



INSTITVTVM ROMANVM NORVEGIAE

ACTA
AD ARCHAEOLOGIAM
ET ARTIVM HISTORIAM
PERTINENTIA

THE HOEN HOARD

A Viking Gold Treasure of the Ninth Century

Edited by
Signe Horn Fuglesang and David M. Wilson

VOLUMEN XIV

BARDI EDITORE

PETER STEPPUHN

Beads of glass and stone

The 131 glass and stone beads from the Hoen hoard probably comprised a single necklace (pls. 24-5). Seven of them (nos. 200-6) are now missing. In addition there were seven gold beads of which six survive (nos. 46-51, one is missing, no. 52). The necklace would be some 75 cm long without the pendants (see p. 93).¹ The order of the beads, as has already been noted, is random, although comparable finds from contemporary inhumation graves both in central Europe and in Scandinavia show that necklaces were often strung in an unordered manner. Sets of beads were added to or modified as a result of gift, purchase, exchange or even partial loss. The combination of beads of different colours and materials made a necklace look all the more attractive against what were otherwise usually monochrome textiles. In combination with simple monochrome pieces, unusual beads – such as polychrome beads, old types, semi-precious stones or gold beads – were particularly conspicuous. It is to be assumed that the more valuable elements of the necklace would have been worn ostentatiously over the breast, as, ultimately, strings of beads functioned as status symbols: symbols of wealth, connexions, finery and fashion. The Hoen necklace was probably arranged in precisely this way so as to emphasise the special pieces, especially the gold beads and the pendants. The plain, undecorated beads emphasise the gold and polychrome parts of the necklace.

Like the majority of the coins, most of the glass and stone beads are to be identified as products of the period from the late eighth to the third quarter of the ninth century. As with the hoard as a whole, the beads are a mixture of both western European, Scandinavian and south-eastern and Byzantine pieces.

Around the beginning of the eighth century a general intensification of trade and exchange is evident in the Rhine-Maas area, along the coasts of the North Sea (including the south coast of England), in south-western Scandinavia and in the Baltic. At Ribe² and Åhus³ the first evidence for Scandinavian beadmaking is found, glass beads being made from imported glass, cullet and tesserae, most probably brought from Italy and the Byzantine lands. Translucent blue and opaque white beads dominate the range produced in these workshops, although millefiori and *reticella* rods produced here also show that the craftsmen were capable of working at a technically sophisticated level.

1. Steppuhn (2002), 353.

2. Näsman (1979); Jensen (1991), 37-9; Callmer (1997), 197-8.

3. Callmer and Henderson (1991); Callmer (1997), 198.

In the ninth and tenth centuries other bead-making workshops were established in northern Europe producing glass beads either in imitation of oriental prototypes or of indigenous form.⁴ The majority of beads were still imported from the East. Types such as eye beads, millefiori and foil-covered beads were particularly widely distributed. In the course of the second half of the eighth century the demand for oriental beads in northern and eastern Europe was especially high. In the excavations at Staraja Ladoga, there is a clear predominance of oriental beads over those of northern European origin in the levels of the period around 760.⁵ This predominance is also seen in bead finds from eastern Europe, the Baltic area, southern Scandinavia, and the Saxon lands. As a result of the greater impact of a northern European bead-making industry towards the end of the eighth century, the quantity of local beads in the necklaces of Viking women is higher. The end result is a colourful intermixture of beads from different sources.

Northern European beads were probably made mostly by seasonal and itinerant craftsmen who imported raw glass from southern Europe or the Orient. Their craft was carried out in the urban settlements and occasionally, as at Hedeby, several workshops can be identified which were operative side-by-side or one after the other.⁶ Such glass-working was dependent on imported glass and the know-how of the craftsmen. The production of glass mass from raw materials, requiring the use of proper smelting furnaces, was exceptional, and can only be postulated at Hedeby, Szczecin, Helgö and Birka.⁷ The outline of western and eastern distribution routes for oriental beads of the period 760-850 sketched by Callmer is essentially correct, although there were unquestionably other routes and links.⁸ One can assume that the imported beads in the Hoen hoard came to Scandinavia by eastern routes.

Such may well be the case in relation to the violet glass beads (nos. 150-81), parallels to which are extremely rare in northern Europe. In the Hoen hoard, however, these alone account for 28% of the glass beads. Beads of this colour and of similar tone are typical amongst oriental glass beads of the second half of the eighth century.⁹ The 'rich amethyst violet' beads described by Callmer,¹⁰ however, correspond in neither form nor colour to the glass beads in the Hoen hoard. Callmer¹¹ has informed me that the beads discussed by him occur in large numbers in the Baltic area (but above all in the south-eastern regions such as the Caucasus, northern Persia, Crimea and the Kama basin),¹² but that the bead-types from Hoen are very rarely encountered in Scandinavia. This confirms my own research. Violet beads comparable to those in the hoard occur only twice in the west, at the Saxon cemetery of Wulfsen, Harburg (site 8, grave 782).¹³ They

4. Steppuhn (1998b), 106-10.

5. L'vova (1968), 67-72.

6. Steppuhn (1998a), 464-5; (1998b), 92-102.

7. Dekówna (1990), 11; Callmer (1997), 199; Steppuhn (1998b), 94-6.

8. Callmer (1995), 52 and fig. 2.

9. Callmer (1995), 51 and fig. 1.

10. Callmer (1977), 80 (type A 154-5); Callmer (1990), 28.

11. In a letter of 20.08.1998.

12. Callmer (1990), 28.

13. Thieme (1987), 168-9. My thanks to F. Laux and

occur only sporadically in Scandinavian finds: for instance in Birka grave 38,¹⁴ grave 49,¹⁵ and grave 597,¹⁶ and in the settlement at Hedeby.¹⁷ The distribution map shows some overlapping of *rich amethyst violet* coloured beads and glass beads of violet to brown-violet hue in south-eastern Europe. Szilágyi has drawn my attention to the old Magyar cemeteries of Bolsije Tigami on the River Kama and the equestrian graves of Pilin-Leshegy. In these eighth- and ninth-century graves there are a number of violet glass beads, albeit not identical in form to those from Hoen. Zironkina has listed for me a total of six settlements and cemeteries in the Ukraine in which violet glass beads have been found in significant quantities.¹⁸ In the Saltovo-culture cemeteries of Saltovsk, Dimitrievsk, Verhnesalatovsk, Starosalatovsk and Netajlovsk, and the settlement of Majckoe, various forms of beads were found, including globular and polyhedral beads of violet glass. One group of 37 violet glass beads was found in a single grave at Saltova.¹⁹ An absolute chronology for the beads of this region is still needed, but in the opinion of Zironkina a date in the eighth to ninth centuries is to be assumed. As well as these Khazar-period finds of the northern Donetsk, there are violet beads in the northern Caucasus which date to the period from the seventh to the ninth century.²⁰ The range of forms in this case includes spheres and cylinders as well as ribbed and polyhedral beads;²¹ similar forms also occur in the Hoen hoard. Scientific investigation alone suggests that it is possible that violet beads of the Dschetyasarkajo Culture were made in China.²²

According to L'vova, violet and brown-violet beads also occur at Staraja Ladoga in layers of the eighth to tenth centuries, including polyhedral forms and specimens with millefiori eyes.²³ Violet millefiori beads with red centres and white rays, like that from Hoen (no. 166), are also found at Staraja Ladoga.²⁴ In view of the greater frequency of violet glass beads in south-eastern Europe, and Asia Minor in particular, we should consider whether such beads could be of oriental origin. Violet beads are still made in Anatolia today, including specimens with round eyes comparable to the example in the Hoen hoard (no. 165).²⁵

As already indicated, the violet beads were probably imported from the Orient but are found predominantly in south-eastern Europe and do not always match those from our hoard. Indeed, in several cases the forms of the violet beads from Hoen match the forms of blue and cobalt blue glass beads familiar

W. Thieme, Helms-Museum Hamburg, for making the beads found at Wulfen available to me. It was only possible to confirm the agreement in colour and form between the beads from Hoen and Wulfen by personal inspection. A comprehensive assessment of grave 782 from Wulfen is still awaited. At present, however, F. Laux considers a date of burial after 800 improbable.

14. Arbman (1940-3), 1 pl. 123:38b.

15. Arbman (1940-3), 1 pl. 123:36b.

16. Arbman (1940-3), 1 pl. 122:8c.

17. Steppuhn (1998b), 23, 37-8 and pl. 5:41.

18. My special thanks to O. Zironkina for a written report on these beads.

19. Mastykova (1991), types 51, 61-6, 68, 72, 75.

20. Goldina and Kananin (1989); Lewina and Dowgajuk (1995).

21. Goldina and Kananin (1989), 68-71 (types 23-6, 81); Lewina and Dowgajuk (1995), 206.

22. Lewina and Dowgajuk (1995), 208.

23. L'vova (1968), 75-6 (group IV).

24. L'vova (1968), 76 and fig. 3:18.

25. Sode (1996), 43-4, 54 and fig. d.

in Scandinavia and in particular in Saxon cemeteries.²⁶ The correspondences are obvious in the cases of the barrel-shaped and ribbed and of the polyhedral beads, and can be explained in terms of the method of production. The glass mass was produced not simply by melting together the raw materials with colouring oxides, but rather – and this was the most common method of production in Scandinavia – by adding in imported glass in the form of cullet or tesserae. Thus, just as particular oxides coloured the glass mass, the mixture of the scrap glass used determined the colour of the secondary glass mass. If manganese and cobalt oxide were responsible for a violet colour in the raw glass, cullet with a high quantity of manganese oxide glass sherds would yield a violet glass mass.

We cannot, therefore, exclude the possibility that at least some of the violet beads from Hoen were made in Scandinavia. Whether this colour was deliberately sought, in order to stand out against the other blue beads, or the violet colour of our beads was accidentally produced as the result of a lack of technical knowledge, remains an unresolved issue.

The observable production of blue, white and dark red glass beads, and the application of complicated techniques, in Ribe and Åhus as early as the early eighth century give more substance to the hypothesis that the violet beads could also have been produced in Scandinavia. The association of violet and blue beads of similar form in a necklace, such as that from Wulfsen grave 782, supports the view that these beads could have been produced in the same area. Conclusive information about the provenance of the beads can probably only be obtained by laboratory analysis, although it is important to bear in mind that it was the norm to use imported raw glass for glassworking in northern Europe in the Viking period.

Many of the violet beads have crackled, probably as a result either of intensive use or of force of some kind, or possibly as a result of re-heating (no. 178). If such beads had been ruined they would undoubtedly have been 'recycled': either the fragments would have been melted down again, or the particles would have been melted into the surface of another bead.²⁷ The reuse of such waste was, in fact, done by goldsmiths. The placing of matching small pieces of glass in the middle of the items of jewellery shows the high value even of fragments. It is entirely conceivable that the goldsmith deliberately used fragments of violet glass in order to give the impression of amethyst inlay. There are also examples of the reuse of violet glass splinters on the silver brooch from Rinkaby, Skåne,²⁸ and again in the Hoen hoard, where a fragment of violet-coloured glass was incorporated in pendant no. 8.²⁹ "Amethyst-coloured" glass is recorded also on the lost gold bead no. 52, but the colour of the inset on the surviving bead, no. 46, is blue-green and its spherical studs had been made for the purpose (cf. p. 258).³⁰

26. Wegewitz (1968), pl. A-D; Ahrens (1983), pl. B, D; Laux (1983), pl. E; Thieme (1987), 169.

27. Steppuhn (1998b), 46-7.

28. Wilson (1995), 86 and fig. 54.

29. Holmboe (1835a), 10 (no. 8c); Grieg (1929), 185, 189 and fig. 29; above, p. 90.

30. Reg. no. C.13452:b. Cf. Grieg (1929), 188 (no. C.13452); above, pp. 35, 97.

The remaining glass beads, most of which are monochrome, are types more frequently found amongst the beads of northern Europe. However, some bead types typical of the ninth century are missing from this hoard. Likewise absent are certain bead combinations of the eighth and ninth centuries that are otherwise found widely in the Baltic area. These include the so-called mosaic-eye beads of Syrian or Egyptian origin.³¹ Prismatic beads of green lead glass which, according to recent studies, also belong to the *Mosaikperlenhorizont*, are likewise absent from the Hoen necklace.³² It is difficult to produce any chronological ordering of the monochrome white, green and dark red beads of opaque glass. It is known that they were not only imported but also produced in the early Scandinavian urban settlements. The finds from Kaupang, for instance, demonstrate that such beads were manufactured there in the ninth century. Considering the geographical proximity, it is possible that glass beads made at Kaupang found their way to Hoen.

Production of opaque white glass beads (nos. 75-83, 85 and 95-9) is known to have taken place in Scandinavia (Ribe and Åhus) as early as the first half of the eighth century.³³ Translucent blue beads were also produced there, albeit with little impact on the Hoen hoard (nos. 147-9). Blue beads were popular in northern Europe for a long time. They were not only imported: a significant range of local versions was produced, as at Ribe, Åhus and Hedeby.³⁴ Blue glass beads, usually annular like those from Hoen, are common in ninth-century finds, for instance at Birka,³⁵ and at Kaupang and Skalberg, both in Larvik, Vestfold.³⁶

Opaque orange-coloured (nos. 87 and 125), and especially opaque dark red glass beads (nos. 86, 88 and 126-45), normally barrel-shaped, which are frequently mistakenly described as *ceramic* or *terracotta* beads because of their rather poor material,³⁷ are extremely unhelpful chronologically. Their generally uniform appearance and their very dense and widespread distribution demonstrate that this type was truly a mass-produced object. In the Baltic area such beads are found, alongside opaque green and white beads, in settlements and graves from the sixth to the tenth century.³⁸ In Saxon cemeteries they date from the seventh century to the ninth.³⁹ The situation in central and eastern Europe is much the same.

Among the dark red beads there is one specimen of particular interest (no. 126). On the surface of this bead there is a large patch of orange-coloured glass which looks like a repair rather than a decoration, and the very different degree of wear on the two elements indicates that the repair was secondary. Despite its unusual character this piece is not unique; a parallel occurs among the beads from the child's grave 948 at Birka, where a dark red bead was similarly patched

31. Andrae (1975), 130, 165.

32. Steppuhn (1993), 208-10; (1997), 205.

33. Callmer (1995), 50.

34. Steppuhn (1998b), 34-5.

35. Danielsson (1973), 76.

36. University Museum of Cultural Heritage (for-

merly, Universitetets Oldsaksamling), reg. nos. C.2318 Skalberg; K.XIII Kaupang.

37. Steppuhn (1998b), 29.

38. Steppuhn (1998b), notes 27-9.

39. Wegewitz (1968), pl. A-C; Ahrens (1983), pl. B-D; Laux (1983), pl. E; Thieme (1987), 169.

with orange glass.⁴⁰ A deep blister in the glass of a similar bead from Hedeby has been left untouched and demonstrates what an imperfect bead looked like before it was repaired.⁴¹ Birka grave 948 belongs to burial area 1A,⁴² an area which includes graves 1081 and 943, with coins which give those burials *termini post quos* of 835 and 911-12 respectively⁴³ – which suggests a ninth-century date for the bead from Birka grave 948, providing a similar date-range for the corresponding bead from Hoen.

One may thus assume that the beads from Hoen also included older specimens which were included in the necklace as it was passed down the generations. This may be assumed, although it cannot be proven, in the case of some of the opaque white, green and dark red beads. It is much more clear in respect of the dark red bead with continuous opaque white trails (no. 145), for which there are parallels in the southern German/Alamannic area in particular from as early as the sixth century, for example from the cemetery of Pähl, Weilheim-Schongau, Bavaria.⁴⁴

Monochrome green beads of semi-translucent glass (nos. 84, 89, 91 and 107-20) are as common as those of opaque orange-coloured or dark red glass. They are also mostly barrel-shaped, and beads of all three colours frequently occur together in a necklace. This is shown, for example, in Saxon cemeteries of the second half of the eighth century, such as that of Wulfsen, Harburg.⁴⁵ In addition, these three bead-types are found together in settlements in both Saxon and Scandinavian areas, where they are particularly common at the beginning of the ninth century.⁴⁶

Glass beads with continuous zig-zag bands and edge trails in contrasting colours are typical Scandinavian products. The first examples decorated like this – blue beads with red edge trails and white zig-zags – were being produced in Ribe and Åhus as early as the first half of the eighth century.⁴⁷ At the same time such beads are found in Saxon cemeteries, as in grave 25/3 at Hitfeld-Karoxbostel, Harburg, c. 730.⁴⁸ In the late eighth and early ninth centuries the motif remained unchanged, only the colour of the beads varying frequently from blue to green, while the zig-zag occurs more often in yellow than in white.⁴⁹ A dark green bead with dark red edge trails and a yellow zig-zag pattern which occurs at Hoen (no. 123) has exact parallels from Ribe⁵⁰ and Hedeby⁵¹ which are dated to around 800. Simple beads with dark red zig-zag decoration were produced in significant quantities in other bead workshops of the Baltic area besides those of Hedeby, particularly in the ninth and tenth centuries.⁵² Other examples with dark red zig-zags from Hoen (nos. 99 and 146) were probably also made in bead workshops in this northern area.

40. Arbman (1940-3), 1 pl. 124:2; (1940-3), 2 373-4.

41. Steppuhn (1998b), col. pl. 41.

42. Arwidsson (1984-9), 1 tab. I.

43. Arwidsson (1984-9), 1 tab. 36:2.

44. Dannheimer (1987), 61 and fig. 37.

45. Thieme (1987), 169.

46. Steppuhn (1998b), 29.

47. Jensen (1991), 37-9; Callmer (1997), 198 and

pl. 15.

48. Laux (1993), 200, 203 and fig. 3.4; personal communication from F. Laux.

49. Callmer (1977), types B 545-6, B 549; Steppuhn (1998b), 45-6.

50. Roesdahl et al. (1981), 32.

51. Steppuhn (1998b), colour pl. 104.

52. Steppuhn (1998b), 45-6 and colour pls. 98-102.

The colourless tubular bead with double diagonal trails (no. 102) is to be regarded as an oriental import. This type probably served as the prototype for similar tubular beads produced in Scandinavia in the second half of the ninth century. The Scandinavian products can be distinguished from those of oriental origin by the usually light green tint of the body of the bead, a frequently found dark red trail, and the generally irregular form and less careful workmanship.⁵³

It has been shown that many types of bead characteristic of Scandinavia in the eighth and ninth centuries are either absent from the Hoen hoard or occur only in extremely small numbers. This range includes foil-covered beads. While such beads are found in burials and settlements of this period in large numbers,⁵⁴ only two were found in the Hoen hoard (nos. 182-3). The type is to be attributed to the *Mosaikaugenperlenhorizont* of around 800 or rather earlier.⁵⁵ It appears that beads which belong to this horizon either did not reach Hoen or were rejected for the necklace. Scandinavian parallels to the other colourless beads with gold foil (nos. 184-8 and 207) are only occasionally encountered.⁵⁶ An oriental source for the specimens from Hoen is certainly to be considered, even if they are probably not all from the same workshop. If some segments are taken away from the drawn foil-covered beads, it is clear that all of them (nos. 184-8) were made as individual wound beads. There are certain similarities between the beads in the hoard and an undated bead necklace in the Metropolitan Museum of Art, New York.⁵⁷ Another necklace with similar gold-in-glass beads comes from the cemetery of Ducové in Moravia, which is dated to the ninth century.⁵⁸

So far, the study of the beads from Hoen has shown that we are dealing with a mixture of imported and locally manufactured beads, a fact reflected in the form and way in which the beads are combined with each other. The stringing of groups of beads on a gold or gilded silver wire, which is formed into a loop and fastened with a twisted knot, seems to be typically Scandinavian. Such pendant rings of beads are often found in Scandinavian women's graves. At Hoen there are five rings of beads, of which, however, only the first three (nos. 75-83, 84-6 and 87-8) are to be regarded as original. It is striking that all the glass beads strung in this fashion are very probably from Scandinavian workshops. The composition of the second pendant (nos. 84-6) is especially informative, for the combination of a green, a white and a dark red bead in exactly this order is matched in graves 557 and 649 at Birka (pl. 69.2 and 69.19).⁵⁹ The small beaded spacing rings of gold wire as on the first pendant (nos. 75-83) also have parallels at Birka,

53. Callmer (1977), 96 (type B 542); Steppuhn (1998b), 49 and pl. 8:21-3, colour pl. 112.

54. Steppuhn (1998b), 40 and figs. 6:35-61, 7:1-10, colour pls. 90-2.

55. Andrae (1975), 112-3. The term *Mosaikaugenperlenhorizont* was introduced by Andrae (1975), 107-10 and 148-56. It applies to a particular type of millefiori beads, combined with other special beads and ornaments. *Mosaik-*

augenperlen are distributed from Ireland in the west to the Caucasus in the east, and from Norway in the north to Egypt in the south, but have a centre in Central Europe, cf. Andrae (1975), 118, pl. 1.

56. Andrae (1975), 156; Callmer (1995), 52.

57. Dubin (1987), 92.

58. Dekan (1983), 30-1, 165 and fig. 172.

59. Arbman (1940-3), 1 pl. 121:2c.

again in graves 557 and 649 as well as in grave 632.⁶⁰ The beads of two further pendants (nos. 89-90 and 91-4) were clearly first put together in this way after the recovery of the find and its registration. The pieces have different inventory numbers, and the careless twisting of the wire obviously differs from that of the first three pendants.

A primary reference point for the dating of the bead-rings resides in the provisional chronology of the Birka graves.⁶¹ The graves with coins, grave 632 (with a suspended Byzantine silver coin of Theophilus, 829-832/3)⁶² and 557 (with a denarius of Charles the Bald, 840-77)⁶³ are chronologically close. Grave 649 belongs to the eighth/ninth century⁶⁴ or the ninth/tenth century.⁶⁵ This means that the combination of the pendants with the green, white and dark red beads was particularly in evidence around the middle of the ninth century, if one assumes a period of fashion for such objects of about one generation. This would fit particularly well with the pendant from Hoen, implying that our pendant was not worn for very long. For the dating of the small bead strings, the coins from Birka graves 557 and 632 also provide evidence for their presence in the middle of the ninth century.

A mixture of oriental, south-eastern European and Scandinavian beads is also represented by the semi-precious stones of the Hoen hoard. Rock crystal, carnelian and agate beads from the East were traded in Scandinavia from the transition between the Vendel period and the Viking period to some time in the fourteenth century.⁶⁶ Large quantities of carnelian and rock crystal beads are known from the old Russian kingdom and from the Khazar and Volga Bulgar areas. These beads are common in Sweden, but less so in western Scandinavia.⁶⁷ The forms of the rock crystal and carnelian beads are almost identical, indicating that they come from the same cultural zone.⁶⁸

Carnelian does not occur naturally in Scandinavia and has to be imported from the South. From as early as the seventh century BC Caucasian raw material can be found in Europe.⁶⁹ The best known deposits of carnelian are in India⁷⁰ (at Cambay⁷¹ and Ratanpur⁷²), in Iraq,⁷³ Yemen,⁷⁴ Iran,⁷⁵ and above all in the Caucasus.⁷⁶ The source of the carnelian has in some cases been determined by laboratory analysis. The raw material for the carnelian beads from the late

60. Arbman (1940-3), 1 pl. 119:f.

61. Arwidsson (1984-9), 1 275-6.

62. Arbman (1940-3), 2 211; Arwidsson (1984-9), 3 47. The association of an Abbasid dirham of 777/8 with grave 632 or grave 516 is uncertain: Arbman (1940-3), 2 213; Arwidsson (1984-9), 1 tab. 36:2.

63. Arbman (1940-3), 1 pl. 141:14; (1940-3), 2 178; Arwidsson (1984-9), 1 275-6 and tab. 36:1.

64. I. Jansson in Roesdahl and Wilson (1992), 258 (no. 125).

65. Baumgartner and Krueger (1988), 72-3 (no. 15).

66. Dubin (1987), 94; Jansson (1989), 587.

67. Callmer (1977), 99; Resi (1987), 137 and fig. 4;

Jansson (1987), 795 and fig. 10; Jansson (1989), 585-6 and fig. 10; Gabriel (1991), 256-7 and fig. 5.

68. Jansson (1989), 584-9.

69. Gabriel (1991), 257.

70. von Müller (1970), 53; Resi (1987), 133; Jansson (1989), 586.

71. Callmer (1977), 99.

72. Gabriel (1991), 257.

73. von Müller (1970), 53.

74. Jansson (1989), 586.

75. Resi (1987), 133.

76. Callmer (1977), 99; Heyerdahl-Larsen (1979), 154; Resi (1987), 133; Jansson (1989), 586; Gabriel (1991), 257.

Slavonic graves at Espenfeld in Thüringia, for instance, came from the Caucasus, in particular from Georgia, Armenia and Dagestan.⁷⁷ Other sources of raw material, such as North and South America, or Madagascar, as well as insignificant amounts in Saxony, need not be considered in relation to the Viking period.⁷⁸ It can be assumed that carnelian and rock crystal were brought to Scandinavia in the form of finished beads, and also in the form of as yet unworked raw material. Alongside finished beads, raw material, unfinished, and defective pieces have been found at such settlement sites as Menzlin in Anklam,⁷⁹ Hedeby⁸⁰ and Birka,⁸¹ as well as at Paviken, Västergarn⁸² and Kaupang.⁸³

Unlike carnelian, rock crystal need not all have been imported, as this colourless semi-precious stone occurs in Scandinavia and it has been suggested that Scandinavian rock crystal was broken up and prepared for beads and pendants.⁸⁴ Heyerdahl-Larsen has demonstrated the probability that Norwegian rock crystal, for instance from Valldalen, Hordal in Vestfold, was worked at Kaupang.⁸⁵ I have no doubt, therefore, that local rock crystal was used in Scandinavia. This is shown by the form of some of the beads which differ from examples imported from the South or from beads produced by travelling (perhaps seasonally occupied) gem-cutters. This is the case, for example, with the biconical beads from Hoen (nos. 189-93), which have been rather incompetently polished and perforated from only one side with a drill that was far too large. It is possible that the Hoen rock crystal beads were made in Kaupang.

The carnelian beads (nos. 94 and 197-9), by contrast, are professionally finished. They match the familiar forms encountered at many settlement sites and in many graves of northern Europe.⁸⁶ The octagonal prismatic beads (nos. 198-9) are like those from Starigard/Oldenburg,⁸⁷ Hedeby,⁸⁸ Birka,⁸⁹ and Kaupang.⁹⁰ The round, slightly irregularly formed specimens also have exact counterparts at Starigard/Oldenburg⁹¹ and Kaupang.⁹² Globular carnelian beads probably came to Scandinavia together with oriental millefiori beads towards the end of the eighth or around the beginning of the ninth century. In Scandinavia, such beads are found frequently in east central Sweden, in the Åland archipelago, and on the western coast of the Baltic.⁹³ In the ninth century the influx of carnelian beads strengthened further and they remained very conspicuous in the tenth century.⁹⁴

77. Gabriel (1991), 257.

78. von Müller (1970), 53.

79. Schoknecht (1977), 84; Jansson (1989), 589; Gabriel (1991), 257.

80. von Müller (1970), 54; Resi (1987), 133-4; Jansson (1987), 794; Jansson (1989), 589; Gabriel (1991), 257.

81. Danielsson (1973), 54-6, 67-71; Heyerdahl-Larsen (1979), 152; Resi (1987), 133-4; Jansson (1987), 794; Jansson (1989), 589; Gabriel (1991), 257; Ambrosiani (1995), 57-8.

82. Lundström (1981), 90-1; Jansson (1989), 589.

83. Heyerdahl-Larsen (1979), 153; Resi (1987), 133-

4; Jansson (1987), 794; Jansson (1989), 589; Gabriel (1991), 257.

84. Callmer (1977), 99 and Resi (1987), 133.

85. Heyerdahl-Larsen (1979), 153.

86. Callmer (1977), 99 (T-beads).

87. Gabriel (1991), 255 and figs. 4, 19.

88. von Müller (1970), 54 and figs. 1:1-2, 2:1-2.

89. Danielsson (1973), 68-70 and fig 34:a-b.

90. Heyerdahl-Larsen (1979), 152 (type a).

91. Gabriel (1991), 255 and figs. 4, 19.

92. Heyerdahl-Larsen (1979), 152 (type g).

93. Callmer (1990), 29.

94. Jansson (1989), 586.

The prismatic specimens are dated mostly to the ninth and tenth centuries. Gabriel assigns round and prismatic carnelian beads to no earlier than the beginning of the tenth century at Starigard/Oldenburger.⁹⁵ In the case of the majority of the carnelian beads from Hoen, therefore, one would assume that they were not added to the other beads until some time around the middle of the ninth century or soon thereafter, a date which chimes with that of the pendants with glass beads.

It is also likely that the three agate beads (nos. 194-6) reached Hoen only a short time before the deposition of the hoard. Parallels to these beads are extremely few, and Callmer dates their occasional appearances in Scandinavian cemeteries to his periods IV and VI, i.e. the periods 860-85 and 950-60.⁹⁶ Since agate, like carnelian, is a form of chalcedony, and both minerals occur in the same regions, it is to be supposed that both types of beads came to Scandinavia by the same route and presumably at the same time.

A solitary bead that clearly does not belong to the Viking period is a round polyhedral bead of black jet. This is unambiguously different from all jet products of the Viking period, and must be identified as a modern product, with parallels dated mostly to the nineteenth century. We can only speculate on how the jet bead came to be associated with the remainder of the Hoen hoard. It was accessioned under No. C. 13453 in the University Museum of National Antiquities together with eight other beads (nos. 90, 93-4, 104, 123, 146, 166 and 199) in 1887. It was noted that the objects then deposited were in the possession of the family who had owned the farm on which the hoard had been found in 1834.⁹⁷ In the more than fifty years since the recovery of the majority of the hoard, much could have happened. It is possible that the jet bead was accidentally lost in the immediate vicinity of the hoard during the nineteenth century and either overlooked when it was first unearthed or found during a subsequent excavation. It is also possible that the bead was accidentally included in the group of items which were delivered to the museum in 1887. Finally, it is not entirely impossible that a mistake was made during the museum registration and that the jet bead actually belonged with another set of finds.

There is otherwise no reason to doubt the homogeneity of the hoard. The only anomalous object in this assemblage, which is almost exactly a thousand years younger, does not undermine the coherency of the evidence.

How unusual are beads in hoards of the early and middle Viking period? In hoards, which are usually characterized by metal artefacts, beads and necklaces are the exception. Moreover, the great majority of such assemblages belong to the late ninth and tenth centuries, reducing the number of hoards that are comparable to that from Hoen. In his survey of Norwegian Viking-period hoards, Grieg notes four hoards containing beads as well as the find of a ring together with beads.⁹⁸ Only the hoard from Krogen, Fjære, Aust-Agder, has certain parallels to the Hoen hoard

95. Gabriel (1991), 257.

96. Callmer (1977), 99 and pl. 21 (T 003).

97. Grieg (1929), 188.

98. Grieg (1929), 177-311.

in terms of composition and date.⁹⁹ But the beads from the two finds have relatively little correspondence.¹⁰⁰ None of the glass beads from Krogen match those from Hoen, and only a globular bead and two relatively small, octagonal carnelian beads (cf. nos. 94 and 198-9) have counterparts in the assemblage. The other beads from Krogen, especially the large numbers of foil-covered and rock crystal beads, the latter more similar to those from Hedeby, Birka and Starigard/Oldenburger,¹⁰¹ date to the end of the ninth and beginning of the tenth centuries.

The beads in the hoard from Vela, Sand, Ryfylke, Rogaland, the deposition of which is dated to the middle of the tenth century, belong to a range of forms characteristic of the period around 900 to 950.¹⁰² Of the 21 beads in this find, twelve are polychrome and nineteen are of glass;¹⁰³ two agate beads are similar to those in the Hoen hoard. This tends to strengthen the conclusion that agate beads did not occur earlier than the second half of the ninth century.

The find from Litland, Tau, Strand, Rogaland, contains fifteen glass and five stone beads, but no coins.¹⁰⁴ Only one of the glass beads is decorated. A faceted clear-glass bead is very similar to one of rock crystal. According to Grieg the beads from Litland are similar to those from Hoen.¹⁰⁵

From the area of Bergen in Hordaland comes a hack-silver hoard which the University Museum of National Antiquities obtained through exchange.¹⁰⁶ The find includes a polyhedral carnelian bead, a mosaic glass bead, and an unpolished amethyst.

Probably not to be categorized as a hoard is the find of a small silver armring together with six glass beads of different colours from Sandnessjøen, Alstahaug, Nordland.¹⁰⁷ When found, one blue bead was still on the ring. Whether the other beads also belonged with the ring or were parts of some other piece of jewellery we do not know.

Finally, Graham-Campbell has drawn my attention to another find of a ring with beads, from Berg, Bjugn, Sør-Trøndelag, in the museum in Trondheim.¹⁰⁸ This is a silver arm-ring with four simple, dark red glass beads, which cannot be dated any more closely than to the eighth to tenth centuries.

The hoards of Gotland were comprehensively surveyed by Stenberger (1947-58).¹⁰⁹ Here too beads form only a minor element in the hoards. An examination of the evidence shows that the range of beads here is fundamentally different

99. Grieg (1929), 204 (no. 7); both Fuglesang and Graham-Campbell have expressed themselves in favour of a dating of the Krogen hoard either contemporary with or a little later than the Hoen hoard. My thanks to both for communications by letter.

100. The beads were not mentioned by Grieg. One reference to these pieces was kindly given me by Graham-Campbell.

101. von Müller (1970), 54 and figs. 1-2; Danielsson (1973), 68-71 and figs. 34, 80-1; Gabriel (1991), 257 and fig. 19.

102. Grieg (1929), 205-6 (no. 9).

103. Including two beads *av gult ler* (of yellow clay), *en firsidet av rødt ler* (one four-sided one of red clay) which are also to be identified as glass beads. Cf. p. 207 and Steppuhn (1998b), 29.

104. Grieg (1929), 244-5 (no. 74).

105. Grieg (1929), 245.

106. Grieg (1929), 248 (no. 85).

107. Grieg (1929), 257 (no. 110).

108. Petersen (1939), 13-20 (no. 15733) and fig. 4.

109. Some of the hoards with beads were also mentioned by Arbman (1937), 189-93.

from that at Hoen. Similarities of form are only vague, and usually quite unascertainable. In his summary description of the glass beads, Stenberger notes that beads are found only in silver hoards, and he therefore gives the beads a monetary value.¹¹⁰ In general Stenberger dates the hoards with beads rather late. Only in the case of the find from Norrgårda, Björke, does he believe in deposition in the early Viking period.¹¹¹ In contrast he assigns the hoards from Mårtens, Grötlingbo;¹¹² Hallinge, Grötlingbo;¹¹³ Petes, Linde;¹¹⁴ and Lilla Rone, Lye;¹¹⁵ to the middle and late Viking period. Finally, Stenberger refers to a total of twelve hoards on Öland and in mainland Sweden. Amongst these, the bead jewellery from Kettilsgården, Västergötland, and Stora Ryk, Dalsland, is especially rich.¹¹⁶ Once again, however, the beads in these hoards provide no identifiable parallels to the Hoen hoard. Of the remaining Swedish hoards only those from Ringome, Alva,¹¹⁷ and Väsby, Väsby,¹¹⁸ are worthy of notice, although again these yield nothing corresponding to the beads from Hoen.

There are, however, certain relevant parallels in the Danish grave from Lerchenborg, Aarby, Sjælland (pl. 70A).¹¹⁹ This assemblage includes 42 beads of rock crystal and glass, including one dark green glass bead with a yellow zig-zag and dark red edge trails that has an exact counterpart in the Hoen hoard. There are also three pendants of silver wire with beads. On one pendant there is a single bead, and the other two each have three beads; these are similar to the pendants from Hoen and Birka referred to above. Skovmand compared this find, in terms of the composition and the beads, with the Swedish hoard from Stora Ryk, Dalsland.¹²⁰ Skovmand would also date the deposition of the Lerchenborg find to the period around 900, a dating which I would support on the basis of the beads. This supports the dating of the pendants with three beads to the second half of the ninth century.

To round off the comparable hoards containing beads, one should note a recently published example from Schleswig-Holstein. The find from Kaaks (Kaaksburg), Steinburg, is a pure jewellery hoard.¹²¹ As apparently is also the case with Hoen (p. 29), the hoard was probably buried wrapped in an organic material, e.g. leather or wool.¹²² The necklace consists, amongst other things, of two mounted coins, the later of which dates the whole assemblage to the period after 912-13.¹²³ The remainder of the hoard is limited to seven gilded silver beads, one bead of amber and one of chalcedony, three rock crystal beads, and eight carnelian beads, of which the octagonal examples are similar in form to those from Hoen.¹²⁴

110. Stenberger (1947-58), I 207, 222-3.

111. Stenberger (1947-58), II no. 39 and fig. 32:12.

112. Stenberger (1947-58), II no. 212 and fig. 67:4; Arbman (1937), 191 and pl. 53.

113. Arbman (1937), 189-90 and fig. 54:1; Stenberger (1947-58), II no. 219 and fig. 68:4.

114. Arbman (1937), 191 and pl. 54:2; Stenberger (1947-58), II no. 330.

115. Stenberger (1947-58), II no. 353 and fig. 248:6.

116. Stenberger (1947-58), I fig. 40.

117. Arbman (1937), 193.

118. Arbman (1937), 148 and pl. 46:1; Hårdh (1976a), 72 and pl. 51:1.

119. Skovmand (1942), 107-10 (no. 41) and fig. 24.

120. Stenberger (1947-58), I fig. 40.

121. Wiechmann (1996), 273-5, 654-5 and pls. 4:27, 5:28, 5:56-68.

122. Wiechmann (1996), 273.

123. Wiechmann (1996), 274-5.

124. Wiechmann (1996), 655 and pl. 5:64-6.

When compared with other bead jewellery from Viking-period hoards, settlements and graves, it is evident that the composition of the set of beads from the Hoen hoard is unusual. This is especially a function of the large quantity of violet beads, a good quarter of the bead content. The two exact parallels from Wulfsen, site 8, grave 782, dated no later than 800,¹²⁵ show that violet beads were available amongst the range of beads in northern and north-western Europe during the eighth century, even if largely as isolated specimens. The more frequent occurrence of such beads in southern and south-eastern regions of Europe, however, shows that they were much more in demand there than in the north. This, therefore, is a type of bead that was really sought after only in certain areas.

Altogether, the relationships with Saxony in respect of the beads seem to be at the same time both striking and contradictory. Several forms of the eighth and ninth centuries found there, such as the dark red, green and white beads, correspond to those from Hoen, as indeed they do throughout Scandinavia, while by contrast the typical beads of the *Mosaikaugenperlenhorizont*, which are so numerous in cemeteries of Saxony, are absent. The beads of this horizon are at the same time the last types that occur in large numbers in the burials of the Saxon cemeteries. However, the abandonment of furnished burial which was enforced by Charlemagne through the *Capitularium de partibus Saxoniae*, results in a complete absence of beads in Saxon graves after c. 800.

As already shown, the widely distributed beads and bead-sets of the *Mosaikaugenperlenhorizont* came to the Baltic area and Saxony by eastern routes in the period around 800.¹²⁶ Mosaic-eye beads certainly also occur in Scandinavian burials of the first half of the ninth century,¹²⁷ although this involves specimens which we have to assume had been worn for some time and had very probably been handed down. The influx of mosaic-eye and lead glass beads really dried up around 800; no further version of these types appeared. The polychrome beads, by contrast, appear to have enjoyed a longer lifespan. In periods when such beads were unavailable, the craftsmen could melt together up to five separate beads in order to produce polychrome pieces. Innovations of this kind are evident in the ninth century in particular, as individual creations from Hedeby¹²⁸ and Hoen (nos. 121 and 154-6) demonstrate.

The fact that we have no mosaic-eye or lead glass beads in the Hoen hoard leads us to the conclusion that neither bead-type was still current when the Hoen necklace was put together. This gives us a chronological fixed point for the beads in our hoard, a *terminus post quem* which means that this necklace probably started to be put together after the first quarter of the ninth century.

Some time later than the second quarter of the ninth century, the beads of this necklace were put on a string with more or less extensive additions. Old beads, both oriental and Scandinavian products, were added together. The different

125. Cf. n. 13.

126. Andrae (1975), 118-28.

127. Callmer (1977), 54 (type G 050-J 002).

128. Steppuhn (1998b), 27, 32 and fig. 86, pl. 3:43-4, 3:46-7, 3:50-2, 3:56, 3:60, and pl. 7:30 and 7:32, colour pl. 51.

techniques of bead production seen in the hoard show that beads from different workshops and sources were combined. In the case of the extraordinarily large collection of violet glass beads, their combination with the other beads after this time is also plausible. The large number of pieces of the same colour encourages one to think that these beads were added to the necklace as a single set, some exclusive gift to the lady of Hoen. If one considers how high a value was placed on even small splinters of such beads (pp. 90, 206, 228), one can only guess at the uniqueness of the beads themselves. The bead pendants and the semi-precious stones were the latest pieces with which the necklace was completed in the period c. 850-60.

From this one may conclude that the bead-string from Hoen was assembled over a period of one or at most two generations and/or put together from several different sources. This is corroborated by the different levels of wear in the thread-holes of the beads, marks which also provide evidence for a certain favoured combination on their wearer's behalf.

If, finally, one were to use the beads as evidence for the dating of the Hoen hoard, a date of deposition during the second half of the ninth century would seem reasonable. Since some bead-types in the hoard can first be found in Scandinavia at the beginning of the second half of the ninth century, it is clear that the combination of beads and pendants could only have been together for a short time.

On the other hand it is difficult to fix an exact date of deposition. No one knows what circumstances, motives or pressures were operative in the creation of the hoard, or how quickly it had to be deposited. The analysis of the metal artefacts from the hoard has indicated the probable date of deposition to the third quarter of the ninth century. This is conceivable also in the case of the beads, although for this particular category of objects it is the earliest possible date for the deposition.

	Monochrome		Polychrome		Gold foil			
	Solitary	Associated	Solitary	Associated	Solitary	Associated		
Glass	75	17	12	2	7		113	125
	92		14		7			
Rock crystal	5						5	
Agate	3						3	
Carnelian	3	1					4	

FIG. 7.1 – The surviving glass and stone beads in Hoen.

Technique \ Colour	Technique			
	Wound	Drawn	Wound/Joined	Drawn/Joined
Violet	28		4	32
Deep red	5	5	4	22
Green	3	5	9	20
White	3	12	1	16
Colourless	9	2		11
Deep blue	3			3
Blue-green	2			2
Pink	2			2
Orange		2		2
Yellow	1			1
Blue-grey	1			1
Green-yellow/ Brown-yellow	1			1
	58	26	18	11

FIG. 7.2 – The surviving glass beads in Hoen: colours and production techniques.

Form \ Technique	Form													
Wound	14	4	2	9	9	9	5				2	2	2	58
Drawn	10		10	1				2		3				26
Wound/Joined	14		2	1			1							18
Drawn/Joined	5		4					1	1					11
														84
														29

FIG. 7.3 – The surviving glass beads in Hoen: forms and production techniques.

Form \ Colour	Form													
Violet	7	3		3	4	8	5						2	
Deep red	9		7	1					3	1	1			
Green	18	1	1											
White	5		9	2										
Colourless	1			4	2						2			2
Deep blue					3									
Blue-green											2			
Pink	2													
Orange	1		1											
Yellow				1										
Blue-grey						1								
Green-yellow/ Brown-yellow							1							
	43	4	18	11	9	9	6	3	1	3	2	2	2	2
	65			11	9	9	6	4		3	2	2	2	2

FIG. 7.4 – The surviving glass beads in Hoen: colours and forms.

Form \ Colour	Form													
Violet	5	3		2	4	8	4						2	
Deep red	2		2	1										
Green	2	1												
White	2			1										
Colourless		1		4	2									2
Deep blue					3									
Blue-green											2			
Pink	2													
Orange														
Yellow				1										
Blue-grey						1								
Green-yellow/ Brown-yellow							1							
	14	4	2											
	20			9	9	9	5				2	2	2	2

FIG. 7.5 – The surviving glass beads in Hoen: colours and forms, primary technique (wound).

Form \ Colour																			
Colour																			
Violet																			
Deep red	2								2		1								
Green	5																		
White	2		9	1															
Colourless											2								
Deep blue																			
Blue-green																			
Pink																			
Orange	1		1																
Yellow																			
Blue-grey																			
Green-yellow/ Brown-yellow																			
	10		10																
	20			1					2		3								

FIG. 7.6 – The surviving glass beads in Hoen: colours and forms, primary technique (drawn).

Form \ Colour																			
Colour																			
Violet	2			1			1												
Deep red	3		1																
Green	8		1																
White	1																		
Colourless																			
Deep blue																			
Blue-green																			
Pink																			
Orange																			
Yellow																			
Blue-grey																			
Green-yellow/ Brown-yellow																			
	14		2																
	16			1			1												

FIG. 7.7 – The surviving glass beads in Hoen: colours and forms, secondary technique (wound).

Form \ Colour	Form												
Violet													
Deep red	2		4						1	1			
Green	3												
White													
Colourless													
Deep blue													
Blue-green													
Pink													
Orange													
Yellow													
Blue-grey													
Green-yellow/ Blue-yellow													
	5		4						1	1			
	9								2				

FIG. 7.8 – The surviving glass beads in Hoen: colours and form, secondary technique (drawn).

Ornament \ Bead	Ornament					
	Deep red	Deep red + Yellow	Yellow	White	White + Red	Blue
Violet			2	1	1	1
Deep red				1		
Green	1	1	1			
White	1	1				
Colourless				1		
Deep blue						
Blue-green						
Pink	1					1
Orange						
Yellow						
Blue-grey						
Green-yellow/ Brown-yellow						

FIG. 7.9 – Surviving polychrome glass beads in Hoen: colours of corpus and ornament.



The Hoen hoard

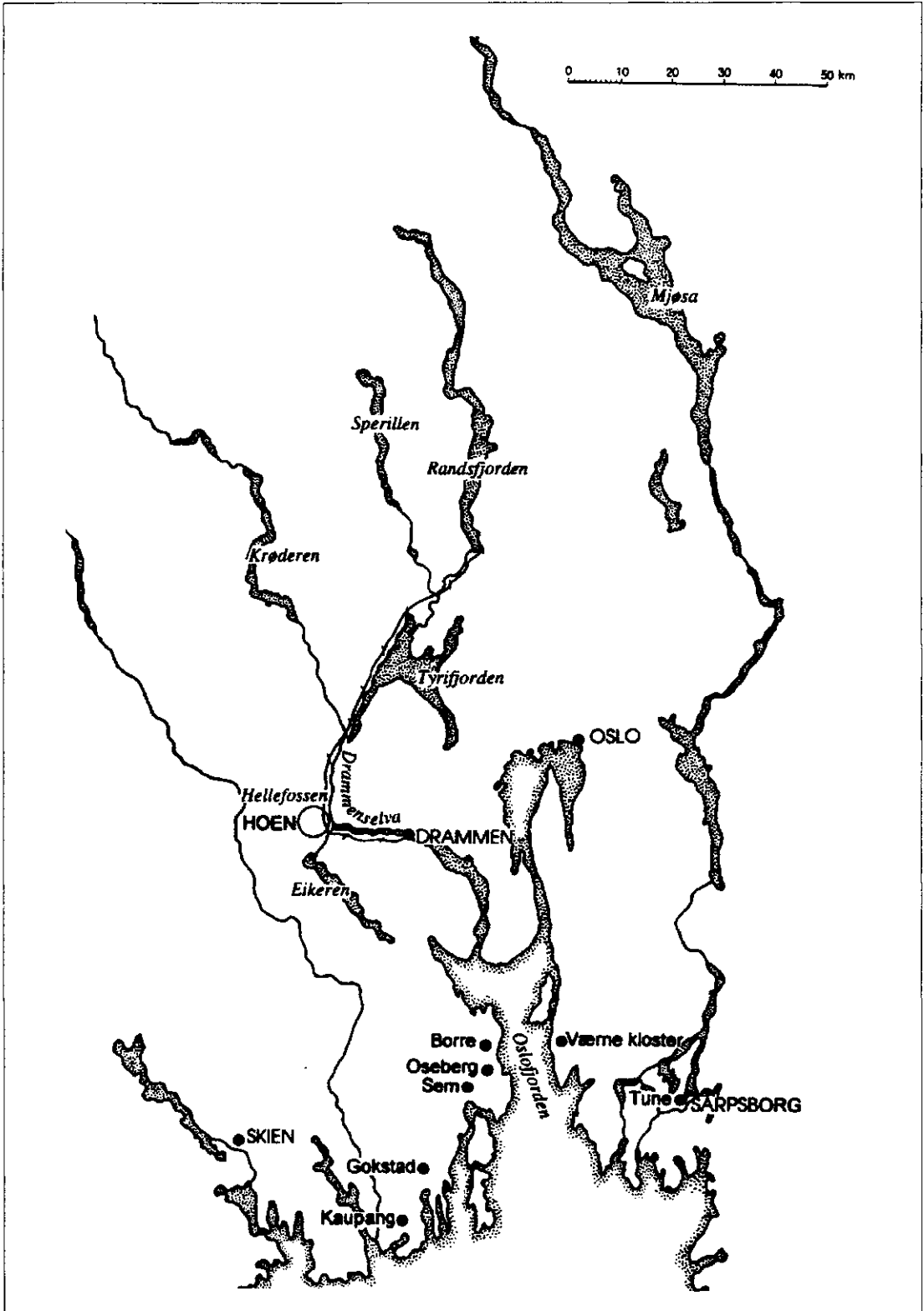


FIG. 1.1 – Map of the Oslofjord area showing the situation of Hoen in relation to rivers and fjords.

CATALOGUE

75-206. Beads of glass and stone, pls. 24 and 25.

Dimensions in mm. L = Length; D = Bead diameter; TD = Thread-hole diameter.

Most of the beads came to the museum with the bulk of the hoard, and were registered together as C.750.¹⁵⁶ Other lots came in on four different occasions, cf. above, p. 35.

Below, individual registration numbers are given only when they can be ascertained.

One rounded glass bead with gold foil said to belong to 'the Eker find' (C.30259) came to the museum from the Aust-Agder Museum in Arendal in 1960/1, but since its provenance is uncertain, it has been left out below.¹⁵⁷

75-83

Silver-gilt pendant ring of plain wire holding nine grayish white glass beads separated by eight gold(?) beaded spacer-rings. The ends of the wire are twisted in five even turns to form a straight rod, and then separate to form a horizontal tube-shaped pendant loop consisting of two spirals to either side.

Length including pendant loop: 56mm; outer diameter of circle: 36mm; diameter of wire: 1.4mm; outer diameter of spacer rings: 6-6.5mm; diameter of beaded wire: 0.7mm.

Reg.no. C.751a.

See above, pp. 20, 209-10, 216 and pl. 24.

Bibliography

Holmboe (1835), 297, fig. 28; Rygh (1885), 79; Grieg (1929), 186-7.

Discussion

There are parallels to the Hoen pendants nos. 75-83 and 84-86 in Birka graves 138, 523, 557, 632, 642, 649, 854 and 948 (cf. pl. 69), indicating the general fashion for such bead pendants in the ninth century. All the Birka pieces are made from silver wire, have fewer beads (the largest ones come from grave 632 which originally had two pendants of seven beads each); and all lack the systematically set spacer-rings (although on two pendants from grave 557 they flank a single bead, and one occurs on a pendant of three beads from grave 649). In contrast to the Hoen pendant loops, those of the Birka pendants normally consist of one or two simply twisted loops, only one pendant is similar to the Hoen pieces on having the ends of the wire twisted into a rod and a tube-like, horizontal pendant loop (grave 523, with three red glass beads).

75. Glass, barrel-shaped, greyish white, opaque, drawn, oblique cut.

L 4.0-5.5; D 8.0; TD 2.5. Reg. no. C.751a.

76. Glass, barrel-shaped, greyish white, opaque, drawn, round/edged, oblique cut.

L 5.6-7.0; D 7.3; TD 2.9. Reg.no. C.751a.

77. Glass, barrel-shaped, greyish white, opaque, drawn, round/edged.

L 6.1; D 7.2; TD 2.8. Reg.no. C.751a.

78. Glass, barrel-shaped, greyish white, opaque, drawn, lightly edged.

L 5.5; D 8.1; TD 2.6. Reg.no. C.751a.

79. Glass, barrel-shaped, greyish white, opaque, drawn, round/edged.

L 7.3; D 8.9; TD 3.1. Reg.no. C.751a.

156. Grieg (1929), 186.

157. Above, p. 35.

80. Glass, barrel-shaped, greyish white, opaque, drawn, round/edged.
L 6.7; D 7.9; TD 2.5. Reg.no. C.751a.

81. Glass, barrel-shaped, greyish white, opaque, drawn, round/edged.
L 4.8; D 8.1; TD 2.4. Reg.no. C.751a.

82. Glass, barrel-shaped, greyish white, opaque, drawn, oblique cut.
L 5.3; D 8.0; TD 2.7. Reg.no. C.751a.

83. Glass, barrel-shaped, greyish white, opaque, drawn, lightly edged.
L 6.3; D 6.8; TD 2.4. Reg.no. C.751a.

84-86

Gold pendant ring of plain wire holding three monochrome glass beads: one green, one white and one red. The ends of the wire are twisted in five even turns to form a straight rod, and then separate to form a horizontal tube-shaped pendant loop consisting of two spirals to either side. Length including pendant loop: 28mm; outer diameter of circle: 17mm; diameter of wire: 1.2mm; weight with beads: c.3.45g.

Reg.no. C.13451.

See above, pp. 20, 35, 209-10, 216 and pl. 24.

Bibliography

Aarsberetning (1887), 60 no. 143; Grieg (1929), 188.

Discussion

The pendant of nos. 84-86 is made of gold wire, but the type of pendant loop is identical to that used for nos. 75-83. The set of one each of green, white and red bead is identical to that of two bead pendants from Birka (graves 557 and 649) which are treaded in the same order (pl. 69). The pendant loops are nevertheless different, with the horizontally tube-shaped spirals of the Hoen piece contrasting with the single loop on the pendants from Birka.

84. Glass, barrel-shaped, green, opaque, drawn/joined.
L 5.3; D 7.8; TD 3.1. Reg.no. C.13451.

85. Glass, barrel-shaped, white, opaque, wound/joined.
L 6.3; D 8.6; TD 3.5. Reg.no. C.13451.

86. Glass, barrel-shaped, dark red, opaque, drawn/joined, oblique cut.
L 4.5-5.9; D 8.2; TD 2.8. Reg.no. C.13451.

87-88

Gold pendant ring of plain wire holding two glass beads: one orange and one red. The ends of the wire are twisted in three open turns to form a straight rod, and then separate to form a horizontal pendant loop consisting of four spirals to either side.

Length including pendant loop: 30.7mm; outer diameter of circle: 13.7mm; diameter of wire: 1.0mm; weight with beads: c.2.5g.

Reg. no. C.14473.

See above, pp. 20, 35, 209-10, 216 and pl. 24.

Bibliography

Aarsberetning (1888), 158, no. 321; Grieg (1929), 188.

Discussion

The type of ring and pendant loop is very similar to that of nos. 75-83 and 84-86, but the wire is more loosely wound and the horizontal loop is less precise, suggesting that the pendant of nos. 87-88 may have been made to fit with the other two.

87. Glass, barrel-shaped, orange with green streaks, opaque, drawn.
L 5.3; D 7.5; TD 2.5. Reg.no. C.14473.

88. Glass, barrel-shaped, dark red, opaque, round/edged, wound.
L 4.9; D 5.0; TD 2.7. Reg.no. C.14473.

89-90

Gold pendant ring of plain wire holding two glass beads: one green and one millefiori. The wire is broken, but the original twisted rod and pendant loop survive. The rod has two twists; the pendant loop is circular with one twist symmetrically at either side. The pendant ring came to the museum in 1889 and was accessed with three beads, two of glass which are without further description, and one carnelian. The green bead on the present pendant is marked 'C.14616-13', and it is likely that the two beads on the ring are those accessed in 1889, but they are not necessarily the ones originally threaded on the ring.

Length including pendant loop: c.22mm; diameter of wire: 0.7mm.

Reg. nos. C. 14616 and C.14617.

See above, pp. 35, 209-10, 216 and pl. 24.

Bibliography

Aarsberetning (1889), 107, no. 56; Grieg (1929), 190.

Discussion

The rod-like twisting of the wire ends is similar to the other bead pendants in Hoen, but the circular pendant loop with symmetrically opposed twists sets it apart. Nor is there any close parallel in Birka. The carnelian bead is missing, but may be no. 94 below.

89. Glass, barrel-shaped, pale grey, slightly translucent, wound/joined.
L 6.1; D 8.0; TD 2.8.

90. Glass, pressed spherical, white, opaque, wound. Two millefiori eyes with dark red/white/dark red rings and yellow centre.
L 6.1; D 8.8; TD 2.6.

91-94

Silver and brass wires form an irregular pendant which is not original. It holds one carnelian and three glass beads.

Discussion

The piece has not been accessed as a unit, and is obviously put together from singletons, possibly in the museum. The carnelian bead may be the one which was accessed in 1889, together with the pendant ring nos. 89-90, C.14616-7 above, cf. Grieg (1929), 190. The silver wire is very corroded, but may be the remains of an original bead pendant: the round portion which now serves as a pendant loop may in that case have been the ring on which the beads were treaded, and the remains of its ends are twisted like a rod.

91. Glass, barrel-shaped, green, slightly translucent, wound/joined.
L 5.6; D 8.1; TD 2.8.

92. Glass, barrel-shaped, pink, opaque, wound. Blue zigzag.
L 5.8; D 11.1; TD 4.0.
93. Glass, polyhedral, blue, opaque, wound/edged.
L 7.2; D 5.5; TD 2.2.
94. Carnelian, spherical, yellowy orange, translucent, ground/polished, thread-hole drilled from both sides.
L 7.8; D 8.0; TD 1.9.
95. Glass, barrel-shaped, white, opaque, drawn.
L 5.1; D 7.1-7.9; TD 3.4. Reg. no. C.750.
96. Glass, barrel-shaped, white, opaque, drawn.
L 5.7; D 6.3-7.8; TD 3.1. Reg. no. C.750.
97. Glass, barrel-shaped, white, opaque, wound.
L 4.5; D 7.2-8.1; TD 2.7. Reg. no. C.750.
98. Glass, barrel-shaped, white, opaque, wound.
L 8.5; D 8.4; TD 3.2. Reg. no. C.750.
99. Glass, pressed spherical, white, opaque, drawn. Dark red zigzag.
L 5.2-6.1; D 7.9; TD 3.3. Reg. no. C.750.
100. Glass, annular, colourless, translucent, wound.
L 4.2; D 11.8; TD 3.2. Reg. no. C.750.
101. Glass, annular, colourless/light pink, translucent, wound.
L 3.7-5.1; D 12.0; TD 3.4. Reg. no. C.750.
102. Glass, cylindrical, colourless with light grey tinge, translucent, wound. Doubled white diagonal trail.
L 16.6; D 6.7; TD 1.9. Reg. no. C.750.
103. Glass, pressed spherical, colourless, transparent, wound.
L 9.3; D 10.1; TD 3.2. Reg. no. C.750.
104. Glass, pressed spherical, pale yellow, transparent, wound.
L 6.5-8.8; D 7.6; TD 3.1. Reg. no. C.13453.
105. Glass, conical/biconical, blue-green, translucent, wound.
L 4.8-6.8; D 9.8; TD 3.4. Reg. no. C.750.
106. Glass, conical/biconical, blue-green, translucent, wound.
L 3.8-5.2; D 10.5-11.2; TD 3.6. Reg. no. C.750.
107. Glass, barrel-shaped, green, slightly translucent, drawn, lightly pressure moulded.
L 7.6; D 9.5; TD 2.8. Reg. no. C.750.
108. Glass, barrel-shaped, green, slightly translucent, drawn, lightly pressure moulded.
L 5.0; D 8.8; TD 3.0. Reg. no. C.750.
109. Glass, barrel-shaped, green, slightly translucent, drawn, lightly pressure moulded.
L 6.1; D 7.3; TD 3.2. Reg. no. C.750.

110. Glass, barrel-shaped, green, slightly translucent, drawn/joined, lightly pressure moulded.
L 5.5; D 8.3; TD 2.8. Reg. no. C.750.
111. Glass, barrel-shaped, green, slightly translucent, drawn/joined, lightly pressure moulded.
L 5.3; D 7.6-8.3; TD 2.2. Reg. no. C.750.
112. Glass, barrel-shaped, green, slightly translucent, drawn/joined, lightly pressure moulded.
L 5.2; D 7.8; TD 2.5. Reg. no. C.750.
113. Glass, barrel-shaped, green, slightly translucent, wound/joined, oblique cut.
L 5.2-6.1; D 7.7; TD 2.4. Reg. no. C.750.
114. Glass, barrel-shaped, green, slightly translucent, wound/joined.
L 4.8; D 7.5; TD 2.6. Reg. no. C.750.
115. Glass, barrel-shaped, green, slightly translucent, wound/joined.
L 5.6; D 7.7; TD 2.3. Reg. no. C.750.
116. Glass, barrel-shaped, green, slightly translucent, drawn.
L 6.7; D 7.9; TD 2.9. Reg. no. C.750.
117. Glass, barrel-shaped, green, slightly translucent, wound/joined.
L 5.5; D 8.2-8.8; TD 2.7. Reg. no. C.750.
118. Glass, barrel-shaped, green, slightly translucent, wound/joined, oblique cut.
L 4.5-6.2; D 7.2-8.1; TD 2.9. Reg. no. C.750.
119. Glass, barrel-shaped, green, slightly translucent, wound/joined, oblique cut.
L 3.8-5.0; D 6.8-7.2; TD 2.5. Reg. no. C.750.
120. Glass, barrel-shaped, green, slightly translucent, wound/joined, lightly edged, oblique cut.
L 4.0-5.2; D 6.9-7.5; TD 3.4. Reg. no. C.750.
121. Glass, barrel-shaped/two individual beads made into one composite bead, pale green, translucent, wound/joined. Two dark red opaque eyes on each bead.
L 10.1-12.2; D 7.8-9.2; TD 2.8-3.1. Reg. no. C.750.
122. Glass, barrel-shaped, dark green, slightly translucent, wound. Three opaque yellow spots.
L 8.0-9.8; D 10.5-11.0; TD 3.1. Reg. no. C.750.
123. Glass, barrel-shaped, green-black, slightly translucent, wound. Opaque dark red edge trail and opaque yellow zigzag.
L 7.6-9.1; D 10.3; TD 3.8. Reg. no. C.13453.
124. Glass, barrel-shaped/ten ribs, each of them half green-yellow/brown-yellow, slightly translucent, wound.
L 7.0; D 10.5; TD 4.2. Reg. no. C.750.
125. Glass, barrel-shaped, orange, opaque, drawn/edged, lightly pressure moulded.
L 4.3; D 7.0-7.5; TD 2.8. Reg. no. C.750.
126. Glass, barrel-shaped, dark red and orange, opaque, wound/joined.
L 5.3; D 7.2; TD 2.1. Reg. no. C.750.

127. Glass, pressed spherical, dark red, opaque, drawn/segmented, pressure moulded.
L 6.9; D 9.6; TD 2.8. Reg. no. C.750.
128. Glass, barrel-shaped, dark red, opaque, drawn, lightly pressure moulded.
L 4.5; D 7.3; TD 3.1. Reg. no. C.750.
129. Glass, barrel-shaped, dark red, opaque, drawn, lightly pressure moulded.
L 4.6; D 7.2-7.6; TD 2.4. Reg. no. C.750.
130. Glass, pressed spherical, dark red, opaque, wound.
L 6.8; D 4.5; TD 2.1. Reg. no. C.750.
131. Glass, barrel-shaped, dark red, opaque, drawn/joined, oblique cut.
L 3.1-5.7; D 7.8; TD 3.1. Reg. no. C.750.
132. Glass, barrel-shaped, dark red, opaque, wound.
L 4.6; D 8.1; TD 3.0. Reg. no. C.750.
133. Glass, barrel-shaped, dark red, opaque, wound/joined.
L 6.6; D 9.1; TD 2.3. Reg. no. C.750.
134. Glass, barrel-shaped, dark red, opaque, wound/joined.
L 7.1; D 9.6; TD 2.8. Reg. no. C.750.
135. Glass, barrel-shaped, dark red, opaque, drawn/joined, round/edged.
L 3.0-4.4; D 6.0-7.5; TD 2.3. Reg. no. C.750.
136. Glass, barrel-shaped, dark red, opaque, drawn/joined, round/edged.
L 4.0-5.2; D 5.5-7.0; TD 2.4. Reg. no. C.750.
137. Glass, barrel-shaped, dark red, opaque, wound, round/edged.
L 4.9; D 6.8-7.8; TD 2.5. Reg. no. C.750.
138. Glass, barrel-shaped, dark red, opaque, drawn/joined, round/edged.
L 5.2; D 7.1-7.6; TD 2.3. Reg. no. C.750.
139. Glass, barrel-shaped, dark red, opaque, wound/joined, round/edged, oblique cut.
L 3.6-5.6; D 7.7-8.5; TD 2.5. Reg. no. C.750.
140. Glass, barrel-shaped, dark red, opaque, drawn/joined, round/edged.
L 5.2; D 7.6-8.2; TD 2.6. Reg. no. C.750.
141. Glass, four-sided prism, dark red, opaque, drawn/edged.
L 3.5-4.5; D 6.3-7.0; TD 2.6. Reg. no. C.750.
142. Glass, four-sided prism, dark red, opaque, drawn/joined, edged.
L 5.2-5.8; D 6.8-7.8; TD 2.6. Reg. no. C.750.
143. Glass, four-sided prism, dark red, opaque, drawn/edged.
L 5.8; D 7.2-7.8; TD 3.2. Reg. no. C.750.
144. Glass, six-sided prism, dark red, opaque, drawn/joined, edged.
L 12.6, D 7.3-7.6; TD 2.9. Reg. no. C.750.

145. Glass, barrel-shaped, dark red, opaque, wound. Continuous opaque white trails.
L 7.0-7.4; D 9.8-10.2; TD 2.8. Reg. no. C.750.
146. Glass, barrel-shaped, pink, opaque/crackled, wound. Opaque dark red zigzag.
L 6.9; D 10.2; TD 3.1. Reg. no. C.13453.
147. Glass, annular, cobalt blue, slightly translucent, wound.
L 3.7; D 7.0; TD 3.7. Reg. no. C.750.
148. Glass, annular, cobalt blue, slightly translucent, wound.
L 3.0; D 7.8; TD 2.8. Reg. no. C.750.
149. Glass, annular, cobalt blue, slightly translucent, wound.
L 4.7; D 8.1; TD 2.8. Reg. no. C.750.
150. Glass, barrel-shaped, violet, slightly translucent, wound.
L 6.9; D 7.0; TD 2.9. Reg. no. C.750.
151. Glass, barrel-shaped, violet, slightly translucent, wound.
L 7.0; D 7.9; TD 2.4. Reg. no. C.750.
152. Glass, barrel-shaped, violet, slightly translucent, wound.
L 6.8; D 9.3; TD 3.4. Reg. no. C.750.
153. Glass, barrel-shaped, violet, slightly translucent, wound.
L 8.0; D 9.4; TD 3.7. Reg. no. C.750.
154. Glass, barrel-shaped/two individual beads made into one composite bead, violet, slightly translucent, wound.
L 12.5; D 8.5; TD 3.6. Reg. no. C.750.
155. Glass, barrel-shaped/two individual beads made into one composite bead, violet, slightly translucent, wound.
L 12.8; D 9.8; TD 3.6. Reg. no. C.750.
156. Glass, barrel-shaped/two individual beads made into one composite bead, violet, slightly translucent, wound. Two opaque yellow eyes on each bead.
L 8.3; D 8.1; TD 3.6. Reg. no. C.750.
157. Glass, biconical, violet, slightly translucent, wound, conical thread-hole.
L 3.2; D 7.9; TD 2.3-3.9. Reg. no. C.750.
158. Glass, biconical, violet, slightly translucent, wound.
L 7.8; D 10.6; TD 2.3. Reg. no. C.750.
159. Glass, pressed spherical, violet, slightly translucent, wound.
L 4.5; D 7.8; TD 1.8. Reg. no. C.750.
160. Glass, annular, violet, slightly translucent, wound.
L 4.0; D 10.6; TD 5.3. Reg. no. C.750.
161. Glass, annular, violet, slightly translucent, wound.
L 6.1; D 12.2; TD 4.1. Reg. no. C.750.

162. Glass, annular, violet, slightly translucent, wound.
L 5.8; D 11.5; TD 3.9. Reg. no. C.750.
163. Glass, barrel-shaped, violet, slightly translucent, wound. Two opaque pale blue eyes.
L 7.0; D 7.5; TD 2.9. Reg. no. C.750.
164. Glass, pressed spherical, violet, slightly translucent, wound. Three groups of three opaque yellow eyes each.
L 6.1; D 10.7; TD 2.6. Reg. no. C.750.
165. Glass, barrel-shaped, violet, slightly translucent, wound, oblique cut. Three circular eyes, each with white rings and violet centres.
L 3.9-5.9; D 9.0; TD 4.6. Reg. no. C.750.
166. Glass, annular, violet, slightly translucent, wound. Three millefiori eyes, each with seven white rays and a red centre.
L 7.9; D 11.3; TD 4.4. Reg. no. C.13453.
167. Glass, barrel-shaped/seven ribs, violet, slightly translucent, wound, misshapen.
L 7.5; D 10.3; TD 3.5-4.8. Reg. no. C.750.
168. Glass, barrel-shaped/eight ribs, violet, slightly translucent, wound.
L 6.2; D 9.8; TD 3.9. Reg. no. C.750.
169. Glass, barrel-shaped/eight ribs, violet, slightly translucent, wound.
L 7.5; D 10.5; TD 2.7. Reg. no. C.750.
170. Glass, barrel-shaped/twelve ribs, violet, slightly translucent, wound.
L 6.7; D 9.8; TD 4.4. Reg. no. C.750.
171. Glass, annular polyhedral, violet, opaque, wound/edged, slightly worked surfaces/strongly abraded.
L 5.0; D 9.0-9.7; TD 3.3. Reg. no. C.750.
172. Glass, cuboid polyhedral, violet, opaque, wound/edged, strongly abraded, oblique cut.
L 6.5-9.4; D 9.2-10.3; TD 4.3. Reg. no. C.750.
173. Glass, cuboid polyhedral, violet, opaque, wound/edged, abraded.
L 9.2; D 7.9-9.6; TD 2.8. Reg. no. C.750.
174. Glass, cuboid polyhedral, violet, opaque, wound/edged, lightly abraded.
L 9.8; D 10.0-11.5; TD 4.0. Reg. no. C.750.
175. Glass, cylindrical polyhedral, violet, opaque, wound/edged, abraded.
L 10.8; D 7.5-9.1; TD 3.1. Reg. no. C.750.
176. Glass, cylindrical polyhedral, violet, opaque, wound/edged, abraded.
L 12.2; D 7.5-8.3; TD 2.8. Reg. no. 750.
177. Glass, cylindrical polyhedral, violet, opaque, wound/edged, lightly abraded.
L 13.8; D 7.1-9.8; TD 3.0. Reg. no. C.750.

178. Glass, cylindrical polyhedral, violet, opaque, wound/edged, slightly worked surfaces, strongly abraded and chipped/crackled.

L 13.6; D 7.1-7.6; TD 2.5. Reg. no. C.750.

179. Glass, barrel-shaped, opaque white core/ slightly translucent violet coating, wound/joined, faceted.

L 5.0-7.8; D 11.9; TD 4.3. Reg. no. C.750.

180. Glass, pressed spherical, opaque white core/slightly translucent violet coating, wound/joined.

L 8.1; D 13.5; TD 4.8. Reg. no. C.750.

181. Glass, pressed spherical/ten ribs, opaque white core/slightly translucent violet coating, wound/coated (dipped).

L 7.4; D 11.2; TD 4.1. Reg. no. C.750.

182. Glass, pressed spherical/segment of a composite bead, slightly translucent colourless fibrous glass core/gold foil/transparent colourless coating, drawn/pressure moulded.

L 5.8; D 6.9; TD 2.2. Reg. no. C.750.

183. Glass, pressed spherical/segment of a composite bead, slightly translucent colourless fibrous glass core/gold foil/transparent colourless coating, drawn/pressure moulded.

L 6.2; D 7.8; TD 1.5. Reg. no. C.750.

184. Glass, pressed spherical, translucent colourless core/gold foil/transparent colourless coating, wound/joined.

L 7.2-8.1; D 10.1; TD 2.4. Reg. no. C.750.

185. Glass, pressed spherical, transparent colourless core/gold foil/transparent colourless coating, wound/joined, oblique cut.

L 3.3-7.4; D 11.2; TD 3.3. Reg. no. C.750.

186. Glass, pressed spherical, translucent core/gold foil/transparent colourless coating, wound.

L 8.1; D 9.7-11.5; TD 2.6. Reg. no. C.750.

187. Glass, barrel-shaped, translucent colourless core/gold foil/translucent colourless coating, wound, oblique cut.

L 6.6-8.5; D 10.6-12.7; TD 3.1. Reg. no. C.750.

188. Glass, cylindrical, gold foil in colourless translucent glass, wound.

L 11.7; D 5.8-6.2; TD 2.1. Reg. no. C.750.

189. Rock crystal, biconical, colourless, translucent, ground, conical thread-hole drilled from one side.

L 4.9; D 6.0; TD 0.8-1.5. Reg. no. C.750.

190. Rock crystal, biconical, colourless, translucent, ground, conical thread-hole drilled from one side.

L 6.7; D 8.6; TD 1.5-2.4.

191. Rock crystal, biconical, colourless, translucent, ground, conical thread-hole drilled from one side.

L 5.0; D 7.8; TD 1.9-2.5. Reg. no. C.750.

192. Rock crystal, biconical, colourless, translucent, ground, conical thread-hole drilled from one side.

L 6.0; D 9.6; TD 2.2-3.1. Reg. no. C.750.

193. Rock crystal, biconical, colourless, translucent, ground, conical thread-hole drilled from one side.

L 6.7; D 9.5; TD 1.9-2.8. Reg. no. C.750.

194. Agate, spindle-shaped, white, slightly translucent, ground and polished, thread-hole drilled from both sides.

L 13.2; D 6.2; TD 1.3. Reg. no. C.750.

195. Agate, spindle-shaped, white, slightly translucent, ground and polished, thread-hole drilled from both sides.

L 12.1; D 6.2; TD 1.3. Reg. no. C.750.

196. Agate, spindle-shaped, grey-white, slightly translucent, ground and polished, thread-hole drilled from both sides.

L 14.1; D 6.8; TD 1.4. Reg. no. C.750.

197. Carnelian, pressed spherical, brown-red, almost opaque, ground and polished, thread-hole drilled from both sides.

L 4.6; D 6.7; TD 1.3. Reg.no. C.750.

198. Carnelian, eight-edged prism, orange-red, slightly translucent, ground, thread-hole drilled from both sides.

L 11.0; D 5.2; TD 1.8. Reg. no. C.750.

199. Carnelian, eight-edged prism, brown-red, slightly translucent, ground, thread-hole drilled from both sides.

L 12.8; D 5.0; TD 1.2. Reg. no. C.13453.

Lost pieces:

200-204. Five ornamented glass beads C.750h¹⁵⁸

205. One greyish white glass bead C.13453¹⁵⁹

206. One transparent white glass bead with gold foil C.13453¹⁶⁰

158. Grieg (1929), 186.

159. Grieg (1929), 188.

160. Grieg (1929), 188.

LIST OF SOURCES

Manuscripts and non-printed sources

Riksarkivet, Oslo:

Universitetet i Oslo, Kollegiet, Journalsaker 1838-39; lp.nr. 567:

- Den Kgl. Norske Regjering (Diriks): Brev til Det akademiske collegium ved Universitetet i Christiania 26. April 1836. [Royal Norwegian Government (Diriks): Letter to Collegium academicum at the University of Christiania dated 26th April 1836] (serial no. 271/1836).
- C.A. Holmboe: Brev til Det akademiske collegium, Det Kongelige Frederiks Universitet i Christiania datert 25. Sept. 1838. [Letter to Collegium academicum, the Royal Frederik's University in Christiania, dated 25th September 1838 (serial no. 567/1838).]

Universitetets kulturhistoriske museer, Oslo:

- Myntcabinettets Copiebog 1832-1843. [Letter-book of the University Coin Collection 1832-1843.]
- Topografisk arkiv [1965]: Innberetning om en topografisk registrering i Eiker pgd. og Fiskum pgd., Øvre Eiker herred, Buskerud. [Topographical registration in the parishes of Eiker and Fiskum, Øvre Eiker, Buskerud.] N.d.

Universitetsbiblioteket i Bergen, Ms. 255.I.63:

- Rudolf Keyser: Beretning om skattefunnet fra Hon, Nedre Eiker. [Report concerning the treasure find from Hon, Nedre Eiker.] Ms. 4 pp.
- Avskrift, i en annen hånd. [Transcription, in a different hand.] Ms. 10 pp.
- Rudolf Keyser: Brev til W.F.K. Christie, datert 9. Desember 1834. [Letter to W.F.K. Christie, dated 9th December 1834.]
- Urda-foreningens 'Correspondence-Bog' [Urda Association's *Correspondance-Bog*], No.1, C I 2: Brev fra W.F.K. Christie 17. November 1834. [Letter from W.F.K. Christie, dated 7th November 1834.]

Printed material

Åberg, N. (1926). *The Anglo-Saxons in England*. Uppsala.

Åberg, N. (1936). *Vorgeschichtliche Kulturkreise in Europa. Bilderatlas mit erläuterndem Text*. København.

Aarsberetning = Foreningen til Norske Fortidsminde-merkens Bevaring, Aarsberetning. Kristiania.

Adamsen, C. (1997). 'Kuriosum.' *Skalk* 1997.4, 31.

Ahrens, C. (1983). 'Der Befund des spätsächsischen Gräberfeldes Ketzendorf bei Buxtehude.' *Hammaburg N. F.* 5, 9-89.

Allan, J. (1914). 'Offa's imitation of an Arab dinar.' *Numismatic chronicle* 1914, 77-89.

Ambrosiani, B. (1995). 'Beads of glass and semi-precious stone.' In *Excavations in the Black Earth 1990*, Birka Studies 2, eds. B. Ambrosiani and H. Clarke. Stockholm, 52-63.

Andersen, P. S. (1960). *Rudolf Keyser: embetsmann og historiker*. Oslo.

Andersen, P. S. (1977). *Samlingen av Norge og kristningen av landet 800-130*. Handbok i Norges historie 2. Oslo.

Andrae, R. (1975). 'Mosaikaugenperlen. Untersuchungen zur Verbreitung und Datierung karolingerzeitlicher Millefioriglasperlen in Europa.' *Acta praehistorica et archaeologica* 4 for 1973, 101-98.

- Arbman, H. (1937). *Schweden und das karolingische Reich. Studien zu den Handelsverbindungen des 9. Jahrhunderts*. Kungliga vitterhets historie och antikvitets akademien. Handlingar 43. Stockholm.
- Arbman, H. (1940-3). *Die Gräber. Tafeln*. 1940. *Die Gräber: Text*. 1943. Birka I. Stockholm.
- Archibald, M.M. (1990). 'Pecking and bending: the evidence of the Swedish finds'. *Sigtuna papers. Proceedings of the Sigtuna symposium on viking-age coinage 1-4 June 1989*. Commentationes de nummis saeculorum IX-XI in Suecia repertis. Nova series 6, Stockholm, 11-24.
- Armbruster, B.R. ed. (2002). *Goldschmiede in Haithabu. Ein Beitrag zum frühmittelalterliche Metallhandwerk*. Berichte über die Ausgrabungen in Haithabu 34. Neumünster.
- Arne, T. J. (1914). *La Suède et l'Orient*. Archives d'études orientales 8. Uppsala.
- Arrhenius, B. (1982). 'Technical properties as a discriminant in Migration Period jewellery.' In *Aspects of production and style in Dark Age metalwork*, ed. L. Webster. London, 1-19.
- Arrhenius, B. (1985). *Merovingian garnet jewellery*. Stockholm.
- Arrhenius, B. (1998). 'Granat.' In *Reallexikon der germanischen Altertumskunde* 12. Berlin, 583-9.
- Art in the Dark Ages in Europe (circa 400-1000 A.D.)*. London 1930.
- Arwidsson, G., ed. (1984-9). *Systematische Analysen der Gräberfunde*. Birka II, 1-3. Stockholm.
- Astrup, E. and I. Martens (1999). 'A migration period gold pendant in filigree work.' *Universitetets oldsaksamling Årbok* 1997/1998, 123-7.
- Austad, I. (1974). *Eikerbygda: historisk bok om Eiker*. Drammen.
- Axboe, M. (1981). 'The Scandinavian gold bracteates. Studies on their manufacture and regional variation. With a supplement to the catalogue of Mogens B. Mackeprang.' *Acta archaeologica* 52, 1-100.
- Backhouse, J. and L. Webster, eds. (1984). *The golden age of Anglo-Saxon art 966-1066*. London.
- Bæk Simonsen, J., see Simonsen, K. Bæk.
- Bakka, E. (1963). *Some English decorated metal objects found in Norwegian Viking graves*. Årbok for Universitetet i Bergen. Humanistisk serie 1963, 1.
- Bargel, T. H. (1987). *Hokksund. Kvartærgeologisk kart 1714 I. M. 1:50.000. Beskrivelse*. Norges geologiske undersøkelse, Skrifter 80.
- Baumgartner, E. and I. Krueger (1988). *Phönix aus Sand und Asche. Glas des Mittelalters*. München.
- Bellinger, A. R. and P. Grierson, eds. (1966-73). *Catalogue of the Byzantine coins in the Dumbarton Oaks Collection and in the Whittemore Collection*. Washington, D. C.
- Beltran, P. (1958). 'Introduccion del 'mancuso' en la economia Carolingia.' *Centennial Publication of the American Numismatic Society*, New York, 83-8.
- Benda, K. (1966). *Mittelalterlicher Schmuck. Slawische Funde aus tschechoslowakischen Sammlungen und der Leningrader Eremitage*. Prag.
- Berghaus, P. (1959). 'Ein karolingischer Münzring von Herbrun (Kr. Aschendorf-Hümmling).' *Die Kunde* 10, 90-7.
- Berghaus, P. (1965). 'Der Münzschmuck von Gärnsås, Ksp. Herrestad (Skåne).' *Numismatiska meddelanden* 30, 29-38.
- Berghaus, P. (1994). 'Münzfibeln.' In *Die frühmittelalterlichen Lesefunde aus der Lohrstrasse (Baustelle Hilton II) in Mainz*, ed. E. Wamers. Mainzer archäologische Schriften 1, 106-15.
- Besteman, J. C. (1997). 'De Vondst van Westerklijf, Gemeente Wieringen: Een Zilverchat uit de Vikingperiode.' *Oudheidkundige mededelingen uit het Rijksmuseum van Oudheden te Leiden* 77, 199-226.
- Besteman, J. C. (1999). 'Viking silver on Wieringen.' In *In discussion with the past: archaeological studies presented to W. A. van Es*, eds. H. Sarfatij, W. J. H. Verwers and P. J. Woltering. Zwolle, 253-66.
- Birkeland, H. (1954). *Nordens historie i middelalderen etter arabiske kilder*. Skrifter utgitt av Det norske videnskaps-akademi, II. Hist.-filos. klasse 1954:2. Oslo.
- Birkmann, T. (1994). 'Zum Namen uifrþur auf dem Runenstein von Malt.' In *Proceedings of the third international symposium on runes and runic inscriptions, Grindaheim, Norway, 8-12 August 1990*, ed. J. E. Knirk. Runrön 9, 203-15.

- Bjarnar, O. (1994). *Eikers historie 3. Elvekulturen*. Hokksund.
- Björgynjar kálfskinn, ed. P. A. Munch. Christiania 1843.
- Blackburn, M. (forthcoming). 'Gold in England during the Viking Age.' In *Silver economy in the Viking Age*, eds. J. Graham-Campbell and G. Williams. Institute of Archaeology Occasional Papers Series. London, forthcoming.
- Blackburn, M. and Pagan, H. (1986). 'A revised check-list of coin hoards from the British Isles c. 500-1100.' In *Anglo-Saxon monetary history. Essays in memory of Michael Dolley*, ed. M. A. S. Blackburn. London, 291-313.
- Blindheim, C. (1982). 'Slemmedal-skatten: en liten orientering om et stort funn.' *Viking* 45 for 1981, 5-31.
- Blöndal, S. (1920-4). *Islandsk-dansk ordbog*. Reykjavík.
- Blunt, C. E., C. S. S. Lyon and B. H. I. H. Stewart (1963). 'The coinage of southern England, 796-840.' *British numismatic journal* 32, 1-74.
- Bøe, J. (1934). 'A hoard from western Norway.' *The antiquaries journal* 14, 159-62.
- Boeles, P. C. J. A. (1915). 'Les trouvailles de monnaies carolingiennes dans les Pays-Bas, spécialement celles des trois provinces septentrionales.' *Jaarboek voor munt- en penningkunde* 2, 1-100.
- Boeles, P. C. J. A. (1951). *Friesland tot de elfde eeuw. Zijn vóór en vroegegeschiedenis*. s'Gravenhage.
- Boersma, J. W. (1977). 'Een imitatie-solidus van het type *Munus divinum* uit de omgeving van Ten Post (Gr.) en sortegelijke in Noord Nederland gevonden exemplaren.' *Groninger oudheden* 13, 161-82.
- Bonde, N. and A. E. Christensen (1993). 'Dendrochronological dating of the Viking Age burials at Oseberg, Gokstad and Tune, Norway.' *Antiquity* 67, 575-83.
- Braunfels, W. (1968). *Die Welt der Karolinger und ihre Kunst*. München.
- Braunfels, W., D. Kötsche and G. Mörsch eds. (1965). *Karl der Grosse*. Aachen.
- Brepohl, E. (1987). *Theophilus Presbyter und die mittelalterliche Goldschmiedekunst*. Wien/Köln/Graz.
- Brinch Madsen, H., see Madsen, H. Brinch.
- Brøgger, A. W. (1920-1). 'Rolvøyætten.' *Bergens museums aarbok*, historisk-antikvarisk rekke 1, 1-42.
- Brøndsted, J. (1920). 'Nordisk og fremmed ornamentik i vikingetiden.' *Aarbøger for nordisk oldkyndighed og historie*, 162-282.
- Brøndsted, J. (1924). *Early English ornament*. London.
- Brown, P. D. C. and F. Schweizer (1973). 'X-ray fluorescent analysis of Anglo Saxon jewellery.' *Archaeometry* 15, 175-92.
- Bruce-Mitford, R. L. S. (1956). 'Late Saxon disc brooches.' In *Dark-Age Britain*, ed. D. B. Harden. London, 171-201.
- Bruce-Mitford, R. L. S. (1978). *The Sutton Hoo ship burial*, II. London.
- Buckton, D., ed. (1994). *Byzantium: treasures of Byzantine art and culture from British collections*. London.
- Buddensieg, T. (1995). 'Ein Fuldaer Elfenbeindiptychon in Würzburg. Ein Beitrag zur Geschichte der karolingischen Akanthusranke.' *Studien zur byzantinischen Kunstgeschichte; Festschrift für Horst Hallensleben*, ed. B. Borkopp. Amsterdam, 127-46.
- Bugge, A. (1910). *Norges historie fremstillet for det norske folk, tidsrummet ca. 800-1030*. Kristiania.
- Bursche, A. (1998). *Złote medaliony rzymskie w Barbaricum. Symbolika prestizu i władzy społeczeństw barbarzyńskich u schyłku starożytności*. Swiatowit supp. ser. A: Antiquity; v. 2. Warsaw.
- Bustacchini, G. (1987). *Ravenna*. San Lazzaro di Savena.
- Calinescu, A., ed. (1996). *Ancient jewelry and archaeology*. Bloomington.
- Callmer, J. (1977). *Trade beads and bead trade in Scandinavia ca. 800-1000 A.D.* Acta archaeologica Lundensia, series in 4° 11. Lund.

- Callmer, J. (1990). 'The beginning of the East-European trade connections of Scandinavia and the Baltic region in the eighth and ninth centuries A.D.' *Wosinsky Mór Múzeum évkönyve* 19, 19-51.
- Callmer, J. (1995). 'The influx of Oriental beads into Europe during the 8th century A.D.' In *Glass beads: cultural history, technology, experiment and analogy. Proceedings of the Nordic glass bead seminar 16.-18. October 1992 at the Historical-Archaeological Experimental Centre in Lejre, Denmark*, eds. M. Rasmussen et al. Studies in technology and culture 2. Lejre, 49-54.
- Callmer, J. (1997). 'Beads and bead production in Scandinavia and the Baltic Region c. AD 600-1100: a general outline.' In U. v. Freeden and A. Wiczorek eds. *Perlen: Archäologie, Techniken, Analysen. Akten des Internationalen Perlensymposiums in Mannheim vom 11. bis 14. November 1994*, Bonn, 197-202.
- Callmer, J. and J. Henderson (1991). 'Glassworking at Åhus, S. Sweden.' *Laborativ arkeologi* 5, 143-54.
- Capelle, T. (1968a). *Der Metallschmuck von Haithabu. Studien zur wikingischen Metallkunst. Die Ausgrabungen in Haithabu* 5. Neumünster.
- Capelle, T. (1968b). 'Kleeblattfibeln und Zierketten.' *Fornvännen* 63, 1-9.
- Capelle, T. (1972). 'Ein karolingischer Schwertgurtbeschlag.' *Archäologisches Korrespondenzblatt* 2, 347-349.
- Capelle, T. (1974). 'Die umgearbeiteten importierten Riemenbeschläge der Wikingerkultur.' *Fornvännen* 69, 70-77.
- Capelle, T. (1976). *Die frühgeschichtliche Metallfunde von Domburg auf Walcheren*. Nederlandse oudheden 5.
- Carlsson, A. (1983). *Djurhuvudformiga spännen och gotländsk vikingatid*. Stockholm studies in archaeology 5. Stockholm.
- Carlyon-Britton, P. W. P. (1909). 'The gold mancus of Offa, King of Mercia.' *British numismatic journal* for 1908, 55-72.
- Carnap-Bornheim, C. von and Ilkjær, J. (1996). *Illerup Ådal. Die Prachtausrüstungen*. Jysk Arkæologisk Selskabs Skrifter XXV:5-8. Århus.
- Chlodnicki, M. and L. Krzyzaniak, eds. (1998). *Pipeline of archaeological treasures*. (Exhibition catalogue.) Strasbourg.
- CNI = *Corpus nummorum italicorum: primo tentativo di un catalogo generale delle monete medievali e moderne coniate in Italia o da italiani in altri paesi*, V, Lombardia. Milano 1914.
- Coatsworth, E., and M. Pinder, (2002). *The art of the Anglo-Saxon goldsmith. Fine metalwork in Anglo-Saxon England: its practice and practitioners*. Woodbridge.
- Condamine, J. and M. Picon (1965). 'Notes on diffusion in ancient alloys.' *Archaeometry* 8, 110-14.
- Coupland, S. (1988a). 'Dorestad in the ninth century: the numismatic evidence.' *Jaarboek voor Munt- en Penningkunde* 75, 5-26.
- Coupland, S. (1988b). 'La chronologie des émissions monétaires de Louis le Pieux (814-840).' *Bulletin de la Société française de numismatique* 1988, 431-3.
- Coupland, S. (1989). 'The coinages of Pippin I and II of Aquitaine.' *Revue numismatique*, VI 31, 1194-222.
- Coupland, S. (1990). 'Money and coinage under Louis the Pious.' *Francia* 17.1, 23-54.
- Coupland, S. (2001). 'The coinage of Lothar I (840-855).' *Numismatic chronicle* 161, 157-98.
- Cowell, M. (1998). 'Coin analysis by energy dispersive X-ray fluorescence spectrometry.' In *Metallurgy in numismatics* 4, eds. W. A. Oddy and M. Cowell. London, 1-13.
- Craddock, P. T. (1989). 'Metalworking techniques.' In Youngs ed. (1989), 170-213.
- Cramp, R. (1984). *County Durham and Northumberland*. Corpus of Anglo-Saxon stone sculpture I.1 Oxford.
- Danielsson, K. (1973). 'Glas och halvådelstenar.' In *Birka: Svarta jordens hamnområde. Arkeologisk undersökning, 1970-71*, eds. B. Ambrosiani et al. Riksantikvarieämbetet Rapport C1. Stockholm, 54-83.
- Dannheimer, H. (1987). *Auf den Spuren der Bajuwaren. Archäologie des frühen Mittelalters in Altbayern*. Pfaffenhofen.

- Degen, K. (1962). 'Das Schmuckstück aus Seeheim.' *Kunst in Hessen und am Mittelrhein* 1, 117-22.
- Dekan, J. (1983). *Moravia Magna. Das großmährische Reich und seine Kunst*. Hanau.
- Dekówna, M. (1990). 'Untersuchungen an Glasfunden aus Haithabu.' *Berichte über die Ausgrabungen in Haithabu* 27, 9-63.
- Demortier, G. (1988). 'The soldering of gold in antiquity.' In *Materials issues in art and archaeology*, eds. E. V. Sayre et al. Materials Research Society symposium proceedings 123. Pittsburgh, 193-8.
- DN = *Diplomatarium Norvegicum*. Christiania/Oslo 1847-.
- Dobrovol'skij, I. G. [Dobrowolski] (1982). 'Graffiti auf Orientalischen Münzen des 7.-11. Jahrhunderts.' In *Actes du 9ème congrès international de numismatique, Berne, septembre 1979 / Proceedings of the 9th international congress of numismatics, Berne, September 1979*, eds. T. Hackens and R. Weiller. Louvain-la-Neuve, II 741-50.
- Dobrovol'skij, I. G., I. V. Dubov and Ju. K. Kuz'menko (1977). 'Runiceskie graffiti na vostocnix monetax.' In *Skandinavskije runiceskie nadpisi: teksti, perevod, kommentarij*, ed. E. A. Mel'nikova. Moskva, 142-52.
- Dobrovol'skij, I. G., I. V. Dubov and Ju. K. Kuz'menko (1981). 'Klassifizierung und Interpretation von Graffiti auf orientalischen Münzen.' *Zeitschrift für Archäologie* 15, 217-42.
- Dobrovol'skij, I. G., I. V. Dubov and Ju. K. Kuz'menko (1991). *Graffiti na vostocnix monetax: drevnjaja Rus' i sopredel'nye strany*. Leningrad.
- Dodwell, C. R. (1982). *Anglo-Saxon art. A new perspective*. Manchester.
- Dolley, R. H. M. and K. F. Morrison (1966). *The Carolingian coins in the British Museum*. London.
- Dubin, L. S. (1987). *The history of beads. From 30,000 B.C. to the present*. New York.
- Duczko, W. (1985). *The filigree and granulation work of the Viking Period*. Birka V. Stockholm.
- Duczko, W. (1989). 'Vikingatida bysantinska metallsmücken i arkeologiska fynd från Skandinavien.' In *Bysans och Norden*, ed. E. Piltz. Acta Universitatis Upsaliensis, Figura, nova series 23. Uppsala, 125-32.
- Duczko, W. (1997). 'Byzantine presence in Viking Age Sweden: archaeological finds and their interpretation.' In *Rom und Byzanz im Norden I*, ed. M. Müller-Wille. Mainz, 291-311.
- Dunning, G. C. and V. I. Evison (1961). 'The Palace of Westminster sword.' *Archaeologia* 98, 123-58.
- Duplessy, J. (1956). 'La circulation des monnaies arabes en Europe occidentale du VIII^e au XIII^e siècle.' *Revue numismatique* V 18, 101-64.
- Duval, A. R. and Ch. Eluère (1986). 'Solder characterization on ancient gold artifacts with the electron microprobe.' *Scanning electron microscopy* 4, 1331-5.
- Duval, A. R., Ch. Eluère and L. P. Hurtel (1989). 'Joining techniques on ancient gold jewellery.' *Jewellery studies* 3, 5-13.
- Echt, R. and W.-R. Thiele (1987). 'Etruskischer Goldschmuck mit gelöteter und gesinterter Granulation.' *Archäologisches Korrespondenzenblatt* 17, 213-22.
- Eilbracht, H. (1999). *Filigran- und Granulationskunst im Wikingschen Norden. Untersuchungen zum Transfer frühmittelalterlicher Gold- und Silberschmiedetechniken zwischen dem Kontinent und Nordeuropa*. Zeitschrift für Archäologie des Mittelalters, Beiheft 11. Köln.
- Ek, B. (1998). *Fabrikken ved Hellefossen: Borregaard Hellefoss 1898-1998*. Hokksund.
- Ekelund, G. (1956). 'Silverskatten från Eketorp.' *Från bergslag och bondebygd. Örebroläns hembygdsförbunds årsbok* 11 (no. 22), 143-175.
- Eknæs, Å. (1972). *Det tradisjonelle laksefisket i Drammenselva. Naturforhold og redskapsutvikling*. (Unpublished thesis). University of Oslo.
- Elbern, V. H. ed. (1965). *Die bildende Kunst der Karolingerzeit zwischen Rhein und Elbe. Das Erste Jahrtausend. Kultur und Kunst im werdenden Abendland an Rhein und Ruhr*, I. Düsseldorf.
- Elbern, V. H. (1988). *Die Goldschmiedekunst im frühen Mittelalter*. Darmstadt.
- Fægri, K. and J. Iversen (1950). *Text-book of modern pollen analysis*. Copenhagen.
- Fægri, K. and J. Iversen (1975). *Textbook of pollen analysis*. 3. rev. ed. Copenhagen.
- Fagerlie, J. M. (1967). *Late Roman and Byzantine solidi found in Sweden and Denmark*. The American Numismatic Society, Numismatic notes and monographs 157. New York.

- Farges, F. (1998). 'Mineralogy of the Louvre Merovingian garnet cloisonné jewellery. Origins of the gems of the first kings of France.' *American mineralogist* 83, 323-330.
- Fellows-Jensen, G. and N. Lund, eds. (1999). *Beretning fra attende tværfaglige vikingesymposium. Højbjerg.*
- Ferro, D., E. Formigli, A. Pacini and D. Tossini (2003). 'Experimental archaeology approach to the study of "copper salts" welding'. *Archaeometallurgy in Europe* 1 2003, 305-14.
- Feveile, C. and S. Jensen (1992). 'Sceattasfundene fra Ribe – nogle arkæologiske kendsgerninger.' *By, marsk og geest* 5, 33-9.
- Fillitz, H. (1990). *Das Mittelalter I. Propyläen Kunstgeschichte.* Berlin.
- Fleischer, J., Ø. Hjort and M. Bøgh Rasmussen (1996). *Byzantium: late antique and Byzantine art in Scandinavian collections.* København.
- Flemström, B. (1972). *Jämtländska ortnamn.* Östersund.
- Flemström, B. (1983). *Ortnamnen i Jämtlands län. 6. Ragunda kommun. Bebyggelsenamn.* Skrifter utgivna genom Ortnamnsarkivet i Uppsala. Serie. A: Sveriges ortnamn. Uppsala.
- Foltz, E. (1979). 'Einige Beobachtungen zu antiken Gold- und Silberschmiedetechniken.' *Archäologisches Korrespondenzblatt* 2, 213-22.
- Foltz, E. (1989). 'Die Herstellung von Golddraht in frühen Mittelalter.' *Arbeitsblätter für Restauratoren* 2, Gruppe 3, 99-106.
- Foss, O. (1949). *Stedsnavn fra Eiker.* (Unpublished thesis). University of Oslo.
- Fraenkel-Schoorl, N. (1978). 'Carolingian jewellery with plant ornament.' *Berichten Rijksdienst oudheidkundig bodemonderzoek* 28, 345-97.
- Freeden, U. von (2000). 'Das Ende engzelligen Cloisonnés und die Eroberung Südarabiens durch dies Sasaniden.' *Germania* 78, 97-119.
- Frère, H. (1977). *Le denier carolingien, spécialement en Belgique.* Numismatica Lovaniensia 1. Publications de l'art et d'archéologie de l'Université Catholique de Louvain 7. Louvain-la-Neuve.
- Friis Johansen, K., see Johansen, K. Friis.
- Fuglesang, S. H. (1980). *Some aspects of the Ringerike style: a phase of 11th century Scandinavian art.* Odense.
- Fuglesang, S. H. (1982). 'Early viking art.' *Acta ad archaeologiam et artium historiam pertinentia.* Series in 8°, 2. Roma, 125-73.
- Fuglesang, S. H. (1987). 'The personal touch.' On the identification of workshops.' In Knirk (1987), 219-30.
- Fuglesang, S. H. (1991a). 'Ornament.' In *De arkeologiske utgravninger i Gamlebyen, Oslo, 8: Dagliglivets gjenstander II*, eds. E. Schia and P. B. Molaug. Øvre Ervik, 159-222.
- Fuglesang, S. H. (1991b). 'The axehead from Mammen and the Mammen style.' In M. Iversen, ed. *Mammen. Grav, kunst og samfund i vikingetid.* Jysk Arkæologisk Selskabs Skrifter 28, Århus, 83-107.
- Fuglesang, S. H. (1993). 'Viking art.' In *Medieval Scandinavia: an encyclopedia*, ed. P. Pulsiano. New York and London, 694-700.
- Fuglesang, S. H. (2001). 'Animal ornament: the late Viking period.' In *Tiere – Menschen – Götter. Wikingerzeitliche Kunststile und ihre neuzeitliche Rezeption*, eds. M. Müller-Wille and L. O. Larsson. Göttingen, 157-94.
- Gaborit-Chopin, D. (1978). *Elfenbeinkunst im Mittelalter.* Berlin.
- Gabriel, I. (1991). 'Handel und Fernverbindungen.' In *Starigard/Oldenburg. Ein slawischer Herrschersitz des frühen Mittelalters in Ostholstein*, ed. M. Müller-Wille. Neumünster, 251-78.
- Gaehde, J. and F. Mutherich (1976). *Karolingische Buchmalerei.* München.
- Gaimster, M. (1998). *Vendel period bracteates on Gotland.* Acta archaeologica Lundensia, series in 8°, 27. Stockholm.
- Galster (1980). 'Vikingetidens møntfund fra Bornholm.' *Nordisk numismatisk årsskrift* for 1977-8, 5-246.
- Gariel, E. (1883-84). *Les monnaies royales de France sous la race carolingienne I-II.* Strasbourg.
- Gelder, H. E. van (1985). 'De Karolingische muntvondst Roermond.' *Jaarboek voor Munt- en Penningkunde* 72, 13-47.

- Gichtel, P. (1971). *Der Codex Aureus von St. Emmeram. Die Restaurierung des Cod. lat. 14000 der Bayerischen Staatsbibliothek München*. München.
- Goldina, R. D. and V. A. Kananin (1989). *Srednevekovye pamjatniki verchov'ev Kamy. Sverdlovsk*.
- Goldschmidt, A. (1914). *Die Elfenbeinskulpturen aus der Zeit der karolingischen und sächsischen Kaiser. I. VIII.-XI. Jahrhundert*. Denkmäler der deutschen Kunst. Berlin.
- Gombrich, E. H. (1982). *Ornament und Kunst*. 3rd ed. Stuttgart.
- Graham-Campbell, J. (1974). 'A Viking age gold hoard from Ireland.' *Antiquaries journal* 54, 269-72.
- Graham-Campbell, J. (1980). *Viking artefacts: a select catalogue*. London.
- Graham-Campbell, J. (1987a). 'Some archaeological reflections on the Cuerdale hoard.' In *Coinage in ninth-century Northumbria*, ed. D. M. Metcalf. British archaeological reports, British series 180, 329-44.
- Graham-Campbell, J. (1987b). 'Western penannular brooches and their Viking Age copies in Norway: a new classification.' In Knirk (1987), 231-46.
- Graham-Campbell, J. (1988). 'The gold finger-ring from a burial in St Aldate's Street, Oxford.' *Oxoniensia* 53, 263-6.
- Graham-Campbell, J. (1995). *The Viking-age gold and silver of Scotland (AD 850-1100)*. Edinburgh.
- Graham-Campbell, J. (1999). 'Rings and things. Some observations on the Hon hoard.' In Fellows-Jensen and N. Lund (1999), 53-64.
- Graham-Campbell, J., ed. (1992). *Viking treasure from the North West: the Cuerdale hoard in its context*. National Museums and Galleries on Merseyside, Occasional papers, Liverpool Museum 5. Liverpool.
- Graham-Campbell, J. and C. S. Briggs (1986). 'Some neglected Viking-age silver hoards from near Athlone and Co Cork.' *Peritia* 5, 309-16.
- Graham-Campbell, J. and D. Kidd. (1980). *The Vikings*. London.
- Greiff, S. (1998). 'Naturwissenschaftliche Untersuchungen zur Frage der Rohsteinquellen für frühmittelalterlichen Almandingranatschmuck rheinfränkischer Provenienz.' *Jahrbuch des Römisch-Germanisches Zentralmuseums* 45, 599-646.
- Grieg, S. (1929). 'Vikingetidens skattefund.' *Universitetets oldsaksamlings skrifter* 2, 177-311.
- Grieg, S. (1968). 'Da Staten innløste Hon-skatten i 1834.' *Viking* 32, 111-29.
- Grieg, S. (1972). 'Lahellnavnet i arkeologisk og kulturhistorisk lys.' *Universitetets oldsaksamlings årbok* 1969, 5-66.
- Grierson, P. (1951). 'The gold solidus of Louis the Pious and its imitations.' *Jaarboek voor munt- en penningkunde* 38, 1-41.
- Grierson, P. (1954). 'Carolingian Europe and the Arabs: the myth of the mancus.' *Revue belge de philologie et d'histoire* 32 (1954), 1059-74.
- Grierson, P. and M. Blackburn (1986). *Medieval European coinage: with a catalogue of the coins in the Fitzwilliam Museum, Cambridge. 1. The Early Middle Ages (5th-10th centuries)*. Cambridge.
- Grønvik, O. (1987). *Fra Ågedal til Setre: sentrale runeinnskifter fra det 6. århundre*. Oslo.
- Grønvik, O. (1998). *Untersuchungen zur älteren nordischen und germanischen Sprachgeschichte*. Osloer Beiträge zur Germanistik 18. Frankfurt am Main.
- Guiraud, H. (1988). *Intailles et camées de l'époque romaine en Gaule*. Supplément à *Gallia* 48. Paris.
- Guiraud, H. (1996). 'The Eauze treasure. Questions of workshop.' In Calinescu, ed. (1996), 62-72.
- Hårdh, B. (1976a). *Wikingerzeitliche Depotfunde aus Südschweden. Katalog und Tafeln*. Acta archaeologica Lundensia, series in 4^o 9. Bonn.
- Hårdh, B. (1976b). *Wikingerzeitliche Depotfunde aus Südschweden. Probleme und Analysen*. Acta archaeologica Lundensia, series in 8^o minore 6. Lund.
- Hårdh, B. (1996). *Silver in the Viking Age. A regional-economic study*. Acta archaeologica Lundensia, series in 8^o 25. Stockholm.
- Hårdh, B. (1999). 'Fjärrkontakter för tusen år sedan.' In Fellows-Jensen and Lund (1999), 5-16.
- Haertle, C. M. (1997). *Karolingische Münzfunde aus dem 9. Jahrhundert*. Köln.

- Hagberg, U. E., B. Stjernquist and M. Rasch eds. (1996). *Vickleby, Resmo, Mörbylånga, Kastlösa, Sandby, Stenåsa och Hulterstad. Ölands järnåldersgravfält III*. Stockholm.
- Hald, K. (1965). *Vore stednavne*. 2. ed. København.
- Hald, K. (1969). *Stednavne og kulturhistorie*. Dansk historisk fællesforenings håndbøger. København.
- Hall, E. T. (1961). 'Surface enrichment of buried metals.' *Archaeometry* 4, 62-6.
- Hammarberg, I. and G. Rispling (1985). 'Graffiter på vikingatida mynt.' *Hikuin* 11, 63-78.
- Hammarberg, I., B. Malmer and T. Zachrisson (1989). *Byzantine coins found in Sweden*. Stockholm-London. Commentationes de nummis saeculorum IX-XI in Suecia repertis. Nova series 2.
- Hammer, P. (1998). 'Verfahrenstechnische Untersuchungen.' In *Römische und germanische Bunt- und Edelmetallfunde in Vergleich. Archäometallurgische Untersuchungen ausgehend von elbgermanischen Körpergräbern*, eds. H. U. Voss, P. Hammer and J. Lutz. (Bericht der Römisch-Germanischen Kommission 79, 1998). Mainz am Rhein, 179-99.
- Haseloff, G. (1955). 'Der Abtsstab des heiligen Germanus zu Delsberg.' *Germania* 33, 210-35.
- Hatz, G. (1970). 'Munus-divinum-Nachahmungen aus Haithabu.' *Das archäologische Fundmaterial der Ausgrabung Haithabu 1963-1964*. Berichte über die Ausgrabungen in Haithabu 4, 24-33.
- Hauglid, R. (1947). 'The Greek acanthus, problems of origin.' *Acta archaeologica* 18, 93-116.
- Hawthorne, J. G. and C. S. Smith (1979). *On divers arts. The treatise of Theophilus*. New York.
- Heggstad, L. (1949). *Stadnamn på Voss. Samla av Leiv Heggstad med hjelp av skuleborni og gode menner på Voss i åri 1920-1931*. Voss.
- Hellquist, E. (1948). *Svensk etymologisk ordbok* 1. Lund.
- Henig, M. (1974). *A corpus of engraved gemstones from British sites*. British Archaeological Reports 8. Oxford. 2 ed. 1978.
- Henig, M. (1994). *Classical gems. Ancient and modern cameos in the Fitzwilliam Museum, Cambridge*. Cambridge.
- Henig, M. (1997). 'Et in Arcadio ego: satyrs and maenads in the ancient world and beyond.' *Center for Advanced Study in the Visual Arts, Washington, D.C. Symposium Papers* 32, ed. C. M. Brown. *Studies in the History of Art* 54, 23-31.
- Henig, M. and A. MacGregor (1996). 'Three Alsen-gems in the Ashmolean Museum, Oxford.' *Journal of the British Archaeological Association* 149, 89-92.
- Hesselman, B. (1945). *Om ljud och brytning i de nordiska språken. Förstudier till en nordisk språkhistoria*. Nordiska texter och undersökningar 15. Stockholm/Köbenhavn.
- Heyerdahl-Larsen, B. (1979). 'Import av halvedelstener til Kaupang.' *Universitetets oldsaksamlings årbok* 1979, 150-7.
- Heyerdahl-Larsen, B. (1982). 'Gnostiske' amulettgjemmer i skatten fra Hon? *Viking* 45 for 1981, 93-104.
- Hildebrand, B. (1937). *C.J. Thomsen och hans lärda förbindelser i Sverige 1816-1837. Bidrag till den nordiska forn- och hävdaforskningens historia*. Kungl. vitterhets historie og antikvitets akademiens handlingar 44:1. Stockholm.
- Hinton, D. (1974). *A catalogue of the Anglo-Saxon ornamental metalwork 700-1100 in the Department of Antiquities, Ashmolean Museum*. Oxford.
- Høeg, H. I. (1979). 'Pollenanalyse.' In *De arkeologiske utgravninger i Gamlebyen, Oslo II*, ed. E. Schia. Øvre Ervik, 140-8.
- Hofseth, E. H. (1981). *Fjellressursenes betydning i yngre jernalders økonomi*. Arkeologisk museum i Stavanger. Skrifter 5. Stavanger.
- Hoge, R. W. (1997). 'A parcel of mainly Abbasid gold coins.' *Numismatic chronicle* 157, 239-47.
- Holmboe, C. A. (1835a). *Ornamentorum et numorum maximam partem aurerorum, in parochia Eger nuper repertorum, descriptionem, proludendi causa*. Christiania.
- Holmboe, C. A. (1835b). *En mærkværdig Samling af Smykker, forstørstedelen af Guld, og Mynter fra det 8de og 9de Aarhundrede, fundne i August Maaned paa Gaarden Hoen, i Egers Præstegjeld i Agershuus Stift, i Norge*. Christiania.

- Holmboe, C. A. (1854). 'Descriptio ornamentorum maximam partem aureorum et nummorum seculi VIIIvi et IXni, in parochia Eger in dioecesi Norvegiae Christianiensi anno MDCCCXXXIV repertorum.' In Holmboe, C. A., *De prisca re monetaria Norvegiae et de numis aliquot et ornamentis, in Norvegia repertis*. Christiania, 51-66.
- Holmboe, C. A. (1859). 'Le mancus des Anglo-Saxons.' *Numismatic chronicle* 20 for 1857-8, 149-50.
- Holmqvist, W. (1939). *Kunstprobleme der Merowingerzeit*. Stockholm. Kungl. Vitterhets Historie och Antikvitets Akademien.
- Holmqvist, W. (1955). *Germanic art during the first millennium A.D.* Lund. Kungl. vitterhets historie och antikvitets akademien handlingar 90.
- Holmqvist, W. (1959). 'The Syllöda silver pin - an English element in the Viking age.' *Suomen Museo* 66, 34-63.
- Holst, H. (1928). 'Numismatica II: The Roman-Byzantine coins of the Hoen-find.' *Symbolae Osloenses* 7, 83-91.
- Holst, H. (1931). *On the coins of the Hon-find*. Norsk Numismatisk Forenings Småskrifter 4. Oslo.
- Holst, H. (1951). 'Bemerkninger til Honfunnet: litteratur, sted og tid, riss og runer, nedlegning.' In Olsen (1951), 132-9.
- Holst, H. (1953). 'Nye bidrag til belysning av Honfunnets mynter.' *Nordisk numismatisk årsskrift* for 1951. Stockholm, 17-27.
- Holst, H. and U. S. L. Welin (1960). 'Graffiter.' In *Kulturhistorisk leksikon for nordisk middelalder* V, cols. 407-10.
- Holwerda, J. H. (1930). 'Opgravingen van Dorestad.' *Oudheidkundige Mededeelingen uit het Rijksmuseum van Oudheden te Leiden* 11, 32-96.
- Hubert, J., J. Porcher and W. F. Volbach (1969). *Die Kunst der Karolinger, von Karl dem Großen bis zum Ausgang des 9. Jahrhunderts*. München.
- Iglebæk, Ø. (1977). *Hoenfunnet*. Hokksund.
- Ilkjær, J. (2000). *Illerup Ådal - et arkæologisk tryllespejl*. Moesgård.
- Jacobsen, L. and E. Moltke (1941-2). *Danmarks runeindskrifter*. København.
- Jacobsen, L. et al., eds. (1972). *Nudansk ordbog*. 7. ed. København.
- Jakobi, C. (1991). *Buchmalerei, ihre Terminologie in der Kunstgeschichte*. Berlin.
- Jankuhn, H. (1934). 'Kunstgewerbe in Haithabu.' *Jahrbuch für prähistorische und ethnographische Kunst* 9, Berlin-Leipzig, 105-18.
- Jansson, I. (1984). 'Grosse Rundspangen.' In Arwidsson (1984) *Birka II*, 1, 75-84.
- Jansson, I. (1985). *Ovala spännbucklor: en studie av vikingatida standardsmycken med utgångspunkt från Björkö-fyndet*. Uppsala.
- Jansson, I. (1987). 'Communications between Scandinavia and Eastern Europe in the Viking Age.' In *Der Handel der Karolinger- und Wikingerzeit*, eds K. Düwel et al. Untersuchungen zu Handel und Verkehr der vor- und frühgeschichtlichen Zeit in Mittel- und Nordeuropa, IV. Göttingen, 773-807.
- Jansson, I. (1989). 'Wikingerzeitlicher orientalischer Import in Skandinavien.' *Bericht der Römisch-Germanischen Kommission* 69 for 1988, 564-647.
- Jansson, V. (1951). *Nordiska vin-namn: en ortnamnstyp och dess historia*. Skrifter utgivna av Kungl. Gustav Adolfs akademien. 24. Studier till en svensk ortnamnsatlas 8. Uppsala/Lund.
- Janzén, A. (1935). 'Bohuslänska vattendragsnamn.' *Namn och bygd* 23, 1-41.
- Jenny, W. A. von (1940). *Die Kunst der Germanen im frühen Mittelalter*. Berlin.
- Jenny, W. A. von and Volbach, W. F. (1933). *Germanischer Schmuck des frühen Mittelalters*. Berlin.
- Jensen, J. Steen (1988). 'Breve til C.J. Thomsen.' *Christian Jürgensen Thomsen 1788-29. december 1988. Aarbøger for nordisk oldkyndighed og historie* 1988, 209-16.
- Jensen, S. (1991). *Ribe zur Wikingerzeit*. Ribe.
- Jóhannesson, A. (1956). *Isländisches etymologisches Wörterbuch*. Bern.
- Johansen, K. Friis (1912). 'Sølvskatten fra Terslev.' *Aarbøger for nordisk oldkyndighed og historie* 1912, 189-263.
- Johansen, Ø. K. (1994). *Eikers historie 1. Fra fangstmann til viking*. Hokksund.

- Johnsen, N. (1914). *Eker. Træk av en storbygds saga*. Kristiania.
- Johnson, P. (1982). *Romano-British mosaics*. London.
- Jülich (1986/87). 'Gemmenkreuze. Die Farbigkeit ihres Edelsteinbesatzes bis zum 12. Jahrhundert.' *Aachener Kunstblätter* 54/55, 99-258.
- Kahsnitz, R. (1982). 'Das Ardennenkreuz. Eine crux gemmata aus karolingischer Zeit.' In *Das Schatzhaus der deutschen Geschichte. Das Germanische Nationalmuseum*, ed. R. Pörtner. Düsseldorf, 133-53.
- Karl der Grosse: *Werk und Wirkung* (1965). (Exhibition catalogue.) Aachen.
- Klæsøe, I. Skibsted (1997). 'Plant ornament. A key to a new chronology of the Viking Age.' *Archeological review* (Lund) 3, 73-87.
- Kmietowicz, A. (1959). Review of 'Graffiti on Oriental coins in Swedish viking age hoards', by U. S. L. Welin. *Archaeologia polona* 2, 173-80.
- Knirk, J. E., ed. (1987). *Proceedings of the Tenth Viking Congress. Larkollen, Norway, 1985*. Universitetets oldsaksamlings skrifter. New series 9. Oslo.
- Knirk, J. E. (2003). 'The runes on a Kufic coin from Hoen in Buskerud, Norway.' In *Runica – germanica – mediaevalia*, eds. W. Heizmann and A. van Nahl. Reallexikon der germanischen Altertumskunde, Ergänzungsbände 37. Berlin, 348-55.
- Köhler, W. (1958). *Die karolingischen Miniaturen II. Die Hofschule Karls des Großen*. Berlin.
- Koldewij, A.M. (1985). *Der gude Sente Servas. De Servatiuslegende en de Servatiana: een onderzoek naar de beeldvorming rond een heilige in de middeleeuwen*. De Geschiedenis van de Kerkshat van het Sint-Servaaskapittel te Maastricht, deel I. Assen-Maastricht.
- Korzuchina, G. F. (1954). *Russkie klady IX-XIII vv*. Moskva.
- Kousgård Sørensen, J., see Sørensen, J. Kousgård.
- Kromann, A. (1990). 'The latest Cufic coin finds from Denmark.' *Sigtuna papers*, ed. K. Jonsson and B. Malmer. Commentationes de nummis saeculorum IX-XI qui in Suecia repertis. Nova series 6. Stockholm, 183-95.
- Kuz'menko, Ju. K. (1995). 'Vikingatidens runinskrifter i Östeuropa.' In *Colloquia Scandinavistica Vilnensia*, eds. E. Sausverde and P. Arbo. Vilnius, 25-39.
- La Niece, S. (1983). 'Niello: An historical and technical survey.' *The antiquaries journal* 63, 279-97.
- Lafaurie, J. and C. Morisson (1987). 'La pénétration de la monnaie byzantine en Gaule mérovingienne et visigothique.' *Revue numismatique*, 1987, 38-98.
- Lafaurie, J., B. Jansen and A. N. Zadoks-Josephus Jitta (1961). 'Le trésor de Wieuwerd.' *Oudheidkundige mededelingen uit het Rijksmuseum van Oudheden te Leiden* 42, 78-107.
- Lang, J. T. (1988). *Viking-Age decorated wood: a study of its ornament and style*. Medieval Dublin excavations 1962-81, ser. B, 1. Dublin.
- Lasko, P. (1994). *Ars sacra 800-1200*. 2. ed. New Haven/London.
- Laurent, V. (1978). 'Ein byzantinisches Bleisiegel aus Haithabu.' *Berichte über die Ausgrabungen in Haithabu* 12, 36-9.
- Laux, F. (1983). 'Der Reihengräberfriedhof in Oldendorf, Samtgemeinde Amelinghausen, Kr. Lüneburg/Niedersachsen.' *Hammaburg N. F.* 5, 91-147.
- Laux, F. (1993). 'Überlegungen zum spätsächsischen Gräberfeld von Hittfeld-Karoxbostel, Landkreis Harburg.' *Hammaburg N. F.* 10, 195-212.
- Lavoix, H. (1887). *Khalifes orientaux*. Catalogue des monnaies musulmanes de la Bibliothèque Nationale I. Paris.
- Legner, A. (1991). *Rheinische Kunst und das Schnütgen-Museum*. Köln.
- Legner, A. (1995). *Reliquien in Kunst und Kult*. Darmstadt.
- Lennartsson, M. (1999). 'Karolingische Metallarbeiten mit Pflanzenornamentik.' In *Offa* 54/55 for 1997/98, 431-619.
- Lewina, L. M. and N. P. Dowgajuk (1995). 'Die Glasperlen der dschetyasarskischen Denkmäler.' *Dschetyasarskaja-Kultur*. Moscow, 202-28.
- Leyser, K. (1994). 'Early medieval canon law and the beginnings of knighthood.' In K. Leyser. *Communications and power in medieval Europe. The Carolingian and Ottonian centuries*. London, 51-71.

- Lidén, E. (1916). 'Västgötanamn.' *Namn och bygd* 4, 87-126.
- Liestøl, A. (1959). 'Landheving og stadnamn.' *Maal og minne* 1959, 143-55. Oslo.
- Lindenschmit, L. (1880-9). *Handbuch der deutschen Altertumskunde. Übersicht der Denkmale und Gräberfunde frühgeschichtlicher und vorgeschichtlicher Zeit*. Braunschweig.
- Lorange, A. (1875). *Samlingen af norske Oldsager i Bergens Museum*. Bergen.
- Lowick, N. M. (1973). 'A new type of *Solidus Mancus*.' *Numismatic chronicle* 7.13, 173-82.
- Lundström, P. (1981). *De kommo vida ... Vikingars hamn vid Paviken på Gotland*. Stockholm.
- Lutovsky, M. (1994). 'Kolinski knizeci hrob: Ad fontes – Fürstengrab von Kolin: Ad fontes.' *Sbornik Narodniho muzea v Praze* 48, 37-76.
- L'vova, Z. (1968). 'Stekl'annye busy Staroj Ladogi. Cast I. Sposoby izgotovlenija, areal i vremja rasprostranija.' *Archeologiceskij Sbornik* 10, 64-94.
- Madsen, H. Brinch (1984). 'Metal-casting: techniques, production and workshops.' In *Ribe excavations 1970-76*, II, ed. M. Bencard. Esbjerg, 15-189.
- Malmer, B. and N. L. Rasmusson eds. (1975). *Corpus nummorum saeculorum IX-XI qui in Suecia reperti sunt* I. Kungl. Vitterhets Historie och Antikvitets Akademien. Stockholm.
- Malmer, B. ed. (1982). *Catalogue of coins from the 9th to the 11th centuries found in Sweden I.3. Gotland, Dalhem – Etelhem*. *Corpus nummorum saeculorum IX-XI qui in Suecia reperti sunt*. Stockholm.
- Mannerstrand, M. (1996). *Chemical analysis of archaeological found garnets at Slöinge Halland and from other archaeological localities in Sweden and Denmark – a comparison with geological rocks from southwestern Sweden*. Report from Geologiska institutionen, Lunds universitet. Lund.
- Marstrander, S. (1953). 'Et nytt trøndersk skattefunn fra 900-årene.' *Det Kongelige Norske Videnskabers Selskabs skrifter* for 1952:2, 1-45.
- Mastykova, A. V. (1991). 'Tipologija bus iz pogrbenij Majackogo seliča.' In *Kul'tovye kompleksy Majackogo seliča*, eds. A. Z. Vinnikov and G. E. Afanas'ev. Materialy raskopok Sovetsko-Bolgaro-Vengerskoj e'kspedicii. Voronez, 172-82.
- Mattingly, H. E.A. Sydenham et al. (1923-94). *The Roman Imperial Coinage*. London.
- McCormick, M. (2001). *Origins of the European economy. Communications and commerce, A.D. 300-900*. Cambridge.
- McKinnell, J. (2001). 'Eddic poetry in Anglo-Scandinavian northern England'. In *Vikings and the Danelaw. Select papers from the proceedings of the Thirteenth Viking Congress*, eds. J. Graham-Campbell, R. Hall et al. Oxford, 27-344.
- Meeks, N. D. and M. S. Tite (1980). 'The analysis of platinum-group element inclusions in gold antiquities.' *Journal of archaeological science* 7, 267-75.
- Mello, E., P. Parrini and E. Formigli (1983). 'Etruscan filigree: welding techniques of two gold bracelets from Vetulonia.' *American journal of archaeology* 87, 548-51.
- Mel'nikova, E. A. (2001). *Skandinavskie runiceskie nadpisi: novye naxodki i interpretacii*. Drevnejšie istocniki po istorii Vostocnoj Evropy. Moskva.
- Mel'nikova, E. A., A. B. Nikitin and A. V. Fomin (1984). 'Graffiti na kuficeskix monetax petergofskovo klada nacala IX v.' *Drevnejšie gosudarstva na territorii SSSR: materialy i issledovanija* for 1982, 26-47.
- Menghin, W. (1973). *Aufhängevorrichtung und trageweise zweischneidiger Langschwerter aus germanischen gräbern des 5. Bis 7. Jahrhunderts*. Anzeiger der germanischen Nationalmuseums 7-56.
- Menghin, W., T. Springer and E. Wamers eds. (1987). *Germanen, Hunnen und Awaren. Schätze der Völkerwanderungszeit*. Nürnberg.
- Metcalf, D. M. (1995). 'Late Roman and Byzantine gold in the Northern Lands.' *Numismatic chronicle* 1995, 413-41.
- Mikkelsen, E. (2002). 'Handel – misjon – religionsmønter. Impulser fra buddhisme, islam og kristendom i Norden 500-1000 e.Kr.' *Viking* 2002, 91-136.
- Moesgaard, J. C. and G. Rispling. (2002). 'Guldefterligning af en arabisk mønt fundet på Bornholm'. *Nordisk numismatisk unions medlemsblad* 2002, 91-94.

- Monneret de Villard, U. (1919). 'Il soldo mancuso e la circolazione dell'oro arabo e bizantino nell'Europa barbarica.' *Rivista italiana di numismatica* 32, 73-112.
- Morrison, K. F. (1961). 'The gold medallions of Louis the Pious and Lothar I and the Synod of Paris (825).' *Speculum* 36, 592-9.
- Morrison, K. F. and H. Grunthal (1967). *Carolingian coinage*. The American Numismatic Society. Numismatic Notes and Monographs 158. New York.
- Moseng, O. G. (1994). *Eikers historie 2. Sigden og sagbladet*. Hokksund.
- Müller, A. von (1970). 'Karneolperlen aus Haithabu (Ausgrabungen 1963-1964).' *Berichte über die Ausgrabungen in Haithabu* 4, 53-5.
- Müller, S. (1888-95). *Ordning af Danmarks oldsager*. København.
- Mütherich, F. (1982). *Die Karolingischen Miniaturen, V. Die Hofschule Karls des Kahlen*. Berlin.
- Munksgaard, E. (1963). 'Skattefundet fra Duesminde.' *Aarbøger for nordisk oldkyndighed og historie* 1962, 94-112.
- Munksgaard, E. (1997). 'En guldhalsring fra Nordvestsjælland.' *Fra Holbæk amt* 1997, 6-20.
- Näsman, U. (1979). 'Die Herstellung von Glasperlen.' In: M. Bencard 'Wikingerzeitliches Handwerk in Ribe. Eine Übersicht'. *Acta archaeologica* 49 for 1978, 124-33.
- Naxapetjan, V. E. and A. V. Fomin (1994). 'Graffiti na kufičeskix monetax, obraščavšixsja v Evrope v IX-X vv.' *Drevnejšie gosudarstva Vostočnoj Evropy: materialy i issledovanija* (Moskva) 1991, 139-208.
- Nerman, B. (1969). *Die Vendelzeit Gotlands, II, Tafeln*. Stockholm.
- Nerman, B. and A. Lundström (1975). *Die Vendelzeit Gotlands, I.1, Text*. Stockholm.
- NG = Rygh, O. et al. *Norske Gaardnavne. Oplysninger samlede til Matrikelens Revision*. 1-19. Kristiania/Oslo 1897-1936.
- Nicolaysen, N. (1891). 'Udgravninger i 1891 I. Nordre Besseberg.' *Foreningen til Norske Fortidsmindesmerkers Bevaring, Aarsberetning* 1891, 76-82.
- Nicolaysen, N. (1894). 'Antikvariske Notiser.' *Foreningen til Norske Fortidsmindesmerkers Bevaring, Aarsberetning* 1893, 173-82.
- Nordenfalk, C. (1934). 'Bemerkungen zur Entstehung des Akanthusornaments.' *Acta archaeologica* 5, 257-65.
- Noreen, A. (1970). *Altnordische Grammatik. I. Altisländische und altnorwegische Grammatik (Laut- und Flexionslehre) unter Berücksichtigung des Urnordischen*. 5. ed. Tübingen.
- Nützel, H. (1898). *Die Münzen der österlichen Chalifen*. Katalog der orientalischen Münzen I. Königliche Museen zu Berlin. Berlin.
- Oddy, W. A. (1977). 'The production of gold wires in antiquity.' *Gold bulletin* 10, 79-87.
- Oddy, W. A. (1979). 'Hand-made wires in antiquity; a correction.' *MASCA journal* [The Museum Applied Science Center for Archaeology] 1, 44-5.
- Oddy, W. A. (1980). 'Gilding and tinning in Anglo-Saxon England.' In *Aspects of early metallurgy*. British Museum occasional papers 17, ed. W. A. Oddy. London, 129-34.
- Oddy, W. A. (1984). 'Ancient jewellery as a source of technological information - a study of techniques for making wire.' In *Fourth international restorer seminar 2*, ed. A. Timár-Balázs. Budapest, 241-51.
- Oddy, W. A. (1996). 'Jewelry under the microscope: A conservator's guide to cataloguing.' In Calinescu ed. (1996), 185-97.
- Oddy, W. A., S. La Niece, J. E. Curtis and N. D. Meeks (1981). 'Diffusion-bonding as a method of gilding in antiquity.' *The Museum Applied Science Center for Archaeology, MASCA journal* 8, 239-41.
- Oddy, W. A., M. Bimson and S. La Niece (1983). 'The composition of niello decoration on gold, silver and bronze in the antique and medieval periods.' *Studies in conservation* 28, 29-35.
- Oddy, W. A. and S. La Niece (1986). 'Byzantine gold coins and jewellery.' *Gold bulletin* 19, 19-27.
- Ogden, J. M. (1977). 'Platinum group metal inclusions in ancient gold artefacts.' *Journal of the Historical Metallurgy Society* 11, 53-72.
- Ogden, J. M. (1982). *Jewellery of the ancient world*. London.

- Ogden, J. M. (1983). 'Potentials and problems in the scientific study of ancient gold artifacts.' In *Application of science in examination of works of art, proceedings of the seminar, September 7-9, 1983*, eds. P. A. England and L. van Zelst. Boston, 72-5.
- Oikonomides, N. (1986). *A collection of dated lead seals*. Washington, D.C.
- Olsen, M. (1931). 'The runic characters on a Kufic coin from Hon, Øvre Eiker.' In Holst (1931), 9-10.
- Olsen, M. (1951). *Norges innskrifter med de yngre runer II*, 139-40. Oslo.
- Olsen, O. (1966). *Hørg, hov og kirke*. Aarbøger for nordisk oldkyndighed og historie 1965. København.
- O'Meadhra, U. (1979-87). *Early Christian, Viking and Romanesque art. Motif-pieces from Ireland*. Stockholm.
- Östergren, O. (1981). *Nusvensk ordbok II*. Stockholm.
- Pamp, B. (1988). *Ortnamnen i Sverige*. 5. ed. Lundastudier i nordisk språkvetenskap. Serie B, 2. Lund.
- Parrini, P., E. Formigli and E. Mello (1982). 'Etruscan granulation: analyzes of orientalizing jewelry from Marsiliana d'Albegna.' *American journal of archaeology* 86, 118-21.
- Pawelec, K. (1990). *Aachener Bronzegitter. Studien zur karolingischen Ornamentik um 800*. Bonner Beiträge zur Kunstwissenschaft 12. Köln.
- Petersen, J. (1919). *De norske vikingesverd. En typologisk-kronologisk studie over vikingetidens vaaben*. Videnskapselskapets Skrifter. II. Hist.-filos. Klasse 1919. No.1. Kristiania.
- Petersen, J. (1928). *Vikingetidens smykker*. Stavanger.
- Petersen, J. (1940). *British antiquities of the Viking Period, found in Norway*. Viking Antiquities in Great Britain and Ireland V, ed. H. Shetelig. Oslo.
- Petersen, K. S. (1998). 'Danish niello inlays from the Iron Age.' *Journal of Danish archaeology* 12, 133-49.
- Petersen, Th. (1939). 'Oldsaksamlingens Tilvekst 1939'. *Det kongelige norske videnskabers selskab. Museet. Oldsaksamlingens tilvekst 1939*. Trondheim.
- Pinder, M. (2001). 'An aspect of seventh-century Anglo-Saxon goldsmithing.' In *Pattern and purpose in insular art*, eds. M. Redknapp et al. Oxford, 132-9.
- Pokorny, J. (1959). *Indogermanisches etymologisches Wörterbuch I*. Bern.
- Prou, M. (1892). *Les monnaies mérovingiennes*. Catalogue des monnaies françaises de la Bibliothèque Nationale. Paris.
- Resi, H. G. (1987). 'Perlène.' In 'En båtgrav fra Røsvik på Sunnmøre', eds. T. Hjørungdal et al. *Viking* 50, 131-9.
- Rigold, S. E. (1954). 'An imperial coinage in Southern Gaul in the sixth and seventh centuries?' *Numismatic chronicle* 6.14, 93-133.
- Rigold, S. E. (1975). 'The Sutton Hoo coins in the light of the contemporary background of coinage in England.' In R. L. S. Bruce-Mitford, *The Sutton Hoo ship burial I*. London, 653-77.
- Roesdahl, E. et al., eds. (1981). *Vikingerne i England og hjemme i Danmark*. London.
- Roesdahl, E. and D. M. Wilson, eds. (1992). *From Viking to crusader: the Scandinavians and Europe 800-1200*. København.
- Roesdahl, E. and D. M. Wilson, eds. (1992). *Wikinger, Waräger, Normannen. Die Skandinavier und Europa 800-1200*. Mainz.
- Ross, H. (1895). *Norsk ordbog. Tillæg til 'Norsk Ordbog' af Ivar Aasen*. Christiania.
- Roth, H. (1979). *Kunst der Völkerwanderungszeit*. Propyläen Kunstgeschichte, Supplementband IV. Frankfurt am Main.
- Roth, H. (1986). *Kunst und Handwerk im frühem Mittelalter. Archäologische Zeugnisse von Childerich I bis zu Karl dem Großen*. Stuttgart.
- Royal Edict of 7th August 1752: 'Placat angaaende Godtgjørelse af den Kongel. Cassa for gamle Mynter og andet af nogen Rarhed, som udi Danmark og Norge maatte findes og til Rente-Cammeret indsendes.' København 1752. In: *Almindelig Norsk Lovsamling*, 1, Kristiania 1905, 395. [Edited version.]
- Royal Proposition of 21st January 1836: 'Den Kongl. Proposition ang. Overdragelse af de paa Eger fundne Oldsager, tilligemed den herover afgivne Indstilling af Comiteen for Kirke- og

- Underviisningsvæsenet.' In: *Kongeriget Norges ottende ordentlige Storthings Forhandlinger i Aaret 1836. Første Deel indeholdende Forhandlingerne i Februar og Marts Maaneder*, 1-3. [Passed by Parliament 4 March 1836.]
- Rudolph, W. (1995). *A golden legacy. Ancient jewelry from the Burton Y. Berry collection at the Indiana Art Museum*. Indianapolis.
- Ryan, M. (1989). 'Church metalwork in the eighth and ninth centuries.' In Youngs, ed. (1989), 125-69.
- Ryan, M. (1993). 'The menagerie of the Derrynaflan chalice.' In Spearman and Higgitt, eds. (1993), 151-61.
- Rygh, O. (1877). *Norske Myntfund fra det niende Aarhundrede*. Videnskabselskabet. Forhandlinger 1876:10. Christiania.
- Rygh, O. (1885). *Norske oldsager I-II*. Christiania. (Reprint 1999.)
- Rygh, O. (1904). *Norske elvenavne*. Kristiania.
- Rygh, O. (1909). *Norske gaardnavne V. Buskeruds amt*. Kristiania.
- Sahlgren, J. (1932). *Vad våra ortnamn berätta*. Studentföreningen Verdandis småskrifter 351. Stockholm.
- Sandnes, J. and O. Stemshaug, ed. (1997). *Norsk stadnamnleksikon*. 4. ed. Oslo.
- Scheller, R. W. (1963). *A survey of medieval model books*. Haarlem.
- Scheller, R. W. (1995). *Exemplum. Model-book drawings and the practice of artistic transmission in the middle ages (ca. 900-ca. 1470)*. Amsterdam.
- Schoknecht, U. (1977). *Menzlin. Ein frühgeschichtlicher Handelsplatz an der Peene*. Beiträge zur Ur- und Frühgeschichte der Bezirke Rostock, Schwerin und Neubrandenburg 10. Berlin.
- Schulze-Dörflamm, M. (1991). *Der Mainzer Schatz der Kaiserin Agnes aus dem mittleren 11. Jahrhundert: neue Untersuchungen zum sogenannten 'Gisela-Schmuck'*. Sigmaringen.
- See, K. von, B. La Farge et al. (1997). *Kommentar zu den Liedern der Edda*, vol. 2. *Götterlieder*. Heidelberg.
- Sheehan, J. (1992). 'Coiled arm-rings: an Hiberno-Viking silver armring type.' *The journal of Irish archaeology* 6, 41-53.
- Sheehan, J. (1998). 'Early viking age silver hoards from Ireland and their Scandinavian elements.' In *Ireland and Scandinavia in the early viking age*, H. B. Clarke, M. Mhaonaigh et al. eds. Dublin, 166-202.
- Shetelig, H. (1920). *Osebergfundet III*. Kristiania.
- Shetelig, H. (1946). 'Smykker av jet i norske vikingefunn.' *Bergens museums årbok, historisk antikvarisk rekke*, 1944:1.
- Shetelig, H. and H. Falk (1937). *Scandinavian archaeology*. Oxford.
- Siegmund, F. (1999). 'Frühmittelalterliche Gräberfelder in Ostwestfalen.' In Stiegemann and Wemhoff eds (1999), III, 257-62.
- Simonsen, J. Bæk (1981). *Vikingerne ved Volga: Ibn Fadlans rejsebeskrivelse resumeret, deloversat og kommenteret*. Højbjerg.
- Sjøvold, T. (1944). 'Studier i Vestfolds vikingtid.' *Universitetets oldsaksamlings årbok for 1941-1942*, 5-102.
- Skaare, K. (1966). 'Die karolingischen Münzfunde in Skandinavien und der Schatzfund von Hon.' *Hamburger Beiträge zur Numismatik* 6.20, 393-408.
- Skaare, K. (1976). *Coins and coinage in Viking-age Norway*. Oslo.
- Skaare, K. (1982). 'Myntene i Slemmedal-skatten.' *Viking* 45 for 1981, 32-43.
- Skaare, K. (1988). 'Der Schatzfund von Hon und seine Münzen.' *Commentationes numismaticae 1988, Festgabe für Gert und Vera Hatz zum 4. Januar 1988 dargebracht*, P. Berghaus, et al. eds. Hamburg, 51-61.
- Skaare, K. (1992). 'Korrespondanse mellom C.J. Thomsen og C.A. Holmboe. Brev fra C.J. Thomsen til professorene S.B. Bugge, C.A. Holmboe og L.C.M. Aubert, bestyrere av Universitetets Myntkabinett, Christiania, og brev til C.J. Thomsen – og til bestyrelsen for den kgl. myntsamlings for øvrig – fra de to sistnevnte og to andre embetsmenn ved universitetet i Christiania (1828-1863).' *Nordisk numismatisk årsskrift 1987-88*, 5-106.

- Skaare, K. (1995). *Norges mynthishistorie I*. Oslo.
- Skaare, K. (2000). 'The viking-age gold hoard from Hon, Norway reconsidered.' *XII Internationaler Numismatischer Kongress, Berlin 1997. Akten – Proceedings – Actes II*, eds. B. Kluge and B. Weisser. Berlin, 966-71.
- Skibsted Klæsøe, I, see Klæsøe, I. Skibsted.
- Skjelsvik, E. (1965). 'Katalog over Aust-Agder-Museets – tidligere Arendals Museum – samling av oldsaker. C. 30250-30573.' *Universitetets oldsaksamlings årbok 1962*, 187-282. Oslo.
- Skovmand, R. (1942). 'De danske skattefund fra vikingetiden og den ældste middelalder indtil omkring 1150.' *Aarbøger for nordisk oldkyndighed og historie 1942*, 1-275.
- Skre, D. et al. (2001). *The Kaupang project. Annual report 2001*. Oslo.
- Smith, E. A. (1978). *Working in precious metals*. London.
- Sode, T. (1996). *Anatolske glasperler*. København.
- Sørensen, J. Kousgård (1978). *Danske sø- og ånavne III*. Navnestudier udgivet af Institut for Navneforskning 15. København.
- Spearman, R. M. and J. Higgitt, eds. (1993). *The age of migrating ideas*. Edinburgh.
- Spufford, P. (1988). *Money and its use in medieval Europe*. Cambridge.
- Ståhl, H. (1960). *Ortnamnen i Kopparbergslagen*. Kungl. vitterhets historie och antikvitets akademien handlingar. Filologisk-filosofiska serien 7. Stockholm.
- Steen, Sverre (1934). 'Veiene og leden i Norge.' In *Handel og samferdsel*. Nordisk kultur 16, 217-28.
- Steenbock, F. (1965). *Der kirchliche Prachteinband im frühen Mittelalter von den Anfängen bis zum Beginn der Gotik*. Berlin.
- Steinnes, A. (1955). *Husebyar*. Oslo.
- Stenberger, M. (1947-58). *Die Schatzfunde Gotlands der Wikingerzeit*. Stockholm.
- Stenberger, M. (1964). *Det forntida Sverige*. Stockholm.
- Stenshorne, S. I. (1974). *Naturgrunnlaget på Øvre Eiker*. Unpublished thesis at Norges Landbrukshøgskole, Ås.
- Steppuhn, P. (1993). 'Der Hort eines Edelmetallschmiedes aus der frühslawischen Siedlung Rostock-Dierkow. Die Kette mit Bleiglasperlen.' *Offa 49/50*, 207-13.
- Steppuhn, P. (1997). 'Bleiglasperlen des frühen und hohen Mittelalters in Nordeuropa.' In *Perlen: Archäologie, Techniken, Analysen. Akten des Internationalen Perlensymposiums in Mannheim vom 11. bis 14. November 1994*, eds. U. v. Freeden and A. Wiczorek. Bonn, 203-9.
- Steppuhn, P. (1998a). 'Glasfunde des 8.-13. Jahrhunderts in Siedlungen, Veränderungen vom frühen zum späten Mittelalter, dargestellt am Beispiel Haithabu/Schleswig.' In Wesse and Hoffmann eds. (1998). Neumünster, 461-7.
- Steppuhn, P. (1998b). *Die Glasfunde von Haithabu*. Berichte über die Ausgrabungen in Haithabu 32. Neumünster.
- Steppuhn, P. (2000). 'Der wikingerzeitliche Schatzfund von Hoen, Øvre Eiker, Buskerud/Norwegen. Studien zu Provenienz und Datierung der Schmuckperlen'. *Offa 56 1999*, 353-66.
- Steppuhn, P. (2002). 'Glasfunde des 11. bis 17. Jahrhunderts aus Schleswig'. *Ausgrabungen in Schleswig. Berichte und Studien 16*. Neumünster.
- Stewart, B. H. I. H. (1978). 'Anglo-Saxon gold coins.' *Scripta nummaria romana. Essays presented to Humphrey Sutherland*, eds. R. A. G. Carson and C. M. Kraay. London, 143-72.
- Stiegemann, C. and M. Wemhoff, eds. (1999). *799: Kunst und Kultur der Karolingerzeit. Karl der Große und Papst Leo der Dritte in Paderborn*. Mainz.
- Stockmarr, I. (1972). Tablets with spores used in absolute pollen analysis. *Pollen & spores 13*, 615-21.
- Stoklund, M. (2003). 'Bornholmske runeamuletter.' In *Runica – germanica – mediaevalia*, eds. W. Heizmann and A. van Nahl. Reallexikon der germanischen Altertumskunde, Ergänzungsbände 37. Berlin, 854-70.
- Strøm, H. (1784). *Physisk-Oeconomisk Beskrivelse over Eger Præstegjæld*. København (reprint Oslo 1980).
- Stuiver, M., P. J. Reimer, et al. (1998). 'Calibration program.' *Radiocarbon 40*, 1041-83.

- Taralon, J. (1966). 'Note technique sur le 'Talisman de Charlemagne'.' *Les monuments historiques de la France*, N.S. XII, 24-43.
- Thiel, E. J. (1963). 'Studien und Thesen zur Geschichte der Initialornamentik des frühen Mittelalters.' *Börsenblatt für den Deutschen Buchhandel*, Frankfurter Ausgabe 19.
- Thieme, W. (1987). 'Perlenketten.' In *Von den Sachsen zur Hammaburg. Bilder aus Hamburgs Frühzeit*, ed. R. Busch. Veröffentlichungen des Helms-Museums 50, 168-9.
- Thunmark-Nylén, L. (1983). *Vikingatida dösspännen: teknisk stratigrafi och verkstadsgruppering*. Aun 4. Uppsala.
- Thurre, D. (1994). 'Die Goldkanne 'Karls des Kahlen' in der Schatzkammer der Abtei von St. Maurice.' *Helvetica archaeologica* 25, 122-52.
- Tõnisson, E. (1962). *Eesti aardeleuid 9.-13. sajandist (Die estnischen Schatzfunde des 9.-13. Jahrhunderts)*. Tallinn.
- Tornberg, C. J. (1848). *Numi cufici regii numophylacii Holmiensis, quos omnes in terra Sveciae repertos*. Upsaliae.
- Torp, A. (1919). *Nynorsk etymologisk ordbok*. Kristiania.
- Vågslid, E. (1958). *Stadnamntydingar*. Eidsvoll.
- Volbach, F. (1964). 'Das Ellwanger Reliquienkästchen.' In *Ellwangen 764-1964. Beiträge und Untersuchungen zur Zwölfhundert-Jahrfeier*, ed. V. Burr. Ellwangen, 767-74.
- Wamers, E. (1981). 'Ein karolingischer Prunkbeschlag aus dem Römisch-Germanischen Museum, Köln.' *Zeitschrift für Archäologie des Mittelalters* 9, 91-128.
- Wamers, E. (1983). 'Ein Räuchergefäß aus dem Schnütgen-Museum. Karolingische 'renovatio' und byzantinische Kontinuität.' *Wallraf-Richartz-Jahrbuch* 44, 29-56.
- Wamers, E. (1984). 'Eine Zungenfibel aus dem Hafen von Haithabu.' *Berichte über die Ausgrabungen in Haithabu* 19, 63-127.
- Wamers, E. (1985). *Insularer Metallschmuck in wikingerzeitlichen Gräbern Nordeuropas. Untersuchungen zur skandinavischen Westexpansion*. Offa-Bücher 56.
- Wamers, E. (1986). 'Frühmittelalterliche Funde aus Mainz. Zum Karolingisch-ottonischen Metallschmuck und seinen Verbindungen zum angelsächsischen Kunsthandwerk.' *Frankfurter Beiträge zur Mittelalter-Archäologie* 1, 11-56.
- Wamers, E. (1991). 'Pyxides imaginatae. Zur Ikonographie und Funktion karolingischer Silberbecher.' *Germania* 69, 97-152.
- Wamers, E. (1994). *Die frühmittelalterliche Lesefunde aus der Löhrrstraße (Baustelle Hilton II) in Mainz*. Mainz.
- Wamers, E. (1995). 'Eine burgundische Pyxis "vom Niederrhein". Zu merowingerzeitlichen Amulettenkapseln und Kosmetikbüchsen.' *Frühmittelalterliche Studien* 29, 144-66.
- Wamers, E. (1998). 'Ein bemerkenswerter Fund aus Vendsyssel.' In Wesse and Hoffmann eds. (1998), 521-28.
- Wamers, E. (1999). 'Kleeblattförmiger Schwertgurtbeschlag.' In Stiegemann and Wernhoff eds. (1999), II, 750-1.
- Wamser, L. and G. Zahlhaas, eds. (1998). *Rom und Byzanz. Archäologische Kostbarkeiten aus Bayern*. München.
- Watkin, J. and F. Mann (1981). 'Some late Saxon finds from Lilla Howe, North Yorkshire, and their context.' *Medieval archaeology* 25, 153-7.
- Webster, L. and J. Backhouse, eds. (1991). *The making of England. Anglo-Saxon art and culture AD 600-900*. London.
- Webster, L., and M. Brown, eds. (1997). *The transformation of the Roman world AD 400-900*. London.
- Wegewitz, W. (1968). *Reihengräberfriedhöfe und Funde aus spätsächsischer Zeit im Kreis Harburg*. Neumünster.
- Welin, U. S. L. (1956). 'Graffiti on Oriental coins in Swedish viking age hoards.' *Meddelanden från Lunds universitets historiska museum (Kungl. humanistiska vetenskapssamfundets i Lund, årsberättelse 3)* 1955-6, 149-71.

- Welin, U. S. L. (1965). 'Some rare Samanid dirhems and the origin of the word 'mancus'.' *Congresso internazionale di numismatica, Roma 11-16 settembre 1961*, II. Roma, 499-508.
- Welin, U. S. L. (1966). 'Elias Brenners arabiska guldpennning och andra dinarer funna i Sverige.' *Nordisk numismatisk årsskrift* 1964, 5-25.
- Werner, J. (1969). 'Sporn von Bacharach und Seeheimer Schmuckstück. Bemerkungen zu zwei Denkmälern des 9. Jahrhunderts vom Mittelrhein.' In *Siedlung, Burg und Stadt: Studien zu ihren Anfängen. Festschrift P. Grimm*, eds. K. H. Otto and J. Herrmann. Deutsche Akademie der Wissenschaften Berlin, Sektion vor- und Frühgeschichte 25, Berlin, 497-506.
- Wesse, A. and E. Hoffmann eds. (1998). *Studien zur Archäologie des Ostseeraumes. Von der Eisenzeit zum Mittelalter. Festschrift für Michael Müller-Wille*. Neumünster
- Westermann-Angerhausen, H. (1983). 'Die Mindener Gold-Fibel.' *Westfalen* 61, I, 100-106.
- Westermann-Angerhausen, H. (1991). 'Spuren der Theophanu in der ottonischen Schatzkunst?' In *Kaiserin Theophanu. Begegnung des Ostens und des Westens um die Wende des ersten Jahrtausends. Gedenkschrift des Kölner Schnütgen-Museum zum 1000. Todestag der Kaiserin*, eds. A. von Euw and P. Schreiner, II. Köln, 193-218.
- Westermann-Angerhausen, H. (1994). 'Spolie - Zitat - Tradition. Die vorgotischen Emails und der Vorgänger des gotischen Schreins.' In *Schatz aus den Trümmern. Der Silberschrein von Nivelles und die europäische Hochgotik*, ed. H. Westermann-Angerhausen. Köln, 117-34.
- Whitelock, D. (1930). *Anglo-Saxon wills*. Cambridge.
- Whitfield, N. (1987). 'Motifs and techniques of Celtic filigree: are they original?' In *Ireland and insular art A.D. 500-1200*, ed. M. Ryan. Dublin, 75-84.
- Whitfield, N. (1990). 'Round wires in early middle ages.' *Jewellery studies* 4, 13-28.
- Whitfield, N. (1993a). 'Some new research on gold and gold filigree from early medieval Ireland and Scotland.' In *Outils et ateliers d'orfèvres des temps anciens*, ed. C. Eluère. Saint-Germain-en-Laye, 125-32.
- Whitfield, N. (1993b). 'The filigree of the Hunterston and 'Tara' brooches.' In Spearman and Higgitt, eds. (1993), 118-27.
- Widmark, G. (1991). *Fornvästnordiska förleder i omljudsperspektiv*. *Studia philologiae Scandinavicae Upsaliensia* 19.
- Wiechmann, R. (1996). *Edelmetalldepots der Wikingerzeit in Schleswig-Holstein*. Offa-Bücher 77. Neumünster.
- Wieczorek, A. and H.-M. Hinz, eds. (2000). *Europas Mitte um 1000*. Berlin.
- Wilson, D. (1851). *The archæology and prehistoric annals of Scotland*. Edinburgh.
- Wilson, D. M. (1956). 'The Poslingford Ring.' *The British Museum quarterly* 20, 90-2.
- Wilson, D. M. (1959). 'A Group of Anglo-Saxon Amulet Rings.' In *The Anglo-Saxons*, ed. P. Clemoes. London, 159-70.
- Wilson, D. M. (1964). *Anglo-Saxon ornamental metalwork 700-1100 in the British Museum*. Catalogue of Antiquities of the Later Saxon Period I. London.
- Wilson, D. M. (1973). 'The treasure.' In A. Small et al. *St. Ninian's Isle and its Treasure*, Oxford, 45-143.
- Wilson, D. M. (1984). *Anglo-Saxon Art from the seventh century to the Norman Conquest*. London.
- Wilson, D. M. (1995). *Vikingatidens konst*. Lund.
- Wilson, D. M. and C. E. Blunt (1961). 'The Trewiddle Hoard.' *Archaeologia* 98, 75-122.
- Wilson, D. M. and O. Klindt-Jensen (1966). *Viking art*. London. (Reprint 1980.)
- Witte, F. (1913). *Die liturgischen Geräte der Sammlung Schnütgen*. Berlin.
- Witte, J. de (1859). 'Note de M. l'abbé C. Cavedoni sur des monnaies d'or trouvées près de Bologne.' *Revue numismatique*. Nouvelle série 4, 393-9.
- Wold, S. (1990). 'Drammen-Randsfjordbanens historie.' *Eikerminne, tidsskrift utgitt av Eiker Historielag* 12. Krokstadelva.
- Wolters, J. (1981a). 'The ancient craft of granulation.' *Gold bulletin* 14, 119-29.
- Wolters, J. (1981b). 'A short history of the art of granulation. Part I.' *Aurum* 6, 8-14.
- Wolters, J. (1981c). 'A short history of the art of granulation. Part II.' *Aurum* 7, 6-13.
- Wolters, J. (1982). 'A short history of the art of granulation. Part III.' *Aurum* 9, 6-13.

- Wouters, H. J. M. (1998). 'Celtic goldwork found in north-east Belgium.' In *Metal 98. Proceedings of the International Conference on Metals Conservation*, eds. W. Mourey and L. Robbiola. London, 64-8.
- Wroth, W. (1908). *Catalogue of the Imperial Byzantine coins in the British Museum*. London.
- Youngs, S. ed. (1989). *The work of angels: masterpieces of Celtic metalwork, 6th-9th centuries AD*. London.
- Zadoks-Josephus Jitta, A. N. (1987). 'Romeinse en vroegmiddeleeuwse muntsieraden.' *De Beeldenaar* 11, 59-61.
- Zwierlein-Diehl, E. (1998). *Die Gemmen und Kameen des Dreikönigenschreins*. Studien zum Kölner Dom 5. Köln.



Nos. 75-83



Nos. 84-86



Nos. 87-88



Nos. 89-90



Nos. 91-94



No. 95



No. 96



No. 97



No. 98



No. 99



No. 100



No. 101



No. 101



No. 102



No. 103



No. 104



No. 105



No. 106



No. 107



No. 108



No. 109



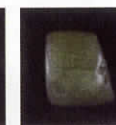
No. 110



No. 111



No. 112



No. 113



No. 114



No. 115



No. 116



No. 117



No. 118



No. 119



No. 120



No. 121



No. 122



No. 123



No. 124



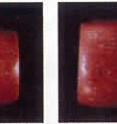
No. 125



No. 126



No. 127



No. 128



No. 129



No. 130



No. 131



No. 132



No. 133



No. 134



No. 135



No. 136



No. 137



No. 138



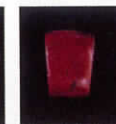
No. 139



No. 140



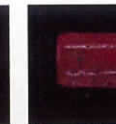
No. 141



No. 142



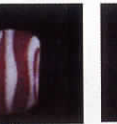
No. 143



No. 144



No. 145



No. 146



Nos. 147-99. Scale c. 1:1.

TAF. 121



1. Gr. 551. — 2. Gr. 557. — 3. Gr. 552. — 4. Gr. 1079. — 5. Gr. 606. —
 7. Gr. 860 B. — 8. Gr. 657. — 9. Gr. 946. — 10. Gr. 660. — 11. Gr. 29. —
 13. Gr. 1067. — 14. Gr. 943. — 15. Gr. 770. — 16. Gr. 628. — 17. Gr. 535. —
 19. Gr. 649. — 20. Gr. 324.

Selection of beads from Birka (Statens Historiska Museum, Stockholm). (After Arbman 1940-3).
 Not to scale.



A



B

(A) Grave find from Lerchenborg, Denmark (Nationalmuseet, København). Not to scale.
(B) Detail of the cart from Oseberg (Kulturhistorisk Museum, Oslo).



The Hoen hoard



The Hoen necklace as mounted c. 1980.

TABLE OF CONTENTS

<i>Preface</i>	9
1. David M. WILSON: <i>INTRODUCTION AND SUMMARY</i>	13
2. <i>HISTORY OF THE FIND AND ITS ENVIRONMENT</i>	
Egil MIKKELSEN: <i>The find in its context</i>	29
Botolv HELLELAND: <i>The place name 'Hoen'</i>	55
Helge Irgens HØEG: <i>Pollen analyses</i>	63
3. <i>SCANDINAVIAN METALWORK</i>	
James GRAHAM-CAMPBELL: <i>The rings</i>	73
Signe Horn FUGLESANG: <i>The Scandinavian pendants</i>	83
Signe Horn FUGLESANG: <i>The necklace</i>	93
Signe Horn FUGLESANG: <i>The gold beads</i>	97
4. <i>EUROPEAN METALWORK</i>	
Hiltrud WESTERMANN-ANGERHAUSEN: <i>The Carolingian objects</i>	103
David M. WILSON: <i>The Anglo-Saxon finger-ring</i>	119
Birgit ARRHENIUS: <i>The garnet boss</i>	123
David BUCKTON: <i>The Byzantine disc</i>	127
5. Eva E. ASTRUP: <i>GOLDWORKING TECHNIQUES</i>	
<i>Techniques, craftsmanship and composition of gold in the Hoen hoard</i>	131
6. <i>THE COIN-PENDANTS</i>	
Kolbjørn SKAARE: <i>Numismatics</i>	165
James E. KNIRK: <i>The graffiti</i>	173
Mark BLACKBURN: <i>The loops as a guide to how and when the coins</i> <i>were acquired</i>	181
7. Peter STEPPUHN: <i>BEADS OF GLASS AND STONE</i>	203
<i>CATALOGUE</i>	223
<i>APPENDICES</i>	
A. Ornamentorum et numorum maximam partem aureorum, in parochia Eger nuper repertorum, descriptionem, proludendi causa. Chris- tianiae 1835. C. A. Holmboe	289
B. James GRAHAM-CAMPBELL: <i>The silver arm-ring in Hamburg</i>	309
<i>LIST OF SOURCES</i>	311
<i>INDEX</i>	329

AUTHORS

BIRGIT ARRHENIUS [BA]
Arkeologiska forskningslaboratoriet
Stockholms universitet
S-19691 Stockholm

EVA E. ASTRUP [EEA]
Kulturhistorisk museum
Universitetet i Oslo
PO Box 6762 St. Olavs plass
N-0130 Oslo

MARK BLACKBURN [MB]
Department of Coins and Medals
Fitzwilliam Museum
University of Cambridge
Cambridge CB2 1RB

DAVID BUCKTON [DB]
Rose Cottage, Ashefield Road
Elmswell
Suffolk IP30 9HG

SIGNE HORN FUGLESANG [SHF]
Centre for Viking and Medieval Studies
Institutt for arkeologi, historie og konservering
Universitetet i Oslo
PO Box 1008 Blindern
N-0315 Oslo

JAMES GRAHAM-CAMPBELL [JGC]
Institute of Archaeology
University College London
31-34 Gordon Square
London WC1H 0PY

BOTOLV HELLELAND
Institutt for lingvistikk og litteraturvitenskap
Universitetet i Oslo
PO Box 1011 Blindern
N-0315 Oslo

HELGE IRGENS HØEG
Gloppeåsen 10
N-3261 Larvik

JAMES KNIRK [JK]
Kulturhistorisk museum
Universitetet i Oslo
PO Box 6762 St. Olavs plass
N-0130 Oslo

EGIL MIKKELSEN
Kulturhistorisk museum
Universitetet i Oslo
PO Box 6762 St. Olavs plass
N-0130 Oslo

KOLBJØRN SKAARE [KS]
Professor Dahls gate 42
N-0260 Oslo

PETER STEPPUHN [PS]
Bereich Archäologie der Hansestadt Lübeck
Meesenring 8
D-23566 Lübeck

HILTRUD WESTERMANN-ANGERHAUSEN [HWA]
Schnütgen Museum
Postfach 106534
D-60667 Köln

DAVID M. WILSON [DMW]
The Lifeboat House
Castletown, Isle of Man
IM9 1LD