VIKING DYNASTIES

The Royal Families of Lejre and Uppsala
Between Archaeology and Text

Edited by Tom Christensen, John Ljungkvist & Neil Price,

Julie Nielsen, Rudolf Gustavsson, Daniel Sävborg, Niels Lund, Ole Thirup Kastholm, Sandie Holst, Per Frölund, Daniel Löwenborg & Emma Sjöling

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Contents

Viking Dynasties

Archaeological sagas and material histories

Neil Price, Tom Christensen & John Ljungkvist

This volume presents the results of a five-year Danish-Swedish collaborative research project, set up as a joint venture between the National Museum of Denmark and Uppsala University, with generous sponsorship from the KrogagerFonden. The project's aim has been to bring together two arenas of debate that have operated largely independently for over a century, namely the archaeological and textual analyses of the early Scandinavian kingdoms focussed on the central places of Gammel Lejre and Gamla Uppsala. According to either legend or history (and the balance between those terms lies at the heart of this research), these sites were associated with two royal families, the Scyldings and the Ynglings, each of whom would leaving a lasting mark on the literary, heroic, and mythological narratives of the North.

The background and inspiration for the project can be found in the very successful long-term collaboration between the archaeological research programme at Lejre run by Tom Christensen of ROMU, and the KrogagerFonden. In 2015 this resulted in the monumental standard work *Lejre bag myten*, building on years of smaller publications and public outreach. This work naturally concentrated on the site of Lejre itself, the royal halls and the features of their immediate hinterland. The present project expanded the focus to the larger political environment of the time – the context within which Lejre came into being – and to include its closest equivalent contemporary in Sweden, the royal seat and monumental landscape of Gamla Uppsala. As a result, the project has entailed a collaboration between the existing Lejre team and the Uppsala University researchers who have for many years been investigating the Gamla Uppsala site.

Conscious of the difficulties inherent in the term, but using it with a deliberate eye to its future ramifications in Scandinavian history, we here explore the interactions and conflicts between the Viking dynasties of Lejre and Uppsala.

The research background

The royal families of Lejre and Uppsala are hardly unknown to history, and indeed have been part of the national(ist) folklore of the Nordic countries for centuries. However, there are almost no contemporary textual sources that describe their activities (and none from inside Scandinavia), forcing a reliance on writers at removes of both distance and culture. The sources themselves are remarkably numerous and need little introduction, spanning everything from poetic epic and retrospective historical (and mythological) construct, to Eddic verse, saga narrative, the work of ecclesiastical chroniclers, political spin, and more. At the same time, scholarly trends in the interpretation of such texts have moved through cycles of source critical emphasis that have spanned the full bandwidth from extreme credulity to the total rejection of any genuine historical content.

Some of the earliest texts, though preserved in later manuscripts, are in verse. In a class of its own is naturally *Beowulf*, perhaps the quintessential literary expression of hall culture, royal prestige display, and its social context, combined with a long-form relation of dynastic politics in Denmark and the western Baltic. Debates on the poem's dating form almost a research field in their own right, but a broad consen-

sus suggests composition sometime in the 8th century, with the sole manuscript created around the turn of the 1st millennium; there are also dissenting scholarly voices that favour alternative dates across this whole chronological span. The 10th-century English poem *Widsið* includes a perplexing list of peoples and their rulers (and also perhaps the earliest record of the term 'Viking'), with tangled connections to other sources including *Beowulf*.[1]

The Continental texts include documentary annals and formal, commissioned histories. Early Scandinavian monarchs are mentioned in sources such as Gregory of Tours' 6th-century *Historia Francorum*, echoed in the 8th century with the *Liber Historia Francorum*. Kings of the early Viking Age, and on into the 9th and 10th centuries, also appear in the *Annales Regni Francorum*, *Annales Bertiniani*, and the *Annales Fuldenses*, amongst others. Across the Channel, Viking leaders and a shadowy sense of Scandinavian politics feature in the various versions of the *Anglo-Saxon Chronicle*. In a different, more personal context, similar figures are encountered in works such as Rimbert's *Vita Anskarii*, and in a number of important clerical accounts from the tenth and eleventh centuries, including the work of Widukind of Corvey, Thietmar of Merseburg, and of course Adam of Bremen.[2]

In the 12th century, we see the first clear indications of the Nordic nations beginning to take an active interest in their own history, evident in work such as Ari Þorgilsson's Íslendingabók (c. 1130) with its concluding genealogy. More overtly political in their royal connections were the *Historia Norwegiae* and *Chronicon Lethrense*, both from c. 1170 and *inter alia* concerned with the early dynasties. Sven Aggesen's late 12th-century *Brevis historia regnum Dacie* traces the Danish line back to King Skiold, and was clearly among the sources for Saxo's more comprehensive and fundamental work *Gesta Danorum*; compiled some decades later, Saxo extends the narrative to include the Svear.[3]

Perhaps the most hotly debated source of all probably dates to around 900 but is preserved only in an early 13th-century text in part built around it. Þjóðólfr of Hvinir composed his *Ynglingatal* for a Vestfold chieftain, and it is our most comprehensive descriptive list of the dynasty's members and their deeds. It is contained within Snorri's *Ynglinga saga*, the first part of his *Heimskringla*, that embellishes the story, and also draws heavily on a now-lost but vital text, the *Skjöldunga saga*.[4] Along with Eyvindr Skáldaspillir's *Háleygjatal* from the late 10th century, these texts form the problematic core material for the legendary ancestors of the better-known, historical kings of the Viking Age.[5] To these may be added the mid-13th-century Danish and Norwegian regnal lists of the so-called *Langfeðgatal* (preserved in Árni Magnússon's 18th-century copy),[6] which comprise what Faulkes has called "the earliest stage of royal genealogy in Icelandic prose sources", in his opinion almost entirely literary constructs, perhaps using English models.[7]

After Snorri, the kings – especially of the so-called House of Munsö, descended from the semi-legendary Bjǫrn Járnsíða – appear in various guises (and with diminishing scholarly returns in terms of historical value) in the corpus of legendary sagas, including *Hrólfs saga kraka* and especially *Hervarar saga ok Heiðreks*, amongst others. Individual rulers and realms are also briefly referenced in Eddic verse such as *Grottasǫngr*, as well as in other later medieval poems and sagas.[8]

It is only relatively recently – in the last few decades, and latterly at an accelerating pace – that archaeology has been viably added to this complex textual mix, with comprehensive (and well-published) excavations at elite sites of the kind familiar from the written sources. This in turn has led to new evaluations of the links between the material and textual record, both by archaeologists, historians, and specialists in Old Norse prose.

In part, the archaeological advances of this period have focused on high-status hall complexes that might equate with 'magnate'-level households (with all appropriate interpretive caveats), but still below the residences of these fledgling monarchs.[9] From Tissø in Denmark, to Swedish Uppland, the central lake lands, even in the Norwegian Arctic, similar patterns of local power were detected again and again, often combined with cultic and sacral elements in the built environment and monumentalized landscape.[10] These in turn were compared to the written sources on cultic functionaries and ritual specialists, and not least to the genealogies that purported to demonstrate a divine lineage for sacral kings.[11]

However, while cult sites and elite halls certainly appear in the literature, the potential for direct comparisons and correctives came with the excavation of the presumed royal enclosures. At Lejre, for example, there is a long pedigree of textual analysis in relation to the real or imagined seat of the early Danish kings.[12] Similarly, the final report on the long campaigns of excavations at Lejre was prefaced by an extensive review of the relevant written sources.[13] Gamla Uppsala has a comparable tradition of textual analysis, touching upon many of the same sources as Lejre. Debate has progressed from a long and lively history of antiquarian speculation[14] to early 20th-century collaborations between archaeologists and philologists.[15] More recently, large-scale programmes of rescue excavations and research projects have provided an opportunity for re-evaluation and also new inter-disciplinary collaborations, to which we return below and later in this volume.

Alongside the work at our two principal sites, and interestingly in view of our project's geographical focus, one of the liveliest discussions of recent years has concerned the archaeo-historical debate on state formation and early medieval power structures in Norway. These questions were raised in direct connection to archaeological fieldwork as part of the renewed programme of excavations at Kaupang (Skíringssalr), beginning in 2003 under the direction of Dagfinn Skre.[16] Having charted the history of antiquarian and philological interest in the site from the 18th century onwards, Skre devoted particular attention to the revisionist approach to *Ynglingatal* that had then been recently published by Claus Krag, who argued against Snorri's attribution of its authorship to Þjóðólfr and that the poem in fact dated from the 12th century.[17] Krag's suggestion was from the start embedded in his ideas about Vestfold's role in the *riks-samling*, the consolidation of the state or kingdom, that was one of the dominant themes of 1990s' research in Norway, and to a limited extent elsewhere in Scandinavia.[18] In rejecting the later composition and adhering to the date of c. 900 that had been accepted for more than sixty years,[19] Skre aligned with historians sceptical of Krag's ideas but crucially also marshalled archaeological evidence in support of the 'traditional' date.[20] Skre's interdisciplinary correlation of source material, in the context of larger studies of early kingship and state formation, was truly ground-breaking and probably stands as a definitive turning point.[21] His arguments were inevitably focussed on Norwegian issues, and also on sites that were not in the same category as the 'palace' complexes at Lejre and Gamla Uppsala, but crucially they explore the wider political interactions of the regions, and the intertwined dynastic propaganda of their royal families.

As excavations continued on elite sites, hall-based enclosures and market centres all over Scandinavia in the years after the Kaupang publications began to appear, the intersectional debate on textual and archaeological perspectives intensified. Focused on the possibility of achieving a finer grain of resolution around the writing of a genuine history of the Late Iron Age kingdoms, the work gained new impetus during this time with excavations at the indubitably royal site of Harald Bluetooth's Jelling. Beginning in 2008, the year after Skre's publication, the large-scale campaigns at the 10th-century 'capital' revealed new archaeological realities of the same socio-political processes, a couple of centuries further ahead.[22] As the Jelling fieldwork drew to a close, the primary Lejre report was being prepared and appeared in 2015, as above, the same year as Bjørn Myhre's posthumous book on Borre appeared, *also* with an extensive re-evaluation of the written sources for the early dynasties.[23] As these varying strands of interdisciplinary research converged, the stage was set for the present project, on which discussions began in 2016.

The project aims, structure, and parameters

The objectives of the *Viking Dynasties* project centre on the challenges of combining evidence from archaeology and textual sources in this critical period of socio-political transformation in Scandinavian history. Drawing on earlier multi-disciplinary research, we have attempted to reconcile these varied strands of enquiry to shape a new and integrated understanding of royal power in its 'dynastic' context (whether real or claimed) as it developed in the centuries leading to the Viking Age.

The project is structured in multiple phases, built around different pathways to address these interpretational problems. Throughout the project, we have consciously *not* striven for consensus as an end in itself, believing that constructive and engaged debate

is far more likely to lead to research progress than setting out yet another set of dogmatic entrenchments. Though directed by three archaeologists, *Viking Dynasties* is above all a critical, interdisciplinary conversation.

The core of the project is nonetheless based on new fieldwork, in the form of targeted excavations at Lejre and Gamla Uppsala. Our primary objective here was to explore the deeper connections and synergies between the two dynasties and the way in which they manifested their power in the landscapes of the respective sites. Through close collaboration, mutual site visits, and discussions while the fieldwork was in progress, we also aimed to integrate our archaeological perspectives, to identify common patterns between the sites, and to reveal the ways in which they deviate from one another.

Three elements are uppermost in this work:

- The links between power and family, and their dynastic constructions.
- Ritual motifs in place and space, the role of symbols in action.
- Echoes of our early royal centres in those of the later Viking Age.

While we do not devote explicit chapters or sections to each of them, they are all three interlaced throughout the project, combining to create a larger picture of the palatial sites in interdisciplinary context.

Both sites obviously have histories of archaeological investigation stretching back many decades, and in basic form, even centuries. The first task of the excavation phase was therefore the production of relatively brief but comprehensive synthetic overviews of this archaeological picture, presented in the form of direct comparison and interplay between the sites. The compilation of full bibliographies for the two royal centres formed part of this work, and the combined references for this present volume function as such a resource.

The project fieldwork was not intended to merely 'dig more' of these key sites, but to specifically explore the parameters of research into the Scyldings and the Ynglings as per the overall objectives: we have tried to combine (and contrast) what we know with what we do not, and to set out clear pathways to the expansion of our knowledge. Among the themes we identified was a search for the ritual landscape of the royal centres – where is the archaeology of the cult activities that we are certain took place there, and is it possible to locate it? How was the power of these sites delineated, through boundaries, catchments and the spatial components of monumentality? The trajectory of myth-making – including its material manifestations – needed to be explicitly addressed, so as to understand *how* these sites came to occupy their present place in the historical and popular imagination.

At Lejre, the new excavations explored structures and areas of the site associated with ritual activities:

- Investigation of Kirkehøj and its surroundings.
- Elucidation of the great palisaded enclosure and its gateways.

At Gamla Uppsala, the task was focused on continued excavation of the final-phase royal hall itself, aiming to:

- *Uncover the full extent of the final-phase hall.*
- *Excavate a section through northern, disturbed profile of the terrace.*
- *Obtain a better understanding of the northern entrances and to gather a broader sample of their iron decorations.*

Other activities and studies deriving from the fieldwork, and previous investigations, included:

- *Comparative osteological analyses of animal bones, patterns of consumption and sacrifice.*
- *Production of phased plans with detailed distributions and artefact comparisons.*
- *Iconographies of elite ritual.*
- *Imports and luxury crafts of the royal centres: Lejre (imported ceramics); Gamla Uppsala (garnet industries); general finds analysis.*
- *Iron and the role of the metal-smith in the royal centres.*
- *Communications: connecting the royal centres.*
- *Transitions: to kingdoms and Christianity.*

These excavations have each resulted in technical, archive reports submitted to the relevant local authorities in Denmark and Sweden, but their discoveries and conclusions are also presented in detail across several chapters of the present volume. For Lejre, these have been prepared by co-director Tom Christensen and by Julie Nielsen, Katrine Ipsen Kjær and Emil Winther Struve (ROMU), general managers for the excavations. At Gamla Uppsala, the reports have been prepared by co-director John Ljungkvist, in collaboration with excavation co-director Per Frölund (Upplands Museum), together with Rudolf Gustavsson and Emma Sjöling (SAU) for the osteology and Daniel Löwenborg (Uppsala University) for GIS analysis.

Physical connection and movement are of course crucial factors in linkages between the sites, and the maritime world of the early dynasties is explored below by Ole Kastholm (ROMU). Such interactions are of course paralleled by more intangible forms of communication, and the project also included an extended analysis of the symbolic language of power at these sites, presented below by co-director Neil Price. Lejre and Gamla Uppsala did not exist in isolation, either within Scandinavia or beyond. With this in mind, Sandie Holst (National Museum of Denmark) compares the court of Charlemagne at Aachen with the Andalusian palace complex of Madīnat al-Zahrā', tracing similarities and differences with their Northern contemporaries.

We also needed to archaeologically untangle the wider connections and networks of the royal families, for example their links with Norway, and not least the contemporary Wuffingas of East Anglia, made famous by the discoveries at Sutton Hoo. The three co-directors present our ideas in this vein in a discrete chapter.

In tandem with the new fieldwork, the project also commissioned a set of reflections on the written sources, in the form of two monumental studies from Niels Lund (Copenhagen) and Daniel Sävborg (Tartu). From their different and sometimes contrasting perspectives, they cast a clear, sceptical eye over the Late Iron Age kings of Denmark and Sweden, re-evaluating the texts in the light of recent studies. Their analyses in this volume represent the state of the art, combining detailed histories of research with innovative approaches and interpretations.

External studies

Alongside the general continuing research outputs of Late Iron Age studies, during the life of the project several major developments have occurred with a direct bearing upon it. The first has unfolded in Norway, where – building on the Kaupang project's conclusions about the emergence of Skiringssal as a central place in the 8th century – Dagfinn Skre and a new team then shifted focus to the coastal sea-king's manor at Avaldsnes in the Norwegian Midlands, one of the localities associated with Harald Fairhair.[24] Here too, textual descriptions from late 12th- to 14th-century saga sources were analysed as an essential independent control of the archaeological evidence, the two streams of information being compared and interpreted in context.[25] Critically, the findings of the textual review were built into the project research plan and excavation objectives.[26] With the Avaldsnes project's second publication, Skre was able to produce a radical re-evaluation of the early dynasties – the Skilfings, Scyldings and Ynglings – in relation to the archaeological insights gained through his team's investigations in the Midlands.[27] In Denmark, Vejle Museum and the National Museum also initiated a research project on aristocratic residences in Northern Europe; still ongoing, the results of this work bear productive comparison with those we present in this volume.

During this same period, a major reassessment was also made of the *Beowulf* epic. The poem has of course generated virtually its own sub-discipline of Northern studies, but other than as a source of approximate material parallels[28] it has rarely been brought into a solidly archaeological discourse of the Late Iron Age. A sea change came in 2018 with the publication of Bo Gräslund's book *Beowulfkvädet*, which argued strongly for three key interpretations: that the poem is of firmly Scandinavian origin, transmitted into (and changed by) an English milieu centuries after its composition; that it reflects, if not precisely real events, then at the very least a genuinely ancient understanding of Migration Period history in south Scandinavia; and that the poem's *Gēatas*, Beowulf's own people, should be definitively identified with the Gutar of Gotland.[29] Linking the 'Swedes' of the poem with the 'Danes' of Heorot, and not least the long-debated identification of the latter site with Lejre,[30] this too is of close relevance to the present project. Both support for Gräslund's conclusions and constructive scepticism of its interpretations can be found in the following pages.

Conclusions and ways forward

The core group of project directors and sponsors met regularly throughout the research, in the offices of the KrogagerFond at Hellerup, the National Museum of

Denmark in Copenhagen, or at Uppsala University. We were also able to host several broader meetings with other contributors in both countries. Originally the project was also planned to include several workshops, but these had to be first postponed and then cancelled due to the Covid-19 pandemic. However, we were able to undertake several collegial field trips, not only to the excavations at Lejre and Uppsala but also to comparative sites in eastern England, including Sutton Hoo and Rendelsham. The final editing, translation efforts, and general project meetings were held towards the end of 2021 and on into late 2023.

The task of bringing together archaeology and history – the latter in contested form, additionally complicated by a semi-mythologised context – is not an easy one. Moreover, we should not necessarily expect the evidence of material culture and the written word to agree. In presenting our conclusions in the closing sections, we have tried to consider how texts and material culture can be mutually informative, rather than either one functioning merely as a supposed corrective to the other.

A newly authoritative history of the Scylding and Yngling dynasties is probably an impossible goal. However, what we hope to have offered here is an innovative and integrated model of the early kingdoms of Denmark and Sweden, the familial links between them, and the fruitfulness of interdisciplinary collaborative pathways to their investigation.

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Figure 1. A Christiana Religio-denarius of Louis the Pious found at Mysselhøjgård, Lejre.

5 Places of consumption and production

John Ljungkvist & Tom Christensen

Early medieval rulers were dependent on their ability to acquire substantial resources if they wished to maintain their power and influence. In addition, they were expected to fulfil obligations towards both their allies and their followers or subjects. It was essential to show generosity towards companions and retainers, to have sufficient supplies of food and resources for large gatherings and, not least, to enable participation in warfare and facilitate construction projects. One should not underestimate the fact that both rulers and their people also sought the good things in life. This applied to everything from the latest fashion items to good food and sound dwellings. This means that all the people related to our sites were part of a complex economic apparatus that rarely has a place in the legendary tales of Norse literature.

In the archaeological record, it is possible to trace many different resources that were funnelled towards central locations in order to be consumed or reworked. These included not only people and animals, but also material things. The resources that were brought into the royal centres were the products of an intricate network that involved goods and commodities with very varying origins. Some resources were gathered on the estate's own farms, fields and pasturelands while others were regularly brought in from the periphery of what was then, from a Scandinavian perspective, the known world.

Since the Viking Age, towns and cities have been the greatest resource-consuming places in Scandinavia. However, to some degree, these had predecessors in sites such as Gamla Uppsala and Lejre. These were hubs where resources were consumed, processed and distributed. Royal estates were in themselves great consumers and, presumably, both of these places were used for major gatherings on certain occasions. These might have included, for example, meetings of the thing (public assemblies of free people) and religious ceremonies. When many people were assembled for special occasions, there were ample opportunities to conduct economic transactions, ranging from the exchange of gifts and tributes between rulers and subjects to purely mercantile activities. Local residents were able to make use of the opportunity to sell their own goods to those who had travelled there. The traded wares included everything from regionally produced household products, to antlers and furs sourced from the northern forests, and beads from distant parts of the world. Last but not least, the products from Lejre's and Gamla Uppsala's workshops could be displayed and distributed.

Resources from near and far

Since Gamla Uppsala and Lejre lie in wholly different regions, geography played a key role in shaping their contacts with the wider world and, with that, access to the particular imported materials that have been found at the respective sites.

Gamla Uppsala, as mentioned previously, was located in an exceptional spot that facilitated contact with surrounding districts. From the perspective of maritime contacts, on the other hand, the place is not ideal. It was only when those living at Uppsala sailed out into the Baltic Sea that the great contact network opened up. The northern European and Arctic spheres are closest and, from the coast, one can follow routes

Figure 2. Zealand is strategically located as a natural bottle-neck – a chokepoint, from where it was possible to control the main sea lanes leading to and from the Baltic.

up to the North Calotte region (the North Cape), the Åland Islands and beyond them to the west coast of Finland. Further to the east lies the Gulf of Finland, which was the gateway for journeys into Russia and beyond, to the Black Sea region and Asia.

Technologically, the possibility of sailing westwards for people in Mälardalen was relatively easy, though entering the North Sea has, historically, always been a risky venture for Baltic Sea sailors since they were forced to pass through the unpredictable waterways of Öresund or the Great Belt. The rulers there have always been keen to control these sounds, which have been classic conflict zones throughout history. We cannot assume that Mälardalen's rulers had access to harbours along the Swedish west coast, since Norwegian and Danish opponents competed for this area right up until the 18th century. Those travelling from Mälardalen, in other words, were probably forced to pass the home territory of those who ruled Lejre in order to reach the North Sea.

Lejre, in its turn, lies near Roskilde fjord, the inlet that flows out into the Kattegat and the North Sea, with Norway to the north and the coasts of western Europe lying just around the northern tip of the Jutland peninsula. It has in combination with its hinterland (i.e. central Zealand) a very different strategic position compared to Gamla Uppsala. Whether going around to the east or the west of the Roskilde Fjord, travellers would always find a route into the Baltic Sea area (figure 2).

If one looks at the position of Lejre and Gamla Uppsala in relation to contemporary riverine networks, it is clear that neither of them was situated by a coastline where larger vessels could land goods. Admittedly, it only took a maximum of a couple of hours to walk or ride to these places from the nearest harbour, but it is clear that a coastal site was not essential for their existence, which stands in contrast to the situation of Viking Age towns and trading places.

Other early centres in Scandinavia such as Gudme, Uppåkra, SorteMuld and Tissø are similarly situated slightly inland. Why this happens to be the case is a very interesting question. One reason may be that priority was given to agricultural supply since there are often more fertile lands lying inland from the coast. Where security was concerned, it was also perhaps more advantageous not to live right next to the water, since an inland hub has several escape routes.

It may also be the case that a waterfront location for a large centre just did not figure on the mental map of those living during the Migration and Vendel periods. Could it be that the idea arose only later, in the period directly before the Viking Age? During this period there is evidence in Mälardalen for royal settlements, such as Hovgården on Adelsö and Old Sigtuna, lying directly on the shores of major waterways.

In this context, however, one should not forget that there did probably exist some kind of early infrastructure involving harbours or landing places that were linked to older centres. In the case of Gudme in Denmark, there is a clear connection between the central princely site and the harbour site and trading place situated at Lundeborg. The later princely site of Tissø also seems to have had its own coastal harbour site.[1]

Even if we still are missing contemporary harbours near Lejre and Gamla Uppsala, we may presume that some products were transported by boat before they were unloaded and then carried overland to the respective central place. It is possibly only a question of time before physical traces of harbours linked to these places are discovered.

Imports – from Europe and the wider world

The import of finished objects and raw materials to these places reflects links not only to the resource-rich forests and coastal areas of northern Scandinavia but also to wider-reaching, global contact and trade networks. It is now apparent that these networks reached India and China in the east and, to the south, at least as far as Egypt. From about the year AD 1000, Greenland too can be included within these networks, as seen for example in the gaming pieces made of walrus tusks that have been found at Valsgärde, just two kilometres north of Gamla Uppsala.

During the Migration Period, Gamla Uppsala and Lejre were very different to places such as Uppåkra, Gudme, Sorte Muld and Helgö, where the quantity of imported material dating from the Migration Period is considerable.[2] Finds from Gamla Uppsala during this period are few, and this applies not least in the case of exclusive imported objects. This is partly due to the fact that almost no Migration Period burials have been investigated and also because the royal estate's earliest phases lie so deep that they have hardly been touched during excavations. In other words, we still do not know how rich this place was during this period (figure 3).

At Lejre the situation is somewhat different, as the site has yielded a series of exclusive finds dating from the early 6th century. The find material from this time is indeed scarcer than from later periods, though the golden treasure from Lejre attests to exclusive imports that included coins, and there are also several examples of shards from glass beakers (cf. Christensen, this vol. p. 65).[3] From the burial mound at Fredshøj Flensborg we also have large amounts of unusual ceramics, of various types. Most examples comprise stamped pottery that has been suggested to come from England or the Frankish kingdom.[4]

Most striking is the so-called *Argonne ware*, dating from the 4th or 5th century (cf. Christensen, this vol. p. 65). This is a late variant of the polished Roman *terra sigillata* pottery, and the shards from Fredshøj are perhaps the only examples of this type of ceramic identified in Denmark to date (figure 4).

Around the middle of the 6th century, the import of commodities into Scandinavia changed greatly. This does not imply that imports diminished, however – quite the contrary. In Uppland and on Gotland, the amount of imported glass, beads and metal vessels in graves increased during the late 6th and early 7th century (figure 5).[5]

Figure 3. Obverse and reverse of a gold coin from the small gold hoard found in the Hjorterende valley. A Gallic imitation of a Byzantine solidus dating from the reign of Emperor Justinian I (r. 527-567), struck prior to the monetary reform of 537.

In Denmark, on the other hand, it is more difficult to discuss imports during this period since fewer graves have been investigated, though metal detector finds have partly compensated for this shortcoming. The finds material at Lejre and Gamla Uppsala reflects these differences fairly well since the many detector finds recovered so far can, to some considerable extent, be set against the latter's rich grave finds.

When we look across Scandinavia, there is a large group of places with exclusive but very eye-catching imported goods. Most of these are linked to female garments and they primarily turn up in cremation graves where the objects have been fire-damaged. The objects comprise drop-shaped amethyst beads, large rings of elephant ivory, cowrie shells and disc-shaped mother-of-pearl beads from the Red Sea or Indian Ocean.[6] These objects testify to a widespread European fashion, and indeed quite a number of people were fortunate enough to wear imported items from the Mediterranean Sea, North Africa and the Near East.

Glass beads are the most common category of imports with a distant origin. They represent also by far the most complex material due to the myriad of types produced in different areas and periods. In a majority of cases, either the bead itself or the glass originated from the eastern Mediterranean. It is from this region that most of the glass that was used in the production of glass vessels in Europe, and for that of beads in Scandinavia, was sourced. Another common import was garnets, i.e. small red semi-precious stones that were used to decorate jewellery, weapons and horse equipment. Certain garnets appear to have been mined in several different parts of Scandinavia, mainly during the 7th and early 8th centuries, but the finest appear to originate from India which, up to at least the end of the 6th century supplied all of Europe with these semi-precious stones (cf. Christensen, this vol. p. 47).[7]

Garnets are found both as raw materials and in a semi-finished state amongst workshop waste at Fredshøj and the Royal Estate in Gamla Uppsala (cf. Christensen, this vol. p. 47).[8] They are also found as inlays in numerous objects such as a finger ring from Myssellhøjgård, or sword details and fragments of gold belt buckles from the Västhögen.[9] The garnets, however, are not the only exotic imports. In the vicinity of Gamla Uppsala there are amethyst beads and ivory rings known from the Valsgärde grave field. Several amethyst beads also form part of the Karleby hoard near Lejre, dating from the 10th century.[10] These beads appear to have been so special that they were used for 300 years.

Figure 4. Stamp-ornamented pottery from the 6th century found at Fredshøj. They are probably of Anglo-Saxon origin.

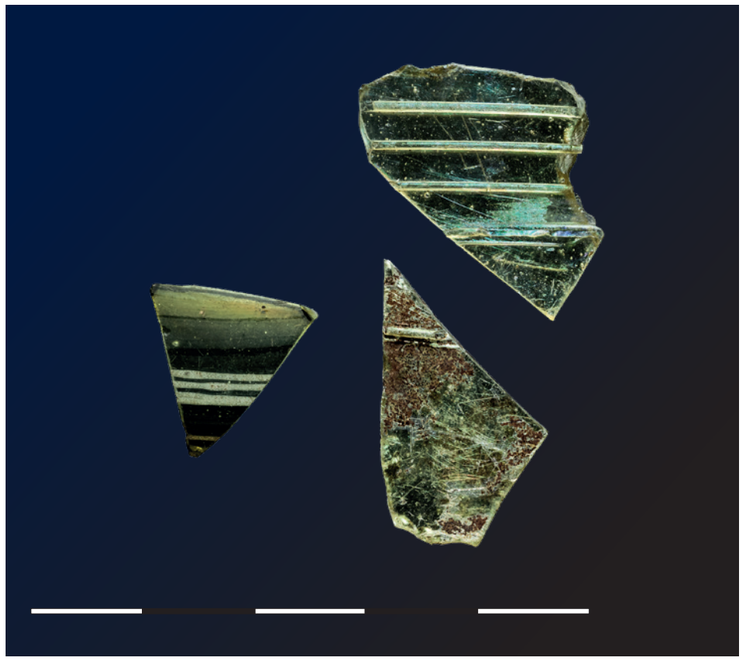

Figure 5. Shards from a Migration Period glass beaker of Snartemo type (right) and a yet undefined type of vessel (left), Fredshøj.

Historically, import patterns are dependent on several factors. These include for example wars, politics and relations to middlemen in both close and distant regions. Before the Viking Age we have little knowledge of where Scandinavians travelled to, or the ways in which they controlled the flow of products to and from Scandinavia. But, from the early 9th century, we know that they had more direct contacts with suppliers and trading sites overseas. Those who travelled eastwards traded with distributors from Byzantium, the Abbasid Caliphate and various actors around the Black, Mediterranean and Caspian seas.[11] To the west, there had long been intense contact along the North Sea littoral and the Frisian coast. In the Viking Age, this area became even more important as the gateway for very long journeys in the Atlantic, into the Mediterranean and eventually, to Iceland, Greenland, and North America.[12]

In this chapter, we return several times to the new patterns in imported goods that emerged in the 6th century. How were they different from those of the earlier Migration Period? One important difference is that the flow of gold coins from the Roman Empire into Scandinavia seems to have ceased almost entirely. Even if coins continued to be minted in the Merovingian kingdom and, to a certain extent, circulated in Europe, it appears that very few found their way to Scandinavia.[13]

The import of glass from central and eastern Europe similarly seems to cease almost wholly, whereas the presence of imported objects and goods from western Europe increases markedly. This is particularly clear in Mälardalen and on the island of Gotland, where more graves have been investigated than in most areas.[14] The increased quantity of imports from the Mediterranean area, and those areas even further afield, seems to be linked to an increase of goods from the western part of Europe. Here, regional fashions have several common features with those noted in Scandinavia. The imported material that is most common and most visible comprises glass beads, along with glass beakers and copper vessels, among others.

During this period there was also an increase in the quantity of objects made of copper alloy found in both graves and settlements. Presumably, these finds reflect how much metal was in circulation, either in the form of finished objects or indeed as scrap and raw materials. In Denmark, as pointed out earlier, there are very few graves from this time, but in Lejre there is a considerable difference in the quantity of metallic objects if one compares the period before and after about AD 550. The same can be said for Gamla Uppsala.

Figure 6. Gold and garnet pendant found on the royal estate at Gamla Uppsala.

Admittedly, the differences noted at Lejre may be due to the fact that Mysselhøjgård is a much larger dwelling environment, but this is probably not the whole explanation. In a report covering many of the metal detector surveys that have been carried out on the island of Funen and in Jutland, it is clear that the number of finds increased sharply during the Early Germanic Period/Vendel Period. In many places, these are as numerous – and at times even more numerous – than the Viking Age finds.[15] This is interesting for several reasons. First, the Vendel Period/Early Germanic Period materials appear to exist in much greater quantities than we previously thought. Second, there also appears to be a connection between the increasing amount of metal finds dating from the late 6th century and the expansion of royal estates during this period (figure 6). Could this be evidence for a broad economic upswing taking place?

One classic category of imported material from Europe is that of the glass beakers, and several scattered finds are known from Lejre. In Gamla Uppsala, nearly all of the shards that can be linked to specific types of glass vessels derive from three graves in the village area.[16] There are also remnants of glass beakers from the Östhögen and Västhögen, but these vessels were unfortunately melted to a state where they are unrecognisable.[17] On the Royal Estate too there are glass shards, but all of these are very small. They have been found in workshops and presumably comprise waste from recycled glass that was used for bead production (figure 7).[18]

Concerning the frequent number of beads, many were probably produced in Scandinavia but the actual raw glass was always imported. The period immediately after AD 550 is special since it marks the introduction of domestic bead production in Scandinavia. It not only marks a significant shift in the Scandinavian glass culture but also a new specialisation in handicrafts and an introduction of new raw materials.[19]

Beads are typically found at settlements dating from the Late Iron Age, but the actual numbers are often small. This is the case in both Gamla Uppsala and Lejre. When a major burial site is investigated, however, the beads may be counted in their hundreds or even thousands and have origins spanning the whole of the known Antique world. Such is the scope of this material that an entire book could, in principle, be written only on the subject of beads from Gamla Uppsala and Lejre.

The most exclusive gold objects have a special allure since they are evidence for contacts with elites and rulers in the wider world, as some possibly originate from western European workshops. In the Västhögen at Uppsala, a pair of small gold fragments of high quality were found that exhibit similarities with gold objects from burial mounds such as the Taplow Barrow and Mound 1 at Sutton Hoo in England, or at Åker in Norway.[20]

A four-leaf clover pendant found only 10 metres from the hall has few close parallels, though its form shares similarities with gold brooches found in the grave of none less than Queen Arnegunde, at Saint-Denis outside Paris (figure 6).[21] Previously, high-quality gold cloisonné works were regarded as being imported from Continental workshops, but since clear traces of gold and garnet workmanship have now been found at workshops in Scandinavia, and not least those at Gamla Uppsala and Lejre, it is not possible to exclude the possibility that certain high-quality gold objects were made at these places, influenced by Continental models (figure 8).[22]

The Viking-Age imports largely reflect a continuation of earlier contacts. The major differences between this and prior periods include the greater quantities of goods imported and the increasing emphasis placed on eastern contacts, not least reflected in the amounts of beads and silver from the Islamic world. The Viking Age is a complicated period since it can be hard to differentiate between imported goods that might have

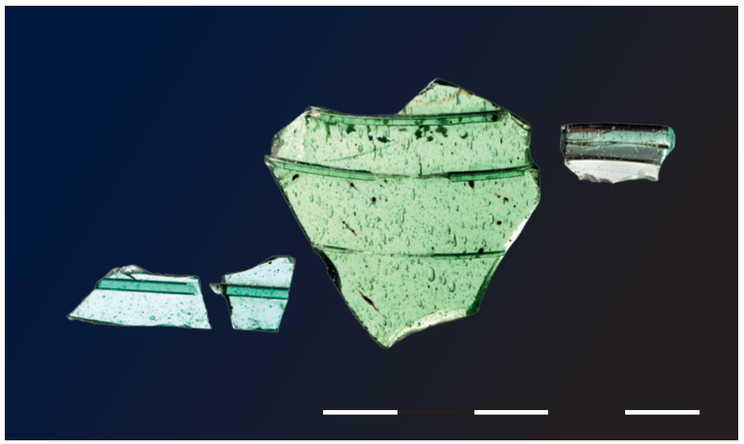

Figure 7. Shards from a pouch or claw beaker found at Mysselhøjgård.

Figure 8. Part of a 7th-century gilded brooch fragment or mount with inlaid garnets found at Mysselhøjgård.

been sourced through violent raiding and trade. Had these items been obtained through exchange or plunder? To a certain degree, it is possible to separate one import method from the other. Beads, for example, are standard commodities that are linked to changing fashions, whereas for example an Irish reliquary or shrine, made for a purpose wholly other than trading, is more likely to have arrived after a Viking raid.[23]

During the 9th century, Carolingian and Insular elements and influences are clear in the archaeological material from our centres, particularly in Lejre.[24] At Mysselhøjgård, for example, there are shards of so-called Frankish drinking glasses. Where metal objects are concerned, there are more traces of contact with the wider world.[25] A metal detector find of a flask muzzle fragment with enamel inlays from a bronze kettle or brazier was found at Fredshøj. The location of this find is special since it is dated to the Viking Age, meaning that it ended up in the earth long after the estate was abandoned.[26]

From Mysselhøjgård, there is a gilded Anglo-Irish fitting that was remade into a weight.[27] Other finds include an enamelled button and several so-called hooked tags that are commonly found in Anglo-Saxon England. These often seem to have been used to hold up garters or stockings, as some have been found in graves by the knees of the deceased.[28]

There was not only an interest in sourcing English luxury products at Lejre, as it is also possible to find objects that reflect imported trends or fashions in dress similar to those from England. Hooked tags of the simple type noted in Lejre have not been identified in central Sweden, with the exception of occasional finds at Birka and a possible specimen at Gamla Uppsala.[29] Another rather special and difficult to interpret find is a finger ring inlaid with a large garnet or piece of red glass. This may be of either Scandinavian or Anglo-Irish origin. Last but not least, one must not forget the Viking Age hoard from Lejre (cf. Christensen, this vol. p.40-41). In addition to an imported 'grindstone' of schist and beads sourced from different parts of the world, the hoard also included an Anglo-Irish hanging bowl made in silver.

In Gamla Uppsala, one can note influences from western Europe amongst objects such as ring pins and enamelled pendants, though the actual number of western metal objects is still low. Eastern or eastern-influenced objects appear more clearly. Aside from the beads and silver from the Mediterranean and the Caliphate, such objects were few at the beginning of the Viking Age, but from the middle of the period, the impacts of eastern fashion appear to increase, particularly in relation to men's garments. Several graves

Figure 9. A so-called 'hooked tag' mount of copper alloy found at Mysselhøjgård.

Figure 10. A so-called 'oriental' belt mount found at Mysselhøjgård.

include buttons that are associated with eastern kaftans or bags. Belt fittings that either were imported from the east or were produced after eastern models have also been found during metal detecting. In other words, there is an interesting contrast between the populations at Lejre and Gamla Uppsala during the middle and latter parts of the Viking Age. Admittedly, there is at least one eastern belt fitting from Lejre, just as there may be western items at Gamla Uppsala. However, if people from these two places were to stand side-by-side during the 10th century, one could probably guess where they came from, merely by looking at the accessories or items on their garments.

Imported coins are more associated with the Viking Age than with any other pre-medieval period. They are not unique to this period however; indeed, as noted above, they started to flow into Scandinavia during the Roman Iron Age. There are a surprisingly large number of Roman silver *denarii* coins known from Lejre and its hinterland. Many of these coins are heavily worn and they probably circulated over a long period before ending up in the earth. In and around Gamla Uppsala, on the other hand, Roman coins are very rare and amount only to a few scattered finds. During the Migration Period, coin imports were entirely dominated by gold *solidi*. The only piece known from either of our sites was found as a part of a gold hoard deposited to the west of the royal estate at Lejre.[30]

The end of the 6th century to the early 8th century is a period when coins generally appear to be absent at Gamla Uppsala and Lejre. This is not surprising since, there are very few coin finds throughout Scandinavia in this period. During the early 8th century, however, a certain change takes place in southern Scandinavia, when so-called *sceattas* started to be minted in areas around the North Sea and subsequently circulated elsewhere.[31] A larger change took place in the decades around the year AD 800, when coins started to appear in increasing numbers in Middle Sweden. This was the time when silver coins from the Islamic world virtually flooded into Scandinavia. At about the same time, Carolingian coins also started to circulate, primarily in the Danish area.[32]

As things stand, over 50 Viking Age coins from Lejre have been found, and all can be tied to the late settlement at Mysselhøjgård (figure 11). In addition to the large number of dirhams dating from the beginning of the 9th century to roughly the beginning of the 10th century, there is a clear assemblage of Carolingian coins. Some of these were minted in the Frisian trading centre of Dorestad during the reign of Charlemagne (r. 768-814). One was minted at Pavia in Italy, and several were minted during the reign of Louis the Pious (r. 813-840). One penny or denarius from East Anglia, with the name stamp of Kung Æthelstan (r. 825-45), is uncommon in a Danish context, and the same applies to an imitation silver Byzantine coin from the reign of the Emperor John Tzimiskes (r. 969-76).[33]

The finds of *sceattas* and Hedeby coins at Lejre merit a little extra attention. Both of these types of coins are, as a rule, rarely found outside of major trading places. At Ribe, one type of these coins occurs so frequently that it is debated whether the minting of the coins took place at this very trading centre. The Hedeby coins are of a later type that were struck at the beginning of the 9th century. They have been regarded as possibly the oldest examples of the internal minting of coins, with a Danish king as lord of the mint (*myntherre*).

The Damhus treasure (*Damhus-Skatten*), recently found near Ribe in Jutland, consisted wholly of Hedeby coins that, in most cases, lacked traces of wear and tear. They appear to have been locally struck and used as a means of payment within the town's boundaries. Coins of a corresponding type have been recently found at Lejre, and these possibly indicate a

Figure 11. Coins from Lejre.

1. Denier of Charlemagne (r. 768-814). Minted in Pavia, after 793.
2. Miliaresion of John I Tzimiskes (r. 969-976), minted in Constantinople.
3. Penny of Æthelstan, king of East Anglia (r. 825-845).
4. Frisian sceattas from the 8th century.
5. Denier of Charlemagne, Dorestad, after 793.
6. Islamic dirham.
7. Christiana Religio-denarius of Louis the Pious (r. 814-840).

Figure 12. Fire-damaged beads of carnelian, rock crystal and glass from grave 85 at Valsgärde, north of Gamla Uppsala.

direct link between the early trading centre and the royal seat.[34]

Coins from Gamla Uppsala have not been discussed in this project since most have been found as isolated specimens from several small excavations they have never been studied as whole. In the large investigations carried out in the village area of Gamla Uppsala, a total of 13 coins dating from the Viking Age were found. Of these, 12 were dirhams and the thirteenth was a German pfennig from the late Viking period.[35] In contrast to Lejre, there are no *sceattas* or Hedeby coins known at Gamla Uppsala. Later in the period, it appears that even typical German and English coins are few in number.

Many of the coins from both Gamla Uppsala and Lejre, and in particular the dirhams, were cut up into fragments. These pieces can therefore be related to finds of silver bars and silver bullion i.e. metal whose value lay in its weight. The silver, in turn, is linked to the finds of plummets and balances that are found scattered about at both sites.

Among the different types of coins, the Islamic ones are those that were most evidently imported in large quantities during the Viking Age, but they are not the only finds that arrived *en masse* from the Middle East and/or regions located further afield.[36] During the early Viking Age, the inflow of beads with a far distant origin increased dramatically. Most of them are broadly defined as 'oriental', but this covers beads from a vast area, stretching from at least Egypt to India. Another noteworthy import that starts to increase is silk, mostly from Central Asia, but in rare cases also China.[37]

Outside the rich archaeological layers of the Viking Age towns, beads are most frequently found in graves, and this is why many more have been found in Gamla Uppsala than in Lejre. They indicate that the Viking Age imports arrived in different waves. During the early 9th century, there was a predominance of glass beads from the Middle East, whereas carnelian and rock crystal beads from India were more frequent during parts of the 10th century. 'Oriental' beads made of

Figure 13. Small piece with punched acanthus-like decoration from Gamla Uppsala. Probably a fragment of an imported Islamic bronze vessel.

Figure 14. A side panel from a Gotlandic box brooch found at Gamla Uppsala. Made of copper alloy, with a thick layer of applied silver, gold and niello.

glass and rock crystal feature in the Lejre hoard's fine though unusual bead assemblage, and the same goes for beads found in the Viking Age graves just next to Grydehøj.[38]

The Scandinavian imports

Where the trading and importing of goods are concerned, it is easy to overlook the scale of what happened within Scandinavia. This is a region that varies greatly in terms of climate and geography, covering many thousands of square kilometres. As the crow flies, the distance from Lejre to Lofoten, in Norway, is greater than that to northern Italy or Brittany. It is hardly surprising that the regional connections varied considerably within Scandinavia.

Scandinavian societies were also influenced by those of neighbouring areas. For example, southern Jutland had closer relations with Frisland/Frisia, whereas the people of eastern Mälardalen at times had strong links to areas in western Finland. Trade connections are not by rule connected to ethnicity or language, but it is interesting to look more closely at the Scandinavian trading experience since it was conducted by people who largely shared a language, religion and culture even though they lived more than 1,000 km from one another.

In recent years, research into the exploitation of resources in Scandinavia's inland and coastal environments has increased. Interestingly enough, the emergence of Gamla Uppsala and Lejre as centres took place at around the same time that the exploitation of outland resources increased. This included everything from increased iron extraction and probably tar burning (for tar production), to large-scale hunting for big herbivore mammals, predators such as bears and lynx and also greater marine mammals.[39] The products sourced from the sea, mountains and forests are in most cases hard to trace archaeologically since they consist of organic matter that has long since decayed. However, it is possible to discuss products made of stone, antler and bone to some degree. This includes not only actual objects but also bones from animals or furs.

In the areas surrounding Lejre, the foremost natural resources were the fertile soils and the riches of the sea, whereas the forests were smaller, the minerals were less accessible and most large wild land animals had been hunted to extinction thousands of years earlier. The same circumstances applied, in part, to the densely populated region around Uppsala, although the distance to extensive forest areas was significantly shorter. Uppsala's and Lejre's inhabitants were, in other words, consumers of outland products and they also had stakes in the exploitation and distribution of these goods.

One of the most important raw materials was iron, which is found in many hoards in the form of so-called currency bars, primarily in northern Sweden.[40] These are much less common outside of their region of origin, quite simply because they were quickly used in forges or smithies. At excavated sites, iron finds mainly consist of waste from the forging process, as well as objects that were cast aside when they were worn out and, in the best cases, those deposited in graves. The same applies to the many imported whetstones. These were transported in the form of long bars that were cut up into suitable pieces and eventually thrown away when they became too worn. Together with the whetstones, cooking pots of soapstone were transported from Norway. These were popular in Denmark and several have been found in Lejre. But for some reason they are uncommon in the Uppsala area.[41]

Iron and whetstones are among the common bulk goods of the Iron Age, but there are also traces of a trade in animal products. An extremely common item that ultimately derives from the forests and mountains is the comb, found in many graves and settlements. Some combs appear to have been imported as finished products, while in other cases the raw materials were brought in – in this case, antler – that were needed to make the combs themselves. In Denmark, most of the combs were previously assumed to come from native red deer, though recent studies from Ribe shows that many derived from elk and reindeer horn brought down from northern Scandinavia.[42] For Gamla Uppsala and Mälardalen, an equivalent study is not available but, by all accounts, elk and reindeer horn clearly predominate since the forest landscape in most parts of Sweden does not favour red deer.

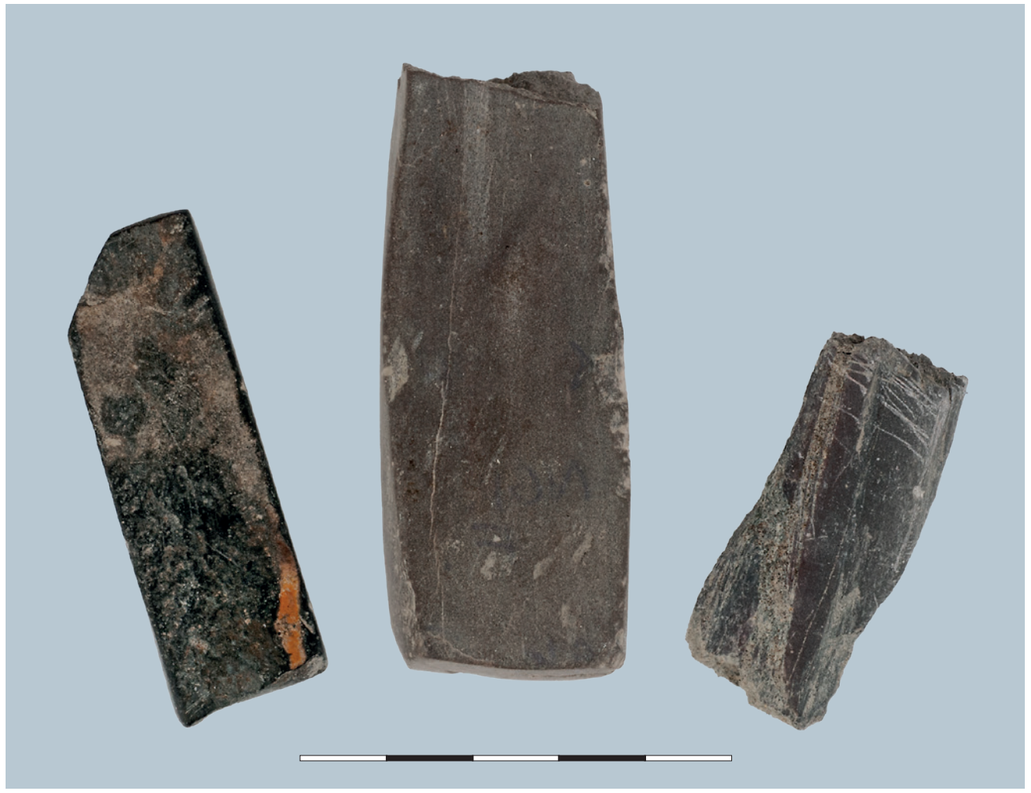

Figure 15. Three whetstones, probably from Norway, found in a pithouse at Gamla Uppsala.

Birds of prey formed an exclusive group of traded animals. Towards the end of the 6th century, hunting with raptors appears to have become fashionable amongst the elite. Most common is the goshawk, a bird that theoretically could have lived near both Lejre and Gamla Uppsala. In graves in Mälardalen, including those at Gamla Uppsala, a considerable number include more rare and exclusive birds in the shape of eagle owls and peregrine falcons. These live in very different environments and the number of finds indicates a major Scandinavian trade in birds used for falconry.[43] The grave evidence shows that several people in Gamla Uppsala had their own sets of hunting birds in the shape of a hawk, an eagle and a falcon.

The most powerful – and possibly most fabled – land animal identified at the central places is the brown bear. In Gamla Uppsala, bear claws that were once attached to furs have turned up in a number of graves, and a canine tooth has been found on one of the farmsteads near the Royal Estate.[44] These finds are exciting but actually not spectacular since they are rather common in graves from centraland northern Sweden.[45]

Lejre is situated very far from areas inhabited by bears during the Iron Age, but it is nevertheless the site of one of Scandinavia's most exciting bear finds. It comprises the cranium of a small adult female bear that came to Lejre during the 7th century (cf. Christensen, this vol. p. 26-27). This find indicates that bears were not only hunted for their furs and teeth, they were also held in captivity. This phenomenon is known from the Middle Ages, but the find at Lejre shows that the cruel practice probably existed much earlier.

Large gaming pieces crafted from bone are another article originating from far distant hunting grounds. Two examples of these are known from Mysselhøjgård (figure 16), as well as in at least five of Gamla Uppsala's graves, and one example has been found on the Royal Estate itself. Small gaming pieces of glass, bone and horn started to appear during the Roman Iron Age, while the large type of gaming pieces we discuss here started to turn up during the 6th century. These gaming pieces have been shown to have been made of whalebone.[46]

In Sweden, there are several hundred graves with sets of gaming pieces, and additional finds are known from across Scandinavia and the southern Baltic Sea

Figure 16. Two gaming pieces of bone from a right whale found at Mysselhøjgård.

area. A study of gaming pieces carried out with the aid of the ZooMS analytical techniques, including examples from Lejre and Gamla Uppsala, has shown that these derived from the North Atlantic right whale and in a few cases perhaps bowhead whales. In total several thousand of these gaming pieces have been found, so they attest to a fairly large and regular import in a period that covers some 400 years.[47] The gaming pieces from Lejre are an uncommon find in Denmark, though they do occasionally turn up in settlements, in Trelleborg-type circular fortresses and, above all, in the rich occupational debris of the towns.[48] One might presume that whalebone gaming pieces were in fact fairly common in Denmark, but given that very few have been deposited in graves, the corpus of known finds is relatively small.

The origin of the gaming pieces can most likely be connected to the North Atlantic and, at present, the evidence leads us to an area around Tromsø in Norway.[49] It was the home region of perhaps the most famous Viking Age trader, namely the merchant Ohthere (Ottar) who visited King Alfred the Great's court in England in the 870s. When he described his trade goods he did not mention whalebone as an article of trade but, on the other hand, he is recorded as stating that he and his companions killed some sixty whales, with each creature measuring almost 30 m in length, in just two days. This account must be an exaggeration, but it does perhaps serve as evidence that large-scale whale hunting did occur. The goods that Ohthere and other traders carried with them demonstrate how rich and lucrative the trade with northern Scandinavia really was.[50]

During the Iron Age, the sourcing of fur-bearing animals was perhaps northern Scandinavia's most important activity with a view to the export market. Evidence of bears and lynxes is most commonly found in graves, but they were far from the most important animals, since most furs came from small animals such as squirrels, martens and beavers. Bones from these animals are uncommon in contemporary settlements, and in this, it is interesting that they appear in Lejre given that the site lies very far from the large forests in the north. From the Fredshøj settlement area, no less than 33 small toe bones from martens have been found amongst the many remains, which for the greatest part derive from domestic animals.[51] When skinned, the paws of fur-bearing animals are usually left attached to the hide, and in this case, they were presumably cut away when the dried skin was processed further.

In a similar vein, we might consider for example what the finds of black grouse and sea eagles at Lejre might signify. Black grouse were probably rare in Zealand in the Viking Age, but they have been found in several aristocratic burials in central Sweden. They seem to have been a coveted bird that also possessed an interesting plumage and perhaps they were attractive as trade objects.[52] Bones from sea eagles are intriguing in several ways. This bird is in itself a powerful creature, and those able to obtain them might have gained status benefits by showing off a live eagle together with a bear, for example. Just recently, it has been shown that arrow shafts from a votive offering – in this case, a weapon sacrifice – at Illerup in Jutland were fletched with sea eagle feathers.[53] The existence of military forces of several hundred persons, equipped with thousands of arrows, implies that these imposing birds must have been hunted on a large scale during the Iron Age, and this indeed provides a further possible explanation for the finds of these bones.

Both Gamla Uppsala and Lejre have also recorded finds of beaver bones, an animal that was probably rare in the densely populated Uppsala area and perhaps extinct in Zealand during the Viking Age.[54] The find on the Mysselhøjgård site comprises the humerus (upper arm bone) of a beaver. *Egils saga* tells of how Egil's brother, Thorolf went to the court in Trondheim "and the next day he handed over the tribute in the king's presence. When it had all been made over, Thorolf produced several beaver skins and sables, saying he wanted to give them to the king".[55]

The rulers at Lejre were surely interested in beaver skins, both for their own use and as an article of trade. At the same time, the discovery of beaver bones is somewhat mysterious since beavers usually are skinned in the hunting areas, i.e. not around Lejre. Was beaver meat a delicacy, perhaps? A find of cod bones from the Royal Estate in Gamla Uppsala indicates that the ruling elite occupying the site during the 7th century ordered fish from the Baltic Sea; could it be that the rulers in Lejre made special orders for smoked beaver meat?

Discussions about the trade in animals and animal products in Scandinavia have, for understandable reasons, primarily focused on wild animals. It is, after all, harder to determine the origin of different domestic animals even if one can obtain some clues by using for example strontium analyses. Discussing the origin and exchange of animal products, however, is important, not least because neither Lejre nor Gamla Uppsala were self-sufficient. A local import of cattle is one thing, but bones of unusually large dogs have also been found at both sites (cf. Gustafsson, this vol.). These may very likely have been raised locally, but both Roman and medieval sources indicate that large hunting dogs also served as articles of trade or as gifts that were exchanged between different aristocratic courts. Dogs of such size have not been found among the 20 analysed specimens that have been recovered from the rich boat burials at Valsgärde.[56] So, the canine bones from the two royal sites presumably represent both very unusual and exclusive animals that were traded between royal houses.

The import trade and two leading centres

Neither Lejre nor Gamla Uppsala can be considered as large centres of trade that were comparable, for example, with prominent Viking Age towns such as Ribe,

Birka or Hedeby. On the other hand, there is strong evidence for a market near Gamla Uppsala before the Middle Ages. This was the Distinget, which still is held in Uppsala every year. The first element in the name refers to the *dísir*, a form of female spirit from pre-Christian times. The name of the market indicates that people assembled annually both to attend religious festivities and to engage in trade. In Lejre, there is also evidence that the site was a religious gathering point and here, too, all of the prerequisites for a marketplace exist.

Even if we ignore any potential trading places, both of these sites have yielded many finds that tell us how the nature of international contacts changed over the centuries. They record not only which sorts of merchandise or goods were preferred but also which regions and people the local population had contact with and were influenced by. Each object has a tale to tell, not least finds such as cameos from Byzantium, ivory from Africa, silver coins with Kufic script or gaming pieces made of Arctic whalebone.

Imported objects may also yield some insights into political conditions during different periods. During the 7th century, the imported material in Lejre and Gamla Uppsala was fairly similar, which reveals that the inhabitants of both sites sought goods from the North Sea region and the Frankish kingdom. During the 10th century, however, these places and their hinterlands looked to different regions. The people in central Sweden adopted a more eastern outlook, which is visible in their dress. While these changes, to a certain degree, may reflect changing influences in fashion, these must be considered as also being integrated with varying trade patterns, and as such political shifts and conflicts must be considered as playing a role in them.

Royal domains, workshops and production

Gamla Uppsala and Lejre have one thing in common with today's modern towns and cities: they were places with an administration and infrastructure. The population's composition was more mixed than in most other places, and they consumed significantly more resources than they produced. This applied to everything from food to building materials. At the same time, however, these sites were not merely consumers of resources, as there is strong evidence for workshop activities in both centres. Metalworking stands out most clearly, but there is also evidence for the processing or finishing of semi-precious stones and minerals, and for glass and textile production.

Metal production in Lejre

The excavations at Lejre have provided a detailed overview of the Royal Estate area, but a good picture of settlements and activities taking place outside the central area is still lacking. This applies not least to the village of Gamle Lejre where there are traces of craft activities and possible trade. In this context, it is important to distinguish between Lejre's two different placements of the estate. At Fredshøj, where activity seems to have been most intensive during the 6th century, the manufacture of luxury items stands out, whereas the later activities at Mysselhøjgård appear to be associated with the production of a broader spectrum of objects.

Bog ore deposits in marshes and meadows were an essential resource that was needed to extract the strategically vital iron present on the Danish islands and in Jutland. In the latter, in particular, there was significant iron production taking place during the Roman Iron Age, but on the island of Zealand iron extraction sites are uncommon. For the Viking Age, and possibly even earlier, there are indications of imports of iron blanks from what are now Norway and Sweden.[57] Lejre probably imported some iron but, surprisingly enough, it also seems to have utilised the sparse deposits of bog iron that could be found in the immediate area. Slag produced during the process of extracting the iron has been found in a house wall on Mysselhøjgård. This indicates that, at some time during the 7th century, some kind of local iron production was being carried out.

Slag from the smithing process is usually the most common waste product associated with iron production. In Lejre, it is found across every area that has been investigated. Since the medieval village lies on or right next to the Iron Age settlement, however, it is hard to separate the forging activities taking place during the Iron Age from those of the Middle Ages and later periods. A measure of good fortune is required to find traces of the forge itself or slag concentrations in layers that can be tied, beyond doubt, to the Iron Age.

At Mysselhøjgård, there are particularly clear traces of metal forging. By a large stone concentration lying directly to the south of the gated or enclosed hall area, the remains of a probable smithy or forge have been excavated. On the surface it was possible to distinguish a collapsed turf or peat structure which was thought to comprise the remnants of a wall or a roof. The turf overlaid an area with iron slag and an area measuring 50 cm^2 that was covered by a contiguous 'cake' of slag material – possibly residues from the forge.[58]

In the same area there was a small pit that contained about 3.5 kg of slag, and in Gamle Lejre village traces of an even larger forging operation have been identified. In one of the village's gardens, a metre-deep pit containing nearly five kilograms of heavy tap slag lumps has been found. This material had been cleaned out from the bottom of the forges or forge pits and the pieces are unusually large, indicating the presence of a substantial smithy.

Besides the areas used for smithing activities, there are also metalworking tools in the form of hammers and tongs. In addition, it seems that a Viking Age craftsman was buried close to Grydehøj and the large ship setting located there. The deceased was placed in the grave with the tools of his trade, namely a hammer, file, tongs and an iron drawing plate. Rather than belonging to a blacksmith, however, the tools appear to have belonged to a metal craftsman, perhaps someone who was involved in precious metal crafts.[59] His iron drawing plate (*dragjärn*) has a fine parallel in the form of a loose iron drawing tool used for finer metal wires or threads, which was found during the latest excavations at Kirkehøj (figure 17).

In short, there is evidence of both iron extraction and ironworking at Lejre. The amount of evidence clearly makes the place stand out. On settlements surrounding it, finds of slag show that ironworking was taking place, but it appears to have been on a much smaller scale. It is reasonable to assume that the metalworking in Lejre was undertaken primarily to satisfy both the needs of Royal Estate and the village; but perhaps it also provided for the neighbouring villages.

Figure 17. Drawplate used in the production of iron wire. Metal-detector find from Myssehøjgård.

Figure 18. A selection of models for jewellery and ornaments from Mysselhøjgård.

At Scandinavian handicraft centres such as Helgö, Birka and Ribe, the evidence of bronze and precious metal casting is primarily represented by finds of moulds and crucibles. But in Lejre the indications of these activities are sparse. One reason for this is that few intact cultural layers remain, which are necessary if the brittle moulds are to be preserved. On the other hand, there are a number of finds indicative of precious metal crafts amongst the over 1,200 objects that have been recovered during metal detecting surveys.

Most of the finds have been disturbed by ploughing, and there are gaps in their distribution that make it hard to distinguish concentrations of, for example, the matrices and models that were used to either hammer out decorated foils or to produce clay moulds for casting. Large areas in Lejre have still not been excavated or mapped to ensure that all possible handicraft areas have been found. Despite the difficulties, there are sufficient collected and registered handicraft finds that allow us to distinguish certain patterns in this activity.

At Fredshøj, the production of jewellery and accessories can be seen through finds of crucibles, bars and lumps of melted copper alloys. This may, to a certain extent, have included the production of luxury objects, as seen for example in the form of gold threads, and worked fragments of garnets. The quantity of finds does not suggest any kind of extensive production, but if one then considers the estate at Mysselhøjgård the picture becomes rather different (cf. Christensen, this vol.). Here we find the production of jewellery and accessories made primarily of copper alloys (figure 18). The raw material consists not only of scrapped objects but also the typical cigar-shaped bars and thin rods that were easier to handle

Figure 19. The lead model to the right was used in the production of pyramidal mounts. One of these mounts has been found at Lyndby, about 8 km north of Gammel Lejre.

during the melting process. Casting wells and other manufacturing waste such as melts are so abundant that this must have been something more than a temporary activity.

A series of finds of copper alloy models and moulds for casting show that certain high-quality objects were not only brought to, discarded or deposited in Lejre but also produced here. Certain models were intended to be used for the mass production of fairly ordinary jewellery types. More uncommon, however, is a model that is used for the production of 'Carolingian style' strap-ends and a further model, made of lead, was intended for the casting of pyramid-shaped accessories whose function is uncertain. A finished accessory of silver of this type has been found at Lyndby, a few kilometres north of Lejre (figure 19).[60]

Two moulds from Lejre stand out in particular. One of these was intended to be used for the production of decorative rivets with flower motifs, while the other was made for the flattening of trapezoidal, duck's foot-shaped strap ends in thin tin plate, for use on horse equipment. Both these types of accessories or fittings have recently been found in the elite warrior's grave known as Fregerslev II, which is located in Jutland.[61] Duck's foot-shaped fittings in gold have also been found in the rich grave of an adult man in the village of Mammen near Viborg[62] and also in a richly furnished woman's grave from the circular Viking fortress of Fyrkat.[63] Corresponding moulds have similarly been found at Tissø and in Hedeby.[64]

Until now, the actual workshops for the handling of precious metals at Mysselhøjgård have not been located. Bars and lumps of molten metal have been found across a large part of the settlement area, while the models and moulds tend to be associated with the central parts of the settlement (figure 20). It thus appears that the craftsmen producing fine metalwork remained primarily within the estate enclosure, close to the great halls and ruling elite.

Not only copper alloys ended up in the melting crucibles but also silver and possibly gold. It can be problematic to define if the different bars and hack-silver pieces functioned as bullion when they ended up in the ground or if some can be tied to the metal workshops. Among the silver objects, there are lumps of melted silver and casting wells, and these waste products are concentrated in the hall area. Presumably, these should be linked to the same workshop(s) as the models, moulds, and the remnants or waste of the bronze casting processes.

The fact that silversmiths were working at Lejre is important for understanding the site's status. During the Viking Age, silver was so common that coins, for example, are found in places not linked to elites. That being said, when objects of silver or with silver ornamentation or details are found in graves, hoards or dwelling places, they are frequently of high quality. The amount of silver handicraft waste from Lejre, when compared with that from other places, is so large that silversmithing must be considered as having been carried out here on a regular basis.

Figure 20. Matrices from Mysselhøjgård.

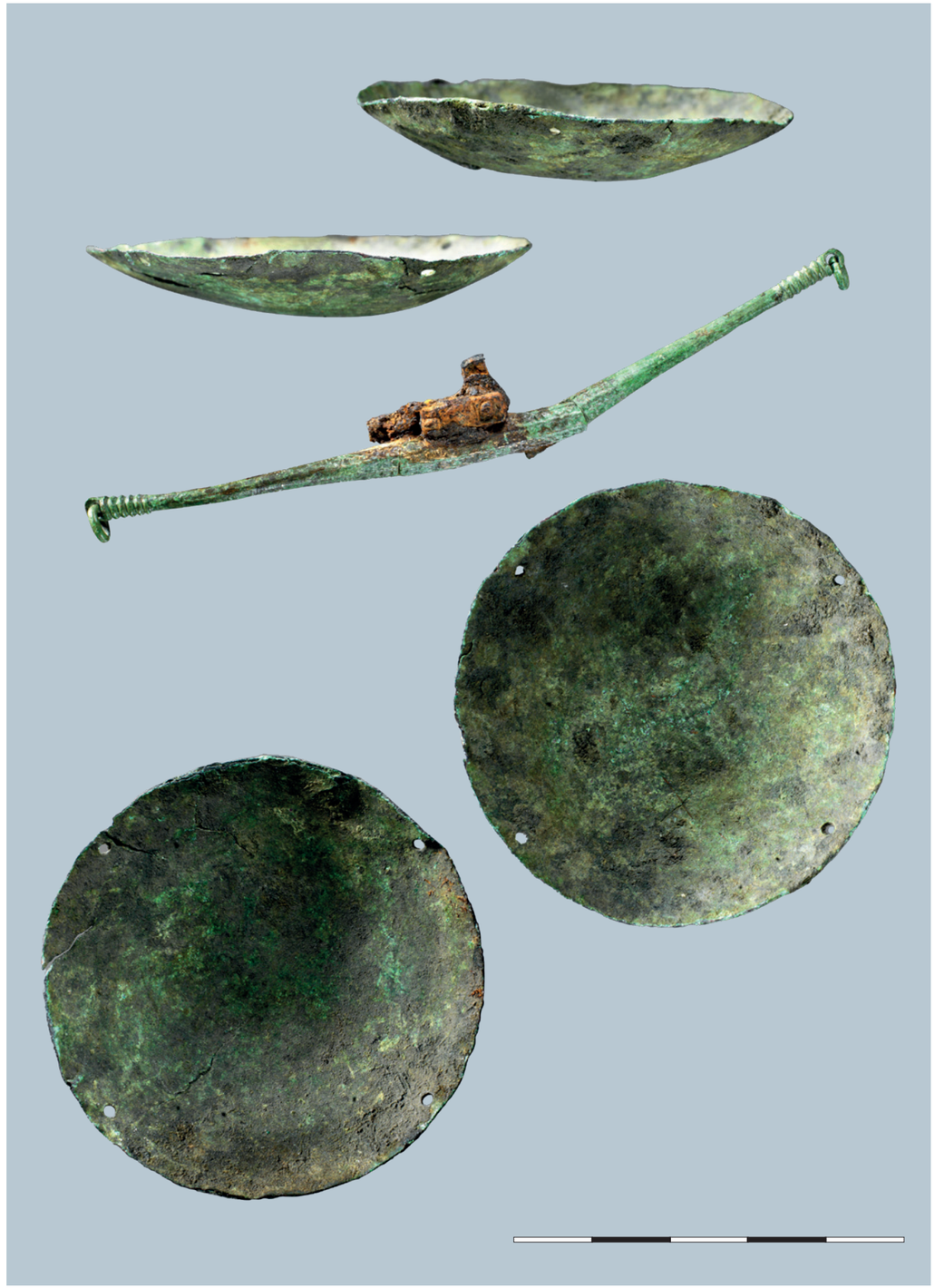

Figure 21. Part of folding scales found at Mysselhøjgård.

Another interesting aspect of Lejre's finds material includes 129 weights and several small balance scales. These objects may have been used in a number of different contexts, for example to weigh spices, pigments or to weigh out the base metals needed to produce metal alloys. These scales and weights are of course associated with trading activities, but in this case they are explicitly connected to the weighing of bullion, both silver and gold. This is a period before currencies and the attempt of governments to control the value of money. Balances and weights indicate the good access to precious metals for the rulers of Lejre (figure 21).

In the peace treaty between the English King Alfred and the Viking leader Guthrum, around the year AD 886, the boundaries between Wessex and the Scandinavian-controlled areas of East Anglia were negotiated. The treaty also outlined laws covering, for example, the payment of blood money as compensation for manslaughter.

> "And so, if a man is slain, thus shall we all reckon an Englishman and a Dane to the same price, eight half-marks of pure gold *[*VIII healfmearcum asodenes goldes*]*".[65]

The mark was a Scandinavian unit of weight and the calculation of blood money may very well have been based on a model from the Norse homelands. In the Danish Provincial Laws, it is apparent that land, penalties and fines could be paid in silver or gold, with *mark* and *öre* serving as measures of value and corresponding weight units. Weights and silver may, in other words, also attest to the payment of penalties, fines and taxes imposed by rulers on others. Therefore, Lejre and Gamla Uppsala are places where it is most likely that precious metals changed hands during legal sessions and in the collection of taxes/tributes.

Textile production and, to a lesser degree, bone or horn processing, are handicrafts that can be traced at most settlements dating from this period, and Lejre is no exception. The scale of textile working is hard to estimate, and since most of the finds have been recovered from cultural layers rich in archaeological finds, it is difficult to determine exactly where different textile crafts were carried out. However, it seems to have been a common activity on the farmsteads.

At Fredshøj, no fewer than nine spindle whorls and four fragmentary loom weights have been found, all in cultural layers. Consequently, they cannot be tied to specific production areas or buildings. From Mysselhøjgård, which was occupied for several hundred years, there are 19 loom weights. These are also found in pit-houses outside the Royal Estate, which appear to have been used partially as weaving huts.

All in all, the tools associated with textile production at Lejre are not very different from those recovered at contemporary settlements in Zealand, and it does not seem that organised, large-scale textile production was being carried out. On the other hand, finds of small spindle whorls and sewing needles attest to the production of finer textiles and the processing of woven fabrics. Sewing and embroidery are activities that, throughout history, have been linked to upper-class women in particular, and two exclusive needle cases of silver indicate that this was also the case at Viking Age Lejre (fig 22).[66]

Figure 22. Fragments of two almost identical silver needle cases with gilded mounts, found at Mysselhøjgård. Each has been fitted with braided silver chains. Remains of iron needles were still inside. Similar needle cases have been found at Birka in Sweden.[67]

Antler- or bone-working can often be traced in the archaeological record, and at Lejre this is represented by processed parts of deer antler identified at both Fredshøj and Mysselhøjgård. These activities appear, however, to have been undertaken on a fairly small scale, with no concentrations indicating the presence of a special workshop. Indeed, these activities do not seem to have taken place on a scale such as that known in towns like Ribe and Hedeby.

To summarise, Lejre seems to be a place where strategic resources like iron were obtained and processed and, furthermore, where jewellery and copper alloy, silver and gold accessories were produced on a scale that exceeded the needs of the Royal Estate and neighbouring villages. The production related to fine textiles, as well as silver and gold craftsmanship, shows that these activities were closely tied to the Royal Estate itself. Thus, it appears that the control and use of these materials contributed to the special status of the estate.

Production in Gamla Uppsala

In Gamla Uppsala, there are traces of different forms of crafts, both on the Royal Estate and in the village area. The conditions for interpreting these differ from those at Lejre since much larger areas of the village have been investigated and the excavated areas on the estate are considerably smaller.

The investigations on the estate have mostly shown where certain workshops were located. At the same time, the material recovered is substantial and varies in relation to the size of the areas investigated. A large percentage of the excavated workshop layers, moreover, has been subject to water screening. This has led to the recovery of a greater portion of small finds of workshop waste, in particular from the jewellery workshops. Such time-consuming water screening is not usually possible on a large scale for major contract digs such as the village excavations.

The iron industry in Gamla Uppsala seems to have consisted entirely of secondary iron production activities, i.e. there are no traces of iron smelting on the site itself. On the other hand, there are signs of iron smelting just a few kilometres to the north in Fullerö.[68] For a place such as Gamla Uppsala, one might envisage extensive smithing activities resembling those at Helgö, where operations covered several farmsteads.[69] Despite this, no equally large smithing activities have yet been identified at Gamla Uppsala.

During the major excavations in the village, two – and most likely three – smithies were identified, which shows that several farmsteads undertook their own blacksmithing activities during the Viking Age. Excavations at the site of Matsgården have revealed traces of an unusually early smithy that takes the form of two forges presumably dating from the Late Roman Iron Age. Smithing slag found in a pit-house dating to the 8th century similarly attests to later metalworking taking place on this farmstead, which is located next to the Högåsen burial ground.[70] The mapping of finds has revealed concentrations of iron slag, indicating that there are further smithies yet to be excavated from different periods, both in the village and on the Royal Estate.[71]

One site, namely a Viking Age settlement at Norra Gärdet, has provided evidence of blacksmithing on a larger scale, indicating that certain households were engaged in specialist occupations. In one area featuring a pit-house, hearths and pits, a concentration of furnaces was uncovered. Three of these were shown to be forges, and other pits that were not excavated are presumably similar features. In the same area, several plano-convex slag lumps from the bottom of forges were found during metal detector surveys.[72]

Smithing slag has similarly turned up during every investigation or survey that has been carried out in the Royal Estate area. It is likely that several smithies existed here at different times. Some of these are represented only by scattered slag, though two physical workshops have now also been identified. On the Royal Estate's Norra Platån, one room in a large building appears to have been set aside for ironworking. The floor layer was black and filled with slag, whereas the neighbouring room was used for processing garnets/almandines for mounting on jewellery and weapons. On the Västra Platån, slag and small bits of scrap from metalworking were found in a pitch-black layer that presumably belonged to a workshop building. Since only small parts of the workshops have been excavated, we still do not know how extensive this activity really was, but since both the terrace areas are quite large – and the black layers thick – this was probably taking place on a fairly large scale.

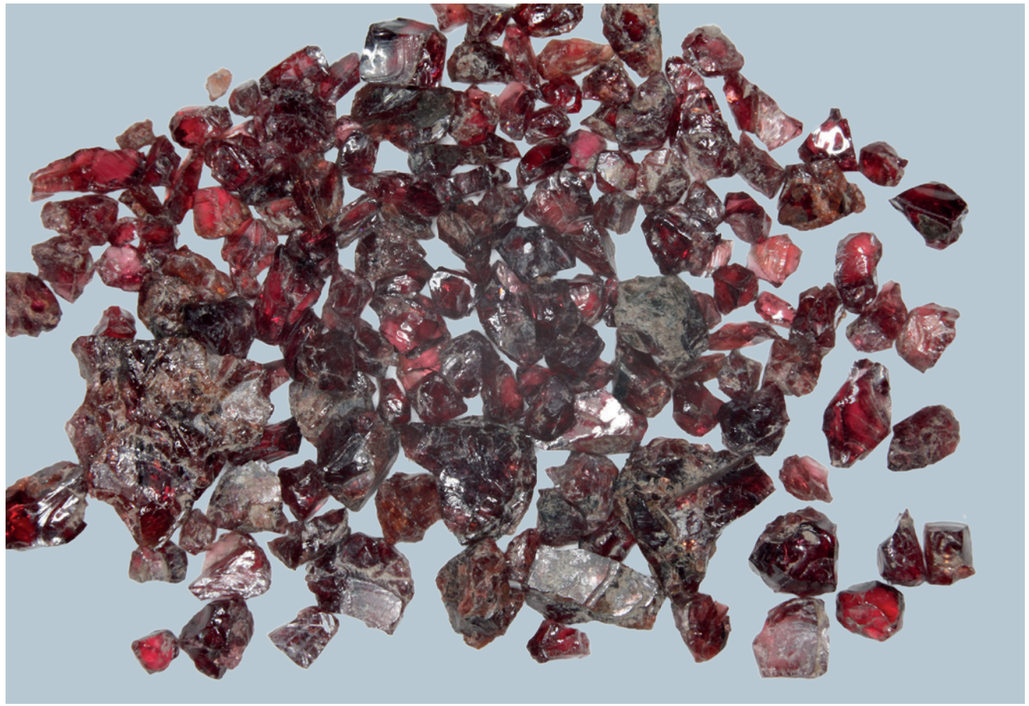

Figure 23. A selection of garnets from the workshop on Norra Platån at Gamla Uppsala.

Metalworking in Gamla Uppsala was most likely varied. Within the village, it seems to have centred on farm smithies that were producing and repairing simple tools.[73] While the metalworking taking place on the Royal Estate has not been closely analysed, the nature of this activity is clearly different. Here, a single workshop seems to have been involved in producing objects made of or featuring precious metals, amber and glass. A broken tip from a spearhead also provides a vague indication that weapon manufacturing was taking place.

Where the processing of other metals is concerned, scattered finds of metal scrap and melts show that the handling of copper alloys took place in several areas during different periods. As at Lejre, however, such activity is hard to interpret on the basis of scattered finds that today lie in farmland. On one farmstead in the village area, traces of gold smelting dating to the Migration Period have been discovered. This shows that the Royal Estate did not have a monopoly on the handling of this metal.[74] There is also some further reliable evidence of this activity in the form of casting moulds and crucibles, as well as bronze melts attached to fragments of a furnace wall. On the other hand, no certain workshops for casting have been found in the village area as yet, nor large concentrations of casting moulds and crucibles that indicate permanent or specialised workshops for the casting of precious metals.

On the Royal Estate, there are much clearer traces for the working of precious metals, despite the areas that have been investigated having been much smaller. In the workshop on the Norra Platån, the evidence is still vague, though in the field just to the north of the terrace, finds of crucibles indicate that casting was taking place in the immediate vicinity during the Vendel Period.[75]

The clearest signs of casting are to be found on the Västra Platån and in the area immediately below this. The remnants identified to date mainly comprise

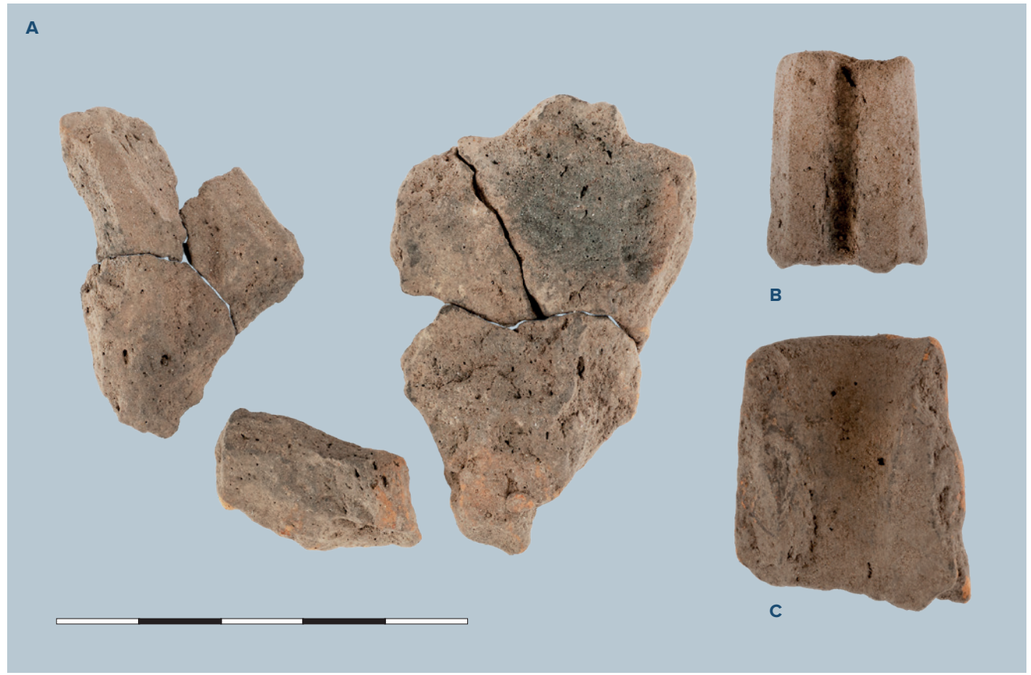

Figure 24. Moulds from the workshop next to the great hall at Gamla Uppsala. A. Fragments related to a large, unidentified object. B. Mould for a dress pin. C. The pouring basin of a mould.

casting moulds and scattered crucible fragments. Since the investigated areas are small and the dark cultural layers appear to be floor areas, most of the mould fragments are small, having been trampled on. Consequently, it is hard to determine which objects were made here. Something that can be said with certainty, however, is that the casting moulds are similar to those found at Helgö, and that dress pins and more advanced objects were being cast. Another very exciting find from the Västra Platån is a so-called iron drawing plate (*dragjärn*), which was used for producing fine silver wire. This we know since small traces of silver residues remain on the holes of the iron tool.[76] Owing to the corrosion on the iron, it is difficult to determine just how thin were the wires/threads being drawn, and whether they could have been used for filigree work.

The drawing tool is not the only sign that precious metals were being processed on the Västra Platån. During water screening on the terrace, a couple of small cellwork fragments for cloisonné jewellery in gold and silver turned up. They appear to be either the remnants of exclusive objects that were cut up in the workshops or small scraps that were discarded during the production process. Since one of the small objects has clearly been subject to heat, this strengthens the relationship with workshop activities. In other words, we appear to have traces of goldsmithing right next to the great hall.

The time during which precious metal craftsmanship was taking place on the terrace is difficult to ascertain since available ^{14}C dates point to two phases, namely the Migration Period and the Vendel Period. The workshops may have possibly been in use over a long duration and currently, most of the known finds come from the latest layers. It is not yet possible to determine exactly which object types can be associated with the casting moulds, but the small gold items, for example, appear to date from the late 6th or 7th century.

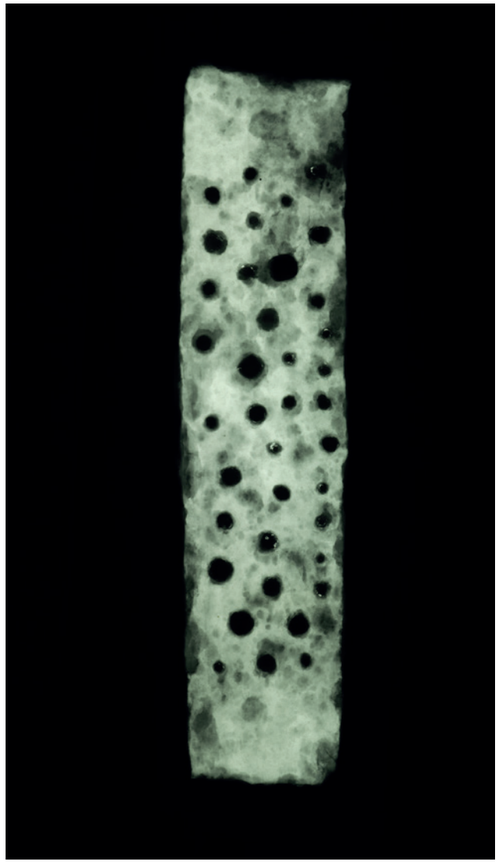

Figure 25. X-ray image of the drawplate for making fine silver wire, found in the workshop next to the great hall at Gamla Uppsala.

In Mälardalen, ironworking commonly occurred on farmsteads, and moreover it is almost a rule that some traces of precious metal handling will turn up during excavations of wealthier estate environments. This often takes the form of crucibles, whereas traces or residues relating to bead production or the processing of amber and garnets are less common.[77] In Gamla Uppsala, the Royal Estate stands out clearly in this respect. In the field to the north of the Norra Platån, and also on the Västra Platån, melted glass fragments and/or glass mosaic and small shards of glass beakers have been recovered from Vendel Period layers. On the Västra Platån, and also in the farmland beyond, several pieces of worked amber have been found.

Interestingly enough, traces of all these crafts are lacking in the village. The only possible exception is Norra Gärdet, where ironworking also appears still to play a prominent role. From the Västra Platån we have several examples of semi-finished garnets that were likely processed for mounting on jewellery and weapons. Finds of garnets have also been made on the Norra Platån, and here they turn up in quite a spectacular way. In the workshop building dating to the 7th century, investigations of several square metres of a sand floor yielded over 600 garnets/almandines – waste products from handicrafts. Some garnets were clearly polished, indicating that they were being processed to become mounted stones, while others were rejects measuring only a couple of millimetres in size.

Some of the garnets were embedded in the mineral biotite, which can mainly be tied to the bedrock of Sweden's east coast. It appears indeed as if the newly mined garnets were transported while embedded in this mineral in order to then be processed in the workshop. In other words, rulers were anxious to control both the mining and processing of this resource.[78]

Textile working is one activity that can be traced almost everywhere in the village at Gamla Uppsala. The evidence is found in the shape of spindle whorls, loom weights and tools such as needles, needle boxes and scissors. At the same time, however, it is a little surprising that there are not more traces of textile working and in particular weaving; this goes for both the Royal Estate and the village. Apart from one building dating from the Late Roman Iron Age, where hundreds of loom weight fragments were found, there are surprisingly few loom weights dating to the Vendel and Viking periods.[79] Extensive investigations in the village have yielded only 241 fragments.[80] At the same time, the limited quantity of textile working tools is indicative of specialisation in handicrafts within wider society at this time. Gamla Uppsala was perhaps not in itself a site where many textiles were produced, but rather a place to which fabrics were shipped and subsequently transformed into clothes and other necessary items.

Pottery production is an additional handicraft that must have been carried out in many places, but few traces of this have been identified. An unfired pottery vessel and lumps of raw clay have been found

Figure 26. Evidence of different crafts within workshops on the royal estate at Gamla Uppsala. 1 = Substantial evidence. 2 = Clear evidence. 3 = Sparse evidence. From Ljungkvist, Frölund & Sarén-Lundahl 2017.

Craft/area	Northern terrace Workshop 1	Western terrace Workshop 2	Area N of workshop 1	Area W of workshop 2
Garnet	1	2		
Casting	?	1	3	3
Bead making	3	3	2	–
Antler	3	–	–	3
Amber	–	2	3	–
Smithing	1	1	3	3
Gold jewellery	–	3	–	–

Figure 27. Large fragments of loom weights found to the north of the royal estate at Gamla Uppsala.

on the floor of a pit-house located on the site of Gamla Uppsala museum. The structure seems to have been quickly abandoned, possibly because of a fire. Two oval pits of unusual shape, and containing thin carbon layers at the bottom, were found adjacent to the building. It is possible that these are the remnants of pottery kilns. All in all, what we have here appears to be the remains of a simple pottery workshop where vessels were shaped and stored in a pit-house, to then be fired in pits directly outside the building.[81]

If one summarises the craft activities at Gamla Uppsala, then it seems that a great deal of activity was going on throughout the Late Iron Age. Iron-working- and textile working were scattered amongst many farmsteads in the village. With some imprecise exceptions that need to be examined further, there is still little evidence attesting to large-scale or intensive activities. Just as at Lejre, most of the exclusive craftsmanship appears to have been carried out within the limits of the Royal Estate.

Even if only very small areas have been excavated here, it appears as if certain workshops were tied to fixed places or structures, and they seem to have been used regularly since they feature thick, messy layers resulting from their operation. The building on the Norra Platån also appears to have been a long-used and well-built structure with different crafts taking place in separate rooms. The Royal Estate, in particular, had a special role where certain crafts were concerned.

Two royal estates as production places and hubs for imports

If one looks at the overall picture of what was produced at Gamla Uppsala and Lejre, it appears as if a large number of what might be described as craft products were introduced as finished items. As such, we find little animal horn waste, and textile working tools are not found in any significant quantity. On the other hand, finds such as rough garnets, glass and other metals indicate that the ruling elite had an interest in the operation of certain crafts which took place on the estates. Prestige or luxury goods and exclusive craftsmanship seem to have been entwined.

These central places were far from self-sufficient, but at the same time they were not merely consuming resources. The materials being produced at these sites were the result of conscious choices being made. At Gamla Uppsala, it is sensible to lift one's gaze and look beyond the crafts and craftwork taking place there. In the case of livestock rearing, for example, it seems that there is a period of active horse breeding (cf. Gustafsson, this vol.). This in itself is not so surprising given that this has historically been an activity associated with the ruling elite.

In terms of materials, production is varied and traces of common handicrafts such as textile production and iron smithing are found in multiple areas, though strong indications of large-scale activities are still missing or vague. Some substantial production seems to have focused on exclusive items and materials that were intended to be kept, as far as possible, within the confines of the Royal Estate. The control of certain resources, specialist crafts and not least the specialist knowledge and skillsets associated with them, conferred both economic and social advantages on rulers. In Old Norse mythology and sagas, the ownership and working of gold and jewellery are associated with royal personages. Gold and jewels, after all, are infused with magic and myths, and their craftsmanship contributed to the raising of a ruler's status, just as did the construction of hall buildings and monumental graves. These individuals apparently did not only wish to own luxury goods made from precious metals, garnets, glass, amber and other materials, but also to lay their hands on some parts of the production and distribution.

Discussions of Iron Age ruling elites frequently focus on the exercising of power, warfare and conflict, as well as the relationships between religious cults and control. The economies of production that sustained ruling elites are slightly grimier issues that the rulers themselves had no interest in highlighting. Moreover, medieval authors did not consider them very exciting when compared with heroic "tales of yore". It is nevertheless possible to find certain traces of the relationships between rulers and the control of metalwork in, for example, *Vǫlundarkviða* (The Lay of Völund), which can be found in the *Poetic Edda*. Völund represents the talented craftsman whose products and knowledge were vital for a ruler to own, and in the story, he is kidnapped in order to produce exclusive artistic items of great worth.

The role of Gamla Uppsala and Lejre as central places of import, consumption and production is complicated in several respects. This is due, not least, to their spanning a long and dynamic period when Viking Age trading places and early towns emerged as the new nodal points for trade and import.

Maria Panum Baastrup has discussed Lejre and other elite environments in Denmark as gateway communities.[82] Her study focused on insular imports dating from the Viking Age, but the discussion is also relevant to different periods and materials from other areas. This shows that imported luxury articles often did not show up in the harbours or coastal settlements at which vessels sailing from the British Isles or the Continent arrived, but rather in elite environments such as those discussed here, where they were introduced and then distributed.

These sites represent another form of reception place that differed to the nodal points and urban places that have been much discussed in studies of the period.[83] Together with sites such as Uppåkra, our central places are exciting as they fulfil a range of functions that partly overlapped with the roles of towns.

Before these latter emporia emerged during the 8th century, our royal estates were places where resources were imported and objects were produced. This continued right into the Viking Age, when the number of specialised trading places and towns increased. One clear difference in these new sites is that the emergent towns and markets very often lay directly on the coast, while resources and wares arriving at our central places were first landed and then transported to the core, in a manner similar to that which one sees in much larger cities, such as in Athens and Rome during Antiquity.

Our centres represent another form of nodal point. Here, multiple resources were linked to exchange and even trade, but these also fulfilled the ambitions and needs of the ruling elite and their seats of power. Consequently, our central places are perhaps more multi-layered, and in some aspects certainly more difficult to grasp, than nodal sites by the coasts, whose existence was based solely on trade.