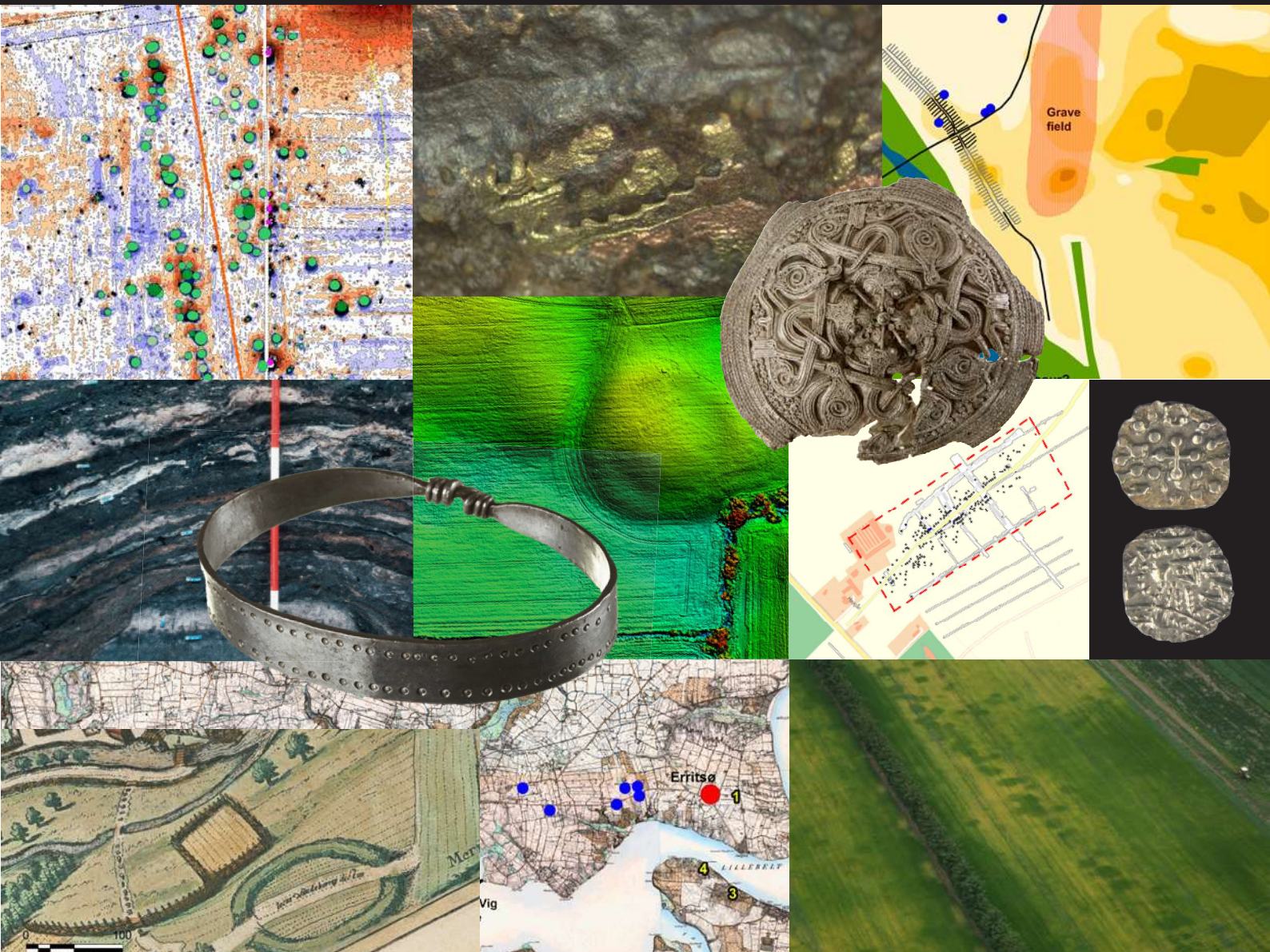


Edited by Jesper Hansen & Mette Bruus



Odense City Museums and University Press of Southern Denmark

THE FORTIFIED VIKING AGE

36th INTERDISCIPLINARY VIKING SYMPOSIUM
in Odense, May 17th, 2017

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Overgade 48
DK-5000 Odense C
museum@odense.dk
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*Edited by
Jesper Hansen & Mette Bruus*

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Christian Juel & Mads Ravn

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New investigations and research perspectives

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Contributors

Mette Bruus
University Library of Southern Denmark
Campusvej 55
DK-5230 Odense M
metteb@bib.sdu.dk

Jonas Christensen
Museum Southeast Denmark
Algade 97
DK-4760 Vordingborg
jc@museerne.dk

Lene B. Frandsen
ArkVest, Varde Museums
Lundvej 4
DK-6800 Varde
lbf@arkvest.dk

Jesper Hansen
Odense City Museums
Overgade 48
DK-5000 Odense C
Jesha@odense.dk

Arjen Heijnis
Aarhus University
Moesgård Allé 20
DK-8270 Højbjerg
arjenh@cas.au.dk

Nanna Holm
Museum Southeast Denmark
Algade 97
DK-4760 Vordingborg
nh@museerne.dk

Christian Juel
Vejle Museums
Spinderigade 11E
DK-7100 Vejle
chjue@vejle.dk

Simon Nygaard
Aarhus University
Jens Chr. Skous Vej 3
DK-8000 Aarhus C
sn@cas.au.dk

Mads Ravn
Vejle Museums
Spinderigade 11E
DK-7100 Vejle
marav@vejle.dk

Mads Runge
Odense City Museums
Overgade 48
DK-5000 Odense C
mtr@odense.dk

Maja K. Schultz
Museum Southeast Denmark
Algade 97
DK-4760 Vordingborg
mks@museerne.dk

Søren M. Sindbæk
Aarhus University
Moesgård Allé 20
DK-8270 Højbjerg
farksms@cas.au.dk

Morten Søvsø
Museum of Southwest Jutland
Tangevej 6B
DK-6760 Ribe
mosvs@sydvestjyskemuseer.dk

Astrid Tummuscheit
Archäologisches Landesamt Schleswig-Holstein
Brockdorff-Rantzau-Straße 70
24837 Schleswig, Germany
Astrid.Tummuscheit@alsh.landsh.de

Jens Ulriksen
Museum Southeast Denmark
Algade 97
DK-4760 Vordingborg
ju@museerne.dk

Frauke Witte
Museum Sønderjylland
Dalgade 7
DK-6100 Haderslev
frwi@msj.dk

The fortified Viking Age

36th Interdisciplinary Viking Symposium
– 17 May 2017

Mette Bruus & Jesper Hansen

The theme of the symposium was *The Fortified Viking Age*. Ever since the days of Saxo and the story of Thyra Dannebod as the builder of the Dannewerk, fortification has been seen as an integrated historical narrative when we describe the centuries of the Viking age. Nowadays, we are not only addressing large externally oriented structures when we research Viking Age fortifications, but also internal structures which are likely to belong in local contexts. Besides regular fortresses and large farms, the fortified facilities include strategic structures oriented towards transport corridors both on land and at sea.

Research has long been focussing on the eventful decades of Harald Bluetooth's reign in the late 900s. However, new studies dealing with the basic settlement development in Viking Age society, as well as (new) studies in a number of specific structures, have provided a new data basis for looking at the genealogy and context of the fortified Viking Age in a broader perspective. This symposium invited presentations which explore these and other themes in Viking Age research. The theme encompasses all periods, genres and disciplines.

We hope you will enjoy reading!

On behalf of the Interdisciplinary Viking Symposium

Mette Bruus and Jesper Hansen
(organisers)

New archaeological investigations at Nonnebakken, a Viking Age fortress in Odense

Mads Runge

Abstract

This paper presents the results of research excavations undertaken at the ring fortress of Nonnebakken in Odense in 2015 and 2017. Nonnebakken has been known from historical maps and excavations for centuries. Nevertheless, up until 2015, it was somewhat insecurely classified as a largely destroyed “possible ring fortress of Trelleborg type”. The recent excavations therefore searched for some of the missing characteristics of the Trelleborg-type ring fortresses to discover whether Nonnebakken actually fell into this category or was “just” a ring fortress with a function as for example a refuge camp. The investigations showed that Nonnebakken possesses most of the features of the Trelleborg-type ring fortresses and should therefore be included in this group. They also indicated that the fortress has had a longer and more complex history than previously thought. These findings fit well with new analyses of the other Trelleborg-type ring fortresses. In conclusion, the paper touches upon the possibilities for presenting Nonnebakken to the public in a new and more prominent and compelling way.

The ring fortress of Nonnebakken appears on several historical maps, including the oldest map of Odense, Braun’s prospectus from AD 1593, where it is illustrated as two semi-circular ramparts (figure 1). On illustrations up until the end of the 19th century, the rampart is still shown standing to a height of several metres (figure 2). In 1909, a developer’s construction team removed much of the northern part of the rampart with the aim of using the soil to fill in part of the river, Odense Å. The area today is evident as a marked elevation extending towards the low-lying area near the river (figure 3). In the centre of this higher ground stands the mansion of the Odd Fellow Guild, while to the North-East there is a school, Gi-



Figure 1: Part of Braun’s prospectus from AD 1593 with Nonnebakken in the foreground. After Füssel (2008: 184).



Figure 2: Coloured prospectus. A view towards Odense from the South (from Hunderupvej) with Nonnebakken to the right, c. 1837-1840. Drawing: R.N. Nielsen sculp.

ersings Realskole, and to the South some residential houses and gardens (figure 4). From the 18th century onwards, several Viking Age artefacts from Nonnebakken were submitted to the National Museum and the local museum and some small excavations were undertaken in the area (figure 5).

The ring fortress has therefore been quite well known for a long time. Nevertheless, up until 2015 it was rather insecurely classified as a largely destroyed “possible ring fortress of Trelleborg type”.¹ On the one hand, it was obvious that Nonnebakken had several similarities with Harald Bluetooth’s ring fortresses of Trelleborg type, including its circular

shape, overall dimensions, the form and dimensions of its ditch and rampart and its location in the landscape. Dendrochronological dates for stray finds of a piece of wood, lacking sapwood, and a wooden spade, both from the ditch, of after AD 967 and c. AD 900 respectively, support this interpretation to some extent, even though the connection between these wooden finds and the fortress’ period of construction and use is uncertain (Jensen & Sørensen 1990, 329; Lundø 2012, 53; Roesdahl & Sindbæk 2014a, 253f.; Runge & Henriksen 2018). The same is true of the narrowly datable artefacts from the site, which clearly point to the late 10th century (Roesdahl 1977,



Figure 3: The northern part of Nonnebakken in present-day Odense, seen from the West with the Odd Fellow mansion and other buildings placed on it. The trench from the archaeological excavation in 2017 is seen to the North. The excavation in 2015 was undertaken in the grassy area in front of the mansion’s main entrance, corresponding to the north-western part of the fortress. Drone photo: Kim Allan Kristensen, Odense Municipality.



Figure 4: The outline of Nonnebakken in relation to present-day Odense. The outermost ring represents the ditch and the inner one marks the rampart. To the West Hunderupvej, which continues on to Klaregade to the North (outside the figure). Background map: © Danish Geodata Agency.



Figure 6: A cross-section through the rampart at Nonnebakken. Lowermost, the yellow subsoil (light grey) can be seen and above this an old, darker soil layer. On top of the soil is an orange layer of solid clay (light grey) and then a turf-built rampart. Uppermost is a fill layer from modern times.
Photo: Mads Runge. Drawing: The periodical *Skalk*.



Figure 7: A cross-section through the wall trench and an obliquely placed post on the inner side of the rampart.
Photo: Mads Runge.

and it was here that some of Odense's earliest urban-like structures, in the form of pithouses, were located (Bjerregaard & Runge 2017, 8).

In the 2015 excavation, it was established that some ground levelling, involving the addition of soil, had been undertaken prior to construction of the fortress. The original ground surface had had a very marked downward slope from East to West.

Construction of the rampart had also begun with extensive ground-levelling works involving removal of the upper part of the contemporaneous topsoil. A 10cm thick, compact layer of clay was laid out in a shallow depression and over the surface, thereby creating a solid level basis for the rampart (figure 6).

Outer features

The fortress was surrounded by a c. 14.5 m. wide rampart built of grass turves. On top of and between these turves, granite stones, some of them fire-cracked, were apparently laid out, presumably to provide extra stability. This is indicated by stones of this type being found during the 2015 excavation on the inner side of the rampart, as if they had slipped down. The same phenomenon is evident at the ring fortress Fyrkat, where the stones are larger, however (Olsen 1977, 63). The 2015 excavation touched upon the inner side of the rampart, which at this spot was preserved to a height of c. 1 m. (cf. figure 6). Its original height is unknown, but at Fyrkat and Trelleborg, heights of respectively 3.5 and more than 5 m. have been suggested (Nørlund 1948, 46f.; Olsen 1977, 53). The rampart had a wooden façade on both its inner and outer face, and in the 2015 excavation a c. 30 cm wide and 50 cm deep ditch was recorded with large closely-spaced posts making up a vertical inner wall (figure 7). To support this wall, a row of obliquely-set smaller posts, with a diameter of c. 5-10 cm, had been placed on its inner side. A similar construction is evident at Trelleborg (Nørlund 1948, 48ff.).

Outside the rampart there was a flat c. 8.5 m broad section, the so-called berm, followed by a ditch with a v-shaped cross-section, a minimum width of 9 m. and a maximum depth of 4 m.

The classical ring fortresses of Trelleborg type have four covered gates in the rampart, orientated towards the points of the compass. The two fortresses in Jutland, Aggersborg and Fyrkat, have a minor rotation of the gates to the West, while the two fortresses on Zealand, Trelleborg and Borgring, have a corresponding rotation to the East.

No gates had so far been demonstrated archaeologically at Nonnebakken, but on Braun's prospectus the ring fortress has two openings, one to the North-East, the other to the South-West. The fact that only two openings are shown on the prospectus can perhaps be explained by the fortress being 600 years old at the time, it may therefore have seen many changes over the years. A similar situation is evident on drawings of Trelleborg from the 19th century, where one or three openings can be seen (Nørlund 1948, 13ff.).

The excavation in 2017 had the specific aim of searching for the northern gate of the fortress. In the light of the openings shown on Braun's prospectus, it seemed most likely that Nonnebakken's gates, like those of the Jutland ring fortresses, had a minor rotation to the West. Based on the findings from Borgring, a rotation of 11° was assumed. With the resulting position of its centre, a c. 4 m. wide trench was opened up on the inner side of the presumed course of the rampart across the presumed location of the gate, i.e. running East-West, at the place where the sturdy posts of the gate's corners would be expected.

The state of preservation here was good and postholes and other features stood out very clearly against the light subsoil, which was revealed c. 50 cm below the present-day surface (figure 8). The rampart itself had been removed and the disturbance which took place in 1909 could be located precisely for the first time. The construction workers basically followed the edge of the rampart and dug a minimum of 1 m below its base, thereby removing all traces of it, together with the underlying features. Along the inner margin of the disturbance, which as mentioned corresponds with the inner edge of the rampart, a row of small posts could be seen. These mark the position where the ring road was fixed on the inner side of the rampart. The course of a row of double posts, which fixed the ring road towards the interior of the fortress, could also be documented.

The gate itself was therefore no longer to be found here. But two sets of large postholes were recorded in the middle of the excavated area within the course of the rampart (figure 9). In three cases, the



Figure 8: Parts of the excavation trench from 2017. To the North (to the left in the picture), the 1909 removal of the rampart that lay beneath it can be seen as a large, dark feature. Photo: Mads Runge.

postholes were identical in depth and width, and all three contained preserved traces of their post. The fourth posthole had the same dimensions at the top but showed a minor deviation in its vertical section. The four posts could potentially mark the point of contact between the axial road and the gate; the positioning of such large posts here is also seen at Aggersborg. Incidentally, the four posts were placed at a 90° angle to the central point in the eastern and western openings shown on the historical map from 1785 (figure 10). The distance from East to West between the posts was 3.1-3.2 m., which would concur with the widths of the gates at the other ring fortresses of Trelleborg type (Nørlund 1948, 56; Olsen 1977, 64ff.; Sindbæk 2014b). The exception is Borgring, where the distance was, respectively, c. 4.4-5 m., internally, in the middle of the gate, and externally (Goodchild et al. 2017, 1037f.).

The hypothetical positioning of the gate was tested via a series of AMS dates. The results of

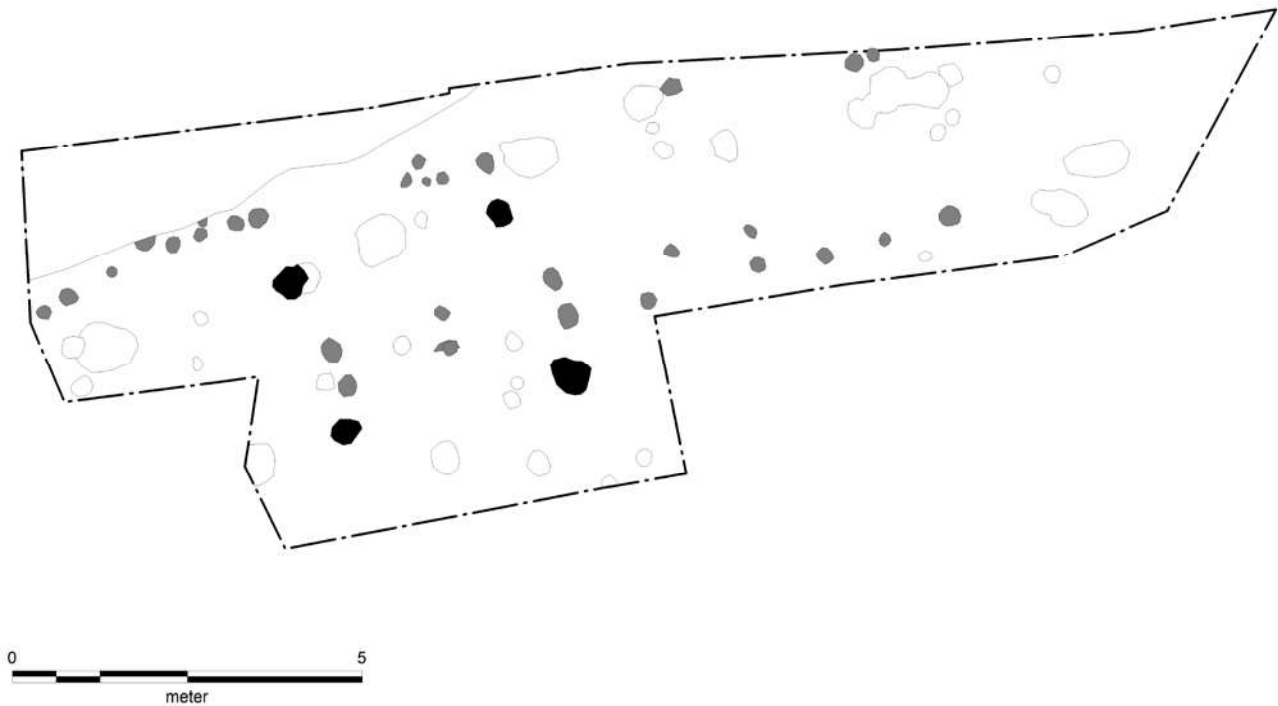


Figure 9: All the features in the excavation trench from 2017. The ring road (grey) and the four large posts (black) that could potentially mark the position of the gate are shown. Drawing: Mads Runge.



Figure 10: Historical map from 1785 showing openings to the East and West. The position of the excavation from 2017 (grey) is also shown. Drawing: Mads Runge. Background map: © Geodatastyrelsen.

these however did not, as will be seen, support the interpretation of the posts being part of the Viking Age fortress. As conclusion we might say that the location of the northern gate – and the other gates – at Nonnebakken still needs to be established archaeologically.

Internal features

Another characteristic of the ring fortresses of Trelleborg type is their internal features, consisting of axial roads running between the four gates, a ring road running around the inner side of the rampart and the aforementioned four “squares” with blocks of buildings. One of the aims of the excavation in 2015 was to undertake a specific search for these blocks of buildings, and the excavation did actually reveal several postholes and pits on the internal surface of the fortress, including some which formed a kind of linear structure or row. But as in the earlier excavations, it did not prove possible to locate the blocks of buildings and the axial roads in 2015 (figure 11). The limited size of the excavation trench (only 35 m²) may be part of the explanation for this, but given the number of excavations undertaken at Nonnebakken over the years, the collective archaeological findings at the present state of knowledge suggest that these structures never existed in the fortress. This conclusion receives further support from the fact that blocks of buildings and axial roads have not, as yet, been found at the newly excavated Borgring fortress either, and they are also missing from the fortresses in Scania (Svanberg & Söderberg 1999, 48; Jacobsen 2003; Goodchild et al. 2017, 1038).



Figure 11: The archaeological excavation at Nonnebakken in 2015 (trench marked in thick black line) and earlier campaigns (thin red line). The ring road is marked in green. Drawing: Mads Runge.

In the 2015 excavation, it was, however, possible for the first time to record traces of the ring road along the inner side of the rampart. As mentioned, the ring road also was recorded in the 2017 excavation. Only the postholes associated with the road construction were preserved, whereas no parts of the actual road surface were found. It seems most likely that the latter consisted of horizontally-laid planks (Nørlund 1948, 30ff., 49; Olsen 1977, 81f.) attached to a row of relatively modest, vertical posts placed immediately inside the inner supporting wall of the rampart. Towards the interior of the fortress, the horizontally-laid planks were attached to larger vertical posts. By each of these posts, about 20 cm further towards the fortress interior, there was another post. In a couple of instances, it could be seen that the innermost post was placed obliquely and sloped towards the vertical post, presumably to support a railing or lean-to, or perhaps even a roof over the ring road, as

has been suggested at Fyrkat. The ring road at Nonnebakken had a width of c. 1.6 m., i.e. corresponding roughly to that at Fyrkat (Olsen 1977, 81f.).

Artefacts

The most striking artefacts found at Nonnebakken comprise a series of fine silver objects, which have been submitted to the National Museum and the local museum over a period of almost 250 years, and which can be assigned to a total of five hoards³.

Hoard no. 1 is from 1775 and consists of a circular filigree brooch and a band-like arm ring, the so-called “Odin’s ring”, because of the connection between Odense and Odin. These objects must have been buried at some time after c. AD 970 (Skovmand 1942, no. 30; Thrane 1973; Henriksen 2016) (figure 12a+b).

Hoard no. 2 is from 1889 and consists of a circular filigree brooch, three pieces of hack silver and nine coins. The hoard is dated to the end of the 10th cen-



Figure 12: Hoard no. 1. Circular filigree brooch and band-like arm ring, the so-called "Odin's ring", found in 1775. Photo: Søren Greve, National Museum of Denmark.

tury, but according to Jens Christian Moesgaard it is earlier than c. AD 975/988. (Skovmand 1942, no. 28; Moesgaard 2015, 157; Henriksen 2016) (figure 13a-c).

Hoard no. 3 was found prior to 1901 and consists of a third circular filigree brooch with primitive cross symbols on its reverse (Skovmand 1942, no. 28; Thrane 1982; Henriksen 2016) (figure 14).

Hoard no. 4 is from 1909 and consists of 25 (perhaps 26, cf. Moesgaard 2015, 158f.) silver coins, the latest being from AD 973, and two pieces of hack silver (Skovmand 1942, no. 28a; Moesgaard 2015, 158f.; Henriksen 2016) (figure 15).

Hoard no. 5 was discovered during the excavation in 2015. It had been placed in a small pit found inside the fortress next to a row of postholes. It consists of a sheet-silver bead, a quarter dirham and a *Sachsenpfennig*. The bead is dated to the 10th century, while the dirham fragment is dated to the period after AD



Figure 13: Hoard no. 2. Circular filigree brooch (diameter 6.2 cm), three pieces of hack silver and nine coins deposited together as a hoard and found at Nonnebakken in 1889. The circular filigree brooch has been worn with the ring pointing downwards. Photo, coins: John Lee, National Museum of Denmark. Photo, hack silver: Søren Greve, National Museum of Denmark. Photo, filigree brooch: Nermin Hasic.



Figure 14: Hoard no. 3. Circular filigree brooch from Nonnebakken, found before 1901. Photo: Jørgen Nielsen.

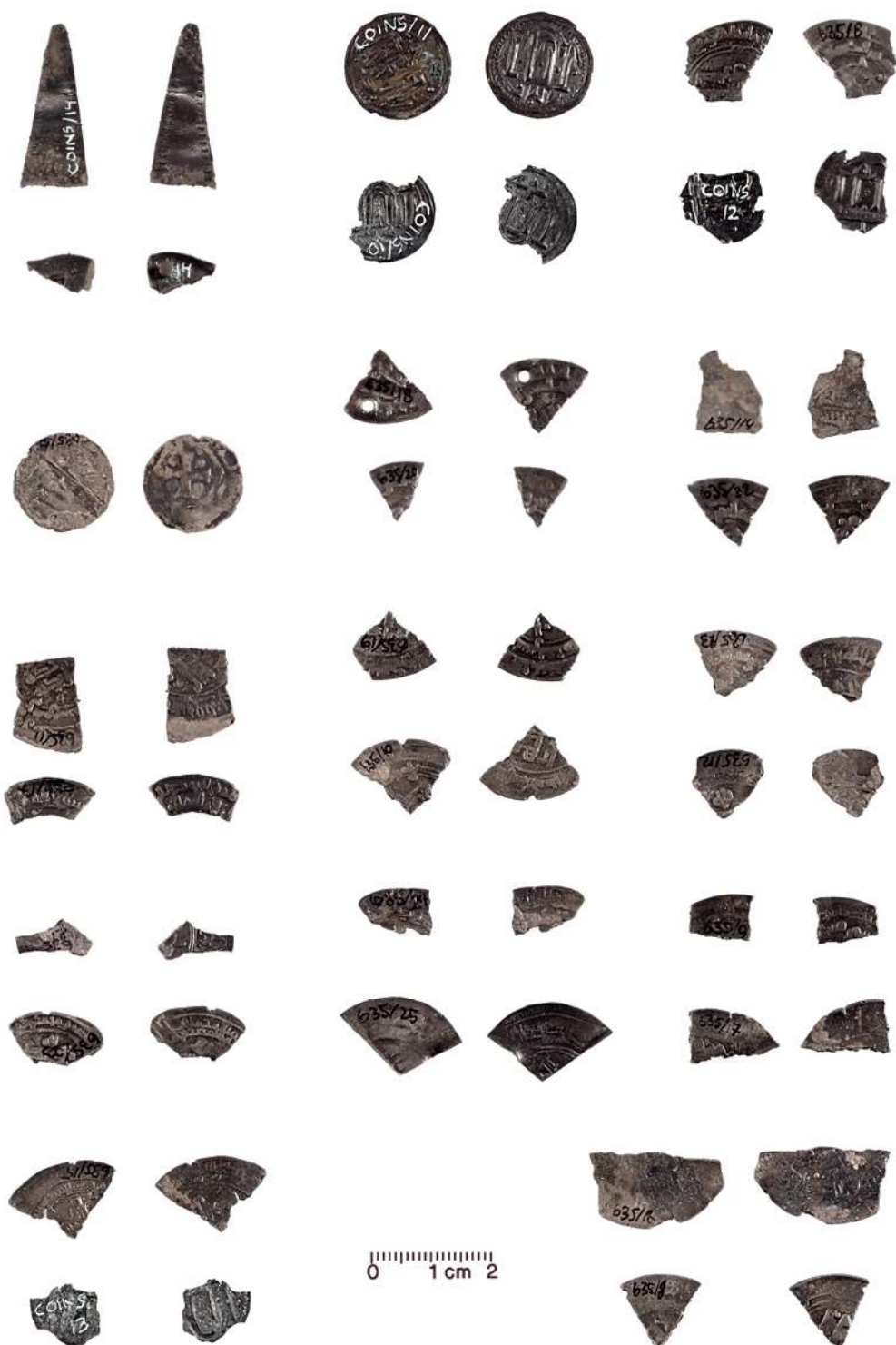


Figure 15: Hoard no. 4. Twenty-five silver coins and two pieces of hack silver (top left corner) deposited together as a hoard and found at Nonnebakken in 1909. Photo: Nermin Hasic.



Figure 16: Hoard no. 5. Sheet-silver bead, cut fragment of a dirham and *Sachsenpfennig*. Photos: Nermin Hasic.

815.⁴ The *pfennig* is difficult to identify precisely to type, but comes closest to types CNP 324 and 354, which are subtypes of, respectively, KN 1 and KN 3. These are often perceived as two developmental phases in the same coin production at Magdeburg (c. AD 940-985). Given this interpretation, the Nonnebakken coin lies at the transition between the two types, or early in the period when KN 3 was produced, probably in the AD 970s. A secure, precise date within the maximum dating interval of AD 940-985 is, however, not possible. The coin is not worn and therefore still has minting burrs round its edge: This means that it could only have been in circulation for a short time (figure 16a-c) (Henriksen 2016; Runge *et al.* 2016, 6f.).⁵

In conclusion, Else Roesdahl assigns the silver hoards found between 1775 and 1909 to the time around AD 975-90, and most certainly no later than AD 1000 (Roesdahl 1977, 167f.; Roesdahl & Sindbæk 2014a, 253f.). Recent analyses of the coins have not altered this picture (Haupt 2006; Moesgaard 2015, 157ff.), and the dating of the hoard found in 2015 is also seen as being consistent with this.

In addition to the five hoards, the objects found and submitted over the years include a good handful of glass beads, three iron axes, a wooden spade, an unornamented band-shaped piece of hack silver, a bronze ring-headed pin with a smooth ring and loop head and a double-shelled tortoise brooch, all of which are dated to the Viking Age. A spindle whorl made of finely-tempered clay and parts of one or more crucibles, together with iron slag and a tablet-shaped lead weight, are artefacts which show that craft and possibly trade activities have taken place at Nonnebakken, but these cannot be securely ascribed to the Viking Age (Henriksen 2016).

During the 2017 excavation a hilt from a sword was found in a posthole on the fortress surface (figure 17a-c). The hilt is curved in the length and made of iron. Thin layers of brass and copper are laid on the broad sides. The small hole in the middle indicates that the hilt is probably an upper hilt from a sword of the special type 7 as described by Jan Peter-

sen. According to Petersen, the type should be dated to the first half of the 9th century (Petersen 1919, p. 89).⁶ This date contradicts an AMS date of the posthole to 652-768 AD; a date which obviously might be affected by wood age or other factors.

Also worth mentioning is a Valkyrie brooch that was found by metal detector in soil excavated by machine from a level immediately above the fortress surface (figure 18). It is dated to the 9th century, and



Figure 17: Hilt seen from the side and top from a sword. Nonnebakken. X-ray (a), detail photo (b) and regular photo (c). Photos: Jannie Amsgaard Ebsen.



Figure 18: Valkyrie brooch from Nonnebakken. On the front, a standing shield maiden can be seen to the right and a Valkyrie mounted on a horse to the left. Below the horse is a rectangular tapestry woven from the intestines of fallen warriors. Photo: Nermin Hasic.

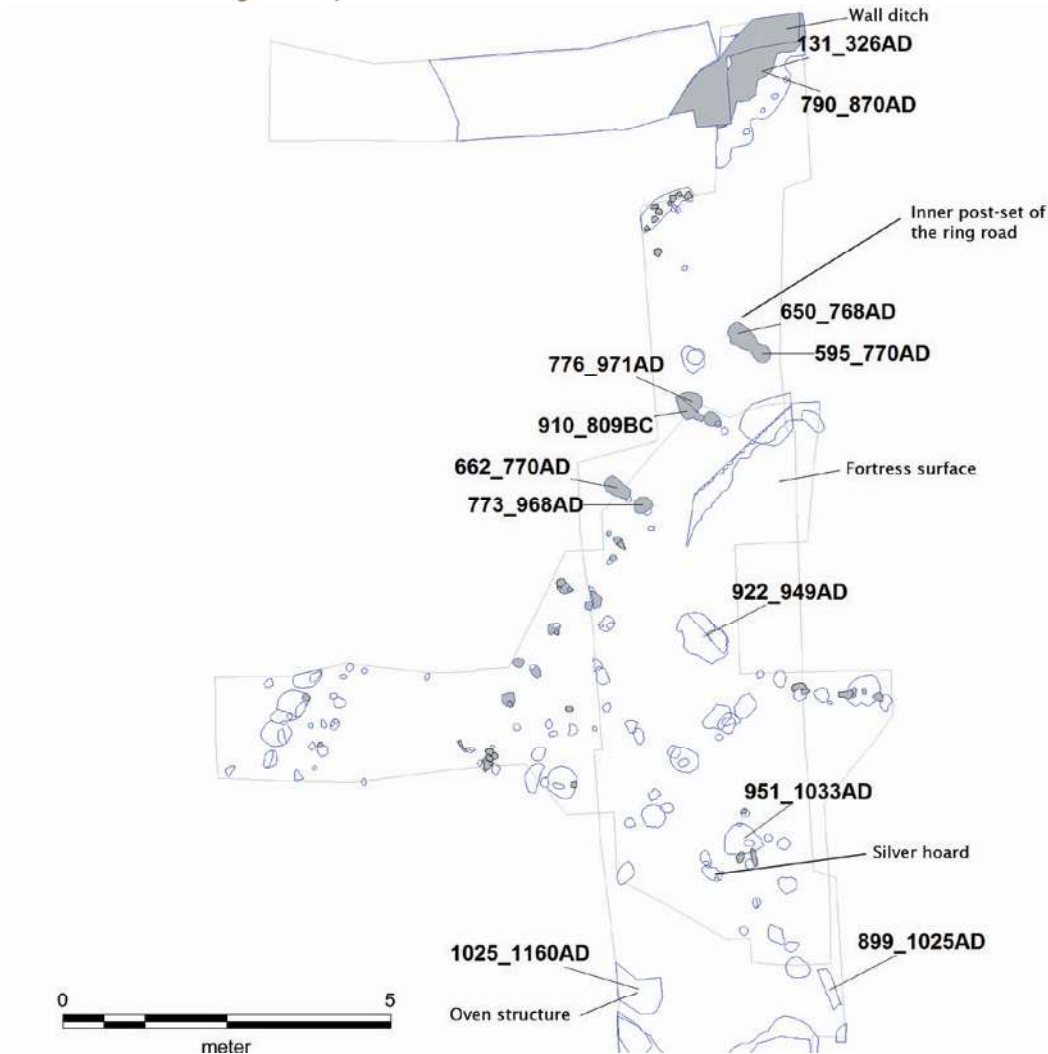


Figure 19: Distribution of AMS dates from the 2015 excavation at Nonnebakken. Grey: Stones and structures associated with the ring road and inner foot of the rampart. Broken grey line: Trench boundaries. Solid grey line: Other features and structures. Cf. figure 11 for separation of 2015 campaign and earlier campaigns. Drawing: Mads Runge.

at least a further two examples are known from Funen: A fragment of a similar brooch was recovered from a metal-rich locality at Engløkken, near the southeastern shore of Odense Fjord, while an intact example was found in the village of Rynkeby (“the warrior village”) in central Funen. This brooch type is relatively rare in Denmark and it is generally associated with localities that are thought to have had some degree of significance at the time (Petersen 2005, 76ff., 2010; Henriksen & Petersen 2013; Han-

sen 2017).

AMS dates

In conjunction with the investigations at Nonnebakken, a series of AMS dates were obtained.⁷ From the 2015 excavation, five dates from the ring road and a date from the wall ditch for the inner rampart base fall within the period AD 595-971, with a clear concentration in the earlier part, in addition to a date

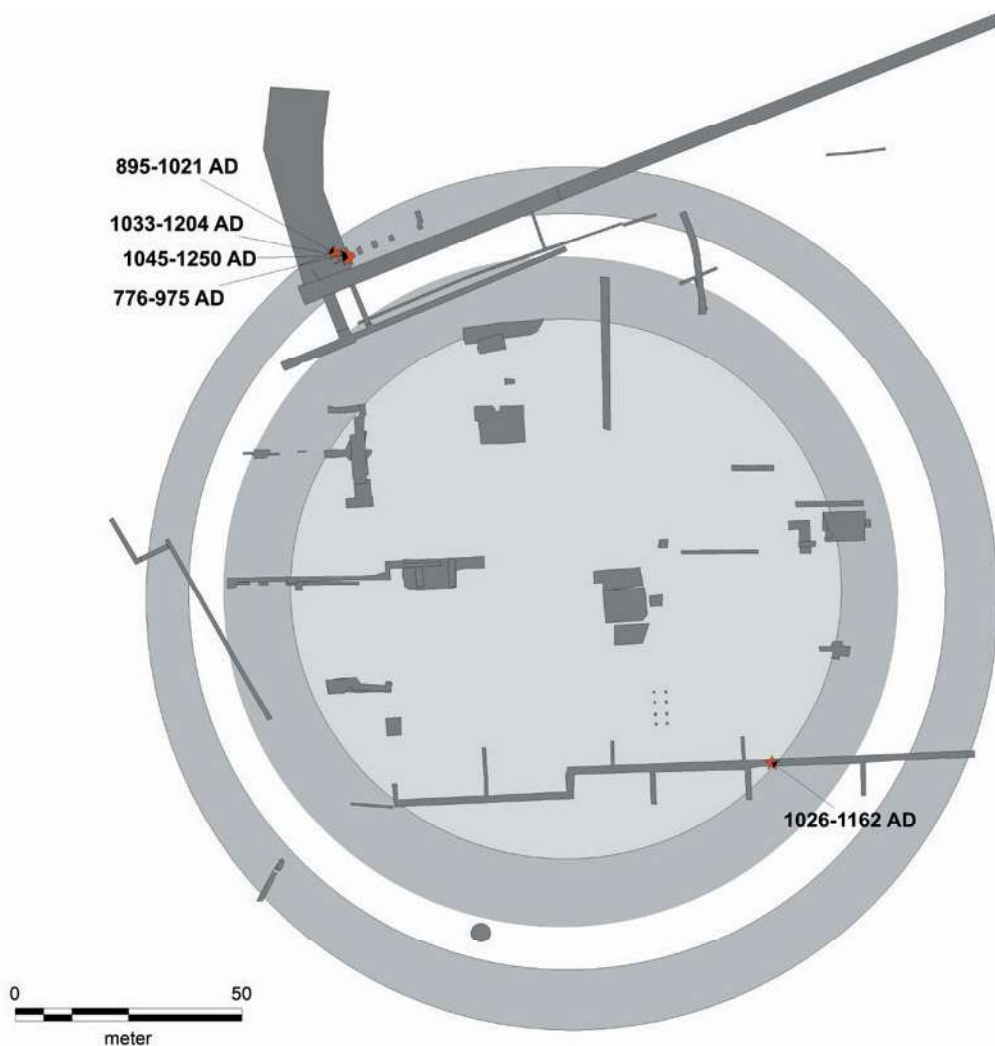


Figure 20: Distribution of AMS dates from earlier excavations at Nonnebakken. Drawing: Mads Runge.

of AD 790-870 from the inner rampart base. If the five dates from the ring road are combined, the most likely date for this structure is AD 760-780 (figure 19).⁸

Other AMS dates are associated with postholes in the fortress surface and fall within the period c. AD 898-1025, thereby revealing activity immediately before, during or after the late 10th century. One date for an oven structure falls within the period AD 1025-1160 and might, especially when allowance is made for a certain wood age of the dated material, demonstrate a link with the Benedictine convent that stood on the site during the second half of the 12th century, and which has given its name to the locality (Madsen 1988, 106f.).

Also, five new dates were obtained in 2016 for material recovered during previous excavations (figure 20). A sample from a drainage layer to the South was dated to AD 1026-1162, while four dates from the lower layers in the northern part of the ditch fall within the period AD 776-1250. These dates pro-

bably reflect general activities at the site during this time span, but do not provide a precise age for the individual structures. The filling-in of the ditch could have taken place over a longer period and episodes of clearing-out of sediment may have muddled the picture.

From the 2017 excavation 10 dates were obtained (figure 21). Dates from the four posts that may mark the northern gate fall in four instances within the period AD 1475-1943, one posthole is dated to 39636-36380 BC and the last postholes are dated to AD 652-768. Four dates are from the ring road. One of these is dated to older than BC 45.000, the three others are dated to AD 695-891, AD 777-896 and AD 887-1013.

If we look at all the AMS dates from Nonnebakken, some general trends become visible. Firstly there are two marked groups of dates, one in the period AD 600-800 and another in the period AD 780-1030. The first group of dates relates primarily to the ring road, whereas the second group relates to both the ring road, the features in the fortress surface and the

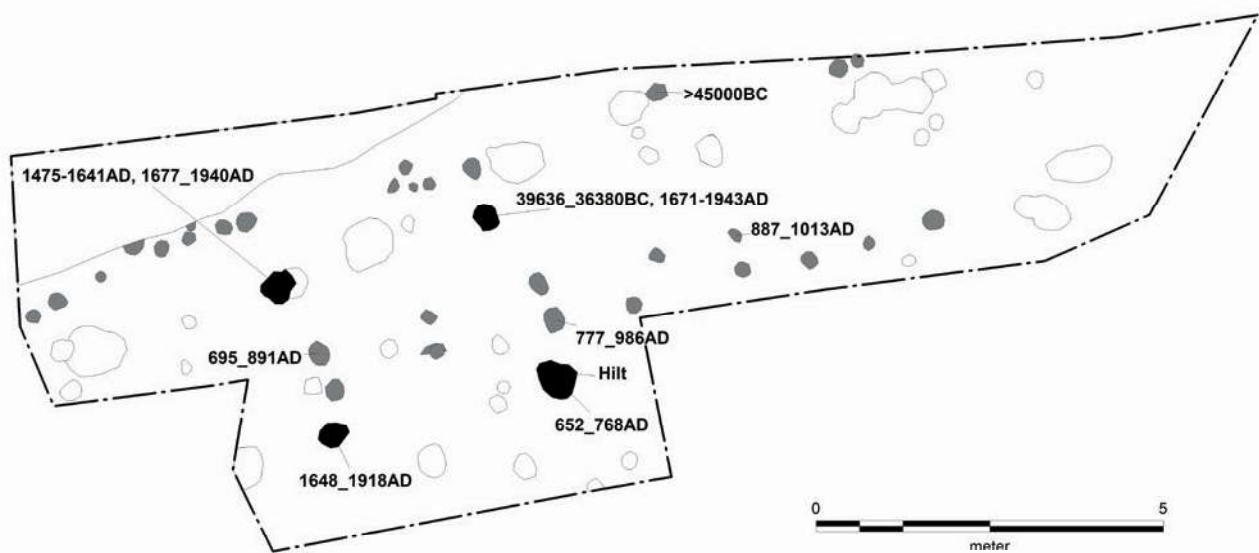


Figure 21: Distribution of AMS dates from the 2017 excavation at Nonnebakken. Grey: Structures associated with the ring road. Black: The four large posts marking the position of the gate. Broken grey line: Trench boundaries. Solid grey line: Other features and structures. Drawing: Mads Runge.

lower layers of the ditch. Beside these main phases there are, as we have seen, also dates from the convent period. Apart from these groups of dates, there are a number of odd dates, ranging from BC 58.000 to AD 1950. These dates indicate that caution must be applied to the use of AMS dates from Nonnebakken in general⁹.

The group of dates from AD 780-1030 may reflect activities related to the Trelleborg type ring fortress phase. The group of dates from AD 600-800, on the other hand, may relate to an earlier phase of the fortress. It is also possible that these dates indicate the location of the legendary Odins Vi (Odin's shrine) – a heathen cult centre – at Nonnebakken. This interpretation receives further support from the presence of a cultural layer containing numerous fire-brittled stones on the low-lying area to the North of Nonnebakken (Jensen & Sørensen 1990, 326ff.). The layer may derive from a *hörögar* (altar), as seen for example at Lejre (Christensen, T. 2015, 173ff.; Runge & Henriksen 2018). The theory that the Trelleborg-type ring fortresses were sited at or near earlier heathen cult sites is not new (Nørlund 1948, 243ff.; Olsen 1977, 35; Jørgensen 2009; Dobat 2014, 54ff.; Jørgensen *et al.* 2014).

Nonnebakken as a ring fortress of Trelleborg type

The dimensions and construction of Nonnebakken, as well as the finds recovered from the site and a

group of AMS dates, indicate that it was a ring fortress of Trelleborg type. However, the excavations carried out to date indicate that blocks of buildings and axial roads are absent; but there may be at least two explanations for this. First and foremost, it is generally assumed that the ring fortresses of Trelleborg type had a relatively short period of use, perhaps only 10-15 years (Roesdahl & Sindbæk 2014a, 255; Sindbæk 2014a, 236ff.). This means that they were possibly not all fully completed before their function in society had changed. Another possibility is that Nonnebakken, the only ring fortress of Trelleborg type in present-day Denmark to be located in conjunction with an existing, larger settlement (Runge 2017a; Runge & Henriksen 2018), did not have the same requirements for dwellings/accommodation on the fortress surface.

Furthermore, the AMS dates obtained in connection with the excavations in 2015 and 2017 indicate that the locality has a longer and more complex history than previously believed. The archaeological remains extend chronologically from stray finds and a few AMS dates in the Neolithic, Bronze Age and Early Iron Age, to more extensive activities in the Late Iron Age and Viking Age and the presence of a Benedictine convent in the second half of the 12th century. The convent was probably located here due to the area continuing to be royal property after the time of the Trelleborg-type ring fortress. According to early maps, the area was probably covered by fields and grassland after the convent period, up

until its partial destruction in the early 20th century. During World War II, the mansion at Nonnebakken housed first the Germans and then the British, and in the 2015 excavation a large refuse pit was found containing material from this period.

In the current context, however, it is activities during the Late Iron Age and Viking Age that are in focus. The indications of activities in the period just prior to the phase represented by the Trelleborg-type ring fortress phase, in the form of an older fortress, an Odins Vi or perhaps something else, suggests that the site might also have been of central significance at this time. This central position must, to a large degree, be due to its strategically favourable location, well-suited to controlling large parts of Funen. Nonnebakken and Odense occupy an ideal situation in relation to the control of land traffic and, at the same time, the sea was within fairly easy reach. Due to the meandering course of Odense Å, it was not possible to sail a large Viking ship all the way in to Nonnebakken. It was necessary to offload to smaller vessels closer to the fjord (Runge & Henriksen 2018). The fact that a large, semi-circular area, within a radius of c. 1 km to the south of Nonnebakken, is almost without traces from the Viking Age, should perhaps be seen in relation to the intention to control an extensive area. Perhaps this area was even intentionally cleared (Runge & Henriksen 2018)? Nonnebakken's central position in relation to land traffic and its proximity to the sea are properties that it shares with the other Trelleborg-type ring fortresses (Roesdahl & Sindbæk 2014b, 438).

The complex history of Nonnebakken concurs with the results of new analyses of the other Trelleborg-type ring fortresses, which indicate that these fortresses were not constructed quite so stringently as previously believed, and a number of minor differences are evident between them (Roesdahl & Sindbæk 2014b, 442; Ödman 2014). But there is probably no real difference between these structures in terms of the function they had at the end of the 10th century, because they all played a part in Harald Bluetooth's unified plan in relation to domestic and foreign policy.

The future of Nonnebakken

The story about how a developer's construction workers removed large parts of the fortress in 1909, together with the many buildings, roads etc. that have been built on and around the site during recent centuries, has meant that until recently, Nonnebakken

was considered almost completely destroyed and that it was, in consequence, difficult to investigate further and challenging to present to the public.

The excavations in 2015 and 2017 have in many ways turned this view upside down. The excavations showed that large parts of the fortress have survived. This is true of both the rampart and the features on the fortress' inner surface. It could be said that, in some ways, the later roads, parking places and lawns have formed a protective layer over the archaeological features and structures. It appears that the fortress was only really destroyed where buildings with cellars were constructed and in the areas where the 1909 destruction of the rampart took place. This means that Nonnebakken still has a huge research potential. At the same time, the largest current land owners of the fortress area have expressed an interest in further presentation of the fortress and its story.

In the coming years, Odense City Museums will therefore expand its presentation of the Viking Age fortress as part of the museum's current concept of research and communication: *Knuds Odense – vikingernes by* (Canute's Odense – city of the Vikings). The concept incorporates excavations, exhibitions, publications and presentation on location. A further important element is that Nonnebakken is included in a serial nomination of the Danish Trelleborg-type ring fortresses as UNESCO World Heritage Sites (Runge 2017b, 2017c). Whether this nomination will be successful is uncertain, but there is no doubt that the outcome will be of huge importance for work on and at Nonnebakken in the future. The Viking Age fortress of Nonnebakken has survived and, as the largest and perhaps most important archaeological monument in Odense, it has enormous potential.

Bibliography

- Arentoft, E. 1993. "I vikingernes vold". *Fynske Mindes*: 117-141.
- Bjerregaard, M.M. & M. Runge 2017: "En by bliver til – hovedtræk af Odenses udvikling i vikingetid og middelalder". In: M. Runge & J. Hansen (eds): *Knuds Odense – vikingernes by*, 6-21.
- Christensen, T. 2015. *Lejre bag myten. De arkæologiske udgravninger*. Aarhus: Jysk Arkæologisk Selskabs Skrifter 87.
- Dobat, A.S. 2014. Lokalteternes forhistorie og oplandet. In: Dobat, A.S. *Kongens Borge. Rapport over undersøgelserne 2007-2010*, 53-56. Aarhus: *Jysk Arkæologisk Selskabs Skrifter* 76.
- Füßel, S. 2008 (ed.). *Georg Braun and Franz Ho-*

- genberg. *Cities of the World. Complete Edition of the colour plates of 1572-1617*. Köln: Taschen.
- Goodchild, H., N. Holm & S.M. Sindbæk. 2017. "Borgring: the discovery of a Viking Age ring fortress". *Antiquity* 91(358):1027-1042.
- Hansen, J. 2017: "Fynske landsbyer fra arilds tid". In: Plechinger, H., Lorentzen, A., Toftgaard, J. & Schultz, M. (eds): *Museumsleder, forsker og netværksskaber. Torben Grøngaard Jeppesen. 40 år ved Odense Bys Museer*, 168-179.
- Haupt, N. 2006. "Nye bestemmelser af gamle fund – de kufiske mønter fra de to skattefund fra Nonnebakken i Odense". *Nordisk Numismatisk Unions Medlemsblad* 2006(2): 51-56.
- Henriksen, M.B. 2016. *Odenses opståen. En gennemgang af udvalgte jordfundne genstandsgrupper fra Odense købstad med henblik på at eftervise spor af aktiviteter i sen jernalder og vikingetid*. Arkæologisk Rapport nr. 527. Odense Bys Museer.
- Henriksen, M.B. and Petersen, P.V. 2013. "Valkyriefund". *Skalk* 2013(2): 3-10.
- Jacobsson, B. 2003. "Trelleborg and the Southern Plain during the Iron Age. A Study of a Coastal Area in South-West Scania, Sweden". In: Larsson, L. and Hårdh, B. (eds): *Centrality – Regionality. The Social Structure of Southern Sweden during the Iron Age*, 191-221. Lund: *Uppåkrastudier* 7.
- Jensen, N.M. & J. Sørensen 1990: "Nonnebakkeanlægget i Odense. En ny brik til udforskningen". *KUML* 1988/89: 325-333.
- Jørgensen, L., Albris, S.L., Bican, J.F., Frei, K.M., Gotfredsen, A.B., Henriksen, P.S., Holst, S. and Primeau, C. 2014. "Førkristne kultpladser – ritualer og tro i yngre jernalder og vikingetid". *Nationalmuseets Arbejdsmark* 2014, 186-199.
- Lundø, L.B. 2012. *At være eller ikke være ... En trelleborg? En bearbejdning af samtlige udgravningskampagner ved Nonnebakken på Fyn*. Bind 1 og 2. (Unpublished master's thesis). Københavns Universitet, Saxo-institutet.
- Lundø, L.B. 2013. "Nonnebakken – en ringborg i Odense". In: Lyngstrøm, H. and Thomsen, L.G. (eds): *Vikingetid i Danmark*, 203-206. København.
- Madsen, P.K. 1988. "De gejstlige institutioner i og ved Odense". In: Christensen, A.S. *Middelalderbyen Odense*, 97-118.
- Moesgård, J.C. 2015. *King Harold's Cross Coinage. Christian Coins for the Merchants of Haithabu and the King's Soldiers*. Gylling: *Publications from the National Museum. Studies in Archaeology & History* Vol. 20:2. Jelling Series.
- Nørlund, P. 1948. *Trelleborg. Nordiske Fortidsminder* Bind IV, 1. Hefte. København: Det Kgl. Nordiske Oldskriftselskab.
- Olesen, M.B. 2000. "Trelleborg eller ej? – om den skånske trelleborgs tilknytning til de danske ringborge". *KUML* 2000: 91-111.
- Olsen, O. 1977. "Borgen". In: Olsen, O. and Schmidt, H. *Fyrkat. En jysk vikingeborg. I. Borgen og bebyggelsen*, 9-104. København.
- Petersen, J. 1919. *De norske vikingesverd. En typologisk-kronologisk studie over vikingetidens vaaben*. Kristiania: *Videnskapselskabet's Skrifter* II. Hist. Filos. Klasse 1919. No. 1.
- Petersen, P.V. 2005. "Odins fugle, valkyrier og bersærker – billeder fra nordisk mytologi fundet med metaldetektor". In: Capelle, T. and Fischer, C. (eds): *Ragnarok. Odins Verden*, 57-86. Silkeborg.
- Petersen, P.V. 2010. "Valkyrier og bersærker. Mytologien i smykketeksten". In: Andersen, M. and Nielsen, P.O. (eds): *Danefæ. Skatte fra den danske muld. Til Hendes Majestæt Dronning Margrethe 2*, 134-138. København.
- Roesdahl, E. 1977. *Fyrkat. En jysk vikingeborg. II. Oldsagerne og gravpladsen*. København.
- Roesdahl, E. and S.M. Sindbæk 2014a. "Aggersborgs datering". In: Roesdahl, E., Sindbæk, S.M. & Pedersen, A. (eds): *Aggersborg i vikingetiden. Bebyggelsen og borgen*, 251-260. Aarhus: *Jysk Arkæologisk Selskabs Skrifter* 81.
- Roesdahl, E. and S.M. Sindbæk 2014b. "Borgens formål". In: Roesdahl, E., Sindbæk, S.M. and Pedersen, A. (eds): *Aggersborg i vikingetiden. Bebyggelsen og borgen*, 435-464. Aarhus: *Jysk Arkæologisk Selskabs Skrifter* 81.
- Runge, M. 2017a: "Det tidligste Odense". In: M. Runge & J. Hansen (eds): *Knuds Odense – vikingernes by*, 42-55.
- Runge, M. 2017b: *Knuds Odense – vikingernes by. Odense Bys Museer* 2017, 28-47.
- Runge, M. 2017c: "Nonnebakken – Odenses skjulte vikingeborg og dens potentiale som verdensarv". In: M. Runge & J. Hansen (eds): *Knuds Odense – vikingernes by*, 56-63.
- Runge, M., Hansen, J. and Lundø, L.B. 2016. "Nye undersøgelser på Nonnebakken i Odense". *Skalk* 2016(6): 3-9.
- Runge, M. & M.B. Henriksen. 2018. "The origins

of Odense – New aspects of early urbanisation in southern Scandinavia”. *Danish Journal of Archaeology*, vol. 7, 2018, issue 1. 2-68.

Sindbæk, S.M. 2008. “Kulturelle forskelle, sociale netværk og regionalitet i vikingetidens arkæologi”. *Hikuin* 35: 63-84.

Sindbæk, S.M. 2014a. ”Aggersborg og andre borge”. In: Roesdahl, E., Sindbæk, S.M. and Pedersen, A. (eds): *Aggersborg i vikingetiden. Bebyggelsen og borgen*, 233-250. Aarhus: *Jysk Arkæologisk Selskabs Skrifter* 81.

Sindbæk, S.M. 2014b. ”De fire porte”. In: Roesdahl, E., Sindbæk, S.M. and Pedersen, A. (eds): *Aggersborg i vikingetiden. Bebyggelsen og borgen*, 203-209. Aarhus: *Jysk Arkæologisk Selskabs Skrifter* 81.

Skovmand, R. 1942. ”De danske Skattefund fra Vikingetiden og den ældste Middelalder indtil omkring 1150”. *Aarbøger for Nordisk Oldkyndighed og Historie* 1942.

Svanberg, F. and Söderberg, B. 1999. *Den vikingatida borgen i Borgeby*. Lund: *Arkeologiska studier kring Borgeby och Löddeköpinge* 1.

Thrane, H. 1973: ”Odins ring”. *Skalk* 1973(1): 32.

Thrane, H. 1982. ”Quadrilobe”. *Fynske Minder* 1981, 28-34.

Thrane, H. 1985: *Nonnebakken. Odenses forsvundne vikingeborg*. Odense: *Fyns Stiftsmuseums arkæologiske vejvisere* nr. 2.

Ödman, A. 2014. ”The Trelleborg constructors”. In: Larsson, L., Ekengren, F., Helgesson, B. and Söderberg, B. (eds): *Small Things – Wide Horizons. Studies in Honour of Birgitta Hårdh*, 267-272. Oxford: Archaeopress Archaeology.

Notes

1 The description of Nonnebakken in this article is based on the most recent publications on the site: Lundø 2012, Lundø 2013, Henriksen 2016, Runge & Henriksen 2018, Runge *et al.* 2016, Runge 2017b, 38ff. and Runge 2017c. These publications build on earlier publications, such as Thrane 1985, Arentoft 1993 and Jensen & Sørensen 1990.

2 The most recent excavation was consequently carried out after the Viking symposium and the results was therefore not included in the lecture given there. They do, however, form part of this article.

3 Hoard number 2 can be ascribed to Allégade 63 in the Southeastern part of the fortress. Hoard number 5 is fixed in the 2015-excavation in the Northwestern part of the fortress. Hoard 1, 3 and 4 can with variations of certainty be ascribed to the fortress in a broad sense. Due to these circumstances the hoards most probably must be ascribed to five separate depositions, although no certain conclusion can be made (Henriksen 2016:30 f.).

4 Identification of the dirham fragment was undertaken by René Laursen, Bornholm Museum, and Tobias Bondesson, Malmö, Sweden.

5 Information on the *pfennig* kindly provided by Jens Christian Moesgaard of the National Museum of Denmark. See also: http://www.sachsenpfennig.de/tpk_kn.html (accessed 02.01.17).

6 As these lines are written, the conservation is still going on. Hence, the determination of the ornamentation type is not known. The classification is made on the basis of observations of the hilt in this state of conservation and with important input from Anne Pedersen, The Danish National Museum. Anne Pedersen has only seen the x-ray photos of the hilt.

7 All AMS dates were obtained for material of limited wood age and are cited at 2 σ (95.4% probability). A thorough description of the AMS dates is given in Runge & Henriksen 2018. Laboratory numbers Poz-78622-78630, 78632, 79881-79882, 80425-80428, 83167, 83214, 83283-83285, 98125-98128, 98130, 98380, 98381, 98383.

8 Calculation undertaken by Tomasz Goslar, Poznań Radiocarbon Laboratory, Poland.

9 The extremely old AMS-dates are easily detectable as ”odd”. In relation to the other AMS-dates it is more difficult. This raises the question whether the AMS-dates from Nonnebakken is reliable at all. In my view most of the AMS-dates fall within well-defined groups, which all are supported by dating of artefacts or historical sources. It therefore seems reasonable to use the AMS-dates for a *general* description of the chronological frame of the locality.