 16291 Masku–Mäeksmäki). Salmo (1956 p. 25) has dated a brooch of this type from Humikkala in Masku to the 12th century, and he regards it as a late form. Luistari grave 407 contained a coin from the middle of the 11th century (coin-list No. 108) and a silver-ornamented type G spearhead. This is a type generally dated to the 11th century (see 1.3.12.). Thus the brooch may also be of 11th century manufacture, as also the brooch from grave 402, located near grave 407. As mentioned above, the brooch from grave 404 was interred only at the beginning of the 12th century, but the brooch from grave 295 must be earlier. Both the location of the grave (zone III) and the pottery found in it indicate the earlier Viking period (one of the vessels has a round base and is decorated with wavy lines, see 5.2.).

Small brooches of unassuming appearance of this type have been found in graves 142 and 503 at Birka. Grave 503 contained an Arabian coin of indefinite character from c. 800 A.D. (Arbman 1940 Pl. 50:10, 13, 1943 p. 145). The kurgans at Vladimir and Timerovo with iron brooches of this type have been dated to the 10th century (Malm 1967 p. 155, fig. 22:4), and the type occurs made of iron in Finland already at an early stage; the oldest ones are from the end of the Merovingian

period (Salmo 1956 pp. 20–24). It is thus completely possible that specimens of bronze were also used as early as the beginning of the Viking period.

The ring of the bronze penannular brooch from grave 9 is of triangular section and is of medium size (53 × 48 mm). The rolled ends are of the same width as the ring and the pin has a narrow base. According to Salmo (1956 p. 75), penannular brooches of triangular section with rolled ends came into use in the 10th century and were still in use in the 12th century. The rolled ends of the same width as the ring indicate, in my opinion, that the brooch from grave 9 does not belong to the latest specimens of the type.

The end fragment from grave 349 is from a silver variant of the same brooch type as the above-mentioned. The brooch must have been quite large, with long rolled ends and a ring of triangular section or possibly flat section with a midrib (cf. Kivikoski 1973 fig. 692). The small silver brooch with punched line ornamentation on the midrib is of the same type, and was retrieved as a stray find in a soil pit partly on top of grave 383. If it originally belonged to grave 383, it was probably interred around the middle of the 11th century (coin-list Nos. 102–105). Brooches similar to this mainly belong to the first half of the 11th century, and they are probably of Finnish manufacture (Kivikoski 1939 p. 141; Salmo 1956 pp. 74–75; Lehtosalo 1973 p. 113 and Table p. 106).

6.1.7.2. *Silver penannular brooch with flat end knobs*

A silver penannular brooch with flat end-knobs and a midribbed ring was found in one grave:

25:1342

It is exceptionally large, 84 mm in diameter and of very skilful handiwork. The ring, the end knobs and the kidney-shaped base of the pin are decorated with at least six different stamps. There are dot triangles, stamped lines and circular stamps on the ring, lines and ringed dot ornaments on the end knobs, as well as square stamps and punched lines on the base of the pin. A special feature to be noted are the lines punched transversely on the midrib. This ornament seems to have been popular in the area of inhumation cemeteries in both flat-knobbed and roll-ended penannular brooches, and it is possible that this detail indicates the manufacture of these brooches in this area (Lehtosalo 1973 pp. 110–111, Table p. 106, map fig. 7).

There are at least 20 silver brooches with flat or faceted end knobs from Finland (as well as c. 10 bronze ones). According to Kivikoski (1973 p. 97) most of them are of the Crusade period. A brooch

of this type was however found as the third brooch along with convex round brooches of type D (wide-brimmed variant) in grave 6 at Saramäki in Maaria which has been dated by Kivikoski (1939 p. 147) to c. 1000 A.D., and which is with certainty at the latest from the first half of the 11th century, indicating that the type must have come into use already during the Viking period. The coin-date obtained for grave 25 indicates the first quarter of the 11th century, and also the other brooches of this type from Western Finland could have been made during the first half of the 11th century (Lehtosalo 1973 pp. 104–105). A brooch from Rautu, one of the two found from Ladoga Karelia, was part of a hoard deposited in c. 1070 at the earliest (Salmo 1948 p. 36). The Ingrian brooches which are less than ten in number, are dated to the 11th and 12th centuries (Malm 1967 p. 167). There are some specimens from Northern Norway and Sweden which can be dated to the turn of the Viking and Crusade periods or to the Crusade period (Sjøvold 1974 pp. 218–219; Serning 1956 p. 29). The Norwegian brooches are of bronze. A brooch belonging to the Unna Saiva votive find is of silver, with a ring that is a close parallel to the Luistari brooch. The brooches from Estonia mentioned by Salmo (1956 p. 76) belong to the late flat-ringed and mid-ribbed variant which Tõnisson (1962 p. 218, note 105) regards as a completely different type. It must however be noted that in the West Finnish silver brooches no definite differences can be demonstrated between the ones of triangular section and the mid-ribbed ones, they are contemporaneous. In the East Baltic region the mid-ribbed form is not common, and Tõnisson (1974 p. 118) links it to eastern contacts.

6.1.7.3. *Massive penannular brooches with faceted end knobs*

Massive penannular brooches of bronze with faceted end knobs were found in five graves:

90:2047
156:2574 (Originally grave 157?)
273:3108
283:3227
288:3287

Three of these are men's burials, one the grave of a small boy and the fifth is from the filling of grave 156; it was probably originally from either grave 157 or 184. The largest brooch is from grave 90 with diameters of 90 and 79 mm. It is ornamented with groups of beaded lines parallel to the ring, and the facets of the end knobs are accentuated with chased lines. The base of the pin is narrow. A similar brooch of nearly the same size, but with a narrower ring, was found in grave 588

at Birka (Arbman 1940 Pl. 54:3). The four other brooches are considerably smaller, the largest diameters measuring 46–58 mm. The brooches from graves 273 and 283 are decorated with ringed dot ornaments on the end knobs. There are opposed triangular stamps on the rings of three brooches, while the ring of the brooch from grave 283 is undecorated, and it has a peculiar extension of indefinite form, apparently a casting fault. The bases of the pins of all of these brooches are narrow: in the brooch from grave 288 the pin is of iron, in the others bronze.

Brooches with faceted end knobs are common in Finland, numbering more than 130 in the present finds. There are at least five from previous finds in Eura, four of these from Osmanmäki. Scholars seem to agree that the type begins to occur in Finland already around 800 A.D. (Kivikoski 1973 p. 95). Salmo (1956 p. 35) claims that it is still found in finds from the beginning of the 11th century. However, the brooch from grave K in the Kõyliö C-cemetery mentioned by him is not a typical specimen, but furnished with very high knobs. The small Luistari brooches are of ordinary form and are probably from the 9th century; this was indicated by the tanged long-bladed spearheads from graves 273 and 288. The brooch from grave 283 belongs to the same group, probably also the one from grave 156, while the large brooch from grave 90 is somewhat later in date, from the first half of the 10th century (see coin-list No. 32).

6.1.7.4. *Penannular brooches with pegs* (fig. 31)

Four brooches are of the peg-ornamented variant of the penannular brooches with faceted end knobs:

40:1484
150:2530
:2531
400:4481

They are of large size (diameters 67 to 79 mm) but they differ from each other in so far as two have an iron pin joined to the ring in a normal way, while in the two others the pin was joined under the brooch in a more uncommon way. Also in this case the pins are of iron. One of the brooches from grave 150 is undecorated, but in the others there are triangular stamp ornaments. In addition there are circular stamps on the upper surface of the brooch from grave 400.

Penannular brooches with four small pegs on the end knobs are very common in Finland; they total over a hundred, and the type is regarded as especially Finnish (Kivikoski 1973 p. 96). Salmo (1956 p. 41) has dated the peg-ornamented penannular brooches mainly to the 10th century, but Kivikoski

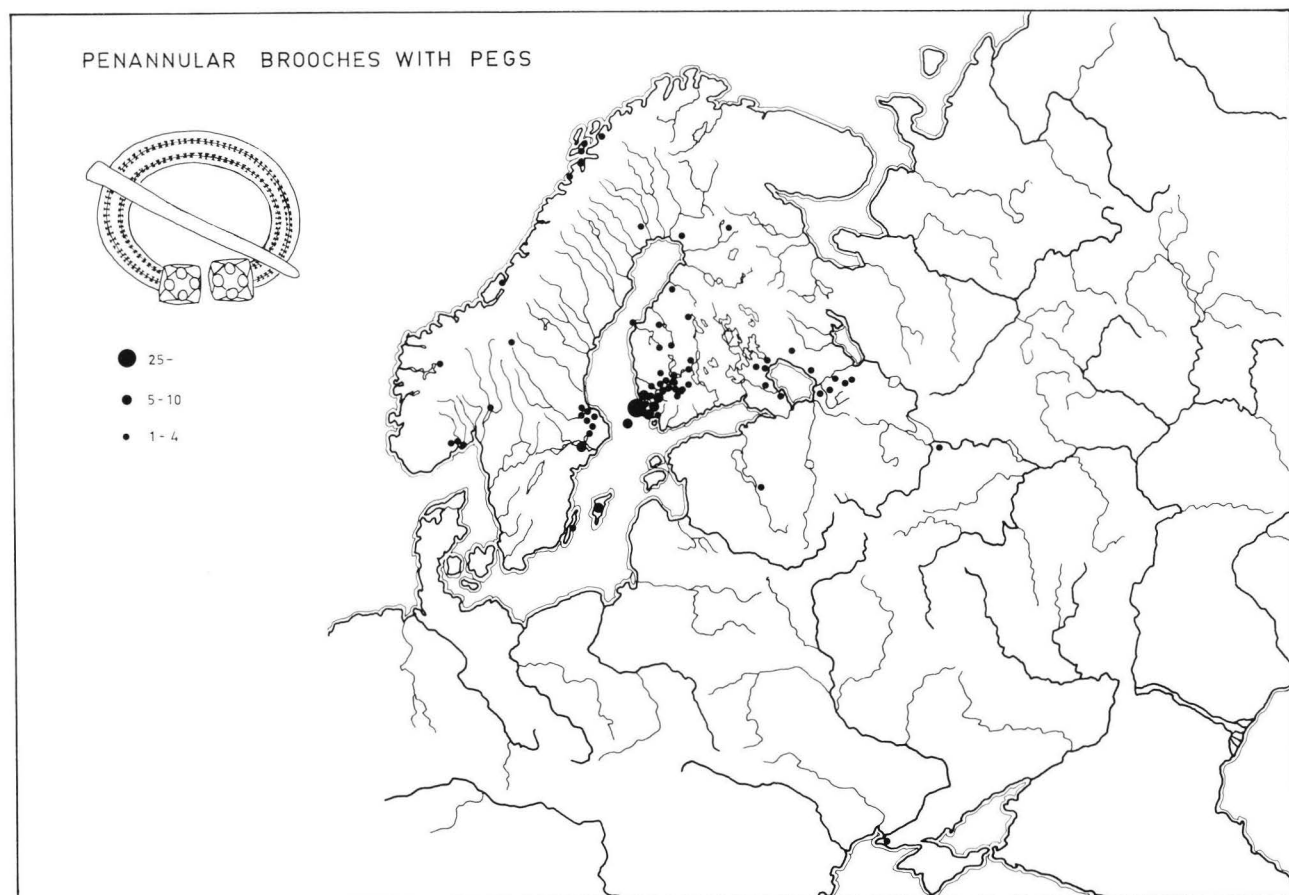


Fig. 31. Distribution of the peg-ornamented penannular brooches (cf. Kivikoski 1938a p. 243 fig. 11).

(1963 p. 80) has later stated that the type may have come into use already during the first half of the 9th century. Certain brooches from Ladoga Karelia in which there is a batten between the knobs and the pin is connected underneath the brooch have been dated by Nordman (1924 fig. 105, p. 129) to as late as the 11th century. Salmo (1956 p. 36) has suggested that these were made in Karelia. Nordman's criteria for the dating are completely stylistic, and a date as late as this does not at least suit the Luistari brooches, as grave 150 was in zone III and the spearhead pair (a broad variant of type A-E and a grooved spearhead of type E) from grave 400 cannot be held to be later than the first half of the 10th century. In the brooches from grave 150 both ways of joining the pin were represented, and these cannot have had any significant chronological differences.

The areas of distribution of the brooches with the fixing apparatus beneath are of interest. In addition to Eura they have been found in Kalanti, Laitila (16498), Köyliö, Huittinen, Vesilahti, Ladoga Karelia, Oulainen and Överkalix in Sweden (Salmo 1956 pp. 36, 42, figs. 15, 17; Kivikoski 1973 fig. 698; Huurre 1969 fig. p. 55; Serning 1960 Pl. 25:1). The centre of distribution seems to be in Ala-Sata-

kunta; only single specimens have been found elsewhere. On the other hand similar fixing apparatus seems to appear in some brooches of other type in Gotland (Nerman 1931 figs. 15, 18; cf. also Salmo 1956 fig. 19 from Eura).

6.1.7.5. *Penannular brooches with funnel ends*

In five graves large penannular brooches with funnel ends were found fastening the cloak of the male corpse:

15:1163
100:2167
281:3176
289:3302
303:3496

These five brooches represent three variants. The brooches from graves 100, 289 and 303 have end-knobs with straight edges, the end-knobs of the brooch from grave 281 were covered with silver sheet and their edges were bent slightly inwards. In grave 15 the brooch had very high and narrow end-knobs and a ring of narrow oval section. The last-mentioned clearly differs in this respect from the faceted and heavy rings of the others. It is to be noted that all of the brooches of this type from

the Luistari cemetery are richly ornamented with ringed dots, circular stamps, triangular and rectangular stamps, beaded lists and various line ornaments; all of these were to be found on the brooch from grave 303. On the other hand, there are several undecorated specimens among the previously found brooches. Three of the Luistari brooches in question have iron pins, which according to the material studied by Salmo (1956 p. 46) is an exceptional trait.

Large brooches with funnel-shaped ends have not been previously found in coin-dated graves – the later very small variants belong to quite other connections – and also for this reason the Luistari graves are of interest. They are all from graves with other artefacts, and furthermore two are from graves with coins. Grave 15 contained an English coin dated to the end of the 10th century (coin-list No. 2), grave 100 contained half of an Arabian coin from the first half of the 10th century (coin-list No. 32). Since there was in the latter grave also a type E spearhead, it is hardly later than the middle of the 10th century (see 1.3.9.3.). Type E spearheads were also found in graves 281 and 289, and so it

seems clear that penannular brooches with funnel-shaped ends belong to the same period as these.

The brooch from grave 15 was found along with a type M spearhead, and it can also be given a late coin-date but, as stated above, it is of exceptional form. A fairly close parallel is a small brooch from grave 22 at Yläne which also has a coin-date to c. 1000 A.D. (Sarvas 1972 p. 21). There is a third brooch of the same variant as this from the cemetery at Yli-Nuoranne in Eura (20541:4), and perhaps also one (badly damaged) from the Kalamäki cemetery in Hauho (18468:1147).

Salmo (1956 p. 54) has dated the penannular brooches with funnel ends to a period from the end of the 9th century to the beginning of the 11th century. Kivikoski has mentioned in several connections (1939 pp. 143–144, 1951 p. 52, 1973 pp. 96–97, figs. 701–702) that the large specimens of this type were used in men’s cloaks around 1000 A.D. Cleve (1978 p. 97) agrees with the same late dating. As most of the Luistari brooches of this type require, in my opinion, an earlier date, I have compiled a list of the most important inhumation burials in which the type occurs:

Table 7

Penannular brooches with funnel-shaped ends in inhumation graves		Sword type	Spear- head type	Seax	Shield- boss	Coin-dating
Find place	Brooch					
Eura, Luistari	15	18000:1163	Y	K – M		991 – 997 Anglo-s. 915/6 Arabian
	100	:2167		E		
	281	:3176	X	3xE	x	
	289	:3302		E		
	303	:3496				
Eura, Pappilanmäki	I	9855:4	H	E		x
	IV	11063:286	N? ¹⁾	E		
	XIVa	:568				
Eura, Osmanmäki	1912/VII	6127:47	H? ²⁾	E	x	Undated fragment
Köyliö	CA	8602:58	X			
	CD	:99	? ³⁾			
	C2	8602A:97	X	? ⁴⁾	x	
Yläne, Anivehmaanmäki	46	13962:559	(chape)	E + v		
	48	14196:70	X	E		

v = a variant with accentuated junction

1) Both Salmo (1952 p. 378) and Kivikoski (1973 p. 112) have defined this as a sword of type M, but the pommel bar has holes for rivets, so it is less probable that the sword was originally without a pommel.
2) The sword pommel is missing. Salmo (1952 p. 378 note 890) has defined this as a sword of type M, but the sword is certainly of type H.
3) The sword is deformed by rust.
4) There are two completely rusted spearheads from the grave. One (8602A:104) has been defined by Salmo (1952 p. 494) as type G but it has a socket too long for

the type. There are no basal angles in the other spearhead (8602A:105) and it may be a short and relatively wide variant of type E. Cleve has not been able to classify these spearheads. In some connections he has stated that they are of type M (1978 p. 97), in others type G (1978 p. 164). The combination K & E seems possible, but even x-ray photography did not clarify the matter. Like most of the spearheads from the Köyliö C cemetery, these also may be originally atypical specimens.

As shown in the table, funnel-ended penannular brooches were found in eight graves with type E spearheads. One of these (last in the table) is of the grooved variant, but none of them display signs of

damascening. The swords are of types H, N or X; type Y in only one case. The sword scabbard chape from grave 46 at Yläne is decorated in the Borre style, dated by Capelle (1968 p. 48) to the period

900–940 A.D. Salmo (1952 pp. 399–400) claims that conical shieldbosses may appear as late as the 12th century, but the type occurs already in the 10th century, at least at the end of it.

One conclusion from this particular investigation is that the use of the funnel-ended penannular brooch was at its widest at least in the Pyhäjärvi region during the first half of the 10th century, although the whole century must be regarded as its period of occurrence. It belongs to the same period as the type H and N swords and the type E spearheads, all of which drop out of use in the middle of the 10th century at the latest (Petersen 1919 pp. 28, 99–100, 126). It is also often found with type X swords, which begin to occur in the finds around 900 A.D. (cf. 1.1.). A couple of finds show that it was still used around 1000 A.D., but there are so far no closed finds with certain evidence of their use in the 9th century. At Luistari the type belongs to the 10th century milieu.

According to Salmo (1956 p. 52) funnel-ended penannular brooches were imported from the East Baltic region, although some specimens of late date could have been made in Finland. The number of brooches of this type in the Finnish finds (more than 100 specimens) suggests the possibility of domestic manufacture in large quantities, although the prototypes may be from the East Baltic region or Gotland, where the type also occurs in large numbers. The place of origin is probably where a definite find of the type from the 9th century or the beginning of the 10th century at the latest can be indicated. So far most of the funnel-ended penannular brooches have been dated in agreement with Salmo to the end of the 10th century or to the 11th century also in the East Baltic region, which contrasts with their being prototypes for the Finnish material (cf. e.g. Tönnissson 1974 p. 150). Also there are no early finds of the type in Gotland, and in my opinion the question of origin must be left open. Definite imported specimens (e.g. Kivikoski 1973 fig. 703; Kopisto 1956 pp. 33–35, fig. 1) seem to be of late date in Finland.

6.1.7.6. *Penannular brooch with poppy-shaped ends*

A penannular brooch with poppy-shaped ends (Kivikoski 1973 fig. 700) was found in a single grave:

208:2856

It is of medium size, 49 mm in diameter and with a ring of round section. The narrow base of the pin is decorated with a pair of lines around the edges. On the basis of foreign material Salmo (1956 p. 57) has dated the brooches of this type mainly to the first half of the 11th century. In Finland closed

finds with these brooches have been few so far (cf. Luho 1966 pp. 14–21), and therefore the evidence afforded by the coins (coin-list Nos. 36–60) in grave 208 supporting the given dating should be taken into account. The brooch type occurs everywhere in the Baltic region; about 30 specimens have been found also in Finland. According to Kivikoski (1951 p. 53) the type originates from Gotland, Salmo (1956 p. 56) on the other hand regards it as East Baltic.

6.1.7.7. *Small penannular brooches with faceted or flat end-knobs*

Small penannular brooches with faceted or flat end-knobs raised some-what above the level of the ring were found in six graves:

13:1094
359:4095
363:4151
375:4224
391:4445
404:4580

They are only 33–41 mm in diameter, the brooches from graves 363, 391 and 404 have rings of rectangular section, in the others it is round. The end knobs of the brooch from grave 375 are close to funnel-shaped (cf. 13962:166 from Yläne, Sarvas 1972 p. 21, and 17208:360, 618 from Tampere, Nallinmaa–Luoto 1978 p. 85), in the brooch from grave 404 almost round and flat and in the others four-sided and faceted. The base of the pin is wide and kidney-shaped or trapezoid in the brooches from graves 363, 391 and 404, in the others it only broadens slightly. The brooch from grave 13 is unornamented. The one from grave 375 has ringed dot stamps on the surface of the end-knobs, as is also the case in the brooch from grave 359, which also has circular stamps on the ring and stamped rows on the base of the pin. The brooches with angular rings are richly ornamented. There are circular stamps on the end-knobs of the brooch from grave 363 and rows of circular stamps on the upper facets of the ring. The ring of the brooch from grave 404 is ornamented with three-dot triangles, and there are circular stamps on the base of the pin. There are also three-dot triangles and square stamps on the ring of the brooch from grave 391, the base of the pin is decorated with rows of stamps, and in the end-knobs there are in addition to chased lines circular stamps in the centre of the upper facets. This ornamentation is common to a large group of Finnish brooches (Salmo 1956 pp. 59–60).

At least 14 brooches of round section with faceted end-knobs have been found in Finland (in addition to the ones listed by Salmo, 1956 p. 104,

there are at least four from Vilusenharju in Tampere, Nallinmaa 1978 p. 88). Salmo (1956 pp. 57–58) has distinguished these as his group 12 and has dated them mainly to the Viking period on the basis of the narrow base of the pin. He has however separated a couple of specimens from the group to be placed in the following period, and Luistari grave 359 gives a coin-date to the latter half of the 11th century (coin-list Nos. 79–86).

The brooches with rings of four-sided section are very common (about 200 found) and are dated mainly to the Crusade period, but some of these may be from the Viking period, like the brooches from Gotland thought to be their prototypes (Kivikoski 1951 p. 53; Salmo 1956 p. 63). It is however apparent that at Luistari the brooches of this type are from the youngest furnished graves of the cemetery.

6.1.7.8. *Penannular brooches with flower-shaped ends*

The penannular brooches with flower-shaped ends belong closely to the same group as the above. Four of these brooches were found in three graves:

10:1062
:1063
36:1453
404:4537

They are small, the largest diameters are 30–38 mm, and they are partly of careless handiwork. In the end-knobs there are circular stamps in every leaf. In this respect they resemble each other, otherwise they are all different. In one of the brooches from grave 10 and in the one from grave 404 the ring is of flat-convex section. The base of the pin is trapezoid with punched line ornaments; there are in addition circular stamp impressions on the brooch from grave 404. In both of these also the middle part of the ring is marked, in the brooch from grave 404 with a row of dots bordered by punched lines, and in the one from grave 10 by a smooth part bordered by carelessly executed corded lists, three on one side and one or two at the most on the other.

The other brooch from grave 10 has a ring of four-sided section with two rows of three-dot triangles in the middle part; the base of the pin is undecorated and broadens evenly. In all three brooches mentioned there are angular designs that open towards the centre with circular stamps at their peaks. In the brooch from grave 36 the ring is oval in section and ornamented only with transverse lines. One edge of the base of the pin, which broadens only slightly, is bent to form an edge-list, the other edge is smooth.

At least 17–18 brooches with flower-shaped ends

have so far been found in Finland. Five of these are from Eura (4 from Luistari and 4633:74 from Osmanmäki) and two or three from the Köyliö C cemetery (8602A:88, 8723:600, 9831:11?, cf. Kivikoski 1973 p. 97, note 30, and Cleve 1978 p. 102). Also otherwise the province of Satakunta is well represented: there are two specimens from Karkku (5853:105, 6671:2) and one from Kokemäki (1763:19) as well as a total of three (14622:96; 17208:260, 264) from Ylöjärvi and Messukylä (present day Tampere) from the border of the province. There are four from Finland Proper (8912:29 Kalanti, 6659:7 Maaria, 8656:43:3 Masku, 10671:23 Nousiainen), but none have so far been found elsewhere in Finland. Most of these are of bronze, but one of the Tampere brooches (17208:264) is of silver. Although similar brooches have been found in Latvia and Ingria and there are a few from Scandinavia (Serning 1956 p. 28), Salmo (1956 p. 64) regards the ones found in Finland as domestic products made after foreign prototypes. These are not in any way common elsewhere, and the details and the ways of ornamentation of the Finnish specimen correspond to those with faceted and flat end-knobs which are numerous in the Finnish finds (Kivikoski 1951 pp. 53–54).

According to Salmo (1956 p. 65) the brooches with flower ends belong to the period after the end of the 11th century, and also in the Luistari finds these are clearly from the Crusade period. Grave 404 has a coin-date to the 12th century (coin-list No. 107) and grave 10 was laid on top of grave 35, which in turn damaged grave 56 which can be dated to the 1020's at the earliest (coin-list Nos. 12–23). If only 20 years is taken as the chronological difference between each of these burials, we arrive at the 1060's as the date for the youngest one and a considerably later date is possible. The youngest of the coins found near grave 36 is from the latter half of the 11th century (coin-list No. 9).

The flower-ended brooch from grave 404 was used as a woman's shoulder brooch. It was the pair of a penannular brooch with flat end-knobs. The brooches from grave 10 appear also to have been at the shoulders, but the brooch from grave 36 was by itself.

6.1.7.9. *Miniature penannular brooch*

A small miniature brooch is without parallels for the time being:

10:1061

It is only 18 mm in diameter, open and with transverse groove ornaments on the ring. There are a couple of turns of bronze band around the tapering ends; the brooch gives the impression of a penannular brooch, but it may have been an annu-

lar one originally in which the band covered the part where the ends join. The pin is small and flat with a broken tip. One end has been beaten flatter and wound around the ring of the brooch.

This brooch could be compared with regard to its size to the annular brooches found in the K  yli   C-cemetery (Cleve 1978 p. 103, Pl. 14:210) and at Myllym  ki in Nousiainen (10146:106), as well as with a small silver brooch (19000:25) found from grave 1 in the cemetery at Mahittula in Raisio. This has a twisted ring, also open but apparently not thickened at the ends. It is only 13 mm in diameter. The brooch is possibly from a child's grave, as were also the specimens from Luistari and K  yli  . There is also a small annular brooch from the Pandik  la hoard in Estonia with a thin band twisted around the ring as in the Luistari brooch (T  niss  n 1962 Pl. XIX:5), and small silver brooches with crossing ends twisted around the ring have been found from the USSR. Some of them from the area of Lake Ladoga can be dated to the 11th century (Malm 1967 p. 170, fig. 25:7). The Pandik  la hoard was deposited, according to T  niss  n (1962 p. 190), as late as the 13th century. Cleve (1978 p. 103) dates the brooches from Nousiainen and K  yli   to the 12th century, and although the Luistari specimen is of bronze and all the others are of silver it is apparently a product of the same period. It was probably part of the same brooch combination as the small flower-ended brooches, and can along with them be dated to the end of the 11th century or the beginning of the 12th century.

6.1.7.10. *Small penannular brooch with animal heads at the ends*

A small brooch ending in animal heads is also a rare type:

385:4364

It is of flat-convex section with a low three-part ridge in the middle part of the ring. There are clumsily executed animal heads at the ends, behind these are three bulges resembling neck-bands or collars. The animal's eyes are represented by semi-spherical bulges but otherwise the heads were not formed to any great extent. The pin broadens at the base. The brooch is very small, the diameters are only 32 and 28 mm, and the pin is 35 mm long.

There is a brooch from Kutinen in Kalvola (11592:3, Kivikoski 1951b fig. 4) which resembles the Luistari brooch but is possibly of even more maladroit handiwork. The only foreign parallels for these brooches are from the Gr  tr  sk find in Swedish Lapland (Serning 1956 Pl. 38:1,2) and from Gotland, from where there are bronze specimens from L  rbro (SHM 13420) and from near Visby (SHM 17596) and a silver one from Martebo (Stenberger

1947 fig. 280). The brooches from Gotland have more ornamentation and they have a different base of the pin than the Luistari brooch, but the relationship is evident. One of the Gr  tr  sk brooches have an even more clumsy appearance than the Kutinen brooch.

Salmo (1956 p. 71) has classified the brooch from Kutinen in his group 15, the brooches with thickenings at the middle (*»mit Buckelring«*), which usually have faceted or completely flat end-knobs, 10 of which have so far been found in Finland. He regards it as a type of the 12th century. On the basis of lily-ornamented oval tortoise brooches, the Kutinen grave in Kalvola can be dated however to the 11th century (af H  llstr  m 1947–48 p. 60; Kivikoski 1951b pp. 94–95, 1955 p. 138), which is the date also accepted by Serning (1956 p. 28) for the Gr  tr  sk brooches. The small size of the brooches, the largest is only 45 mm in diameter, indicates that they are hardly earlier than the middle of the 11th century.

Brooches with thickenings in the middle part have been held to be of Gotlandish origin (Nordman 1924 p. 128; Kivikoski 1951 p. 54; Salmo 1956 p. 70), but the careless handiwork of these brooches with animal head ends differs from what has been regarded as typical of brooches from Gotland. Perhaps these brooches represent another period and also a different social milieu than the impressive artefacts generally presented in the literature. Despite the small number of these brooches they were perhaps manufactured in several places; with respect to at least one of the Gr  tr  sk brooches Serning (1956 p. 28) has assumed that it is of Lapp manufacture.

The brooch pin 18000:2986, since it is only 31 mm long, is probably from a brooch belonging to some of the types last described. It was found from the filling of grave 227, but was possibly originally in grave 226.

6.1.8. *Small iron brooch or buckle*

A small iron brooch was found in the surface layer near graves 349 and 367:

18000:217

It is widely open and may have been a penannular brooch, but could also have been a ring brooch or a belt buckle. The artefact is badly rusted, and when it was found strands of tabby cloth were caught on to it, which suggests the brooch of a shirt or smock. The dating is completely obscure, although the find locality, zone I, suggests either the Merovingian period or the very end of the heathen period.

6.2. DRESS FASTENING PINS

6.2.1. Shepherd's crook pins

Large shepherd's crook pins of iron or fragments of such were found in six graves, and there is also an additional stray find:

20:1221
33:1407
269:3095
338:3787
378:4284
419:20189:214
18000:886

All of the specimens found in the graves are simple, without special features. Only the ring fragment retrieved as a stray find has twists. In the fragment from grave 269 the diameter of the ring was originally c. 40 mm, in the others from 25 to 30 mm. The length of the pins varies from 115 to 135 mm, but the pin from grave 269 was probably much longer than the others. According to Cleve (1943 p. 82) the mean length of the Merovingian period pins is c. 130 mm, which indicates that the Luistari pins are fairly typical.

Shepherd's crook pins belong to the artefacts which are of East Baltic origin but took on a completely domestic character in Finland; these have been found from all Iron Age periods up to the Viking Age (Kivikoski 1973 figs. 13–14, 106, 247–248, 442–443, p. 20). In Estonia these are still to be found a couple of hundred years later (Lõugas 1971 p. 20).

Large pins are common in West Finnish graves with weapons, especially in the period 650–750 A.D.; one has also been found in the Kvarnbacken cemetery in Åland in a similar connection (Cleve 1943 p. 81; Kivikoski 1963 p. 81). Also at Luistari all of the shepherd's crook pins were in men's graves; graves 20, 269 and 378 contained the combination of a Finnish or large-bladed angon and a round-topped shield-boss, familiar from earlier connections (cf. Cleve 1943 Table 2). Grave 33 on the other hand contained a tanged spearhead with a tapering blade, and grave 338 a short-bladed javelin point, and it is apparent that the use of shepherd's crook pins continued in Eura until the final phase of the Merovingian period (see 1.3.2. and 1.3.4.). Judging from their position they were used to join the cloak.

There is a small iron pin which is like a miniature of the above pins:

375:4225

It was found in the middle part of grave 375, but it may be from the filling because an earlier grave (No. 376), possibly of the Merovingian period date,

was damaged when the former was laid. The artefact may also be the pin of a brooch, but on the other hand it resembles the small iron pins which are known from certain earlier finds from both the Migration and Merovingian periods (Hackman 1905 Pl. 5:8; Kivikoski 1951a fig. 418). These pins are relatively rare and they are regarded as variants of the shepherd's crook pins (Kivikoski 1973 p. 47, figs. 247–248).

A pin with its head bent into a simple ring was found in a single grave:

301:148

It is at present c. 88 mm long but was originally somewhat longer. Pins of this type are not at all common in Finland; Kivikoski (1973 fig. 234, p. 45) has mentioned only a couple of specimens of bronze from the Migration period found in Laitila-Sonkkila, but very similar ones to the Luistari pin have been depicted in Latvia (Stubavs 1976 Pl. V:29; Mugurēvičs 1977 Pl. XXIII:1, p. 84; Latvijas PSRA Pl. 20:4,5). The simple form derives there from the early metal period, but similar pins are still to be found on sites of the Middle Iron Age. At Luistari the pin was found in zone I.

6.2.2. Triangular-headed pin

A triangular-headed pin was found in only one grave:

333:3758

It is 136 mm in length and belongs to the large variants of the type. The centre of the triangle is undecorated. There are semi-globular heads and crossing lines on the arms of the upper part. There are also four cross-wise lines under the head part and under these a hole with traces of woollen thread. A similar pin belongs to the Papinsaari find from Kuhmoinen, dated by Nordman (1924 p. 113) to c. 800 A.D. Seger (1979 p. 68) has suggested a later date for the Kuhmoinen find, but whatever the date of deposition, it certainly contains some artefacts of definite Merovingian period type.

The pin with triangular head is an artefact type of Latvian origin which occurs also in Estonia and in Finland (Schmiedehelm 1930 p. 6). The oldest pins found in Finland date from the 6th century. According to Kivikoski (1939 pp. 96–97) there are no local variants in the pins, but she regards it as possible that these were also made in Finland. According to Salmo (1952 pp. 242–244) the pins with triangular heads were most common in the 7th century, but their use continued until the end of the Merovingian period. Kivikoski (1973 fig. 721, p. 99) has however dated a couple of richly ornamented pins, which are both stray finds, to as late

as the Viking period. The Luistari pin is from a grave in which there were a socketed spearhead with a tapering blade and a short-bladed javelin point, and can thus be dated to Cleve's period III (1943 Table 3).

6.2.3. Ring head pin and some indefinable iron pins

Iron rods or fragments of what may possibly be pins were found in five graves:

53:1586
139:2428
335:3778
380:4295
390:4422–23,4432

It is impossible to judge from the pieces of iron rod found on the breast of the corpse in grave 380 from what kind of pin they are or whether they are from a pin at all, though this is suggested by their location. On the other hand the T-shaped fragment from grave 53 may be from a large-sized iron pin with a ring-head from which the upper part had fallen away. In the artefact there is a profiled contour under the transverse list, and this is characteristic of the large ring-headed pins (cf. Hackman 1938 pp. 105–106).

Pins with ring-heads occur in Finland especially in weapon graves of Cleve's period II (1943 Table 2). The pin type has been characterized as Finnish-Estonian, and it seems to begin to appear in the finds of both areas in the 7th century. In Finland it seems to have been in use a relatively short time, whereas a rather long period of use has been suggested for it in Estonia (Lõugas 1973 pp. 125–126). Lõugas is however of the opinion that the youngest specimens are already of the early Viking period. Citing the Latvian and Lithuanian inhumation burials, in which the pins are women's adornments, he suggests that this pin type was also used by women in Estonia. In Finland the large pins were however clearly used to fasten men's cloaks (cf. Hackman 1938 pp. 114–115; Kivikoski 1939 pp. 97–98), as shown by the Luistari finds too, and also grave 53, although without arms, was most probably that of a man as it contained a strap tag, an artefact form not found along with women in Finland (see 6.6.1.).

A piece of very thin iron rod was found in grave 335 near the breast of the largest corpse found. It is from either a delicate dress fastening pin or from a needle of which the eye part had broken off. Iron needles are known already from Roman Iron Age finds (Kivikoski 1973 fig. 182).

The fragmentary pin from grave 139 was thicker in the upper end, and there had perhaps been a ring

which had broken off above the thick part (cf. Kivikoski 1973 fig. 716). The pin is so poorly preserved that it is difficult to determine the type. It is possible that there was also another pin in the grave as there was rust in two places in a bronze chain also found in the grave. This second pin was perhaps of wood or bone, and only an iron ring had joined the chain to it. The ring could also have been sewed directly on the cloth, but it is worth remembering that ornamental pins of organic matter were with certainty used although they are not preserved in Finnish soil (cf. Cleve 1943 p. 82). Grave 139 contained the corpse of a child, and the preserved pin was next to the bracelet of the right arm. According to the coins of the neck-band, the grave can be dated to the period later than c. 920 A.D. (coin-list Nos. 35–36).

Fragments found near the breast of the corpse in grave 390 may also be from an iron pin and iron rings joined to it. These are however so rusted and fragmentary that even x-ray photography has not revealed the original structure of the device. A small bronze ring is joined to one fragment.

6.2.4. Viking period ringed pins (fig. 32)

Viking period ringed pins were found in three graves, which are all men's burials:

135:2394
282:3205
348:3885

The ringed pin from grave 282 is of iron and of simple form. A ring of round section is joined to a loop in the upper part of the pin, and the pin itself is round in section at the tip but flat in the upper part; it measures c. 75 mm. There are no more traces of ornamentation on the pin than on the ring. The artefact can be mainly compared to certain pins found at Birka (Arbman 1940 Pl. 45:4,5), although these are larger and with ornamented rings.

In the pins from graves 135 and 348 the pin part is of iron but the ring is of bronze, in the latter the ring is also silver- and gold-plated. Both are decorated with so-called Borre style ornamentation, but they are not identical. The pin from grave 135 is c. 220 mm in length and the ring measures 93 × 43 mm. Two distinct frontally portrayed animal-heads can be distinguished in it with flat noses, round eyes, rounded ears and two furrows in the forehead. One of these is the lowest peak of the ring, the other on top of the ring in the upper part, from where an oblong plate decorated with plaited bands continues to the outside of the ring; the top part of this has two animal-heads portrayed from the side. Two almost unidentifiable animal-heads

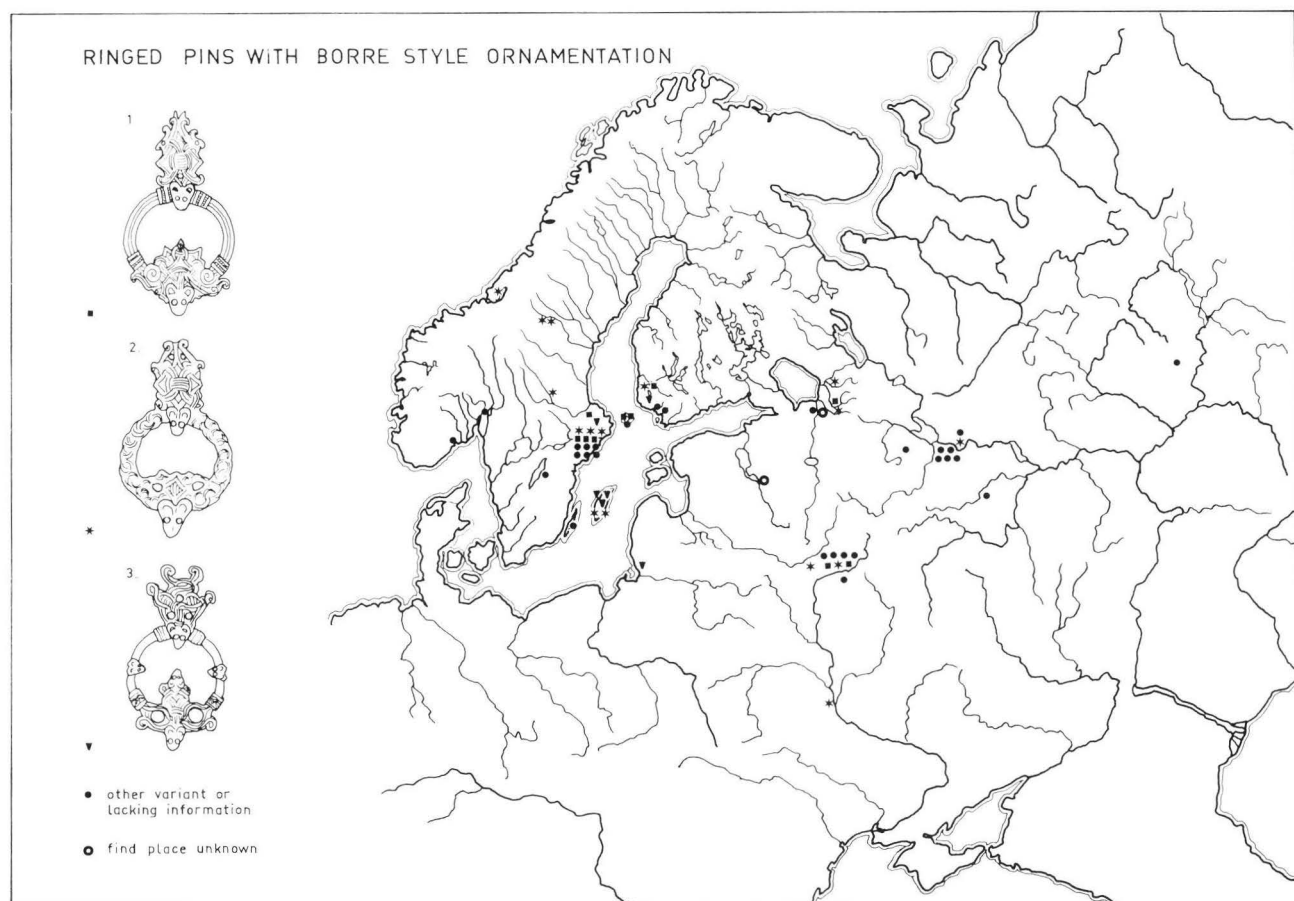


Fig. 32. Distribution of the ringed pins ornamented in Borre style; the find places in USSR partly according to a map given by Anne Stalsberg Alsvik.

are also on the inside of the lower part of the ring, and the actual ring is ornamented with a plaited design in which two bands are interwoven between ring figures (fig. 32:2). A similar, but gold-plated, ring of a ringed pin was found in grave 581 at Birka (Arbman 1940 Pl. 42:3), but corresponding pins have been found from Norway to the Kiev region (Lehtosalo-Hilander 1979 & fig. 32), and there is one from Gnezdovo which is very similar to the Luistari pin (Sizov 1902 Pl. I:5; cf. ornaments Festin 1916 figs. 2–4 and Biörnstad 1962 p. 122 from Norway, Dalarna and Jämtland).

The length of the pin from grave 348 is at present c. 200 mm and the ring is larger than the above, 113×57 mm. The projecting upper part of the ring is closely similar to the above specimen, but the animal-heads are more distinct, whereas the plaited band in the lower corners of the plate is not as consistent. A line-ornamented body figure splitting into two continues from the animal-head of the lower part of the ring. Both parts of the body end in spirals from which the limbs project. A pair of the limbs ends in paws on both sides of the animal-head, while the others join in the middle of the ring and form the lengthened tip of the triangle in the centre, and with a separate ring a ring-cross-like figure. On both sides of this animal figure there

are band-like animals with bodies woven around the spirals and the limbs of the larger animal figure. The ring is otherwise narrow, flat and silver-plated, with grooves at the edges and between these plaited ornaments. There are thickened parts between it and the parts decorated with animal ornaments; these are formed of one beaded and three smooth lists. With the exception of the narrow parts of the ring the upper part of the pin is gold-plated on its front side (type fig. 32:1).

The closest parallel to this ornament is from Gorka in the Onega region in Eastern Karelia (Raudonikas 1930 fig. 54). It is the only pin depicted in the literature which has a similar plaited ornamentation to the Luistari pin on the narrow part of the ring. The Gorka pin is however decorated somewhat more indistinctly than the Luistari one. Fragments of a couple of similar pins have been found in Gnezdovo (Sizov 1902 fig. 36 and Pl. I:11), and there is an almost similar head of a pin from grave 643 at Birka (Arbman 1940 Pl. 42:1); in this the ring is decorated with lengthwise grooves. This is also gold-plated, but it differs from the Luistari pin in so far as the iron pin and the projecting upper part are of one piece and the ring is separate.

Technically these ornaments can be divided into two or possibly three groups: a) specimens with

an ornamented head on the pin and a separate decorated ring, as in the Birka pin mentioned above, b) pins in which the upper part and the ring are joined and the actual pin is affixed behind, e.g. the Luistari pins, and c) ones in which all parts are of one piece (Arne 1914 fig. 34). There is a variant in group b in which there are in a sense two needles; a kind of pseudo-pin projects from the nose of the upper animal figure to the lower figure, although the actual pin is behind these, e.g. the pin from Långängsbacken in Sund (Kivikoski 1980 Pl. 4:7).

It is difficult to obtain an accurate picture of the occurrence of these variants in different areas, as illustrations of all pins found in Russia have not been published and photographs do not always show the construction of the pin. All of the a and b variants are found in the Swedish material, whereas no c variants have yet come to light. In Soviet Union all possible forms seem to occur already in the material published as photographs or sketches (cf. Aspelin 1878 fig. 889; Spicyn 1893 Pl. VI:15; Sizov 1902 figs. 35–37, Pl. I:5, 11, 13–16; Kolmagorov 1914 fig. 49; Tallgren 1916 fig. 14; Salonen 1929 p. 234; Raudonikas 1930 fig. 54; Karger 1958 p. 189, fig. 36; Fehner 1963 fig. 8:4, 5, 17, 19, 1963a fig. 45: 17, 18; Dedjuhina 1967 pp. 203–206; Korzuhina 1973 figs. 8:4, 5 and 9).

In Finland, pins of this type are rare. There is one more or less preserved specimen from Anivehmaanmäki in Yläne (Hirviluoto 1962–63 figs. 3,4) and the already mentioned pin from Långängsbacken in Sund. There are also an additional two fragments from Åland (Kivikoski 1951a fig. 665 from Finström; Dreijer 1970 fig. 1:6 from Jomala). The Yläne pin resembles certain pins occurring mainly in Gotland (SHM 1831 from Havdhem and SHM 8191:17, find place unknown). In these the ring has four animal heads turned toward the centre of the ring (fig. 32:3), and there is a fifth one in the lower part of the ring. A similar one to these was also found from Alsike parish in Uppland (UMF E1 185), and an imposing silver ornament from Vallstena in Gotland can also be added to this group on the basis of the plaited ornamentation of the upper part (see Montelius 1906 fig. 507). In it there are thickenings of plaited bands in the places of the two head-figures. This group is probably related to a pin head found in Lithuania (Kuncienė 1972 fig. 29:2) which has only three animal heads, but in which the upper part is similar to that in the pins from Gotland. The band-twisting in these resembles the ornamentation in some sword sheath chapes, found also from Gotland (Paulsen 1953, especially fig. 53).

The head of the Långängsbacken pin, which is fragmentary, resembles the pin from Luistari grave

348, but it belongs to the variant with a pseudo pin, as mentioned. The fragment from Bartsgräda in Finström may also be from a similar pin as the above, but the small fragments from Söderaker in Jomala are with all probability from a pin similar to that in Arbman 1940 Pl. 43:1,3,4 (cf. Dreijer 1970 p. 5).

Despite the scarcity of our finds we have several variants of this pin type, and it is probable that these pins were better known in Finland than suggested by the present finds. This is also indicated by a couple of brooches decorated with misunderstood ornamentation (Hirviluoto 1963 fig. 5) and which seem to be copies of pins of this type. They also have small pegs as ornaments, and because of this they can be regarded as being of Finnish manufacture (Kivikoski 1942 p. 23, 1973 fig. 724 and p. 99).

The Borre style is usually dated to the 10th century (cf. Petersen 1931 p. 138; Holmqvist 1955 pp. 60–61). According to Wilson (1966 p. 92) it was in evidence at least as early as the middle of the 9th century, but Capelle (1968 p. 48) is of the opinion that its main period is from 900 to 940 and it became current at the end of the 9th century.

The dating of the Luistari pins to the said period seems a very possible alternative, as the coin-date from grave 348 suggests the second quarter of the 10th century (coin-list Nos. 67–72). A damascened groove-ornamented spearhead from grave 135 would require a dating to the 9th century (cf. 1.3.9.2.), but the pin was hardly manufactured before the 10th century. Certain ringed pins similar to it from Sweden and Norway have been dated by Eric Festin (1916 p. 182), although without giving exact grounds, to the first half of the 10th century. It must also be noted that grave 139, which was next to grave 135, is coin-dated to later than 920 A.D. (coin-list Nos. 35, 36), which may also apply to grave 135, assuming that it belongs to the second period of use of zone III. A date a couple of decades earlier is however possible.

If the pins are viewed as a whole, it is to be observed that they were mainly used in men's cloaks, in women's graves at Luistari they occur only exceptionally, and there is no pin type in the material which can be said to be typical of women's graves. On the other hand, in the Merovingian period material there are the same pin types which previously were linked to men's graves, and also in the Viking period the large pins seem to have been used at times in men's cloaks. The Merovingian period pins are of East Baltic origin, whereas in the Viking period the male pin fashion seems to have come from Scandinavia if not possibly from the Varangians.

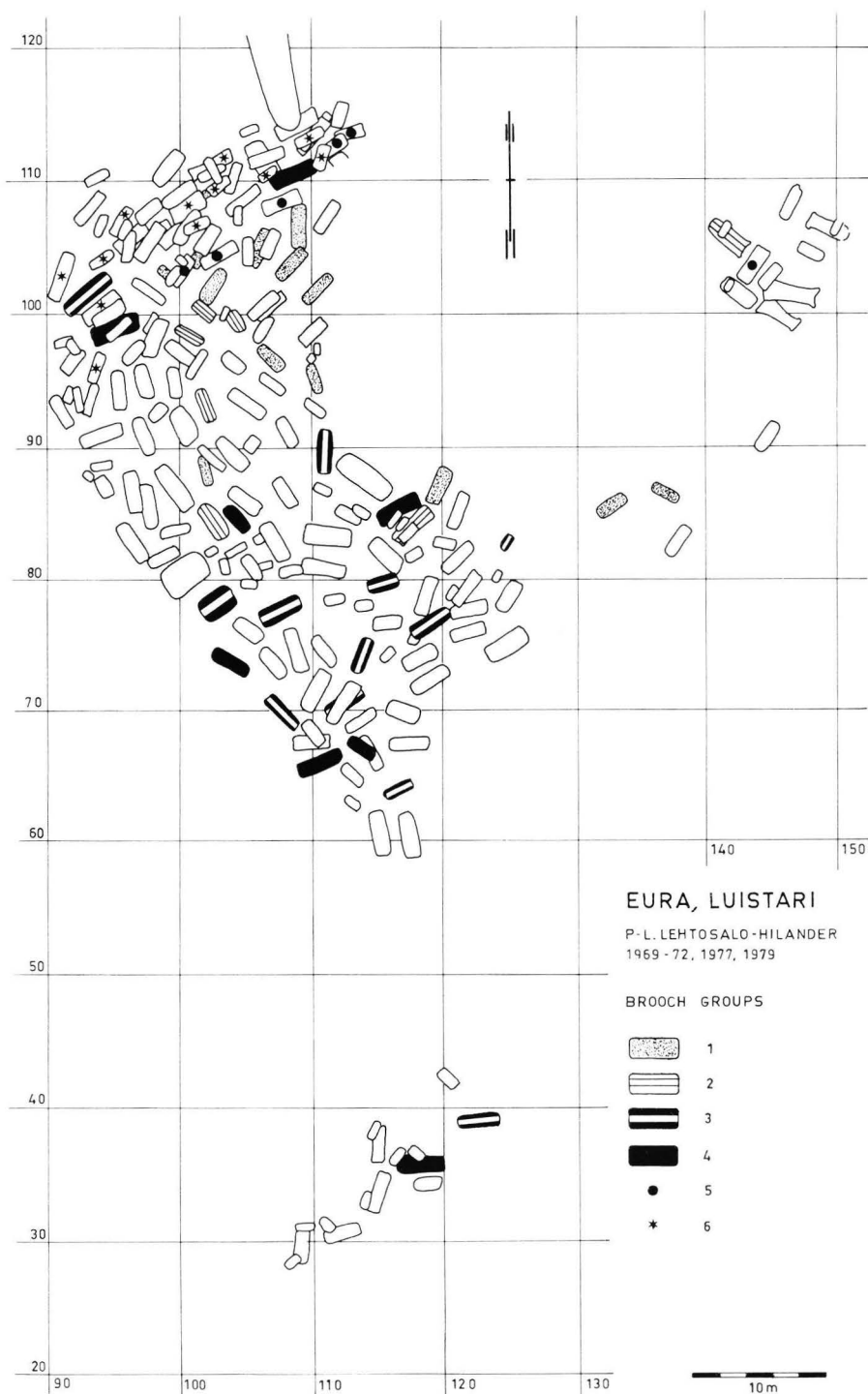


Fig. 33. Distribution of the most important brooch groups at Luistari:

1. Small equal-armed brooches and shepherd's crook pins. Mainly earlier Merovingian period.
2. Fibulae with band-shaped arches and hinges and iron penannular brooches. Mainly late Merovingian period.
3. A and B-type convex round brooches and massive penannular brooches with faceted or peg-ornamented knobs. All these brooches were in use in the 9th century.
4. Convex round brooches of type C, ringed

pins ornamented in Borre style and penannular brooches with funnel-shaped ends. All the above-mentioned artefacts were in use in the 10th century.

5. Convex round brooches of type D (wide-brimmed variant), silver penannular brooches, penannular brooches with poppy-shaped ends. The above-mentioned types were in use mainly during the first half of the 11th century.
6. Small penannular brooches (diameter less than 40 mm). These brooches are mainly later than the Viking period.

6.3. CHAIN ARRANGEMENTS (fig. 34)

Chain arrangements do not seem to have been popular among the population who buried their dead at Luistari, as complete ones were retrieved from only two graves (35, 56). Both were suspended from a pair of type D convex round brooches, and they are formed of chain holders, chains and pendants. Chains were however found in several other graves, but as they were often of iron they were badly rusted and damaged. All in all parts of chain arrangements were found in 12–13 graves.

6.3.1. Chain holders

Both of the completely preserved arrangements contained a pair of chain holders and there are possibly some fragments as well as one obtained as a stray find:

35:1446 2 of cast bronze

56:1668 2 of iron rod

59:1805 1 of cast bronze (from the filling)

Possibly:

377:4235 1(?) of iron rod

In grave 35 the chain holders were of cast bronze and were made as a pair, but they are easy to distinguish from one another as there is a casting fault in the right-hand one. They are one-sided, of open work with a band figure marked with two grooved lines on both sides of the front. The band figure has one loop pointing upwards and two downwards. The chains are joined to holes in the centre of the lower loops. In the part remaining between the upper loops there are a couple of horizontal grooved lines and six holes with a joining ring in the uppermost one. Pit impressions have been stamped on the front side partly on top of the band figures. The chain holder found in the filling of grave 59 is of the same type, without stamped figures however.

Chain holders of this type have not been found previously in Finland, and I have not found parallels to them elsewhere. In their general appearance they resemble certain Livonian chain holders (e.g. Tönnisson 1974 Pl. XXX:1, Cleve 1978 Pl. 15:248), and in fact this is the last version of the popular motif with two horses looking in opposite directions (cf. Golubeva 1979 Pl. 17–19). The execution of the loop figures is similar to the band-like animals in convex round brooches of late date, and the find from Lautamäki in Teuva includes a chain holder or pendant which is like this loop figure taken out of its original connection (Kivikoski 1973 fig. 1113).

It is probable that these ornaments found at Luistari are of local handiwork and that more of them



Fig. 34. Chain arrangement from grave 35. 2/5.

will be found in the future. Along with grave 35 they can be dated to the middle of the 11th century (see 6.1.6.).

The chain holders from grave 56 are made of iron rod bent into three loops and with the ends turned as spirals. The loops are tied to each other with a very thin bronze wire, which is twisted around the iron rods directly underneath the spirals. Spiral-ended chain holders of this type (Schauman 1971 type 201) are known in bronze from earlier finds (e.g. Kivikoski 1973 fig. 759), but similar ones of iron are mentioned only with doubt in this connection, as these have not been found in inhumation burials (cf. Schauman 1971 pp. 28–29). The reason may be that the iron ones were so badly rusted that they could not be identified; only x-ray photography brought to light the details of the Luistari chain holders. In the specimens of bronze the loops are not tied together, but in this detail

the Luistari chain holders can be compared to the chain dividers from as early as the boundary of the Merovingian and Viking periods. In these the loops were bound with bronze rings (Kivikoski 1973 fig. 469).

Spiral-ended chain holders of bronze can be dated to the latter half of the 10th century and the first half of the 11th century (Schauman 1971 pp. 28, 31), and the iron specimens from Luistari seem to be from the last-mentioned period. At the end of the Viking period chain holders of both bronze and iron wire as well as of cast bronze seem to occur side by side.

6.3.2. Chains

Bronze chains or chain fragments were found in 15 graves, but some of these were from fillings and some were with certainty from belts:

14:1136 (Originally from grave 25)
 17:1207
 28:1388
 35:1446
 56:1668
 76:1986
 90:2034
 139:2427
 191:798, 799, 2737, 2739–42, 2744–46, 2748
 192:795, 2756, 2758, 2760 (Originally from grave 191)
 193:2767 » »
 374:4223
 377:4253
 412:97
 421:20552:3 (A couple of links)

In both of the chain arrangements that were completely preserved the chains are of double rings; in the chains from grave 35 there are two different thicknesses, in the ones from grave 56 three. However, the chains are joined so regularly that I do not believe them to be the product of additions made at different stages (cf. Cleve 1978 p. 107). In the chain arrangement from grave 56 there is a 370 mm long breast chain of double rings 10 mm in diameter. In addition there are links at the sides made so that one side is of the same chain as on the breast, the other is only 7 mm thick. The thin and thick chains are however very similar. A sleigh bell and an oval open-work pendant were suspended from the link on the left hand side, from the right hand side a bell and a hook-like pendant. The chain joining the third brooch to the right hand chain holder is of slightly more uneven quality. It is the only one which may be a later addition.

The diameter of the two thicker chains in grave 35 is the same as in the breast chains from grave 56, in the thinner chain the rings are only a millimetre

smaller than these but they are of thinner section. The length of the last mentioned chain is 520 mm, and it has a single larger ring almost in the middle. The lengths of the thicker chains are 425 and 447 mm, an oblong flat pendant was affixed to the middle part of the shorter one, and a cross-shaped pendant to the middle part of the longer one. The lengths of the last mentioned chains are such that when bent double they correspond to the chain links from grave 56. When found the chain arrangement was in one pile, and it had evidently caught on some tool when grave 10 was being laid so that some of the rings which join the chain to the chain holders had opened. For this reason its original structure is not quite clear. If all the chains had transversed the breast they would have crossed each other and the pendants would have been in the middle of the breast, if again the arrangement had had side links as in grave 56 the cross pendant would have hung from the left and the one of oblong shape from the right hand side of the breast.

Double ring chains, which, apart from those described above, have been found only in short pieces in graves 17 and 377 at Luistari, occur in Finnish finds from the end of the Merovingian period to the Crusade period, and they seem to have been especially popular at the end of the Viking period (Schauman 1971 pp. 23–25). Similar chains were also used in the East Baltic region but they are rare in Scandinavia. According to Schauman the diameter of the rings varies usually from 5 to 11 mm, and so the Luistari chains are among the thickest ones. Those from the C-cemetery in Köyliö are somewhat thinner (Cleve 1978 pp. 106–107).

A piece of bronze chain from the filling of grave 14, which is perhaps from grave 25, measures 105 mm in length and is made of spiral rings 8–10 mm in diameter. Pieces of spiral ring chain were also found in graves 76, 90 and 374 where one was found in connection with an artefact of birch bark. Chains of this type seem to have been most commonly in use in Finland in the 10th century and at the beginning of the 11th century, but some finds indicate that these were in use earlier also (Schauman 1971 p. 26; Kivikoski 1963 p. 91). Graves 76 and 90 are from the 10th century (coin-list Nos. 31, 32), grave 25 from the beginning of the 11th century (coin-list Nos. 3–6), but grave 374 is with certainty from as late as the Crusade period. It was made on top of grave 363, coin-dated to the middle of the 11th century (coin-list Nos. 87–89).

A singular chain arrangement was found in grave 139, the burial of a small girl. In this chain, c. 260 mm long, there are hardly two similar links, some are of pieces of evenly convex bronze rod twisted carelessly into a spiral, the others are of round section. The diameters of the rings vary from 6.5 to

12 mm. This chain was hardly made by a practiced jeweller and as it was found in the grave of a very small child it may be the product of an amateur. Near the one end of the chain and c. 80 mm from the other end there are lumps of rust, so that apparently two parts of iron were connected to it, but parts of only one fragmentary iron pin were retrieved. It is possible that the small bell pendant found in the grave was suspended from the loose end of the chain. This uncommon chain arrangement was apparently made in the first half of the 10th century, as grave 139 has a coin-date to the period after 920 A.D. (coin-list Nos. 35, 36).

Small fragments of bronze chain from graves 28, 191 and 421 are of rings of triangular section. Chains of this kind are known from finds of as early as the Later Roman Iron Age in Finland, but they are most common in closed finds from the period 650–800 A.D. (Schauman 1971 p. 22; Cleve 1943 p. 83, 1978 p. 106; Kivikoski 1963 p. 91). Graves 28 and 421 are from the Merovingian period (see 6.1.1.), but there are in grave 191 blue cylindrical beads and a piece of cloth edged with bronze spirals, details which suggest the beginning of the Viking Age.

Iron chains, made of rod-like joints, were found in eight graves:

- 58:1818 (From mixed earth)
- 59:1861 (From the filling)
- 226:2980 Fragment
- 285:3253–56, 3259, 3264
- 291:3340, 3347–48
- 348:3892
- 369:4172–73, 4177–78 (Originally from grave 370?)
- 377:4235–36, 4238–43, 4248, 4251, 4256–57, 4261–62, 4265

Although grave 377 was badly mixed and damaged when the adjacent rock was blasted, it is however clear that it had a chain arrangement made of rod links. There are a total of 14 iron joints surrounded by bronze wire, and if they had been in pairs as in the chain arrangement found in Kinnula (Luhó 1966 fig. 3), these would have formed a c. 40 cm long chain. It seems, however, that there were two kinds of chain, on the one hand with double links c. 45 mm in length, on the other hand simple chain with links c. 10 mm longer. There were at least three, but possibly four or five links of the former type, of the latter at least three. In addition the arrangement includes intermediary rings, most of which are c. 20 mm in diameter, some only 15 mm, as well as an S-shaped part joined to a ring larger than the above; the other end of this is tied to a broken ring with a bronze band with three ridges. Possibly this was a chain holder. There was a similar bronze covering also in another iron fragment and a couple of pieces of this band with

ridges were found apart. A bronze ring 10 mm in diameter is fastened to one iron fragment, and the arrangement in question apparently also included a piece of double ring chain of bronze. At least one iron key was suspended from the chain, but a fragment of an iron rod may also be from a key. The blade part of this has not however been found.

There was also a chain of iron links with bronze wire in grave 285. This was however of single rods, the length being 350–400 mm. The excavation results do not tell how it was suspended, which was also the case with the previous grave. It is possible that the chains were sewn onto the cloth or that they were supported by wood or bone pins which had disappeared without traces.

Remains of similar links as the ones described above were found in grave 291, three pieces as well as fragments of iron and bronze rings. From the filling of grave 59 there is a link longer and thicker than the above, and from grave 58 a link fragment was found. Three links were found in the filling of grave 369 (originally from grave 370?), one of which is apparently a double link. These are shorter and more delicate than the above ones and they do not have any turns of bronze wire. In the last-mentioned case as well as in grave 291 the finds do not indicate a breast chain but a situation where a knife or some other artefact may have been suspended from the chain, as in grave 348, a man's burial, the three chain links of which were solely of iron. Possibly a fragment from grave 226 (2980) is also from a rod-chain link.

Iron rod chains have been dated in Finland generally to around 1000 A.D. (Schauman 1971 p. 27; Cleve 1978 p. 109). According to Luhó (1966 pp. 18–19) they were rare in Finland and both he and Cleve have linked them to East Baltic influences. Luhó has even maintained that the Kinnula chain is an imported object from the East Baltic region. However these are not so very rare in Finland (cf. Schauman 1971 p. 60); they have been found in eight graves in the C-cemetery at Köyliö and at least half a hundred rod-like links have been found in the cremation cemeteries in the Satakunta region (Salmo 1952 p. 487).

In Estonia rod chains were joined to the belt for the suspension of knives and other household objects, but according to Selirand (1974 p. 132 note 238) they do not occur as parts of chain arrangements. In the Livonian area these were used in chain arrangements, but usually as intermediary joints in connection with pendants or as suspensions for knives; in men's graves these were joined to the belts (Tõnisson 1974 p. 122; Latvijas PSRA figs. 118, 123). I have not found in East Baltic publications any chain arrangements completely made of rod chains, and thus the ones found in

Finland can hardly be from the East Baltic region; they are probably a Finnish application. The Luistari finds indicate besides that they were in use already before the end of the 10th century, as even though grave 377 and the other finds from zone I correspond to the earlier dating, graves 285 and 291 are probably older and grave 348, a man's grave, has a coin-date to the first half of the 10th century (coin-list Nos. 68–73). There are 10th century rod chains also from Birka and the Kvarnbacken cemetery in Saltvik (Kivikoski 1963 p. 92), and still older ones (c. 650 A.D.) from Schretzheim in Germany (Koch 1977:1 pp. 29–30, 79–80, 1977:2 Plate 58:14).

Iron chain pieces and loose iron and/or bronze rings were found in eight more graves:

8:996
10:1019
25:1355
35:1433a, b, 1437
319:3604, 3608, 3612
349:3996
358:4213
390:4422–23, 4432, 4437

The piece of chain from grave 35 made of simple iron rings was found along with a knife. There are also a couple of pieces of a similar chain from grave 349, where they may also have been for the suspension of a knife. There seem to be interlinking rings also among the fragments from grave 390. For what purpose the bronze rings in graves 8 and 35 (1433a, b) and the iron rings in graves 10, 25, 319, 358 and 390 (4437) were used is not known. Possibly some, for example those in grave 35 with leather straps attached, were suspension rings for useful implements.

The bronze »hooks» in graves 165 (2606) and 191 (2749) are completely mysterious; they might also be the heads of dress pins.

6.3.3. Pendants in chains

When the pendants found so far at Luistari are compared with those from the C-cemetery at Köyliö, it is to be observed that they are few in number. Even though pendants that are not connected to chains but which may have been suspended from bands or were sewn onto clothes are taken into account, these have been found in no more than nine graves:

25:1315	Drop-like bronze pendant
35:1446e	Rectangular bronze pendant
:1446f	Cross-shaped bronze pendant
56:1668e	Hook-like iron pendant
:1668h	Oval openwork pendant
:1668f, g	Sleigh bell pendants

59:1845	Bear's tooth pendant (from the filling)
118:2290	Sleigh bell pendant
:2295	Sleigh bell pendant
139:2424	Bell pendant
141:2672	Bell pendant
377:4246, 4258–59	Iron key
408:4634	Sleigh bell pendant

A total of five sleigh bell pendants were found in three graves, and there are in addition those which were mentioned in connection with the horse gear (see 3.2.). The ones from grave 56 are small, delicate and of pear-shaped form, their underside decorated with hatching. Very similar ones were found in grave CL at Köyliö, and according to Cleve (1978 p. 124) these are common in the East Baltic region, especially in the Lettgallian area (cf. Latvijas PSRA Pl. 61:1). Similar ones have also been found in Estonia, where bells seem to have been fairly common (Selirand 1974 p. 153, Pl. XXXII:5). This type occurs also in the area of the Soviet Union in kurgans dated to the 10th and 11th centuries (Malm-Fehner 1967 pp. 135–136). In the graves of the Gauja Livonians however they are not common, and it is not certain whether they were used in chains (Tönnisson 1974 p. 124).

The sleigh bells found near the waist of the child in grave 118 and near the head of the child in grave 408 are also of pear-like shape, but they are considerably larger and they were not connected to chains but were suspended from threads or cords. The smaller one from grave 118 and the one from grave 408 have line ornaments, the third and largest one is undecorated and has an angular suspension link. The smaller bells resemble to a large degree one from Birka (grave 1145, Gräslund 1973 fig. 1:3), and also similar ones are known from the Soviet Union (Malm-Fehner 1967 figs. 20:4, 6), although they are usually smaller than the largest bell from Luistari.

Anne-Sofie Gräslund (1973 pp. 164–171) has presented the hypothesis that all the bells found in Birka can be connected to the burials of children (there are four definite cases) and that they belonged to rattles. It can also be thought that these were tied to the cords of a cradle or a device resembling the Lappish »komsio», as is known from among the Lapps. The occurrence of bells in the Ladogan area as well as in the kurgans at Jaroslav and Vladimir in the 10th century raises the assumption that these were brought by traders on the eastern routes as toys for their children. The child with bells in the grave 118 at Luistari was laid next to a man with a fragment of an Arabian coin struck at the beginning of the 10th century in his pouch (grave 100, coin-list No. 33).

Small bell pendants found in graves 139 and 141 may also be similar souvenirs. They are of conical form (cf. Kivikoski 1973 fig. 811) and one is decorated with a raised list in the lower end, the other only with a grooved line. In the latter there is a hole in the upper part through which a cord was passed. Inside the former there is a ring of bronze wire, and it seems as if two thin rods have been passed through the hole. These were broken at the mouth of the hole.

According to Cleve (1978 p. 122), pendants of this type number at least thirty in the Finnish finds, and some of them may also be of domestic manufacture, but the others are with certainty import objects from the east. These have been found throughout Northern Russia from the Ladoga to the Kama River (cf. also Gening 1962 Pl. V:15–26). In Latvia these were used as end pendants in head ornaments, and there is also a find suggesting a fitting of this kind from Osmanmäki in Eura (Kivikoski 1973 fig. 1138, p. 140). In Luistari grave 139, which contained the corpse of a small child, the bell pendant was apparently suspended from a chain. The other pendant was found in the filling of grave 177, but it was with some degree of certainty from grave 141 which was damaged, also a burial of a child. Grave 139 is coin-dated to later than c. 920 A.D. (coin-list Nos. 35, 36), and grave 141 is probably also from the same period, as it was next to the aforementioned one.

A bronze pendant of drop shape was found in grave 25. It is flat on one side and rounded on the other. I do not know of any parallels in the Finnish material, but because it is one-sided it may originally have been the pendant of a neck-ring. A neck-ring found in the Savastvere cemetery in Estonia has a plate-like front part to which bells and other pendants were joined; one of these pendants is slightly similar to this (Selirand 1974 Pl. XXVI:1, on the left). Grave 25 is from the beginning of the 11th century (Lehtosalo-Hilander 1973 pp. 104–105).

Neither is there a parallel to the oblong pendant from grave 35, decorated on both sides with ringed dots; on the other hand the cross-shaped pendant belonging to the same chain arrangement has several parallels in the west Finnish material. The Luistari pendant differs from these in the respect that part of the cross arms are leaf-like, and not strictly geometric in form as is usually the case in the others (cf. however Cleve 1978 Pl. 1:8). Parallels, although not exact ones, have also been found in Latvia and Estonia, but these have usually been dated younger than the Finnish specimens, which are from the first half of the 11th century (Schauman 1971 pp. 43–44; Cleve 1978 p. 118; Hirviluoto 1979 p. 103; Lehtosalo-Hilander 1980 p. 248).

A long-shaped pendant of iron which broadens downwards, from the chain arrangement in grave 56, is also of a new type. It has some similarities with a long-shaped bronze pendant from grave C28 at Köyliö (Cleve 1978 Pl. 8:147), but the Luistari pendant seems to end in a hook and it may have had a practical use. It may have been the holder of the cord which seems to have been joined to the pendants of the knife handle in the grave (Lehtosalo-Hilander 1978a p. 141).

An oval openwork pendant with a convex central part is also of a form not previously known. It does not seem to have any understandable design, but as a whole the artefact has certain similarities with a mount found at Kiiliä in Sääksmäki, decorated in the Urnes style (Kivikoski 1973 fig. 1209, p. 146; of the dating of this style cf. Hällström 1948 p. 53; Wilson 1966 p. 160; Bergman-Billberg 1976 p. 207), and the pendant may have been made on the model of something similar. The oval shape is very uncommon in pendants and it is probable that the prototype for the Luistari pendant belonged to some other artefact group.

The bear's tooth pendant found in the filling of grave 59 on the other hand is of a type commonly occurring in Finland. These cast objects of bronze which resemble bear's teeth are characterized by transverse grooves around the upper part. These have been explained as representing the turns of bronze wire wound around actual bear's teeth (Kivikoski 1973 figs. 801, 802, pp. 109–110). The other ornamentation may vary; the Luistari specimen has pit impressions struck in a square field. It was joined with an iron ring. Artefacts of this kind, which are common to both Finland and Livonia, have been linked to the magic beliefs and bear worship of the Finno-Ugric peoples (Kivikoski 1965 pp. 23–27). On the one hand they have been joined to chains, on the other hand they were possibly used as pendants on «kaatterit», a special kind of cloth hanging from the waist (Vahter 1932 pp. 183–186; Kivikoski 1965 pp. 26–27; Cleve 1978 pp. 121–122). As a stray find the use of the Luistari specimen cannot be defined, but it could have belonged to the same chain arrangement as the link of a rod chain found in the filling of the same grave.

An iron key was probably hung from the chain arrangement in grave 377, as pieces of this were found near the breast of the corpse. Its blade is four-sided with three holes, the rod is flat and slightly broadens upwards. Also in the Köyliö graves there were keys as pendants on chains (in graves CE and CL) and the key found in grave CL is considerably similar to the Luistari artefact. Both in Scandinavia and in the East Baltic region keys were suspended from chains (Schauman 1971

p. 50), and small bronze pendants resembling actual keys are quite common in Finland (Kivikoski 1973 fig. 951 and p. 124).

6.3.4. Chain arrangements: conclusion

The most complete chain arrangements found at Luistari are from the end of the Viking period; the coin-date of grave 377 suggests the last decades of the 10th century, that of grave 56 mainly the second quarter of the 11th century and, as explained above, grave 35 must be younger than it (see 6.1.6.). The Luistari finds thus give further support to the picture obtained previously that it was at the end of the Viking period that chains were most popular (Schauman 1971 p. 55). At the beginning of the 1970's Marianne Schauman noted that in the Finnish finds chains seem to be lacking in the earlier Viking period, and although the subsequent Luistari excavations have revealed graves with links of rod chains, breast chains were found only in grave 285 and in grave 139, a child's burial, which are from this period. Chains were not common in the Merovingian period graves at Luistari either, and in this respect there is a clear difference between Luistari and Köyliö A- and B-cemeteries. Further excavations may of course change the situation, but already now it seems apparent that the twin brooches and the breast chains connected to them were not used as commonly as has been generally maintained. Small equal-armed brooches were usually one to a grave at Luistari, and although some of these graves give reason to assume that the other brooch has been lost when new graves were laid, there are also graves (368, 421) which with certainty contained originally only one brooch. Thus brooch pairs and chain arrangements suspended from them were probably the fashion for only a few.

6.4. RING-ORNAMENTS

6.4.1. Neck-ring

With the exception of finger rings, ring-ornaments were rare in the Luistari finds. Fragments of only one neck-ring were found:

67:1911 (Originally from grave 73?)

They are from the filling of grave 67, and it is probable that they originate from grave 73, which was damaged already when grave 76 was laid. The two pieces found belong together; they are from the middle part of the ring, of round section and without ornamentation. Both thicken slightly to one end, and it is possible that the artefact was originally a neck-ring thickening towards the ends

as in Kivikoski 1973 fig. 729. This type of neck-ring is common in the East Baltic region from the 5th century onwards, and also in Finland it occurs as early as in the finds of the Migration period (Kivikoski 1973 p. 48, fig. 253). The youngest specimens with plate ends, as the one from Anivehmaanmäki in Yläne, are from the beginning of the Viking period (Hirviluoto 1958 pp. 50–51), and the Luistari ring may belong to this group. On the other hand the pieces could also be from the undecorated middle part of a knob and loop-ended neck-ring. Grave 73 contained a convex round brooch of early type, a sickle and a round-bottomed clay vessel, so that also the other furniture in this grave, although of a more modest character, corresponds to that found in grave 62 at Anivehmaanmäki (cf. Hirviluoto 1958 figs. 3–4 and 8).

6.4.2. Bracelets

6.4.2.1. Concave-convex bracelets

Concave-convex bracelets (Kivikoski 1973 fig. 453) were found in two graves:

21:1241

246:3058a, b

All three rings are narrow in the middle part and broaden markedly to the ends. The original width of the ends was c. 26 mm, and there are three transverse grooves in them. The very ends of the rings in grave 246 are decorated with small indentations, but in the bracelet from grave 21 the ends are even and bent outwards. The wide parts of the bracelets are decorated with engraved crossing double lines, whereas the thin middle part is undecorated. According to Cleve (1943 pp. 92–93), bracelets decorated in this manner are the most common type and they occur in all areas of Finland where Merovingian period burial-grounds are known.

The total of concave-convex bracelets found in Finland is over 120, and the type is regarded as domestic (Kivikoski 1973 p. 68; Cleve 1943 p. 92). From outside of Finland bracelets of this type have so far been found in eight Estonian find locations, and it has been suggested that most of these have come from Finland (Lõugas 1973 p. 126; Schmiedehelm 1973 p. 189). They include some specimens which are of interest with regard to the Eura finds. Three bracelets from Inju and one from Toila have the same transverse engraving with crossing lines as a bracelet found at Pappilanmäki in Eura (8811: 2). One of the Toila bracelets is of the same especially wide-ended variant as the Luistari arm-rings (cf. 8811:2 and Schmiedehelm 1930 Pl. II:1, 2 & 10 and 1973 fig. 2:1, 2).

In dealing with the origin of the Finnish concave-

convex bracelets, reference has been made to both club-headed bracelets and to certain West German concave-convex bracelets (Hackman 1913 p. 308, fig. 17; Cleve 1943 pp. 91–92 with notes; Salmo 1952 pp. 230–231). However, Hackman noted already in 1905 (p. 224) the similarity of a bracelet from Kirstinmäki in Vähäkyrö and the concave-convex bracelets, which he later for some reason seems to have forgotten. The Kirstinmäki specimen widens to the ends, has profiled contours at the ends and is decorated with crossing lines and ringed dot motifs (cf. Kivikoski 1973 fig. 260). The composition of the ornamentation is exactly the same as in the above-mentioned Pappilanmäki, Inju and Toila bracelets and although it is quite narrow and of flat-convex section it is in my opinion definitely the best starting point for the development of the concave-convex bracelets. Furthermore it is from Finland and not from South Germany, and being dated to the Migration period it would be a chronologically suitable forerunner of the concave-convex bracelets. Hackman (1905 p. 225) has maintained that the Kirstinmäki bracelet is of domestic form although having come about under Baltic influences, and thus the development which led to the most common Merovingian period bracelet type began perhaps earlier than assumed in Finland. There is, however, an undeniable similarity between the Finnish bracelets and those found in Alemanian cemeteries (cf. Veeck 1931 Pl. 38B:1, 2), and this may be caused by common prototypes of earlier date.

There have been fairly varying opinions about the length of the period of use of the type: Cleve (1943 p. 94) and Kivikoski (1939 pp. 105–106) claim that it occurs from the beginning of the Merovingian period to around 800 A.D.; according to Salmo (1938 p. 77, 1952 p. 232) all signs indicate that it was given up already early in the 8th century. The most convincing evidence of the later dating are the finds from mound 49 in the Kvarnbacken cemetery in Saltvik, which include a pair of chain holders of Gotland type and a late crayfish brooch (Kivikoski 1963 Pls. 16–18, pp. 92–93).

The Luistari bracelets are rather wide at the ends, and in this respect they differ especially from the bracelets that have been held to be of later form, in which the broadening is not very abrupt (cf. Kivikoski 1963 Pls. 18:2–7, 24:8–10, 40:6; Papinsaari bracelets e.g. Kivikoski 1955 fig. 22). On the other hand they do not resemble the bracelets found at Pappilanmäki (8811:2 & 11002:2, 3) or in the Köyliö A-cemetery (Cleve 1943 Pls. 17:104–105, 22:133–134, 24:146–147), as could be assumed, but rather the closest parallels are from Kansakoulumäki in Laitila (Kivikoski 1969 fig. 26) and in the finds from cairn I at Karholannokka in Vesilahti (9249:16, 21)

which both Cleve (1943 Table I:19) and Salmo (1934 p. 94, 1938 p. 77) have dated to as early as the 7th century – Cleve even to the beginning of the century. Dating to the 7th century is suitable also with respect to the Luistari bracelets, as grave 21 contained a small equal-armed brooch and both graves were located in zone I.

6.4.2.2. *Bracelet of six-sided section*

A bracelet of almost six-sided section tapering to the ends was found in a single grave:

333:3759

It was decorated only at the ends, where six transverse zig-zag lines can be distinguished on one side. A piece roughly 5 mm long was broken off one end; the broken surface is visible and the line ornamentation begins only 2 mm from it, while at the intact end it begins after 7 mm of undecorated surface. The ring is very small, the inner diameter is only 32–37 mm, and it must have belonged to a fairly young child; this is also suggested by a finger-ring found nearby with a diameter of 11–13 mm. Judging from the weapons in the grave the deceased was a small boy.

Six-sided bracelets which taper to the ends were common in the East Baltic region in the Later Roman Iron Age, and some are known also from Finland from that time (Kivikoski 1973 figs. 114, 115, p. 33), but they are not completely similar to the Luistari bracelet.

On the other hand there are some simple bracelets which taper to the ends from the Viking period. These include ones of six-sided section (Kivikoski 1973 fig. 738, p. 101). The line ornamentation of a bracelet found from house-foundation A at Eneborg in Saltvik resembles most that of the Luistari bracelet. This has been dated by Hackman (1941 pp. 77–78, 81) to the boundary of the Merovingian and Viking periods. The Luistari bracelet is considerably more solid, but on the basis of spearheads found along with it (see 1.3.2. and 1.3.5.), it can be dated to more or less the same time, the end of the Merovingian period. It may possibly be from the Baltic region, because in that area there seem to occur bracelets of angular section tapering to the ends at least in the Viking period, and what is worth noting, in men's graves (Mugurēvičs 1977 Pl. L:5, 6, p. 113).

6.4.2.3. *Massive bracelets widening to ends*

Massive bracelets widening to the ends, which are decorated with lozenges with dotted squares, were found in two graves:

62:1873

95:2072–73, 2081–82

In the bracelet from grave 62 the lozenges were clearly bordered, the impressions carefully stamped, and the middle part of the bracelet was decorated with curved rows formed of square stamps, and also by a row of figures accentuating the midrib with what appears to be two triangles with opposed peaks. One end is broken and the other is decorated with two indented end lists. In the bracelets from grave 95 the lozenges are not so distinct, and in the middle part of two of the bracelets (2072–73) there are only curves formed by the square stamps. In addition there are two lengthwise rows of square stamps in the two others (2081–82). In the former there are three, and in the latter two indented transverse lists on both sides of the middle, and in the ends of each there are three end lists. All of the Luistari bracelets are of the same variant in the respect that their middle part has a midrib.

About a dozen similar bracelets with ornamentation and midribs in the middle part have been found in Finland, and the group also included the ones found in grave 140 at Kvarnbacken in Saltvik, which on the basis of an illustration of them (Kivikoski 1963 Pl. 58:6, 8) resemble the Luistari specimens closely, e.g. the ornamentation of the midrib is similar to that in the one from grave 62 at Luistari.

In addition to the five bracelets from Luistari there are four specimens of this variant from Lai-tila (2217:38, 2548:302, 7592:4, 11309:10) and at least one from Kalanti (9365:134) and one from Hattula (2895:10). There are also midribbed bracelets from Jämsä (16736:2) and Kokemäki (8338:18) which have probably not been decorated in the middle part. With the exception of the Luistari and Kvarnbacken armrings these bracelets have been found in cremation cemeteries laid on level ground, and thus they do not afford a clear fixed point for the dating.

Kivikoski (1963 p. 77, 87) has dated grave 140 at Kvarnbacken on the basis of the oval tortoise brooches to the 10th century A.D. According to Capelle (1968 p. 69) this variant of the oval tortoise brooches (JP 51c) belongs to the first half of the 10th century, but Ingmar Jansson (1970 p. 57) maintains that the type cannot be given a more exact date on the basis of coins than the fact that its use began in the 9th century and continued to the latter half of the 10th century.

Neither do Callmer's connections, which without illustrations or tables are completely confusing, bring more light to the question of the dating of this type. The bead material from grave 140 at Kvarnbacken (89 % rock crystal and cornelian beads) belong to Callmer's group V (see 1977 p. 61). As this group in Callmer's opinion (1977 p. 65) is

heterogenic in a chronological sense, he has divided it between two other groups. Those which he holds to be from early connections are placed in bead period IV (860–885 A.D.), the later ones in bead period IX (960–980 A.D.). The only grave at Birka (860B) with numerous rock crystal and cornelian beads along with brooches of type JP 51c like in grave 140 at Kvarnbacken belongs, according to Callmer (cf. 1977 pp. 30 and 63), to as late a date as bead period XII (980–990 or c. 1000 A.D.), viz. to the period when Birka should no longer exist as a trading center. To make the situation still more confusing, this grave also contained a fragment of an Arabian coin struck before 800 A.D. as well as two or three early Scandinavian coins (cf. Callmer 1977 pp. 76–77 and Jansson 1970 p. 53, 1974 p. 139), and Ola Kyhlberg in his newly published study (1980 p. 66) mentions this grave along with others as a grave with an old-fashioned stamp and mainly belonging to the 9th century! The neck-bands in the Luistari graves on the other hand belong to Callmer's (1977 p. 60) bead period III (845–860 A.D.) which indicates that the variant in question of the lozenge-ornamented bracelets cannot be exactly dated with the help of Scandinavian connections. It is however such a small and consistent group that its period of manufacture can in no case be longer than a few decades.

Massive bracelets are common in Finland during the Viking period; c. 90 specimens with lozenge figures have been found so far; the number of bracelets with crescent stamps with three dots is still larger, amounting to almost 200. According to Kivikoski (1973 fig. 734, 735, p. 101) these bracelets were in use throughout the whole Viking period and the thin and wide specimens are the youngest.

Wide bracelets with crescent stamps still occur in finds from the end of the 10th century (e.g. graves C29 and CB at Köyliö, Cleve 1978 pp. 140–141, 195–196, Pls. 10:167, 15:254), but ones with lozenge figures seem to occur along with the older convex round brooch types, and thus belong mainly to the earlier phase of the Viking period; the oldest ones have been dated by Hirviluoto (1958 pp. 51, 55) to the beginning of the 9th century.

There are no instances of lozenge-ornamented bracelets having been found along with convex round brooches of distinctly type D, and the only find which in connection with this group suggests a later dating is from Haminalahti in Kuopio (1645). This find, made before 1874, includes a convex round brooch of type F (see Kivikoski 1939 p. 181). In addition to the fact that the find cannot with certainty be regarded as closed, mention must be made of the peripheral location of the find place (about 140–150 km from the nearest known permanent settlements). If furthermore Sarvas'

coin-dating (1972 pp. 17, 20) of the cairn at Kuusela in Pertunmaa is accepted, the grounds for the dating of type F to the 11th century turn out to be untenable, and thus also the Haminalahti find from Kuopio could be from the 10th century. There are so far no finds from the actual area of distribution of the lozenge-ornamented bracelets, Vakka-Suomi and Lower Satakunta, in which these occur together with artefacts later than the middle of the 10th century.

Neither are there among these bracelets thin and wide specimens, all are massive. The widest one, which is of the same variant as the Luistari bracelets, is from Pärkkö in Laitila (2217:38). The middle part is 18 mm wide and the ends 30 mm wide. A bracelet from Vanhakartano in Lammi (9579:6) has the widest middle part (21 mm), and it is also special in the respect that there are ornaments in the middle part which have been executed with a double-edged graver. A bracelet from Rapaala in Sysmä (10647) is similarly decorated, as well as a bracelet found in Laitila (7592:4), which is of the same variant as the Luistari bracelets. Also in connection with this unusual method of decoration all traces seem to lead to the same region.

Kivikoski (1939 p. 181), and Cleve (1978 p. 140) in accordance with her, was of the opinion that the lozenge-ornamented variant came about as the combining of zig-zag lines, whereas Hirviluoto (1958 p. 51) regards the lozenge figures as original and suggests that the zig-zag line ornament came about as the result of the breaking up of lozenges. The question is hard to solve as a large part of the artefacts are badly melted. A study of the material gives the result that there is no essential chronological difference between the lozenge ornamented bracelets and those with lines only slightly apart from each other. The bracelets dated to the beginning of the 9th century from Aniveh-maanmäki in Yläne, as well as those from Osmanmäki in Eura and Kvarnbacken in Saltvik dated to the 10th century all have lozenge ornamentation. In the bracelets from grave 95 at Luistari the figures are broken up, while in the bracelet from grave 62, which is clearly younger, there are distinct lozenges. It is possibly a case of two different workshops or makers, one having interpreted the idea of the design differently from the other, in the same manner as some archaeologists speak of zig-zag ornamented bracelets and others of lozenge figures.

6.4.2.4. Spiral bracelets

Spiral bracelets or fragments of such were found in eight (six?) graves:

- 10:1053, 1056 (from the filling, originally from grave 35?)
- 25:1356
- 35:1440
- 56:1682
- :1685
- 118:2286
- :2294
- 139:2421
- :2423
- 369:4174, 4175 (Originally grave 370?)
- 370:177, 4180

Graves 56, 118 and 139 contain one pair each, the ones found in other graves are fragmentary. The bracelets from grave 56 and the fragments from grave 35 are of triangular section with an engraving on the upper ridge forming a zig-zag line on both sides of the ridge. In the fragments from grave 370 the ring is flatter and the engraving on the ridge was carried out as a wider tremolo. In all of these artefacts a double-edged graver was used. There is apparently also engraving on the bracelets from grave 139, a child's grave, because in these two rows of triangles could be seen in the middle part. The bracelets from graves 25 and 118 are unornamented. The bracelets of the three last mentioned graves are all of flat-convex section. The width of the rod varies from 5 to 7 mm and the height from 1.6 to 3 mm. There are ten turns in the bracelets from grave 56, 3–4 turns in the bracelets from children's graves 118 and 139. The preserved bracelets and end fragments show that the rod narrows slightly toward the ends, which are often diagonally cut. The bracelets from grave 139 have however ends that are cut straight, and only one end of the bracelets from grave 118 is cut diagonally.

Spiral bracelets are most common in Finland during the Viking period, to which all of the Luistari bracelets can also be dated. Kivikoski (1939 p. 107, 1973 pp. 69, 102) has linked the spiral bracelets of the Viking period to an old domestic tradition, whereas Cleve (1978 p. 140) has pointed to identical bracelets in the East Baltic area and has suggested that some kind of renewal in the prevailing fashion occurred in the 10th century and around the year 1000 with the help of some armrings of triangular section imported from the East Baltic. Also at Luistari all bracelets of triangular section were found along with convex round brooches of type D, and grave 56 has a coin-date to the first half of the 11th century. Grave 25 is also from the same period, the bracelets of which are of flat-convex section, but the bracelets found in graves 118 and 139 are older, possibly from as early as the first half or the middle of the 10th century.

6.4.3. Finger-rings (figs. 35, 36)

Finger-rings are the most common artefact form in the Luistari material. Over 230 whole or fragmentary rings have so far been found in the cemetery, and 220 of these can be determined. They are all open and can be divided into the following types and subgroups:

I Simple spiral rings or finger-rings, all of bronze

- 1. Round section, Kivikoski 1973 fig. 753.
Total 59, all unornamented, see table 8 group I:1.
- 2. Flat-convex section, Kivikoski 1973 fig. 464.
Total 43, four ornamented, see table 8 group I:2.
- 3. Triangular section, Kivikoski 1973 fig. 463.
Total 48, 18 ornamented, see table 8 group I:3.
- 4. Flat midribbed section, wide band, Cleve 1943 Pl. 25:157. –30:1396.

II Spiral rings with middle shield

- 1. The shield long and relatively narrow, all of bronze
 - a) Mid-ribbed middle shield, Kivikoski 1973 figs. 466, 756.
Total 6, all decorated with engravings:
21:1240 195:2789
45:1518, 1521 288:3285
55:1593 348:3931
 - b) Flat undecorated middle shield, Kivikoski 1973 fig. 755.
Total 8:
52:1573 150:2504
90:2056 170:2630
100:2171 283:3219
141:2459 348:3909
 - c) Flat decorated middle shield, Kivikoski 1973 fig. 465.
Total 23, probably 13 decorated with engravings and 10 with chased and/or punched ornaments:

Table 8

I:1 Rings of round section			I:2 Rings of flat-convex section			I:3 Rings of triangular section		
Diameter			Diameter			Diameter		
9–14 mm	15–16 mm	17–18 mm	9–14 mm	15–16 mm	17–18 mm	9–14 mm	15–16 mm	17–18 mm
8:996	56:1681	9:985	9:1014*	36:1454	9:999	73:1937	15:1153*	15:1166*
118:2289	:1688	13:1089	58:1829*	37:1459	23:1292	118:2288*	40:1477*	20:1224
:2292	208:2851	23:1069	165:2605	99:2146*	55:1592	195:2775	55:1595*	35:1441*
:2293	217:2935	25:1316	265:3088	:2152	59:1862	281:3160*	:1611	51:1564
:2297	291:3342	35:1421	273:3110	100:2170	150:2528	:3165*	65:1906	62:1871
137:2412	318:3594	56:1697	297:3455	115:2258	165:2602	:3169*	130:2345*	:1872
139:2422	348:3906	61:1865	303:3503	:2259	283:3217	303:3495*	150:2515*	:1878*
:2425	349:3978	76:1994	324:3651	141:2458	304:3508	333:3757	155:2561	:1879
:2426	:3989	184:2702	354:4032	225:2966	:3512	367:4165	225:2961*	155:2562*
:2435	:3990	208:2849	363:4143*	226:2979	380:4299	371:4190	292:3368	188:2716
:2436	359:4116	:2850		282:3201	404:4582		331:3748	195:2776*
141:2457	374:4222	325:3708		290:3315	421:20552:4		352:4012	200:2805*
:2669	377:4274	353:4024		291:3343	18000:98			270:3100
222:2948	386:4376	370:4182		:3346				280:3140
229:2994		371:4188		299:3473				288:3282
295:3432		381:4302		320:3625				:3283
:3436		:4315		325:3712				:3286
345:3837		:4329		377:4237				292:3359
356:4066		:4330						294:3392
359:4100		383:4339						295:3406*
:4107		387:4382						302:3484
:4110		392:4451						305:3517
:4126								315:3568
								317:3578
								323:3635
								338:3788
								390:4435
Fragments: 295:3409			Fragments: 335:3773 378:4285					

* = decorated

40:1475, 1476	280:3136, 3138
64:1900, 1901	281:3180, 3181
90:2043	282:3204
95:2066, 2087, 2090	292:3360
135:2385	295:3431
136:2407	299:3469
140:2449	309:3537
145:2469	320:3622
207:2832	323:3636

2. The shield abruptly broadening, Latvijas PSR Arheologija Pl. 57:15, of bronze or silver.

a) Bronze rings

Total 7, four with engravings and three with punched ornaments:

17:1206
56:1678, 1695
58:1828, 1830
97:2101
225:2950

b) Silver rings

Total 7, all with beaten and/or punched ornaments:

10:1024, 1046, 1052 (Originally grave 35)
324:3653
356:4059
359:4102
381:4309 (Originally grave 413?)

III *Rings with broad centre part and slightly overlapping ends, bronze or silver*

1. Convex centre part, Salmo 1952 fig. 267, middle of second row from the top.
Two rings of silver, with punched ornaments:

23:1300
383:4348

2. Flat centre part, Kivikoski 1973 figs. 1088–1090.

Total 7, four of silver and three of bronze, all with punched ornaments:

22:1247 59:1859
25:1348 403:4513, 4520
39:1466 18000:137

IV *Rings of more or less even width with slightly overlapping ends, Salmo 1952 fig. 267 upper left.*

Total 5, all of bronze:

17:1186 120:2306
35:1427 18000:145
37:1456

V *Rings with tapering, slightly overlapping ends, Kivikoski 1973 fig. 1091.*

Total 2, both of silver and decorated with transverse notches:

358:4078 404:4581

VI *Rings with double-spiral ends, Kivikoski 1973 fig. 757, of bronze.*

One whole and fragments from three graves:

8:986 45:1520
13:1084 75:1951

There are only few ring types in the Merovingian period graves at Luistari. The main part consists of spiral rings of bronze of flat-convex (5) or triangular (9) section. Only graves 21 and 52 contained rings with middle shield; the former is of group II:1 a and was decorated with engraving, the latter is not decorated (II:1 b). A ring with lengthwise punched lines was found in grave 39 and belongs to group III:2, being exceptional among finds of the Merovingian period. Unfortunately the area was so mixed that there was no certainty of the ring belonging to this particular grave. A spiral ring made of a wide band (I:4) is the only find from grave 30, but it may date it to the Merovingian period as there was a similar one from grave 8 in the B cemetery at Köyliö. Cleve (1943 p. 176, Pl. 25:157) has dated all of the graves of the B cemetery to the latter half of the 7th century, which may also be suitable for Luistari grave 30, located in zone I.

In connection with the later graves it seems clear that not all of the rings found which resemble finger-rings were used as such. There are some children's graves (118, 139) in which rings were found on toes (cf. grave 4 at Fyrkat, where a woman had toe-rings, Roesdahl 1977 p. 150), and no doubt they were also used as ornaments in textiles. Of the 203 rings resembling finger-rings found in 100 graves only 89 either contained a finger bone or were otherwise in such a place that they would probably have been on a finger. The uncommon locations of the rings in zone I is partly because of the damaging of the graves; for example three rings of group II:2 b found near grave 35, with bone in only one, probably belonged together, but also in many undamaged graves the rings were scattered. This is especially distinct in the male Viking period graves. Of the 77 finger-rings or bronze rings found, 47 were simple spirals; 21 are of group I:1 and of these only three or four were with certainty on a finger, none of the 14 rings of group I:2 were on fingers, and of the 12 rings of group I:3 only one was on a finger; 7 of these were ornamented. So of nearly fifty specimens only five were actual finger-rings. The diameter of most is less than 16 mm, and it seems that at least in the men's graves these rings were mainly used for other

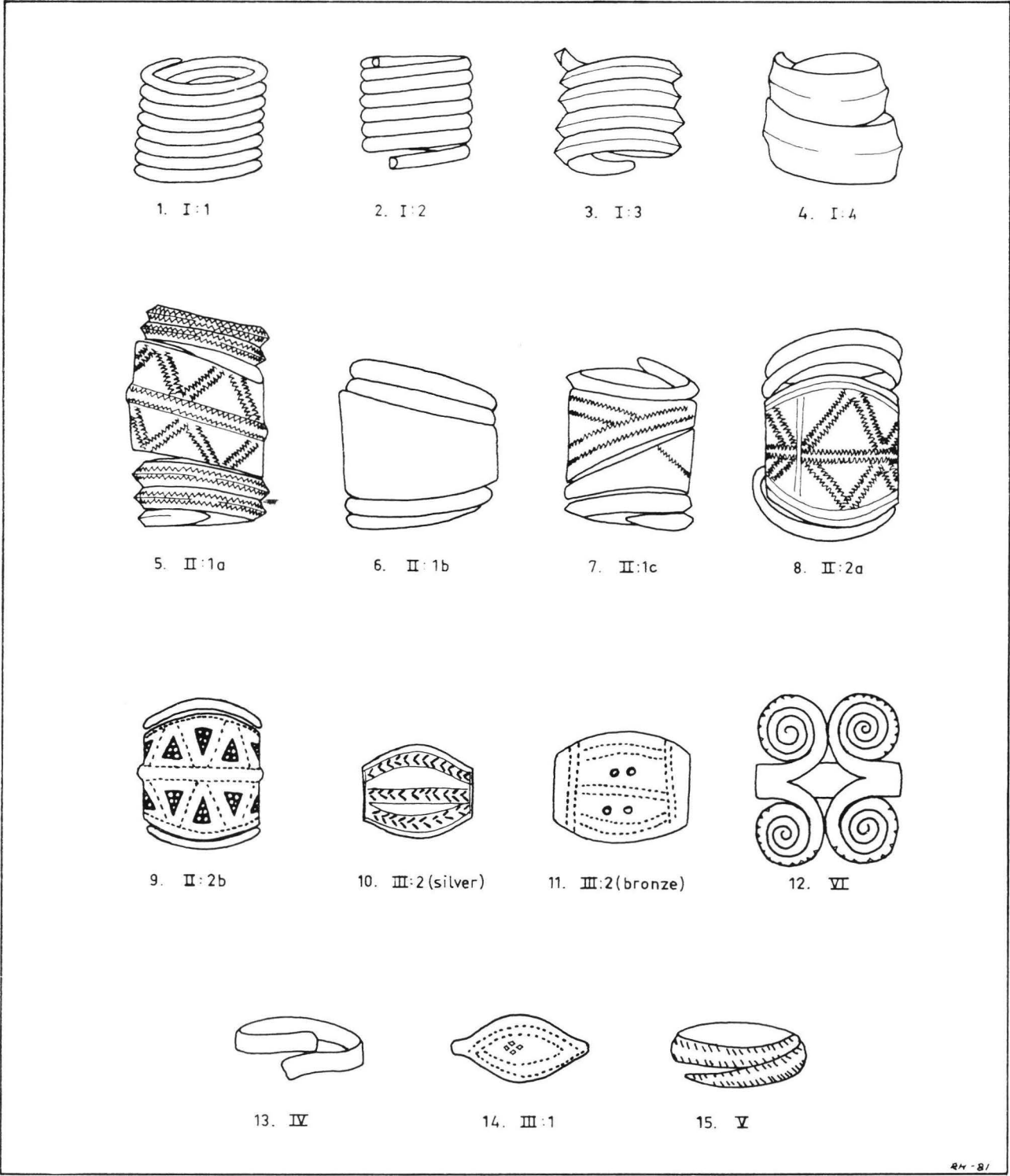


Fig. 35. Finger-ring groups at Luistari.

purposes. In children's graves, on the other hand, the ring was usually a simple spiral, and similar ones were also used by women. In zone I 12 women's graves contained them, and in both zones III and IV these were found in eight graves as women's rings.

There are only two rings of group II from children's graves, an undecorated one (II:1 b) from grave 141 and one with punched ornaments (II:1 c)

from grave 136. There is a total of 22 of these from women's graves, 10 from zone I, half of these on fingers, 8 from zone III with only one stray find, and 4 from zone IV where three of the rings were on fingers, and a fourth ring, an imposing silver specimen with punched decoration, was found in a clay vessel at the foot of grave 324. In men's graves there were 24 rings of this group, of which 18 were found on fingers. Four may be ornaments

Table 9.

RINGS FOUND ON FINGERS IN VIKING PERIOD MEN'S GRAVES AT LUISTARI

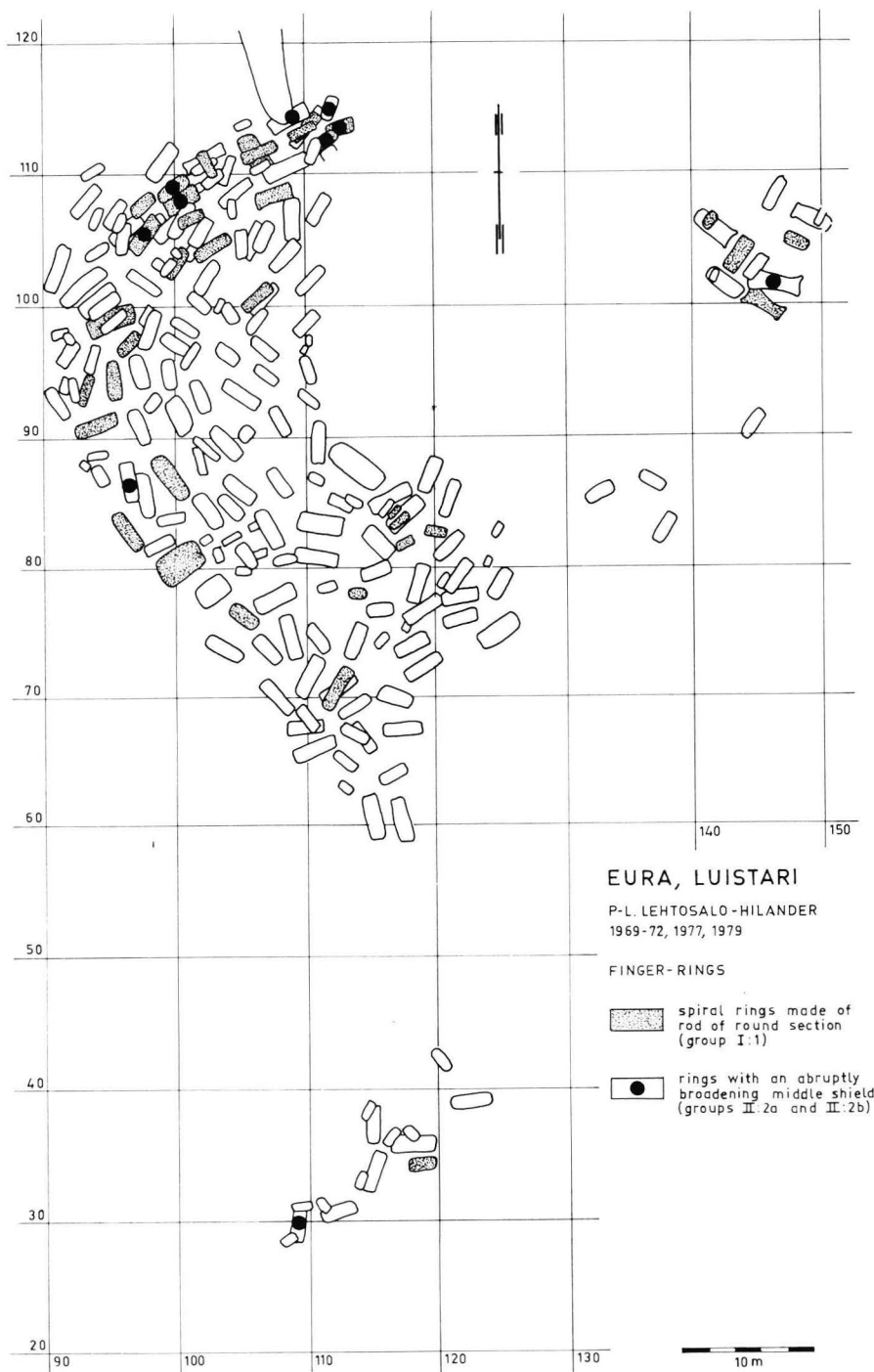
This table includes the rings inside of which a finger bone was found or the location of which indicated that they had been used as finger-rings. A bone could have been remained in place also when the ring had been dislocated, and therefore it was not always clear from which hand the ring was.

Zone and grave	Nos.	Group						Size mm	Left hand	Right hand
		I:1	I:3	II:1a	II:1b	II:1c	II:2a			
Zone I										
13	1089	x						18	x?	
17	1206							18		x
208	2849	x					x	17	x	
Zone III										
45	1515–19, 21–24			x				19		
51	1564		x					18	x	
76	1994	x						18		x
135	2385					x		18		x
140	2449					x		21		x
145	2469					x		20		
195	2776, 2789			x				20		x
288	3282–83, 3285			x				20	x?	
292	3360					x		23		
299	3469					x		18		
Zone IV										
90	2043					x		20		x
100	2171				x			21	x	
281A	3180					x		18		x?
281B	3181					x		19		x
282	3204					x		17		
283	3219				x			18	x	
320	3622					x		16		x
323	3636					x		18		x
325	3708	x						17	x	
348	3931			x				20	x	
		4x	1x	4x	2x	11x	1x		8x	10x

of dress, whereas the rings from graves 207 and 225 were removed from their original locations. Four of the rings are of group II:1 a, the two other rings of which are from grave 21, dated to as early as the Merovingian period, and from grave 55, a woman's grave of the Viking period. With the exception of the Merovingian period ring and the one from grave 348, they are all from graves in zone III. In the rings from graves 195 and 348 the midrib was beaten from beneath, in the others it seems to be solid. The width of the middle shield is 22 mm in the ring from grave 348, and in the others only 12–14 mm. On the shield part of all the rings, on both sides of the midrib, there is a zig-zag figure executed with a double-edged graver so that there is a lengthwise row of squares on the shield with the midrib in the middle. This crosslined pattern is a common composition of ornament in other rings of group II also (cf. Hvoshinskaya 1977 fig. 1:1).

Rings of group II:1 b, undecorated rings with middle shield, have been found in three men's graves and in two women's graves. Decorated rings of group II:1 c were found in 11 men's graves but in only four women's graves. Of the latter, five are with punched decoration and two with engravings, but in the men's rings engraving was more common than punched ornaments. There are only three rings with differing ornamentation. In the ring from grave 299 there are only two length-wise lines on the edges of the shield, in the one from grave 282 circle stamps (cf. Kivikoski 1980 Plate 7:6) and in the ring from grave 135 punched cross figures in addition to the above ornaments. In all the other rings the ornamentation is very similar being formed of lengthwise lines or lines crossing in the centre which are either engraved or punched. The width of the shield part varies from 9 to 17 mm and it is common for the shield to be surrounded on both sides by two turns of thin rod so that there is

Fig. 36. Distribution of some finger-ring groups at Luistari.



a total of five turns. All of these rings were found in zones III and IV.

Group II:2 a includes five rings found in women's graves but possibly only two rings from men's graves. One is from grave 225 and it was probably not in its original place. It has a middle shield 24 mm wide engraved with crosslined pattern. The middle part of the ring from grave 17 with punched ornaments has been destroyed. In the rings from graves 97 and 56 the designs were carried out by engraving, in the ring from grave 58 there are rows

of punch-marks. Of these graves only No. 97 is in zone IV, the others are graves of zone I.

Rings of group II:2 b of silver were found in addition to the above-mentioned ring from grave 324 from only the women's graves in zone I. There were three rings from near grave 35, and one each from graves 356 and 359. Fragments of silver found in the filling of grave 381, may also be from a ring of this group. This may originally be from grave 413, a destroyed woman's grave. In the rings from graves 324 and 359 the middle part is smooth; in

the former it is ornamented with punched lines and ringed dots, in the latter with chased or engraved double lines and punched bead-lines around the edges, and inside them there are rows of three-dot-triangles and double circles. The others have one or two beaten midribs in the centre, and they are decorated with triangular and square stamps or with punched lines and triangles with five dots or with beaten bulges. In the mid-ribbed rings the width of the shield is 22–23 mm, in the one from grave 324 20 mm, but in the one from grave 359 only 13 mm. The last-mentioned one was not on the finger but was found at the foot end of the grave with a piece of a tablet-woven band inside.

Rings of group III:1 were found in only two women's graves in zone I, numbers 23 and 383. Both have punched decoration but the former is of considerably less skilful workmanship than the latter, which has punch-marks along the edges and a cross made of square stamps in the centre. The other has only rows of stamps parallel with the edges. Rings of group III:2 were found in grave 25, a woman's grave, in the filling of grave 59, two in grave 403, a male burial, as well as a fragment from grave 22 and a small very delicate ring as a stray find from zone I. The rest are of silver, but the large rings from grave 403 are of bronze. The wider one of these is decorated with punched lines and circular stamps, the narrower one has dot-triangle-stamps in addition to the above. Rows of punch-marks, dot triangles, circle stamps and plait-like figures occur also in the silver rings. The rings with plait-like ornaments from graves 25 and 59 have a parallel in grave 6 at Saramäki in Maaria, dated by Kivikoski to c. 1000 A.D. (1939 pp. 133, 186, Plate XXVIII:3).

Rings of even width and flat section (group IV) have not been found so far in closed connections but only as finds from the surface or filling layer. A suggestion for their chronological position can be obtained from the fact that, with the exception of the one found in the filling of grave 120 they are from zone I.

Silver rings of group V with transverse notches were found only in graves 358 and 404, both of which have coin-dates to the 12th century. In the Luistari finds they belong clearly to the Crusade period. They resemble the bronze rings with slightly less than two turns like the one found in grave 404. The last-mentioned is not decorated, but transverse notches are also to be found on some spiral rings of the Viking period (e.g. Kivikoski 1939 Plate XXXVI:4), indicating that the tradition seems to continue from these to the silver rings.

Rings with double spiral ends (group VI) were found only near men's graves. The fragments from

graves 9 and 13 are probably originally from other connections, and just a fragment was found also in grave 45. The intact ring found in grave 75 was at the foot end, and it had a piece of woven band inside; so it was definitely not on the finger. A similar ring (16950:190) was found near the feet in grave 1965/8 in the Yli-Nuoranne cemetery at Eura. This was a woman's grave.

The ring from grave 75 was decorated with engraved transverse and diagonal lines, and there are small notches on the edges of the spiral ends, the fragment from grave 13 has lengthwise grooves. Seven similar rings with different ornaments or without ornamentation have previously been found on the Finnish mainland in Viking period connections – only two of these are from outside the area of inhumation cemeteries (from Janakkala and Kurikka, Kivikoski 1949 p. 92) – and three specimens have been found from Åland (Kivikoski 1973 fig. 757, p. 104, 1980 Pls. 3:4, 7:5 and 10:10, p. 26). This is a type which first occurs in Finland and in the East Baltic region already in the Roman Iron Age and then again in the Viking period. Selirand (1974 p. 174) has dated some Estonian specimens to as late as the 12th century, but there are no finds this late in Finland. Grave 75 at Luistari is from the first half of the 10th century, and it is clear that this ring type occurs in Finland around the middle of the Viking period. Also in Köyliö grave C3 it appears together with a spearhead of type E (Cleve 1978 Pl. 2:27, 29, p. 147).

The Luistari rings are all types known previously from Finland, and in connection with them reference has only been made to the similarity in material with that found in the East Baltic region. Parallels to the silver rings have been presented also from the treasure troves in Gotland (Salmo 1952 pp. 336–7; Cleve 1978 pp. 145–147). However only a few rings may be import objects because, despite the general similarity, most of them differ in detail from those found elsewhere. Little attention has been paid to the datings, as spiral rings occur from the Roman Iron Age onward, spiral rings with middle shields appear as early as in the finds of the Migration period, and others have been found only as a few isolated specimens. Silver rings are, however, usually dated only to the period after 1000 A.D. (Cleve 1978 pp. 143–147; Kivikoski 1973 p. 104; Salmo 1952 pp. 334–337). The Luistari material is however so large that clear chronological groups seem to form. For example the rings of group II:1a occur only in the Merovingian period and the earlier Viking period graves, and also the main concentration of the rings of group I:3 is in these. On the other hand groups I:1 and II:2 belong to a clearly later connection, and groups III and V occur only in zone I. Of the silver

rings, most are from as late as the graves of the 11th century, but grave 324 may be already from the 10th century, so that the use of silver as ring material may have begun earlier than is thought. Bronze spiral rings of several turns still occur in graves which according to traditional periodization should be regarded as of the Crusade period; there is a double turn specimen from the 12th century grave 404 which suggests that in the light of the present material their use continued later in Eura than elsewhere.

There is usually more than one ring in the Luistari women's graves, sometimes 4–5, and 2–3 rings as well as toe rings were found on a couple of small girls. Men seem to have had only one finger-ring – other ring-like objects could also be found in their graves – and this could be on either hand. In the light of the present material it seems that men stopped using rings in the 11th century, as rings were on the fingers of only three men in zone I, where as many as 15 women bore rings. After silver rings came into fashion the number of rings on women's hands seems to have become less; silver rings were usually found one to a grave. If the three silver rings found near grave 35 in fact belonged to it, it is an exception in the Luistari milieu. Sometimes however a simple bronze ring may have been the pair of a silver ring.

6.5. BEADS AND OTHER PARTS OF NECK-BANDS (figs. 37–39, colour plates I–IV)

More than 1100 beads have been found at Luistari. 1106 have been catalogued, but it is hard to judge from the fragments whether they are of one or several beads. There were also several beads of bone which were damaged when excavated so that nothing could be retrieved of them. The 50 or so bone beads in the table given are only a part of all that were originally placed in the graves. It is probable that in the graves where only a few or no glass beads were found, but which contained for example pendants belonging to neck-bands, the original set included bone beads.

6.5.1. Bone beads

Bone beads were found in 13 graves:

23:1070, 1085, 1112, 1115
 35:1417, 1428, 1540(?)
 58:1813
 139:2439
 208:2844, 2845
 344:3821
 352:4010

354:4035, 4036
 356:4045, 4047–48, 4057–58, 4060–61, 4063, 4069
 359:4099, 4103, 4108, 4128
 377:4266h
 383:4341
 413:4303, 4317, 4322

Most of these are flat and round, without ornaments and measuring 10–11 × 5–6 mm. Round beads were found in graves 383 and 413 and in the latter also a fragment of a lattice-ornamented bead (4303). This bead seems to have been cylindrical, as was also the smooth-surfaced bead from grave 377 (4266h). The oldest bone beads found are from grave 352, and are so fragmentary that their original form can only be guessed at. These fragments however show that bone beads were in use in the Merovingian period and were placed in neck-bands together with other beads. Graves 139 and 344 can be coin-dated to the beginning of the 10th century (coin-list Nos. 35–36, 64–67), and the remains of a bone-bead in the latter suggest the most common form. The fact that there were almost no bone beads in the graves in zones III and IV, which revealed large numbers of glass beads, may be because they were not preserved or were not used when glass beads were available. The beads found so far suggest that they were mainly in use in the 11th century.

6.5.2. Bronze beads

Bronze beads were perhaps also made as substitutes for glass beads. These were found in eight graves:

55:1594, 1597, 1606 (Total 5)
 62:1877f (Total 13)
 95:2088e (Total 6)
 200:2802
 294:3396c
 318:3592e
 319:3609
 390:4408, 4020–21, 4428e, 4432 (Total 6)

They are on the one hand rounded or angular one-part beads (graves 62, 200, 294), and on the other hand rounded (graves 55, 390) or angular (graves 95, 318, 319, 390) multi-part specimens. The rounded ones are of 2–4 parts and the angular beads of 3–5 parts; the latter are ornamented with ringed dots. Some of the single beads from grave 62 have 14 facets and resemble the corresponding glass beads (e.g. Callmer 1977 Pl. 3 A 183, A 220). The others are of more irregular form, almost barrel-like. A hollow bead found in grave 294 is flat and rounded in form, the one from grave 200 biconical and comparable to a red bead found in

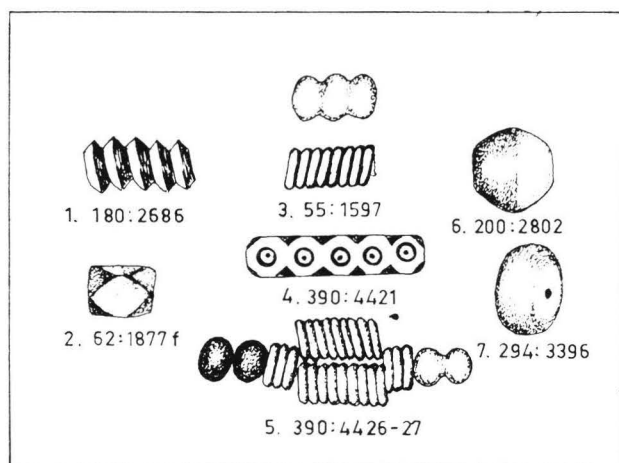


Fig. 37. Bronze beads and spirals in neck-bands. No. 5 represents some beads and spirals as they were found in grave 390 according to a drawing made during the excavations. 1/1.

grave 62 (6.5.7.3.). The rounded multi-part beads clearly resemble the segmented glass beads which will be dealt with below. The angular multi-part beads of bronze do not have prototypes among the glass beads and apparently reflect independent designs.

One-part bronze beads have been found in Finland from as early as the Roman Iron Age. They have also been used in Scandinavia and in the East-Baltic region (Kivikoski 1973 pp. 34, 74, figs. 279, 280, 499; Salmo 1952 pp. 333–334, fig. 266). According to Cleve (1978 p. 126) the bi-conical beads were common in the Ladoga area and places east of it. Multi-part bronze beads are known only from Finland, and Kivikoski (1939 pp. 172–173) regards them as domestic. According to her they belong to the Merovingian and Viking periods. These have not however been found in Merovingian period inhumation burials, and at Luistari they also seem to belong clearly to the Viking period. These were found in graves in zones III and IV, but so far not one bronze bead has been found in zone I. The beads from cemetery C at Köyliö (Cleve 1978 pp. 125–126) can be regarded as representative of their latest variant.

6.5.3. Bronze rings and spirals in the neck-bands

Bronze rings and spirals used as ornaments in the bead bands were found in nine graves:

55:1596–97, 1600–01	180:2683?, 2686
64:1898	291:3334
118:2284	319:3606
139:2429	390:4427–28
160:2588	

The spirals from grave 180 are large and made of rods of triangular section, and the bronze rings from grave 160 are of flat midribbed rod, but

otherwise the spirals and rings are made of round bronze wire and do not differ from the ones used in clothing. Only in the finds from graves 55 and 180 were the spirals prominent in the neck-band, but no doubt the other spirals and rings found along with beads belong to neck-bands. The neck-band from grave 390 was of special interest, as it had both beads and spirals preserved in one part. There were two spirals next to each other, and at both ends there was a smaller spiral continued by beads (fig. 37:5). The neckband had contained at least two parts with an arrangement like this.

All of the Luistari graves with bronze rings or spirals as parts of the neck-band were in zones III and IV, and the fashion seems to have been limited to the earlier phase of the Viking period. Spirals appear however to have been used in neck-bands at different stages throughout the Iron Age (Cleve 1943 pp. 89–90; Salo 1968 p. 100; Kivikoski 1963 pp. 100–101, 1973 figs. 36, 132, 283, 498). A grave from Tuukkala in Mikkeli (Savo) from as late as the Crusade period seems to have spirals in the neck-band (grave 3, the published catalogue, Heikel 1889 p. 23, does not mention the beads and spirals which were entwined under the chin of the corpse; cf. Lehtosalo-Hilander 1980 fig. 2 and p. 246).

6.5.4. Clay beads

Clay beads of simple form were found in six graves:

180:2685	309:3530–32, 3534–35
285:3260	316:3574–75
294:3396d	356:4070

The beads from graves 285, 309 and 316 are all similar, greyish, flat and discoid or cylindrical in form and only 4–6 mm in diameter. The beads from grave 180, which were badly damaged, belong to the same group. The beads from graves 294 and 356 are flat and round and larger in size. At least the last-mentioned ones do not seem to have endured humidity (unbaked or poorly fired?) and there may originally have been more of them than were found. In publications, clay beads have usually been mentioned in passing (cf. Kivikoski 1939 p. 175; Cleve 1978 p. 138), and no attention has been paid to their connections or datings. In the Luistari material it seems however that the small discoid beads are from the earlier phase of the Viking period. The graves with these were in zones III and IV, and grave 180 contained a type B convex round brooch.

These beads could be imitations of cylindrical and discoid glass beads, referred to below, but on the other hand they are surprisingly similar to Egyptian mud beads from the Coptic period, e.g.

there is in the British Museum exhibition of Coptic art a bone figurine (Coptic 65665) with a peruke of mud beads quite similar to the ones in the Luistari grave 309, and therefore the possibility that these very simple beads were also imported must be considered.

Rounded clay beads seem to have been in use rather early too, but evidently these were also made later, as grave 356 is from as late as the end of the 11th century; it was on top of grave 359, coin-dated to the period after 1056 A.D. (coin-list Nos. 79–86).

6.5.5. Faience beads

Faience beads were poorly preserved too, and they were found only in three graves:

344:3822

359:4104, 4128 (Total 7)

413:4318, 4324

The green beads from the filling of grave 381 (originally from grave 413?) disintegrated almost immediately on contact with the open air. Before this happened it could however be seen that they were of similar form, with lengthwise grooves, to the ones from grave 359, which are greenish and grey – the latter perhaps originally blue (cf. Arbman 1940 Pl. 122:16g, 1943 p. 263), and were retrieved in a more complete state of preservation. The bead from grave 344 with almost cross-like section is turquoise in colour (cf. Arbman 1940 Pl. 122:10g, 12k).

According to Johan Callmer (1977 pp. 90, 99), faience beads have a long Egyptian tradition behind them, and the ones found in the Nordic countries are with certainty imports. Their use seems to have increased by the 11th century. Of the Luistari beads the ones from grave 359 are from later than the middle of the 11th century, the disintegrated green beads may be slightly older. Both of the graves in which they were found were located in zone I. Grave 344 is from zone IV and it is coin-dated to the first half of the 10th century (coin-list Nos. 64–67).

6.5.6. Cornelian and amber beads

Only a few cornelian and amber beads were found:

23:1072

58:1851 (From the filling of grave 59)

377:4266c

There was a flat and round amber bead in grave 23; graves 58 and 377 both revealed a faceted cornelian bead. Amber beads are generally rare in Finland, but in Eura these have been found in both Merovingian and Viking period connections (Kivikoski 1951a fig. 760, p. 13), and there is also one from the Köyliö C-cemetery (Cleve 1978 p. 126). With the exception of grave 11/1894 at Käräjämäki these have been found in graves of the later Viking period (Osmanmäki grave 4/1890 has been coin-dated 950–967 A.D., Sarvas 1972 p. 57; Köyliö grave CE has a coin-date 999–1044, Cleve 1978 p. 126), and Luistari grave 23 is probably also of this date. The beads or their raw material were usually imported from the southern coast of the Baltic (Salmo 1952 p. 240), and possibly the pieces of amber found in a pouch in grave XII at Aniveh-maanmäki in Yläne (Sarvas 1972 p. 127) are evidence of this trade.

Cornelian beads are not common in the finds from the Finnish mainland. The total found in the province of Satakunta is less than 30 (Salmo 1952 p. 333). In Eura these have been previously found in the cemeteries of Osmanmäki (grave 18/1905) and Pappilanmäki (grave V), and there are also a few from graves 28 and 39 in cemetery C at Köyliö (Cleve 1978 pp. 126–127). All of these are from graves from c. 1000 A.D. or later, except for the neck-band from the Osmanmäki grave 18/1905 which is probably from the 10th century (cf. 6.1.6.).

According to Calmer (1977 p. 99), cornelian beads were imported from Persia and India, Danielsson (1973 p. 70) and Heyerdahl-Larsen (1979 p. 155) consider Caucasia as the place of origin of the Nordic material; also Cleve (1978 p. 127) has pointed to the fact that cornelian beads have been found along the eastern trade routes. Callmer (1977 p. 91) claims that they are rare in Central Europe before the 11th century, but that in Scandinavia they seem to have been common especially in the 10th century (cf. also Danielsson 1973 pp. 69–71, 80, 82 and Ambrosiani 1973 p. 240). Cornelian beads are more common in Åland than on the Finnish mainland; 115 beads have been found in the Kvarnbacken cemetery alone and about 170 at Långängsbacken in Sund (Kivikoski 1963 p. 98, 1980 pp. 29–30).

According to Calmer (1977 p. 99), cornelian beads were imported from Persia and India, Danielsson (1973 p. 70) and Heyerdahl-Larsen (1979 p. 155) consider Caucasia as the place of origin of the Nordic material; also Cleve (1978 p. 127) has pointed to the fact that cornelian beads have been found along the eastern trade routes. Callmer (1977 p. 91) claims that they are rare in Central Europe before the 11th century, but that in Scandinavia they seem to have been common especially in the 10th century (cf. also Danielsson 1973 pp. 69–71, 80, 82 and Ambrosiani 1973 p. 240). Cornelian beads are more common in Åland than on the Finnish mainland; 115 beads have been found in the Kvarnbacken cemetery alone and about 170 at Långängsbacken in Sund (Kivikoski 1963 p. 98, 1980 pp. 29–30).

6.5.7. One-coloured glass beads

Johan Callmer (1977 pp. 33, 42–45, 52–53, Pls. 2–4, 15–16, Colour Pls. I & III) has classified the one-coloured glass beads on the basis of the manufacturing technique, and in the following his classification will be used. Callmer's group A consists of beads that have been made singly, twisted and heated. The beads of group E are segmented, often multi-part, blown and drawn beads, and those of group F are of blown and drawn glass rod cut into pieces. Callmer also mentions a couple of other groups of one-coloured beads (D, Q), but these are not to be found in the Luistari material.

6.5.7.1. *Cylindrical beads*

Most numerous among the Luistari finds are the beads of Callmer's group F, which are also called cylindrical beads. These have so far been found in 24 graves, of which 17 were in zone III and seven in zone IV:

33:1400 (From the filling)
62:1868, 1870, 1877 (Total 67)
64:1898 (30)
73:1938, 1940, 1943, 1965, 1967–68, 1973, 1975–77
(Total 11, 7 from the filling of grave 76)
95:2088 (40)
118:2284 (10)
130:2340–41, 2343 (Total 127)
135:2396
141:2671–72 (From the filling of grave 177)
150:2520 (8, probably originally from grave 183)
155:2551–53 (Total 57)
160:2588a–c (Total 84)
172:2636, 2706 (Total 13, two from the filling of
grave 185)
175:2650–51, 2498 (Total 7, 4 from the filling of
grave 149)
180:2685 (11)
190:2725–26, 2728, 2415 (Total 20, 4 from the fill-
ing of grave 138)
191:2738 (10)
200:2798 (31)
285:3261
291:3334 (2)
294:3396a
297:3453–54 (Total 6)
319:3606d
377:4266b
390:4424, 4432
18000:38, 390, 734

The size of the beads varies considerably, the smallest (in grave 64) are only 2,5 mm in diameter, the largest (grave 180) measure 10 × 8 mm. The majority of these (77 %) are dark blue in colour; there are also some yellow and green (9 % of both) as well as light blue specimens (3 %). Only seven white beads, two black and two violet beads of this group were found.

According to Callmer (1977 p. 98) the beads of group F are from the eastern Mediterranean region, where they have a long tradition since the Roman period. In the Scandinavian finds the white and blue beads of group F occur sporadically from the end of the 8th century, but the blue, white, yellow and green beads are especially common in the middle of the 9th century. Another main period of occurrence of beads of this type is, according to Callmer (1977 p. 89), immediately after the middle of the 10th century; it is only at this stage that the very small as well as the colourless and violet

beads begin to occur in Scandinavia. Callmer maintains that small green beads are however to be found sporadically also in earlier finds. The F beads are somewhat rare between these main periods; their number decreases by the end of the 10th century, and they are very rare in the 11th century. In the investigations of the Birka harbour area, beads of this type have been connected to the late 9th century (Danielsson 1973 p. 80; Ambrosiani 1973 pp. 239, 243), which in a sense is in contradiction with Callmer's results. It can be asked whether the main period of use of a certain bead type can be fixed within 15 years.

At Luistari the cylindrical beads occur mainly in zone III, where 83 % of the beads are of this type; in zone IV they are 32 %, and only one has so far been found in zone I. It seems evident that they belong to the earlier phase of the Viking period. On the other hand it also seems evident that they are not concentrated in graves laid during a short period, as they were found in 22 of the 40 women's or girls' graves in zones III and IV.

One-fifth of the cylindrical beads are specimens less than 5 mm in diameter, but those described as small microbeads by Callmer have been found only in grave 64. The same grave also contained violet beads. If the Finnish bead material corresponded to Callmer's rules for the Scandinavian material, this grave should be from a period later than 950 A.D. (cf. Callmer 1977 pp. 77, 89). This is however an impossible suggestion, because grave 64 was damaged when grave 62 was laid, and this contained a Lion brooch and a pair of convex round brooches of type C which are of such an early stage of development that a dating to the end of the 10th century is not possible. Neither does the bead material found in grave 62 give support to such a late date.

6.5.7.2. *Segmented beads*

Segmented beads, called E beads by Callmer (1977 p. 52, Pl. 15, Colour Pl. III), have been found in 18 Luistari graves, and three are stray finds:

62:1870, 1877 (Total 6)
64:1898 (23)
115:2247, 2265 (Total 6)
118:2282–84 (Total 50)
139:2429a, c–f (Total 6)
160:2588
184:2701, 2704, 2616–17 (Total 4, 2 from the filling
of grave 168)
200:2798 (4)
227:2987 (Originally grave 226?)
285:3262
291:3334 (4)
318:3592 (6)
319:3605–06 (Total 9)

344:3816 (2)
 345:3834, 3836
 359:4089
 377:4255, 4266a (Total 3)
 390:4399, 4405–06, 4408, 4410, 4414, 4417, 4419, 4424
 –26, 4428, 4432–33 (Total 59)
 18000:7, 716, 4691

They total 195 and 87% are from zone IV. Blue is the most common colour of these (more than 70%), 10% are yellow, 7% are silver folium beads, 5% gold folium, but there are only a few green, violet, light blue or turquoise beads. There are two variants of the blue beads, on the one hand clearly translucent specimens, and on the other, beads which are of material similar to the cylindrical ones. The beads found in zone I are of the latter type, except for the two beads from grave 345 which may be from an earlier connection. Beads of the opaque variant were found only in graves 285 and 291 in zone IV. Grave 62 revealed a fairly large turquoise blue bead, and the ones from grave 184 are considerably larger than the others, although they are clearly of the same type.

According to Callmer (1977 pp. 77, 88–89, 98), also the E beads are from the east Mediterranean region or possibly from Byzantium or the previously Byzantine provinces of the Caliphate. They are numerous in the period 820–845, and on the other hand after the year 950, when they are especially common in 960–980 A.D. After this stage they gradually drop out of use. The yellow, violet and green beads should belong to this later stage, while the blue beads are also to be found during the previous main period. If the same rules as for the Scandinavian beads could be applied to the Finnish material, graves 64, 118, 139, 318, 319 and 390 should be from the latter half of the 10th century at the earliest. It was pointed out above that grave 64 cannot be from such a late date, grave 139 has a coin-date to the first quarter of the 10th century (coin-list Nos. 35, 36) and grave 318 contained a type E spearhead which is hardly later than the middle of the 10th century (cf. 1.3.9.3.). As with the previous group it is to be noted that the Luistari beads do not seem to fit into the scheme obtained for the Scandinavian material.

6.5.7.3. *Singly made twisted beads*

There are relatively few beads of Callmer's group A in the Luistari finds, and most of them are of a later date than the material studied by Callmer. Dark blue beads are the majority also among these, and they display various forms. Altogether six beads of discoid, flat bi-conical form were found in four graves:

64:1898d
 95:2088b (2)

200:2798 (2)
 409:4636

Five of these beads are somewhat identical and measure $7-8 \times 4-5$ mm. According to Callmer (1977 pp. 80, 95, Colour Pl. I A176T), beads of this type, though slightly larger, derive from the Mediterranean area but hardly from its eastern parts. They belong to the earlier phase of the Viking period, and occur only sporadically after 860 A.D. Graves 95 and 200 are in zone III, which fits the date well. The bead found in grave 409 is considerably larger than the above, 13×5 mm, and is probably also of later date as it was found in zone I.

Bi-conical blue beads were found in two graves:
 383:4351
 404:4540

They are opaque and of medium size, of turquoise hue. They are apparently a colour variant of the turquoise beads, which will be dealt later. The graves in which these have been found have coin-dates to the end of the 11th century and to the 12th century (coin-list Nos. 102–105, 107).

Angular blue beads were found in only two graves:
 56:1638c
 95:2088c

The two beads from grave 95 are of simple form, quadrangular in section. The one from grave 56 has sloping angles which form 14 facets. Callmer has beads of this type in his material (1977 p. 80, Pl. 3 A181–183), and according to him, they are common at the beginning of the Viking period although they are to be found throughout the whole period. For the 14-faceted beads (Callmer 1977 Pl. 3 A183T) he assumes a place of manufacture to the west of the eastern Mediterranean; however the origin of this bead type is unclear. Callmer maintains (1977 pp. 95–96) that the simple angular beads may be Scandinavian.

Round, roundish or flat and round blue beads have been found in 12 graves and there is a stray find:

23:1078b, 1278
 35:1022
 56:1638d (3)
 58:1823, 1827, 1849 (Total 4)
 62:1877i
 141:2672
 285:3257–58, 3260 (3)
 291:3334 (18)
 344:3822 (5)
 377:4234, 4260, 4266a (Total 9)
 383:4341a
 413:4312
 18000:290

Colour plate I



Colour plate II



Colour plate III



Grave 318



Grave 409

Grave 231

Grave 316



Grave 285



07 224 4670 1215

6



7

Grave 356



8

Grave 404



9

Grave 56

Grave 383



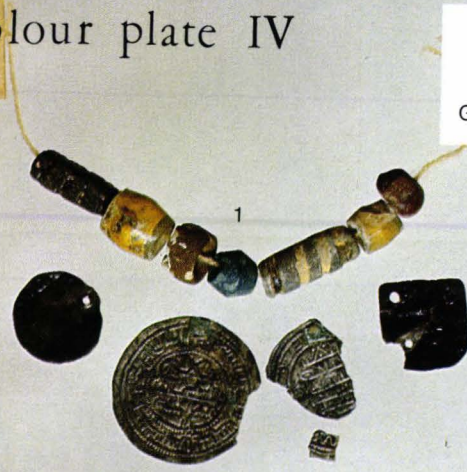
10

Grave 377



11

Colour plate IV



Grave 25



Grave 390



Grave 23



Grave 344

Grave 359



Grave 58



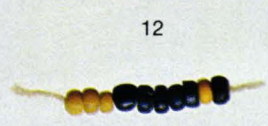
Grave 377



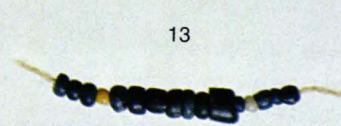
Grave 190



Grave 191



Grave 73



Grave 404 (a part)

They measure $8-12 \times 4-6$ mm and there are several shades of colour from almost forget-me-not blue to black. The different shades occur in the same bands. In graves 291 and 344 these beads form the majority of the material and they resemble each other to a large degree. The beads are nearly opaque but with what appears to be an inner glow. The coin-date of grave 344 (coin-list Nos. 64–67) suggests that this variant is from the first half of the 10th century. Only one bead of this group was found in zone III (grave 141), while in zone I they were found in seven graves. However only in grave 377 are they important in the composition of the neck-band in this zone.

Blue ribbed beads have been found in four graves:

56:1638e (2)
58:1824
377:4250
404:4542a

They measure $9-12 \times 6-10$ mm, and with the exception of one bead from grave 56, are cylindrical. The exception mentioned is bi-conical. In Callmer's material the ribbed beads (1977 Pl. 3 A177T, A178T) are of much rounder form than these, and the Luistari coin-dates suggests a later period than for Callmer's material. Similar ones have been found in cemetery C at Köyliö (Cleve 1978 p. 136) and at Yliskylä in Perniö (Appelgren–Kivalo 1907 Pl. XIV:33), which suggests the end of the Viking period and the Crusade period.

The white and colourless singly made beads are not common in the Luistari material; these were found in only five graves:

25:1333
58:1813
231:3008
294:3396
383:4341d

The beads found in grave 294 are of irregular form, completely transparent and colourless. The bead from grave 231 is also almost colourless, with a slightly greenish hue. It is flat and round in form and quite large, 12×9.5 mm. A similar, but clearly more greenish and smaller bead (18000:4662) was among the stray finds. The one from grave 25 is cylindrical with a large hole, opaque and damaged on the surface, and the ones from graves 58 and 383 were probably of similar form. They were, however, completely fragmentary and it is possible that they were originally foiled. According to Callmer (1977 p. 78) colourless beads are most numerous in 915–950 A.D., but grave 294 is definitely from as early as the beginning of the Viking period (Lehtosalo–Hilander 1976 p. 78), and graves

25, 58 and 383 are from the 11th century (coin-list Nos. 3–6, 24–29, 102–105).

Yellow beads were found in five graves:

23:1092
56:1638g, h
58:1809, 1811
377:4266b
413:4326 (From the filling of grave 381)

One of the beads from grave 56 is large and ribbed, the other slightly smaller, with a smooth surface. The paste of both resembles that of the yellow beads with eyes, which will be dealt with later. One of the beads from grave 58 and similarly one bead from grave 377 are double layered and fairly similar to the beads of Callmer's group E. The others are of a material that has been poorly preserved and weathered on the surface. They are mostly of the same size, $8-9 \times 5-6$ mm. All of these yellow beads are from zone I, and according to the coin finds they are from the end of the 10th century and the beginning of the 11th (coin-list Nos. 12–29, 99–100).

Orange-coloured cylindrical beads were found in only two graves, and there is a stray find:

352:4010 (4)
383:4343
18000:286

The beads from grave 352 are with certainty from as early as the Merovingian period, because the grave contained small equal-armed brooches (see 6.1.1.). However, there is a similar bead from grave 383 which is from as late as the middle of the 11th century (coin-list Nos. 102–105). Cleve (1978 p. 135) has noted the similarity of these orange-yellow and brownish red beads from the Merovingian period with those from the Crusade period; he does not however believe in the possibility of a connection.

Red beads are also rare. These have been found in only two graves, and there are two stray finds:

62:1877m
118:2284p
18000:4663 (2)

The latter are small, brownish red and flat and round, but the one from grave 62 is bi-conical and of a strong red hue, measuring 10.5×7 mm. A small bead from grave 118 is of similar colour and shuttle-like form. There do not seem to be similar ones in all of the nearly 15 000 beads in Callmer's material, but in the cemetery of Nevolino in the eastern Russia there are violet beads of the same form (Erdélyi–Ojtozi–Gening 1969 Pl. XIII:44, 45). Callmer (1977 p. 79) maintains that the orange and red beads are rare, although brownish red ones

occur throughout the Viking period. Graves 62 and 118 are in zone IV, which indicates the middle phase of the Viking period.

Light-blue and green-shaded transparent beads were found in one grave:

62:1869, 1877j, k (5)

They measure $8-10 \times 4-6$ mm, and can possibly be compared to the beads of Callmer's group Ap (1977 p. 80), which are common in Scandinavia from the beginning of the Viking period to c. 860 A.D.

Turquoise and violet beads with large holes have been found only in two graves:

23:1078c, 1080
404:4578a (4), i, 4590a

These have the difference that the ones from grave 23 are transparent while those from grave 404 are opaque.

Greenish, light blue, greyish and turquoise bi-conical beads have been found in five graves:

23:1080 383:4342
25:1335 404:4578b (2), k
58:1825

Four of these graves have coin-dates (coin-list Nos. 3-6, 24-29, 102-105, 107), and judging from these, beads of this type were in use in the 11th century as well as at the beginning of the 12th. Apparently for this reason they are not to be found in Callmer's material, which extends to 1000 A.D. There are, however, parallels to these in Maaria-Saramäki grave 6, dated by Kivikoski (1951a fig. 751, p. 13) to about 1000 A.D.

6.5.7.4. Large silver and gold folium beads

Silver and gold folium beads of fairly large size were found in seven graves:

25:1139, 1141, 1317, 1344, 1358
35:1214
36:994
56:1638i, j
290:3323
356:4060, 4062
383:4341b

Most of these are barrel-like, of gold folium, and some of them are quite large (the largest, from grave 25, measures 13×14 mm); only one (4062) is of silver folium. The other gold folium bead from grave 56 is small, with irregularities on the surface, and two beads (1638i, 4060) are exceptionally cylindrical and of dark glass, but the others are similar with variations only in size.

Similar beads, in both silver and gold folium, were found in cemetery C at Köyliö, and Cleve

(1978 pp. 127-128) maintains that they are evidence of eastern import. On the basis of coin-dated Finnish graves, these beads are from the 11th century, and Callmer also seems to have reached the same conclusion regarding the ones found in Scandinavia (cf. 1977 Colour Pl. IV). Except for grave 290 all graves with these were in zone I.

6.5.8. Multi-coloured beads

The multi-coloured beads pose the same problem as the one-coloured specimens; Callmer's groups do not cover all of the Luistari material. I have however attempted to place those Luistari beads for which it is possible in Callmer's groups and to form new groups for the others. In my view this was the most reasonable method and does not lead to the confusion of overlapping groups.

Transverse striped beads of dark-based paste were found in five graves:

25:1318, 1337
35:1414
58:1848
139:2429b
383:4344

Five of these beads are long, brown or almost black, and ornamented with stripes twisted or wound in a spiral-like manner. The stripes are of yellow paste. In only one of the beads in grave 25 was the stripe paste in place, in the others it had mostly fallen off. The beads from graves 58 and 383 as well as one of the beads from grave 25 are almost triangular in section. The others are almost round. Callmer has beads somewhat similar to these in his group Bd (1977 Pl. 5 B058 O), but these do not have yellow designs.

Callmer (1977 p. 96) has classified in the same group striped beads in which the stripes are of the same paste as the actual bead. Accordingly the Luistari bead with red and white stripes found in grave 139 should belong to this group. Grave 139 is coin-dated to later than 920 A.D., but the long beads are from 11th century graves (coin-list Nos. 3-6, 24-29, 35-36, 102-105), and so they are later than Callmer's material.

Small beads of various colours with one-coloured dots were found in eight graves:

23:1075, 1277
35:1537
56:1638k
58:1812, 1835-36, 1843, 1856a, b
356:4054, 4062b
377:4266d
383:4341d
411:4649

They are mainly dark blue and brownish red; there is a green specimen as well (356:4054). They measure 7–11 × 4–9 mm. One red bead has turquoise dots, all of the others have yellow dots. Callmer (1977 p. 86, Colour Pls. II B311 O, III B687 O) lists similar ones in his group Bl, which he claims to be well represented in finds from the very beginning of the Viking period. In Scandinavia these beads hardly occur at all after c. 950 A.D., but at Luistari all of the graves with these were in zone I, and the coin-dates indicate that they were in use in the 11th century. According to Callmer (1977 pp. 97, 101) these beads have parallels in Western Europe, and he suggests that they are of Italian manufacture.

Relatively small beads with multi-coloured flower-like eyes were found in only two graves, and one was retrieved as a stray find:

58:1832a, b
404:4542b, 4578h
18000:4670

The beads found in grave 58 are yellow, and the figures were executed in one of them with two different shades of blue and in the other with two shades of green. The other three beads of this group have a basic hue of blue. The beads from grave 404 have designs in red and white and white and light blue. The stray find bead has yellow, green and light brown designs. Callmer has slightly similar ones in his group Bn (1977 p. 87), which is common on the one hand right at the beginning of the Viking period and on the other hand in the first half of the 10th century. The Luistari beads are from the 11th and 12th centuries (coin-list Nos. 24–29, 107), and they have hardly anything in common with the beads held to be Scandinavian by Callmer. Evidently similar beads occurred in the east, from where they may have come to Finland (cf. Callmer 1977 p. 97 and note 180).

It has also been suggested by Callmer (1977 p. 97) that the large beads with flower-like eyes are of eastern import, and he regards it possible that these were manufactured in Western Turkestan. At Luistari they have been found in seven graves:

9:1007 (Originally grave 36?)
56:1638f (2)
139:2432
184:2619–20, 2700, 2703 (Two of these from the filling of grave 168)
208:2843
377:4266e, f
383:4346, 4354

The beads from grave 184 are black with a white chain pattern, three have radiating white-red-turquoise eye-figures and only one has just round

dots with central black dot surrounded by first a white and then a red ring. The black bead from grave 139 has a turquoise chain-figure and eyes executed in white. A red bead was found in grave 377 with eyes in white and black, while the other beads have a basic hue of yellow and are decorated with 2–4 colours of which one is always white. One of the beads from grave 56 combines shades of brown, white, black and green, the other red, white and green. The one from grave 377 has only green and white, and one of the beads from grave 383, which is the only yellow one without radiating figures, has only white and a brownish shade.

According to Callmer (1977 p. 85) these beads, which can be classified into his group Bh, occur in Scandinavia at the end of the 10th century, and with the exception of the black specimens possibly also in the 11th century. Also in the investigations of the Birka harbout area black beads were linked to the end of the 10th century (Danielsson 1973 pp. 82–83; Ambrosiani 1973 p. 242).

There are black beads from grave H in the C cemetery at Köyliö. Cleve (1978 p. 130) has dated these along with the grave to the middle of the 11th century, but this date is with certainty too late and it is not even certain whether the artefacts in the grave belong together (cf. Cleve 1978 p. 58, and pp. 195–196 where a differing dating has been given for the grave CH). In general black beads of this type are to be found in Finland in cremation burial grounds, which suggests the period earlier than the 11th century, and also at Luistari they are of a completely different milieu from the yellow and red beads. The last-mentioned beads are from graves definitely from the end of the Viking period (coin-list Nos. 12–23, 38–62, 99–100, 102–105), while the black beads have been found in graves which are from the second stage of use of zone III. Some beads like these appear however in quite late connections in Ladoga Karelia (see Schvindt 1893 figs. 199–200, pp. 127–128; a couple were found also in Hollola–Kirkkailanmäki grave V, which must be dated to about 1100 A.D. at the earliest, cf. Lehtosalo-Hilander 1980a p. 68).

Beads in which floral designs cover all of the surface have been found in two graves:

377:4266g
404:4578f

The bead from grave 377 measures 14 × 9 mm and it has yellow, white and brown colours, the one from grave 404, smaller in size, has yellowish and turquoise colours. These are probably related to Callmer's group H beads (1977 pp. 90, 99, Pl. 20 and Colour Pl. IV), although as late descendants. Callmer has suggested that the H beads were manufactured in the central areas of the Caliphate,

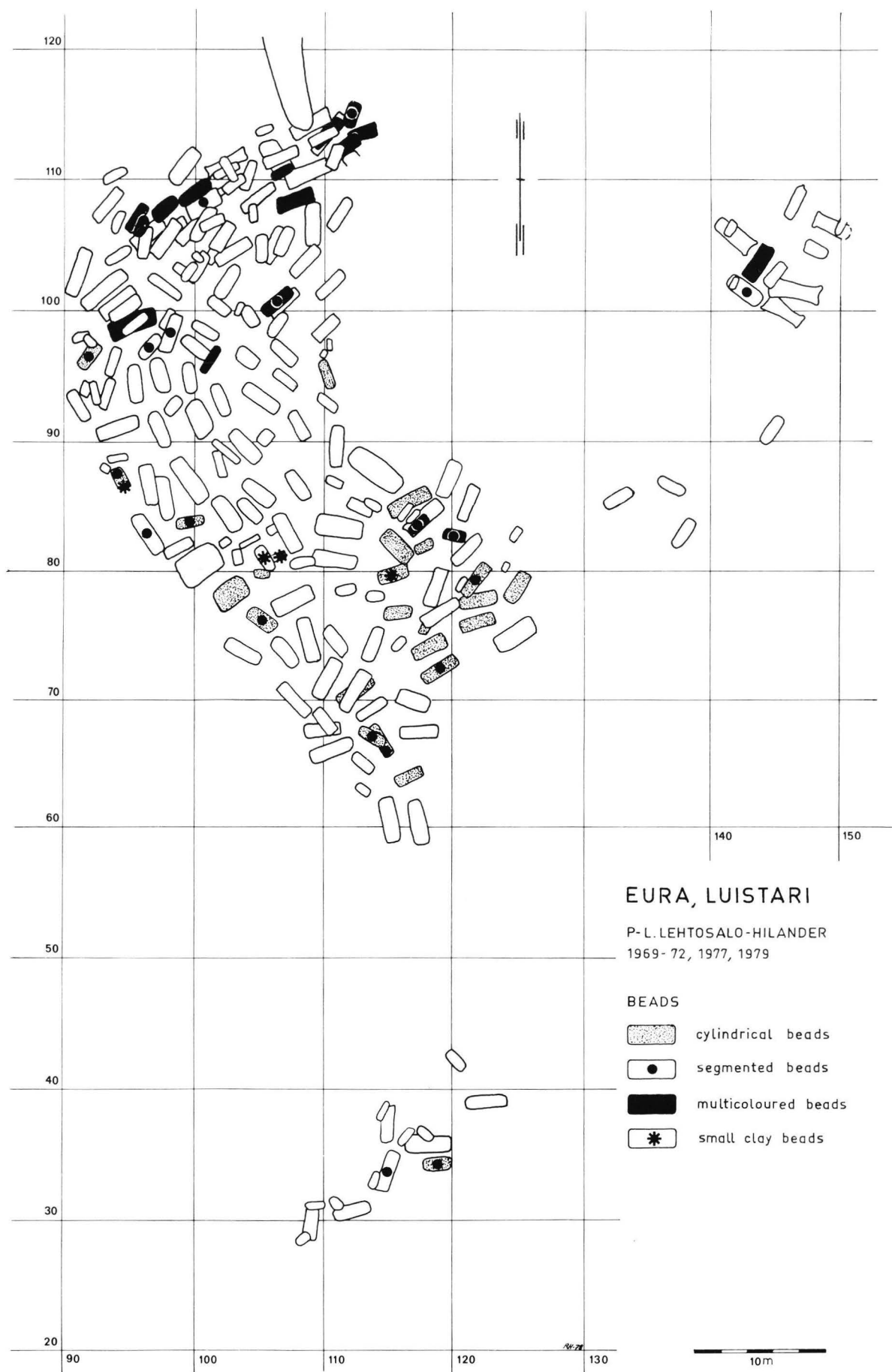


Fig. 38. Distribution of some bead groups at Luistari.

indicating that these beads could also be of eastern import.

Dark blue beads with pale yellow lozenge figures have been found in three graves:

56:1638b (8)
58:1826–27, 1833 (Total 8)
404:4578g

The eight beads from grave 56 are bi-conical in form; grave 58 contains both bi-conical ones (2) as well as long beads of quadrangular section (6). Grave 404 contains one long cylindrical bead of this type. Despite the differences in form, all of these are definitely of the same type. Also Callmer (1977 p. 87, Pl. 10 AD B429T:2) mentions a bead of this type in his material, and he claims that it occurs only around the year 1000 A.D. Those of quadrangular section seem to occur also in Latvia (Latvijas PSRA Pl. 75:19) and in the kurgans at Vladimir. Grave 28 in the C-cemetery at Köyliö contained one quadrangular bead, and this type has also occurred in certain other Finnish finds which are probably all from the 11th century (Cleve 1978 p. 129). Köyliö grave 1 also contained two bi-conical beads with lozenge figures which Cleve does not seem to have noticed (cf. 1978 Pl. 1:1). Luistari graves 56 and 58 are from the end of the Viking period, grave 404 from as late as the beginning of the 12th century (coin-list No. 107), which indicates that beads with these ornamental designs seem to have been in use for at least 100 years and possibly longer. According to Cleve (1978 p. 129 and note 142) they belong to those imported from the east. Callmer (1977 pp. 87, 97–98) maintains that the beads of this group are Scandinavian or West-European.

Red-brown enamel beads with white figures of indefinite shape were found in two graves:

56:1638a (13)
208:2847

Thirteen beads from grave 56 are of long shape, are more or less quadrangular in section, and their surface is covered with bright yellow and white spots of indefinite shape: the bead from grave 208, barrel-like in form, may have had a light-shaded band in the middle. Parallels to these beads are to be found in the Köyliö C-cemetery material, where similar ones belong at least to the neck-bands from graves 19 and 28 (see (Cleve 1978 Pls. 7:105 and 8:139). Cleve (1978 p. 195) dates these graves to the period 975–1025 A.D.; Luistari graves with these beads can be dated to the second quarter of the 11th century at the earliest (coin-list Nos. 12–23, 38–62). Grichkovo mound 7 which contained similar beads was dated by Sedov (1977 pp. 69–

79, fig. 1:1,5) to the end of the 10th or to the 11th century.

Beads of almost white colour with zig-zag designs executed in a darker colour (red or dark brown) have been found in three graves:

334:3767
348:3961 (From the filling)
404:4578m, n, 4590b

These were rather poorly preserved – not one is perfect, but they were all probably of long shape. Three were found in grave 404, which proves that they were used in the 12th century (coin-list No. 107), and also a bead found in the Yliskylä cemetery in Perniö (Appelgren–Kivalo 1907 Pl. XIV:29) suggests the Crusade period. It is possible that the bead found on the site of grave 348 was interred when grave 347 of later date was laid.

Light-shaded beads with transverse stripes were found in only two graves:

23:1090
404:4542e, 4578c–e, j (Total 6)

The yellow-based bead of cubical form from the site of grave 23 has five greenish grey stripes, of which the middle one is the widest. The six beads from grave 404 have transverse stripes on a light green or white base. In the green beads the stripes are yellow, white and brown, and in the white beads green and turquoise. One yellow-green bead has both transverse and lengthwise stripes.

Beads of this type are common in cemeteries of the Crusade period in Finland, but it is possible that they came into use at a considerably earlier date. The similarity of the bead material in grave 404 at Luistari, from the beginning of the 12th century, and in grave 6 at Saramäki in Maaria, dated by Kivikoski to c. 1000 A.D., is striking. The cubical bead from grave 23 differs in form, but in colour it can be linked to these. Similar cubical beads were found in Maaria, Taskula (10842:25) and in the excavations of the Leksand church in Sweden, were counterparts for the beads with zig-zag designs were also discovered (Landström 1977 pp. 25–26, Pl. 7).

Other multi-coloured beads occur only as single finds:

23:1078
:1079
35:1215
130:2343e
291:3334
377:4266a
404:4578 1
18000:224

The blue-white bead from grave 130 and the brown-white bead with length-wise stripes from

grave 291 may be only two-coloured variants of the cylindrical and segmented beads. The dark bead from grave 23 with a white-brown chain design (1079) may be related to the other dark beads with chain designs. Beads with a similar colour composition appear as early as the 7th and 8th centuries (cf. Zachrisson 1976 fig. 14 and pp. 23–24), but there is no exact parallel in Callmer's material. The white-brown-striped bead of barrel-like form from the same grave may be related to those of Callmer's group Bi. Callmer (1977 p. 97, Pl. 5 B063 O:1) claims that beads similar to these occur in large numbers in Eastern Europe in the 11th century. A bead in many respects similar to this was found in the Yliskylä cemetery in Perniö (Appelgren–Kivalo 1907 Pl. XVI:35).

The light green bead with dark green strands in the paste from grave 35 is uncommon, as is also the blue double bead of large size from grave 377 with apparently yellow inlays (mostly disintegrated), on the one hand possibly a chain design or bent lines, on the other hand dots.

The small red bead with a white chain design from grave 404 is similar to a bead of Callmer's group Ba (1977 Pl. 8 B305 O). Grave 404 is from as late as the 12th century, but a bead of quite similar appearance belongs to the neck-band already mentioned from grave 6 at Saramäki in Maaria, and it is thus possible that this bead model was in use for a long period.

The only representative of Callmer's group Bg (1977 Pl. 7 B230 O and B231 O) is a stray find. It is yellow and ornamented with dots formed of white and green rings around a red centre. According to Callmer (1977 pp. 85, 97), beads of this group occur in their largest quantities around the year 900, and they are from Byzantium or the previously Byzantine provinces of the Caliphate.

6.5.9. Pendants in neck-bands

6.5.9.1. Openwork bronze pendants

All in all 20 Luistari graves contained pendants belonging to neckbands. In three these were of cast bronze and with openwork ornaments:

55:1597, 1600

64:1899 (3)

95:2088f (5)

They are about 30 mm in diameter and belong to a type in which there is a knot-cross on the inside of a round or slightly angular groove-ornamented rim and five trefoil figures protruding from the edge (Kivikoski 1973 fig. 777). The rims of the pendants from graves 55 and 64 are almost round, angular in those from grave 95. The suspension links are also different. The pendants

from grave 95 as well as two of the pendants from grave 64 have solid suspension links ornamented with ringed dots. On the other hand the third pendant from grave 64 and the pendants from grave 55 have thin suspension links. The pendants from grave 64 are the most perforated ones, and the clearest knot-cross is in one of the pendants from grave 55; this also has the most accentuated trefoil figures.

About 120 pendants of this type have been found in Finland (Kivikoski 1973 p. 106), and most of them are from the area known as Vakka-Suomi (the northern part of Finland Proper). Pendants found in Laitila and Kalanti have features corresponding to those of the Luistari pendants, and they may be originally from the same workshops. The thick suspension link seems to have generally been linked to the angular form, the thin to the round form, although there are exceptions. On the basis of the Luistari finds the pendants with thick suspension links and the angular multi-part bronze beads seem to belong together; the front part of the suspension link has the same form as a part of a bead. The thin suspension link then again occurs together with spirals and rounded multi-part bronze beads. Beside grave 55 from Luistari there are a couple of similar pendants from Kansakoulumäki in Laitila with fused spirals adhering to them (2496:272).

A couple of pendants of this kind were found at Merola in Lieto along with a convex round brooch of type A (Kivikoski 1939 p. 157), and also at Luistari they seem to occur together with the oldest round shoulder brooches. They belong thus to the beginning phase of the Viking period.

6.5.9.2. Pear-shaped tin pendant

A pear-shaped pendant of tin or alloyed silver was found in one grave:

294:3396

It was badly corroded, but on the basis of the preserved grooves it seems to have been ornamented with two superimposed spiral figures or concentric circles. Judging from the form of the upper edge it could have had another roundel in the lower part giving it a pear-shaped form. As there are no exact parallels, the reconstruction is uncertain, but the pendant brings to mind certain eastern pendants with three roundels, made of bronze wire soldered into spirals (Gening 1962 Pl. V:27, VI:10; Meinander 1973 fig. 3), and it is possibly linked to these. It can be dated to the very beginning of the Viking period on the basis of the other artefacts from grave 294 (see Lehtosalo-Hilander 1976 p. 78).

6.5.9.3. Coins as pendants

Coins used as pendants were found in 12 graves:

	Coin-list. Nos.	Datings
15:1158	2	991-
25:1326, 1332, 1357, possibly 1145	3-6	c. 1000-
36:987, 991, 1451, possibly 1305-06	7-11	1059-?
56:1624-1628, 1631-1636, possibly 1637	12-23	1018-
58:1821, 1827a, b, possibly 1837, 1842, 1853	24-29	1018-
139:2430, 2438	35-36	921-
344:3815, 3819, 3823, 3826	64-67	915-
358:4076, 4081, 4203, 4212	74-76, 78	1056- (1106-?)
359:4128a-c	84-86	1046- (1056-, see Nos. 79-83)
377:4267-68	99-100	985-
383:4340, 4349, 4353, possibly 4337	102-105	1039-
404:4541	107	1106-

Graves 139 and 344 contained solely Arabian coins; these were all from between the years 911 and 921 and can be thought to represent the oldest stage of coin-pendants. Grave 139 was that of a small girl, grave 344 was a woman's grave. An Arabian coin and a copy of a German coin were found in grave 377, German coins and a copy of a Samanid coin were found in grave 383. Along with German and eastern coins and their copies there were Anglo-Saxon and other western coins in four graves (25, 36, 56 and 58). There were in addition four graves (15, 358, 359, 404) with solely western coins. The last-mentioned represent the youngest stage of use of coin-pendants. The coin from grave 15 was possibly in a pouch although it had a suspension link (see 4.5.2.).

6.5.9.4. Silver sheet pendants

Round silver sheet pendants were found in three Luistari graves:

56:1629, 1630
356:4050, 4062, 4065
383:4352

One of the pendants (1629) found in grave 56 is ornamented around the edges with a double row of dotted triangles, and in the middle of the pendant there is a beaten bulge surrounded by an



Fig. 39. Ornaments stamped with impressions in the form of a crossed circle: 1 from Luistari grave 56, 2 from Nousiainen (3132:1), 3 from Ylitornio (11707:2). 1 1/1, 2-3 c. 3/2.

indented list. The closest parallel to it is a silver pendant found in the K yli  C cemetery (8723:7, Cleve 1978 Pl. 3:35), and it belongs to the so-called shield-formed pendants, of which the oldest are from as early as the 10th century (Kivikoski 1946 p. 49), according to Stenberger (1958 p. 206), from about the middle of the second half of the said century.

The other pendant from grave 56 has a central bulge too, but it also has 9 similar bulges near the edge, and there is a ring of small bulges around each of these and the central bulge. In addition the central bulge is surrounded by a row of punch-marks and a larger bulge-circle, from which nine rows of bulges radiate and join the edge figures to the centre. There is also a row of small bulges on the outermost part of the edge. Between the large edge bulges there are stamped impressions in the form of a crossed circle. I have seen similar ones

earlier in only a couple of silver brooches of the 11th century (Lehtosalo 1973 pp. 108–110, fig. 6, cf. however the very small stamp impressions in Hardh 1976 Pl. 2:3, 7) and I regarded those brooches as imported objects especially because of the stamp in question. Certainly also the Luistari silver sheet pendant could be imported, but a certain doubt is cast upon the matter by the find of a third artefact ornamented with the same rare stamp from Finland (fig. 39). There are no close parallels to the Luistari pendant, but the rings formed by the small bulges and the bulges surrounded by beaded lists are known both from other pendants and from wide knife sheaths (e.g. Nordman 1924 fig. 52; Cleve 1978 Pl. 3:35; Kivikoski 1973 fig. 968). If there were not the rare stamp impressions, the Luistari pendant could well be regarded as a domestic artefact. It as well as the other pendant from grave 56 can be dated according to the coins in the same neck-band to the first half of the 11th century (coin-list Nos. 12–23).

The pendants found in graves 356 and 383 are all with ring figures and have solely beaten ornaments. Two badly damaged pendants found in grave 356 may have originally been quite similar. In these the area between two inner circles is filled with six small ring figures and there is in addition a row of bulges on the edge. A fragment of a somewhat similar pendant belongs to a hoard found at Luurila in Hattula deposited c. 1040 A.D. (Bäcksbäck 1975 fig. 32; Salmo 1948 p. 3). The third pendant found in the grave has a similar composition, but in it the rings were beaten in a manner resembling plaiting, and the outer of the large rings is on the very edge of the pendant; there are eight rings in the intervening space. A pendant of very similar form has been found in Täsjö in Ångermanland (Nordman 1924 p. 79, fig. 59), but the latter has an extra ring in the centre, has nine intermediary rings, and was made of two sheets riveted together. In its general appearance this pendant is closest to the richly decorated sheet pendant found in grave 56 at Luistari. Some pendants with a similar composition of ornaments have been found from Gotland and from Gästrikland in Sweden (Stenberger 1947 figs. 51:8 and 253:2). In these there seem to be 12 rings in the intervening space.

The pendant found in grave 383 is also ring-ornamented, but it differs considerably from the above. It is 60 mm in diameter and is thus one of the largest found in Finland. It has a completely smooth outermost edge, and c. 5 mm towards the centre there is a double indented list. Inside this border there are three double rings in a vertical position crossing each other; in these the inner ring is smooth and the outer resembles a cord. On

both sides of these there are two halves of similar double rings. The design is completely unknown in the Finnish material and I have not been able to find parallels elsewhere. Although the rings are common, ones that cross each other do not seem to occur. It may however be a motif borrowed from Romanesque art. In the so-called mandorla compositions there is a border of superimposed rings around the figure of the Virgin or Christ enthroned. In a certain relief of marble which is said to be a copy of goldsmithed Carolingian altars there are double rings in which one is smooth and the other formed of a beaded list. The relief is from the period 1019–1020 A.D. (Hubert 1974 p. 263, fig. 557; cf. also Huyghe 1974 p. 235, figs. 480 and 481).

A total of nine ring-ornamented pendants have been found in Finland, five of these from Eura. In addition to the ones mentioned from Luistari there is a pendant with unusual ornaments from Pappilanmäki in Eura (11063:651). It has two circles within each other in the centre and there are lily-like designs in two rows radiating from the outer one. Also a ring-ornamented pendant from Köyliö cemetery C is very decorative. In addition to five beaten rings it is stamped with dotted triangles, circles and dentated marks (Cleve 1978 Pl. 8:140). The pendants from Pahnainmäki in Kalvola (5960:5, Nordman 1924 fig. 60) and Yliskylä in Perniö (2912:100, Appelgren–Kivalo 1907 Pl. IX:13) are simple. They are ornamented with only one beaten ring and rows of punch-marks, the Perniö pendant has also a row of bulges on the edge and the Kalvola specimen dot stamps. The last-mentioned is the most carelessly executed one of all.

According to Nordman (1924 p. 81) the ring-ornamented sheet pendants from Kalvola and Perniö are from the first half of the 12th century; af Hällström (1948 p. 55) has however dated the Pahnainmäki grave to the 11th century (in the article in question graves 3 and 6 in Perniö have been confused), and on the basis of a coin in the same neck-band as the pendant the grave could be from as early as the first half of the 11th century (Sarvas 1972 p. 26). The Köyliö pendant which Cleve (1978 pp. 114, 195, cf. p. 116) has linked to the shield-shaped pendants is from a grave that can be dated to the beginning of the 11th century, and the Luurila pendant is from a hoard dated to c. 1040 (Salmo 1948 p. 29). Luistari grave 383 is, on the basis of the coins (coin-list Nos. 102–105), probably from the latter half of the 11th century, and evidently grave 356 was more or less contemporary. It is with certainty of later date than 1056 A.D., as grave 359 was damaged when grave 356 was laid, and the former contained coins struck in 1056 at the earliest (cf. coin-list Nos. 79–86). The main period of use of the ring-ornamented pendants thus

occurs in the 11th century, which of course not outlaw the possibility that the Perniö pendant was interred at the beginning of the 12th century. There is a pendant ornamented with one ring from the Pandiküla hoard in Estonia which has been dated by Tonisson (1962 p. 190, Pl. XX:6) to as late as the 13th century. The youngest coins in the find are however from the previous century, and the pendant need not be very much younger than the Finnish ones.

At least 55 round pendants of silver sheet have been found in the present territory of Finland (there are about a dozen from Ladoga Karelia). 26 of these are from hoards and 28 from graves, one was found in a house-foundation in Åland (Kivikoski 1946 p. 49–50, fig. 33). Most of the ones found in graves are from Eura (7 pieces) and Köyliö (13 pieces), while the hoard pendants are mainly from finds at Luurila in Hattula and Voipala in Sysmä. Single finds of these in graves (Perniö–Yliskylä grave 6, Kalvola grave, Kuhmoinen–Rantala, see Appelgran–Kivalo 1907 Pl. IV:9, Teuva–Lautamäki, Paloniemi 1960 fig. 8:3, Mikkeli–Tuukkala grave 3, Lehtosalo–Hilander 1980 fig. 2) indicate however that the habit of bearing round silver pendants in neck-bands was widespread in all of the inhabited areas of Finland.

Nordman (1924 p. 74) and Kivikoski (1946 p. 49) have maintained that the silver pendants are of Scandinavian origin. They already occur in the 10th century in Sweden and Denmark, while the type later spread widely in the Baltic area and in the area of the Soviet Union. The pendants generally represent local variants. Pendants contemporaneous to the Finnish ones have been found at least in the Livonian area. Tonisson (1974 p. 124) suggests that they were joined to breast chains, but they also seem to occur along with bands of beads and neck-rings (see Latvijais PSRA 1974 figs. 118, 123). In Estonia silver pendants occur especially in hoards but also in cemeteries. There they have been dated to a considerably later period than the West Finnish ones (Selirand 1974 pp. 152–153, list pp. 324–327).

6.5.9.5. *Bronze and tin sheet pendants*

Sheet pendants of bronze and tin were apparently the more unassuming substitutes of the silver pendants. The tin pendants are usually completely oxidized; at Luistari grey fragments, probably remains of tin pendants, could be observed in four graves:

35:1426
180:2687
377:4266
404:4578–79

There were probably three tin pendants in grave 404, of which the largest had a diameter of c. 40 mm, the others were roughly a quarter smaller. The only tin pendant in grave 377 corresponded to the latter, as was the case with the one observed in grave 180. Only a bronze suspension link was preserved of the pendant in grave 35, and there were remains of bronze also in grave 180. In the others the suspension links were evidently also of tin, as they have disappeared. All of the pendants were round, judging from the traces.

Pendants of bronze comparable to the above were found in three or four graves:

290:3320
294:3388
367:182
369:4175 (Originally from grave 370?)

One clearly similar to the silver ones was found in grave 290. It is only 22 mm in diameter and ornamented with bulges forming a cross design in the centre and with bulges on the edge also. It seems that the pendant was covered with a white metal which was not silver. A small fragment of the suspension link was preserved. The pendant was found along with a goldfolium bead and was hung from the neck of a child, probably a boy judging from the other artefacts.

This bronze pendant can be linked to the silver pendants with cross designs of bulges. There is a very similar specimen in the find from Lautamäki in Teuva (Paloniemi 1960 fig. 8:3), and the pendants found in grave 4 in the Köyliö C cemetery are not much more complicated either (Cleve 1978 Pl. 3:35). Like the silver pendants, this bronze pendant may belong to the 11th century.

The round piece of bronze sheet found in the filling of grave 369 is only 19 mm in diameter and may have originally belonged to grave 370. The edges are damaged and it may well have originally had a suspension link. The surface is completely oxidized and only some kind of circle can be distinguished. There are three-dot triangles in the fragment of a sheet from grave 294 which may possibly be from a pendant. If the piece of sheet found on the surface of grave 367 is from a pendant, this was considerably larger than the above with a diameter of c. 35 mm. It was apparently suspended from a hole which was preserved in the edge of the fragment. The disc is not ornamented.

Also a small oblong bronze sheet belongs to the pendants of the neckbands:

404:4578o

In it the short sides are curved and it measures only 15 × 7 mm. It was suspended from the neckband in grave 404 with a bronze chain of three links.

Table 10.

[illegible]

[illegible]

Similar simple sheet pendants seem to occur as ornaments in Baltic neck-rings in the 11th and 12th centuries (Selirand 1974 Pl. XXVI:1, 2, pp. 138–139; Latvijas PSRA Pls. 61:4, 65:1, p. 231), and this pendant was probably borrowed for the Luistari neck-band from such a connection.

6.5.9.6. *Necklace spacer (?)*

There is also an artefact from Luistari the like of which have been claimed to be parts of chain arrangements:

319:3610

It is long-shaped and narrow and it has seven parts separated by indentations and decorated with ringed dots. Seen from the front it looks similar to the segmented bronze beads of angular form. It has however a list with holes in the back part and can thus be compared to the artefacts in Kivikoski 1973 figs. 773 and 774. According to Kivikoski (1939 pp. 152–153, 1973 p. 106) these are chain dividers, but there are remains of woollen thread in the Luistari artefact and it probably belonged to a band of beads; it has been a so-called necklace spacer. In Latvia slightly similar parts belong to the Zemgallian head bands made of bronze spiral tubes (Latvijas PSRA 1974 Pl. 59:1–4). There are some very small dividers from Grobin in connection with which Nerman (1958 p. 119, fig. 165 and Pl. 19:105) has presented a couple of Swedish parallels; one of them is completely similar to the Luistari artefact. He dates these to the first half of the 7th century or slightly later. In Finland these are held to be from the Viking period. Grave 319 was in zone IV, which also points to the Viking period.

6.5.10. *Neck-bands: conclusion*

The study of the Luistari bead material has revealed the unexpected result that West European material is poorly represented, and that the beads held by Callmer to be Scandinavian are almost completely lacking. The bead-bands used by the women buried in the Luistari cemetery consisted of either domestic bronze, bone or clay beads or of eastern imported beads. Even the most common Scandinavian beads seldom occur, although they were probably made in several places during the period in question (see Lundström 1976).

Cleve (1978 p. 138) has previously noted the dissimilarity of the beads from the Köyliö C-cemetery and those from Birka, but this could at least partly be explained by the chronological difference. This explanation does not hold true where the Luistari cemetery is concerned, as the bulk of the material is from the same period as Birka. The fact is all the more notable when it is borne in mind that

some other artefact groups found at Luistari show evidence of Scandinavian contacts. A possible explanation is that the beads came to Finland in some other way than via the Scandinavians, which would also explain the contradictions in the datings. Finland had eastern contacts already during the Merovingian period, and their continuation into the Viking period e.g. as bead import would explain the difference between the Finnish and Scandinavian bead material. The entire Finnish material should however be studied before final conclusions can be reached.

As shown in the table given the cylindrical beads and the openwork bronze pendants are phenomena of zone III, and they also occur in zone IV. The Arabian coins and the segmented beads characterize zone IV and the second phase of zone III. The beads with various designs, the western coins and the silver sheet pendants are concentrated in zone I, where the bead material is more varied than in the other zones. The clear difference between the bead materials in zones IV and I support in my opinion the assumption that so far very few graves have been excavated that can be dated to the end of the 10th century. The intermediary material is lacking, as indicated also by the fact that the bead material from zone I at Luistari differs to a great extent from that from the C-cemetery at Köyliö. It is apparent that the older figure-ornamented beads which occur at Köyliö are so far completely lacking in the Luistari finds. For example most of the figured beads in the neck-band from Köyliö grave C39 are without counterparts at Luistari (cf. Kivikoski 1973 Pl. 92).

6.6. *BELTS WITH MOUNTS* (figs. 40–42)

Relatively few metal belt fittings have been found at Luistari, and they are all from the graves of men or boys. Belts with mounts were not part of the women's attire in Finland, and on the basis of the Luistari material they were rarely used even by men. None of the Luistari graves contained belts completely covered with mounts, known however from earlier finds (e.g. 14622:88 from Ylöjärvi, fig. 42, and Kivikoski 1973 fig. 1195, p. 145).

6.6.1. *Belt buckles and strap tags*

A total of 22 belts with metal buckles and/or strap tags were found at Luistari, and ten of these are from Merovingian period connections:

20:1223	Buckle
39:1467, 1469	Buckle & strap tag
53:1587	Strap tag

304:3511	Buckle
315:3567, 3563	Buckle & strap tag
317:3579	Buckle
329:3736, 3735	Buckle & 2 strap tags
378:4286	Buckle
380:4297-98	Buckle
419:20189:215	Buckle

There are nine buckles, and all the buckle-rings except for the one from grave 39 are of iron. The buckle from grave 39 is of bronze, almost oval and decorated with ringed dot figures on both side of the joining mount. This is oblong and joined to the strap by an iron rivet at the far end. There are chased lines on the edges and the central part is decorated with ring and dot ornaments. The bronze strap tag, tapering to one end, is ornamented with two transverse lines and notches on the edges. I have not been able to find exact parallels for either of these, but the belt buckle is evidently a more decorated version of a common iron or bronze buckle-type characterized by a double rectangular joining mount affixed to the oval ring (Kivikoski 1973 fig. 566, p. 81).

The buckle from grave 20 is fairly similar in form. In it the ring and tang are of iron but the joining mount is of bronze, and the rivet in it has a bulging bronze head. The iron buckles from graves 378, 380 and 419 also have oval rings, but they are considerably larger. Their iron joining mounts are angular or rounded at the outer ends, and the mount from grave 380 is over 10 cm long. All these buckles with oval rings except the one from grave 419 are from SW-NE-oriented graves.

The rings of the other Merovingian period belt buckles could be called angular, although the corners are rounded. The buckles from graves 315 and 329, mainly quadrangular or pentagonal, have joining mounts of rectangular form. The joining mount of the buckle from grave 315 has two bronze headed rivets at its opposite end, and a tongue-shaped iron mount with projections to both sides (cf. Nerman 1969 Pl. 22:245) seems to have belonged to the same belt. A similar iron strap end, without projections (cf. Kivikoski 1939 Pl. XX:3), was found in grave 53. The belt from grave 329 must evidently have been double-ended, as two double strap tags of iron tapering to the end were found in it. Perhaps a small iron rivet (3734) found in this grave belongs to the same belt.

Both of the remaining belt buckles are without joining mounts. The buckle from grave 317 has a trapezoid ring the front side of which is bent inwards. A similar artefact has been found at Risti-mäki in Kaarina (Kivikoski 1939 Pl. XX:4), and one that more or less corresponds to it, although with a straight front side, at Grobin in Latvia (Nerman 1958 Pl. 34:192). The buckle from grave 304, on the

other hand, resembles an oval with one end angular and with the long sides pushed inwards. This also has a parallel from Grobin, and Nerman (1958 Pl. 24:134, p. 142 & fig. 213) has combined these two buckle forms and presents parallels for them in the Swedish finds. At Luistari the graves in which these were found belong to the same grave row as grave 315. Grave 329 had also a similar orientation. Thus it seems that despite the scarcity of belt buckles in the Luistari finds, two, perhaps even three, Merovingian period groups can be formed. The first group includes the oval buckles with bronze mounts (graves 20 and 39), the second group the large buckles with iron mounts from the fourth SW-NE-oriented grave row (graves 378 and 380 and grave 419 in a different orientation), and the third finally the angular buckles in the NW-SE-oriented graves (304, 315, 317 and 329).

Only five belt buckles have so far been found in Viking period and later graves; in addition two buckles were found in the surface layers, and there is a stray find from the cemetery area:

9:1005	Fig. 40:18	363:4146	Fig. 40:16
68:1919	Fig. 40:19	18000:176	Fig. 40:12
195:2773		18000:4023	Fig. 40:15
358:4197		20552:239	

The bronze buckles from graves 68 and 195, which contained strap tags too, are of a trapezoid formed type in which the joining axle of the tang connects the ends of the rim (Kivikoski 1973 figs. 884, 885). Both have as extensions rectangular mounts joined to the end of the belt with two rivets. Buckles of this kind were common in the Baltic region and are usually dated to the 9th and 10th centuries (Arbman 1940 Pl. 86:12; Stenberger 1962 figs. 39, 42; Latvijas PSRA 1974 Pl. 60:14).

In the small bronze buckle obtained as a stray find (20552:239) the rim is pentagonal in form and of one piece. The front part consists of a triangular plate ornamented with a dentated list and grooves. As a stray find the buckle is difficult to date, and so far I know no exact parallels.

The other bronze buckles are with double openings and represent different variants of the type. The oval front part of the buckle from grave 9 has a leaflike tip and is joined by an oblong mount with edge-lists (cf. Kivikoski 1973 figs. 888, 891). Cleve (1929 fig. 2, pp. 259-260) uses the term Berezan type in referring to these and dates them to the first half of the 11th century. Nerman (1929 p. 124) gives the same date as Cleve to the buckles and mounts and maintains that the type is originally from Gotland. In the light of the extensive comparative material from Eastern Europe presented by Cleve, this is hardly possible. It can be assumed that the buckle type was brought to Got-

BELT FITTINGS

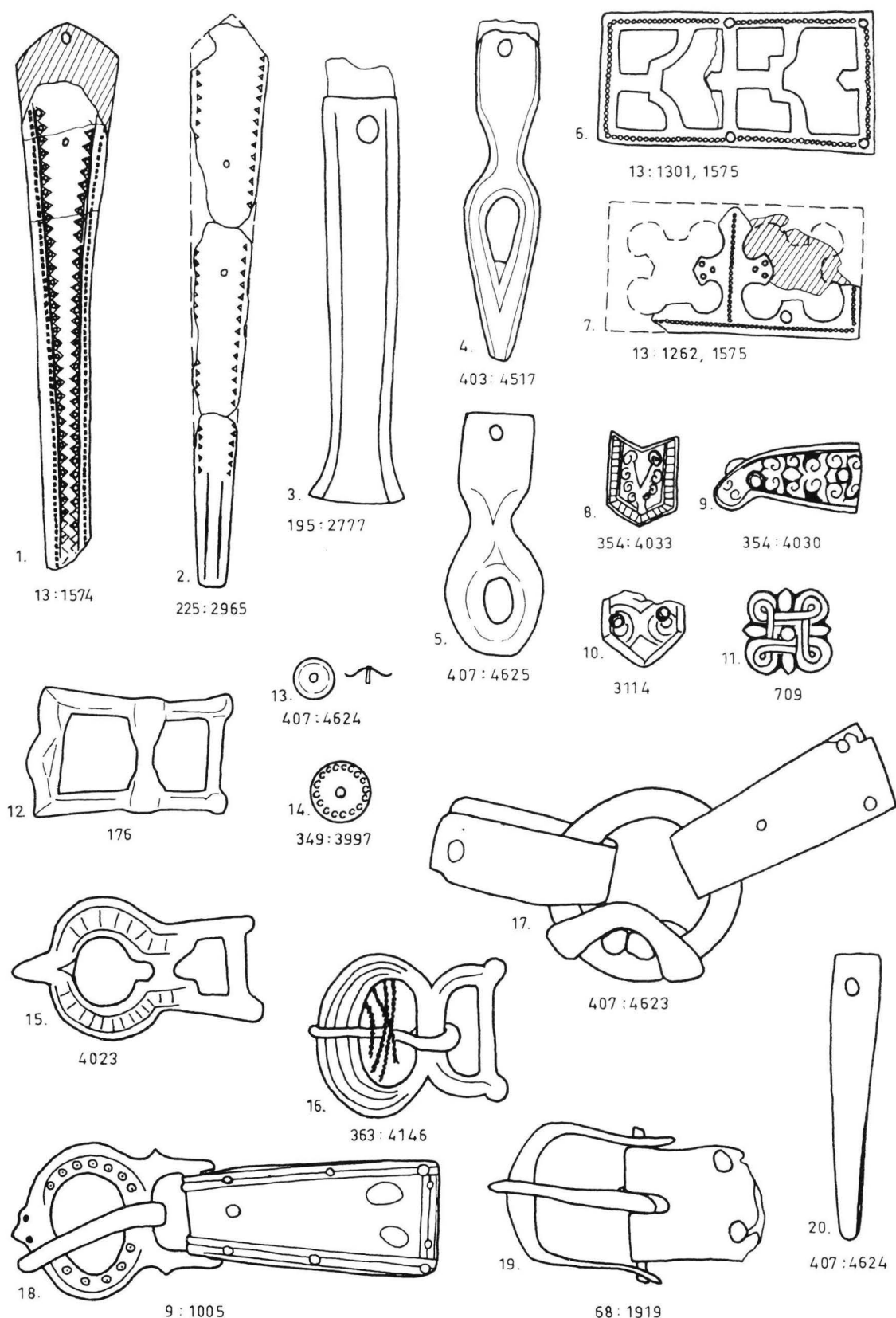


Fig. 40. Belt fittings from Luistari.

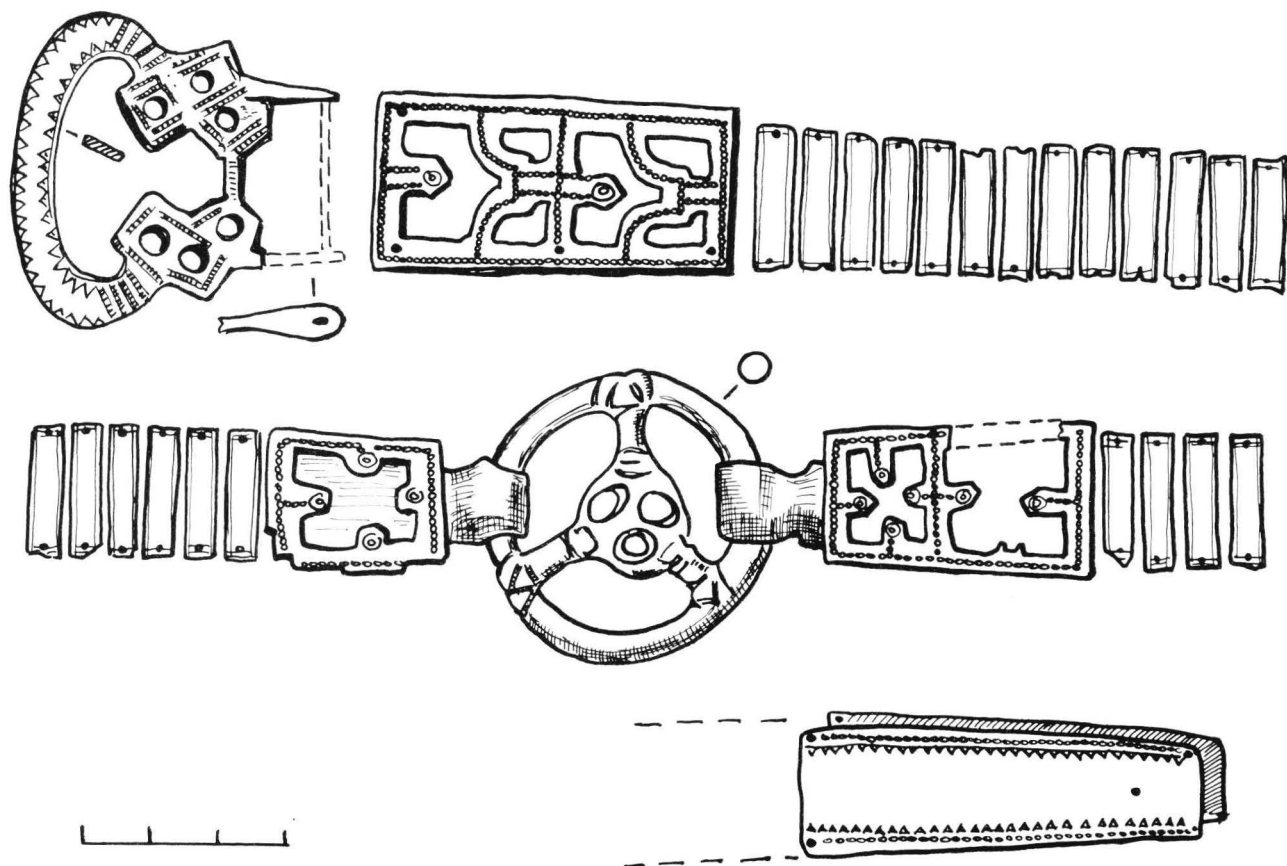


Fig. 41. Belt fittings from Zalachtovie burial mound 124.

land from the East, and after being copied for some time it was developed into a separate type with a longer extension in the front part, sometimes in the form of an animal-head (eg. SHM 25175 from Lärbro in Gotland; cf. Tonnisson 1974 p. 114, fig. 20:3 and Pl. XII:9).

The mounts with edge-lists may be originally from Gotland, although they have often been found in Finland and in the East Baltic region (Kivikoski 1973 fig. 891, p. 119). A two-part belt buckle joined to a mount of this type has already previously been found in Finland in an inhumation burial at Heinikkala in Laitila dating to the 11th century (Itkonen 1964 p. 45, fig. 5). It may be worth noting that in both the Heinikkala and Luistari mounts the edge-lists extend straight and bend onto the other side of the mount, whereas in the specimens from Gotland the edge-lists usually form a U-shaped design on top of the mount (e.g. Nerman 1929 figs. 121 & 135). In some of the mounts found in the East Baltic region the edge-lists are also straight (Selirand 1974 Pls. XIX:7, XX:11; Tonnisson 1974 Pl. XII:3, 9 & fig. 20:1–3).

The belt-buckle found in grave 363 is a variant of the above type, but without a tip on the front part (Cleve 1929 fig. 11). This form is very common in Eastern Europe but is also found in Got-

land; a buckle from Hablingbo in Havor (Nerman 1931 fig. 4) is nearly identical with the Luistari buckle. A very similar one has been found in Finland among the stray finds of the Köyliö C-cemetery (8602A:11).

A belt-buckle found in the surface layer (4023) is also a variant of the same type, and is very close to the so-called East Baltic – Gotland type defined by Cleve (1929 pp. 259–260, figs. 14–15). The tang of the buckle is missing, so this could also be a buckle in which the tang is an extension of a decorative mount (Kivikoski 1973 fig. 1197), but the narrowing of the central bar indicates a tang affixed to this. I have not found any exact parallels, but the general form is matched by buckles found at Pappilanmäki in Eura (Salmo 1952 fig. 316) and in the Latvian area (Mugurēvičs 1965 fig. 44:7; Tōnisson 1974 Pl. XXIII).

The other buckle found in the surface layers (176) is also of two parts, but differs from the others in the respect that it is rectangular and has small extensions in the middle of the front list, at the rear corners and at the ends of the central bar. There is a fairly good parallel to this buckle from the Daugmale hill-fort in Latvia. In this connection Mugurēvičs (1965 p. 88, Pl. XVI:17) has suggested that they are from the region of the Dnieper (cf.

however the buckle, Sedova 1978 Pl. 7:16, from Yaropolč on Klyazma east of Vladimir).

The D-shaped iron buckle from grave 358 may also be from a belt. It is of flat section and is slightly more than 40 mm in diameter. There are only small traces of the tang on the straight side of the rim. A similar iron buckle of simple form was found in grave 4 at Kekomäki in Kaukola (Ladoga Karelia), where it belonged definitely to the belt (Schvindt 1893 fig. 308, p. 40), but buckles as large as these could also have belonged to harness. A similar one has been found at Ylipää in Lieto in a Merovingian period connection, and Kivikoski (1939 p. 110, Pl. XX:5) has defined the type as »timeless». The Luistari buckle is from a grave from the first half of the 12th century at the earliest (coin-list Nos. 74–78).

There are 11 strap tags in the Viking period grave finds:

- 13:1088
- :1574 Fig. 40:1
- 15:1217
- 68:1922
- 75:1946
- 145:2692
- 195:2777 Fig. 40:3
- 225:2965 Fig. 40:2
- 403:4517 Fig. 40:4
- 407:4624 Fig. 40:20
- :4625 Fig. 40:5

Most of these are long mounts of bronze lists bent double and tapered to one end, of a type known in large quantities from previous finds in Finland. According to Kivikoski (1973 fig. 894, p. 119) they are still to be found in 11th century finds. The mount of almost equal width from grave 68 and the small pointed mount (4624) from grave 407 are both unornamented, while in the others there are either grooved lines on the edges (No. 1088 from grave 13, mounts from graves 15, 75 & 195) or lines and dotted triangles (No. 1574 and mounts from graves 145 and 225). The mount from grave 225 is exceptional in having only a front part with two grooves at the lower end. The tag from grave 195 broadens in a tail-like manner at the end.

The strap tags from graves 403 and 407 are cast and with openwork lower parts. The end of the mount from grave 403 is pointed, the end of the other is almost round. There are transverse slits at the upper parts of both; in these a leather strap was placed and fixed with a rivet. I have not found exact parallels for these, but the pointed mount can be compared to mounts from Hulkkunanmäki in Lieto (9695:20) and Mikkola in Ylöjärvi (14622:88). These however do not have a similar interstice. Openwork specimens, though of different form,

occur in previous finds, and to some extent both openwork and solid mounts resembling these have been found in Estonia (cf. Kivikoski 1973 figs. 899, 896–97, 904 p. 120; Nerman 1929 figs. 25–28; Kustin 1962 pp. 80–81).

Only two Viking period graves (68 and 195) contained both a belt-buckle and a strap tag. Both apparently had similar leather belts with simple trapezoid belt-buckles and long end mounts. These are known from Birka and Gotland (Arbman 1940 Pl. 86:3; Stenberger 1962 fig. 29), and at Luistari they seem to belong to the 9th century.

6.6.2. Strap-dividers

There are parts of strap-dividers from only six graves at Luistari:

- 13:1081–82, 1102 Ring & two mounts
- 14:1140 Animal head mount
- 15:1151 Ring
- 302:3489 Ring & three animal head mounts
- 349:3995 Ring & two mounts
- 407:4623 Ring & two mounts

Four of these have a bronze ring as a divider. There is only a ring from grave 15 and only a mount from the filling of grave 14; it is not impossible that they are from the same belt. The ring from grave 13 was decorated with dentated marks, the ring from grave 302 with transverse lines; the others are unornamented. The divider from grave 349 has two oblong mounts, one with edge-lists, the other with chased lines, the rather similar divider mounts from grave 407 are unornamented. The two mounts joined to the ring from grave 13 are longer and more trapezoid and were decorated with round punched marks and holes as well as with grooved lines around the edges. These strap-dividers have parallels at least in the Livonian area (Tonisson 1974 e.g. Pls. IV:8, VI:3, XII:3, XXIII, XXIV, p. 115).

The ring from grave 302 is joined to three animal head mounts, and a similar mount was also found in the filling of grave 14. The animal head mounts are an artefact form of Gotlandish origin, but they are very numerous in finds from Finland and the East Baltic area. The mounts from Finland include many specimens with varied ornamentation, which suggests that they were also manufactured here. The animal head mounts are dated to the 11th and 12th centuries (Kivikoski 1973 fig. 893, p. 119).

6.6.3. Small studs and mounts

There were studs or ornamental mounts in five or six belts and in addition some were found in

the fillings of graves and as stray finds in the cemetery area:

13:1262, 1301, 1575	Fragments of two bronze mounts
274:3114	Pentagonal bronze mount (from the filling)
278:3118–19	2 rosette-formed mounts (from the filling)
290:3321–22	One bronze & 3 iron mounts
349:3985	Small bronze studs
354:4030, 4033	2 different bronze mounts
356:4056	Round bronze mount (from the filling)
358:4086	Round bronze mount
359:146	Round bronze mount (from the surface)
372:4192–93, 4196	Round bronze mounts (from the filling)
373:4198, 4205, 4209–10, 4214	Round bronze mounts (from the filling)
389:4393–94	Round bronze mounts (from a head band?)
407:4623	Round bronze mounts
412:65, 72, 96, 4652	Round bronze mounts
18000:146	Round bronze mount
18000:709	Rosette-formed bronze mount

The two rectangular mounts from grave 13 have an openwork upper plate riveted to a solid lower plate. The former, of which only fragments were found, may have been of the same type as the joining mount of a strap-divider in Kivikoski 1973 fig. 892, the other mount, found in two pieces, is almost complete and is slightly similar to the mount Kivikoski 1973 fig. 885. It is, however, more delicate and ornamented with a beaded line. It has also a straight transverse list which divides the mount into two parts (fig. 40:6, 7).

Some specimens of the former variant have been previously found in the area of inhumation cemeteries, from Pappilanmäki in Eura and in Köyliö C-cemetery (Kivikoski 1951a figs. 828, 830, pp. 18–19, 1973 p. 119). Similar mounts with only round openings have been found both in Latvia and in Gotland (Latvijas PSRA Pl. 59:25; Stenberger 1962 fig. 41), specimens with four-armed openings are known at least from Gotland (Kopparsvik grave 27/1964 and SHM 4093 from Endre). The only belt that I know with almost exact parallels to the mounts from Luistari was found in mound 124 at Zalachtovie East of Lake Peipus (fig. 41). This belt contained also an oblong mount comparable with

the strap tag from this same Luistari grave. The Zalachtovie mound dates from the 11th century (Natalia Hvoshinskaya personally).

In the light of the comparative material discussed above the mounts like these from Luistari were joining mounts of belt-buckles and strap-dividers, and it seems probable that several parts of the belt in grave 13 had disappeared. It is uncertain whether the other relatively simple end mount and the somewhat clumsy strap-divider, also found in and about grave 13, are from the same belt, but it seems possible.

Three rosette-formed mounts with loop-cross ornaments having grooves accentuated with niello inlays (Plate 128:10, 12, 13) are stray finds from the central part of the cemetery. A completely similar mount has previously been found at Osmanmäki in Eura (4633:129, Salmo 1952 fig. 321), and Kivikoski (1973 fig. 920, p. 122) has compared these to the rosette-formed mounts of simpler form from Hukkunanmäki in Lieto.

The small pentagonal mount with a palmette design (Plate 128:11) from the filling of grave 274 resembles in the grouping of the ornamentation certain heart-shaped mounts, perhaps modelled after Persian prototypes (Kivikoski 1973 fig. 910, p. 121; Jansson 1978 fig. 7). The six-sided mount from grave 354 resembles the artefacts presented in Arne 1914 figs. 79 and 245. There was in this same grave an oblong mount ornamented with palmettes and spirals (fig. 40:9). It tapers to one end which ends in a roundel. The ornamentation links this also to the eastern mounts which Kivikoski (1939 p. 194) assumes to have come in large quantities to Northern Europe in the 11th century as a result of Gotlandish trade. In some measure they had been imported earlier too. Ingmar Jansson (1978 pp. 388–389) has recently studied these and has noted that in the original eastern mounts the rivets are fixed, while the mounts from the Baltic region were joined with separate rivets. If this is true, only one of the Luistari mounts (4033) was joined in the original manner and might be from a belt of eastern origin. The others were either manufactured here in the Nordic area (cf. Jansson 1978 pp. 398–399) or reriveted here.

Round mounts with small embossed bulges, which in part were joined to a leather strap, were found in the mixed layer under the soil and may belong to grave 412, which was almost completely destroyed. In grave 358 similar mounts were also removed from their original position and only one was found in the undisturbed part of the grave, the others were in the fillings of graves 372 and 373; one was also found in the filling of grave 356 and one on top of grave 359. Similar mounts, though without bulges and with circular stamp ornaments



Fig. 42. Leather belt with strap-dividers and bronze mounts from Mikkola in Ylöjärvi (14622:88).

were found from grave 389 in a position mainly indicating the headband.

Round convex mounts, both embossed and unembossed, have been previously found in several Finnish cemeteries, in Köyliö and Eura among others, and they were used as ornaments on bridles and belts (Kivikoski 1973, fig. 933, p. 123). They are numerous in the finds from Saarenmaa as well as on the Estonian mainland and in Gotland (Kustin 1962 p. 78, fig. IX:6; Kivikoski 1951a fig. 871, p. 21 note 2). Kivikoski (1939 p. 195) has considered the type as East Baltic; in Estonia it is dated to the 11th–13th centuries (Kustin 1962 p. 78). At Luistari the mounts with bulges seem to appear in the very latest graves with furniture.

The bronze studs on the belt from grave 349 resemble the above but are considerably smaller, 9–10 mm in diameter. They are of thin bronze plate and are of round and convex form with embossed bulges on the edges. Eight of these studs were retrieved, but they were probably much more numerous. The middle part of grave 349 was destroyed by an explosion, and some of the very thin studs may have disintegrated completely. This is probably what happened to the small studs of the belt found in grave 407, since only five of these were found. These are even smaller than the above, measuring 7–8 mm in diameter. They are without bulges, but have an outer edge bent upwards (fig. 40:13). These can be compared to the small studs

presented in Selirand 1974, plate XVIII:2, although they are not completely similar.

Some sheet mount fragments were also found from graves 25, 59 and 295, but they give no sufficient indication of the original shape and position of the mounts.

The mounts from grave 290 which contained the corpse of a small boy may also have been from the belt. The actual function of the three iron mounts is unclear. The largest mount is rectangular, one is oblong and rounded at the ends, and the third is of rhomboid shape with one extended corner. All have holes in the centre and a piece of thick cord was tangled onto the longest one. It is probable that the mounts were freely suspended from the cord. The pointed double bronze mount on the other hand has perhaps joined a strap supporting household objects to the belt. The grave contained both a knife and a fire-steel. A belt from Mikkola in Ylöjärvi (14622:88) also has a strap part with a mount joining the straps, although the metal strap-divider was replaced by a leather ring (cf. fig. 42).

6.6.4. Belts with mounts: conclusion

Several metal fittings together were seldom found in the Luistari graves. Not even the combination of a belt-buckle and a strap tag was usual, and there was only one strap-divider per grave. In addition to

the belt from grave 13 and perhaps the boy's belt in grave 290, only two others had with certainty several different mounts. The strap-divider of simple form as well as the cast openwork strap tag, the small pointed end mount and the small studs from grave 407 are with certainty from the same belt, as are also the strap-divider and the small studs from grave 349. Both graves are from the middle or the latter half of the 11th century (see 6.1.7.), and it seems that all the graves with strap-dividers at Luistari can be dated to the period after the year 1000.

Of the 28 Luistari graves with different metal mounts, only 13 contained belt buckles, and even if it is assumed that the two buckles found in the surface layers are from e.g. graves 349 and 412, and the uncertain cases are disregarded, about ten belts without buckles remain. The textile belts could easily have been tied, but with leather belts some other way of fastening would seem more natural. Some graves (53, 75, 145?, 225) contained only strap tags, suggesting that the end of the belt was perhaps passed twice through a loop or hole at the other end instead of through a buckle to secure the belt. In certain paintings from the 13th century knights are depicted with fairly broad sword belts not fastened with buckles but evidently with leather straps (e.g. Hansen 1957 figs. 168, 175). This method of fastening was quite certainly in use earlier also.

The metal parts in Merovingian period belts were mostly of iron, those in Viking period belts of bronze. The belts were usually of leather, but for example the metal buckle found in grave 363, which contained the corpse of a small boy, was apparently joined to a belt made of a tablet-woven band. These were quite certainly in common use, and in fact the most impressive belts in the Luistari finds are the tablet-woven belts ending in tassels with bronze spirals (see 6.7.7.).

The pouch in grave 90 was joined to the belt with a piece of bronze chain (2034), and possibly the bronze chain pieces in graves 17 (1205), 76 (1986) and 374 (4223) had been used similarly. An iron rod-chain (3892) was apparently used for suspending objects in grave 348. This was found on the right-hand side of the corpse near a fire-steel, whetstone and a small knife. In most cases however the objects hung from the belt were joined to leather straps. Remains of these have been found along with strap-dividers in graves 13, 349 and 407 (fig. 40:17). Of course entwined bands of thread could also have been used.

Among the belts at least two Viking period groups can be established. Simple belts with only trapezoid buckles and long strap tags are clearly of earlier date than belts with mounts and strap-

dividers. It is possible that the belts without buckles and with long ornamented bronze strap-ends are chronologically between these two, and partly from the same period as the tasselled belts which will be discussed later (6.7.7.). Belts without buckles but with long strap-ends have been found however in only two certain connections (graves 75 and 225), so that no final conclusions can be reached regarding their chronological position.

The best parallels for the Luistari belt parts are often to be found in Eura itself or in the surrounding area, and most are of types common in the Baltic region. It seems however that especially during the earlier Viking period belts with metal mounts were not in general use. There are only four graves (68, 75, 145, 195) with belt fittings from about 150 years at Luistari.

6.7. SPIRAL-ORNAMENTED GARMENTS

(figs. 43–49)

Bronze spirals, spiral ornaments and fragments of the same were found from about 70 graves. On the one hand they were parts of necklaces and belts, on the other ornaments of different textiles. Some were found separately and it is not always possible to ascertain their manner of use. However, the ornaments made of several spirals are a characteristic feature of ancient Finnish dress, and these have been studied previously so much that the major part of them can be classified to the ornaments of certain garments (see Appelgren–Kivalo 1907; Vahter 1928, 1952).

6.7.1. Aprons

On the basis of the earlier finds, certain fan-shaped ornaments have been used in apron corners (Vahter 1928 pp. 68–69). In Luistari these were found in great numbers, and most of them in undisturbed graves were in such a position that the explanation that they were corner ornaments seems right. There are many different kinds of them. In the simplest form a long spiral is only bent around a shorter one. An ornament made like that was found in only one grave:

190:2727

This grave was badly disturbed; so it is quite possible that the number of ornaments was originally larger. The ornament recovered was at the foot end of the grave and it is most probably a corner ornament of the apron hem. The grave was in zone III.

Ornaments made of four spirals so that there are three spirals next to each other and the fourth one

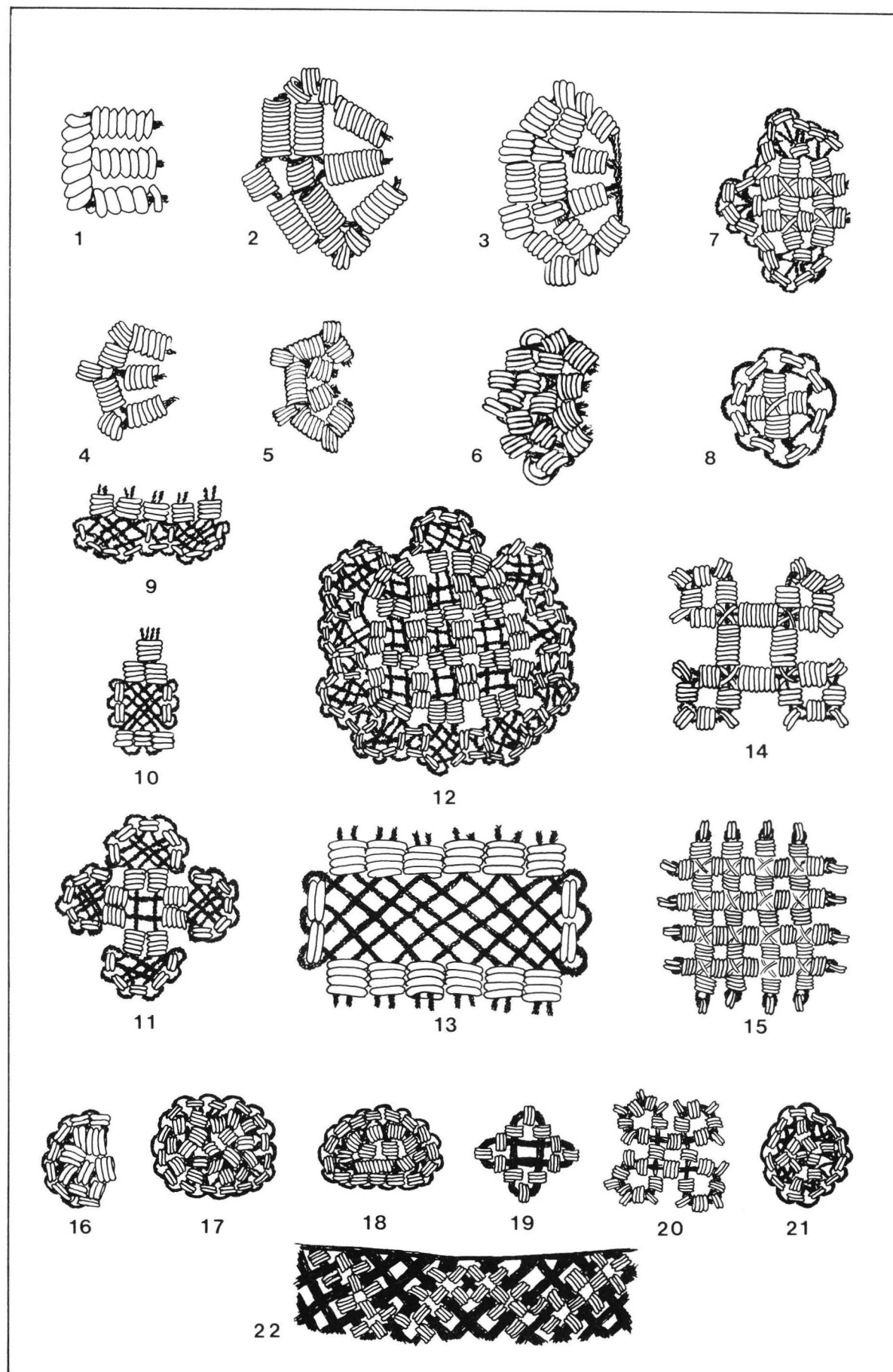


Fig. 43. Spiral ornaments: 1-6 apron corner ornaments, 7 mantle or headdress corner ornament, 8 round applied ornament, 9 double roundel, 10 end roundel, 11 cross with roundel ends, 12 star-like ornament, 13 spiral twisting of a tasselled belt, 14-15 applied ornaments of apron hems, 16-22 mantle ornaments from grave 404 at Luistari. Scale 1/1.

transversally at the other end were found in two graves.

130:2350 (2 pieces)

294:3395, 3397

The spirals in these figures are made of wires varying in section; some spirals were wound from thin wire round in section, the others from much thicker wires of triangular or flat-convex section. In grave 130 these ornaments were found near the shin-bones and they were joined by a spiral row; apparently they belonged to an apron border. On the other hand the ornaments in grave 294 seemed to be near the chest of one of the bodies, but the grave in question contained several burials, so that connecting the ornaments with this corpse with complete certainty is not possible. Perhaps also the face of the dead could have been veiled with the apron or the apron had been used otherwise as a covering.

Corner ornaments made of eight spirals so that three spirals are placed next to each other and there is a transverse part formed by five short spirals were found from 14 graves:

25:1341, 1352
55:1610, 1616
95:2079
141:2670
226:2985
295:3438
330:3746
344:3827 (2 pieces)
359:4117
377:4269, 4270, 4273
386:4369
392:4453, 4456
401:4498(?)
413:4325

From graves 141, 226, 295, 344, 392 and 401 only ornaments of this type were found, but in graves 55, 95, 377 and 413 there were, in addition to these, ornaments made of four parallel spirals and a transverse part of seven short ones. In these cases the larger ornaments seem to have been in the lower corners and the smaller ones in the upper corners of the aprons. However, from grave 377 a total of six corner ornaments were found, so perhaps they were not all from the apron; the very small three-part ornaments belonged possibly to a mantle or a veil. Two of them were found near the head of the dead, one from the foot end of the grave. The hem of the apron, decorated also with a spiral border and applicated ornaments, had in its corners ornaments with four parallel spirals, and it was in its natural place transversally over the ankles. Possibly the third fourpart ornament

belonged to the right upper corner, the one from the left-hand side could have disappeared when an explosion disturbed the grave.

In addition to three-part ornaments, there were in graves 359 and 386 spiral figures with duplicated transverse parts, and in grave 25 the apron hem seems to have been ornamented with border spirals and applicated ornaments besides.

Ornaments rather similar to the above, but four-part ones, in other words figures in which the fan-shape is formed by four spirals, were found in 11 graves:

16:1171 (originally from grave 35?)
35:1413, 1424(?)
55:1598, 1603
56:1740 (3 pieces)
58:1816
95:2076
208:2846
377:4233, 4272 (2 pieces)
390:4415, 4429
404:4556, 4562, 4566, 4571
413:4310, 4319

As mentioned before, they were partly used in the same aprons with the three-part ornaments, and in four graves these apparently belonged to the aprons with applicated ornaments; of these at least the apron from grave 56 had four-part ornaments also in its upper corners. All corners were decorated also in the apron from grave 404, but in grave 390 only the apron hem had been finished with corner ornaments and border spirals connecting them.

Usually the four-part ornaments have been made of rather small spirals, but the figures from grave 390 are large, resembling in this the following group. The ornament from grave 208, a man's burial, is also fairly large; it has apparently come into this grave with the filling.

Both the three- and four-part figures could be supplied with duplicated transverse parts, and so it was possible to get more imposing ornaments. Figures like this have been found from seven graves:

23:1298
115:2261
174:2644 (originally from grave 200?)
291:3333, 3344, 3345, 3349
359:4125
371:4185
386:4375

Only in grave 115 was the ornament of three parts, in the others the duplicated transverse part was joined to a fan of four spirals. These large ornaments decorated all apron corners in grave

Table 11.

APPLICATED APRON ORNAMENTS		squares		crosses on squares			crosses			double crosses		loop-crosses					uniform covering	Brooches	Broad knife sheath	Coin-dating
		##	###	+	+	+	+	+	+	+	+	+	+	+	+	+				
Eura, Luistari	25			1														Db		1000 -
	56		1					1	1					1	1			Db	x	1018 -
	58		2																	1018 -
	371			1																
	377		2		3							1	2						x	985-
Käräjämäki 1912/II		2											3							
Yli-Nuoranne 20541:6,7																1				
Osmanmäki 4386:6																1				
Yläne, Anivehmaanmäki	5	2																		
	26												1							
	41		1			2						1						e		
Köyliö C	B															1		Da	x	913-942 ²⁾
	19			1 ¹⁾															x?	959-961 ²⁾
	29	2	1		4		2					2	1		1			Da	x	971-974 ²⁾
	42															1				979-999 ²⁾
Masku, Humikkala	30			9												1			x	
Kaarina, Ristimäki II	8															1		p		
Maaria, Saramäki	6				2		1			1	1			2		1		Db	x	
Halikko, Rikala	7			6								5				1				

Da = convex round brooch(es) of type D, narrow-brimmed variant
Db = convex round brooch(es) of type D, wide-brimmed variant
e = equal-armed brooch
p = penannular brooch with rolled ends
1) According to Cleve (1978 p. 35) this is a mantle ornament.
2) Sarvas 1972 pp. 76, 89, 133, 134.

291, but in graves 359 and 386 the ornaments of upper corners were smaller. In addition to corner ornaments there were border spirals in graves 115 and 291, but an applied ornament was found only in grave 371 and the find conditions are unclear; both ornaments were at the head end of the grave, and in digging this several older graves had been disturbed.

Very small and technically slightly different corner ornaments were found from two graves:

374:4219, 4221
383:4347

In these the spirals threaded into a yarn seem to form only some kind of a ring in the corner of the cloth. These ornaments have been made of very small spirals, and it is probable that they have not belonged to the aprons, but were the ornaments of veils or hip-cloths called »kaatterit» in Finnish (cf. e.g. 8656:31:1b Masku, 12687:19 Kaarina, 12841:62 and 13298:111f Halikko and 14676:171 Raisio; Vahter 1952 fig. 4).

It does not seem to have been usual to edge the aprons with spiral borders. Only in one grave (56) had the apron been bordered all around, in fourteen others the hems had been finished with spirals:

25:1322, 1324, 1330, 1341, 1343, 1345, 1347
35:1021, 1413
56:1730-34, 1736-38, 1740, 1743-50, 1754, 1757, 1761
58:1816, 1844, 1852
99:2138-39, 2142-45, 2148-49, 2153
115:2261
130:2344, 2346-47, 2350, 2356-58
291:3337
295:3413, 3438
344:3827
366:4159
377:4272
390:4401-03, 4407, 4409, 4418
413:4319

No corner ornaments were found in graves 99 and 366, and at least in grave 366 the apron seems to have been ornamented only with a spiral row edging the hem. In the aprons from graves 115, 291 and 344 the spiral border continued to some extent up the sides, as the number of spirals is larger than needed for the bordering of only the hem. The number of loose spirals is however – at least at Luistari – no certain base for definition, because on the basis of preserved parts the apron from grave 377 has with certainty had a spiral

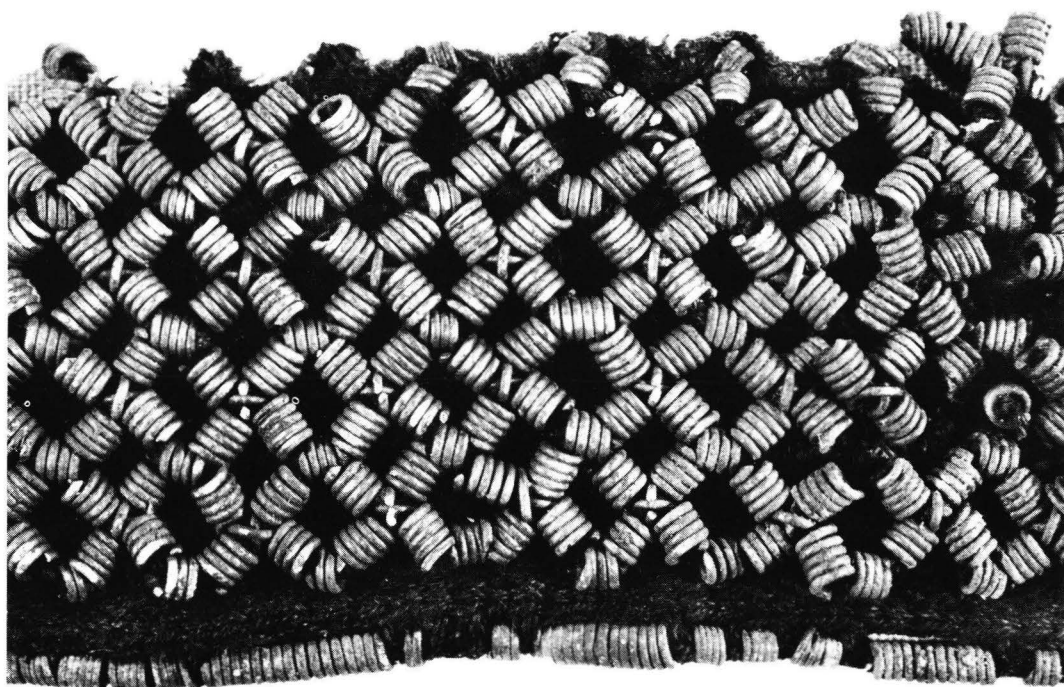


Fig. 44.
Apron hem from
Kaarina, Risti-
mäki (14349:99).
C. 6/5.

bordering, but most of it had disappeared. Apparently the fact that the border was made of spirals with only four twists accounts for this; these short spirals had disintegrated more easily than the longer ones.

In general the number of spirals used for bordering seems to vary considerably. In apron borders from grave 377 the short spirals are followed by gaps as long as the spirals; accordingly the quantity of spiral tube needed has been only about half the length of the border to be decorated. In the apron from grave 56 a long spiral is always followed by three short spirals, and the amount required seems to have been c. $\frac{2}{3}$ of the length of the border, but e.g. for the apron from grave 25 spirals corresponding to $\frac{5}{6}$ of the border length have been needed. In some aprons from the Crusade period the spiral tubes quite adhere to one another (e.g. 8656:15:4, 8656:1:10, 8656:14:11 from Masku, 10146:120 from Nousiainen, 14275:15, 28, 44, 14676:157 from Raisio; see also Appelgren-Kivalo 1907 Pl. X:2a). Although it is impossible to ascertain the quantity of spirals required for one apron, it is however possible to define the minimum quantity of loose spirals corresponding for example to the border of an apron hem: for a 50 cm broad apron this is a 25 cm long tube of spirals. For the apron from grave 56, bordered all around, the amount of spiral tube required has been about ten times larger.

Applied ornaments probably belonging to aprons were found from five graves:

25:1319, 1331
56:1753–54, 1757, 1760
58:1795, 1802, 1814, 1816, 1819
371:4184
377:4272

In graves 56 and 377 they were in a row across the ankles, and judging by this they had decorated apron hems. In other graves these ornaments had been dislocated, and they did not appear in as large numbers as in the graves mentioned. Vahter (1928 pp. 64–65 fig. 6) has classified similar spiral figures from Köyliö grave C29 to the ornaments of the apron waist, but that grave was totally mixed (cf. Cleve 1978 pp. 43–44, 158, Pl. X:172), so that most probably also in this case the spiral figures had originally belonged to the hem.

Also in grave 6 at Maaria–Saramäki similar figures were found near the ankles (Kivikoski 1939 p. 228, Pl. XXIX:8).

There were several different forms of these spiral applications at Luistari, but their common feature is that they are made of spirals with straightened centre parts or with several straightenings (cf. Vahter 1928 p. 62). On the basis of their main features they could be classified in three groups, the first with a loop-cross as a basic element, the second with a cross, and the

third with a square. In these figures long spirals with several straightened parts have been placed crosswise with each other so that the straightenings meet. The different forms of applications have been brought about by varying the length of these spiral tubes and placing short spirals in corners in different ways. In the apron from grave 56 all five preserved figures differ from each other, but the eight figures from grave 377 represent four different variants. There are among them one simple loop-cross, two figures with a cross on top of a loop-cross, two squares and three crosses on squares, in which the cross is formed of a pair of spiral tubes. Similar square-crosses with a single cross have been found from graves 25 and 371, and from the damaged apron from grave 58 there are fragments of square figures. It is probable that also in these graves the apron had been decorated with several applications on the hem, but these had got mixed up and had in part totally disintegrated. On the other hand it must be considered that in those graves there could have been aprons with applications only in the corners, as in grave V at Anivehmaa in Yläne (13839:104).

Spiral ornaments, probably belonging to aprons similar to the ones mentioned above, have been found also from Käräjämäki cemetery in Eura (6127:56), and from Köyliö C-cemetery there are fragments of one or two similar aprons (8723:217, 257, 723, 797, 946, Cleve 1978 Nos. 110, 451, 459, 468, 480, 481) beside the apron from grave 29 already mentioned. Both the short border spirals and the patterns of the applications are similar in aprons from Köyliö grave C29 and Luistari grave 377, so that the maker could have been the same or at least a member of the same family. The number of applicated ornaments is larger though in the Köyliö apron, totalling eleven. On the apron from Saramäki in Maaria (Kivikoski 1939 Pl. XXIX:3, p. 228) there are six different kinds of applications, and the patterns of two of them have counterparts in the Luistari grave 56. Parallels for the others are so far not known from Eura or Köyliö, but one of them corresponds to a figure on the apron from grave 41 at Anivehmaa in Yläne (13962:525).

The pattern of the ornaments from graves 25 and 371 at Luistari is represented also in Köyliö grave C19 (8723:217), and besides as a supplementary detail in aprons from grave 7 at Rikala in Halikko (13298:141) and grave 30 at Humikkala in Masku (8656:30:12). In these aprons there is a broad applicated spiral covering at the hem, and the figures in question extend above it with a very decorative effect (see Kivikoski 1973 fig. 1262). In the Rikala apron among these separate figures there are identical loop-cross ornaments as in Luistari grave 377 and Köyliö grave C29. Apparently

both aprons with a uniform spiral covering at the hem and the aprons with a row of separate spiral figures are expressions of the same trend of fashion dating from the end of the 10th century to the first half of the 11th. The round Finnish brooches of type D (in five graves) and broad bronze covered knife-sheaths (in seven graves) are details appearing repeatedly together with them (see table 11).

6.7.2. Women's cloaks

Spiral ornaments of women's cloaks were not as common at Luistari as the apron ornaments, for remains of the Western Finnish mantle with its spiral ornamented end borders were found from only one grave:

404:4533, 4538–39, 4544–55, 4557–61, 4563–65, 4567–77, 4591

The dead had apparently been covered with the mantle so that the long sides of this cloth had in part been turned down under the corpse. Spiral ornamented and crosswise ordered braids of the mantle ends were found transversely over the neck and the ankles, and probably the warpthreads of the mantle had been interlaced with spirals serially, because only short pieces were preserved; seemingly the parts not ornamented with spirals had disintegrated. On the right-hand side of the corpse there were in both ends remains of small spiral roundels, used generally at the ends of these ornamental zones (cf. Hirviluoto 1973 fig. 5; Appelgren–Kivalo 1907 Pls. V–VI_{1–2}). Nine small applicated ornaments were found from this side; four of them were oval and five round. The largest round ornaments were on the ends and on the middle of the side. From the left hand side only six ornaments were found; one of them was broken and was found a little apart. Possibly one ornament had totally disappeared when grave 411 had been dug, so that the original number of ornaments on this side of the mantle had been seven. There seem to have been loop-cross-shaped ornaments on the corners, and the third similar one found apart had perhaps been in the middle of this side. Among three other preserved ornaments there are one oval and two small round figures. The length of the mantle had been at least 140 cm and probably 150–155 cm, the width at least 80 cm; accordingly it had been fairly equal in size to the mantles known before (Appelgren–Kivalo 1907 pp. 29 & 44; Hirviluoto 1973 p. 63). It could be compared to the mantle from Perniö grave 1, in which the spiral ornamented parts at the ends also are seriated and both ends of this ornamental border are decorated with two spiral braids in the shape

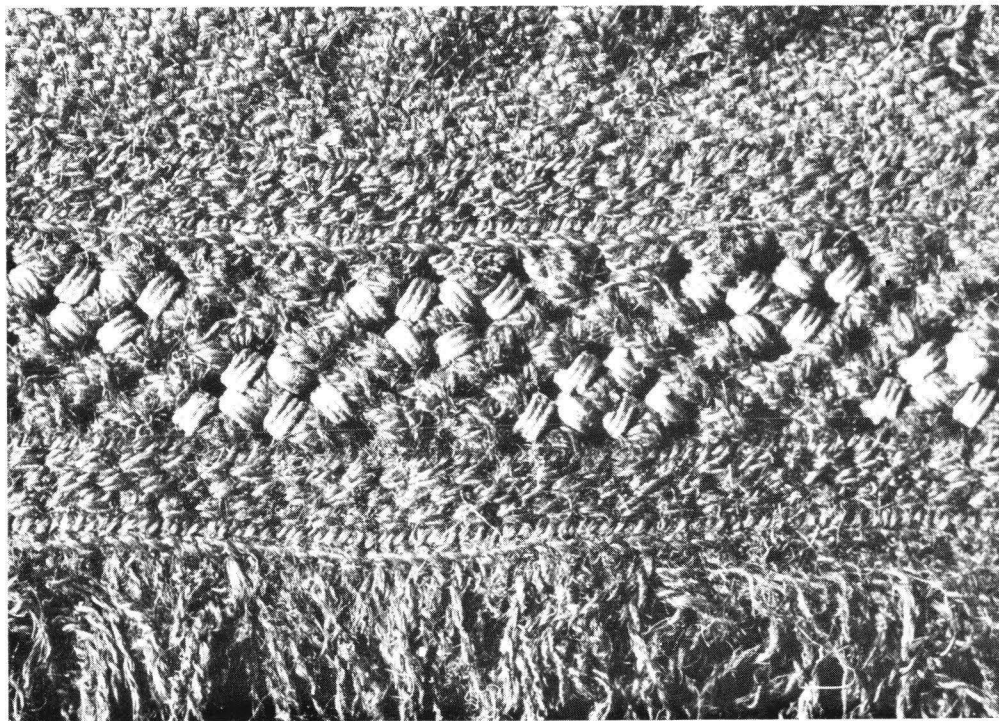


Fig. 45.
Detail of a spiral
ornamented cloak
end from Raisio,
Ihala (14275:273).
C. 2/1.

of a roundel. The applied loop-cross ornaments and round figures on the corners correspond also (cf. Appelgren–Kivalo 1907 Pls. V–VI). There are however more applied ornaments on the Luistari mantle than on the ones from Perniö and Raisio, in which there are five to seven figures per long side (Appelgren–Kivalo 1907 Pls. V & XI).

The mantle from Luistari belongs to Hirviluoto's group II, dated by her to the end of the 11th and to the 12th century (1973 p. 65). Grave 404 has a coin-date to the beginning of the 12th century.

Spiral figures that possibly had also belonged to women's cloaks were further found from five graves:

27:1365	Very small oval
56:1765, 1766, 1789	Round
209:2880	Large oval
356:4053, 4067, 4068	Fragments
359:4091	Fragmentary

One of the three round ornaments from grave 56 was found on the chest of the corpse, the second was near the left shoulder, the third at the foot end of the grave. A cross made of spirals decorates the middle part of two of these, the third has only a spiral in the centre. Possibly the dead person was covered with a cloak decorated with small applied ornaments only on corners. Small remains from grave 356 could also belong to a simple cloak with ornaments on corners, but they could also derive from other connections, and only single ornaments were found in other graves. The oval ornament from grave 27 is made of very

small spirals, and also spirals in the large oval figure from grave 209 are fairly small. The latter ornament resembles certain ornaments connected to the fastening links of the mantles in other finds.

6.7.3. Head-dresses

Borders made of bronze rings or spirals wound round the selvage, usually connected with the so-called south-west Finnish veil with bows (Vahter 1952 fig. 3), were found from ten graves:

10:1041
23:1074
25:1340, 1349
27:1381
35:1415
56:1785
58:1820
334:3766
379:4291
390:4438, 4400, 4411–12

It is quite clear that there had been in grave 25 a head-dress like that discussed in detail by Tyyni Vahter (1952 pp. 151–158), but in other graves only small fragments were found. It is however possible that there had been a similar veil in grave 56, damaged when grave 35 was made. Among fragments found in mixed layers in graves 10, 23, 35 and 58 at least two different kinds of ring-borders could be distinguished, so perhaps they are not all from the same veil. It is difficult to say from what kind of garment the small fragments



Fig. 46. Ornaments from a woman's grave at Ruskeenkärki in Hattula (13640:1–7). No. 1 spiral tubes found round the head of the woman. C. 5/6.

from graves 334 and 379 originate, but the ring-borders from grave 390 hardly belonged to a veil. They were found from the foot end of the grave with corner ornaments and the usual border spirals, and so they could have belonged to an apron in part edged with rings, in part with spirals threaded into a cord as usual.

A total of about 30 cm of ring-border was found in grave 25, so apparently this veil also had been damaged. The characteristic part, in which the bow branches in two, is however preserved, and on the basis of it the veil had only a single row of rings, though larger ones, on the forehead. Accordingly it was a simple variant of the hood

pictured by Vahter (1952 fig. 3). It seems possible that the veil with elaborately braided ornaments on the forehead appeared first in the Crusade period, because these have with certainty been found only at Humikkala in Masku and at Rikala in Halikko (cf. Vahter 1952, list pp. 152–155, fig. 2). It is to be noted that no remains corresponding to those ornaments were found in the Kirkkomäki grave in Kaarina, in Köyliö graves C19 and C28 or in Luistari grave 25, which can be dated to the first half of the 11th century (these graves contain round brooches of Appelgren's type D with broad rims and/or broad knife sheaths, see 6.1.6. and 2.1.5.).

Spiral bands in which there are alternately one and two spirals were found, apart from the border in grave 25, in two graves:

56:1788
359:4114

There are only four spirals in the ornament from grave 56, seven in the other. On the basis of the border from grave 25, ornaments like that come from the junction of the bows and the front part in the south-west Finnish veil; similar parts appear, however, also in spiral ornamented headbands (cf. Appelgren–Kivalo 1907 Pl. X:1a). Without doubt also in these Luistari graves the remains are from some kind of head ornament, because in grave 359 the fragment was found above the head and in grave 56 it was near the temple. In the latter grave there was also a small fragment of ring-border, indicating the possibility that the parts are from a veil with bows completely damaged.

Perhaps some three-branched braids in which the middle part is formed of crosswise placed long spiral tubes and the border is made by joining the cord loops with small spirals are also ornaments of hoods or veils:

10:1031
23:1108, 1291, 1302
56:1769 (2 pieces)

These ornaments have not been applicated, so they may have been corner ornaments or band endings. On the basis of a piece of ring border joined to one of the ornaments from grave 23, the veil seems to be the first possibility. The ornaments from grave 56 are however from the foot end, grave 23 was confused by explosions, and in grave 10 the ornament was found in the filling, so that the origin of none of them is clear; they could also be from cloaks or hip-cloths (cf. Vahter 1932 fig. 3).

Ornaments resembling the ones known from headbands (Kivikoski 1973 fig. 1261) were found from four graves:

10:1025
23:1295–96, 1301 (13 pieces), 1302 (5 pieces), 1303
324:3650, 3655, 3673
377:4249, 4271

There is only one end roundel from grave 10, but from grave 23 a total of 21 ornaments were found. They are of three different variants: 1) seven are almost similar to the small roundel from grave 10; there are first two parallel spirals and then a roundel made of cord and small spirals, 2) possibly two had been larger, fan-like, 3) in 12 ornaments there are first a transverse spiral, then two lengthwise parallel, then a braiding bordered by two

small spirals from each side and then again two parallel spirals (cf. Appelgren–Kivalo Pl. III:18). Appelgren–Kivalo (1907 p. 20) has connected similar ornaments to headbands, but in grave 23 these figures were found near the waist and their number is too large to fit in a band like the ones found in Perniö, Yliskylä. In part these resemble also the ornaments in a band found in Köyliö grave CN (Cleve 1978 Pl. 23:350, p. 158). This band is thought to belong to an apron. There were also in Luistari grave 23 two large ornaments like the ones found in grave 75 as ornaments of a man's cloak (cf. Plate 8:11, 15 and Plate 35:2, 3). So the ornaments from grave 23 could also be from several different garments. Unfortunately this grave was so confused that the original placing of some of ornaments remained obscure.

There are only fragments from grave 324, but the combination of first one and then two spirals points to an end-roundel, so perhaps also the one with two parallel spirals. The ornaments from grave 377 are otherwise similar to the ones of the third group in grave 23, but instead of a transverse spiral there is one in a lengthwise position in them. One of these figures was found near the neck, the other from the left side of the chest, so that connecting them with headbands is not self-evident. As will become evident in the following, similar ornaments were used as band endings in different connexions.

Long spiral tubes made of rod triangular in section were found in two graves:

41:1492, 1496
284:3240, 3242–43

From grave 41 about 10 cm of this tube with a finger-band inside was recovered, from grave 284 a total of 20 cm was found. In the former grave the tube pieces were on the chest, in the latter near the head. Perhaps it had belonged to a band wound round the head. There were in a grave at Ruskeenkärki in Hattula several turns of spiral tube round the head of a woman, and this ornament has been compared to the Latvian head ornaments (Keskitalo 1963 p. 37; cf. Zarina 1970 p. 203, fig. 69); fragments of similar ones have been found earlier also from Eura and Köyliö (Appelgren–Kivalo 1907 Pl. I:16; Kivikoski 1973 fig. 1138, p. 140). The bands from Luistari had however been very simple as compared with these, and the cloth parts, perhaps joined to them, had totally disintegrated.

6.7.4. Spiral ornaments in women's graves: conclusion

All ornaments mentioned above are classifiable to the parts of the female costume, and with regard

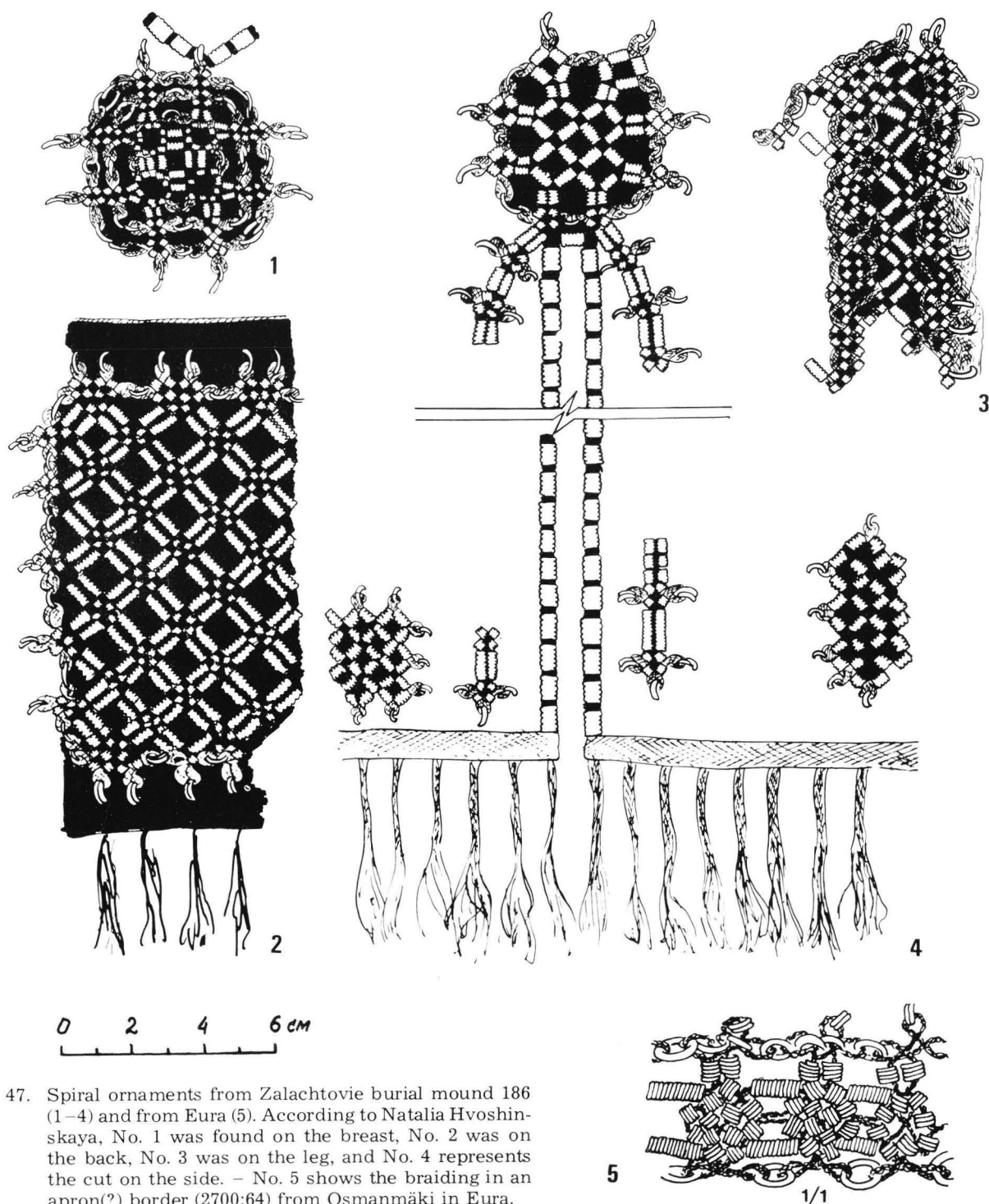


Fig. 47. Spiral ornaments from Zalachtovie burial mound 186 (1-4) and from Eura (5). According to Natalia Hvoshinskaya, No. 1 was found on the breast, No. 2 was on the back, No. 3 was on the leg, and No. 4 represents the cut on the side. - No. 5 shows the braiding in an apron(?) border (2700:64) from Osmanmäki in Eura.

to the distribution of different ornaments in the cemetery area it could be observed that apron ornaments appeared in all Viking period zones, but the ornaments belonging to cloaks and hoods or veils were found only in zone I. Apparently spiral ornamented women's cloaks and ring bordered veils did not come into use earlier than in about 1000 A.D.; a cloak richly decorated with spirals appear at Luistari only in a grave made after the 11th century.

Ornaments of apron corners, at first fairly simple,

seem to have become quite large during the 10th century, when the figures with duplicated transverse parts were in vogue. At the same time the spiral row in the hem seems to have been extended somewhat up the sides, and although there were no aprons at Luistari from the 10th century with border spirals all round the edges, one found in Yli-Nuoranne cemetery with duplicated corner ornaments (16950:191) has a bordering like that. Imposing applied borders appeared in about the year 1000 A.D. or a little earlier, and perhaps

simultaneously corner ornaments decreased in size again. The very small corner ornaments of the Crusade period seem to have been usually of the four-part type. Spirals in them are fairly thin and of round wire; otherwise it seems that only at the beginning of the Viking Age was wire with triangular or flat-convex section used. Accordingly it is a detail of chronological significance.

6.7.5. Men's mantles

The most imposing ornaments in men's graves are fairly large star-like figures with a centre of crossing cords threaded through spirals and with a border of varying number of small roundels. There is in these roundels only interlaced cord in the middle, and they resemble the ones found from grave 23 (group 1). Small spirals joining the loops on the edges form a decorative border for the whole ornaments, found in seven graves:

75:1949
90:2039
100:2188
280:3126
281:3184
318:3587
400:4493

There are ten border roundels and 48 spirals in the middle of the largest ornaments from graves 75 and 90. The one from grave 90 is more than 60 mm in diameter, the one from grave 75 is just under 50 mm. Figures from graves 100 and 281 are almost as large as the last-mentioned one, ornaments from graves 280 and 400 are slightly smaller, but there are in all of these only 24 middle spirals and seven roundels. The fragmentary ornament from grave 318 could have been similar, but also smaller, with only 14 middle spirals and five to six roundels. In graves 75, 90 and 281, possibly also in graves 318 and 400, these ornaments were on the chest, in grave 280 on the stomach and in grave 100 on the thigh.

Especially when digging grave 90 it seemed possible that the ornament belonged to a tunic, but later similar ones were classified as ornaments of men's mantles. However, very interesting new finds from Zalachtovie east of Lake Peipus contained a man's tunic with rich spiral ornaments. Because this find certifies that tunics were decorated with spirals, the Luistari material must be studied anew very carefully in connection with the textile analysis. According to Natalia Hvoskinskaya (personally) the Zalachtovie mound 186 with these tunic remains dates from the 11th century, and is thus later than the Luistari finds.

Similar ornaments were earlier found in the Käräjämäki and Yli-Nuoranne cemeteries in Eura (8811:28, 9854:19) and at Anivehmaanmäki in Yläne (13962:205). The last-mentioned is from a woman's grave (26), but it was found in the filling, so that the connection is not clear.

Figures resembling a half of the ones described above were found in two graves:

23:1295, 1302
75:1953, 1956

There were two ornaments like that in both graves, and at least in grave 75 they were on the chest of the dead. There are in these figures 14 spirals in the middle and four roundels encircling them from three sides; there could have been bands or loops on the open side. In the star-like figure found in the same grave two pieces of a narrow band had been preserved. These could have extended to long strings, but formed perhaps only a link. All three figures in this grave 75 had been applied, and it may be considered that they extended as bands fastening the mantle. The large ornament and one of the smaller ones had been on the same side of the cloth visible on the front, when the mantle was fastened at the right shoulder. On the other hand, it is possible to imagine that these figures were ornaments of a tunic's opening, as was perhaps one of the ornaments in the Zalachtovie find (No. 1 in fig. 47).

Small round figures were found from two men's graves:

76:1989
318:3589

They are fairly similar to the ones found from the women's graves and belong possibly also to the mantles.

Cross-shaped applied figures were found from ten graves:

90:2051
100:2180, 2186, 2190, 2192
120:2310?
135:2387
225:2963, 2967
281:3183
292:3467
299:3467
325:3705
387:4383

The ornaments from graves 90, 100, 225, 281, 325 and 387 are all similar with arms made of two parallel spirals and a roundel at the end. There are four figures like that from grave 100, two from grave 225, but from each of the others only one. The location of the figures in grave 100 is such that

they are probably ornaments of the mantle. The ornament in grave 90 was on the hip, one of the ornaments in grave 225 was near the ankles, the other near the head, the one in grave 281 was on the chest, and in grave 325 the ornament was found on the neck. All these locations fit in with the explanation that they had been ornaments of mantles, presuming that the mantle in grave 225 covered the dead and was not put on as in the other graves.

The ornaments from graves 135 and 299 differ from the ones above and from each other. In the figure from grave 135 there is a cross of prallel spirals, and the arms extend with the typical cross-wise braiding, but after that there are again two parallel spirals. In one arm the extreme end had been preserved, and in it the cord coming from one of the parallel spirals is only threaded through a small spiral and then continues to the other. A fragment from grave 120 could be from a similar ornament. The crosslike figure from grave 299 resembles the ones described above, but the cross arms seem to have been formed of three parallel spirals. The figure is fragmentary, so that the original form is mere guesswork. The spirals are made of a rod flat-convex in section unlike the other ones; apparently this is one of the oldest men's graves with spirals.

Corner ornaments or otherwise separate roundels (not applicated) were found from thirteen graves:

40:1478–79, 1481	Double roundels
90:2042, 2052, 2054	» »
100:2165	» »
120:2312, 2314–15	» »
135:2382, 2393	» »
150:2517, 2526	» »
281:3182, 3186	» »
283:3228	Double roundel
:3218, 3225	Roundels with spirals also in the centre
292:3365	Double roundel
:3369	Roundel with spirals also in the centre
295:3426	Double roundel
325:3705, 3707, 3713	Double roundels
348:3900, 3939, 3944, 3952	Triple-armed ornaments
:3934, 3950, 3953, 3956–57	Double roundels with five parallel spirals
:3877, 3929, 3955	Single roundels
400:4476, 4483, 4486, 4496	Double roundels

The largest number of these ornaments were found from grave 348. There were four ornaments resembling the crosslike figures above but with only three arms, six figures ending in two spiral roundels (cf. Appelgren–Kivalo Pl. III:5), five of

them with four parallel spirals and one with five, and further three single roundels. Appelgren–Kivalo (1907 p. 18) considered the double roundel from Käräjämäki cemetery a corner ornament of a cloak, but not all the ornaments from grave 348 at Luistari can be from corners. There is, however, no cloth under them. So it seems that they have been ornaments extending from the edges of the mantle. The figures were interlaced of a light-coloured string, but in connection with some of them there is red yarn. The mantle cloth had been blue, so that possibly it had had a border ribbon of red and light (yellow?) yarns, to which the ornaments had been joined.

Doubled spiral roundels seem to have been the most usual ornaments in men's garments. There are three of them from grave 40 in such places that they are probably from mantle corners. Three were found also in grave 90, but from grave 100 there is only one. It is possible that there had been four similar ornaments in grave 120, but only one was recovered in a fairly good state of preservation. All these were found near the feet of the corpse. The two ornaments from grave 135 were on the neck and on the hip, and the two from grave 281, with five parallel spirals, were found near the neck and the waist. The only ornament of this form from grave 283 was on the thigh; two other figures possibly belonging to the mantle were single roundels with spirals also in the centre. There was also only one doubled spiral roundel in grave 292, on the neck of the dead, and a similar single roundel as in the former grave was found also in this one. At least four doubled spiral roundels were recovered from each of graves 325 and 400, and if they are from mantles, the mantle in grave 325 has covered, perhaps folded double, the corpse buried on its stomach. Although the corpse in grave 400 was also placed on its stomach, the mantle seems to have been put on. The ornaments were found from near the pelvis and the knees.

6.7.6. Garters

Several Luistari graves have further yielded small spiral braids entwined in the ends of finger-made bands:

40:1482
76:1984, 1992
100:2169
135:2392
208:2853
225:2962, 2964
281:3188
303:3501
325:3697, 3698

Table 12.

RING-SHAPED ORNAMENTS FOUND NEAR THE FEET OR LEGS IN MEN'S GRAVES AT LUISTARI						Simple spiral rings			Ring with middle shield	Ring with spiral ends	Band, leather thong	Also a spiral end roundel
Grave	Number of rings	Nos.	Size mm			Section						
			—15	16–19	20—	○	◐	△				
40	3	1475–77		3				1	2			x
75	1	1951		1						1	x	
90	1	2056		1					1			
195	1	2775	1				1					
208	2	2850–51		2		2					x	x
225	1	2961		1				I				x
281	1	3165	1					1			x	x
283	1	3217		1			1					
288	1	3286		1			1					
292	1	3368	1					1				
299	1	3473		1			1					
303	1	3495	1					1				x
320	1	3625	1				1					
325	2	3710, 3712		2				2				
348	2	3906, 3909		2		1			1			
349	2	3989, 3996	2			2						
403	1	4520			1				1			
	23		7	15	1	5	5	7	5	1	3x	5x

In these the cord goes first through one spiral, then there are two parallel spirals, after that the crosswise braiding, and after going through two or three small spirals at the end the cord turns back. There can be variations in the order of the twisting, but quite evidently they are all end ornaments of cords or bands. There are four ornaments like this from grave 225, and they were found in pairs near the ankles of the dead, and also in graves 40, 76, 135, 208, 281 and 325 these ornaments were near the legs or at the foot end of the grave. The fragment from grave 303 was found in sifting the soil, and in grave 100 the ornament was at the head end of the grave. The last-mentioned one is interesting, because under it a small piece of three-coloured tablet-woven band and also a small fragment of blue twill were preserved. On the basis of their location an easy explanation is that the other ornaments like that are garter ends, and the remains from grave 100 could also be from leg coverings, although they were probably not in their original place. The garters could have been tablet-woven but the ends, which were threaded through spirals, were made by striking in fingers. There is a short piece of a tablet-woven band ending in a spiral ornament from Yli-Nuoranne cemetery in Eura. It is a stray find, but it could be from a garter just like the ones pictured above. Fragments of a large star-like ornament and doubled spiral roundels have been catalogued under the same number

(9854:19) as this, and apparently they had all belonged to garments of the same man. It is quite possible also that the leather belt with bronze spiral tassels (9854:15, 18) and the firesteel with two horsemen (9854:17) found at the same time as the fragments mentioned were from the same grave. So some finds from the Yli-Nuoranne cemetery bear witness to the same current of fashion as the ones from Luistari.

Speaking about garters it must be mentioned that altogether 17 graves contained ring-like bronze spirals near the legs or near the feet of the corpses (see table 12). Three rings were found from grave 40, two from graves 208, 325, 348 and 349 and only one from the others. In grave 281 with a double burial a ring was typically near the ankles of the north side corpse, but there were two more rings in this grave, one near the shoulders of one of the corpses, the other near its thighs, so that all these rings may be from a garment spread to cover both the dead (cf. Cleve 1978 p. 160). There was a leather thong in the ring found near the thighs and remains of yarn in the others.

Fifteen of the rings marked on the table are like finger-rings in size, but there are also seven rings less than 15 mm in diameter (all rings from grave 281 are so small). Besides, pieces of leather strap were found from the inside of three of them. Although some of these rings were finger-rings thrown into the grave-pits, it is probable that in

several graves these rings have been ornaments of footwear or garters. Cross-gartering was an essential feature of the Western European habit in the period corresponding the Luistari finds (cf. Geijer 1938 p. 148), so it is easy to picture the use of it also in Finland.

6.7.7. Tasselled belts

Belts made of tablet-woven bands and decorated with spiral tassels were found in seven graves:

90:2034, 2053
100:2176
280:3133
281:3173
325:3709
348:3942
400:4480, 4485, 4489

The tasselled belts from Luistari are related to the tasselled leather belts from Gotland and Latvia (Geijer-Arbman 1940 fig. 1; Zarina 1970 figs. 93 & 108) and to the corresponding ones found in Finland (Kivikoski 1949 pp. 26–29, figs. 5, 6; Salmo 1952 pp. 371–374, fig. 322), but they differ from these in many respects. The main difference is in the skilful interlacing of the bronze spirals. In the most simple tasselled belts (from graves 325 and 348) there is only one interlaced ornament with spirals at the end of the belt with threads hanging from it. In the following model, represented by the ornament from grave 100, there were probably spirals, perhaps also bronze rings (cf. Plate 45:15c), at the ends of the threads, and in the most imposing one, found in grave 281, several braidings with bronze spirals were under one another forming a heavy ornament.

The tassel from grave 90 seems to have differed somewhat from the others. In it the spirals are considerably thicker, and no traces of the usual interlacing were preserved. Judging from the thickness of the spirals a similar ornament was found in grave 280, a collective burial, and in grave 400. At least in grave 90, the belt band was bent double and wound around the waist, and it seems possible that the tasselled end was passed through a loop at the other end perhaps twice and its weight kept it in place (fig. 48). In grave 90 the end of the belt was passed through a large penannular brooch, but this was probably only carried out in conjunction with the actual burial – it was desirable to present all the impressive details of the dress of the deceased at the same time.

On the basis of the preserved details in grave 90 the actual belt seems to have been made of a round tablet-woven band. The threads left at the ends were intertwined, possibly with the so-called

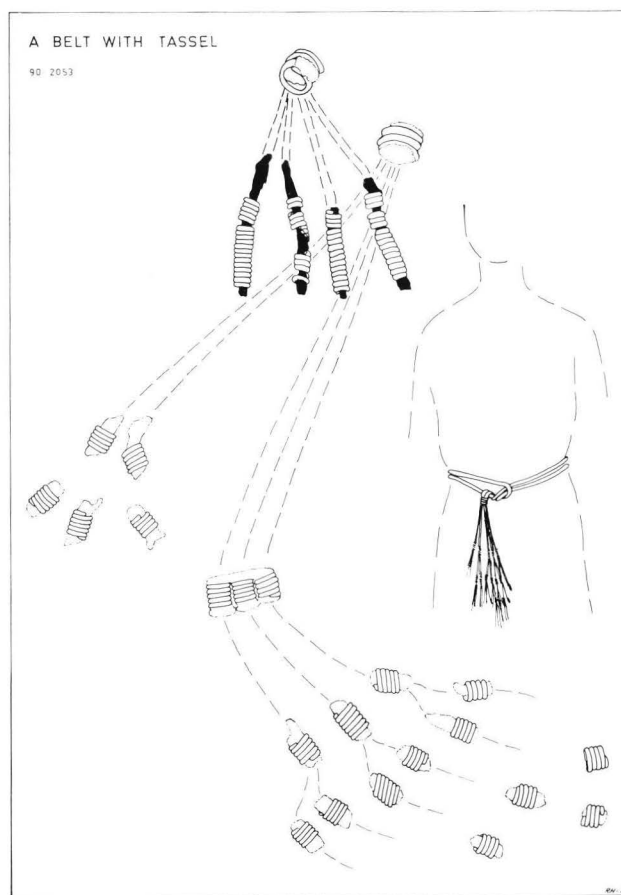









Fig. 48. The belt with tassel from grave 90 as it was found. The drawing on the right shows how it was possibly fastened.

finger-band technique. Leena Tomanterä has experimented with this in the Laboratory of the National Museum and the results seem credible. At first the threads were divided into two or three groups, which were drawn through spirals, then they were divided into more groups, and again threaded through spirals. This was continued until a large tassel was formed. The technique used in the belt from grave 281 was in principle the same, but the braidings and the spirals formed discs in which some of the spirals were placed transversely to one another. The uppermost part of this tassel has an interlaced ornament similar to the only preserved details of the simpler belts. This was carried out with the same technique as the aplicated spiral ornaments (see 6.7.8.).

Previously only cemetery C at Köyliö had revealed traces of what may be a tasselled belt of yarn with spirals (8602:60, Cleve 1978 pp. 55, 159, Pl. 14:230). Grave A, in which these were found, was dug without expert supervision, and so far the construction of this belt is unclear. It was not in any case similar to the Luistari belts, because it seems to have had extra threads placed transversely in the pattern.

Table 13.
SPIRAL ORNAMENTS IN MEN'S GRAVES IN DIFFERENT ZONES AT LUISTARI.

Zone and grave	1	2	3	4	5	6	7	Swords	Spear-heads	Brooches	Coin-dating
											
Zone I											
208	X	X						Y-t?	M	V	1039 -
225	X	X		X					K+p		
403	X										
Zone III											
40	X	X	X						E	T	
76		X			X				p+p		951 -
120			X	X					E+E	B	
135		X	X	X						2 T	
150 ?			X								
280 ?						X	X?				
292	X		X	X					E		
299	X			X							
Zone IV											
75	X					X			E		913 -
90	X		X	X		X	X	Y-t	E+A-E	F	934 -
100		X	X	X		X	X		E	S	915 -
281	X	X	X	X		X	X	X-t	E+E+Ep	S	
283	X		X					X-t	1)	F	
303 ?	X	X								S	
318					X	X			E		
325	X	X	X	X			X		E+E		
348	X		X				X	X-t	E+A-E	B	926 -
387 ?				X							
400			X			X	X?		E+E	T	
TOTAL	13 X	9 X	12 X	10 X	2 X	7 X	7 X				

Explanations:

p = a spearhead with accentuated junction

V = a penannular brooch with poppy-shaped ends

T = a penannular brooch with pegs

F = a penannular brooch with faceted end knobs

S = a penannular brooch with funnel-shaped ends

B = a ringed pin with Borre style ornamentation

1. Ring(s) at the foot end of the grave

2. Garter end roundels

3. Spiral roundels or double roundels

4. A cross with roundel ends

5. Small round ornament(s)

6. Star-like ornament

7. Tasselled belt

The belt from grave 90 was of interest because the four spirals which seemed to belong to the upper part of the tassel, were threaded onto a leather strip. There were however textile remains inside the large spiral ring in the uppermost position. One possibility in my opinion is that the belt included a separate leather strap on the left-hand side for the suspension of household objects – there was a spiral around the strap joined to the firesteel – and that the other end of this strap was cut into strips and ornamented with spirals, in a sense corresponding to the separate tassel in the Latvian belts (e.g. Zarina 1970 fig. 108). It was this decorated end that was found along with the belt tassel, and it was in the same place as the tassel for the same reason that the tassel was drawn through the penannular brooch – it was desired

that everything possible was visible in the burial situation. In normal use it would have hung from the left-hand side as a counter-weight to the fire-steel.

As there are no complete parallels to the tasselled belts from Luistari, these must be dated on the basis of the inner chronology of the Luistari cemetery. Their chronological position is however quite clear, as three of the graves with these can be coin-dated (graves 90, 100, 348, coinlist Nos. 32, 33, 68–73). All are from the first half of the 10th century, and none of the finds in the graves without coins suggested a later date. On the contrary, the shears in grave 325 were of a form suggesting a slightly earlier date for the grave. On the whole the tasselled belts in the Luistari finds belong to the middle of the Viking period.

6.7.8. Spiral ornaments in men's graves: conclusion

A considerable amount of spiral ornaments were found at Luistari also from men's graves, which was in a sense a surprise, because it is usually said that men's garments were decorated with spirals seldom and to a minor extent (Kivikoski 1939 p. 228, 1961 p. 241; Salmo 1952 p. 362). Closer study of the material excavated before has however shown that spirals have sometimes been found from men's graves in Köyliö, Yläne and Eura. When these ornaments have been more insignificant than the ones from the women's graves, they have not attracted the attention of scientists, or the graves containing them have been misinterpreted as double burials (e.g. Appelgren–Kivalo 1907 pp. 17–18). At Luistari spirals have a striking position among the details of the male costume, and it is possible to identify different garments on the basis of them. It is also for the most part quite easy to distinguish them from the ornaments of female dress.

Spiral ornaments in the men's graves at Luistari are either applied figures, corner or border ornaments of mantles, belt braids or band endings. In making them the cord used seems to have been a finger-band, perhaps with a hardened end or threaded by a needle. The applied ornaments were always made separately and sewn on to the cloth. On the basis of experiments made by me, these figures are most easily made by using some kind of a stand, in which there are spikes in the places necessary for the sake of the pattern. The crossing cords often form the largest part of the figures – spirals are used only to join the loops – so that some kind of a tenter has been necessary.

As shown in the table, six men's graves containing spirals have a coin-date. Grave 208 is from the middle of the 11th century, but all other coin-dated men's graves are from the 10th century, grave 76 most probably from the last half of it, graves 75, 90, 100 and 348 from the first half. There are only a few ornaments in graves 76 and 208, in all probability garter endings, graves 75, 90, 100 and 348 contain several and larger ornaments; spiral ornamented belts were found from graves 90, 100 and 348, large star-like figures from graves 75, 90 and 100. Besides there are also smaller ornaments in these graves. As is seen from the table, garter ornaments appeared in all Viking period zones, doubled spiral roundels and crosslike ornaments are present in zones III and IV, and tasselled belts and large starlike ornaments were found mainly from zone IV. Apparently the spiral ornamentation reached its peak in men's fashion as early as in the first half of the 10th century, whilst in

the garments of the women the most imposing forms appear at the beginning of the 11th century and the most skilful braidings belong to the Crusade period.

The difference between the men's graves with spirals in zones III and IV is also shown in the table. In these graves there are in both zones spearheads of type E, but while the graves in zone III contained only one sword and a brooch or a pin appeared only in two, four swords were found from zone IV and two graves of three contained a brooch or an ornamental pin. Accordingly these large spiral ornaments were characteristic of the graves richly furnished otherwise also.

6.7.9. Loose spirals

Loose spirals, probably used in clothes, were found in and about several graves:

26:1366
36:1310
41:1492, 1496
177:2673 (Originally from grave 141?)
150:2506, 2509, 2521, 2525
155:2554–55
191:2743
200:2797, 2800
283:3226
284:3240, 3242–43
285:3265
313:3555–56
324:3668
343:3800, 3802
348:3890–91, 3894–95, 3898, 3949, 3951, 3954, 3959
356:4067–68
359:4129

Most of these spirals are made of round wire; only in graves 150, 155, 283 and 343 were spirals of a rod triangular or flat-convex in section. Some of these are stray finds from the filling, some possibly fragments of otherwise completely disintegrated ornaments. There is leather thong inside some of the spirals found in graves 283, 343 and 348 (3954), and these could have belonged to carrying straps as well as the unusually large spirals from grave 318. Of all the graves containing spirals, only grave 343 is perhaps from the end of the Merovingian period; in it some of the spirals were clearly from a strap joined to the knife, and so even the loose spirals certify that it was during the Viking Age that spiral ornaments in garments first came into fashion.

The spirals used in the ornaments of clothes are mostly 4–5 mm in diameter, but the thickness varies from 3 to 7 mm; the bulky spirals from the belt in grave 90 are almost 12 mm in thickness.

The thinnest spirals, about 3 mm in diameter, were found from graves 23, 27, 75, 76, 100, 225, 280, 281, 318, 374, 383 and 404, but it is worth noting that spirals of differing thickness have been used in making several of these figures, so that it is not possible to connect separately found spirals to certain groups of ornaments. The very thick spirals used in tasselled belts are the only exception, and following these it should perhaps be possible to get on the track of this fashion also in the cremation cemeteries. On the other hand it seems as if thin spirals as well as spirals with straightened parts in applicated ornaments were not used earlier than during the 10th century, and when, as mentioned before, spirals of triangular and flat-convex wire are a feature of the earlier period, loose spirals also offer certain opportunities for dating.

6.8. OTHER METAL PARTS OF GARMENTS

In speaking of the metal parts of the garments some details should still be mentioned. To begin with, remains of bronze sleigh bell buttons were found from a grave:

345:3838

These fragments of probably three buttons were on the right side of the chest, and apparently they point to a coat-like garment observed as early as in 1925 during the excavations at Humikkala in Masku (Pälsi 1928 p. 77). There were traces of garments buttoned at the front also in some graves at Birka (Arbman 1955 p. 94, fig. 12), and according to Geijer (1938 p. 143 and fig. 38, see also 1979 pp. 213–214), these buttons were with certainty of Eastern origin. The fashion of using coats has apparently come from the Orient along with the Vikings, for in Western Europe it was in those times quite unknown. All evidence of this fashion in Finland is for the present from the Crusade period; from the graves at Humikkala in Masku and at Rikala in Halikko swords with disk-like pommels were found (Pälsi 1928 p. 78; Tomanterä 1978 pp. 58–59), and grave 345 at Luistari is most probably one of the latest furnished graves in the cemetery.

The small triangular bronze artefact with a perforated list underneath from grave 363 (4141) is perhaps also a button, but so far I know no counterparts.

The silver braidings found also point towards the Orient:

348:3945

They were around the neck of the corpse in grave 348, and there were a total of three of them, two narrower ones with a width of 2 mm and a total

length of 128 cm, and a wider one, 4 mm broad and 57 cm long, found between the narrower bands. These ribbons are braided of silk thread surrounded by extremely thin silver wire. The braiding resembles the twist in some silver bands found at Birka (Geijer 1938 Pl. 26:1–3, 1980 p. 216, fig. 9a–d), and there are similar ones also from Gotland (Stenberger 1962 fig. 37). Under the bands from Luistari remains of yellow silk were found, so apparently the ribbons were sewn on to a silk material. There were remains of silk also near the firesteel and the ornamental pin and on top of the bronze-mounted pouch, so the garment in question was most probably a whole article of clothing and not for example a silk collar ornamented with silver braids. Perhaps it had been a silk tunic. Geijer (1938 pp. 143, 146) has supposed the braids in some of the Birka graves to have been on the tunic necklines, whereas in others they could have been ornaments of head-dresses.

Luistari grave 348, in which these braids were found, is coin-dated to the first half of the 10th century (coin-list Nos. 68–73), and the graves from Birka and Gotland are from about the same time. It is worth noticing that Ihre grave 112 with silver braids contained also a sword of type X, two spearheads of type E and a tasselled leather belt with spirals (Stenberger 1962 figs. 27, 37–38, pp. 35–36, 49–50).

It is perhaps best to discuss the very thin band-like silver mount fragments in this connection:

10:1033, 1042–43, 1049, 1051

These were found in the filling of grave 10 and may originally be from grave 35. The largest fragment is 41 mm long and 8 mm wide and its ends are broken. An end fragment is narrower (6 mm) and there is a hole in it, so it is possible that the mounts have originally been about 80 mm long and tapered to the ends, which were riveted or sewn onto a foundation. The fragments make an almost 140 mm long band together, but it could have been much longer, because they are very fragmentary. No belt mounts like these are known from Finland, and it is possible that they are from a head-dress or some other rather stiff garment.

A metal ornamented leather strap was also found from a grave:

387:4380

It is only c. 36 mm long and 16 mm wide and ornamented with small bronze rings which have been twisted through holes in the leather and pressed fast in rows. These form a figure of »running dogs» between two straight lines on the edges. A completely similar design appears in a strap found from Nousiainen–Myllymäki and supposed

to have belonged to a shield with gold-plated fittings (Leppäaho 1937 p. 60, fig. 7a). A similar mode of decorating leather is known both from Western Finland and from Karelia in the Crusade period, but it appears in knife sheaths (Kivikoski 1973 fig. 1227, p. 147; Schvindt 1893 figs. 8, 10;

cf. Stenberger 1962 fig. 45). The Luistari strap was found from a ditch which intersected the grave, and therefore its connection with the grave and its origin are somewhat unclear. At least no shield rivets were found near it, so perhaps it is from a belt or a baldric.

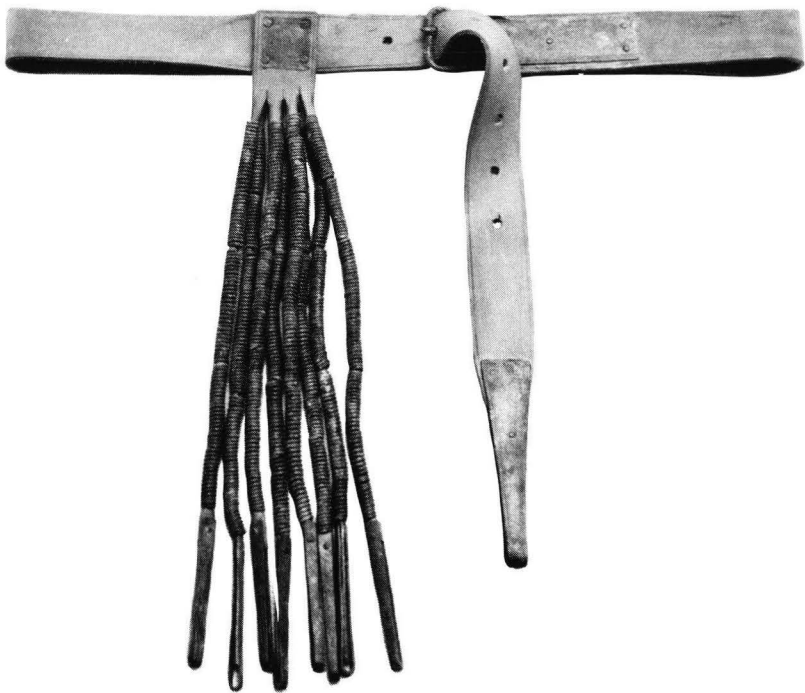


Fig. 49. Reconstruction of a tasselled leather belt from Gotland.

C. CHRONOLOGY OF LUISTARI ACCORDING TO ARTEFACTS

MEROVINGIAN PERIOD

In the first part of my study on the Luistari cemetery I stated that the oldest artefacts in the Luistari material belong to the second phase of the Merovingian period as defined by Cleve (see Luistari I p. 42). This claim was based on the observation that among the weapons there were none of the forms judged by both Cleve and Salmo to be oldest. Neither has the detailed analysis of the artefacts brought changes in this: on the basis of the graves with weapons it could well be claimed that inhumation burials in this cemetery began during Cleve's phase II, perhaps around the middle of the 7th century. In connection with the analysis of the brooches and fibulae it has however become apparent that this conception is mistaken. There are pieces among these which can be dated to the very early stage of the Merovingian period. The supplementary excavations carried out in 1977 and 1979 have furthermore given grounds for the assumption that only a small part of the oldest part of the cemetery has yet been excavated. Besides the fact that cremation burials were carried out in the oldest stages of the cemetery, my view of the magnitude of the Merovingian period area has further been strengthened. It is quite evident that the lengths of the first grave rows of the cemetery were at least 40 m. If there were the assumed four rows and there were burials in the unexcavated part as densely as in the excavated part, we arrive at a total of over 50 graves in this area. It is thus completely natural that on the basis of the twenty or so graves excavated so far, very far-reaching conclusions regarding the oldest phases of the Merovingian period cannot be arrived at, especially when many of these graves are partly destroyed. Besides, there could have been more grave rows.

Of the inhumation graves excavated so far, the oldest may be grave 26, badly damaged and laid exceptionally in a N-S direction. The brooches which were found in the fillings of graves 27 and 37 laid on top of it show clearly that there was a grave of the early Merovingian period in this place, although one need not be convinced of their belonging to grave 26 in particular. The exceptional orientation of the said grave may be proof of a similar uncertainty in burial practice which Cleve (1943 p. 52–54) has observed in the Kõyliö A cem-

etry. At Luistari this grave is however so far the only one in which the orientation differs considerably from the prevailing ones.

Grave 26 is not in the north-westernmost grave row. Actually it is not in any row, and grave 20 in the third row was laid on top of one of its corners. This raises the question whether there had been a group of older graves in the area, which does not follow a regular row order. The answer to this question is to be found in the unexcavated area, because the other artefacts datable to the earliest phase are stray finds from destroyed graves. One of these, an equal-armed brooch of especially good workmanship (cf. 6.1.1.), is from the filling of grave 419 of the Merovingian period, which may be further proof of older graves having been covered by the regular grave rows.

The oldest grave with weapons is probably grave 52 of the north-westernmost grave row. On the basis of the spearheads found in it, it could possibly be dated to as early as the first half of the 7th century, and also a round-topped shield boss could be as early as this, since two of that type, one from Eura, can be dated to the first half of the 7th century (see Cleve 1943 p. 142). There are however no artefacts which can be clearly dated to Cleve's first period, and my view of the early character of grave 52 is based on its location only, as well as on the similarity of one of the spearheads with the oldest Latvian angons (cf. 1.3.1.). A relatively early date is also possible with regard to grave 39, but it was so destroyed that it cannot reveal much information. Graves 20 and 301 with Finnish angons and graves 269, 378 and 380 with large-bladed angons as well as grave 419 with a dagger-bladed spearhead are clear representatives of Cleve's second phase (1943 p. 168). To these can possibly be added grave 53 with a ring-headed pin and grave 270 with a scramasax.

This part of the cemetery represents the same phase as cemetery B and part of cemetery A at Kõyliö, and because there is a distance of less than 10 km between these cemeteries and Luistari it would seem natural that the similarities would be striking. The artefact types are the same, but there is a distinct difference in the furnishing of the graves. The arms in the men's graves correspond more or less well, but there are no dagger-bladed spearheads at Kõyliö and seaxes are more common at Luistari. From Kõyliö on the other hand there are arrow-

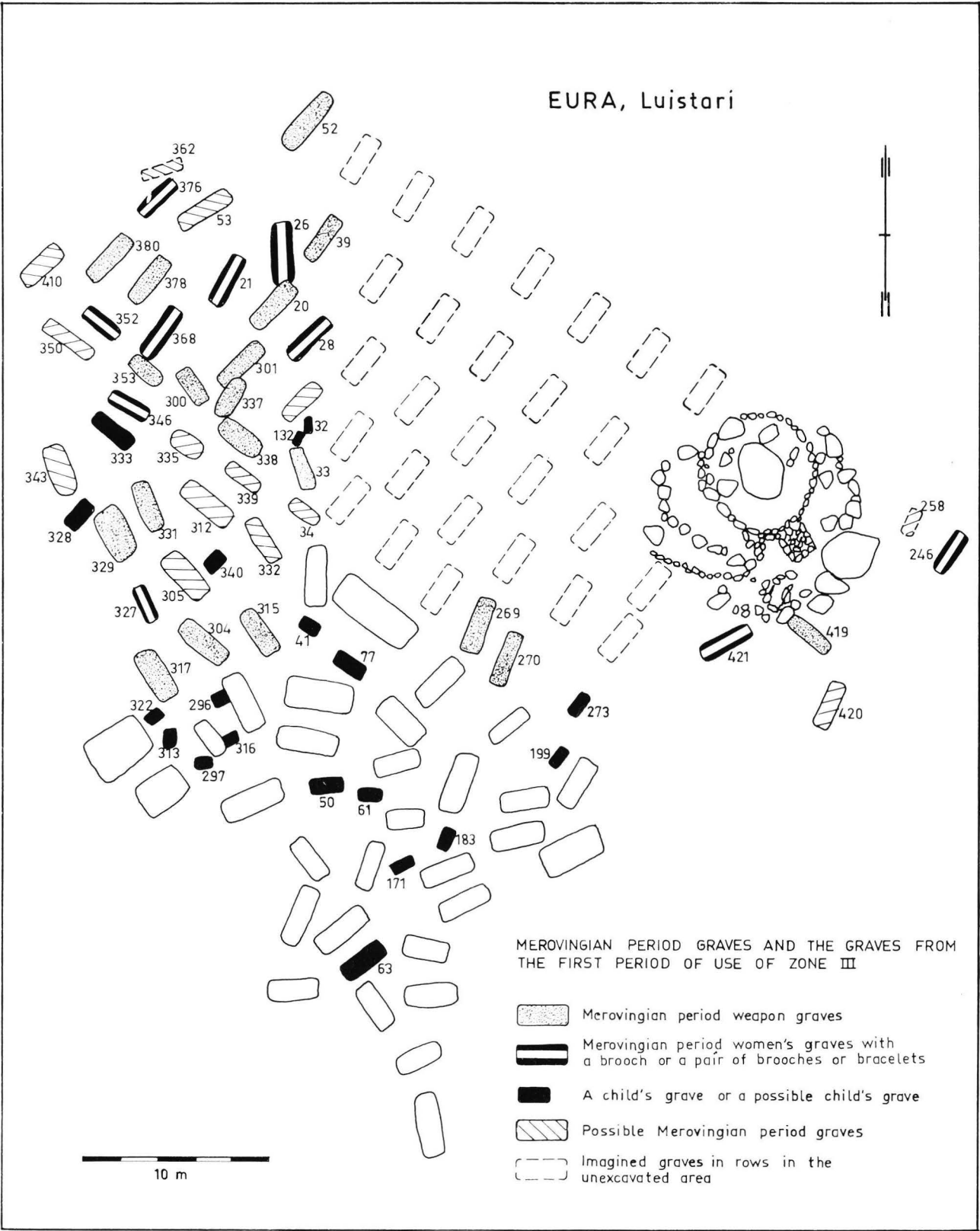


Fig. 50. Merovingian period in the Luistari cemetery.

heads from two graves (A15, B1, Cleve 1943 pp. 135–136) and tools from five (A1–A4, B2, Cleve 1943 pp. 144–150, 155), which are completely lacking in the Merovingian period men's graves at Luistari. Clasps of cloaks and parts of belts were not found at all in the graves of phase II of the K yli  cemeteries, whereas at Luistari nearly every grave contained a large iron pin, and more than every other one had a buckle among the finds. On the basis of the Luistari finds it can be well said that cloak pins and belt fittings are common in men's graves, whereas on the basis of the K yli  finds they seem to have been truly rare (Cleve 1943 pp. 182–183).

With respect to the women's graves the situation is the reverse. At K yli  there are complete combinations of various ornaments with brooch pairs, third brooches, chains and bracelets, and there are also beads, in one instance a neck-ring (Cleve 1943 pp. 177–182). In the Luistari women's graves of this phase there are mainly single brooches, in two cases bracelets, and otherwise the furnishings are less imposing.

As none of these cemeteries have been totally excavated, it is hard to find any reason for this difference in the composition of the artefacts placed in graves. However at Luistari the sparsely furnished women's graves are in the same rows as the above-mentioned men's graves, and neither chronological nor social differences can be cited. The graves are probably those of members of the same families, and the rows were formed in chronological order. At K yli  the chronological links of the graves are not at all as clear, and only grave B6, a man's grave, is in the same grave row as the richly furnished women's graves, B8 and B9 (Cleve 1943 Pl. 32). It is thus completely possible that the men's graves so far excavated there represent partly a different period than the well furnished women's graves or that the men buried in them were not members of the same families. In the unexcavated parts of the K yli  cemeteries there may well be graves which correspond more fully to the ones excavated at Luistari. There can just as well be material at Luistari which can be better compared with that from K yli . At this moment it seems however that there is a considerable difference, and it is partly in the orientation of the graves, because, although the graves of cemetery B are mainly in the same direction as those of the Luistari cemetery, the graves of phase II of the A-cemetery are in a NW-SE direction (exception, grave A19, Cleve 1943 fig. 12 and pp. 175–176), which becomes predominant at Luistari only at the end of the Merovingian period.

Only grave A18 of those excavated in K yli  is from phase III of the Merovingian period, but at

Luistari this phase is well represented. Excavated graves which are probably of this phase are at least 21 in number, and if Cleve (1943 pp. 171–172) is right in maintaining that phase III took roughly one-quarter of the whole period (750–800 A.D.), these graves represent with probability the whole of this phase at Luistari. I estimated above that slightly more than 50 graves could fit into the NW-SE grave rows; this should cover a period of c. 150–175 years, and in this case 21 graves are sufficient to cover a period of 50 years. Ten of these are weapon graves, one of which (333) belonged to a small boy, one (335) is a collective burial, but only three (Nos. 327, 346 and 352) are distinct women's graves. It is thus probable that all of the graves in which there were no weapons or which were without furnishings but in the same rows were those of women. The collective burial probably had a woman with two children, and it is possible that children could have been buried in the few pits without artefacts in differing orientations (328, 340), but only grave 333 is proof of the fact that also a child could have been given an imposing funeral. Also from the previous phase there are two unfurnished graves (32, 132) which probably belonged to children.

There are no swords from any of the weapon graves of this phase, although the seax from grave 304 is so large that it could be called a single-edged sword. In addition there are seaxes from two graves, 300 and 317; in the former it was the only weapon. There are spearheads from all other weapon bearing graves, and they are the following types: socketed and tanged spearheads with tapering blades and short-bladed javelin points; in grave 315 there was a spearhead with a grooved blade. Spearhead pairs were found in three graves (317, 329 and 333), in two cases the combination consisted of a socketed spearhead with tapering blade and a short-bladed javelin point, in one case (grave 329) of two tanged spearheads with tapering blades. A seax and two spearheads were found only in grave 317. No parts of shields were found in this part of the cemetery.

Details of male dress were also found in the graves of this phase. A fibula or pin was used to fasten the cloak in eight graves. In two of these (33, 338) there were shepherd's crook pins in the manner of the preceding period and a triangular headed pin was found in one (333). Two cloaks were fastened with iron fibulae with band-shaped arches (in graves 300 and 353), two with iron penannular brooches (in graves 317 and 331) and one (in grave 329) with a cart-wheel shaped brooch of bronze. The change in men's fashion seems to have occurred during this period. The cloak seems to have been usually fastened at the right shoulder,



Fig. 51. The set of ornaments from Köyliö grave A 17.

but the brooches in graves 317 and 329 were found in such a position that they were probably affixed at the waist on the right-hand side. Parts of belts were found at the waists of four corpses (in graves 304, 315, 317 and 329), and there seem to have been end mounts in two belts (in graves 315 and 329). Rings were found in six male graves (304, 315, 317, 331, 333 and 338), two in grave 304, and there was a bracelet in grave 333, a boy's grave. Although tools

are not to be found in these graves – with the exception of knives in a few – they are otherwise rich in details of dress and attire.

The opposite applies with respect to the women's graves. Brooch pairs were found in two graves (346, 352) and in grave 346 these are fibulae with band-shaped arches and hinges, which is a new trait in the history of brooches in the Merovingian period, but in a couple of graves (327, 335) there

was only one single brooch or pin and in several not even this. Knives were found in four women's graves (335, 343, 346 and 352), sickles in a couple (343, 346) and in one (305) a clay vessel, indicating that these are not rich with respect to household objects and tools. The most richly furnished grave, No. 352, with a few beads, a pair of brooches, a knife and a ring, lags far behind the Köyliö graves described above. At Luistari the men's graves were more richly furnished with respect also to ornaments than the women's graves, and in these there are no traces at all of the multicoloured beads, bronze pendants and parts of chains which have been commonly connected to the Merovingian period in Finland (cf. Koch 1974; Kivikoski 1973 figs. 469–495 and 501 A). The picture afforded by the cemetery of the women's accoutrements is very poor, and at least with respect to the end phase of the Merovingian period this could not be caused by the damaging of graves, as the graves of this period are the best preserved ones in the cemetery.

The above-mentioned graves of phase III are all more or less in a NW-SE direction although in four graves (317, 329, 335 and 338) the heads were at the SE end. There are five grave rows with only two graves in the north-westernmost one, an unfurnished grave (350) and grave 352, mentioned above with two equal-armed brooches. It seems possible that the new orientation of the burials was begun from this corner of the cemetery. Grave 352 would thus represent the stage when the orientation of the burials changes at Luistari and when phase II changes into phase III. It is to be noted that the brooch pair in grave 352 is still quite small in size although the lengthening of the central part has already begun, judging from which the large brooches represented by the specimen from grave 327 seem to be from the very end of the 8th century.

If the assumption of the beginning point of the NW-SE oriented burials is correct and Cleve's period boundary of 750 A.D. is accurately defined, the dates of the graves of zone II at Luistari can be calculated almost to the decade, but this would not affect the chronology of the period very much. The fibulae with band-shaped arches and hinges could be connected probably to the 760–770's, the round cart-wheel-shaped brooch similarly and the iron penannular brooch seems to have been first interred at some stage in the 770's. On the other hand there are two graves with shepherd's crook pins in the NE end of the cemetery which could be of early date; this type occurs in the graves of the previous period. The various forms of the spearheads are dispersed over the whole area and they seem to have been in use throughout the period. The last graves which are definitely of the

Merovingian period character are graves 304, 315 and 317, all typical weapon graves of Cleve's phase III (1943 pp. 168–169).

Although these graves are followed by perhaps a couple of other parallel grave rows, there is a definite change in the structure of the cemetery. It can be said that children's burials begin to predominate. The NW part of zone III is full of small graves and there were also children interred in grave 294, a mass burial. This is in the immediate vicinity of the above-mentioned men's graves. Even if the artefacts are completely disregarded a definite change can be observed (cf. map fig. 50). The distribution maps of the brooches and fibulae, ceramics and spearheads show consistently the almost complete change in the artefacts (cf. maps figs. 33, 22, 14).

This can be observed most clearly in the map (fig. 52) in which beads and bronze spirals have been displayed, as both neck bands and spiral ornaments were extremely rare in Merovingian period graves. They occur however in the graves which follow immediately after the last Merovingian period grave row, and they are common in other parts of the cemetery.

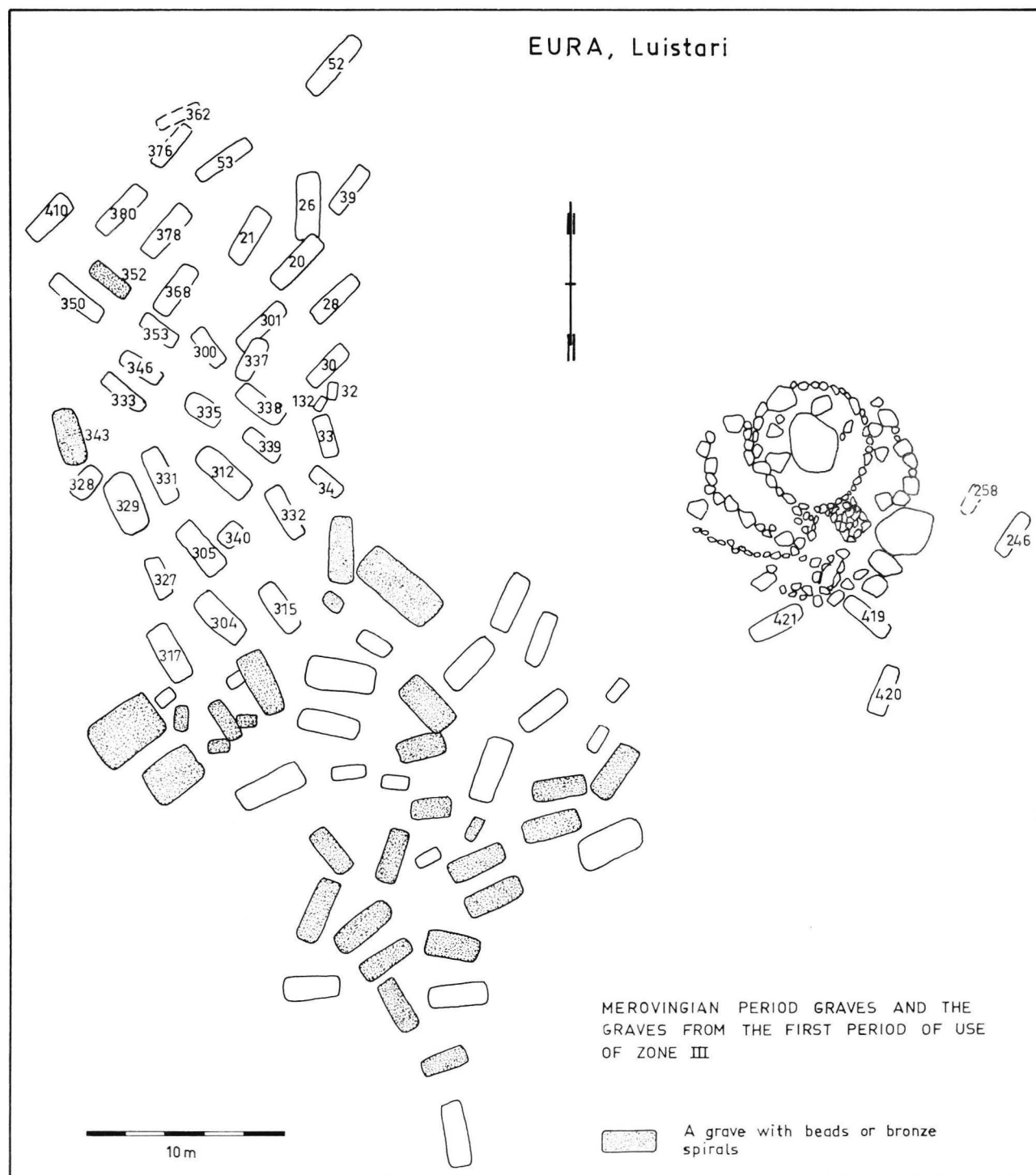
The distribution maps show clearly that the division into zones of the cemetery, calculated with coin-dates, has a factual basis. The growth of the cemetery was however not as regular later on as in the Merovingian period.

VIKING PERIOD AND LATER TIMES AT LUISTARI

As in the Merovingian period also in the following periods men's graves seem to give the best grounds for a detailed chronology. Although there are no coin-dates from zone III and the type E spearheads seem to have been in use for a long period, the spiral ornaments which occur in the men's graves form a chronological boundary. They are to be found quite commonly in clothing in graves with type E spearheads but only exceptionally in graves with weapon forms later than the earlier Viking period. These were not found at all in the men's graves of the Merovingian period.

Not all of the graves dated to the earlier Viking period contain spirals either and in Table 13 I have divided them into groups 1 and 2, so that the graves of group 1 do not contain spiral ornaments while those of group 2 do. The sub-groups 1 and 2 denote simply the location of the graves in the cemetery, 1 meaning the central part, zone III, 2 the western edge, zone IV.

In group 3 I have placed the graves which because of their size and construction correspond to



those of the earlier Viking period but which contain artefacts of the later Viking period. Only one of these graves is from the central part of the cemetery (grave 76) and was laid on top of grave 73 from the earlier Viking period. The NW-SE oriented graves in the eastern part of the cemetery, which in orientation resemble the graves of group 2:2, are with this grave in the sub-group 3:1. The others are in a SW-NE direction and they form sub-group 3:2.

Group 4 contains the graves which differ clearly from the above in size. The grave pits of these are both shallower and narrower, also the artefacts less numerous. These are clearly different from the graves of the former groups.

The given table shows that of five damascened type E spearheads from Luistari four are from graves of group 1:1, also four of five tanged long-bladed spearheads found in the cemetery. Neither shears, firesteels, weights nor coins were interred

with these corpses, and coffins had been made without iron nails. Tools were found only in grave 145. The common late Merovingian period male combination at Luistari was weapons and a ring, brooch or fibula or a dress fastening pin. The graves of group 1:1 seem to follow the same tradition. Group 1:1 may thus represent the earliest phase of the Viking period.

The same is also indicated by a large penannular brooch of iron with rolled ends found in grave 140 with closest parallels in Merovingian period graves 317 and 331. The brooches from graves 273 and 288 are of a massive type with faceted ends which begins to occur around the year 800 (cf. 6.1.7.3.). The spearheads of the group are a tanged parallel form of type E and damascened variants of type E. There were two spearheads in four graves out of seven. A ring as an ornament of the spear-shaft occurs with both spearhead types.

Compared with the former group group 1:2 is quite inconspicuous. Of the six graves in the group four contained undamascened smooth socketed type E spearheads, the fifth three different variants of type E. The sixth grave contained only a ring from the spear-shaft. There was in grave 289 a penannular brooch with funnel ends, in grave 282 a ringed pin of iron. Grave 80 contained a firesteel and there were nails in grave 282. The most important fact is however that a pouch was found in grave 323 with a fragment of an Arabian coin from the end of the 9th century (883/4 A.D., coin-list No. 63). It seems thus that these graves of group 1:2 could be younger than the graves of group 1:1. Apart from the fact that these graves are poorer than graves in group 1:1, the spearheads without damascening are significant. They can be of local make, and accordingly they are from the period later than the first import of type E spearheads.

There were six men's graves with spiral ornaments in zone III. These were few in number and were probably cloak ornaments. This scarcity in ornaments separates the graves of group 2:1 from those of the west part of the cemetery with more numerous ornaments. Peg-ornamented penannular brooches were found in graves 40 and 150, a ringed pin with borre style ornamentation was found in grave 135. The spearheads are smooth-socketed specimens of type E with the exception of one from grave 135 which is damascened and with grooved ornamentation. Firesteels were found in graves 135 and 299. A coin fragment which however could not be identified was found in grave 120. Grave 135 is probably from the 10th century and grave 150 was laid on top of other graves; so at least partly these graves are later than those of group 1:1. Grave 299 in the grave row following those of the

Merovingian period is probably one of the earliest graves with spiral ornaments.

Group 2:2 is characterized by graves with very rich furnishings. Four graves out of nine contain swords, five large penannular brooches and the sixth grave a ringed pin with gold and silver plating. There were in four graves two spearheads, in one three (double burial). The spearheads are variants of type E, with the exception of one which is of a form so far unique in the Finnish material. None of these are damascened. Three graves contained seaxes in addition to swords. The tool combination of a scythe or a sickle along with shears was found in four graves, in addition two graves contained only shears. Weights were found in three graves and coins in four. The last-mentioned give a consistent dating to the first half of the 10th century. These graves are however connected more closely to one another by the bronze spiral ornamentation of the clothing; there are spiral ornamented tasselled belts from five graves and large star-like ornaments not to be found elsewhere from six graves.

The graves of this group are dispersed along the west edge of the cemetery and the four consistent coin-dates are from graves at both ends and in the middle of the row. Penannular brooches with faceted ends, the ones with pegs and with funnel ends as well as the ringed pin of Borre style can all occur in graves of the first half of the 10th century. All of the spearheads, with one exception, are variants of type E; of the swords three are of type X and one of type Y, forms which begin to occur in the Scandinavian material already during the first half of the 10th century. On the basis of these facts I date the graves of group 2:2 to the first half of the 10th century.

The graves which I have placed in group 3:1, only four in number, contain few artefacts compared with the above. Spearhead pairs were however found in three, the combinations being two spearheads with accentuated junctions, a type K spearhead and one with an accentuated junction and a type M spearhead along with one of type G. Only one grave contained a brooch, this being a penannular brooch of iron, but of a type differing from those of the boundary of the Merovingian and Viking periods. Spiral ornaments were found in one grave and there was a pair of shears also from the same grave (225). Iron nails were found in two graves, weights in one and a coin fragment in one. The last-mentioned one is from the latter half of the 10th century (the coin fragment is Cufic and dated by Beatrice Granberg to 951–977 A.D.), to which the graves of this group may belong with the possible exception of grave 215, which because

Table 14

[illegible]

Table 15

Inhumation graves containing spearheads of type E with accentuated junction, long-socketed spearheads with accentuated junction or spearheads of type K	Penannular brooches				Belt fittings			Spiral ornaments	Finger-ring(s)	Weapons							Tools & implements						Weights	Coins	Round-bottomed clay vessel	Flat-bottomed clay vessel	Animal remains	Nails	
	With rolled ends	With pegs	With funnel ends	With high faceted knobs	Belt buckle	Strap tag	Strap divider			Sword	Seax	Spearheads					Axe	Knife	Scythe	Shears	Firesteel	Flint							Lock, key
												Type E	E with accentuated j.	Long-socketed with acc. j.	Type K	Other type													
Cemetery and grave																													
Eura, Käräjämäki Grave 1912/3									2					1					1							1	1		
Eura, Osmanmäki Grave 1912/7			1					x	4	H	1	1	1													1	1		
Eura, Pappilanmäki Grave 1939/4 Grave 1939/18			1			1		x	2 1	N?			1	1				1 1	1 1	1 1								x x	
Eura, Yli-Nuoranne 1979			1							X		1	1					1	1										
Eura, Luistari Grave 76 Grave 225						1		x x	1 3					2 1	1					1	1?				x	1 1	1 1	x x	x x
Köyliö, cemetery C Grave H Grave K Grave 40				1	1	1	1			T				1	2 ¹⁾ 1			1 1			x		x x				1		
Yläne, Anivehmaanmäki Grave 9 Grave 17 Grave 28 Grave 46 Grave 64 Grave 65 Grave 70	1	1			1			x x x	1 1 2 3		2 ²⁾	1	1		1 1 1	1	1	1		1 1					x		1 2		x x x

¹⁾ One of these is a long-socketed spearhead with a blade resembling those of type E. It is probably originally of type K, cf. the sketch in the main catalogue, NM 8602:143.

²⁾ A chape ornamented in Roman style. Kivirikki 1972, fig. 248.

of its spearhead pair may be dated to the following century.

Three or possibly only two graves can be dated to the end of the 10th century – also grave 207 may be from as late as around the year 1000. This is a small number but there is a natural explanation: if the cemetery expanded in the manner indicated by the results of the investigations carried out so far, most of the graves of the end of the 10th century should be located in the unexcavated area. It has already been shown that observations regarding women's graves also support this assumption (see 6.1.6. and 6.5.10.), and further excavations may considerably clarify the situation with respect to the end of the 10th century.

In order better to elucidate this intermediary stage between the first half of the Viking period dominated by type E spearheads and the last phase of the Viking period dominated by silver ornamented weapons, I have attempted to select graves from other cemeteries which could throw more light on this period which, solely on the basis of the Luistari finds, remains slightly obscure. Proceeding from the Luistari finds I have placed in the following table (No. 15) the graves with either type K spearheads or ones with accentuated junctions. The table shows that the spearhead with accentuated junction can also in other cases occur as the pair of a type E spearhead, cf. Osmanmäki 1912/VII and Anivehmaanmäki 46 (perhaps also find 20451 from Yli-Nuoranne), and that in these cases the graves also contained penannular brooches with funnel ends and seaxes, artefacts typical of the graves of Luistari group 2:2. The Osmanmäki grave also contained a sword of type H, which indicates that the spearhead with an accentuated junction clearly forms the link between the armament of the earlier Viking period and the later forms. In a couple of instances it occurs together with type K or I spearheads (Luistari grave 225, Raisio – Kuloinen find 15434:1–3). Although three other graves with these spearheads contained coins, Luistari grave 76 is so far the only one with a datable fragment. Graves CH and CK in Köyliö and Anivehmaa grave 46 contained coins in such a fragmentary state that at least so far their year of striking has not been ascertained. Spiral ornaments, shears and scythes occurring in the table indicate that also elsewhere in the area of inhumation burials the grave furnishings are similar to those found at Luistari. The youngest artefact type in the table is a type T sword from grave CK at Köyliö, dated by Petersen (1919 p. 152) to the latter half of the 10th century and possibly also to the 11th. There are no definite artefacts of the 11th century and the graves are thus with all probability from the 10th century, most of them from the latter half.

There are nine graves of Luistari group 3:2. Three of these contained swords, five spears. The spearheads in the graves without swords were very imposing. Two silver-ornamented spearheads were found in grave 349, one in grave 407 and an imposingly damascened type H spearhead in grave 381. Brooches were found in six graves; three of these are of bronze with rolled ends, one of silver, one with poppyshaped ends and one with high and narrow funnel-shaped ends. Scythes were found in two graves, shears in three, and fire steels in four graves. Two graves, which both also contained silver-ornamented spearheads, contained strap-dividers; similarly two graves contained strap tags of open work, tapering or rounded at the points. This is a type not found in earlier graves. Weights were found in five graves and coins similarly in five graves. One of these, found in grave 403, is an undetermined fragment of a German coin of the 11th century. The dating of two graves (208, 407) can be fixed to the 1040's at the earliest and one to c. 1070 at the earliest (see coin-list Nos. 2, 38–62, 101, 106, 108). This forms a definite group of the 11th century and the last-mentioned coin-datable grave proves that Viking period traditions were continued by the population using the Luistari cemetery until the latter half of the 11th century. With respect to this cemetery it is impossible to place a chronological boundary to the middle of the 11th century.

The graves of Luistari group 4 differ from the above because of their smaller size, mentioned above, and with respect to the composition of the artefacts. There are no swords or large spearheads. Neither are there shears nor scythes with the exception of one specimen. On the other hand two out of ten graves contained axes and two light javelin points. Three graves contained knob-ended small penannular brooches, one a brooch with animal-head ends of special form. Strap dividers were found in two graves, firesteels in only two graves but flint was found in five graves. Weights were in two graves, coins similarly in two. The coin from grave 13, which may have got into it accidentally when grave 23, of earlier date, was damaged (see Luistari I p. 56), is a barbarian imitation of a dirham from the beginning of the 11th century, the coin from grave 412 is a German one from the latter half of the 11th century or even from the 12th century (coin-list Nos. 1 and 109).

It seems thus that a change in burial practice occurred during the 11th century. Instead of imposing grave pits lined with wood the dead were laid into much more unassuming graves. Swords and spearheads were no longer interred, and knives, tinder flint and in some cases firesteels

became the most common furnishings of the dead. Clay vessels and meat disappear completely from the graves and diminutive brooches, sometimes buttons and belts with strap dividers remain as evidence of clothing. The present investigations carried out at Luistari do not give any definite chronological limit for this occurrence, but it seems that for some time large graves and these smaller ones were laid side by side. Perhaps some families held more strictly to traditions than others. In the light of the investigations carried out so far it seems that the last graves were furnished with artefacts during the first decades of the 12th century (the youngest coin in grave 358 was struck between 1106 and 1125 A.D., the coin in grave 404 between 1106 and 111 A.D.). Graves 347 and 406 may be regarded as the youngest of all; these contained only a knife and a piece of flint each.

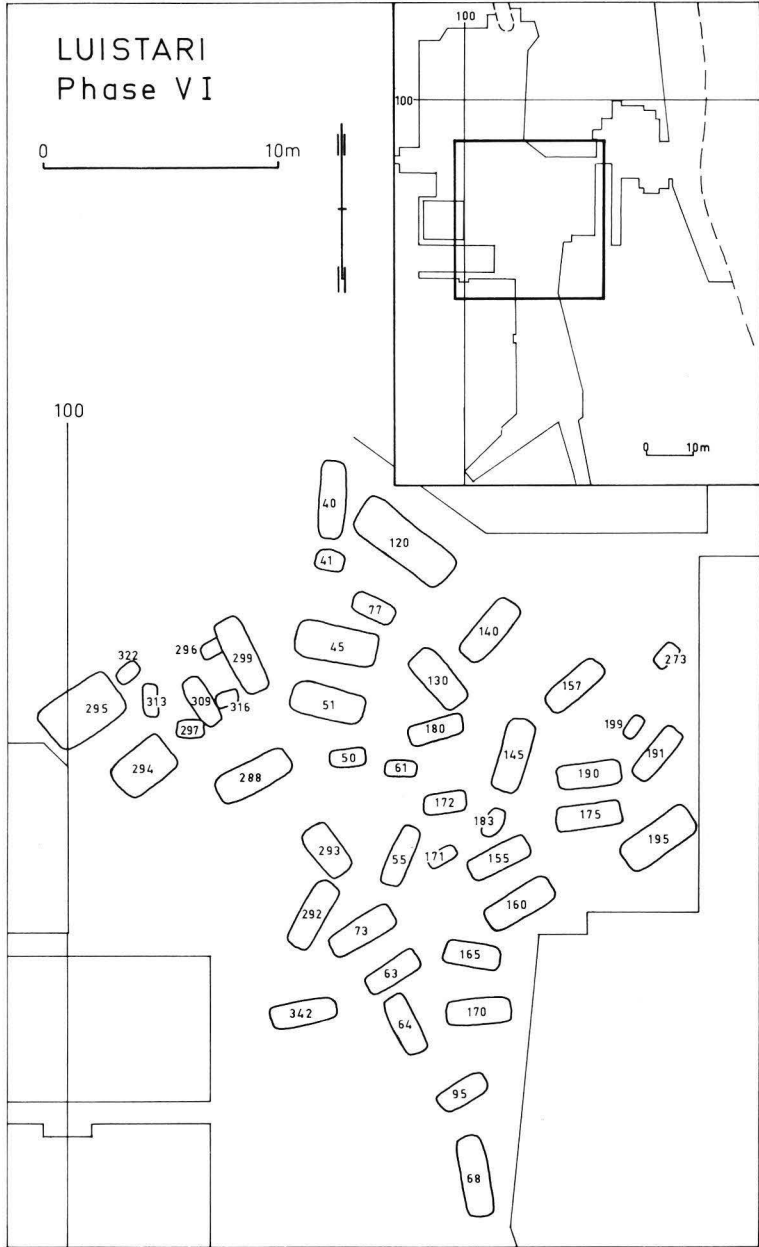


Fig. 53. Graves from Phase Viking I.

When the children's and women's graves, dated on the basis of coins and details of dress, and the graves with only a few finds or without finds, dated according to the topographic criteria, are linked to these men's graves, the following groups can be obtained for the Viking period and later graves at Luistari:

Earliest Viking period (V I), –880 A.D.

- Grave 40. Man. Group 2:1 in Table 14.
41. Child. Clay vessel group II:1a.
45. Man. Group 1:1 in Table 14.
50. Child? Unfurnished.
51. Man. Group 1:1 in Table 14. Clay vessel group I:2b.
55. Woman. Round brooch type A, open-work bronze pendants, clay vessel group I:2a.
61. Child. Only a ring.
63. Child. Clay vessel group I:1b.
64. Woman. Cylindrical and segmented beads (Callmer groups F and E), open-work bronze pendants, clay vessel group I:1c.
68. Man. Group 1:2 in Table 14.
73. Woman. Round brooch type B, cylindrical beads, clay vessel group I:1b.
77. Child. A knife only.
95. Round brooches type A–B, cylindrical beads, open-work bronze pendants, clay vessel group I:1a.
120. Man. Group 2:1 in Table 14.
130. Woman. Cylindrical beads.
140. Man. Group 1:1 in Table 14.
145. Man. Group 1:1 in Table 14. Clay vessel group I:1b.
155. Woman. Cylindrical beads, clay vessel group II:1b.
157. Woman? Brooch with faceted endings?
160. Woman. Cylindrical beads.
165. Man. Group 1:1 in Table 14.
170. Woman? Clay vessel groups I:2a and II:1c.
171. Child. Unfurnished.
172. Woman. Cylindrical beads.
175. Woman. Brooch with four horse-heads, cylindrical beads, clay vessel group I:1b.
180. Woman. Round brooch type B, cylindrical beads.
183. Child. Cylindrical beads?, clay vessel group II:1c.
190. Woman. Cylindrical beads, clay vessel group I:1b.

191. Woman. Chain links made of triangular rod, cylindrical beads, clay vessel group I:1b.
195. Man. Group 1:1 in Table 14. Clay vessel group II:1c.
199. Child. Unfurnished.
273. Child. Long-bladed tanged spearhead, penannular brooch with faceted endings.
288. Man. Group 1:1 in Table 14.
292. Man. Group 2:1 in Table 14. Clay vessel group I:2a.
293. Woman? Bronze spirals of plan-convex wire.
294. Two women and three children. Brooch with birds and convex round brooch of type B. Clay vessel group II:1a.

295. Man & woman? Spear-ring, penannular brooch with rolled up ends, clay vessel groups I:2a and II:2b.
296. Child. Unfurnished.
297. Child. Cylindrical beads, clay vessel group I:2b.
299. Man. Group 2:1 in Table 14.
309. Woman. Clay beads.
313. Child. Bronze spirals.
316. Child. Clay beads, clay vessel group II:1c.
322. Child. Unfurnished.
342. Woman? Clay vessel group II:1b.

Middle Viking period (V II), c. 880–950 A.D.

- Grave 62. Woman. Round brooch type C, cylindrical beads.
75. Man. Group 2:2 in Table 14. Clay vessel group II:1b. Coin dating 913–942 A.D.
 80. Man. Group 1:2 in Table 14.
 90. Man. Group 2:2 in Table 14. Clay vessel group II:2b. Coin dating 934/5 A.D.
 97. Woman? Clay vessel group I:2a.
 98. Woman? Clay vessel group II:2c.
 99. Woman. Clay vessel group I:1b.
 100. Man. Group 2:2 in Table 14. Coin dating 915/6 A.D.
 111. Child. Unfurnished.
 115. Woman. Large corner ornament, segmented beads, clay vessel group I:1b.
 116. Child. Unfurnished.
 117. Child. Unfurnished.
 118. Child. Round brooch, segmented beads, clay vessel groups I:2c and II:1b.
 119. Child. Unfurnished.
 121. Child. Unfurnished.
 122. Child. Unfurnished.
 124. Child. Unfurnished.
 125. Child. Unfurnished.
 135. Man. Group 2:1 in Table 14. Clay vessel group I:2b.
 139. Child. Segmented and multi-coloured beads, clay vessel group I:1b. Coin dating 920/1 A.D. (On top of grave 140.)
 141. Child. Bell pendant, spiral ornament.
 150. Man? Two penannular brooches with pegs.
 200. Woman. Large corner ornament, segmented beads. Clay vessel group I:1a or II:1a.
 279. Woman? Unfurnished.

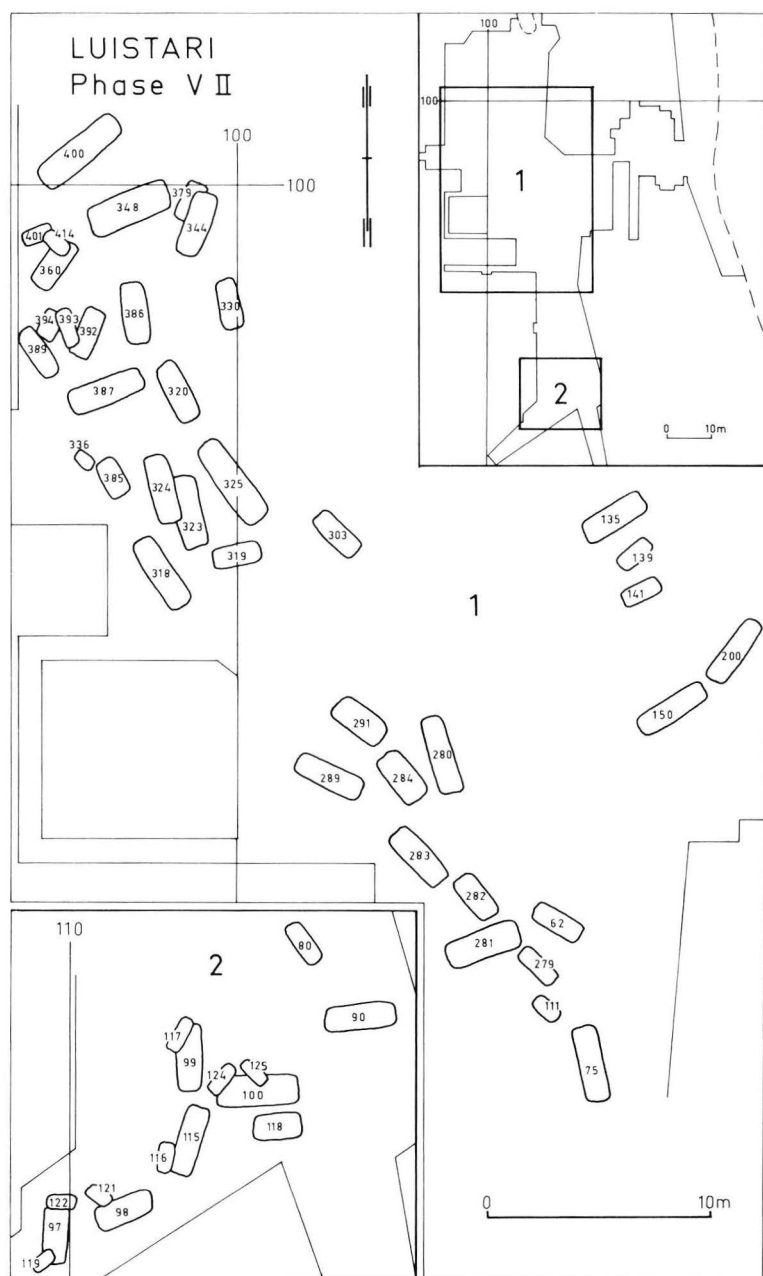


Fig. 54. Graves from Phase Viking II.

280. Man & child? Large spiral ornaments, ring-bits, clay vessel group II:2b.
281. Two men. Group 2:2 in Table 14.
282. Man. Group 1:2 in Table 14.
283. Man. Group 2:2 in Table 14.
284. Woman? Long spiral tubes.
285. Woman. Clay beads and separately made glass beads, iron rod-chain.
289. Man. Group 1:2 in Table 14. Clay vessel group I:1c.
291. Two women. Equal-armed brooch, large corner ornaments, iron rod-chain, segmented and cylindrical beads among others.
303. Man & child? Penannular brooch with funnel ends.
318. Man. Group 2:2 in Table 14. Segmented beads.
319. Woman. Segmented beads.
320. Man. Group 1:2 in Table 14. Clay vessel group I:2b.
323. Man. Group 1:2 in Table 14. Coin dating 883/4 A.D.
324. Woman. Finger-ring of silver, clay vessel groups I:1c and II:2c.
325. Man. Group 2:2 in Table 14.
330. Child. Spearhead with accentuated junction, corner ornament, clay vessel groups I:1b and II:1b.
336. Child. Unfurnished.
344. Woman. Segmented and separately made beads. Clay vessel group I:2b. Coin dating 914/5 A.D.
348. Man. Group 2:2 in Table 14. Clay vessel groups I:2b and II:1c. Coin dating 926/7.
379. Child. Bronze spirals only. (Under grave 344.)
386. Woman. Large corner ornament, clay vessel group I:2b.
387. Man? Clay vessel group I:2b.
389. Woman? Head-band (?) with studs, clay vessel group II:2b.
390. Woman. Penannular brooch with rolled up ends, segmented beads.
392. Woman. Clay vessel group II:1b.
393. Child. Unfurnished (but animal tooth!).
394. Child. Knife, clay vessel group I:2b.
400. Man. Group 2:2 in Table 14.
401. Child. Knife, corner ornament, clay vessel group I:2b.
414. Child. Unfurnished? (On top of graves 401 and 390).

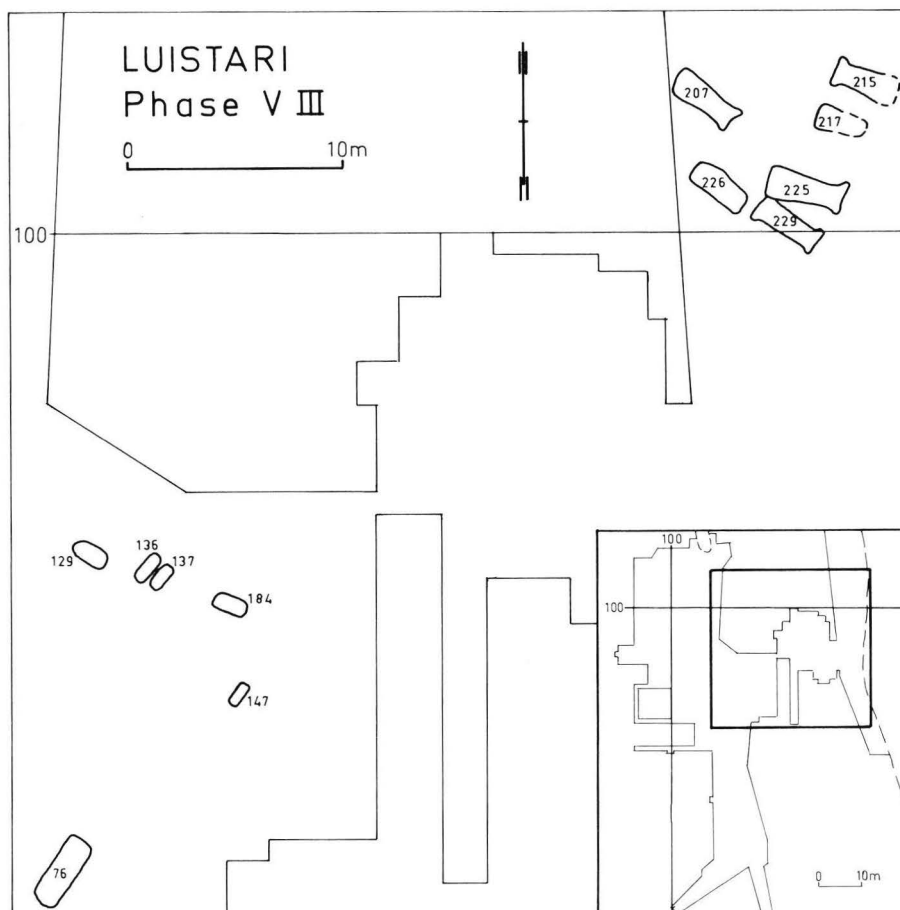


Fig. 55. Graves from Phase Viking III.

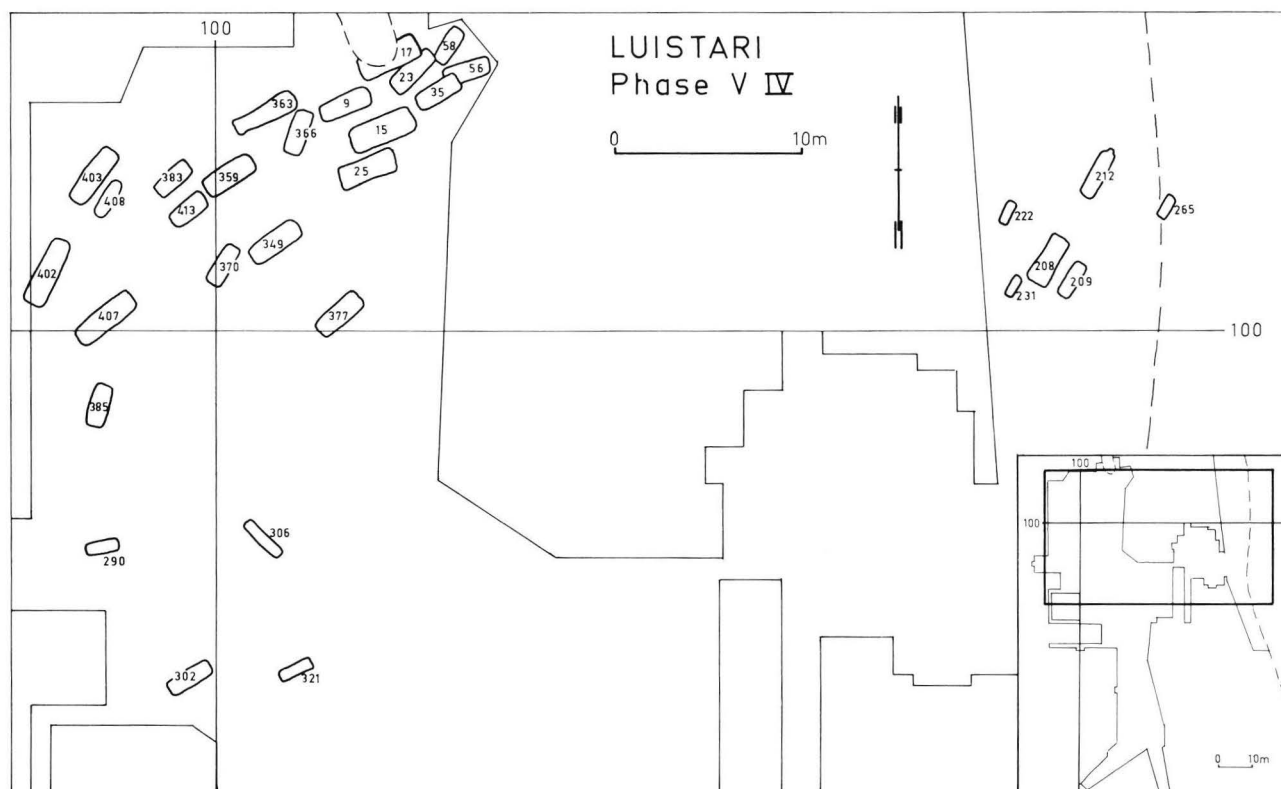


Fig. 56. Graves from Phase Viking IV.

Later Viking period, phase 1 (V III), c. 950–1000 A.D.

- Grave 76. Man. Group 3:1 in Table 14. Clay vessel group I:2d. (On top of grave 73.)
129. Child. Unfurnished. (On top of grave 77.)
136. Child. Finger-ring. (On top of grave 135.)
137. Child. Finger-ring. (On top of grave 140.)
147. Child. Chisel. (Slightly on top of grave 200.)
184. Woman. Segmented and multi-coloured beads.
207. Man. Group 3:1 in Table 14. Clay vessel group II:2c.
215. Man. Group 3:1 in Table 14.
217. Woman? Finger-ring only.
225. Man. Group 3:1 in Table 14. Clay vessel groups I:1c and II:2b.
226. Woman. Segmented bead, pin of a penannular brooch, clay vessel group II:2c. (Badly disturbed grave.)
229. Woman? Finger-ring and shears only.

Later Viking period, phase 2 (V IV), c. 1000–1070 A.D.

- Grave 9. Man. Group 3:2 in Table 14.
15. Man. Group 3:2 in Table 14. Clay

vessel group I:2b, coin dating 991–997 A.D.

17. Man. Group 3:2 in Table 14. Clay vessel group II:2b.
23. Woman. Multi-coloured beads, clay vessel groups I:1c, II:1b, II:2a.
25. Woman. Multi-coloured beads, round brooch D, silver penannular brooch, clay vessel group II:2a, coin dating 1000–1025 A.D.
35. Woman. Round brooches D, clay vessel group II:2c. (On top of grave 56.)
56. Woman. Round brooches D, equal-armed brooch, round silver pendants, multi-coloured beads, clay vessel group II:2c, coin dating 1018–1024 A.D.
58. Woman. Multi-coloured beads, coin dating 1018–1026 A.D.
208. Man. Group 3:2 in Table 14. Clay vessel group II:2c, coin dating 1039–1056 A.D.
209. Woman? Spiral ornaments, sleigh bells as in grave 25.
212. Man. Group 4 in Table 14.
222. Child. Finger-ring only. (On top of grave 207.)
231. Child. One bead only. (On top of grave 226.)

265. Child. Finger-ring only. (On top of grave 215.)
290. Child. Axe, round pendant, parts of belt.
302. Man. Group 4 in Table 14.
306. Child. Javelin point and knife.
321. Child. Knife only.
349. Man. Group 3:2 in Table 14. Clay vessel group II:2b.
359. Woman. Small penannular brooch, fayence beads, clay vessel groups II:2a and II:2c, coin dating 1056–1076 A.D.
363. Child. Small penannular brooch, arrowhead, coin dating 1039–1056 A.D.
366. Woman. Apron border, knife, coin dating? (Badly disturbed grave.)
370. Woman. Round brooch D, clay vessel group II:1b. (Badly disturbed.)
377. Woman. Multi-coloured beads, iron rod-chain, clay vessel groups II:1c and II:2d, coin dating 985–995 A.D.
383. Woman. Multi-coloured beads, round silver pendants, coin dating 1039–1056 A.D.
385. Man. Group 4 in Table 14.
402. Man. Group 3:2 in Table 14.
403. Man. Group 3:2 in Table 14. Coin dating?
407. Man. Group 3:2 in Table 14. Coin dating 1039–1056 A.D.
413. Woman. Bone beads, clay vessel group II:1b. (Under grave 381, disturbed.)
408. Child. Sleigh bell pendant.
36. Woman. Small penannular brooch, coin dating 1059–1086 A.D.
334. Woman. One bead, ring border fragment and sickle.
345. Man. Group 4 in Table 14.
347. Man? Group 4 in Table 14.
354. Woman? Finger-ring, spiral ornament, fittings. (On top of grave 359 and under grave 371.)
356. Woman. Bone beads, round silver pendants and finger-ring of silver. (On top of grave 359.)
358. Man & woman? Parts of harness, silver ring, coin pendants, coin dating 1106–1125 A.D. (Badly disturbed.)
360. Child. Unfurnished.
364. ?. Knife only.
365. Child. Unfurnished?
367. Child? Finger-ring, spiral ornament, shears, pouch, coin dating 990–1050? (On top of grave 349.)
369. ?. Unfurnished. (On top of 352 & 370.)
371. Child. Penannular brooch with rolled up ends, finger-rings, spiral ornaments. (On top of graves 354 and 367.)
374. ?Finger-ring, chain, spiral ornaments. (On top of graves 362, 363 and 375.)
375. Man. Group 4 in Table 14.
381. Man. Group 3:2 in Table 14. Coin dating 1068–1090 A.D.
391. Man. Group 4 in Table 14.
404. Woman and man. Small penannular brooches. Coin dating 1106–1111 A.D.
405. ?. Unfurnished?
406. Man. Group 4 in Table 14.
411. Child? One bead. (On top of graves 404 and 412.)
412. Man. Group 4 in Table 14. Coin dating 1056–1105 A.D. (Badly disturbed. On top of grave 410, under grave 411.)
415. Child. Unfurnished.

Final period (FP), c. 1070–1130 A.D.

- Grave 10. Child. Small penannular brooches. (On top of grave 35.)
13. Man. Group 4 in Table 14.
22. Woman? Silver finger-ring.

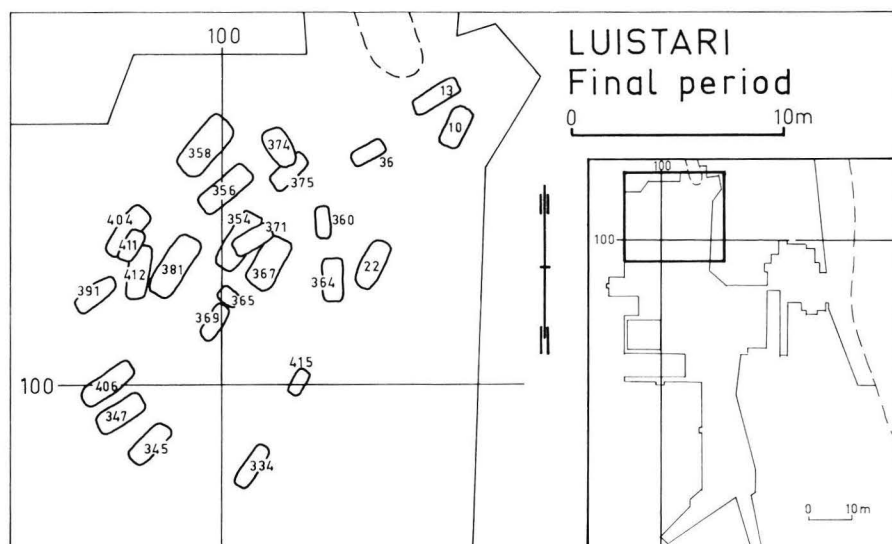


Fig. 57. Final period (FP) graves.

In the maps below, the Viking period graves at Luistari have been marked according to the list above. It is apparent that the dividing of these graves into Viking and Crusade period groups on the base of some brooch types is artificial. If the situation is considered on the base of the growth of the cemetery, it appears that some graves which on the base of the coin dates should belong to the

Crusade period are furnished in accordance with the Viking period traditions (e.g. grave 359), and that even some graves made on top of them are more closely connected to the Viking period than to the Crusade period in the form in which it is known from the cemeteries in Finland Proper. Apparently Leppäaho had good grounds when he proposed the transfer of the limits of these periods,



Fig. 58. Distribution of Viking period and later graves in the Luistari cemetery.

though the idea of ending the Viking period at the year 1000 A.D. was perhaps not so successful (1949 p. 92). However, I am certain that when some new cemeteries with finds from the 10th to 12th centuries have been excavated, a new division of the late Iron Age in Finland will be necessary. The finds from the K  yli   C-cemetery are too fragmentary and too large an area of Luistari is unexcavated, to get a tenable division now, but, while waiting for new finds I am content to remove the conception of the »Crusade period» from the Luistari vocabulary and to speak of the Final period instead. In so doing I mean the period reflected in the latest furnished graves in Luistari, in which the disappearance of tools and weapons is visible, but which nevertheless do not correspond in size and construction to the graves of the Crusade period cemeteries in Finland Proper. Also in regard to the orientation of the graves the local tradition in Eura has been stronger than all the influences from outside; still in the graves completely devoid of furniture the orientation SW–NE dominates. If this orientation is explained as a mark of Christian influence as P  lsi has proposed (1938 s. 30), that influence had come to Eura at the beginning of the Merovingian period and lasted to the end of the burials in the Luistari cemetery.

The question of how to date the beginning of the Viking period in the Luistari cemetery is still open. In the above it has been shown that the trait which separates the beginning of the Viking period from the Merovingian period is the first occurrence of certain beads, type E spearheads and spiral ornaments in the finds. The beads in zone III are mostly of Callmer's type F which becomes very common in Scandinavia during the 840's, but the neck bands

in the graves (309, 316) of the grave row which immediately follows the Merovingian period graves are not made of F beads.

The oldest fixed point for the occurrence of the type E spearhead in Finland is the find from Valaskallio in Mietoinen which has a coin-date to the very beginning of the ninth century. Of course the artefacts could have been interred much later, but they could also have been placed in the grave in the 810's. There is also a coin-dated grave of the first half of the 9th century from Eura with a type E spearhead (Sarvas 1972 pp. 55 and 112), and, most important of all, the spearheads in it are variants of the original type, whereas the Valaskallio spearheads are groove-ornamented and damascened and as such considered as import objects. It thus seems certain that the type E spearhead become common during the first half of the 9th century.

The exact stage when spiral ornamentation was taken into use in clothes is not known, but it is to be found already in the grave which can be regarded as the oldest Viking period grave at Luistari (grave 294, Lehtosalo–Hilander 1976). The style of decoration of the brooch with eight birds found in this grave was in fashion in Scandinavia at the very end of the Merovingian period and several artefacts adorned with it can be dated to around 800 A.D. As there is also a Finnish convex round brooch from grave 294, this must be of the stage when the new Viking period form world was developed in Finland. The Viking period phenomena at Luistari can thus be observed soon after the year 800, and the change is at least in the light of the present material abrupt, with no intermediary stage.

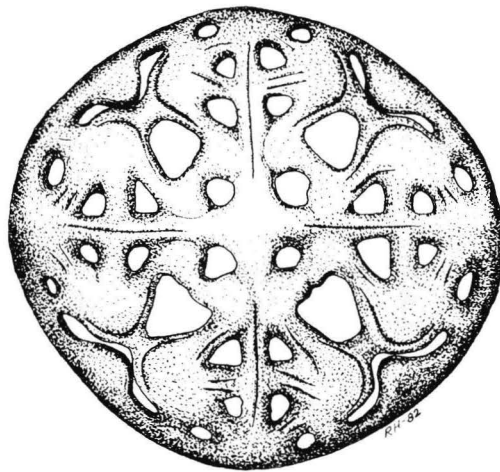


Fig. 59. The brooch ornamented with birds from grave 294.

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ABBREVIATIONS

AMAS	= Acta musei antiquitatum septentrionalis regie universitatis upsaliensis. Uppsala.	BAУ	= Вопросы археологии Урала. Свердловск.
FM	= Finskt Museum. Helsingfors.	КСИА	= Краткие сообщения Института археологии Академии наук СССР. Москва.
ESA	= Eurasia Septentrionalis Antiqua. Helsinki.	МИА	= Материалы и исследования по археологии СССР. Москва—Ленинград 1940—.
KVHAA	= Kungl. Vitterhets Historie och Antikvitets Akademien, Stockholm.	МАР	= Материалы по археологии России. С.-Петербург (Петроград) 1890—1918.
LAB	= Lietuvos archeologijos bruožai. See Kulikauskas & Kulikauskiene & Tautavičius 1961. Vilnius.	СА	= Советская археология. Москва 1957—.
NM	= National Museum (Kansallismuseo) Helsinki.	САИ	= Археология СССР. Свод археологических источников. Под общей редакцией академика Б. А. Рыбакова. Москва.
SHM	= Statens Historiska Museum, Stockholm.	Труды ГИМ	= Труды Государственного исторического музея. Москва 1926—.
SMYA	= Suomen Muinaismuistoyhdistyksen Aikakauskirja — Finska Fornminnesföreningens Tidskrift, Helsinki (Helsingfors).		
UMF	= Uppsala Universitets Museum för Nordiska Fornsaker, Uppsala.		