Aarhus in the Landscape

Fortification, Urbanisation and Regional Variation in the Viking Age

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ABSTRACT

This paper examines the changing relationship between the Viking Age settlement beneath present-day Aarhus and regional landscapes from the 7th to the 11th century. A local landing site is documented below Aarhus from the late 8th century, while regional evidence extends back to the 7th. A fortification was constructed after the landing site's destruction in the early 10th century, but activity within it remained limited for decades. A marked change occurred in the late 10th century, when the site was refortified, occupation intensified and a broader range of craft, exchange and martial activities appeared in the archaeological record, while contacts remained primarily local and regional. Written sources attest ecclesiastical status by this time. Throughout this process, production, long-distance contacts, elite burial, silver accumulation and expressions of status and power remained distributed across the region. The principal change was therefore not the disappearance of these functions from the region, but the increasing combination of a broader range of functions within the fortified settlement. The evidence points to a gradual, non-linear process of urbanisation in which the settlement developed into a materially modest local centre with functions operating primarily at local and regional scales, within a landscape characterised by considerable regional variation.

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Introduction

The town of Aarhus on the east coast of Jutland occupies the site of its Viking Age settlement. Decades of developer-led archaeological investigation have produced a substantial archaeological record that offers both opportunities and challenges for the study of early urbanisation. The development of Aarhus cannot, however, be understood solely from evidence recovered within the fortified area. An equally important question is how the settlement related to the surrounding landscapes, where evidence for production, exchange, social differentiation and wealth accumulation is more substantial than that documented at the river-mouth settlement itself (Figure 1).

Studies of Scandinavian urbanisation have increasingly demonstrated that towns did not emerge through a single sequence of commercial expansion, craft specialisation, and settlement growth. The early emporia, including Ribe, Hedeby, Birka, and Kaupang, represent one historically specific trajectory in which sustained exchange and specialised production played prominent roles. Other towns developed later, particularly around the end of the 10th and beginning of the 11th century and often display more limited evidence for long-distance trade and specialised production during their earliest phases (Runge and Henriksen 2018, 15-22; Søvsø 2020, 252–255). Research on centres such as Odense, Aalborg, Lund, Sigtuna and Trondheim has further demonstrated considerable variation in the chronology and combination of settlement growth, exchange, specialised production, spatial organisation and royal and ecclesiastical functions (Cadamarteri *et al.* 2020, 51–65; Jensen 2021, 134–145; Runge and Henriksen 2018, 15–22; Søvsø 2020, 247–251; Zachrisson 2020, 268, 278–279). Rather than representing successive stages in a common trajectory, these centres illustrate different processes through which functions became concentrated, combined and reorganised during the late Viking Age. Such differences make it necessary to examine not only the chronological development of individual towns, but also their relationship to the surrounding landscapes in which

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Figure 1. Selected Viking Age sites and finds in the regional landscapes surrounding Aarhus. The map shows settlements and activity sites, graves and cemeteries, and selected runestones. The enlarged runestone symbol immediately west of Aarhus represents six runestones associated with the town; the Egå, Vejlby and Hørning stones are marked separately. Brabrand Lake is labelled for geographic orientation on the relief background map. The chronology of the principal sites and finds is shown in Figure 6 (Figure: Jette Linaa).

production, exchange and social and institutional functions were distributed (Søvsø 2020, 69, 123-126).

Archaeological research has long characterised Aarhus as a coastal landing place that only gradually acquired urban features in the late Viking Age, with settlement dominated by low-intensity activity and limited evidence for specialised production or long-distance trade (Jantzen 2013, 29-34; Krongaard Kristensen and Poulsen 2016, 47-48; Madsen 1996; Roesdahl 2023, 252-255; Søvsø 2020, 238-241). Recent reassessments confirm this overall picture. In contrast to long-established and internationally connected centres such as Ribe and Hedeby, Aarhus displayed a primarily local or regional economic profile, with only sparse evidence for imported and high-value goods or specialised crafts (Linaa 2024; Out *et al.* 2025). What remains less clearly described is the sequence through which the fortified settlement acquired and combined urban functions, and how this process related to economic and social developments in the surrounding region.

Research on the archaeology of Aarhus has formed part of the author's work for several

decades. Methodologically this analysis is built on approaches developed through the *Urban Consumption* project, in which archaeological assemblages were analysed comparatively in relation to chronology, spatial organisation and consumption in the medieval and early modern town (Linaa 2016). The archaeological record of Viking Age Aarhus was subsequently analysed through the *From Aros to Aarhus* research project (2021–2024), led by the author and based at Moesgaard Museum. A town-wide synthesis analysed settlement development and archaeological assemblages (Linaa 2024), while a detailed multidisciplinary study investigated a burned sunken-featured building dated to around AD 980 (Out *et al.* 2025). Together, these studies produced a substantial series of new radiocarbon dates and refined the chronological framework. The present article represents the third major output of the project and extends the analysis beyond the enclosed settlement by comparing the development at Aarhus with contemporary settlement, production, exchange and social differentiation in the surrounding landscapes.

The archaeological sequence at Aarhus has traditionally been structured around two successive Viking Age fortifications. In this chonology, the first rampart was constructed in the first third of the 10th century and overlaid an earlier landing place rather than enclosing an existing town. Settlement within the fortified area remained sparse for several decades after its construction. In the late 10th century, the existing earthwork was substantially enlarged, and this refortification coincided with a clear increase in occupation, production, and material consumption within the enclosure (Linaa 2024, Table 2). The later fortification belongs chronologically to a period of extensive fortification building in Denmark, including the construction of the ring fortresses (Christensen *et al.* 2021; Sindbæk 2014, 2024a, 2024b). This contemporaneity provides an important comparative context, but does not in itself demonstrate common patronage, participation in a single building programme, or the identity of the authority responsible for the Aarhus rampart.

The surrounding landscapes offer an important perspective on the development of Aarhus. Rural settlements, burials, hoards and metal-detector finds indicate distinct environments in which production, exchange and wealth accumulation took different forms. These differences provide a basis for investigating the relationships between the river-mouth settlement and the surrounding region without presupposing a single hinterland organised around Aarhus.

For the analysis, this sequence is divided into three phases: Phase I, the pre-rampart landing site; Phase II, the construction and use of the first rampart; and Phase III, the late 10th-century refortification and consolidation of more sustained settlement within the enclosed area. This sequence raises three related questions: (1) How should the first fortification be understood when it did not protect an existing town? (2) What changes in settlement, activity and function accompanied the refortification in the late 10th century? (3) How did the activities documented within the fortified area relate to those in the surrounding landscapes, where substantial production, exchange and wealth accumulation are also recorded? The analysis also considers the degree to which the developing settlement became materially and functionally differentiated from the surrounding countryside.

Materials and methods

Research history

Archaeological investigation in Aarhus has been extensive since the 1960s, with approximately 250 archaeological investigations undertaken within the historic town (Figure 2). This has produced a substantial archaeological record and a high level of publication of individual investigations and find assemblages, while broader archaeological syntheses remain comparatively few (Jantzen 2013; Linaa 2016, 2024; Madsen 1996). Aarhus has also been incorporated into wider discussions of Danish urban development (Krongaard Kristensen and Poulsen 2016; Roesdahl 2023; Søvsø 2020). The research history of the Viking Age settlement itself has recently been reviewed in detail by Linaa (2024) and is therefore only summarised here.

The surrounding region presents a more uneven research and publication landscape.



Figure 2. Archaeological excavations in central Aarhus, 1960-2024. Excavated areas are shown in orange in relation to the modern street plan. The two dashed lines indicate the extent of the fortification. The excavation at Mejlgade 8, the location of the section illustrated in Figure 3, is identified on the map (Figure: Jette Linaa).

Considerable archaeological attention has been directed towards the Lisbjerg complex (Jeppesen 2004, 2011; Jeppesen, Madsen and Davidson 1989; Jeppesen, Madsen and Liversage 1996), and towards Randlev/Hesselbjerg (Andersen and Klindt-Jensen 1970; Jeppesen 2000, 2003a, 2003b; Jeppesen and Adamsen 2005; *cf.* Jeppesen 2010), while parts of the Brabrand landscape west of Aarhus have also been investigated (Jeppesen 2010; Skamby Madsen and Vinner 2005). Other potentially significant evidence derives from metal-detector sites, some of which are presently known principally through DIME and museum records. Elsted has additionally been presented in a popular-science article (Reher-Langberg 2024b), while the recently excavated cemetery at Lisbjerg and the large settlement and production area at Søften are at present known only through museum press releases and media coverage (Moesgaard 2025, 2026) and are therefore treated here as provisional evidence. The regional analysis consequently draws on sources with markedly different levels of investigation, documentation and publication, a disparity that is considered when evaluating their significance.

Museum presentations have at times offered more expansive interpretations of Viking Age Aarhus and its relationship to the surrounding region to the public than those advanced in the archaeological literature. These include portrayals of Viking Age Aarhus as a major, internationally connected centre, proposed relationships between Aarhus and regional sites, as well as reconstructions of late tenth-century Aarhus as a densely built and spatially regulated town (Damm 2005; Moesgaard 2026; Moesgaard Museum 2024a, 2024b; Reher-Langberg 2024b; Skov 2005). They are therefore considered where relevant below,

while the analysis itself is based on the archaeological evidence currently available.

Data and analytical approach

The analysis combines the Aarhus datasets of Linaa (2024) and Out *et al.* (2025) with regional evidence from published studies, excavation reports, museum databases and archival records.

The archaeological evidence from Aarhus

The Aarhus dataset comprises approximately 14,000 artefacts from eighteen excavations within and along the Viking Age enclosure (Linaa 2024, Tables 1–2). The enclosed area covers approximately 40,000 m² (177 x 165m), of which *c.*3,200 m² (8%) has been archaeologically investigated, while only a further *c.*2,800 m² (7%) remains potentially accessible (Figure 2). These potentially accessible areas are themselves fragmented by later construction and modern services, limiting both archaeological visibility and the scope for further investigation.

Dataset compilation, standardisation, quantitative procedures, recovery and preservation are discussed in Linaa (2024). Phase comparisons therefore rely on patterns recurring across multiple contexts and artefact categories. The scarcity of Phase II material relative to Phases I and III is interpreted as a genuine difference in activity intensity rather than an effect of recovery or preservation (Linaa 2024, Table 2).

The regional archaeological evidence

The regional record is uneven in preservation, investigation and source type and is therefore not treated as quantitatively standardised. This is especially relevant around Brabrand Lake, where large areas remain uninvestigated or overlain by modern development. Regional evidence is assessed by archaeological context, assemblage composition and activity categories; detector-find numbers are treated cautiously because they also reflect survey intensity.

Comparative and chronological approach

The chronological framework combines stratigraphy, artefact typology, radiocarbon dating and dendrochronology. Targeted radiocarbon dates from Søndervold, Skt. Clemens Stræde and Bispetorv refine the fortified-site sequence; the Skt. Clemens Stræde sequence contributes directly to Rampart 1, while dendrochronology provides additional fixed points (Linaa 2024, 9). Together these data underpin Phases I–III. Regional sites are dated independently before comparison with the Aarhus sequence.

The regional analysis follows Søvsø's approach to early urban development, in which urban sites are examined in relation to surrounding settlement, elite and exchange landscapes (Søvsø 2020, 69, 123–126). These regional landscapes also formed part of wider maritime cultural landscapes, but the available evidence does not permit detailed reconstruction of their navigability or maritime route systems (Kalmring 2026). Aarhus Phases I–III are compared with contemporary evidence from the surrounding region. Regional sites and finds are dated independently to assess how changes in fortification, settlement intensity and activity at Aarhus related chronologically to developments elsewhere in the region. Chronological overlap or spatial proximity is not in itself treated as evidence of direct functional, economic, political or organisational dependence.

Results

Aarhus: Phases I–III

The earliest documented activity at Aarhus belongs to Phase I, *c.*AD 770–900. This phase represents a low-intensity settlement along the bank of the Aarhus River. A ditch ran along the riverbank, but no plot boundaries have so far been documented. Activities were predominantly domestic, with craft evidence mainly for bone working. Evidence for long-distance contacts is limited to a few finds, including a mosaic bead produced in Frisia (Linaa 2024, 8). The Baltic-type pottery from this phase was produced locally rather than imported,

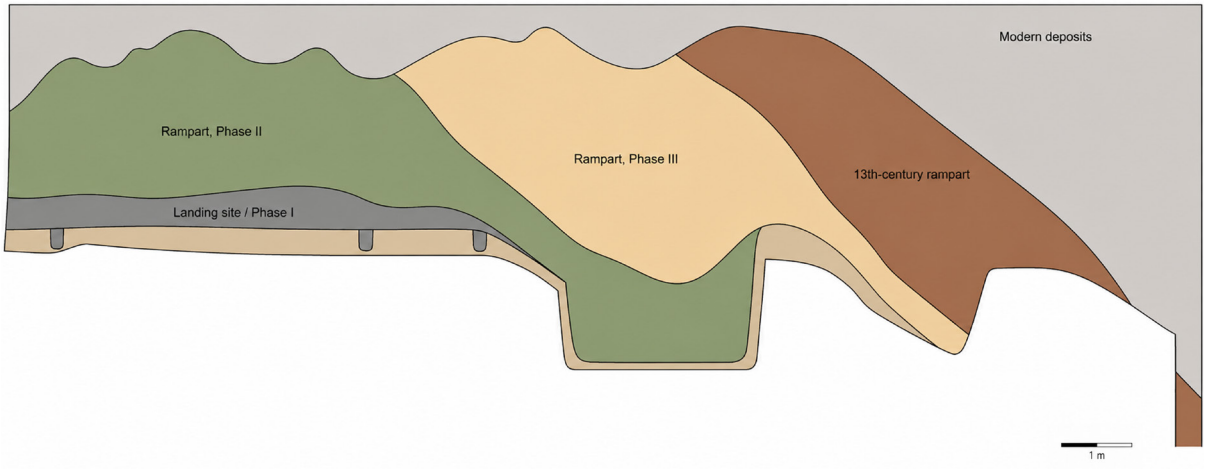


Figure 3. Section through the fortification sequence at Mejlgade 8, Aarhus. Phase I settlement deposits lie directly beneath the Phase II rampart, marking a clear stratigraphic break. The Phase III enlargement substantially increased the scale of the fortification; the later 13th-century rampart is also shown. Based on FHM 4496. The same stratigraphic sequence was previously published in Jantzen 2013, 67 (Figure: Jette Linaa).

perhaps by a slave from the Baltics (Linaa 2024, 9; Roesdahl 2023, 96–97).

In the first third of the tenth century, the Phase I structures were demolished and a rampart, approximately 10 m wide and up to 3 m in height, was constructed on top of the ruins (Linaa 2024, 9; Skov 2009, 14) (Figure 3). Phase II, *c.*AD 900–970, is characterised by this fortification, while activity within the enclosure remained low. The enclosure was closed towards the sea, a layout retained in Phase III (Linaa, *in prep.*; Skov 2003, 20, 2005, 20–21). Only domestic crafts are documented, with little evidence so far for increased settlement or exchange. Nevertheless, Aarhus is mentioned as an episcopal see in AD 948, 965 and 988 in written sources associated with the archbishopric of Bremen (Roesdahl 2023, 253–255). Any archaeological character or local manifestation of this ecclesiastical status remains unknown.

A marked change is visible in Phase III, *c.*AD 970–1050. The existing fortification was substantially enlarged and activity within the enclosure intensified. The late tenth-century sunken-featured building at Bispetorv, published separately in detail, forms part of the Phase III evidence discussed here (Out *et al.* 2025). A reconstruction of the spatial arrangement of the excavated evidence for *c.*AD 970–1000 is shown (Figure 4). Craft production continued mainly at household level, but the documented range broadened to include smithing, comb-making and limited bronze working alongside bone and antler working, textile production and woodworking. No secure evidence has so far been identified for local gold- or silver-working or for bead production.

Evidence for exchange remained limited. Only five Viking Age coins and three weights are known from the settlement, all from Phase III, including the only Islamic dirham from Aarhus. Long-distance contacts are represented by a small number of finds, including one reticella-decorated glass shard and an eye bead with a possible southern European origin. Most imported material consists of Scandinavian raw materials and objects, and the documented material profile remained predominantly local and regional in character.

Six late Viking Age runestones are known immediately west of the fortification, all dated to *c.*AD 970–1020. One commemorates a man who died at Hedeby, another a man who is commemorated by his *félagi* (fellows), while another commemorates a man who died 'when kings fought' (Roesdahl and Wilson 2006, 208–229; Runer.ku.dk *n.d.*, MJy 74, 76–79, 101). A Viking Age warrior grave has been excavated near the findspots (Høgsberg 2020; Linaa 2024, 21–22). Both the runestones and the grave are considered part of the wider settlement context in Aarhus Phase III.

Following its last tenth-century attestation in AD 988, the episcopal see was discontinued in Phase III and was re-established around AD 1060

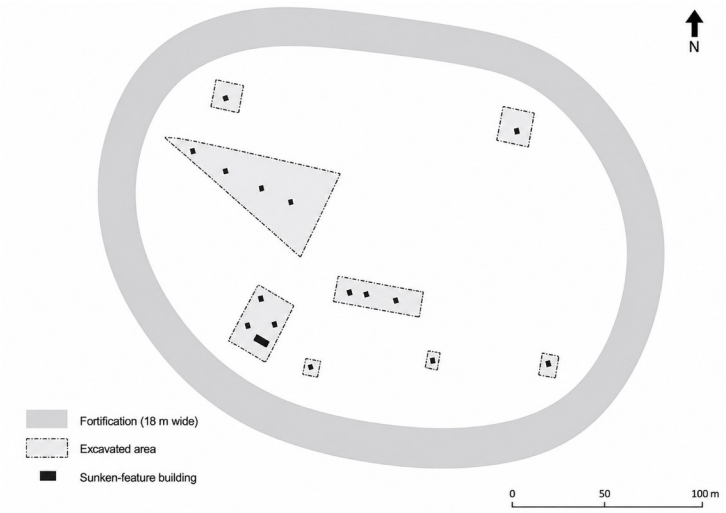


Figure 4. Schematic reconstruction of the settlement within the fortified area at Aarhus, *c.*AD 970–1000. Excavated areas are shown together with the archaeological features documented within them. Within the investigated areas, settlement remained comparatively dispersed, and no regulated plot boundaries or street grid have so far been documented (Figure: Jette Linaa. Redrawing assisted by ChatGPT (OpenAI) image generation).

(Krongaard Kristensen and Poulsen 2016, 63; Roesdahl 2023, 253, 255).

The late tenth-century refortification thus marks the point at which the archaeological record first shows sustained growth in settlement activity, a broader range of crafts and stronger evidence for exchange (Figure 5).

Northern landscape

North of Aarhus, the Egå river valley extends from the inland areas around Søften and Lisbjerg towards the coast at Egå.

At Søften, recent excavations have identified a large settlement and production area with activity extending broadly from *c.*AD 600–950. The evidence includes more than 80 sunken-featured buildings and a strong signal of textile production. Finds also include coins, silver fragments and beads. Both the chronology and the wider interpretation of the site remain preliminary (Moesgaard 2026; Prip 2026).

West and southwest of Lisbjerg, settlement is documented principally from *c.*AD 700–900, with sunken-featured buildings and post-built houses (Iversen 2017). The enclosed magnate farm at Lisbjerg Church was established after

Activity	Phase I c. 770–900	Phase II c. 900–970	Phase III c. 970–1050
Domestic crafts	●	●	●
Textile production	●	●	●
Bone and antler working	●	●	●
Comb production	–	–	●
Carpentry	–	–	●
Bronze casting	–	–	●
Specialised ironworking	–	–	●
Trade-related activities	–	–	●

● documented – not documented

Note: "Not documented" indicates absence of archaeological documentation in the selected excavations, not necessarily absence of the activity.

Figure 5. Documented craft and trade-related activities in Aarhus Phases I-III. The matrix summarises eight activity categories recorded in the selected excavations. The principal change in Phase III is the documentation of a broader range of activities within the fortified settlement. A dash indicates that an activity is not documented in the selected excavations, not necessarily that it was absent (Figure: Jette Linaa, Figure design assisted by ChatGPT (OpenAI) image generation).

*c.*AD 1000 and remained in use into the later eleventh century. The enclosure, which was renewed in three successive phases, measured approximately 170 x 110 m and covered *c.*1.9 ha (Jeppesen 2011, 139–142). A recently excavated cemetery at Lisbjerg has been provisionally dated to the second half of the tenth century. One of the graves contained a casket with metal fittings (Bundolo 2025; Moesgaard 2025). In public presentations, the cemetery has been interpreted as probably associated with the magnate farm (Moesgaard 2025). The cemetery lies approximately 1 km from the enclosed farm and, on the presently reported chronology, predates its establishment. A direct association between the two sites therefore remains uncertain.

At Elsted, the mid-ninth-century silver hoard comprised seven silver arm rings. Archaeological evidence from the surrounding area documents activity extending through the Viking Age and into the Early Middle Ages (Reher-Langberg 2024a, 2024b).

At Egå, the ninth- and tenth-century settlement included longhouses, sunken-featured buildings and evidence for textile production, carpentry and smithing. Three weights indicate exchange (Jeppesen 2005, 76–77; Linaa 2024, 11, 13). Zooarchaeological analysis documents on-site meat production (Jeppesen 2005, 78; Linaa 2024, 11).

Lastly, two runestones provide late Viking Age markers in the northern landscape. The Egå stone (MJy 67), dated to AD 970-1020, commemorates Manni, estate-steward of Ketill the Norwegian. The Vejlby stone (MJy 73) is likewise dated to AD 970–1020 (Runer.ku.dk n.d., MJy 67, 73).

Aarhus River landscape

The Aarhus River landscape contains settlement traces, cemeteries, elite burials and commemorative monuments distributed along and around the river system. Around Brabrand Lake, settlement activity is documented from the Late Germanic Iron Age and continued into the Viking Age, preceding and overlapping the sequence at the mouth of the Aarhus River (Jeppesen 2010, 55–59). The archaeological evidence is fragmentary, reflecting an uneven extent of investigation across the area.

At Voldbæk, the cemetery comprised at least 26 inhumations with sparse grave goods, and represents one of the more substantial tenth-century burial grounds presently known in the river landscape. Its main use belongs to the tenth century, although some earlier graves may be present (Jeppesen 2010, 49–50, 56–58, 82–83). A Viking Age sunken-featured building at Hougårdvej 500 m to the east provides additional evidence for settlement beneath the modern suburb (Jeppesen 2010, 59–60, 83–84; Lund 1981).

Farther east along the river valley, worked wood and a timber element interpreted as ship-related at Snekkeeng may indicate maritime activity (Linaa 2024, 4, 26; Rasmussen and Høgsberg 2021; Skamby Madsen and Vinner 2005, 95). The published evidence provides only a broad chronological and functional framework for the site.

Farther south, the mid-tenth-century equestrian burial at Fregerslev contained elaborate horse equipment, weapons and costly dress elements (Schifter Bagge, Nørgaard and Pedersen 2024, 50–61). Three Trelleborg-type houses in the same area are dated to *c.*AD 950–995, although a direct association with the burial cannot be demonstrated (Schifter Bagge 2024, 3–4, 11–13). At Ravnholt to the east, a broadly contemporary equestrian burial contained a sword, spear or lance and riding equipment, including silver-inlaid stirrups (Pedersen 2014, 94; Schifter Bagge 2016, 94; Schifter Bagge *et al.* 2024, 59).

Norsminde–Randlev/Hesselbjerg landscape

South of Aarhus, Norsminde Fjord forms the next major river valley and fjord system along the east Jutland coast. At Norsminde, metal-detector assemblages, including Islamic coins, indicate activity from the Viking Age. Farther south, the detector site at Hou has produced rich finds, including jewellery, weights and Islamic coins, indicating activity from the Viking Age into the Early Middle Ages (Jeppesen 2023a, 2023b; Linaa 2024).

At Over Randlev, a 1-1.5-hour walk south of Norsminde, excavations documented a substantial Viking Age settlement with post-built houses, sunken-featured buildings, fences and wells. One

well is dendrochronologically dated to around AD 900. The site provides particularly strong evidence for silver handling and exchange: three hoards, 27 weights and 237 Islamic coins are known, with the youngest hoard coins dating to AD 910/11 (Jeppesen 2000, 2003a, 2003b; Jeppesen and Adamsen 2005; Linaa 2024).

The nearby cemetery at Hesselbjerg is dated to the ninth and tenth centuries. More than 100 burials are documented, generally with sparse grave goods (Jeppesen 2001). Genetic evidence indicates that the cemetery did not represent an exclusively local population: one woman buried at Hesselbjerg displays a Balto-Slavic genetic profile (Margaryan *et al.* 2020, fig. 2; Supplementary Table 3).

Chronological relationship between Aarhus and the regional landscape

The principal chronological comparison used here shows the relationship between the settlement at the mouth of the Aarhus River and the regional evidence (Figure 6). The earliest regional activity precedes Aarhus Phase I: the presently reported chronology at Søften extends back into the Late Germanic Iron Age and continues well into the Viking Age, while settlement traces around Brabrand Lake also extend back into the Late Germanic Iron Age. The Elsted silver hoard dates to the mid-ninth century and is therefore contemporary with Aarhus Phase I.

During Phase II, the Voldbæk cemetery was in use, while the equestrian burials at Fregerslev and Ravnholt belong to its later part. The Lisbjerg cemetery, provisionally dated to the second half of the tenth century, may overlap the transition between Phases II and III. The regional runestones and the enclosed farm established at Lisbjerg after *c.*AD 1000 coincide with Aarhus Phase III.

Discussion

Phase I

Aarhus Phase I, *c.*AD 770–900, represents a relatively low-intensity local landing place rather than a

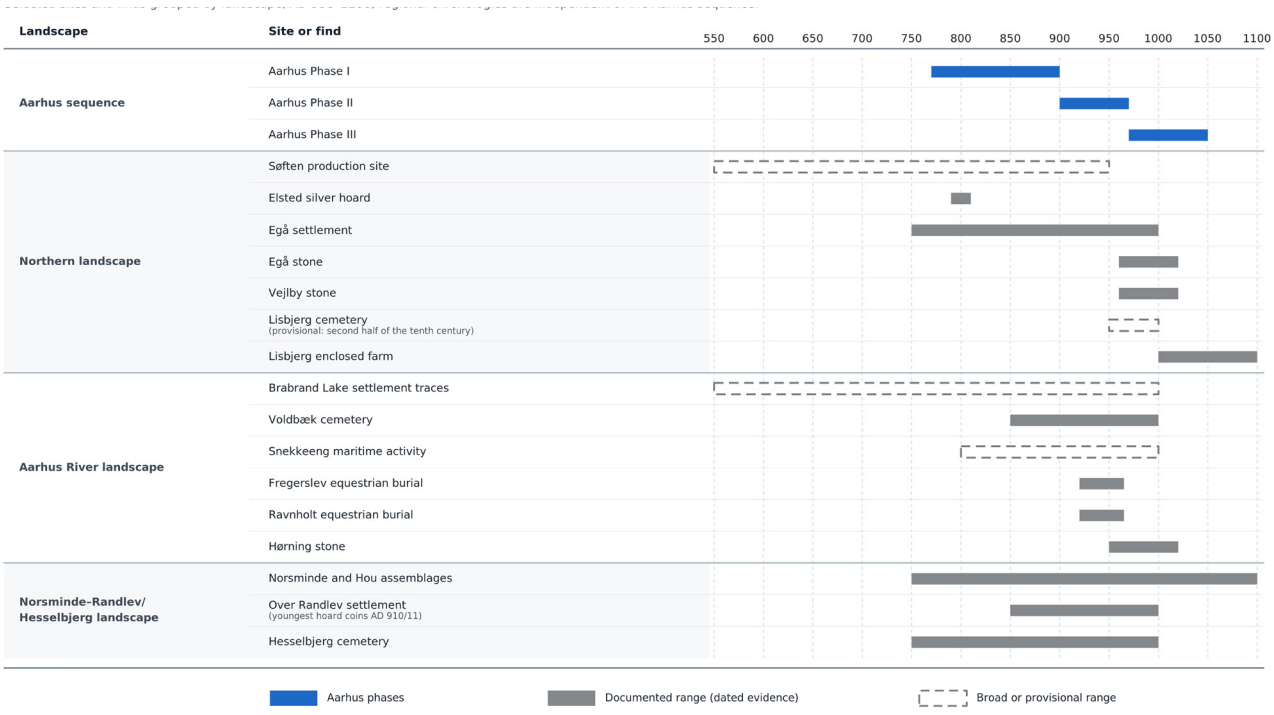


Figure 6. Chronological relationship between Aarhus Phases I-III and selected sites and finds in the surrounding landscapes, *c.*AD 550-1100. Regional sites are grouped into the northern landscape, the Aarhus River landscape and the Norsminde–Randlev/Hesselbjerg landscape. Blue bars show the three Aarhus phases; solid grey bars indicate documented chronological ranges based on dated evidence; dashed, unfilled bars indicate broad or provisional chronological ranges. The provisional date of the Lisbjerg cemetery is shown as *c.*AD 950-1000. Regional chronologies are assessed independently of the Aarhus sequence; chronological overlap indicates contemporaneity rather than demonstrated functional dependence (Figure: Jette Linaa, Figure design assisted by ChatGPT (OpenAI) image generation).

densely occupied or spatially regulated settlement. Domestic activity and small-scale craft production dominate the evidence, while contacts beyond the local and regional sphere are limited. The material therefore provides little indication of a gradual concentration of specialised production or exchange preceding the construction of the first fortification. A detailed comparison of Aarhus Phase I with the early emporia has been presented elsewhere (Linaa 2024, 19-20) and is not pursued further here.

Phase II

The construction of the first rampart in the first third of the tenth century represents a fundamental break with the preceding settlement. Yet activity within the enclosure remained sparse, with little evidence for increased settlement intensity, specialised production or exchange (Linaa 2024, 20). The scale of the investment represented by the fortification therefore contrasts markedly with the low level of activity within the enclosure and cannot simply be interpreted as the fortification of an already developing commercial town. Nor have traces that might be associated with a central residence been identified in the many excavations undertaken within the town.

The construction of the first Aarhus rampart may be viewed within a broader tenth-century horizon of fortification. Søvsø relates the defensive enclosure of Hedeby, Ribe and Aarhus to the politically unsettled period between the late ninth and mid-tenth centuries, while stressing the chronological uncertainties (Croix *et al.* 2019; Søvsø 2020, 214–215, 254). At Ribe, substantial investment in tenth-century defences likewise coincided with an unusually slight archaeological assemblage and low levels of exchange and other activity (Søvsø 2020, 207-211, 214–215). The comparison shows that fortification need not in itself indicate contemporaneous growth in settlement intensity or economic activity. The contrast between the substantial investment in the fortification and the limited activity within it makes a strategic or political role for the enclosure a plausible interpretation. Its position at the mouth of the Aarhus River offered a potential point of control over access between the coast and the river system towards Brabrand Lake, as well as the north–south coastal route crossing the river. The precise function of the fortification and the authority responsible nevertheless remain unidentified.

Aarhus is mentioned as an episcopal seat in AD 948 in written sources associated with the archbishopric of Bremen, but any local manifestation of this status remains unknown. Neither the fortification nor this written institutional designation can in itself be taken as evidence of intensive urban occupation, nor does the episcopal status necessarily imply that the bishop's residence and associated institutional functions were already physically concentrated within the enclosed settlement. Jeppesen *et al.* (1996, 171) note a much later tradition that Aarhus was moved from Lisbjerg in 1102 and suggest, very tentatively, that this could preserve a memory of the episcopal residence being transferred from Lisbjerg to Aarhus. They explicitly stress that the archaeological evidence does not resolve the question. The suggestion is therefore treated here only as a possibility concerning institutional spatiality, not as evidence that Lisbjerg was the episcopal see in the tenth century. The archaeological changes more clearly associated with sustained settlement and a broader range of activities belong only to Aarhus Phase III.

Phase III: fortification, functions and urbanisation

The substantial enlargement of the fortification in Aarhus Phase III, *c.*AD 970-1050, coincided with intensified occupation and a broader combination of activities within the enclosure. Occupation nevertheless remained comparatively dispersed, with no documented plot regulation or street grid, while specialised production and long-distance exchange remained limited. The overall material profile was still predominantly local and regional. The few non-local objects from Aarhus Phase III may reflect sporadic rather than sustained long-distance contacts with people connected to Hedeby (Hilberg 2020, 260–263; Linaa 2024, 19–20).

Institutional developments provide a further dimension of the Phase II and III evidence. The episcopal status documented from AD 948 adds an institutional dimension to Phase II, but its

archaeological manifestation remains unknown. It therefore cannot in itself be taken as evidence of intensive occupation or of the physical concentration of ecclesiastical functions within the enclosure (Krongaard Kristensen and Poulsen 2016, 63). An early church has been proposed beneath or close to the later cathedral of St Nikolaj, now the Church of Our Lady, immediately west of the fortified enclosure, but this remains unconfirmed (Jantzen 2013, 35; Søvsø 2020, 240).

Aarhus Phase III also contains recurrent, though still limited, evidence associated with martial activity, including chainmail, riding equipment, weapons and a warrior grave with shield and axe, signalling power and status (Pedersen 2014, 201, 204). The contemporary runestones immediately west of the fortification add maritime and martial associations, including ownership of a ship, the placename Hedeby and the commemoration of a man who died in battle (Runer.ku.dk *n.d.*, MJy 74, 76–79, 101). Further evidence for violence includes a human body deposited in a late tenth-century sunken-featured building and a male skull from Rosensgade bearing a fatal sword blow (Andersen, Crabb and Madsen 1971, 46; Larsen 2001, 10–11). Together, these finds make martial associations a distinct element of the Phase III evidence. Taken together with the scale of the fortification and the documented ecclesiastical status, these observations caution against equating the predominantly local and regional material profile with correspondingly limited strategic or institutional significance.

The enlargement of the Aarhus fortification around AD 970 was broadly contemporary with the construction of the Danish ring fortresses in the later 970s and early 980s, part of a wider period of large-scale, highly organised building activity (Roesdahl 2023, 121–127). Aarhus shared with the ring fortresses a location at a major point of access from the sea, but differed markedly in the history, construction and organisation of its fortification. The late tenth-century rampart enlarged an existing early tenth-century fortification rather than creating a new geometrically planned enclosure, and Aarhus lacked the regular layout and highly regulated internal organisation of the ring fortresses (Roesdahl and Sindbæk 2014, 435–464; Sindbæk 2020, 532, 538–540). The comparison therefore indicates similarities in strategic location and broadly contemporary investment in fortification rather than architectural or functional equivalence.

The enlargement of the rampart required the mobilisation of substantial quantities of turf and soil and considerable labour. At this scale, it demonstrates a capacity to organise resources and manpower, without in itself determining the function of the enclosed settlement (Roesdahl 2023, 121–127).

Aarhus and the regional landscapes

The chronological comparison (Figure 6) shows that settlement, production, exchange, burial and elite activity in the surrounding landscapes both preceded and overlapped the Aarhus sequence. Such chronological overlap, however, does not in itself demonstrate functional dependence.

The northern landscape

The presently reported chronology at Søften begins before the Phase I landing place at Aarhus and extends to around AD 950, before the beginning of Phase III. The production documented at Søften therefore appears to pre-date the river-mouth settlement and does not presently support an interpretation as production organised to supply the intensified Phase III settlement at Aarhus.

Some of these activities, notably the Elsted silver deposition, preceded the later intensification at the river-mouth settlement. The Elsted hoard documents objects with wide geographical connections in the regional landscape in the mid-ninth century. Taken together, the evidence suggests that economic and social organisation in the northern landscape was not simply dependent on Aarhus. Later interaction is possible, but the present evidence does not allow such relationships to be reconstructed in detail.

The Aarhus River and south-western landscape

The Aarhus River landscape shows that martial elites were present beyond the river-mouth

settlement. The equestrian burials at Fregerslev and Ravnholt provide strong evidence for such groups during Aarhus Phase II. In a wider Danish context, equestrian burials of this period are associated with prominent social groups, without requiring their identification as royal officials or representatives of a single political organisation (Pedersen 2021, 134–135). The Fregerslev and Ravnholt burials therefore demonstrate the presence of martial elites in the regional landscape at a time when activity within the fortified enclosure remained limited

The river system also provided routes of movement between the coast and the inland landscape, as indicated by the maritime evidence from Snekkeeng. The evidence for martial elites was therefore not concentrated within the fortified settlement during Aarhus Phase II.

The Norsminde–Randlev/Hesselbjerg landscape

The Norsminde–Randlev/Hesselbjerg landscape provides particularly clear evidence for silver handling and long-distance exchange in the wider region, in contrast to the limited evidence from the Aarhus river-mouth settlement. At the inland settlement of Over Randlev, silver handling, weighing and accumulation are strongly represented during Aarhus Phases I–II, with three hoards and 27 weights, whereas only three Viking Age weights are known from the river-mouth settlement, all from Aarhus Phase III (Jeppesen 2000, 2003b; Jeppesen and Adamsen 2005; Linaa 2024). The contrast is therefore both quantitative and chronological.

The rich but unpublished metal-detector assemblages at Norsminde and Hou further demonstrate activity at coastal localities in the southern part of the region. At both sites, the use of weights and the presence of Islamic coins indicate participation in exchange and the arrival of long-distance silver (Jeppesen 2023a, 2023b; Linaa 2024).

Regional coexistence and differentiation

Although the regional record is unevenly investigated and further excavation within Aarhus is severely constrained, the available evidence shows that production, exchange, burial and elite activity continued outside the fortified settlement during phase III.

The distribution of several runestones may reflect routes of movement through the landscape. The Egå and Vejlby stones lie close to the coastal corridor north of Aarhus, while the Hørning stone is situated in the south-western landscape. Although the precise courses of Viking Age roads cannot be securely reconstructed, their locations are consistent with the wider use of runestones as markers along places of movement (Roesdahl 2023, 77).

Lordship and power likewise remained rooted in the regional landscape. The magnate farm at Lisbjerg, established after *c.*AD 1000, demonstrates the continued presence of lordship in the regional landscape during Aarhus Phase III (Jeppesen 2011, 137–145). Lisbjerg also represents the other major monumental complex presently documented in the immediate Aarhus region around AD 1000. The *c.*1.9 ha magnate farm was enclosed by a substantial palisade, whose construction required a considerable investment of timber and labour. Although fundamentally different in form and construction from the Aarhus fortification, Lisbjerg demonstrates that the capacity to mobilise substantial resources for large-scale construction existed at more than one location within the regional landscape. More generally, Viking Age lordship could be organised through wider relationships between settlements, land and resources rather than being concentrated at a single site (Sindbæk 2011, 97–118). The development of the river-mouth settlement therefore did not entail a simple concentration of lordship or power within the enclosure.

The contemporary high-status complex at Lisbjerg illustrates that elite activity continued in the surrounding landscape during Aarhus Phase III. The development of Aarhus during Phase III is therefore best understood as a growing combination of functions within the fortified settlement alongside continuing regional production, exchange and lordship. This pattern does not indicate that regional production was organised or channelled through Aarhus for onward exchange.

Comparative perspective: Aarhus and contemporary Scandinavian centres

Aarhus Phase I, *c.*AD 770–900, shares some characteristics with contemporary coastal settlements and landing places, but lacks several features documented at more substantial sites such as Aggersborg and Vester Egesborg, including weighing equipment, concentrated production debris and imported ceramics (Sindbæk 2009, 100; Ulriksen 2018, 214–215, 340–345, 409–413). As argued in Linaa (2024, 19–20), it appears to have been a relatively modest local landing place rather than a major node for specialised production or interregional exchange.

Aarhus Phase II, *c.*AD 900–970, marks a clear disruption of the earlier landing place. As discussed above, the first rampart belongs to a broader tenth-century horizon of fortification also represented at Ribe and Hedeby, but the individual chronologies and settlement contexts differ. The Aarhus enclosure remained sparsely occupied, while at Ribe substantial defensive investment likewise coincided with comparatively limited tenth-century archaeological activity (Søvsø 2020, 207–211, 214–215). These comparisons caution against treating fortification as evidence of a common developmental trajectory. The comparison becomes broader in Phase III, *c.*AD 970–1050, when activity within the enclosure intensified and a wider range of functions became documented. Ribe and Hedeby are considered alongside Odense, Aalborg, Lund, Sigtuna and Trondheim to place the development of Aarhus within the wider range of urban trajectories around AD 1000. The comparison therefore focuses on how settlement, exchange, production and institutional functions were combined in different centres.

For Aarhus Phase III, Ribe and Hedeby provide important contrasts. Both Aarhus Phase III and Hedeby show evidence of a martial presence, but at Hedeby, a wide range of non-local objects documents continuing long-distance trade and access to luxury goods, whereas the Phase III material from the Aarhus river-mouth settlement remained predominantly local and regional (Hilberg 2020, 260–263; Maixner 2010, 136–151; Roesdahl 2021, 252; Søvsø 2020, 236–238, 243). Ribe had a much stronger tradition of specialised production and exchange than the contemporary phases at Aarhus, although the tenth-century archaeological assemblage at Ribe was unusually slight relative to both the preceding and subsequent periods (Søvsø 2020, 207–211). Both centres also show a degree of spatial organisation not documented at Aarhus (Maixner 2010, 18–19; Roesdahl 2021, 252; Søvsø 2020, 233–234). Aarhus Phase III therefore represents neither the economic intensity nor the spatial organisation documented at these established centres (Linaa 2024, 19–20).

Odense provides a particularly useful comparison. At Odense, permanent and partly specialised activity preceded AD 1000, while the late tenth and early eleventh centuries saw a clearer concentration of royal and ecclesiastical functions (Roesdahl 2023, 260–61; Søvsø 2020, 247–249). Runge 2021 and Runge and Henriksen show that central functions had previously been distributed among numerous metal-rich sites and possible landing places around Odense Fjord rather than concentrated at a single locality (Runge 2021, 295–298; Runge and Henriksen 2018, 7–8). They therefore interpret the development of Odense as a gradual concentration of functions within an already differentiated regional landscape, an interpretation subsequently developed within the wider *From Central Space to Urban Place* project (Runge 2021, 306, 310–312; Runge and Henriksen 2018, 15–22). This provides a useful parallel to the regional pattern around the Aarhus river-mouth settlement, although the chronology and combination of functions differ.

Aalborg followed another trajectory. By around AD 900, broadly contemporary with Aarhus Phase II, the settlement had acquired a marked commercial and craft character, including a parcelled market area within a wider Limfjord landscape of specialised production and maritime exchange (Jensen 2021, 134–145; Runge 2021, 312–313). Other important regional functions nevertheless remained spatially separate; most conspicuously, the late tenth-century royal and military complex at Aggersborg lay elsewhere in the Limfjord region (Roesdahl and Sindbæk 2014, 387–390; Sindbæk 2024a). Aalborg therefore demonstrates that substantial economic activity could develop without the simultaneous concentration of all major regional functions at one locality.

Lund offers a further contemporary comparison. Its earliest securely dated Christian burial evidence belongs to the late tenth century and thus overlaps the beginning of Aarhus Phase III. The earliest settlement appears to have consisted of relatively large plots with large, farmstead-like buildings, while evidence for trade and specialised craft production remained limited. During the eleventh century, settlement expanded and became more clearly organised, with smaller plots aligned along the principal streets, alongside the development of ecclesiastical institutions and royal minting (Johansson Hervén 2008, 263, 266–268; Krongaard Kristensen and Poulsen 2016, 52-53, 63–64; Roesdahl 2023, 255; Søvsø 2020, 251). Lund therefore shows that strong ecclesiastical and political significance around AD 1000 did not necessarily coincide immediately with intensive commercial activity.

Sigtuna provides one of the closest chronological parallels to Aarhus Phase III. Established *c.*AD 970-985, it belongs to the same broad chronological horizon as the late tenth-century transformation at the Aarhus river-mouth settlement (Zachrisson 2020, 268). From its earliest phases, Sigtuna was densely built and organised in a regular plot structure, while around AD 1000 the settlement was reorganised along the main street, Stora gatan. Early Sigtuna has also been interpreted as a probable royal political arena (Tesch 2016, 118–123; Zachrisson 2020, 278). No comparable spatial regulation is presently documented at the Aarhus river-mouth settlement.

Trondheim provides a different parallel. The kaupang settlement at Nidarneset was established during the tenth century, overlapping the later part of Aarhus Phase II and the beginning of Phase III (Cadamarteri *et al.* 2020, 51–52; Christophersen and Nordeide 1994, 290). It developed within a landscape with a much longer history of occupation, and substantial settlement activity preceded the formation of the medieval town (Cadamarteri *et al.* 2020, 51–65). Subsequent development involved the emergence of royal, ecclesiastical and urban areas within different parts of Nidarneset (McLees 2023, 214–221). Trondheim therefore provides an example of urbanisation through the reorganisation of an already occupied landscape rather than the creation of an isolated new centre.

These comparisons show considerable variation among Scandinavian towns around AD 1000. Odense illustrates the gradual concentration of functions within an already differentiated regional landscape; Aalborg shows that strong commercial and craft activity could coexist with the regional dispersal of other major functions; Lund demonstrates that ecclesiastical and political significance did not immediately require intensive commercial activity; Sigtuna developed a markedly regulated spatial structure; and Trondheim emerged through the reorganisation of an already occupied landscape. Compared with the established centres of Ribe and Hedeby, these centres generally show more limited evidence for long-distance exchange and specialised craft production during their early urban phases, although their scale and chronology varied considerably (Søvsø 2020, 252–255). In this respect, the predominantly local and regional material profile of Aarhus Phase III is not exceptional, but falls within the broader range documented among contemporary Scandinavian centres.

Aarhus Phase III nevertheless represents a distinct combination of these developments. During Phase III, occupation intensified and craft, exchange and martial activities became more clearly combined within the fortified settlement, while ecclesiastical status formed part of the wider institutional context. Settlement remained comparatively dispersed and no regulated street or plot system is presently documented. The comparison therefore places Aarhus within the varied urban transformations around AD 1000 without requiring it to conform to a single developmental model.

Urban differentiation and urban identity

Following Dahlström, urbanisation is understood here as a gradual and potentially fluctuating process in which different urban characteristics, including urban identity, may emerge at different times (Dahlström 2013, 144; Dahlström, Poulsen and Olsen 2018, 69–70).

Urban identity describes the degree to which life at a settlement became materially distinguishable from life in the surrounding countryside through spatial organisation, economic practices, institutional structures and recurring

everyday practices (Dahlström and Haase 2024, 99–101, 111; Linaa 2016, 165–168). These dimensions need not emerge simultaneously and may follow partly independent trajectories; urban identity is therefore treated as a matter of degree rather than a binary condition.

At Aarhus, these dimensions emerged at different times and did not develop continuously. Fortification was established in the early tenth century, while ecclesiastical status is documented from AD 948. More explicit evidence for royal authority, in the form of royal minting, belongs to the second quarter of the eleventh century. Both ecclesiastical status and royal minting were subsequently interrupted and later re-established; royal minting resumed around AD 1150–1160 before ceasing again for approximately four centuries (Jantzen 2013, 121). Urban characteristics could therefore appear, disappear and re-emerge rather than accumulate continuously.

Changes in everyday practices were slower. In Phase III, imported ceramics and other non-local objects associated with domestic consumption remained rare, and material practices remained predominantly local and regional. Imported raw materials and utilitarian objects were not absent: Norwegian whetstones, quernstones and soapstone vessels were used across the region much like locally produced objects and are therefore less useful indicators of specifically urban consumption. A more specifically urban pattern of consumption is not clearly identifiable until the Middle Ages (Linaa 2016, 168172).

The late eleventh- and twelfth-century settlement shows little evidence of further urban development. More formalised spatial organisation, including town plots and a regulated street grid, as well as denser occupation, stronger long-distance exchange, imported goods in everyday consumption and a more distinct institutional framework, become substantially more conspicuous only during the thirteenth century (Jantzen 2013, 145; Linaa 2016, 165168).

Urban identity at Aarhus therefore emerged through the gradual convergence of material, spatial, economic and institutional differentiation from the surrounding region. Some characteristics, including episcopal status, were present in the tenth century, but the broader process remained uneven and continued into the thirteenth century.

Conclusion

The settlement that later grew into Aarhus developed gradually and discontinuously between the late eighth and mid-eleventh centuries. Phase I represents a landing place with local settlement and small-scale craft activities. The most marked transformation occurred during Phase III, *c.*AD 970-1050, when the fortification was substantially enlarged, settlement activity intensified and a broader range of craft, exchange and martial activities became documented. Occupation nevertheless remained comparatively dispersed and the material profile remained predominantly local and regional; no spatial regulation has so far been documented.

The regional evidence places the emerging town within a landscape where economic activity, exchange and lordship remained distributed across several localities. Some regional activities were already established before *c.*AD 770, preceding Aarhus Phase I. During Aarhus Phases I–II, when activity at the river-mouth settlement remained limited, production, exchange, burial, silver accumulation and expressions of lordship and military power were distributed across several localities in the surrounding landscape, and these activities continued into Phase III. The contemporary magnate farm at Lisbjerg further demonstrates that the capacity to mobilise substantial resources for monumental construction was not confined to Aarhus. The principal change during Phase III was therefore the increasing combination of settlement, ecclesiastical status, craft production, local and regional exchange and martial activity within the enclosure, rather than the concentration of regional production, exchange and lordship at Aarhus.

In this respect, Aarhus forms part of the varied urban transformations taking place in Scandinavia around AD 1000. Like several contemporary centres, it combined a growing range of urban strategic and institutional characteristics while retaining comparatively limited evidence for long-distance exchange and specialised production. Urbanisation at Aarhus was therefore neither a single event nor

a linear accumulation of functions. Individual urban characteristics appeared at different times, and some were interrupted, reversed or re-established. A more distinct urban identity emerged only gradually as the settlement became materially, spatially, economically, legally and institutionally differentiated from the surrounding region, a process that extended well into the thirteenth century.

Seen in chronological and regional perspective, Aarhus developed through the gradual combination of functions within the river-mouth settlement, alongside continuing production, exchange and elite activity in the surrounding landscape.

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