

Urban Market Production and Coastal Trade in the Early Viking Age

A Study of Eighth-Century AD Blue Period Millefiori Beads in Central and Northern Norway

ABSTRACT Resources from outland regions of the Scandinavian Peninsula have been the topic of several studies about trade in the early Viking Age. In contrast, the distribution of highly refined items from the urban markets in southern Scandinavia in the opposite direction has been largely neglected. This article examines the occurrence of eighth-century millefiori beads of the 'Blue Period' in central and northern Norway. Comparing the stock of motifs on these beads with the bead production waste from the urban market of Ribe, the manufacturing of many of them in Ribe is likely. The beads' distribution is considered to reflect areas rich in resources as well as points of strategic importance along the sailing route. A dual function of the beads as accessories and means of payment is discussed.

KEYWORDS Early medieval trade; beads; urban crafts; maritime economy; seafaring; natural resources; Ribe

Introduction

Glass Beads as Urban Market Products

From the beginning of the eighth century AD onwards, early urban sites with substantial evidence of specialized crafts and long-distance trade emerged in southern Scandinavia and the Baltic. Various studies have focused on natural resources that were exploited on the Scandinavian Peninsula in the Viking Age and traded to these urban markets and early towns in southern Scandinavia. Examples are soap-stone (Resi 1979), iron (Buchwald 2004), deer antler (Ashby, Coutu, and Sindbæk 2015), whetstone (Baug and others 2018), and cod (Star and others 2017).

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The distribution of products from these urban markets and earliest towns in southern Scandinavia, such as highly refined glass and metal artefacts, in the opposite direction has, however, received only little attention. Helge Brinch Madsen (1984, 95–97) showed that cast-bronze objects, such as the late eighth- or early ninth-century Berdal brooches manufactured by serial production in Ribe (cf. Feveile and Jensen 2000, 13, 17–19), were disseminated via seaways, especially along the west coast of Jutland and the coasts and fjords of Norway. However, the dissemination of early Viking Age glass beads from Ribe and other urban markets has not been investigated to the same extent. While it has been acknowledged that some of the beads found in early Viking Age burials and settlements in Scandinavia resemble those produced

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Figure 9.1. Map of Scandinavia and the southern coasts of the North Sea and the Baltic Sea, with the area under investigation in central and northern Norway and sites mentioned in the text. Map by author.

in Ribe, scholars have so far avoided postulating a direct exchange (cf. Näsman and Roesdahl 2003, 288; Ashby, Coutu, and Sindbæk 2015, 692). The reason for this is likely to be that exhaustive artefactual studies, which would allow for such an evaluation, are still lacking. There has generally been a dearth of comprehensive studies on the distribution of glass beads across Viking Age Scandinavia since Johan Callmer's (1977) ground-breaking study on their typology, chronology, and provenance. In the 1980s and 1990s the main focus of Scandinavian bead research was on establishing a more detailed chronology based on the evaluation of individual cemeteries (e.g. Høilund Nielsen 1986; Jørgensen and Nørgård Jørgensen 1997). Analogously, the glass

material from individual settlement sites and trading places such as Ribe, Helgö, Hedeby, and Groß Strömkendorf was studied and published (Näsman 1978; Feveile and Jensen 2000; Sode and Feveile 2002; Sode 2003; 2004; A. Lundström 1976; 1981; Steppuhn 1998; Pöche 2001). Thus, the bead material from certain sites have been highlighted in isolation, but there are no overviews covering the distribution of specific bead types in larger geographical areas.

Eighth-Century Scandinavian Bead Production

While the production of simple, annular beads using the winding technique is attested for various places in early medieval Scandinavia (cf. Lundström 1976), the area where elaborate early Viking Age millefiori beads (Fig. 9.2, no. 3) were manufactured remained unknown for a long time. In his pivotal study on Viking Age beads, Callmer (1977, 98–99) postulated an extra-Scandinavian, probably West European, provenance. However, this picture changed soon after when semi-finished beads with chequer-board, eye, floral, cross, and spiral patterns and equivalent production waste were excavated, first at Ribe on the west coast of Jutland and later at Åhus in South Sweden (Näsman 1978; Callmer 1984; Callmer and Henderson 1991; Jensen 1991, 37–39) (Fig. 9.1). Both Ribe and Åhus are described as specialized sites situated at the edge of travel zones, functioning as stations for long-distance maritime trading networks (Croix 2015, 497; Ashby and Sindbæk 2020, 11). The production waste in the form of raw materials and unfinished products found on the two sites are so similar that it has been suggested that the respective glass bead-makers either stemmed from the same craft milieu, or even that the beads were made by the same group of itinerant craftspeople (Näsman 2000, 44). In both Ribe and Åhus, the evidence for the production of millefiori beads occurs along with evidence for the manufacturing of blue annular beads, blue melon-shaped beads, blue polyhedral-shaped beads, and blue beads with monochrome or polychrome thread-decoration, usually in red and white, also called 'Ribe beads' (Fig. 9.2, no. 4).

Ribe's excellent horizontal stratigraphy makes it possible to date the horizon containing the blue beads to the period AD 705–760 (Näsman 2000, 43). Callmer (1977, 77, 89–90; 1997, pls 15–17) assumes that 'blue' millefiori beads continued until the first quarter or middle of the ninth century AD, and that they appeared again in the first half of the tenth century AD. However, a central presumption for his chronological analysis was 'that beads were locally acquired at a given time and not successively accu-

mulated over a long span of time' (Callmer 1977, 56). Nevertheless, bead assemblages might have accumulated over long time spans. Moreover, the reuse of material culture from previous times was a widespread phenomenon in the Viking Age (cf. Glørstad and Røstad 2020). The late dating based on find combinations should therefore be handled with care.

Bead Production between Raw-Material Supply and Product Distribution

The eighth-century Scandinavian glass-bead production was reliant on accessing raw material from outside Scandinavia. The workshop debris of Ribe and Åhus encompassed large amounts of tesserae in various colours and dark blue chips of glass cakes (Callmer and Henderson 1991; Sode 2004, 87–88). However, according to chemical analyses the tesserae used by the Scandinavian glass bead-makers were not contemporary eighth-century Mediterranean tesserae, but recycled Roman soda-lime glass products from the early centuries AD (Raja and Sindbæk 2018, 292). Likewise, the blue glass chips most likely are composed of old Roman blue tesserae blended with Roman vessel glass (Callmer and Henderson 1991, 149). Nevertheless, considering the absence of any other imports from the Mediterranean area in Ribe, it is supposed that the raw glass for the eighth-century Scandinavian glass-bead production derived from antique buildings in the northern provinces of the Roman Empire rather than from the Mediterranean area (Raja and Sindbæk 2018, 293). In this way, the glass-supply network reflects well-established contacts with the Middle Rhine region, which were maintained by Frisian merchants (cf. Lebecq 1992). Indeed, there is no consensus regarding the provenance of the glass rods required for the manufacturing of the millefiori beads. Callmer (1977, 98; 1995, 50) regards the millefiori rods as prefabricated imports, probably from northern Italy, whereas Ulf Näsman (2000, 44) and Torben Sode (2004, 94) interpret the workshop waste in Ribe as a sign that they were manufactured locally.

The Scandinavian production of millefiori beads in the eighth century was only short-lived. For this reason, this group of highly refined artefacts from urban markets in southern Scandinavia is a perfect object of study to investigate the relationship between urban centres, consumers, and the distribution areas of the artisan goods, as well as the dynamics of urban networks (cf. Sindbæk 2007a) during the early Viking Age. The most recent research results by Steven P. Ashby, Ashley N. Coutu, and Søren M. Sindbæk (2015) cast doubt on the traditional idea

that the urban centres were closely connected to a spatially contiguous hinterland. By contrast, the urban craftspeople were dependent on wider regions for procuring raw material and for being able to sell their products. The craftspeople's 'hinterland' therefore does not necessarily equate to the direct geographical surroundings of the urban centre in which they worked (Ashby, Coutu, and Sindbæk 2015, 679–80).

Research Questions and Structure of the Article

In contrast with studies that focused on natural resources from the outland regions in northern Scandinavia, the eighth-century millefiori beads produced in Ribe and Åhus offer an opportunity to study the trade in advanced artisan goods manufactured in the urban markets in the opposite direction. While it has been established that the blue 'Ribe beads' are so frequent in burials in some parts of Scandinavia that they appear as their own horizon, 'the Blue Period' (Näsman 2000, 43–44), this has not been discussed further, and many questions remain unanswered. On which sites are these beads, which obviously stem from southern Scandinavian workshops, found? In what way does the extensiveness of the distribution area contribute to our understanding of the relationship between urban centres and the hinterland? What does the distribution of the beads reveal about the early Viking Age transport and trade routes and the actors involved? And finally, what does the bead production reveal about the early urban craftspeople's ability to adapt to market demands?

In order to address these questions, this article will investigate the distribution of a group of millefiori bead types in the coastal areas of central and northern Norway, which represent an outland area of the North that supplied the urban markets with some of the raw materials in demand there. Millefiori beads of the Blue Period with chequer-board, eye, floral, cross, and spiral patterns were chosen. This group corresponds by and large to Callmer's (1977) types G010–G012 and G030–G032. Most of these millefiori beads were found in burial sites. However, questions regarding find contexts and dating are not the focus of this study. The bead assemblages found in burial sites and hoards could have been amassed over years or even decades. The main focus of this study is the final location of these artefacts obviously made in southern Scandinavia. The Stad peninsula on the border between the North Sea and the Norwegian Sea was chosen as the southern border of the investigation area (Fig. 9.1). Storms and waves

frequently forced ships to lie in the roads there, meaning the Stad peninsula functioned as a natural border. As the coastline stretches over 1000 km of linear distance from there to the north, the investigation area is large enough to allow for representative conclusions regarding the distribution of the beads. Moreover, analysing the occurrence of these beads in the peripheries of their distribution area has the advantage that it can also shed light on the extensiveness of the area of distribution.

The article will adopt a multiple approach in order to answer the questions outlined above.¹ First, the occurrence of millefiori beads in Scandinavia in the first millennium AD in general will be outlined. Then, an overview of the Scandinavian millefiori-bead production in the eighth century will be provided. Based on glass-composition analyses, the material from Ribe appears to be recycled Roman glass (cf. Raja and Sindbæk 2018, 292–93). However, even if analyses make it possible to locate the original provenance of the raw glass (cf. Šmit and others 2012), it is not possible to ascribe glass beads to a specific workshop based on material analyses. While for cast metalwork the place of manufacture can, in an ideal case, be proven by comparing imprints in the casting moulds with the final product, the semi-finished material for the production of millefiori beads, namely millefiori rods, are used up in the production process. Only exceptionally will remains of the millefiori rods be left at the workplaces. The comparison of motifs found on production waste from southern Scandinavian bead-making workshops with motifs found on blue millefiori beads from central and northern Norway therefore forms an important foundation for being able to postulate a provenance from southern Scandinavian workshops. Next, the article analyses the distribution of millefiori beads with chequer-board, eye, floral, cross, and spiral patterns from the Blue Period in the coastal areas in central and northern Norway. It will be shown that these beads have a special connection to a) prominent manors, whose power was

a result of their control of raw materials and transport routes, and b) natural harbours and strategic points in the maritime cultural landscape. The beads' distribution can therefore in many cases be understood as a direct reflection of a) the raw materials with which these manors supplied urban markets, and b) the course of long-distance waterway trade routes. This article also considers the beads' function within the early Viking Age economy and trade system. It argues for a dual function of the beads as commodities and a means of payment. The production of advanced glass beads in Ribe was only short-lived, and its demise is often linked to the influx of oriental beads in the second half of the eighth century. Other possible reasons for the cessation of production will be discussed. Unlike the Scandinavian bronze-casting, which boomed during the Viking Age, the production of millefiori beads in the urban market of Ribe can be used to illustrate the vulnerability of the northern European trade networks during the Viking Age.

History of Millefiori Beads in Scandinavia

The production of beads made of millefiori glass, the 'glass of a thousand flowers' required highly specialized glass-makers with advanced technical skills. The patterns on these beads consist of small, individual glass components, which are fused together, resembling a mosaic. Millefiori glass has a long tradition. In Egypt, the production of millefiori glass dates back to at least the fourth century BC (Pause 1996, 63–64). During the Roman Age, millefiori glass was not only used to decorate fibulae, the millefiori technique was also adopted to create beads (Tempelmann-Maczyńska 1985, tables 11–12; Koch 1974, 499), with individual specimens reaching Scandinavia. It is assumed that the Roman Age millefiori beads were produced in Roman workshops in the eastern parts of the Mediterranean (Pause 1996, 64). The main decorations on the beads are geometrical chequer patterns, floral patterns, and face-like decorations (Volkman and Theune 2001, 530). Single specimens of so-called 'face beads' (Fig. 9.2, no. 1) even reached Scandinavia (Selling 1942; Volkman and Theune 2001, 530, 535).

After a hiatus, millefiori beads appear again during the second half of the sixth century, in the early Merovingian period. These beads are described as floral millefiori beads (*Blättchenmillefioriperlen*). The decoration of these barrel-shaped or cylindrical beads with opaque borders is dominated by floral, eye, and spiral patterns (Volkman and Theune 2001, 530)

¹ The archaeological data used in this study derive from the following databases: Norway: the Norwegian University Museums' collection databases (Universitetsmuseenes samlingsdatabaser); Sweden: the Historical Museum's collection database (Föremål); Denmark: the Museum of Southwest Jutland's collections SOL Samlingen OnLine <<http://sol.sydvestjyskemuseer.dk/>> [accessed 15 February 2021]. For the museum inventory numbers the following abbreviations will be used: C: Museum of Cultural History, University of Oslo; B: University Museum of Bergen; T and N: NTNU University Museum; Ts: The Arctic University Museum of Norway; SHM: Statens Historiska Museum, Stockholm; and ASR and SJM: Sydvestjyske Museer, Ribe.

(Fig. 9.2, no. 2). The beads' distribution covers a vast area, stretching from Pannonia and northern Italy to England, Scandinavia, and Finland. Their distribution north of the Alps follows the river systems in most cases (Volkman and Theune 2001, 534). The exact place of manufacture of the Merovingian millefiori beads remains unknown; however, it is assumed that they stem from workshops of the Roman tradition in the Mediterranean, possibly in northern Italy (Pause 1996, 65; Volkman and Theune 2001, 523–25, 539). It is difficult to date some of the millefiori beads with floral patterns found in Scandinavia and the German coastal regions to either the Merovingian period or the early Viking Age, as the motif spectrums that were used during these periods are partly identical (Pöche 2001, 102; Siegmann 2002–2006, 1013, 1033). For example, floral millefiori beads obviously produced in Ribe in the eighth century (e.g. ASR 9 x191 (Fig. 9.4, no. 1); SJM 3 x0684) appear to be imitations of Merovingian types (cf. Koch 1977, colour chart 6). Maren Siegmann (2002–2006, 1013) also discussed the possibility that beads of this type could represent a link between Merovingian and Carolingian/Viking Age beads.

The beginning of the Carolingian period/Viking Age coincides with the appearance of a new group of millefiori beads, whose distribution is limited to Scandinavia, the North German coastal areas of the North Sea and the Baltic Sea, and the Netherlands (Ypey 1962/1963, 107; Callmer 1977, 98; Steppuhn 1998, 53; Volkman and Theune 2001, 535). The decorations on these beads draw on motifs from the Roman Age and the Merovingian period (Steppuhn 1998, 53; Siegmann 2002–2006, 1033) and are dominated by chequer-board, eye, floral, cross, and spiral patterns. Essentially, two subgroups can be distinguished. The first one consists of beads of a yellow, red, white, blue, or green ground colour whose decoration is dominated by a chequer pattern with a marked centre (Fig. 9.2, no. 5), so-called 'chequer-board beads' or 'cross-shaped mosaic beads'. These beads largely correspond to Callmer's (1977) types Go40 and Go41. Beads from this group seem to have been produced in Ribe (Jensen 1991, 39; Sode 2004, 93–94). Alexander Pöche (2001, 101) was, however, right to highlight that the high number of chequer-board beads in North German Saxon burials are likely to stem from different workshops. The second subgroup contains millefiori beads of those types that are the focus of this article. They correspond to or resemble the types Go10, Go11, Go12, Go13, Go14, Go30, Go31, and Go32 from Callmer's (1977) typology. The ground colour of these beads tends to be a translucent blue, and they are assigned to the Blue Period (cf. Sode 2004, 90–91) (Fig. 9.2, no. 3).



Figure 9.2. Different types of beads mentioned in the text.

1. Face bead from Rud, Nannestad, Viken (C10473:a). Roman period/Migration period, probable Mediterranean provenance;
2. Floral millefiori bead from Myr, Verdal, Trøndelag (T343). Merovingian period, probable Mediterranean provenance;
3. Millefiori bead of the Blue Period from Slapøy, Dønna, Nordland (T13877:7). Early Viking Age, probable Scandinavian provenance;
4. Blue, thread-decorated bead from Slapøy, Dønna, Nordland (T13788:8). Early Viking Age, probable southern Scandinavian provenance;
5. Chequer-board bead from Barman Strømsvik Øvre, Hitra, Trøndelag (T8510/T8920). Early Viking Age, probable southern Scandinavian or Lower Saxonian provenance;
6. Wasp bead from Halset Nordre, Trondheim, Trøndelag (T16433:19). Early Viking Age, probable southern Scandinavian provenance;
7. Eye bead from Ramberg, Steinkjer, Trøndelag (T16991). Early Viking Age, probable oriental provenance;
8. Metal-foil bead from Vike Ytre, Vestnes, Møre og Romsdal (T22916:10). Early Viking Age, probable oriental provenance;
- 9–10. Mosaic-eye beads from Vike Ytre, Vestnes, Møre og Romsdal (T22916:15) and Venna, Heim, Trøndelag (T16093). Early Viking Age, probable oriental provenance. Photos by Museum of Cultural History, University of Oslo, Ulla Schildt (1), CC BY-SA 4.0; by NTNU University Museum, Ole Bjørn Pedersen (2, 7, 10), Aleksander Rasmussen Dreyer Skre (9), CC BY-SA 4.0; and by author (3–6, 8).

A new type of millefiori bead appears a few centuries later — mosaic-eye beads with a blue or green ground colour (Fig. 9.2, nos 9–10). They differ clearly from the North European millefiori beads of the Blue Period with regard to their decoration, surface treatment, and wide distribution, which spans from Upper Egypt in the south to the Caspian Sea in the east, Scandinavia in the north, and Ireland in the west (Andrae 1975). The assumption of an oriental provenance of these beads (Andrae 1975, 165; Callmer 1977, 99) was recently confirmed by ion beam analyses (Šmit and others 2012). The mosaic-eye beads date from about AD 780 (Callmer 1995, 529) or 800 to the first third of the ninth century AD (Andrae 1975, 156), which means that they are potentially somewhat younger than the millefiori beads of the Blue Period.

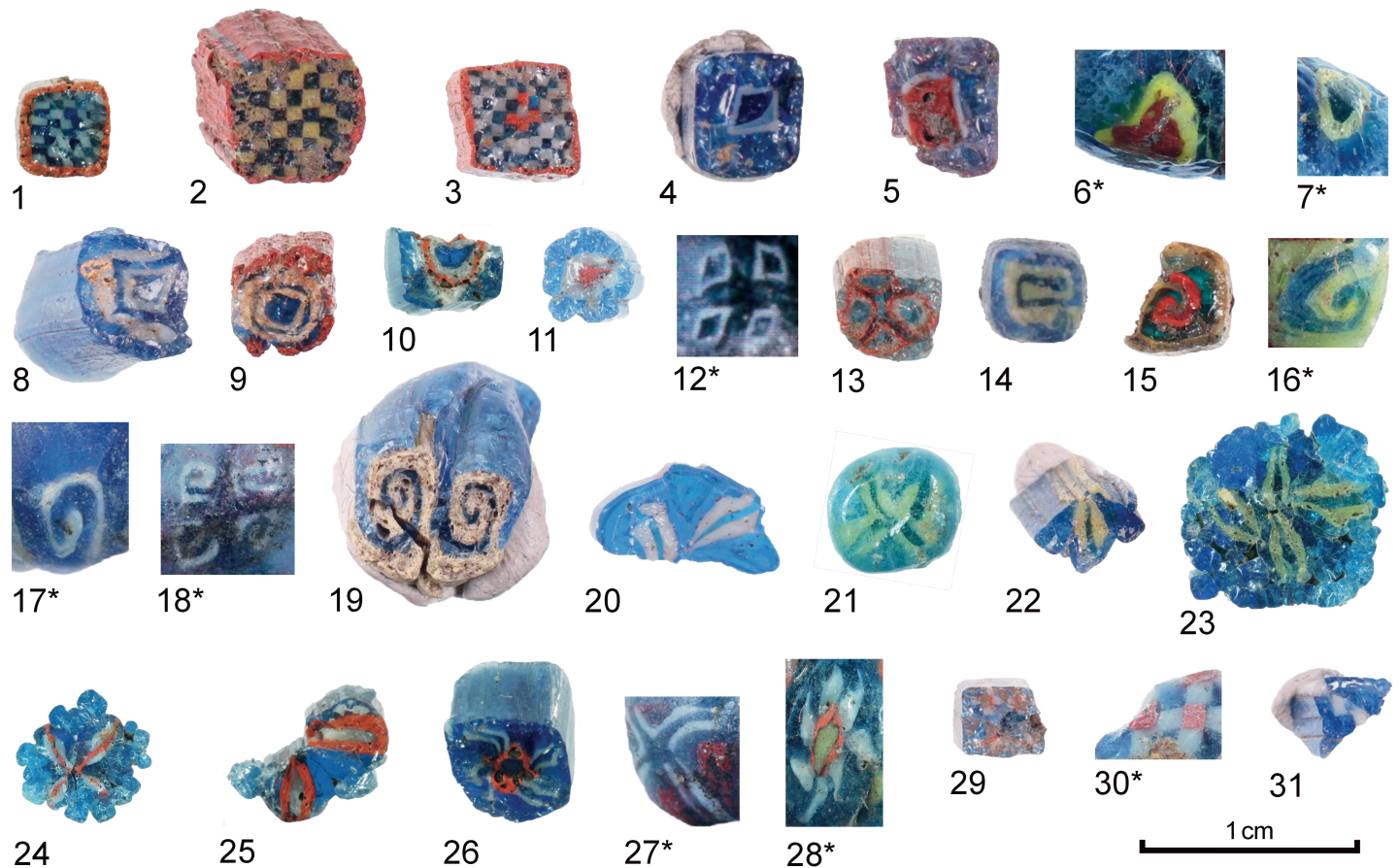


Figure 9.3. Selection of millefiori rods and single motifs of millefiori beads (marked with *) from Ribe. 1. ASR 9 x575; 2. SJM 3 x1055; 3. SJM 3 x1167; 4. SJM 3 x0684; 5. SJM 3 x0999; 6*. SJM 3 x1445; 7*. SJM 3 x1445; 8. ASR 1085 x002; 9. SJM 3 x1106; 10. ASR 9 x400; 11. ASR 1357 x171; 12*. ASR 4M75 D11945 a-b; 13. SJM 3 x0979; 14. SJM 3 x1109; 15. SJM 3 x0931; 16*. SJM 3 x1149; 17*. ASR 951 x050; 18*. ASR 13 x0487; 19. ASR 1085 x002; 20. ASR 1085 x002; 21. ASR 9 x254; 22. ASR 1085 x024; 23. ASR 4M75 D13336; 24. ASR 4M75 D13410; 25. ASR 9 x400; 26. ASR 9 x400; 27*. ASR 13 x0487; 28*. ASR 2360 x133; 29. ASR 1085 x019; 30*. ASR 951 x041; 31. ASR 1085 x019. Reproduced with the permission of the Museum of Southwest Jutland and the Northern Emporium Project. 25–26 without scale.

Millefiori-Bead Production in Eighth-Century Scandinavia

There is evidence that early Viking Age millefiori beads of the Blue Period were produced in Åhus in South Sweden and Ribe in West Jutland. Unfortunately, the remains from the sites' glass-bead workshops have not been published in depth yet. Two works by Torben Sode (2003; 2004) and Jan H. Andersen and Torben Sode (2010) offer the most comprehensive overview of both local and imported glass beads found in Ribe, whereas Johan Callmer and Julian Henderson (1991) have provided an overview of the glassworking at Åhus. For the material from Ribe, the publicly available collection database SOL (Samlingen OnLine) provides access to metadata and in many cases photographs, which makes it possible to gain an overview even of still unpublished finds.

The millefiori-bead production in Ribe is corroborated by artefacts from several excavations conducted since the 1970s that focused on the area of the eighth-century marketplace on the northern side of the river Ribe Å (cf. Feveile 2006d) (Fig. 9.1). In particular, the excavation 'Kunstmuseets have' (ASR 4M75) brought forth an extensive amount of material consisting of semi-finished products in the form of millefiori rods. There were only few millefiori beads among the approximately 480 glass beads that were unearthed during this excavation (Näsman 1978, 124–25). Two of the millefiori beads are beads pertaining to Callmer's (1977) type G031 (Fig. 9.4, no. 7) while another one (Fig. 9.4, no. 4) can be described as type G012. With about sixty-five specimens, the number of multicoloured millefiori rods used to produce such beads is far higher. These rods provide evidence of yellow-blue chequer-board patterns and blue-white eye patterns with red frames, and several kinds of four-foil flower patterns on a blue background (Fig. 9.3,



Figure 9.4. Selection of millefiori beads from Ribe. 1. ASR 9 x191; 2. ASR 951 x041; 3. ASR 13 x0487; 4. ASR 4M75 D12617; 5. SJM 3 x1028; 6. ASR 2360 x133; 7. ASR 4M75 D11945 a-b; 8. SJM 3 x1044; 9. ASR 1357 x035; 10. SJM 3 x1445; 11. SJM 3 x1059; 12. ASR 951 x050; 13. SJM 3 x1149; 14. SJM 3 x1192. Reproduced with the permission of the Museum of Southwest Jutland and the Northern Emporium Project.

nos 23–24), and more. The workshop features in the form of simple fireplaces without any built structures indicate that the production of beads was a seasonal activity that took place outside in the marketplace. This has been interpreted as evidence that the work was undertaken by itinerant craftspeople (Näsman 1978, 125, 132).

Millefiori beads of Callmer's (1977) type G031 and millefiori rods were also unearthed in the context of the 'Posthuset' excavation (ASR 9), though both groups again make up only a small part of the total bead production waste from that excavation. The millefiori rods show white-blue (Fig. 9.3, no. 1) and yellow-blue chequer-board patterns with red frames, and several motifs on a blue background: a yellow four-foil flower pattern (Fig. 9.3, no. 21), a red-and-white four-foil flower pattern (Fig. 9.3, no. 25), a white four-foil pattern with red centre (Fig. 9.3, no. 26), and a red-and-white eye pattern (Fig. 9.3, no. 10). The millefiori beads occur in the phases B and C together with blue, thread-decorated beads. This makes it possible to date them to the time period between about AD 705 and 760 (Feveile and Jensen 2000, 22; 2006, 146).

No millefiori rods were found amongst the numerous glass finds from the 'Plejhjemmet Riberhus' excavation (ASR 951) (Feveile 2006c). In addition to a finished millefiori bead (ASR 951 x044), the finds did, however, include two indications for the fabrication of millefiori beads: a fragment, consisting of two millefiori chips melted together (Fig. 9.4, no. 2), and a broken, half bead, with the gaps between the pattern components not yet smoothened (Fig. 9.4, no. 12).

At least five other excavations of Ribe's early Viking Age marketplace provided millefiori rods and in some cases millefiori beads. The excavations were 'Sct. Nicolajgade 8' (ASR 7) (Frandsen and Jensen 2006), 'Gasværksgrunden' (ASR 1085) (Feveile 2006a), 'Giørtzvej' (ASR 1357) (Feveile 2006b), 'Kunstmuseets Kælder' (ASR 15) (Feveile 2009), and 'Posthustorvet' (SJM 3) (Sindbæk 2018). The published summaries of excavation results do not give much detail about these two find groups in their overviews of bead production waste. However, it is possible to gain an overview of the decorations on the millefiori beads produced in these areas and the scope of such production waste thanks to the aforementioned collection database, SOL. The number of millefiori rods found during these excavations is not very high: three fragments from the excavation of Sct. Nicolajgade 8 (ASR 7), twenty fragments from the excavation of Gasværksgrunden (ASR 1085), and between forty and fifty-five fragments from the remaining three excavations. Comparing the number of finds related to the manufacturing of millefiori beads with the total bead production waste from these excavations suggests that the production of millefiori beads played only a minor role in the total production of beads in the areas investigated. It should, however, be kept in mind that exactly because of the complex production of the millefiori rods, it could well be that they were used up to a greater extent than the single-coloured rods, which could explain their lower number. Although the total amount of millefiori-bead production waste in Ribe is comparatively small, the variety of motifs attested to by the millefiori rods and finished beads is considerable, as shown in Figure 9.3.

Overall, the excavated millefiori rods and finished products indicate that millefiori beads of Callmer's (1977) types G012 and G030–G032 were manufactured in Ribe, though not necessarily every documented variant. Based on the stock of motifs represented by the millefiori rods, it is possible that Callmer's (1977) types G010, G011, and G013 were also produced there.

The other place in southern Scandinavia where millefiori beads of the Blue Period were demonstrably produced is in South Sweden at the manufacturing and trading place Åhus situated at the mouth of the Helge å River (cf. Callmer 1984; 1990) (Fig. 9.1). About 71,000 glass objects, which were unearthed during excavations between 1979 and 1984, attest to varied and extensive on-site glass processing. The production waste includes large amounts of blue transparent glass in the form of chips and cakes, about nine hundred tesserae, and the same amount of millefiori rods. More than a third of the rods consist of a yellow-blue chequer-board pattern with a red frame. There are also several millefiori rods with various eye and floral patterns (Callmer and Henderson 1991). The published illustrations of the millefiori rods and finished beads suggest that in addition to blue, thread-decorated beads, millefiori beads of Callmer's (1977) types G031 and G032, as well as possibly the type G012, were produced. As in Ribe, the production waste of millefiori beads in Åhus make up only a small part of the total bead production waste. The lack of construction features of permanent settlement has been interpreted as the sign of only seasonal use of the workshop area by craftspeople and traders (Callmer and Henderson 1991, 143, 147).

Due to the fact that the millefiori beads of the Blue Period represent an eighth-century phenomenon, evidence of their production cannot be expected from foundations of the ninth century, such as the trading place Kaupang in south-eastern Norway, or the main settlement of Hedeby. However, in the surroundings of the eighth-century 'Südsiedlung' of Hedeby (cf. Steuer 1974; Hilberg 2018, 135–42), the seasonal presence of millefiori bead-makers would not be surprising. From the manufacturing centre Helgö in the Mälaren region in central Sweden (Fig. 9.1), two millefiori beads of the Blue Period have been found, one from Building Group 1 (SHM25514:F6723), the other from Building Group 2 (SHM25514:F1118). According to Helen Clarke and Kristina Lamm (2017, 34), several millefiori rods were found in the workshop area Building Group 3, although no information is given regarding their appearance. On the contrary, Agneta Lundström (1981, 17) mentions only a single polychrome millefiori rod among the approximately 1600 glass fragments from the excavations in Helgö. Thus, the production of millefiori beads of the Blue Period in Helgö seems unlikely.

Additionally, isolated finds of millefiori rods exist from further sites in the southern Baltic Sea area, though the remaining workshop debris does not suggest that millefiori beads were produced there. One millefiori rod consisting of blue and white glass was found at each of the trade places and workshop areas of Paviken on Gotland and Groß Strömkendorf near Wismar (P. Lundström 1981, 98; Pöche 2001, 123) (Fig. 9.1). Nevertheless, millefiori rods were used not only to produce millefiori beads but also ninth- and tenth-century eye beads (cf. Steppuhn 1998, 52). Four millefiori rods from Hedeby, for example, were

Figure 9.5 (opposite). Selection of 'Blue Period millefiori beads' from central and northern Norway. 1. Kjøpmannsgaten 30, Trondheim (N84003); 2. Grøntved, Tynset (C25140); 3. Lauvsnes, Flatanger (T22012:3); 4. Romfo, Sunndal (T4457); 5. Halset Nordre, Trondheim (T16433:17); 6. Halset Nordre, Trondheim (T16433:17); 7. Føling Søndre, Steinkjer (T16078:b); 8. Alstad Søndre, Stjørdal (T3453); 9. Vikestad, Nærøysund (T12110); 10. Alstad Søndre, Stjørdal (T3453); 11. Leknes, Vestvågøy (Ts5670:a); 12. Volden, Heim (T15472); 13. Belsvik, Heim (T14732); 14. Torvskjådammen, Brønnøy (T14049/IIIb); 15. Bitterstad, Hadsel (Ts13785:28); 16. Hilstad, Flatanger (T15941); 17. Flakstad, Nordland (Ts11521:19); 18. Halset Nordre, Trondheim (T16433:16); 19. Slapøy, Dønna (T13877:7); 20. Herfjord, Åfjord (T12075); 21. Solstad, Bindal (T15987:a); 22. Halset Nordre, Trondheim (T16433:16); 23. Kvarøen Ytre, Lurøy (Ts6377:aq); 24. Loppa, Loppa (Ts6360); 25. Barman Strømsvik Øvre, Hitra (T8510/T8920); 26. Alstad Søndre, Stjørdal (T3453); 27. Eidem, Vega (T8293:6); 28. Eidem, Vega (T8293:6); 29. Halset Nordre, Trondheim (T16433:12); 30. Slapøy, Dønna (T13877:6); 31. Gjesmo (Jesmo), Trondheim (T553); 32. Vive med Buas, Steinkjer (C2018); 33. Skorillen, Heim (T19884); 34. Eidem, Vega (T8293:11); 35. Eidem, Vega (T8293:10); 36. Slapøy, Dønna (T13877:3); 37. Slapøy, Dønna (T13877:3); 38. Rein med Helge og By, Steinkjer (T20715:2); 39. Sunnan, Hitra (T3369); 40. Strand, Osen (T18280:b); 41. Oppdal Prestegård, Oppdal (T18819:o); 42. Slapøy, Dønna (T13877:4); 43. Oksebåsen av Andenes, Andøy (Ts10603:c); 44. Eidem, Vega (T8293:12); 45. Gjesmo (Jesmo), Trondheim (T553); 46. Eidem, Vega (T8293:9); 47. Auran Øvre, Stjørdal (T19622); 48. Strand, Osen (T20716:1). Photos by Museum of Cultural History, University of Oslo, Ulla Schildt (32), and Kirsten Helgeland (2), CC BY-SA 4.0; by the Arctic University Museum of Norway, the Arctic University of Norway, Julia Holme Dammann (15), Tanja Larssen (11, 23–24), Aud Ahlquist (17), and unknown photograph (43); by NTNU University Museum, Ole Bjørn Pedersen (38, 48), CC BY-SA 4.0; and by the author (1, 3, 4–10, 12–14, 16, 18–22, 25–31, 33–37, 39–42, 44–47).



used to make glass beads with rayed-eye decorations (Steppuhn 1998, 85).

The production of early Viking Age millefiori beads of the Blue Period is therefore so far only evidenced at Ribe and Åhus. The fact that these beads appear to have been produced by itinerant craftspeople would, however, suggest that they were manufactured in other trading places and workshop areas in the southern North Sea and Baltic Sea region. They do not only occur in Scandinavia, but also on sites in northern Germany, such as Stade (Archäologisches Museum Hamburg inventory number MfV AK (1871–75) 232.25), Osnabrück (Schlüter 1976), Düste (Haßmann 2013, 31), Liebenau, Ketzendorf (Siegmann 2002–2006, 328), and Groß Strömkendorf (Pöche 2001, colour chart 4:9). Important marketplaces in border areas such as Stade, Hamburg (Jöns and Segschneider 2014, 462–64), and Bardowick (Grunwald 1997, 234), all being situated at the river Elbe and its confluences (Fig. 9.1), would be potential places of manufacture.

Types of 'Blue Period Millefiori Beads' in Central and Northern Norway

The millefiori beads discussed in this article correspond to or resemble Callmer's (1977) types G010, G011, G012, G013, G014, G030, G031, and G032, which were described by him as warm-made decorated composite glass beads without monochrome ends with distinct decorations (Callmer 1977, 53). Callmer (1977, 53) identifies the presence or absence of yellow-blue chequer-board patterns as a distinctive feature between the types G010, G011, G012, G013, and G014 on the one hand and G030, G031, and G032 on the other. However, this division can be challenged as the motif spectrum of the floral, eye, and spiral patterns of the two groups are largely identical. Moreover, yellow-blue, white-blue, and multicolour chequer-board patterns and other, more complicated compositions of square panels in several colours also occur.

For this reason, this study will use the following definition, instead of Callmer's typology, for the millefiori beads to be investigated: spherical or barrel-shaped beads with a blue ground colour without monochrome ends, with complex motifs, consisting of one to six rows of pattern components arranged using the millefiori technique. Some millefiori beads bear a rather more cyan than blue ground colour (T8293:7, T19511:f). The size of the beads can vary considerably: the small bead N84003 (Fig. 9.5, no. 1) has a length of only 0.9 cm, while the length of one of the largest beads from the investigation area, T3369

(Fig. 9.5, no. 39), is 2.9 cm. The motif spectrum of the beads includes chequer-board, eye, floral, cross, and spiral patterns in red, blue, white, yellow, and green (Fig. 9.5). The beads will be described as 'Blue Period millefiori beads' henceforth. In most cases, two pattern components are arranged in alternating order; however, there are also beads which either consist only of one pattern component (e.g. Fig. 9.5, nos 9 and 38) or of three or more different pattern components (e.g. Fig. 9.5, nos 31, 37, and 43–44). The chequer-board patterns are usually surrounded by a red frame (e.g. Fig. 9.3, nos 1–3; Fig. 9.5, no. 17, 19, 24–28, and 40), while other pattern components rarely have this kind of frame (e.g. Fig. 9.5, nos 4 and 33). The 'Blue Period millefiori beads' from central and northern Norway exhibit a wide spectrum of pattern combinations (cf. Fig. 9.5). This indicates that the bead-makers made use of the possibility of free composition inherent in this manufacturing method, and possibly used up leftover millefiori rods in an economical manner (cf. Fig. 9.5, nos 1 and 13). Nevertheless, it is evident that certain pattern combinations — such as yellow-blue chequer-board patterns and white-leaved floral patterns (cf. Fig. 9.5, nos 40–41), or a combination of chequer-board patterns and eye patterns (cf. Fig. 9.5, nos 16, 20–23, 42, 44, and 46–47) — are more frequent than others.

The pattern components of the 'Blue Period millefiori beads' from find contexts in central and northern Norway largely match the motifs of millefiori rods as well as of the semi-finished and finished beads from the excavations in Ribe (cf. Figs 9.3 and 9.5). In some cases, the patterns are identical, only the colours being inverted (cf. e.g. Fig. 9.3, no. 6 and Fig. 9.5, no. 2). Thus, it is possible, even likely, that the majority of the 'Blue Period millefiori beads' from central and northern Norway were produced in Ribe. However, there are two patterns in particular that are not represented in the material from Ribe. These are a) a crude chequer-board pattern without frame (cf. Fig. 9.5, nos 2, 6–7, and 29–30), and b) a fine composite chequer-board pattern (cf. Fig. 9.5, no. 35). The latter occurs in central and northern Norway also on a small group of millefiori beads with a black background (T13839, T553, T6883). It is possible that beads with the latter pattern represent the products of workshops other than those that are known from Ribe and Åhus. In contrast, some patterns represented by millefiori rods from Ribe, such as a composite eye pattern (Fig. 9.3, no. 13) and a composite spiral pattern (ASR 1085 x002) (Fig. 9.3, no. 19), do not occur among the known 'Blue Period millefiori beads' from central and northern Norway. A similar composite spiral pattern, however, appears on a bead (T23253) from Hol, central Norway (Fig. 9.6, no. 1).

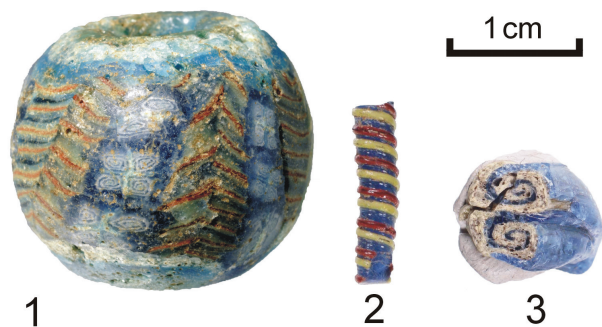


Figure 9.6. **1.** Bead made of both millefiori chips and twisted polychrome glass rods from Hol, Sunndal, Møre og Romsdal (T23253). Photo by NTNU University Museum, Per E. Fredriksen; **2.** Twisted polychrome glass rod from Ribe (SJM 3 x1118); **3.** Millefiori rod from Ribe (ASR 1085 x002). 2 and 3 reproduced with the permission of the Museum of Southwest Jutland and the Northern Emporium Project.

As this bead was made of both millefiori chips and twisted polychrome glass rods, it does not fit under the definition of ‘Blue Period millefiori bead’ used in this article. Yet, its pattern components largely match the pattern of the aforementioned millefiori rod ASR 1085 x002 (Fig. 9.6, no. 3) from Ribe as well as a type of twisted polychrome glass rods from the same site (Fig. 9.6, no. 2). Twisted polychrome glass rods also appear on various blue, thread-decorated glass beads (Sode 2004, 93–94), e.g. on a bead from Slapøy, northern Norway (Fig. 9.7). Thus, a production of the bead T23253 in Ribe is also likely.

Distribution in Central and Northern Norway

Based on the definition given above, 181² ‘Blue Period millefiori beads’ are known from ninety-two find contexts at eighty-one sites in central and northern Norway (Fig. 9.8). Almost all of those beads stem from burials. It is, however, important to remember that the excavated archaeological material probably makes up only a small fraction of the original material. For example, only three of at least hundred burials at the farm of Hov/Jøa (Fig. 9.9) ever reached the museum collections, and many of the graves at the site have been disturbed or bear signs of illicit excavations.

The northernmost find-spot of the ‘Blue Period millefiori beads’ in present-day Norway is the island of



Figure 9.7. Beads of glass and rock crystal from Slapøy, Dønna, Nordland (T13877). Photo by author.

Loppa in the county of Troms og Finnmark (Fig. 9.8, no. 1). However, this appears to be an isolated case. The northern border of the main distribution area lies about 230 km further south-west, at about the height of Vesterålen, which corresponds to the northern border of the Norse settlement of Norway during the Viking Age (cf. Bratrein 2018, 53).

The distribution of ‘Blue Period millefiori beads’ in central and northern Norway is most prevalent in areas along the coast or at fjords (Fig. 9.8). Indeed, in two areas the beads are present quite far inland: the region along the river Driva, and the area around the fjord Trondheimsfjorden. On the coast, the distribution density varies considerably. Along two parts of the coast especially, the ‘Blue Period millefiori beads’ are relatively rare: the coastal area between the peninsula of Stad and the Trondheimsfjorden, and the coastal area of the district of Salten. In contrast, main areas of distribution can be identified at the archipelagos of Vikna and Lofoten, and at the coast of Helgeland.

2. Maximum 192, as there is uncertainty about the number of ‘Blue Period millefiori beads’ of T1301.

Political Topography and Maritime Cultural Landscape

The large number of ‘Blue Period millefiori beads’ in central and northern Norway offers the opportunity to compare their distribution with the presumed political topography and the maritime cultural landscape in this area. It is assumed that the Norse society in this area exhibited a high degree of local stratification. This is represented spatially

by a large number of manors and an even larger number of central farms. The general lack of contemporary written sources — most of the written sources and literary narratives date back only to the Middle Ages — and the relatively random character of the archaeological sources that are traditionally used to identify central farms (especially monumental buildings and burial mounds, richly furnished graves, and large boathouses) means that any reconstruction of the political topography will always

1. Loppa, Loppa: Ts6360:g (1); 2. Oksebåsen av Andenes, Andøy: Ts10603 (6); 3. Helløy, Harstad: Ts1042 (1); 4. Vestnes, Harstad: Ts1908 (2); 5. Hole, Bø: Ts5367 (1); 6. Hov, Hadsel: Ts5043 (1); 7. Bitterstad, Hadsel: Ts13785:28 (1); 8. Haukenes, Hadsel: Ts6362:c (4); 9. Hemnes Nedre, Hadsel: C21612:c (1); 10. Tofte, Tjeldsund: Ts2041 (2); 11. Borg, Vestvågøy: Ts8335:ad (1); 12. Leknes, Vestvågøy: Ts5670:a (3); 13. Flakstad, Flakstad: Ts11521 (10); 14. Skagstad, Steigen: Ts3426:b (1); 15. Løding Østre, Bodø: Ts14304:20 (1); 16. Øsund, Meløy: Ts7587:i (1); 17. Kvarøen Ytre, Lurøy: Ts6371 (1), Ts6377 (6); 18. Selnes, Lurøy: Ts10598:g (1); 19. Slapøy, Dønna: T13877 (5); 20. Berfjorden, Dønna: T15095 (1); 21. Huglen, Nesna: C18919 (1); 22. Reines, Leirfjord: T17203 (1); 23. Sandnessjøen, Alstahaug: T3501 (1); 24. Søvik, Alstahaug: T11094 (1); 25. Eidem, Vega: T8293 (12); 26. Torvskjådammen, Brønnøy: T14049:III_b (3); 27. Sømnes, Sømna: C3891 (2); 28. Solstad, Bindal: T15987:a (1); 29. Årset, Nærøysund: T16013 (1); 30. Storsulen/Lillesulen, Nærøysund: T1218 (1); 31. Hasfjord, Nærøysund: T6594 (1); 32. Vikestad, Nærøysund: T12110 (1); 33. Ryum, Nærøysund: C1741:a (10), T21520 (2); 34. Bjørknes, Nærøysund: T4243 (3); 35. Aunet, Høylandet: T6883 (1); 36. Hov, Namsos: C2634:a (2); 37. Sandvika, Namsos: T18649:c (3), T18652:e (1); 38. Bjørnes Nedre, Overhalla: T7379 (3); 39. Lauvsnes, Flatanger: T22012:3 (1); 40. Hilstad, Flatanger: T15941 (1); 41. Strand, Osen: T18280:b (1), T20716 (2); 42. Herfjord, Åfjord: T12075 (1); 43. Taarnes, Åfjord: T10701 (1); 44. Borgfjord, Ørland: T1238 (1); 45. Hovde, Ørland: T17738:b (1); 46. Drågset, Ørland: T12645 (2); 47. Gjesmo (Jesmo), Trondheim: T553 (4); 48. Halset Nordre, Trondheim: T16433 (4); 49. Folkebibliotekets tomt, Trondheim: N31747 (1), N65639 (1); 50. Kjøpmannsgaten 30, Trondheim: N84003 (1); 51. Huitfeldts tomt, Trondheim: T5418 (1); 52. Auran Øvre, Stjørdal: T19622 (1); 53. Bringberget av Alstad Søndre, Stjørdal: T3453 (4); 54. Alstad Søndre, Stjørdal: T2785 (1); 55. Stangerholt, Levanger: T1301 (1–12); 56. Rognan Store, Steinkjer: T3643 (1); 57. Vive med Buas, Steinkjer: C2018 (4); 58. Rein med Helge og By, Steinkjer: T20715:2 (1); 59. Fossem, Steinkjer: T19511:f (1); 60. Føling Søndre, Steinkjer: T16078:b (1); 61. Barman Strømsvik Øvre, Hitra: T8510/T8920 (2); 62. Sunnan, Hitra: T3369 (1); 63. Belsvik, Heim: T14732:a (1); 64. Volden, Heim: T15472 (1); 65. Skorillen, Heim: T19884 (1); 66. Skeiet, Heim: T22216:7 (1); 67. Haanes Lille, Averøy: T17512 (1); 68. Flå, Sunndal: T18605 (2); 69. Børset, Sunndal: C5416 (1); 70. Hoven, Sunndal: T8271 (3); 71. Romfo, Sunndal: C11922 (1), T4198 (1), T4457 (1); 72. Rise, Oppdal: T7318 (1), T18123:d (1); 73. Opdal Prestegård, Oppdal: T18755:b (3), T18758 (4), T18819:o (2), T18820:m (1), T12339:5 (1); 74. Maurhaugen, Oppdal: T8198 (1); 75. Grøntvet, Tynset: C25140 (1); 76. Hen, Rauma: T22462:21 (1); 77. Aak med Aakesreiten, Rauma: C5879 (1); 78. Austnes, Ålesund: B17378:1 (1); 79. Osnes, Ulstein: B7236 (1); 80. Rekkedal, Ørsta: B4219 (4); 81. Raudemel, Volda: B462 (1).

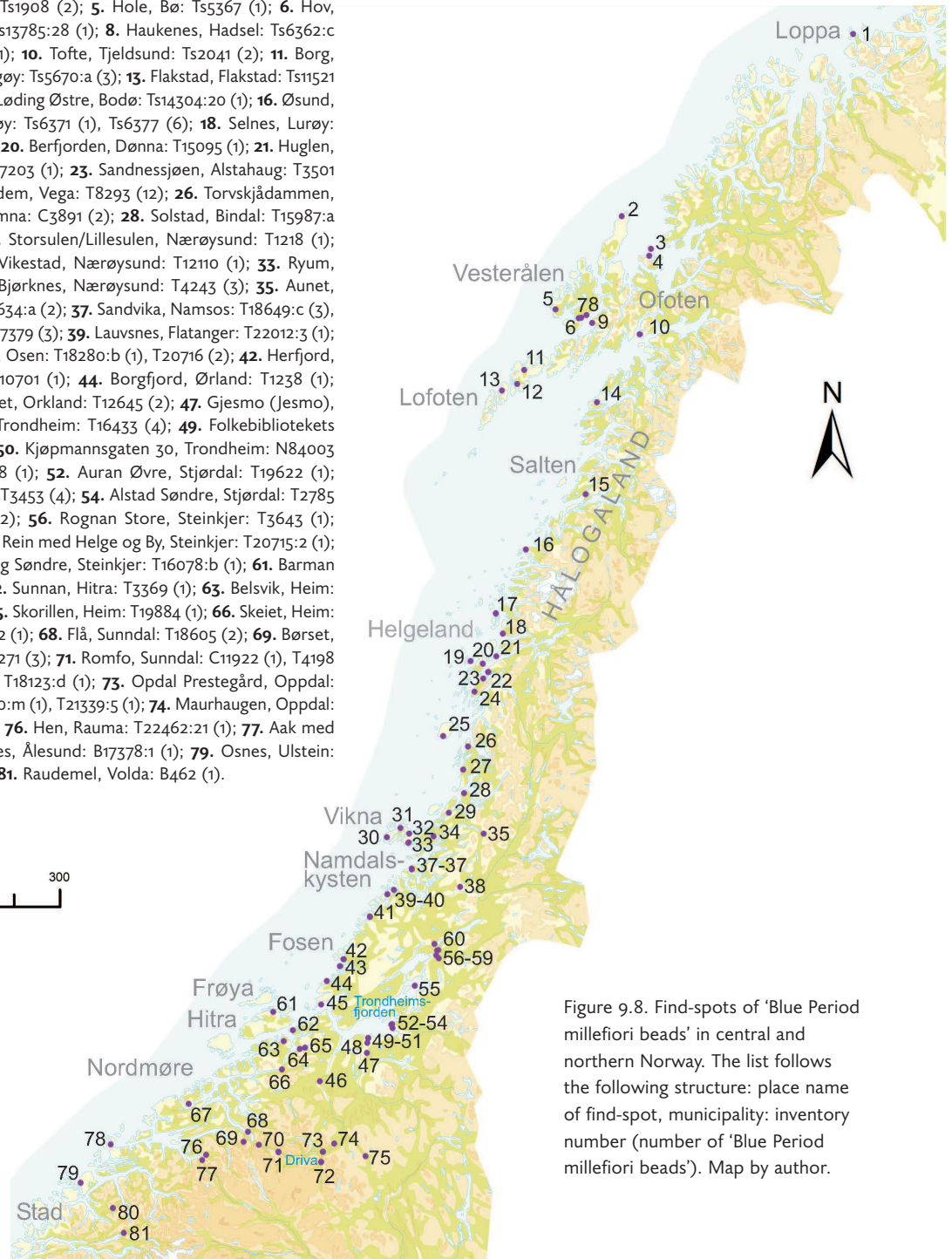
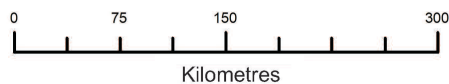


Figure 9.8. Find-spots of ‘Blue Period millefiori beads’ in central and northern Norway. The list follows the following structure: place name of find-spot, municipality: inventory number (number of ‘Blue Period millefiori beads’). Map by author.

remain fragmentary and to some extent uncertain. Moreover, the current state of research differs greatly between the different regions of the investigation area. Håvard D. Bratrein (2018) offers an overview of the current state of research regarding manors and presumed power relationships for Hålogaland. He suggests that, based on written and archaeological sources, up to fifteen manors could have existed in Hålogaland, which were equally spaced along the coast (Fig. 9.9). Bratrein also highlights that centres of power might have shifted over time and that it can be difficult to distinguish between manors and central farms or to assess their relationships to one another (Bratrein 2018, 147). Already in the 1980s and 1990s, Bjørn Ringstad (1992) had proposed economic and political centres in the Vestlandet all the way up to Nordmøre, based on monumental burial sites and status objects. Most of these centres in the investigation area are situated on the coast (Ulstein, Giske, and Hustad); two lie at the end of fjords where important inland routes start ('Åndalsnes' and 'Sunnal'). It is likely that Edøy on the homonymous island, which lies strategically on the main waterway, was also a manor. From a strategic point of view, another centre of power could be expected on the island of Hemnskjela, whose name refers to a harbour. The importance of this island in the Viking Age is further emphasized by the find of a gold and silver hoard from the tenth century (cf. Marstrander 1953). In contrast, the local power relationships in the coastal area of Fosen are largely unexplored. The same is the case for the coast Namdalskysten, north of Fosen.

The preconditions for the development of significant manors were more advantageous in some areas along the coast than others. The chieftain system of the late Scandinavian Iron Age is frequently described as a societal system in which individuals held considerable autonomous, hereditary political power in a locally delimited area. It is assumed that the chiefs exercised their power in a variety of ways: by overseeing cultic acts, practising the law, mounting defences, controlling the local production, and organizing and overseeing trading, by ship and on land (cf. Storli 2006, 125–26; Bratrein 2018, 120–33). Apart from some stretches of land around the Trondheimsfjorden, there are no large, continuous agricultural areas within central and north-

ern Norway. Especially in northern Norway, it was therefore not possible that political structures were based solely on the tenure of agricultural property. Instead, it appears that access to maritime resources, including seabirds and sea mammals, which were in demand in the South, were defining fundamentals for chieftainship (Bratrein 2018, 121). The travel account of the North Norwegian chief and long-distance trader Ottar (Othere) from the late ninth century gives the same impression. Ottar claims that he, as one of the most powerful men in the region, owned only a small piece of land and a modest number of domestic animals, and that his riches came from furs, down, whale bones, and cordage instead (Ottar, *Rejsebeskrivelse*, 22). Access to Sami furs, whether from



Figure 9.9. Presumed coastal manors (squares) and find-spots of 'Blue Period millefiori beads' (circles) in central and northern Norway. Place names in inverted commas denote areas where no specific manor or farm is mentioned as the centre. Map by author. Manors based on Bratrein (2018), Ringstad (1992), and author's research.

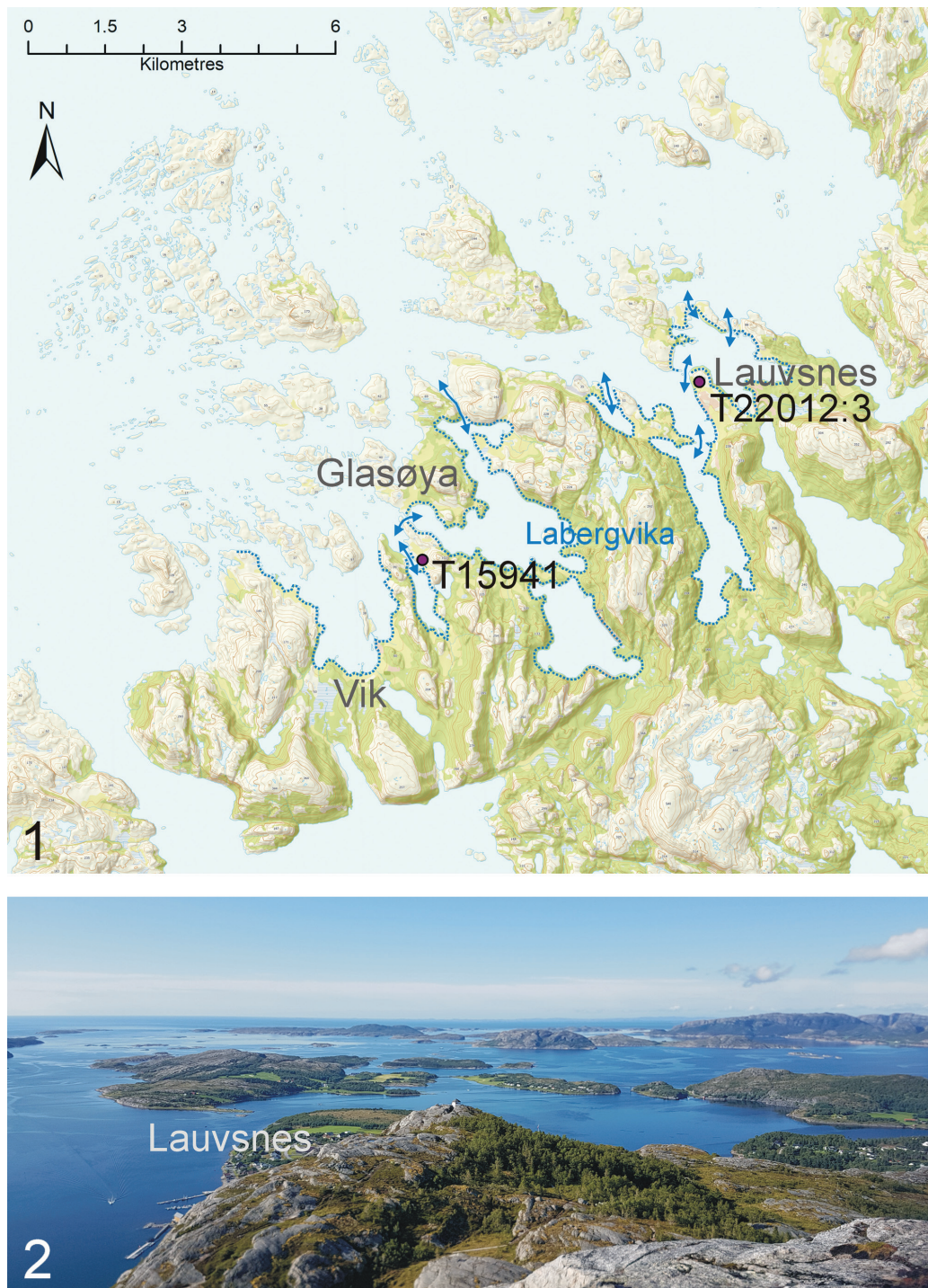


Figure 9.10. 1. Map of the coastal landscape with its natural harbour areas (marked with broken lines) and their gateways (marked with arrows), and the find-spots of the 'Blue Period millefiori beads' in the Vik-Glasøya-Lauvsnes area, Flatanger, Trøndelag; 2. View of the Lauvsnes area seen from the hill Alettaklumpen. Map and photo by author.

taxes or trade agreements (cf. Bratrein 2018, 65–68), is seen as an especially important factor for power as a chief. Other coveted products can replace the ones mentioned above in other regions. For example, iron and whetstone seem to have served as defining local resources in the inner Trøndelag (cf. Stenvik 1997; Baug and others 2018; Bratrein 2018), whereas the highlands of the inner present-day Norway were a source of reindeer antler (cf. Ashby, Coutu, and Sindbæk 2015, 685).

The strategic situation and ability to control transport routes also appear to have been important preconditions for chieftainship. At the Trondheimsfjorden, most of the Viking Age manors mentioned in medieval literary sources are located at the mouths of the larger river systems that empty into the fjord (cf. Maixner 2020). On the coast, the ability to control main waterways was an important precondition for chieftainship. One of the best examples of this is Avaldsnes on the island of Karmøy at the Karmsund strait in south-western Norway (cf. Skre 2018). Most of the coastal manors were not only placed strategically on the sailing route along the Norwegian coast, the *Nordvegr*, they also benefited from a protected natural

harbour. Examples are Bjarkøy, Engeløy, Lurøy, Ramstad, and Hustad (Fig. 9.9).

Some scholars explain the lack of coastal manors on some stretches of coast, for instance on the coast of Fosen, as being due to the barren character of the landscape (e.g. Baug and others 2018, 68). The presence of maritime infrastructure in the form of natural harbours and isthmuses with the possibility to transport ships and goods over land (as suggested by place names such as Eid(e) (Norwegian

eid: isthmus) and Drageid (isthmus where boats were dragged over land, from Norwegian *dra*: drag, and *eid*: isthmus)) could, however, have made up for the lack of the kind of resources mentioned above, and resulted in the establishment of local centres of power in seemingly less ideal places. This would explain why there are central farms, though probably no manors, in areas such as northern Fosen, which are poor in resources but represent some of the most dangerous waters in Norway (cf. Kartverket Sjødivisjonen 2008, 33).

If the combination of relatively extensive agricultural land and the presence of natural harbours, which ideally can be entered and exited from several directions, was the main site requirement, it is likely that a centre, probably consisting of several central farms, was situated on the coast of Fosen in the area of the Vik-Glasøya-Lauvsnes (Fig. 9.10). A combination of natural harbours and small areas of agricultural land is found on several spots along the coast of Fosen, and some of them might have housed at least central farms: Hasvåg (Flatanger), Sætervika (Osen), Osen (Osen), Roan (Åfjord), Revsnes (Åfjord), Lauvøya (Åfjord), Selnes (Åfjord), Lysøya (Åfjord), Bålfjorden (Ørland), Storfosna (Ørland), Håpavågen (Orkland), Vingan (Hitra), and Hals (Heim).

On the coast Namdalskysten, the medieval literary sources mention Ramsta (Hrafnista) as a manor in the Viking Age (Bratrein 2018, 163; Fig. 9.9). Other manors might have been located at Hov on the island of Jøa, which is situated in the middle of the mouth of the fjord Namsenfjord, and at Ryem at the sound Nærøysund, whose strategic aspects resemble those of Karmsund in south-western Norway. At both farms, considerable clusters of large burial mounds were observed in the eighteenth century (cf. Schøning, *Reise som giennem en Deel af Norge*, 206).

When comparing the distribution of 'Blue Period millefiori beads' in coastal areas of central and northern Norway with the location of presumed manors, it becomes apparent that there is a spatial correlation between them in many cases (Fig. 9.9). In the northern part, it is evident that the beads are most frequently found in the vicinity of presumed manors. Examples are the bead finds near or at Hov/Jøa, Ryem, Sømna, Lurøy, Meløy, Bodin, Engeløy, Tjeldøy, Hadsel, and Bjarkøy. The place name 'Bjarkøy' is also indicative of the homonymous island's function as a trading place. The prefix -bjark in island names has been presumed to denote islands where markets were held. The best-known example is the Viking Age trading centre Birka in central Sweden, which probably was eponymous for the Bjarkey Laws, which were the laws and privileges of the

medieval Scandinavian merchant towns (cf. Hagland and Sandnes 1997, xii). The northernmost find-spot, the island of Loppa (Fig. 9.8, no. 1), represented by a 'Blue Period millefiori bead' from a richly furnished female burial, is of particular interest. This is due to the fact that the island of Loppa is believed to be a Norse outpost in the Sami region, which was used to exert control over the sailing route and as a central trading place with the Sami, meaning that raw material such as blubber and furs were probably gathered there for further trade (Bratrein 2018, 93).

On the Fosen coast, where the concentrations of power in the form of manors are not yet ascertained, beads are mainly found in areas where presumed central farms are paired with natural harbours. Examples are the regions Vik-Glasøya-Lauvsnes, Osen, and Bålfjorden (Fig. 9.8, nos 39–40, 41, and 44).

Apart from the proximities of Ulstein and Hemnskjela, such correlations are less clear on the coast in the southern part of the investigated area. Generally, 'Blue Period millefiori beads' are far rarer in this southern part of the area under investigation than in the coastal areas further north (Fig. 9.9). Nevertheless, some of the islands where beads were found hold a key position for maritime traffic. For example, the southern peak of Haramsøya (Fig. 9.8, no. 78) probably served a strategic function as it could be used to control the main sailing route along the coast. Rånes on Averøya (Fig. 9.8, no. 67) may have been used to control the safer inner sailing route as well as the route through the isthmus of Tretteid, which was an alternative to the treacherous route along the coastal area outside of Hustad.

From Urban Market to Outlet

A comparison of the stock of motifs from the millefiori rods in Ribe with the motifs found on 'Blue Period millefiori beads' from central and northern Norway shows that many of these beads may well have been produced in the urban marketplace of Ribe. Theoretically, a provenance from workshops at Åhus would also be possible; however, due to the greater distance and its situation on the south-east coast of Sweden this seems less likely.

In central and northern Norway, the distribution of 'Blue Period millefiori beads', as attractive artisan goods from early southern Scandinavian urban markets, largely follows the coastline to the north and the larger waterways leading inland. The connection between these beads and the coastal trade is therefore obvious. On the coast, the beads are most frequent in the vicinity of known or presumed manors, around natural harbours, and on strategic points along the largely water-based main trading routes.

The excellent horizontal stratigraphy from Ribe dates the millefiori beads of the Blue Period to the eighth century. It is attested that during this time raw materials from the Scandinavian Peninsula, such as reindeer antler (Ashby, Coutu, and Sindbæk 2015, 687), iron (Buchwald 2004), and whetstones (Baug and others 2018) were already traded in Ribe. Other commodities, such as furs, down, and soapstone, can be suggested to have been part of these early flows of goods, but their chronology and provenance needs to be investigated in more depth. Fragments of two combs made out of reindeer antler, which are interpreted as representing personal equipment, were found in phase B layers (AD 705–725) in Ribe. Thus, inhabitants of the Scandinavian Peninsula seem to have been present in Ribe as early as the beginning of the eighth century, when the marketplace was first established (Ashby, Coutu, and Sindbæk 2015, 687, 692). Hence, the millefiori beads of the Blue Period were produced in Ribe at a time when primarily Frisian and Scandinavian merchants gathered at the marketplace during the summer half-year with their goods, among them raw glass from the South, while specialized craftspeople, including glass bead-makers, carried out their craft in the same marketplace and sold or bartered their products.

It is assumed that Viking Age chiefs from aristocratic manors in the North organized and carried out this long-distance trade with raw materials from the Scandinavian Peninsula to urban markets on the southern North Sea coast (Baug and others 2018, 65). This assumption is partly based on the travel account of the already mentioned trader Ottar from the late ninth century. The account describes how the northern chief himself acted as the head of a trading expedition to the markets in southern Scandinavia (cf. Ottar, *Rejsebeskrivelse*). It appears that the same actors, namely long-distance traders from the Scandinavian Peninsula, were also responsible for the shipment of products redistributed and manufactured in the urban markets in the opposite direction (Näsman and Roesdahl 2003, 290). The presence of Franks/Frisians can be deduced from archaeological finds in Kaupang, with there even having been a building that appears to have been inhabited by Frisian merchants during the first half of the ninth century (Skre 2011, 430–32). No such features have been found in the northern parts of present-day Norway. There is, therefore, no evidence that Frisian traders travelled that far north for the sake of trade.

The colourfulness of the 'Blue Period millefiori beads' and the complex processes required to man-

ufacture them made these beads attractive accessories for the consumers from the North. Apart from acquiring the beads for their own uses, there are other distribution mechanisms that could explain the beads' occurrence in the vicinity of manors. The exchanging of gifts amongst peers or giving the beads as a reward to vassals for services or to ensure their loyalty are the most likely explanations (Holberg 2015, 169–71). The bead assemblage from the island of Slapøya in Helgeland (Fig. 9.7), which includes several millefiori beads of the Blue Period, blue, thread-decorated beads, and beads made out of rock crystal, could be interpreted in this way. The island of Slapøya is located near the bountiful fishing grounds and nesting places of Åsvær, which was probably subordinate to a manor situated either in Hov/Løkta or Glein (cf. Bratrein 2018, 158–59). It is therefore likely to connect the bead assemblage of Slapøya to trading expeditions to the South. The beads could have been brought back by family members who participated in the journey, or they could have been given to a vassal and his family living on Slapøya by a superordinate chief, and might have been accumulated over several years.

Assuming that at least the major part of the 'Blue Period millefiori beads' found in central and northern Norway was produced in Ribe, this region should now not only be considered as one of the distribution areas of these specialized artisan goods but also, according to the concept of Ashby, Coutu, and Sindbæk (2015), as a part of Ribe's extended hinterland. Obviously, the beads' distribution in many cases corresponds to the areas supplying Ribe with raw materials from the North. However, this study looked only at a section of a larger region connected to the urban market of Ribe in one way or another. Moreover, the area under investigation in this article is likely to be a special case since it is located 1000–2000 km north of Ribe at the periphery of the Norse settlement. Thus, many questions remain unanswered. Does the distribution of millefiori beads of the Blue Period in southern Norway differ from the one in the northern periphery? And, to what extent did millefiori beads of the Blue Period from Ribe end up in its immediate hinterland, and in Jutland in general? To answer these questions and gain a more complete understanding of the relationship between the urban markets of Ribe and its hinterland, future research will have to analyse the occurrence of these beads as proxies for specialized artisan goods from Ribe in a larger area.

Beads as a Monetary Medium?

Ottar's travel account roughly describes the sailing route from northern Norway along the Norwegian coast, via the trading place Sciringesheal (Kaupang) up to the emporium Hedeby (Ottar, *Rejsebeskrivelse*, 36). However, the account does not specify how exactly the journey along the Norwegian coast, with its numerous chiefdoms and their checkpoints along the sailing route, transpired. Interestingly, the same Old English source also mentions the concept of *unfrið*, which can be understood as the lack of an arrangement, and which prevents Ottar from continuing an excursion into the far North (cf. Ottar, *Rejsebeskrivelse*, 21). Christine Fell (1982–1983, 94–96) interpreted *frið* as meaning a personally held privilege, which allows a trader to travel through various political and cultural territories. The passage in the travel account indirectly suggests that the long-distance trader Ottar normally had such arrangements for the routes he travelled. Irene Baug and others (2018, 69) highlighted, therefore, that such *frið* arrangements with those who controlled the different sections of the *Nordvegr* were of enormous importance for long-distance traders. Such arrangements would also have opened up the possibility for 'parasitizing', meaning that, in return for the *frið*, traders would have to pay a tax or give a payment of shares.

As mentioned before, long-distance traders from the North might have had two main motives for acquiring millefiori beads as accessories at the urban market of Ribe: to cover their own needs and to build or uphold alliances. However, a third reason could have been to acquire them as a pre-monetary means of payment to pay some kind of tax on the way back. Because glass beads are small, handy entities made of a largely consistent material, which, similarly to coins, can be easily transported but also have a high aesthetic value, making future resale/barter likely, they are a suitable monetary media.

Using beads as a means of payment is known from other cultures and times. A known example from modern times are Venetian glass beads, which were used as a local currency in domestic markets and along the caravan roads in East Africa during the nineteenth century. They were also in use as the common means of payment for taxes imposed by local chiefs on passing caravans (Pallaver 2009; 2016). However, it could be that glass beads were already used as a means of payment during pre-colonial times (Saitowitz 1996, 2). In the late first millennium AD, carnelian beads, produced in West India, were used as a kind of currency parallel to coins, not only within the domestic economy, but possibly within the maritime trade between the Indian Ocean and



Figure 9.11. A bracelet of silver and beads of glass and rock crystal from Sandnessjøen, Alstahaug, Nordland (T3501–3502). Photo by author.

neighbouring regions (Hawkes and Wynne-Jones 2015). A similar function as a currency was recently proposed for millefiori beads from the Migration period in Italy (Boschetti, Gratuze, and Schibille 2020, 337). Several scholars suspected that beads may have been used as a means of payment during the Viking Age.³

The use of non-metallic beads as a currency in Viking Age Scandinavia has also been mooted by Birgitta Hårdh (1996, 135–37). Several features indicate that not only weighed silver, but also beads and semi-precious stones were used as currencies in Viking Age Scandinavia, though it is not possible to discuss this in more detail here. A complex from the harbour of Hedeby, dating to AD 825, consisted of almost six hundred disc-shaped glass beads and seven silver coins. It is assumed that the beads and coins were contained in a purse made of organic material, which a traveller or trader lost between a ship and a harbour installation (Steppuhn 1998, 104; Kalmring 2010, 418). A tenth-century weapon burial from Olstad at the Trondheimsfjorden in central Norway contained a leather pouch with two Arabic dirhams, the fragment of a silver wire, two weights, and seven round semi-precious stones, four of them being made of carnelian (Vennatrø and Ystgaard 2016). Moreover, even though the majority

3 For summaries, see Jansson 1987, 794; Steppuhn 1998, 16.

of Scandinavian Viking Age hoards are made up of precious metals only, some of them contain beads as well. Examples are:

- a) the mid-ninth-century hoard of Hoen, Norway (Fuglesang and Wilson 2006);
- b) the large tenth-century silver hoard of Stora Ryk, Färgelanda, Dalsland, Sweden (SHM21668), which contained beads made of glass, carnelian, and rock crystal in addition to numerous silver ornaments (Hårdh 1996, 134);
- c) the hoard of Vela, Ryfylke, Norway (B4318), which contained Arabic dirhams, ornaments, ingots, hack-silver, and twenty very distinct beads made of glass, carnelian, and rock crystal, including two 'Blue Period millefiori beads' (Grieg 1929, 205–06);
- d) the mid-ninth-century hoard of Kettilstorp, Önum, Sweden, consisting of silver coins, silver objects, and carnelian beads (SHM4915) (Hårdh 1996, 134);
- e) a hoard consisting of twenty-four Arabic dirhams, two silver wires, a glass weight, and a segmented gold-foliated bead from one of the cemeteries on Helgö in central Sweden (Clarke and Lamm 2017, 39–40);
- f) the hoard from Grønnerup, Sæby, Jutland, Denmark, which contained eighteen beads made of glass, glass mosaic, and rock crystal, twenty-two coins, and a silver ingot (Skovmand 1942, 59);
- g) a small hoard from Sandnessjøen, from the coast of Helgeland (T3501–T3502) (Fig. 9.11), which consisted of a bracelet of silver and six glass beads, including one 'Blue Period millefiori bead' as well as a blue, thread-decorated bead (Grieg 1929, 257).

Hårdh (1996, 135–37) observed that glass and carnelian beads are more likely to occur in early Viking Age silver hoards (ninth or early tenth century) in the western parts of Scandinavia, and again in very late silver hoards such as the one from Potsdam-Golm, Germany from the late eleventh century. Early silver hoards from the seventh and eighth centuries are largely unknown from Scandinavia, which corresponds to the lack of precious metals during this time. The first Arabic dirhams reached Scandinavia in the late eighth century, as a small deposit from a layer from AD 780s Ribe attests (Feveile and Jensen

2000, 13, 24). The real influx of Arabic dirhams, which ended the shortage of precious metals in Scandinavia, started only in the second half of the ninth century AD (Brather 1995/1996, 90–103; Kilger 2008; Sindbæk 2011, 48–50). Søren M. Sindbæk (2011, 50) was certainly right to conclude that other forms of portable wealth were of greater importance during the early Viking Age than had been expected until then. One of his examples is a find from Øster Halne Enge, North Jutland, Denmark, which could represent the earliest dirham hoard in Denmark. The find consists of eight pierced Kufic coins as well as forty beads made of glass, carnelian, and rock crystal, silver beads, and other pieces of jewellery (Kromann 1985, 53; Sindbæk 2011, 51).

Another example of possible portable wealth is a ninth-century hoard from a well in Rostock-Dierkow, Germany, which was interpreted as the deposit of a goldsmith, including 144 glass beads, a touchstone, brass and zinc ingots, and the silver parts of a sword hilt (Warnke 1992/1993, 204–06; Sindbæk 2011, 51). Finally, a deposit from Felding Bæk in Jutland, Denmark, should be mentioned. It included two mid-ninth-century oval brooches, resembling a closed shell. Inside these brooches there were eighteen glass beads, including several millefiori beads of the Blue Period (Hårdh 1996, 134; Sindbæk 2011, 51). A similar, later deposit from the tenth century has been discovered in Haugen, Vestfold og Telemark, Norway. In this case there were no beads inside the oval brooches, but trade-related objects in the form of two Kufic coins, a weight, and three silver ornaments (Grieg 1929, 217–18).

It therefore seems likely that some of the 'Blue Period millefiori bead' finds from central and northern Norway are the result of their primary use as means of payment. The beads could come from taxes or payments of shares that were given in return for *frid* arrangements, which gave merchants unrestricted and safe passage through individual territories. It could also be that the beads were given as a tax payment to guides who helped with navigating through treacherous waters or finding safe shortcuts (isthmuses) overland. Beads could also have been used to pay harbour dues, which are later indirectly mentioned in the collection of laws Gulathinglaw (cf. *The Earliest Norwegian Laws*, 126). As mentioned earlier, not all centres on the coast had access to those natural resources that made trading with the markets in the southern North Sea coast worthwhile. One example is the aforementioned centre Vik-Glasøya-Lauvsnes with its natural harbours and its location on the barren Fosen coast (Fig. 9.8, nos 39–40; Fig. 9.10). Although the area is poor in resources, two 'Blue Period millefiori beads' ended up there. The ability

to offer berths protected from the dangerous coasts created conditions that allowed ‘parasitizing’ by levying taxes, which would explain why there are prestige goods from the South despite the coastal area having few resources to offer.

However, it is difficult to draw a clear line between commodities and means of payment in an economic system that largely relies on payments in goods. Even if the concept of object biography is taken as a basis,⁴ the transition between the different functions of the beads remains fluid. Beads that were first utilized as a means of payment could later be used as accessories, and the other way around. It is also necessary to remember that archaeological features only ever give a find’s context at the end of its course of life, which in this case predominantly means accessories in burials. Moreover, as graves due to their visibility in landscape are over-represented as archaeological contexts in the investigation area, this can lead to beads’ earlier functions, such as expressed by hoards, being undervalued.

Urban Craftsmen in a Vulnerable System

The origin of the highly specialized craftspeople who started producing millefiori beads in eighth-century Ribe remains unclear, as well as their relationship with the early urban community. As mentioned above, it seems that beads with features of Merovingian floral millefiori beads were produced in Ribe as well (cf. Fig. 9.4, no. 1). In light of the most recent research results about the population genomics of the Viking world, which have shown that the first evidence of South European ancestry in Scandinavia is during the Viking Age in Denmark (Margaryan and others 2020, 393), it is not unreasonable to suggest that the first generation of millefiori bead-makers could have immigrated from the Mediterranean, maybe northern Italy.

As mentioned earlier, the millefiori beads of the Blue Period were produced in Ribe for only about fifty years (until c. AD 760), which would correspond to about two generations of craftspeople. The only elaborate beads whose domestic production is attested to in the following phase E (AD 780–790) of Ribe’s history are the so-called wasp beads (Fig. 9.2, no. 6) (Feveile and Jensen 2000, 13, 22–23). After that, the local production of sophisticated beads stopped. Whether the wasp beads were produced by the same groups of craftspeople who had made blue millefiori and blue, thread-decorated beads before that, is unclear.

It is possible that the urban glass bead-makers in Viking Age Ribe encountered similar challenges as their Venetian colleagues more than one thousand years later: that they had to adapt to frequent fluctuations of the market in regard to which bead types were in demand. Europeans who travelled through East Africa in the nineteenth century reported how difficult it was to acquire the ‘right’ glass beads, meaning the ones that were accepted as means of payment in the inland and the coastal markets. This was due to the fact that demand could change quickly, which meant that it was difficult to anticipate which type of beads would be in demand. Keeping up with these fluctuations was even harder for the faraway workshops in Venice, which supplied the African markets with glass beads. They constantly had to adapt their production to new trends in order to meet their consumers’ demands and face foreign competition (Pallaver 2009; 2016). The urban craftsmen in Ribe might have faced similar challenges. From the second half of the eighth century onward and throughout the first half of the ninth century, the type spectrum of beads in Scandinavia was again dominated by imports, this time oriental ones. The most prevalent types were metal-foil beads (Fig. 9.2, no. 8) (Callmer 1995, 51; Sode and Feveile 2002), eye beads (Fig. 9.2, no. 7) (Callmer 1977), as well as the aforementioned mosaic-eye beads (Fig. 9.2, nos 9–10) (Andrae 1975). It was during this same time that the first Arabic silver coins reached the North. The local bead production in Ribe declined gradually during the same period (Näsman 2000, 44). The craftspeople in Ribe might have found themselves in the same situation as the Venetian bead-makers a millennium later; suddenly, their consumers were interested only in new and different bead types. Provided that beads were used as pre-monetary means of payment in early Viking Age Scandinavia, this change in demand must have had serious consequences. The decision of the northern traders regarding which beads should be acquired was therefore not just a question of individual taste; it would also have been influenced by the demands for certain types of beads as a means of tax payment along the trading route.

The fact that, despite the challenges described above, the nineteenth-century bead industry became the backbone of Venice’s industrial development shows just how good the Venetian craftspeople were at adapting to the ever-changing demand (Pallaver 2009; 2016). In contrast, no such adaptation seems to have taken place in the early urban bead-makers’ crafts-milieu at Ribe. Callmer (2007, 95) has suggested changes in the glass supply network (assuming a provenance of the raw glass from the Mediterranean

⁴ For object biography and its critique, see Burström 2014.

area) or the elimination of some groups of craftspeople as responsible for the abrupt end of the 'blue' horizon. However, there are a variety of other possible explanations for the cessation of Ribe's local manufacture of advanced glass beads in the eighth century. One explanation could be that the craftspeople lacked the technical knowledge to switch to producing different types of glass beads which were in greater demand. The Scandinavian bead-makers only used a small number of the possible production techniques, mainly the winding technique, often combined with thread or reticella decoration and, the focus of this study, the millefiori technique. The tube- or rod-drawing technique, which is characteristic for some bead types from the Mediterranean and the Near East, was not practised in Scandinavia (Callmer 2003, 40). Another possible explanation is that the craftspeople did not feel the need to adapt to the new demands. As suggested by Callmer (1997, 197), some craftsmen might have executed several crafts. We do not know if the millefiori bead-making was a full-time occupation, or if the bead-makers also did other work. We do not even know if they only visited Ribe during the summer months, or if they were or became local residents (cf. Ashby and Sindbæk 2020, 9). A third explanation could be that the millefiori glass bead-makers failed to set up a competitive way to mass-produce popular products. If so, this was in contrast with the local bronze-casters, who had started the serial production of large amounts of nearly identical metal dress accessories in the late eighth century in order to keep up with the evolving demand for such items during the Viking Age. It appears that the oriental beads, especially the metal-foil beads, came to the Scandinavian trading places in large amounts, but were cheap at the same time, which is apparent from the large number of failed products that were left behind on the trading places (cf. Callmer 1995, 52; 2003, 44).

As Ashby and Sindbæk (2020, 11) have pointed out, the early Viking Age urban markets arose from the need for stations for long-distance interaction, rather than as a result of the interrelationship between the markets and their immediate hinterland. Thus, it is likely that the demands of long-distance traders, who supplied the craftspeople on the urban markets with some of the crucial raw materials, played a central role for the success or failure of the urban craftspeople. Using complex network analysis, Sindbæk (2007b) has analysed the network of Viking Age communication and trade in northern Europe as consisting of only a small number of important hubs with weak ties between them and a very small group of people who moved between these sites. Because of this, the system was extremely vulnerable.

Actions of individual actors, and their sudden appearance or dropout, could have considerable consequences for the entire system, whether these resulted in the end of the manufacturing of a specific product, consisted of putting a halt to the supply of important raw materials in one direction, or the distribution of goods in the other direction, or caused the displacement or rejection of a type of goods, as exemplified by the sudden influx of oriental beads. It is possible that it is exactly this vulnerability of the system which led to the cessation of the production of millefiori beads of the Blue Period in eighth-century Ribe.

Conclusion

Workshop debris from the production of early Viking Age millefiori beads of the Blue Period, especially from Ribe, and respective beads from central and northern Norway constitute a complementary source material that had not yet been exploited in this combination. It is likely that many of the known 'Blue Period millefiori beads' from central and northern Norway were produced in Ribe, as comparisons between their array of motifs and the motifs of the millefiori rods from Ribe have shown. The beads have the characteristic ground colour of the Blue Period and consist of millefiori rods with chequer-board, eye, floral, cross, and spiral patterns put together like modules. Although this study investigates only a part of the documented millefiori beads of the Blue Period in northern Europe, the analysis has shown that the early Viking Age bead-makers were flexible in how they arranged combinations of motifs and the sizes they chose. It has also become apparent that the quality of the beads vary considerably. Some of the beads appear to have been produced using leftover millefiori rods (e.g. Fig. 9.5, no. 1). This probably indicates that the millefiori rods, which were difficult to produce, were largely used up, which would also explain why only few traces of millefiori-bead production were found in Ribe and Åhus compared with the total bead production waste from those sites.

The question of whether Ribe was a seasonal market or a permanent settlement during this earliest stage has not been answered for certain (cf. Feveile 2006d; Croix 2015). Based on the character of the investigated workplaces, it has been suggested that the glass bead-makers themselves were itinerant. However, one does not necessarily eliminate the other. Highly specialized craftspeople such as the millefiori bead-makers were not necessarily sedentary, even if Ribe should have been already per-

manently settled during its oldest phase. The high quality and resultant price of their products could even have forced them to travel between different marketplaces throughout a season in order to reach a large enough group of consumers. The occurrence of millefiori beads of the Blue Period in present-day northern Germany could indicate that other important markets in the southern area of the North Sea coast, possibly in the border area between Frisia and Saxony, were also frequented by these craftspeople.

Studying the millefiori beads of the Blue Period, which were found in central and northern Norway and probably produced in Ribe, has the invaluable potential to lead to a better understanding of the early Viking Age long-distance trade along the coast of Norway, from the Arctic areas rich in resources in the North to the early urban markets in southern Scandinavia, and in the opposite direction. Thanks to their relatively short production period in the eighth century, millefiori beads of the Blue Period offer a great opportunity to gain new insights into the circulation of refined materials from southern Scandinavian urban markets during the early Viking Age as well as into the dynamics of trading networks at the beginning of this period. The production of millefiori beads of the Blue Period occurred during the early phase of Ribe, when the trade in the southern North Sea zone was still dominated by Frisian merchants, acting as the main exporters of Rhenish products towards England and Jutland (cf. Lebecq 1992). At the same time, long-distance traders from the Scandinavian Peninsula were already supplying the early urban market with raw materials that were coveted in southern Scandinavia and on the Continent. So far, however, the evidence for direct interaction with central or northern Scandinavia in eighth-century Ribe has been limited to reindeer antler, whetstone, and probably iron. Whereas the volume of the annual supply of whetstones from the Mostadmarka quarries near the Trondheimsfjorden could be estimated as several hundred (Baug and others 2018, 64), as yet there is no evidence for the extent of natural resources coming from northern Norway. In this regard, the high number of eighth-century 'Blue Period millefiori beads' in northern Norway can indirectly testify to a large volume of exchange and interaction with the urban market of Ribe in the earliest Viking Age, which, so far, has not been possible to document by the natural resources from the opposite direction. This is especially notable against the background that the archaeologically documented beads presumably make up only a small portion of the original material. The 'Blue Period millefiori beads' in central and northern Norway are generally found along the coast or along impor-

tant waterways leading inland and in the vicinity of prominent manors and important natural harbours. Thus, central and northern Norway appears to have been a hinterland of the urban markets of Ribe in two respects: not only did they act as suppliers of raw materials (cf. Ashby, Coutu, and Sindbæk 2015), they appear also as a central distribution area for the specialized artisan goods produced in this market.

The production of millefiori beads of the Blue Period occurred before weighed silver became the most important means of payment in Scandinavia. Although *sceattas* had been used in the Frisian sphere of influence since the late seventh century, and although it has even been proposed that the youngest group of these coins, the *Wodan/Monster sceattas* (minted until the AD 760s or 770s), could have been minted in Ribe,⁵ coins were still rare on the Scandinavian Peninsula during this time (Näsman and Roesdahl 2003, 292). Analogous to early modern ethnographic parallels, it is therefore possible that the millefiori beads produced in southern Scandinavian urban markets were manufactured not only as accessories, but also as a non-monetary means of payment, particularly for passage and harbour taxes. This hypothesis is supported by the presence of beads made of glass and semi-precious stones in some Viking Age hoards and other deposits of portable wealth. The fact that the production of sophisticated Scandinavian millefiori beads started to decline just as the influx of oriental beads and, later, Arabic dirhams began to appear on the Scandinavian market would also fit this picture. It is likely, however, that this dual function of the beads was rather fluid: beads which first served as a means of payment could later on be used as accessories, and vice versa. Although the millefiori beads of the Blue Period represent the most advanced glass beads produced in Scandinavia during the Viking Age, the short-lived production period may just demonstrate the vulnerability of the early Viking Age network as an interaction of early urban craftspeople, long-distance traders, and faraway markets.

5 For a summary, see Wiechmann 2004, 562–63.

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