

Lejre Beyond Legend – The Archaeological Evidence

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LEJRE IN MYTH, LEGEND, AND HISTORY

Lejre is a small village at the bottom of Roskilde Fjord (fig. 4). The name which derives from the gothic or Old Danish *Hleiqrar* (meaning “the place with the tents or the huts”) (Jørgensen 1981), has played a central part in Danish history writing for almost a millennium. This was the place where the first Danish dynasty, the Scyldings, had its royal seat according to the legends. Until the 19th century the discussion about the importance of Lejre in antiquity was based on the written sources. Thanks to the Old Norse sagas and Medieval Danish chronicles especially, the tradition of the greatness of Lejre has come down to the present.

Among many works the *Gesta Danorum* (The Deeds of the Danes) by Saxo Grammaticus is the best known (Olrik 1979; Olrik & Ræder 1931; Davidson 1979, 1980). The first part relates about the legendary age. To fill out this large span of years Saxo constructed a long sequence of

kings called the Scyldings named after Skjold, the founder of the dynasty, who as the son of Woden was sent to the land of the Danes on a ship. Skjold and his descendants lived at the royal residence of Lejre.

The Scyldings appear in many other Medieval chronicles and sagas, e.g. Svend Aggesen’s “History of the Danes” (Olrik 1900–1901a), the lost “Saga of the Scyldings” (Friis-Jensen & Lund 1984), and “Rolf Krakes saga” (Lund 1983). Most of the works were written around or shortly after 1200. However, one of the sources is somewhat older than the others, and so is the oldest source to the history of Lejre: the short “Lejre Chronicle” (Olrik 1900–1901b) from the middle of the 12th century. This chronicle, which does not have an original name, also include a list of kings, where many of the Scyldings appear connected with Lejre as their royal residence.

Few of the world’s good stories can stand the test of historical criticism. This also applies to the dramatic accounts of the sagas and chronicles (Skovgaard-Petersen

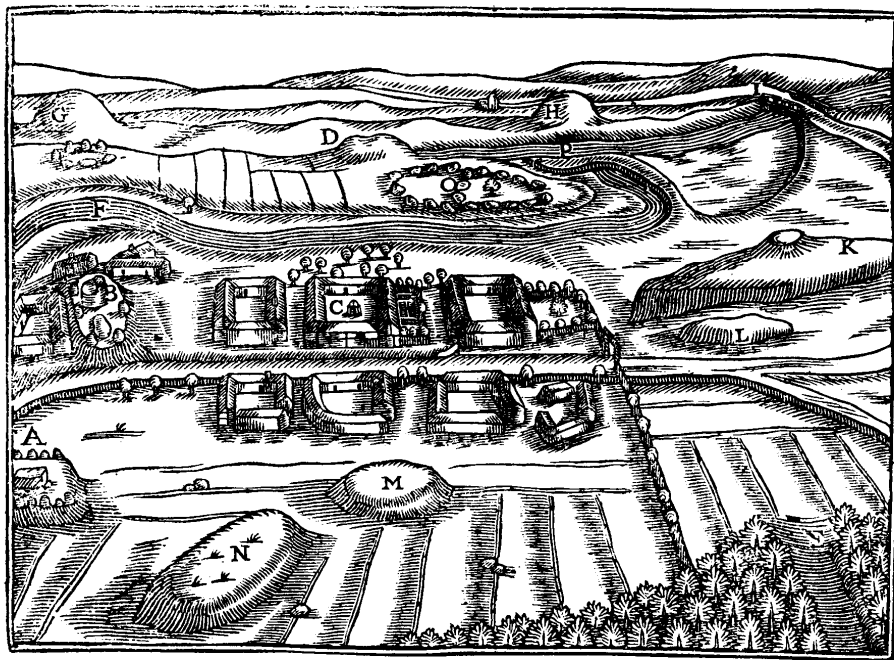


Fig. 1. Ole Worm’s prospectus of Lejre seen from the west from 1643. Several burial mounds and stone ships are marked with letters. In the time of Ole Worm several of them were related to legendary kings. Photo: The Royal Danish Library.

1977). The Old English poem *Beowulf* has played a central part in connection with the early historiography. The principal motif, Beowulf's fight against monsters and dragons, is a collection of fables and tales without any historical basis. However, the action of the poem takes place in the land of the Danes, where Scyld Scefing (Skjold) and his family lived in the large hall Heorot (Hjort) in Zealand (Haarder 1984). Several of the well-known Scyldings, e.g. Roar, Halfdan, and Rolf, with related names, appear in the poem, in which Lejre is not mentioned. Parts of the poem known from a 10th century Anglo-Saxon manuscript are thought by some to date back to the 8th century (Backhouse 1984).

An analysis of the poem has shown that there is not much Danish history in the historical framework. The persons and events go back to the struggles between the Roman Empire and the neighbouring peoples on the Balkan along the River Danube, which took place during the 4th and 5th centuries A.D. (Lukman 1943). In addition to this the learned circles of Medieval Europe, which also

Danish chroniclers were part of, "borrowed" to a large extent from the classical historical literature as e.g., Jordanes' "History of the Goths" when writing their national histories. Thus the oldest Danish historiography has become a mixture of foreign and local traditions.

The rejection of these works as reliable sources also means that the Lejre kings and Lejre's position as an early royal residence had been questioned (Skovgaard-Petersen 1977:36 ff). However, Lejre is mentioned a couple of times in more reliable written sources.

The German cleric Thietmar of Merseburg writes in his chronicle from around 1016 that Lejre (Lederun) in Zealand (Selon) was the "capital" of the kingdom (*caput regni*) and that human and animal sacrifices took place here every nine years (Trillmich 1970). Thietmar assigns the account of these events to the year 934, when Henry I lead a campaign against Denmark.

Particularly the sentence about Lejre is a later addition to the manuscript; it is, however, believed to be made by Thietmar himself. So there is reason to trust the informa-



Fig. 2. The Lejre treasure. Photo: The National Museum.



Fig. 3. Aerial view of the remains of the large stone ships and Grydehøj after excavation and restoration. Seen from the west. Photo: Flemming Rasmussen.

tion and to believe that the tradition about Lejre as an important locality was alive around the A.D. 1000.

A couple of Old Norse sources mention Lejre in a poetic context. In the famous poem “The Grotte Song” (Larsen 1943) from the Elder Edda the two giantesses Menja and Fenja predict that King Frode will loose the Lejre throne (Hleigrar stöll). The Grotte Song was written down during Medieval time, but the poem is thought to date back to the 10th century (Skovgaard-Petersen 1977:36).

The Danish and Norwegian fleets met in a great battle off the west coast of Sweden in 1062. In a contemporary scaldic poem describing the battle the Danish King Svend Estridsen is called “King of Lejre” (Hleirar) (Jensen & Kyrre 1948; Laing 1961) – it may have been an old custom to give the Danish kings this appellation (Skovgaard-Petersen 1977:36).

Although Lejre and the Lejre kings have a mythical character in the written sources preserved, there are reliable sources, as shown above, that mention Lejre. However, it is impossible to characterize the settlement from them alone. Yet it is beyond doubt that Lejre was remembered as an important locality.

The stories about Lejre were revived in the Renaissance and kept alive during the following centuries, and the men of learning of the time travelled to Lejre to examine the

ancient Danish royal residence. In 1643 the father of Danish archaeology, the learned Ole Worm, published his great work *Monumenta Danica*. It contains the oldest picture of Lejre – a prospectus of the village with the ancient monuments existing at the time (fig. 1).

The break-through of modern science in the 19th century had the result that the royal residence of Lejre drifted into a storm of historical criticism. Historians rejected most of the traditions as pure legend without historical value, and archaeologists proved how several of the monuments traditionally connected with the Lejre kings were neolithic dolmens and passage graves (Worsaae 1843:91).

DISCOVERIES AND EXCAVATIONS AT LEJRE 1850–1968

Today it is possible to establish significant archaeological material to face the legendary tradition.

In 1850 an important find was made among the hills to the west of Lejre. This so-called Lejre treasure includes at least four silver vessels, a whetstone, a weight, a necklace,

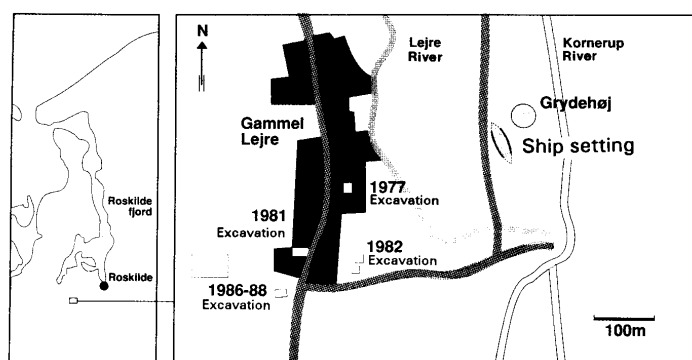


Fig. 4. The map indicates where excavations in the Lejre area have taken place since the 1940's. After T. Christensen 1991.

and a disc-shaped silver ingot (fig. 2). The largest of the silver vessels has been identified as an Anglo-Irish work of the 8th century (Wilson 1960), while a small solid silver cup from the 10th century is of local origin. The find, which seems to have been deposited all at the same time, has been interpreted as a treasure. However, the composition is a bit unusual and it can not be excluded that the finds actually come from one or more burials.

Archaeological excavations were started as late as 1944 by Harald Andersen of The National Museum, Copenhagen. Two areas were selected for investigation, one in the village of Gammel Lejre (1945), and one on the foreland between the Lejre and Kornerup rivers (1944–1968) east of the village (fig. 4). Here the remains of a large ship setting had been scheduled as a monument. It was the only one preserved out of a number of stone monuments originally situated here (fig. 3).

As a result of the excavations an c. 86 m long stone ship was reconstructed and a Viking Period cemetery was found (H. Andersen 1960). A total of 55 burials were excavated, most of them inhumation graves from the 10th century. The majority of the skeletons were found in simple grave pits and the grave goods only consisted of iron knives, whetstones, and simple buckles. This picture corresponds with the generally simple burial practice of the Danish Viking Period. A small number of richly furnished burials were found, however, including a woman's grave with a complete set of jewellery: Two oval brooches and a threefoil brooch. Another woman's grave contained the remains of a wooden casket which was partly decorated with enamel work. A man's grave contained a be-headed person, interpreted as a sacrificed slave, in addition to the buried man (S.W. Andersen 1977). There are no important differences between this cemetery and contemporary sites elsewhere in the country. The most dis-

tinguished burials of the Viking Period, the so-called horsemen's graves, are also found in the Lejre area. A spur inlaid with silver, probably from a scattered grave find, has come to the National Museum from a plundered burial mound to the east of Gammel Lejre.¹

Immediately to the northeast of the ship setting there is a large burial mound: "Grydehøj". The excavation here in 1958 revealed a cremation grave presumably from the 6th/7th century. The remains of the burnt grave goods, iron fragments, fused bronze, and gold thread, indicate a chieftain's grave from the Germanic Iron Age, carbon-14 dated to 550 +/- 100 A.D.,² a type seldom seen in Denmark. A dating around the mid 7th century seems reasonable subject to the natural age of the wood samples (S.W. Andersen 1977:22).

EXCAVATIONS IN THE VILLAGE 1977 AND 1981

The excavations in 1945 near "Kongsgården" in Gammel Lejre were fruitless and were not followed up until 1977 (S.W. Andersen 1977:23). At that time a small construction work close to "Kongsgården" gave the opportunity of further investigations. Features such as fireplaces and post-holes indicated the presence of a settlement, which was dated by the finds to the last centuries of Danish prehistory (7th to 11th centuries).

In 1981 another chance of excavating occurred as one of the old thatched farms in the village burnt down. Sunken huts were found under the site of the fire (Sørensen 1982).

These two excavations made it possible to trace the history of the village of Lejre back to the Late Iron Age and Viking Period, and it seemed likely that the settlement connected with the burial site at the ship setting was to be found under the present village. However, surveys of the surface in the vicinity of the village proved that the prehistoric settlement was to be found not only under the village, more or less inaccessible, but also on the land to the south and especially to the west of the village.

Apart from the presence of finds such as pottery the settlement was revealed by the black colour of the soil. The discovery of the black soil made it possible to move the investigations from the back gardens in the village to the open fields, giving the possibility of establishing large excavation squares.

There were, however, certain restrictions laid on the investigations, as the state-owned areas, where the settle-



Fig. 5. Aerial view of houses III and IVab during excavation. Seen from the north-west. The ground-plans of the houses are marked with paper plates.

ments were found, were to be scheduled. Hence the excavations were planned as a combination of trial trenches serving to delimit the settlement and small excavation squares where single elements could be examined further. The following is an account of what was achieved using this procedure during the excavation campaigns carried out by Roskilde Museum in 1986–88.

EXCAVATIONS 1986–88

The Research Area

The settlement area may be divided into two by means of the topography (fig. 6):

Area 1. The area under and to the south of the village may be characterized as a flat sandy/gravelly table-land, bounded to the east by the Lejre River valley. In this area

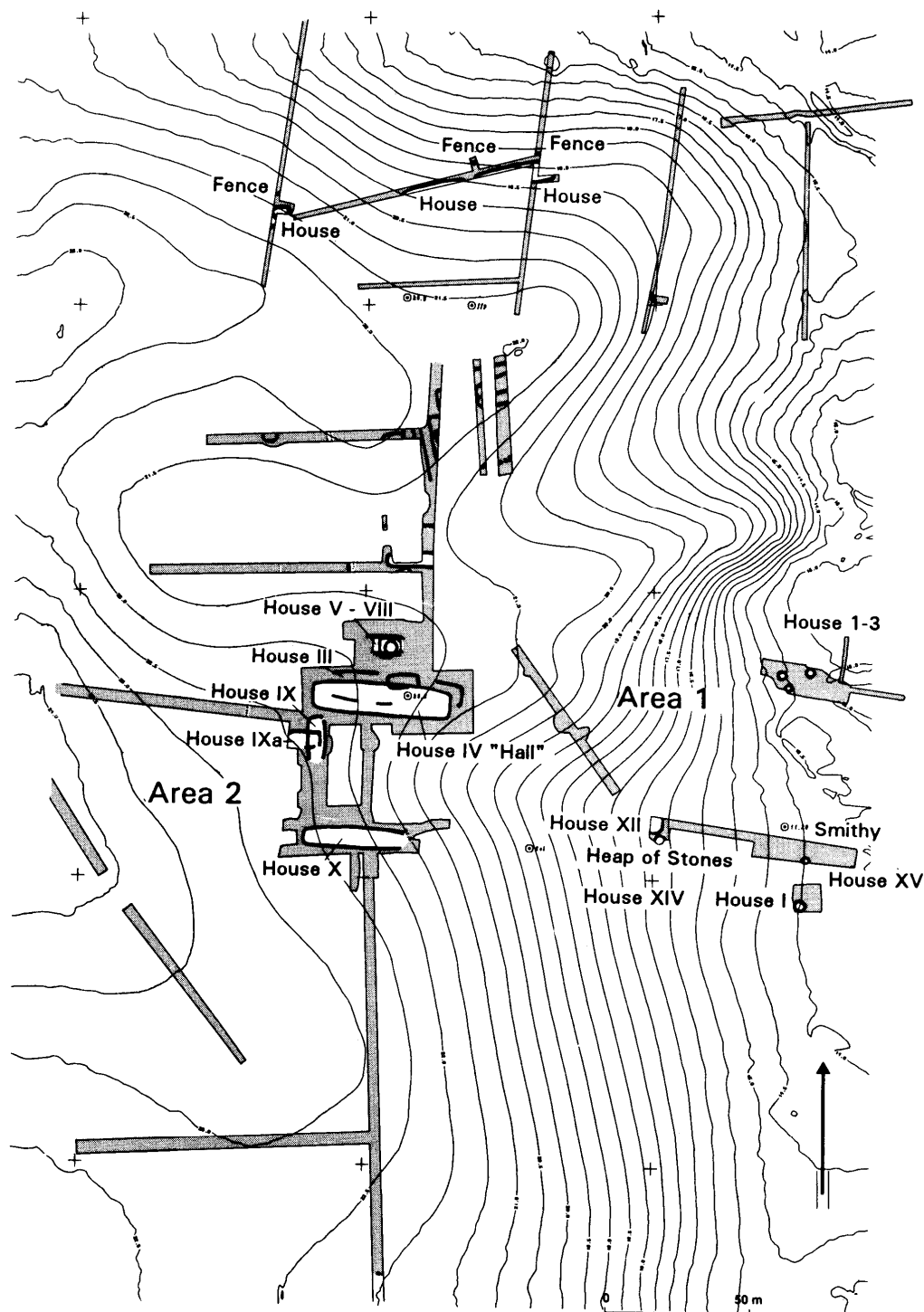


Fig. 6. Plan of the settlement area in Lejre with excavation sites and trial trenches indicated. After T. Christensen 1991.

the black culture layer, more than one metre thick, is deposited.

Area 2. Immediately to the west of the village the ground rises 5–7 m and forms a table-land intersected by glacial stream valleys, which cut the area into more or less

marked hills. On three of these rather small hills to the west and south of the village most of the settlement area is found. Years of ploughing have totally destroyed any culture layers here. What is left is the characteristic black soil.

Method and Purpose of the Investigation

The purpose of the investigation was partly to delimit the settlement area which is to be scheduled, and partly to get some idea of the structure and exact dating of the settlement.

By means of trial trenches, two metres wide, it was possible to delimit a 200.000 sq.m. area with traces of settlement (fig. 6). The excavation squares were laid out to unearth single elements of the settlement such as buildings, fences, etc. Less than 5% of the settlement area has been excavated, and in the areas which were subject to further investigation only part of the structures unearthed were actually excavated, and of these structures if possible only 50% were removed.

This excavation strategy, which implies a much restricted excavation activity, of course creates a number of unanswered questions, but in return, it saves a large part of the monuments for posterity.

"The Hall" - House III, House IVab and House IVc

The remains of a great building, a 48.5 metres long house (house IV), appeared on a slope facing south (fig. 8). At first sight the plan of the area seems rather chaotic; there are one or more frame shaped trench figures and a confusing amount of post-holes. Thus it was clear from the beginning of the excavation that there were not just one, but several buildings of the same shape erected almost in the same place. In addition the location at the edge of a hill has resulted in a very varied "wear" of the area, so that the difference of height between the western part of the house standing on high ground and the lower southern part was more than a metre.

Considering the size of the houses once erected here, this place may well have been where the most important building was situated, going through successive phases of rebuilding, during a long period of settlement. We therefore named it "The Hall".

House III

As a consequence of the chosen excavation strategy house III was in principle not investigated. Consequently the description of this building can only be based on surface observations. The building, the gables of which were facing east and west, could be identified by means of a partly preserved wall trench and a line of external raking timber

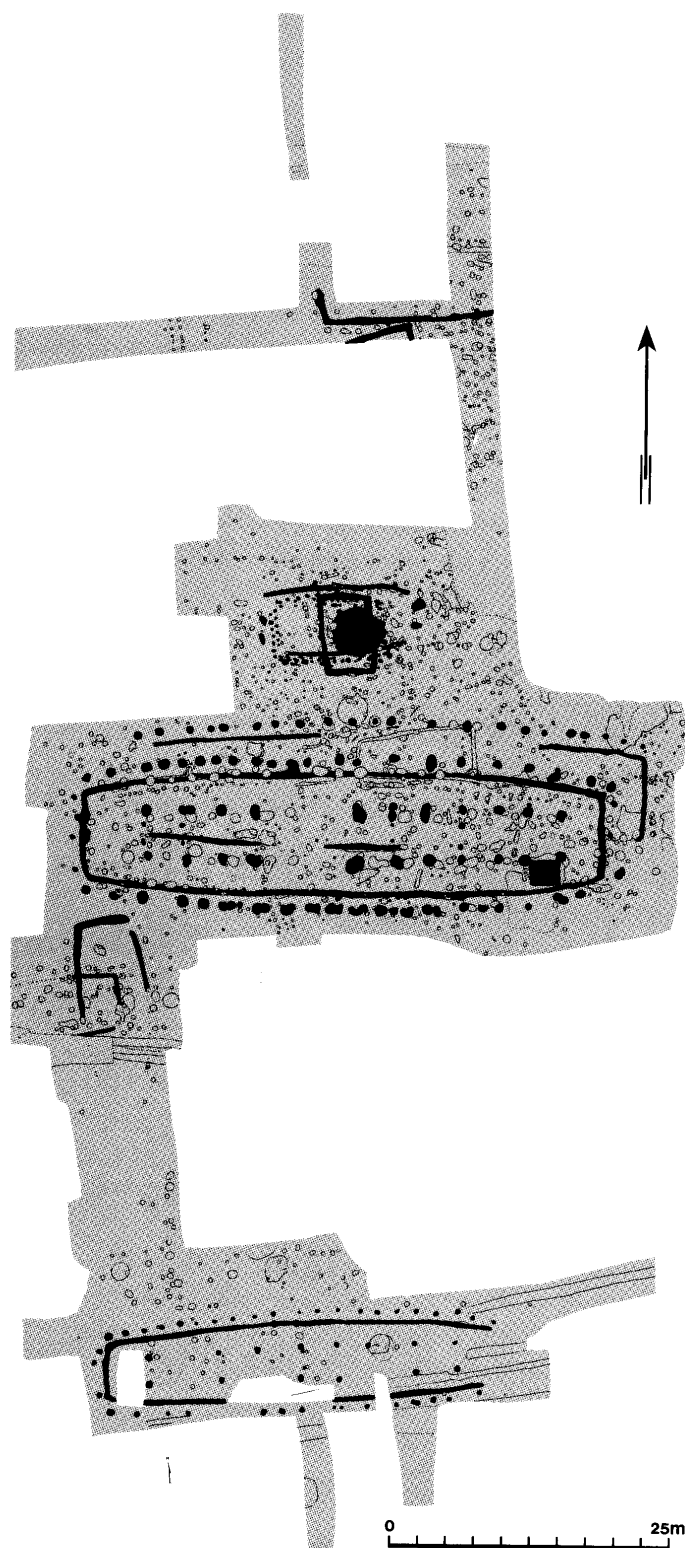


Fig. 7. Plan of the excavated areas around houses III and IV. 1:700. Drawing: Jeanette Glatved.

along the north wall. The remaining load-bearing constructions, the internal ridge posts and the external raking timber along the south wall, could not be distinguished directly, as the post-holes have been used again for the construction of house IV. House III is located to the north-east of house IV, for which reason it has been possible to use the same post-holes for the construction of this house. It seems to have taken place in the following way: The two rows of internal ridge posts in house III are identical with external raking timber along the north wall and the northern row of internal ridge posts in house IV. The post-holes for the southern line of external raking timber of house III have been used again for the construction of the southern row of internal ridge posts in house IV. The way of re-using the post-holes that is suggested here, indicates that house IV was erected immediately after the demolition of house III, in which way the task of constructing the huge building might have been less complicated.

House IVab and c

In principle these houses are identical with house III, but their state of preservation is far better, and consequently it is possible due to a meticulous excavation technique to give a more detailed description of the building, which is unique in Denmark. The house was reconstructed twice. The first of these rebuildings, house IVb, made use of almost all the old post-holes, for which reason these phases are named house IVab in the following. House IVc is identical with the second reconstruction. The walls could be identified as rows of posts standing by themselves without a foundation trench. The north wall had been located c. 1 metre southwards, thus making it possible to place the external raking timber for this wall in the wall trenches of house IVab. The location of the south wall, apart from the south-west corner, is identical with the wall line of house IVab.

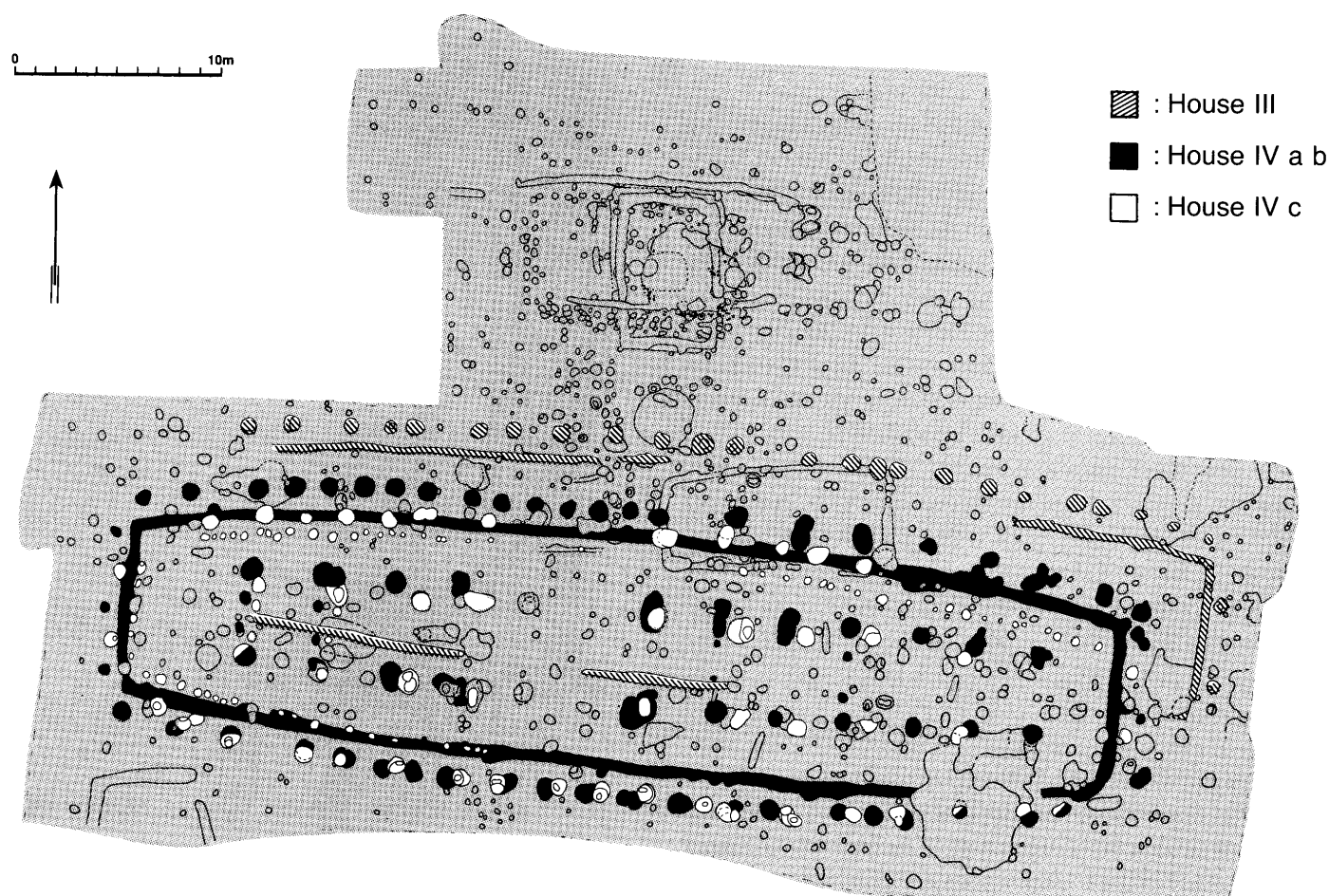


Fig. 8. Plan of houses III, IVab, and IVc. a: House III; b: house IV ab; c: house IV c. 1:350. Drawing: Jeanette Glatved.

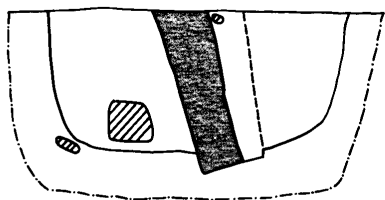


Fig. 9. Section of external raking post from house IV. 1:20. Drawing: Jeanette Glatved.

House IVab

Principle of Construction

The external walls of the house can be identified by a trench, as much as 0.5 metre wide, in which the foundations of the walls were laid. The longitudinal walls are slightly curved, whereas the gables are straight. The building is 48.5 metres long, 8 metres wide at the gables, and 11.5 metres wide at the centre of the longitudinal walls. The load-bearing construction consists of two rows of internal ridge posts in combination with lines of external raking timber along the exterior of the building.

Interior Constructions

The two rows of internal ridge posts form a three-aisled construction. There is every indication that these rows of posts curve slightly, so the distance from any internal ridge post to the nearest wall is 3 metres, although the uncertain factor concerning the re-use of post-holes must be taken into account. The distance between the posts in each pair varies from 4 metres nearest the gables to 5.5 metres at the centre of the building. The distance between the pairs is usually 3.5 metres, but the pattern is changed in a few places probably due to the division of the house. The large number of pits make it difficult to estimate the dimensions of the timber. The diameter of the different pits varies from c. 2 metres down to 0.75 metre, however most of them are c. 1 metre across. The depth of the pits was in most cases between 0.50 and 0.75 metre. In a few cases dating from the latest phase (IVc) imprints of posts or features in the soil had been preserved indicating the dimensions of the timber, which had been drawn up. In these cases the width of the timber lay between 0.15 and 0.30 metre.

The posts of the interior partitions are also part of the total interior construction. They were found in pairs, c. 2

metres apart, in between four of the sets of internal ridge posts. To judge from these posts the house was divided into at least five separate rooms.

External Raking Posts

The external raking timber could be identified as a regular row of post-holes placed at a distance of c. 1.5 metre to the walls, however, the distance at the gables was only 1 metre.

There were 22 posts along each longitudinal wall, i.e. a raking post at each set of internal ridge posts and in addition a raking post in between, in this way the distance between the raking posts is c. 1.5 metre, with the exception of the eastern part of the building, where raking posts are only found at the internal ridge posts.

These post-holes have also been re-used and worn down. The "typical" post-hole is 0.75 metre across and c. 0.50 metre deep. It was possible at several occasions to see imprints of post-holes in a good state of preservation, which made it possible to estimate the shape of the timber. The raking timber may be described on this basis as planks, 0.50 metre wide and 0.20 metre thick, slanting with the broad side against the wall (fig. 9).

At each gable there were three raking posts, placed one metre from the gable-end. It was impossible to find any imprints of the posts, but judging from the holes they seem to have been of a smaller dimension than the other raking posts.

The Walls

In the south-west corner of house IV, in particular, there were good possibilities of following the wall line on the surface. It could be determined by a c. 0.15 metre wide dark stripe of humus in the light grey soil of the foundation trench itself. During the excavation of the wall trench a feature was discovered, which to the knowledge of the author has not been described in the literature before: Underneath the 0.20–0.30 metre deep wall trench a row of pointed pegs was observed, driven down up to 0.50 metre below the bottom of the wall trench, at a regular interval of 0.38–0.40 metre (fig. 10). There seems to be no doubt that the pegs were placed exactly in the wall line. It is more difficult to prove the function. It is not possible from the excavation results alone to determine whether these

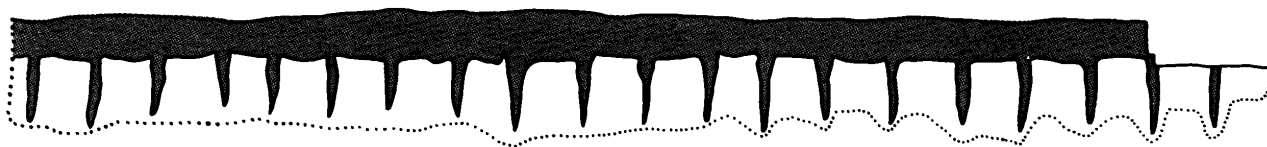


Fig. 10. Section of part of the wall trench of house IVab with pointed pegs driven into the ground. 1:50. Drawing: Jeanette Glatved.

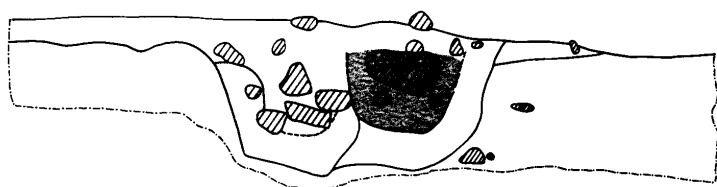


Fig. 11. Section of door-post with two phases, house IVab. 1:20. Drawing: Jeanette Glatved.

pegs were a sort of wedge meant for securing the planks during the erection of the wall, or if the wall planks themselves were pointed and driven into the subsoil.

Entrances

In four places the wall trench was interrupted by more deeply dug planks which evidently indicated the entrances (fig. 11). The best preserved post imprints show that the door cases were constructed of planks 0.50 metre wide and 0.20 m thick. Three of the four doors, two on each side, were 1.5 metres wide, whereas the fourth entrance in the north-eastern side of the building seems to have been a two metres wide gate.

Further Constructions in connection with House IV

In the south-eastern corner of house IV between two internal ridge posts and the wall a sunken hut was found, 2.5 × 2 metres and 0.5 metre deep. The construction has independent ridge posts at each gable. The small building respects both the internal ridge posts and the walls of house IV and must be part of it – possibly a cellar/store-room.

In the western part of the house, between two sets of internal ridge posts, an area could be identified which was clearly affected by fire. This may be the bottom part of a hearth, though it is impossible to prove.

A flat circular pit (1.25 metre across) full of stones made slightly brittle by fire could be seen in the south-

western corner of the house. In this case also it is difficult to determine the relation to the building, but similar phenomena have been found in Viking Period houses from Trelleborg (Nørlund 1948:83, fig. 73 and p. 85, fig. 75), and that actually applies to the store-room as well.

Dating of the Houses III and IVab and c

Typologically the great houses almost form a hybrid between the halls of the Viking Period with curved longitudinal walls and external raking timber and the traditional three-aisled longhouse with two rows of internal ridge posts.

Many of the post-holes contained animal bones. Pottery was also found in some of the holes, but only occasionally were artifacts suitable for dating purposes found. From the wall trench of house IVab there is a comb of Viking Age type (fig. 12), and in one of the post-holes of the wall line of house IVc there were some sherds of soapstone vessels. The general dating to the Viking Period is not contradicted by the more anonymous find material.

Ten carbon-14 dates were obtained using samples from the post-holes of house III, house IVab, and house IVc (fig. 13). As it will appear, the dates can be divided into two groups – one from around 660 A.D. and the other from around 890 A.D. Such a remarkable factor of simultaneity, which is the case in both of the two groups, may reflect a massive building activity at the place, i.e. the period of construction for some of the huge buildings. Most of the samples were taken from “re-used” post-holes, which of course creates the problem of which buildings that are actually dated by these samples. One of the samples from the older group was taken from a post-hole belonging to the northern row of raking timber of house III, and can, therefore, without any doubt be connected with this building. That is also the fact with a sample from the younger group taken from one of the southern raking posts of house IV. The rest of the samples come from post-holes that have been in use for both houses. It should be mentioned, however, that most of the samples

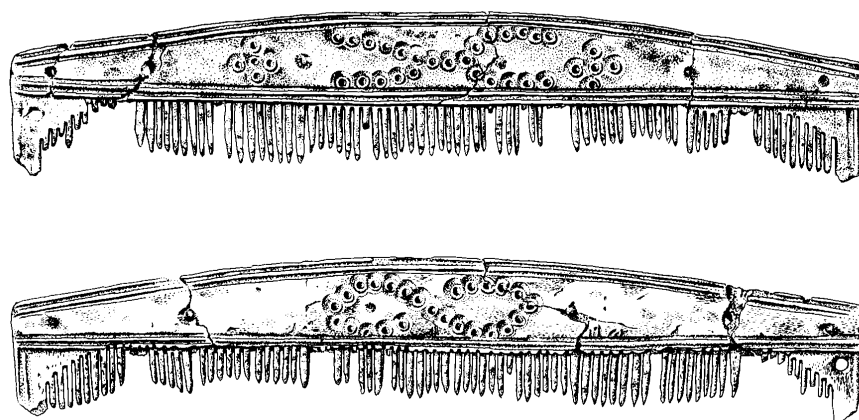


Fig. 12. Comb found in the wall trench of house IVab. Drawing: Hanne Jochumsen.

from the older group originate from the stratigraphically oldest post-hole phases, and for that reason they are much likely to belong to house III.

Bones have a low natural age, but they may in principal have come from an earlier settlement with the consequence that the huge buildings are wrongly dated. It should be noted, however, that the bones from house III and IV had sharp edges and were without any traces of disintegration or animal gnawing that might have in-

dicated that the bones had been lying on the surface for longer time. It is, therefore, reasonable to trust the older series of datings and thus the erection of the oldest house (house III) being in the late 7th century.

The younger series of datings may indicate the time of erection of one of the phases of house IV.

The conclusion must be that a huge hall has been situated in this part of the Lejre settlement from the end of the 7th century until some time in the 10th century.

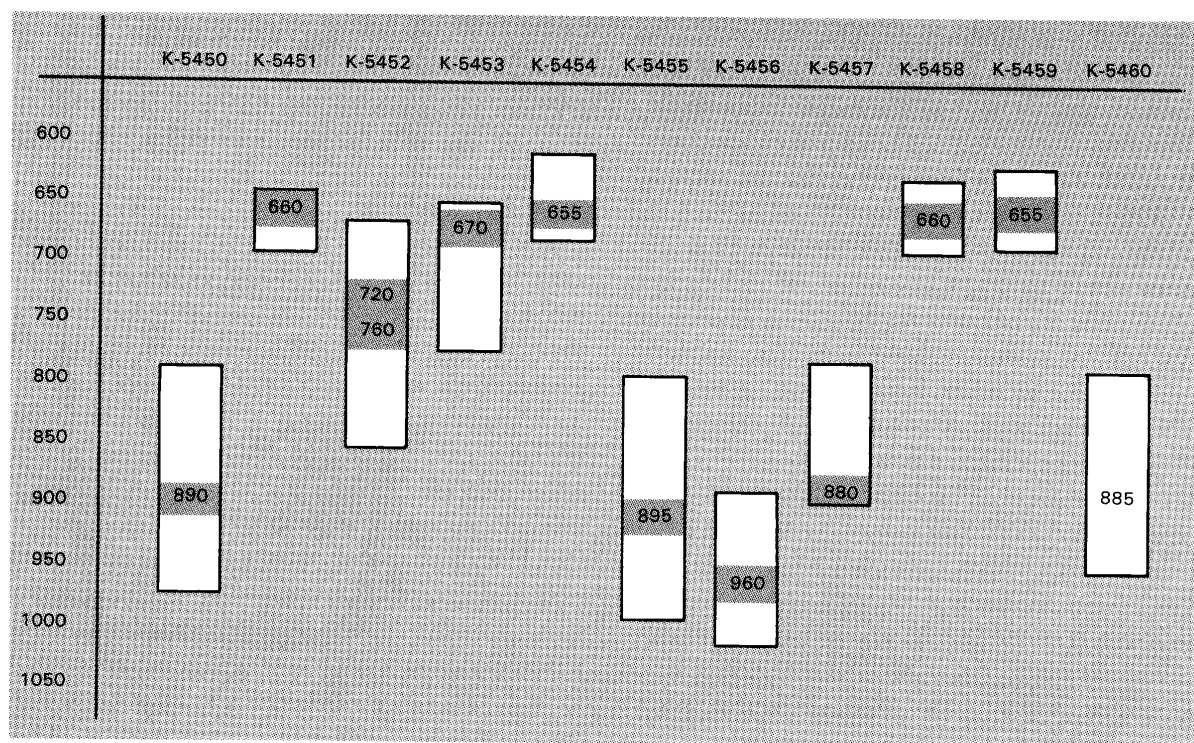


Fig. 13. Diagram with calibrated carbon-14 datings (A.D.) – calibrated after Stuiver and Pearson 1986. The datings K-5450–K-5459 are from house III, house IVab and house IVc. The dating K-5460 is from house V. Drawing: Jeanette Glatved.

House IV. Summary

Covering an area of almost 500 sq.m. the house has been an extremely large construction (fig 14). The heavy internal ridge posts in combination with the almost equally heavy raking timbers leave the impression that the construction was double secured. On the other hand the preserved post imprints show that the timber was not overdimensioned, e.g. the raking posts are somewhat smaller than the large post-holes might indicate, this is also the fact concerning the internal ridge posts. The whole building was actually far less massive than the huge post-holes on the drawing seem to indicate.

It is possible to calculate the degree of inclination of the raking posts from their imprints in the soil and thus calculate the height of the walls, supposing that the raking posts have supported the construction at the point where roof and wall meet. Taking the uncertainty connected with such calculations into account, the height of the walls may be estimated to between 3.5 and 4 metres. Naturally the large amount of load-bearing elements and the height of the walls raises the question, whether the building had a "second floor" or the many posts were there only in order to support the huge roof construction.

The location of the partition walls indicates that the house was divided into six sections. The four entrances are placed according to the partition walls and each lead to a section. A further division of the house seems likely, but cannot be traced directly.

Naturally the function of house IV must be seen in relation to the other buildings in the settlement area. If the house is viewed separately it can be difficult to determine, whether the building was meant for habitation alone, or it had other functions in addition, e.g. agricultural. However, nothing points in this direction as no partitions from a cowshed or other constructions indicating farming have been found. The sunken hut in the south-eastern corner must have been a store-room.

The location of the entrances in the longitudinal walls differ somewhat from the usual "rules" for houses of the Trelleborg type. They usually have the entrances in the gables as well as one entrance in each longitudinal wall. In these houses the large central room (the hall) is usually regarded as the centre around which the building was erected. The largest of the rooms in house IV is at least

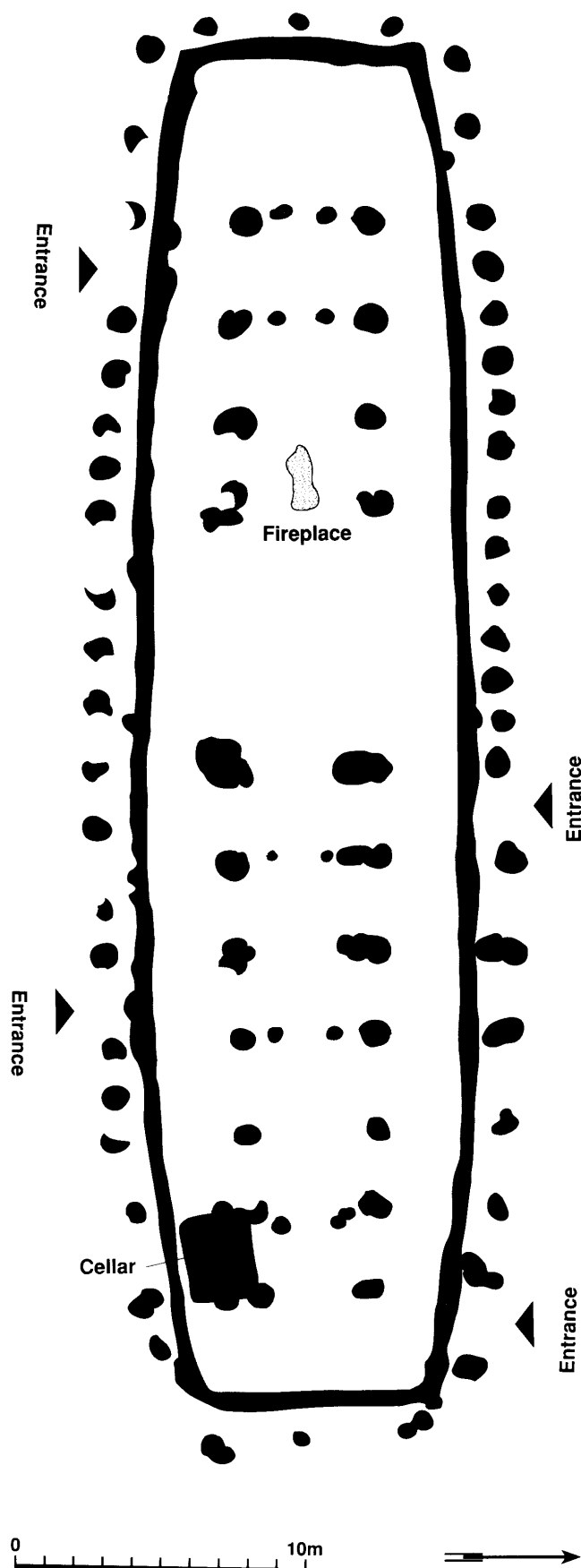


Fig. 14. House IVab. 1:250. After T. Christensen 1991.

100 sq.m., but may have been 200 sq.m. as judged from the partitions. When still comparing with the Trelleborg house-type this room must have been the centre of the building with the entrance in the centre of the northern longitudinal wall. The separate sections of the building each have their entrance. This implies that the house served different purposes such as habitation, storage, assembly hall, etc. as mentioned above. Distinctions have probably existed between not only the different functions of the building but also between its users, physically as well as socially. Masters and servants as you might say.

Houses V – VIII

10 metres north of house IV a group of four small buildings (V – VIII) were found to have succeeded one another in the same place (fig. 15).

House VI (fig. 15)

Oldest is a rectangular building, 5 × 8 metres, with a wall trench, 0.50–0.75 metres across. The up to 0.50 metre deep trench shows clear traces of at least one replacement of the wall. The impression of the wall timber indicates that the wall was constructed of 0.10 metre thick planks. The only entrance to the house, more than 1 metre wide, was found in the south-eastern corner. It was constructed of heavy planks dug deep into the subsoil. The southern plank was placed inside the room.

House VII (fig. 15)

House VII, which replaced house VI, is 15 metres long and 6.5 metres wide with curved longitudinal walls and a pair of ridge posts at each gable end. There may have been an entrance in the south-western corner of the house.

House V (fig. 15)

House VI and VII were superposed by house V. The construction of the house, a sunken hut measuring 4 × 5 metres, meant that the two other buildings were partly disturbed. At each gable end of the house, which was dug 0.40 metre into the soil, there was a thick post. The walls were indicated by pegs like the ones in the wall line of house IV. The number of pegs driven into the subsoil and

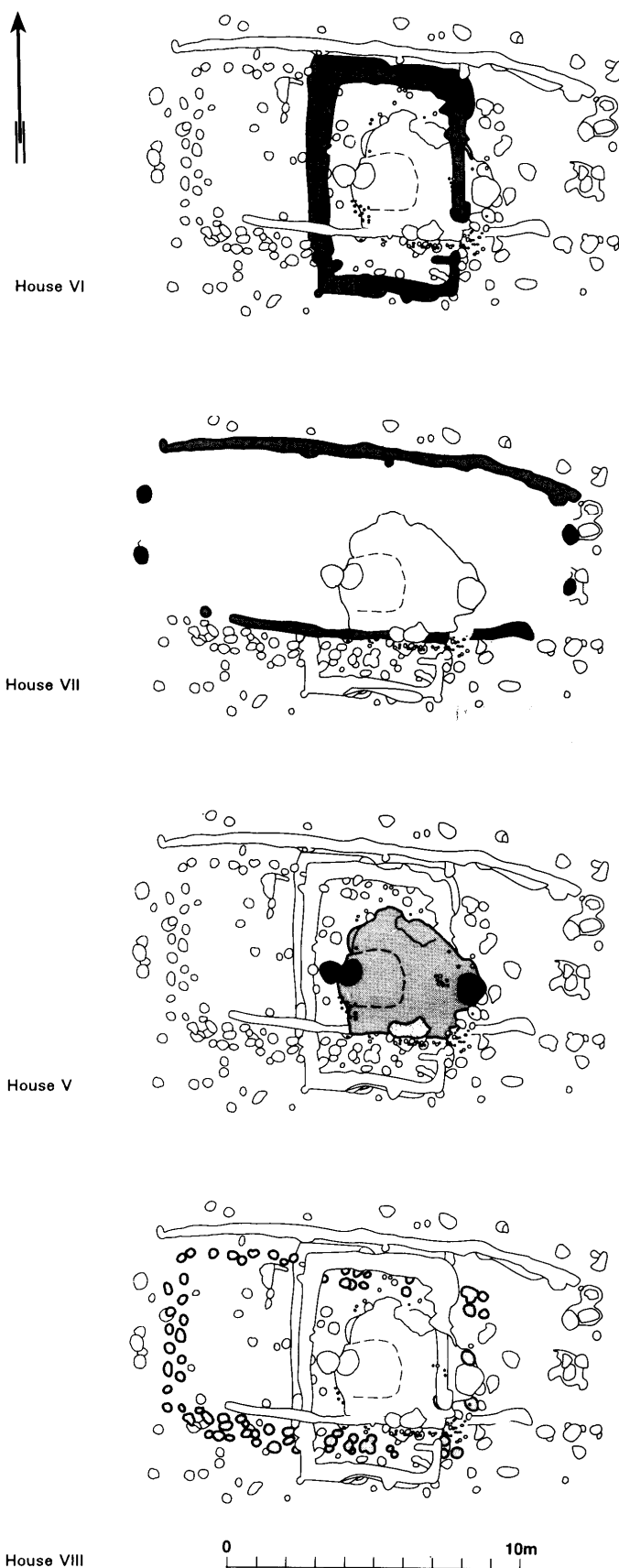


Fig. 15. House VI, VII, V and VIII. 1:250. After T. Christensen 1991.

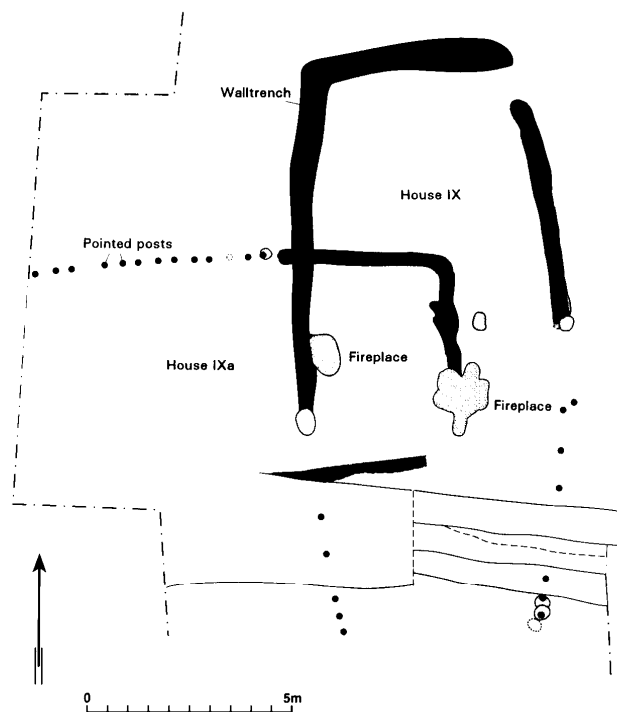


Fig. 16. House IX and house IXa. 1:200. After T. Christensen 1991.

the replacements of the posts at the gable-ends show that this building also has been renewed at least once. At the centre of the southern wall a fireplace 0.75 metre across was found, consisting of small stones, burnt brittle, mixed with soot and charcoal. The great number of pegs driven into the subsoil of the wall areas do not form a clear picture of the way of construction, however, the walls were probably made from planks. A carbon-14 sample dated to c. 900 A.D. from house V, stratigraphically the youngest of the four houses, is in agreement with the finds from it.

House VIII (fig. 15)

This is a rectangular house, 10×6 metres, situated east-west. The walls are constructed as a double row of posts, and the entrance seems to have been placed in the eastern gable-end. In spite of persistent efforts to make the stratigraphical position of the house clear, it was not possible to place it in chronological order. However, it may well be the oldest of the four buildings.

There can be no doubt that the four buildings, which differ very much in construction, have replaced each other within a limited span of years, and house V is probably the last and youngest of them.

House IX and IXa (fig. 16)

Immediately outside the south-western corner of house IV the remains of two smaller buildings, house IX and IXa, were found. The area has been seriously disturbed in recent times by ploughing and the construction of field lanes, and the prehistoric structures are consequently damaged.

A partly preserved wall trench indicated a gable and parts of two slightly curved longitudinal walls. The lack of internal ridge posts made it difficult to estimate the size of the building. However, during the excavation of the wall trench it became evident that pegs/planks driven into the subsoil had been in use here as well. By extending the sections through the presumed wall line, even in places where it could not be identified on the surface, it was possible to prove the presence of the pegs/planks and thus the position of the walls. In this way house IX could be identified as a building, 6×15 metres, standing north-south with its entrance in the north-eastern corner. A fireplace almost in the centre of the house is probably part of the building. There are some evidence of a row of external raking timber. Moreover it is worth noticing that the row of pegs driven into the subsoil of the north gable is slightly curved, which must indicate that both the longitudinal walls and the gables of this house must have been curved accordingly.

House IXa, 5.5×12 metres, is the building that replaced house IX. Apart from the fact that this house is orientated north-south the method of construction is the same. It was possible here as well to follow the pegs driven into the subsoil in the extension of the wall line. The fireplace belonging to the house was found in the east end of it.

House X (fig. 17)

House X was found 43 metres to the south of house IV and parallel with it. The western gable-ends of both houses are lying on a line. The longhouse, 36×7 metres, is in principal constructed in the same way as house IV, with internal ridge posts, external raking timber and a wall trench, under which a number of pegs were found driven into the subsoil. Nevertheless house X is totally different from house IV. Not only is the construction to judge from the excavated structures (post-holes and a wall trench) far more delicate, but the lay-out of the house is also quite different. In spite of the later disturb-

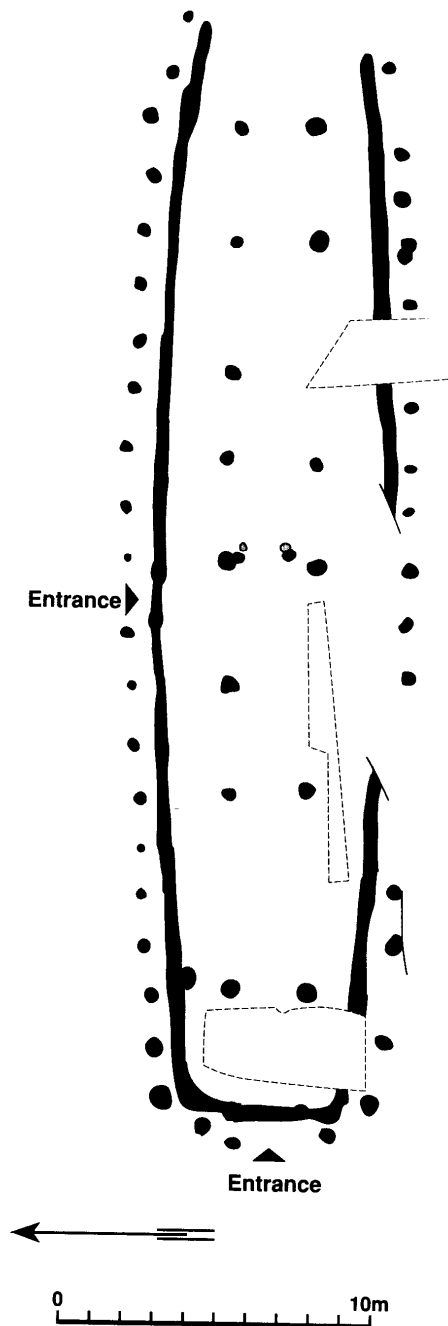


Fig. 17. House X. 1:250. After T. Christensen 1991.

ances there should be no doubt that a wall trench has never existed at the eastern gable of the house in which place a gate may have been situated. Also the western gable has had a large entrance, more than 2 metres wide. The entrance, 0.90 metre across, on the northern side was placed exactly at the only partition in the building. This building has probably been used as a storage house, stable, etc.

House XI

In the eastern part of house X the small pit house, house XI, was found (see plan fig. 7). The house may be a cellar or a store-room as it has earlier been seen with house IV, but the stratigraphical evidence seems to show that the house is younger than house X.

The remaining buildings (fig. 6)

In the trial trenches dug in this part of the settlement area traces were found of several buildings, which must belong to the settlement. In addition different sorts of boundary marks were found, such as ditches and lines of dense posts. The limit of the settlement to the north is best documented. Here a ditch with a fence indicates the boundary of this part of the settlement area.

Area 1. The Area with Occupation Layer

This area (fig. 6) is generally characterized by a brownish black occupation layer, in some places more than 1 metre thick, which naturally made area stripping by machine impossible. Therefore the investigations here were limited to a small sondage and a trial trench. These investigations, as well as the ones in area 2, served the purpose of creating an idea of the character of the settlement and the thickness of the occupation layer.

Sunken Huts (House I, XIII, XV, and House 1-3 from the 1981 Excavation) (fig. 6)

The six sunken huts excavated were all of almost the same construction: Oval pits, dug up to 0.75 metre into the soil, with a large post at each gable end. In some cases small fireplaces made of stones were found outside the houses and clearly connected with them. Apart from that the sunken huts showed no further examples of construction details; however, the ridge posts had been replaced in some cases.

House XII

In the northern end of the trial trench the corner of a post-built house was unearthed. The site was sealed by a layer, more than a metre thick, and it was, therefore, in a very good state of preservation. The load-bearing parts of the building were dug into the natural humus layer,

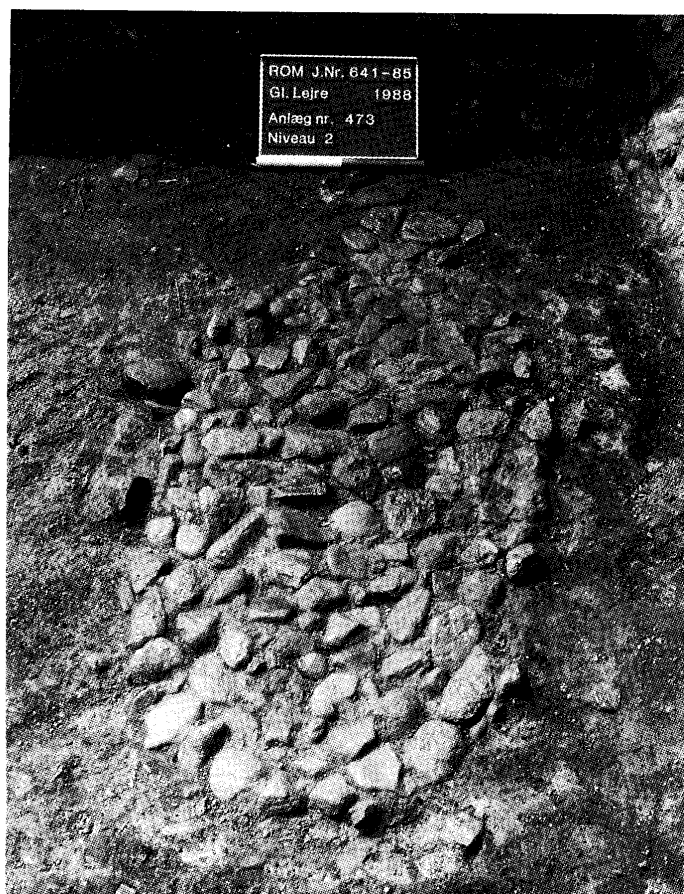


Fig. 18. Photo of oven in house XII. Photo: T. Christensen.

which was almost a metre thick here. The floor was a hard packed earth floor, and a fireplace/oven was constructed with a base of stones, covered with clay (fig. 18). On top a number of flakes of fired clay with impressions from osiers were found, some of them were pierced. The find is probably the remains of a collapsed oven. The excavated corner gives no clear indications concerning the size of the house. If the fireplace was situated in the centre of it, however, it was not a very large house. A portion of charred rye was found close to the oven (Robinson, this volume). The grain has been carbon-14 dated to 660–780 A.D., with 680 A.D. as the calibrated mean value.³ It means that the oven and the building around it were contemporaneous with the oldest part of the settlement in area 2.

A Smithy

During the excavations in trial trench 13 a feature was found that may be interpreted as the remains of a smithy. Covering a c. 10 sq.m. area a massive layer of iron slag mixed with ashes and charcoal was found. In the middle of the layer a massive cake of melted iron was identified. Even though no furnace stones or hollows for the furnace were found, it is reasonable to interpret the structure as a smithy. In connection with the “smithy-layer”, but superposing it was a 0.10 metre thick layer of sandy turf. It is impossible to determine whether it was a later applied



Fig. 19. Photo of the heap of stones. Photo: T. Christensen.

levelling layer, or for instance part of the smithy's collapsed roof or walls. Around the area a number of post-holes were detected, which may have been connected with the construction of the smithy. The smithy had been erected directly on top of the natural soil. A number of plough-marks could easily be identified in the light sandy turf bearing witness of tillage in between the other activities indicated by the finds in the culture layer.

A Heap of Stones

The most remarkable structure, and maybe the real reason why the site was so easily recognizable on the surface, is a large formation of small fired stones mixed with soot, ashes, and charcoal, 20 metres wide, up to 1.5 metre high, and at least 40 metres long (fig. 19). The heap of stones was clearly stratified indicating that the depositing had taken place within a long space of time. The depositing had started in a hollow, but in the course of time it was filled up, and the structure ended as a heap of stones. The younger phases of the heap cover house XII, house XIV and to some extent the smithy. It seems reasonable to believe that all the stones deposited came from the same process. However, no finds have been found to help further the interpretation of the heap. The structure is remarkably sterile. The heap most of all looks like an enormous piling up of "used" fireplaces, and it may actually be the fact, but we will not go further into that problem here.

Four thermoluminescence datings from the top and the bottom of the heap support the theory of a long depositing period, as they include the later Iron Age and the Viking Age (fig. 20). So the heap is contemporary with the other settlement finds of the area.

THE ARTEFACTS

The most abounding group of finds consists of the domestic coarse pottery, which is of so frequent occurrence during the Late Iron Age and the Viking Age. Most of the potsherds seem to come from unornamented vessels with vertical or introflexed rims and flat bases, which are characteristic of East Danish pottery (Madsen 1991:22 ff). The find material includes part of a large stamped vessel from the Late Germanic Iron Age, as well as a significant

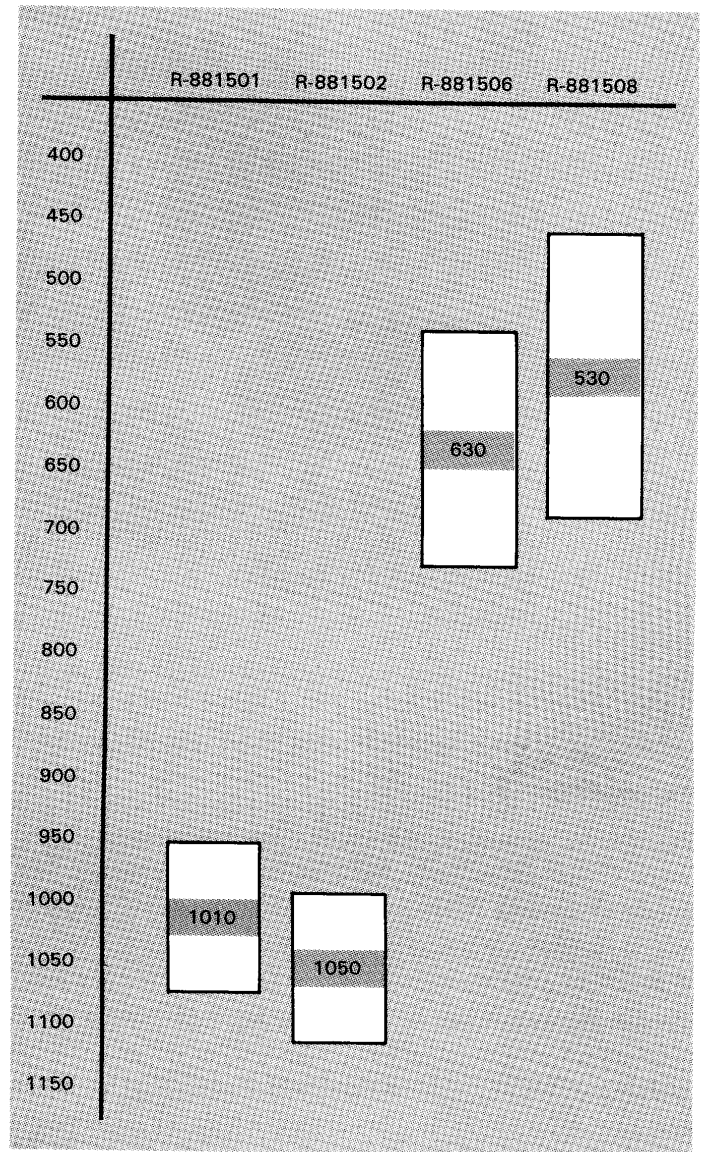


Fig. 20. Diagram with TL-datings from the heap of stones. The four datings are from the top and the bottom respectively. Drawing: Jeanette Glatved after Mejdaht 1990.

element of Late Viking Age Baltic pottery, which is mostly found in the layers filling the sunken huts of area I.

Soapstone cooking pots are represented by fragments scattered all over the excavated area. None of the pieces show traces of secondary use, but a large percentage have holes for rivets.

The find material includes many groups of small objects such as nails and rivets, small iron knives, spindle whorls, whetstones of slate, combs, and fragments of combs. Tweezers, keys, needles, and strike-a-lights were found in small numbers.



Fig. 21. A selection of ornated bronze objects from the late Germanic Iron Age. 2:3. Photo: Flemming Rasmussen.

Ornaments and Mounts

Almost 50 examples of personal ornaments and mounts were found around the excavation area, most of them made of bronze. The majority of them were found by metal detector in the topsoil, for which reason they are difficult to attribute to specific structures. The quality of the finds varies from simple imitations to distinguished works of art of the highest quality. It is estimated that only a small fraction of the find material hidden in the top soil has come to light. The datings of the objects stretch from the 7th century down to the 10th/11th century.

The finds from the Late Germanic Iron Age (fig. 21) include some rare and foreign pieces apart from the usual Southern Scandinavian types. The round piece fig. 21 h is a Norwegian brooch type (Helgen 1982:20, fig. 16). The necklace spreader fig. 21m has been changed into a large strap-end buckle. The curved piece fig. 21j is unique in Denmark, it may be a buckle, but it could also be part of a brooch.

The Viking Age finds (fig. 22) also include a number of ordinary types as well as a few unique finds. Among the rectangular brooches the fragment fig. 22e is unparalleled in Denmark. The threefoil brooches are more usual, which also applies to the circular brooches fig. 22j,n and the fragments of oval brooches fig. 22p. The exception is here a small silver fragment with a gripping beast fig. 23d.

On the reverse side there are clear textile impressions, which indicate a process of manufacture similar to the one known from oval brooches. If this is really the case the piece must have been part of an unusually magnificent oval brooch. Finds similar to the simple iron fibula fig. 30 have been found in Sweden. The small silver head fig. 23a is of Russian origin, which also applies to the small silver horse fig. 23c and a gilt silver pendant. The bronze piece fig. 25 is part of a bronze band from a comb, a type that in Denmark has been found in the Haithabu area.

Detector finds from the topsoil over settlements of the Late Iron Age and Viking Period have increased during recent years as have the number of sites where metal objects have been found (Vang Petersen 1991). Among the sites of this category Lejre must be considered rich in finds some of which are of unusual quality.

Handicraft

Combs, needles, and pins of bone and antler are items commonly found at the settlements of this period. However, it is more unusual to find cut-off points and burrs from antlers used for the manufacturing of the above mentioned objects. It should be pointed out that no traces of comb production have been found, for which reason the

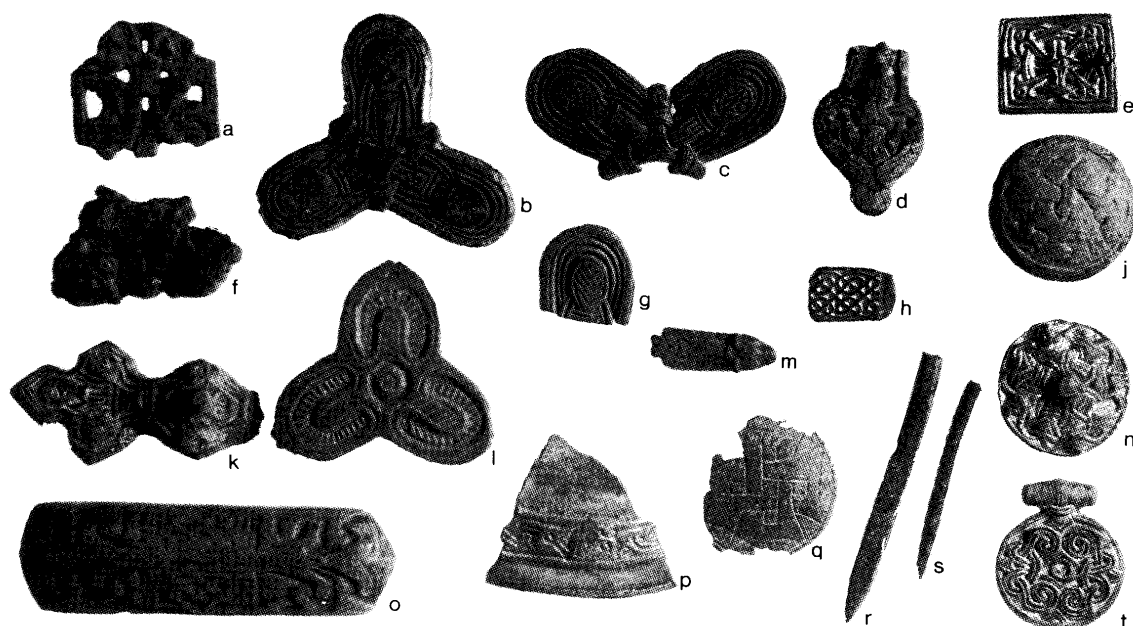


Fig. 22. A selection of ornamented bronze objects from the Viking Age. 2:3. Photo: Flemming Rasmussen.

existence of this specialized production is not yet proven at Lejre.

Apart from the smithy a number of smith's tools were found around the settlement area, both as stray finds and in connection with structures (fig. 26).

A few pieces, a half-finished bronze needle, a matrix, a model, and a core, indicate the presence of ornament production (fig. 27).

Further Finds

Apart from the soapstone vessels and whetstones from Norway/Sweden and the ornaments mentioned above, glass beads and a few fragments of drinking glasses occur.

One of the stray finds from the topsoil was a silver coin of Viking Age type, probably minted in southern Jutland during the late 8th century (fig. 28). A number of weights were also found in the topsoil (fig. 29). Here the bipolar type dominates, but other types are also represented. A few fragments of scrap silver belong to this group of finds as well.

The general representation of finds shows a site with an rich and varying inventory of finds. Apart from the traditional settlement finds, which are to be expected in a site from this period, there are many types and groups of artifacts which stretch further than the local circles and connect Lejre with the North as well as with Eastern and

Western Europe. In addition there are some indications of handicraft production and trade.

CONCLUSION

As will appear from this summary of the excavation results from Lejre, the present investigations have not yet been of an extent that makes it possible to answer all



Fig. 23. a: Human head 1,5 centimetre high; b: a pendant; c: fragment of a horse; d: a gripping beast. Silver. 3:2. Photo: Flemming Rasmussen.



Fig. 24. Gilt bronze mounting, probably from a casket. 1:2. Photo: Flemming Rasmussen.



Fig. 25. Fragment of a bronze band from a comb, length 2 cm. Photo: Flemming Rasmussen.

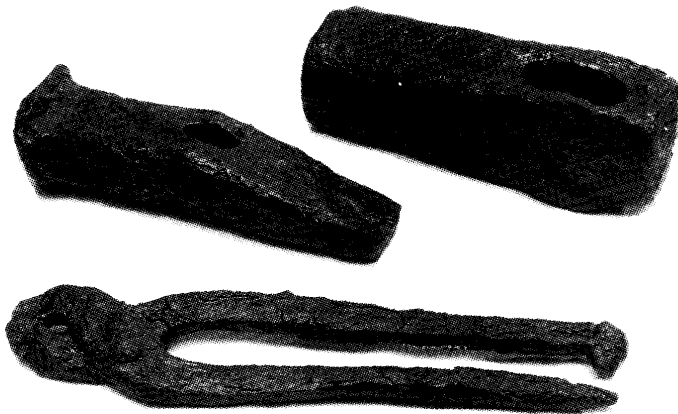


Fig. 26. Smith's tools. Photo: Flemming Rasmussen.

relevant questions, which could be put to such an exceptional settlement complex. However, some general yet important features may be deduced. Above all the division of the more than 150.000 sq.m. settlement area into a part for handicraft etc., area 1, and area 2, which consists of one or more enclosed farm complexes. The datings, archaeological as well as scientific, prove that the two areas have, at least partially, been in use at the same time.

The six sunken huts in area 1 must be understood in connection with the farm complexes in area 2, since differ-

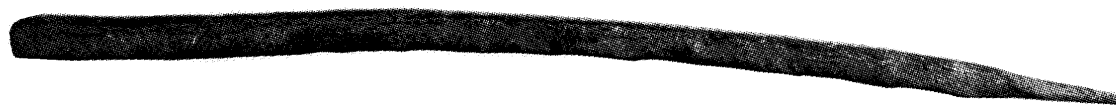
ent "service functions" such as various sorts of handicraft production, weaving, etc. may have taken place in area 1. Similar groups of sunken huts connected with farm complexes are known from several settlements in Jutland. The number of finds and the fact that the sunken huts were found in quite small excavation sites may indicate that area 1 is actually a so-called sunken hut settlement, which has functioned as a local trading centre apart from being part of the settlement complex. One should not compare with the great "international" ports of trade such as Haithabu (Jankuhn 1986), Ribe (Jensen 1991) and possibly Åhus in Scania (Callmer 1991), but compare with the number of minor ports of trade, which are quite numerous in South Scandinavia, although they have only been investigated to a small extent (Ulriksen 1990). At these sites the amount of imported finds is limited, and the presence of specialised handicrafts such as the silver-smith, the comb-maker, and the bead-maker have only been proven in a few instances. What characterizes these sites, apart from the large number of sunken huts, is their location close to waterways and roads. In this particular case the location close to one of the important waterways in Zealand, just a few kilometres from the bottom of Roskilde Fjord, may suggest that the Lejre settlement also functioned as a local trading centre.

The settlement in area 2 on the hills west of area 1 and the present village has a much different structure. Here varying sizes of longhouses are dominating. Part of the settlement seems to have the great hall (house III and house IV) as the primary structure. The surrounding buildings may have served different purposes in relation to the hall, e.g. as kitchen (house V – VIII) and sleeping quarters (house IX and IXa). House X with the open gable may have been a storage house, but no buildings can with certainty be related to farming – we are here primarily thinking of the possible presence of cowsheds with traces of pens.

The settlement in area 2 bears a strong resemblance to the large Viking Age estates found in Jutland: Omgård between Holstebro and Ringkøbing (Nielsen 1979), one of the late Viking Age farms of the Vorbasse village in central Jutland (Hvass 1980), and Gammel Hviding south of Ribe (Jensen 1987).

One of the questions that has not been answered by the present investigations, is whether the Lejre settlement consisted of one or more contemporary farm units.

No doubt the economy of a large estate was based on farming, and, therefore, the possession of land must have



been important. The hundreds of bones from livestock found during the excavations indicate clearly that agriculture played an important part in the economy of the settlement. It is worth noticing that bones from pigs dominate, contrary to the fauna material from several of the large estates in Jutland, where cattle seems to have held the leading position. As will appear from D. Robinsons paper in this volume on the botanical material from the excavations rye seems to have been an important crop. The interpretation of the feature in house XII as an oven for drying grain is interesting in this context, as it indicates that it was necessary to dry the grain before grinding.

We have tried to outline a settlement containing several functions. Area 1 is interpreted as a workshop area connected with the rest of the settlement as well as a seasonal local market place. Area 2 consists of one or more large estates. Here we find the great hall, a monumental building symbolizing the influential position of Lejre. Following this interpretation the noble family at Lejre gained its income from both trade and exploitation of land.

The archaeological material including the Lejre treasure, Grydehøj from the 7th century, and the cemetery as well as the ship setting(s) from the Viking Age, already constitutes Lejre as a central settlement in Denmark from the 6th/7th century until the 10th century. To this evidence can now be added the remains of a settlement which should be ranked as a noble estate on the basis of its economic functions and building capacity.

Other Scandinavian sites recently discovered have been interpreted as centres of the royal or noble elite, e.g. Borg on Lofoten in Norway (Johansen & Stamsø Munch 1990), and Fornsigstuna in Central Sweden (Allerstav 1991). This also applies to two settlements in England: Cheddar by the Bristol Channel (Rathz 1979) where the Wessex kings had an estate, and Yeavering (Hope-Taylor 1977), which is slightly older than Lejre and also have a mythical background. One could also mention Starigard, the old slav princely settlement in Oldenburg in East Holstein (Gabriel 1989). One feature that some of these settlements have in common with Lejre is the large hall in the centre of the settlement. In Oldenburg a number of specialized workshops have been identified. As mentioned in



Fig. 27. Core, model, and semi-finished bronze ringed pin. Bronze. Photo: Flemming Rasmussen.



Fig. 28. Coin struck in Haithabu. Carolus-Dorestad type. Shortly before 800. Malmer CE1/A2. Silver. 1:1. Photo: The National Museum.



Fig. 29. Weights. Photo: Flemming Rasmussen.



Fig. 30. Iron fibula. Drawing: Hanne Jochumsen.

the introduction, Lejre was the legendary seat of the Danish kings. The historical record, however, does not give any definite clues to understanding Lejre's position as a possible royal residence in Viking Age Denmark. Naturally the archaeological evidence cannot settle the case either, although the theory of a noble estate at Lejre is now well supported by the new discoveries. Did Lejre hold a position in later prehistoric times which was similar to the position held by the city of Roskilde in the Early Medieval Period? – Roskilde was chosen as the place of burial by the royal family. King Harold Bluetooth was buried here in the late 10th century, and the town prospered under the reign of his son Sweyn Forkbeard. In c. 1020 the powerful episcopal see of the bishop of Zealand was established here, a royal mint was in function in the 11th century, and the city became one of the most important centres in Early Medieval Denmark. There may well have been a connection between the dismantling of the pagan estate in Lejre, with its roots in the old tribal community, and the establishing of Roskilde, the “modern” Medieval city of the king and the church.

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NOTES

1. The National Museum, Copenhagen, no. 6907.
2. K-2352 – K2354, uncalibrated date.
3. K-5868, calibrated after Stuiver & Pearson 1986.

Appendix

List of animal bones from the excavations at Gl. Lejre 1986 – 1988 (Georg Nyegaard *det.*)

Fishes (<i>Pisces</i>):	No. of fragments:
Herring, <i>Clupea harengus</i>	c. 85
Salmon family, <i>Salmo</i> sp.	2
Eel, <i>Anguilla anguilla</i>	1
Garfish, <i>Belone belone</i>	4
Cod, <i>Gadus morhua</i>	c. 43
Plaice or flounder, <i>Pleuronectes platessa</i> / <i>Platichthys flesus</i>	13
Birds (<i>Aves</i>):	
Spornbill, <i>Platalea leucorodia</i>	2
Grey-lag goose or domestic goose, <i>Anser anser</i> / <i>Anser domesticus</i>	17
Domestic goose, <i>Anser domesticus</i>	5

Mallard, wild or domestic, <i>Anas platyrhynchos</i> / <i>Anas domesticus</i>	7
Red-breasted merganser, <i>Mergus serrator</i>	1
Domestic fowl, <i>Gallus domesticus</i>	15
Crow, <i>Corvus corone</i>	3
Jackdaw, <i>Corvus monedula</i>	1
Blackbird, <i>Turdus merula</i>	1
Mammals (<i>Mammalia</i>):	
Beaver, <i>Castor fiber</i>	1
Water vole, <i>Arvicola terrestris</i>	7
Wolf/dog, <i>Canis lupus</i> / <i>Canis familiaris</i>	1
Dog, <i>Canis familiaris</i>	11
Fox, <i>Vulpes vulpes</i>	3
Badger, <i>Meles meles</i>	1
Cat, <i>Felis domesticus</i>	1
Grey seal, <i>Halichoerus grypus</i>	1
Pig/wild boar, <i>Sus scrofa</i> / <i>Sus domesticus</i>	1
Pig, <i>Sus domesticus</i>	1145
Roe-deer, <i>Capreolus capreolus</i>	4
Red deer, <i>Cervus elaphus</i>	23
Sheep/goat, <i>Ovis aries</i> / <i>Capra hircus</i>	379
Cattle, <i>Bos taurus</i>	635
Horse, <i>Equus caballus</i>	61

REFERENCES

- ALLERSTAV, A. *et al.* 1991: *Fornsigtuna – en kungsgårds historia*. 1991.
- ANDERSEN, H. 1958a: Lejre. *Skalk* 1958 nr. 2.
- 1958b: Grydehøj. *Skalk* 1958 nr. 4.
- 1960: Hovedstaden i riget. *Nationalmuseet Arbejdsmark* 1960, pp. 13–35.
- ANDERSEN, S.W. 1977: Vikingerne i Lejre. *Historisk årbog fra Roskilde amt* 1977, pp. 11–23.
- BACKHOUSE, J. M. 1984: Beowulf. In J. BACKHOUSE *et al.* (eds.): *The Golden Age of Anglo-Saxon Art*. London 1984, no. 155.
- BERESFORD, G. 1987: Goltho. The Development of an Early Medieval Manor c. 850 – 1150. English Heritage. *Archaeological Report* no. 4. 1987.
- CALLMER, J. 1991: Plaster med anknytning till handel och hantverk i yngre järnålder. Exempel från södra Sverige. In P. MORTENSEN & B. RASMUSSEN (eds.): *Høvdingesamfund og Kongemagt. Fra Stamme til Stat i Danmark* 2. Jysk Arkæologisk Selskabs Skrifter XXII:2. Aarhus 1991, pp. 29–46.
- CHRISTENSEN, T. 1991: *Lejre – syn og sagn*. Roskilde 1991.
- DAVIDSON, H. E. (ed.) 1979: *Saxo Grammaticus: History of the Danes* I. London 1979.
- DAVIDSON, H. E. 1980: *Saxo Grammaticus: History of the Danes* II (commentary). London 1980.
- FRIIS-JENSEN, K. & C. LUND 1984: *Skjoldungernes saga*. København 1984.
- GABRIEL, I. 1989: Zur Innenbebauung von Starigard/Oldenburg and Hof- und Sakralkultur sowie Gebrauchs- und Handelsgut im Spiegel der Kleinfunde von Starigard/Oldenburg. *Bericht der Römisch-Germanischen Kommission*. Band 69. 1989 Frankfurt a.M., pp. 55–87 and pp. 103–263.

- HAARDER, A. 1984: *Sangen om Bjovulf*. I dansk gengivelse ved Andreas Haarder. København 1984.
- HELGEN, G. 1982: Odd og egg. Merovingertidsfunn fra Hordaland, Sogn og Fjordane. *Arkeologiske Avhandlinger*. No.3 – 1982. Bergen.
- HOPE-TAYLOR, B. 1977: Yeavinger; an Anglo-British centre of early Northumbria. *DoE Archaeological Rapport* 7. London 1977.
- HVASS, S. 1980: Vorbasse. The Viking-Age Settlement at Vorbasse, Central Jutland. *Acta Archaeologica*, vol. 50, 1979, pp. 137–172.
- 1983: Vorbasse. The Development of a Settlement through the first Millennium A.D. *Journal of Danish Archaeology* vol. 2, 1983, pp. 127–136.
- JANKUHN, H. 1986: *Haithabu. Ein Handelsplatz der Wikingerzeit*. 8. auflage. Neumünster 1986.
- JENSEN, J.V. & H. KYRRE 1948: Snorre Sturlasson: *Heimskringla*. Oversat af Johannes V. Jensen og Hans Kyrre. København 1948.
- JENSEN, S. 1987: Hvidings vikinger. *Skalk* 1987 nr. 1.
- 1991: *Ribes Vikinger*. Ribe 1991.
- JOHANSEN, O.S. & G. STAMSØ MUNCH 1990: Borg i Det Norske Arkeologmøtet. *NAM-NYTT*. Informationsblad nr. 2, 1989/90.
- JØRGENSEN, B. 1981: *Dansk Stednavneleksikon. Øerne øst for Storebælt*. København 1981, p. 73.
- LAING, S. (tr.) 1961: Snorri Sturluson, *Heimskringla: Sagas of Norse Kings* (tr. S. Laing, rev. P. Foote). London, New York 1961 (and later).
- LARSEN, M. 1943 – 46: *Grottesangen. Den ældre Edda I-II*. København 1943–46.
- LUKMAN, N.C. 1943: *Skjoldunge und Skilfinge. Classica et Mediaevalia Dissertationes*. København 1943.
- LUND, C. 1983: *Rolf Krakes saga*. København 1983.
- MADSEN, H.J. 1991: Vikingetidens keramik som historisk kilde. In P. MORTENSEN & B.M. RASMUSSEN (eds.): *Høvdingesamfund og Kongemagt. Fra Stamme til Stat i Danmark* 2. Jysk Arkæologisk Selskabs Skrifter XXII. 2. Aarhus 1991, pp. 217–234.
- MEJDAHL, V. 1990: A Survey of Archaeological and Geological Sables Dated in 1989. *Geoskrifter nr. 34, 1990*. Geologisk Institut Aarhus Universitet 1990.
- NIELSEN, L.C. 1979: Omgård. A Settlement from the Late Iron Age and the Viking Period in West Jutland. *Acta Archaeologica*, vol. 50. Copenhagen 1979, pp. 173–208.
- NØRLUND, P. 1948: *Trelleborg*. Nordiske Fortidsminder IV. Bind, 1. hefte. København 1948.
- OLRIK, J. 1900–01 a: Sven Aggesen: Danernes historie. *Krøniker fra Valdemarstiden*, oversat af Jørgen Olrik. København 1900–01.
- 1900–01 b: Lejrekrøniken. Krøniken om Lejrekongerne. *Krøniker fra Valdemarstiden*, oversat af Jørgen Olrik. København 1900–01.
- 1979: *Saxo. Danmarks Riges Krønike*. (Danernes Bedrifter). Oversat af Jørgen Olrik 1908–12. København 1979.
- OLRIK, J. & RÆDER, H. (eds.) 1931: *Saxonis Gesta Danorum I*. Havnæ 1931.
- RATHZ, P.A. 1979: The Saxon and Medieval Palaces at Cheddar. *BAR* 65. Oxford 1979.
- ROBINSON, D. 1993: Plant Remains from the Late Iron Age/Early Viking Age Settlements at Gammel Lejre. *Journal of Danish Archaeology*, vol. 10, 1991, pp. 191–198.
- SKOVGAARD-PETERSEN, I. 1977: *Oldtid og Vikingetid*. Danmarks historie bind 1. Tiden indtil 1340. A. E. CHRISTENSEN (ed.). København 1977.
- STUIVER, M. & PEARSON, G.W. 1986: High-precision calibration of the Radiocarbon time scale, AD 1950–500 BC. *Radiocarbon*, vol. 28, No.2B, pp. 805–838.
- SØRENSEN, S.A. 1982: Nye arkæologiske udgravninger i Gl. Lejre (1981). *ROMU II. Årsskrift for Roskilde Museum* 1982, pp. 29–46.
- TRILLMICH, W. VON 1970: *Thietmar von Merseburg. Chronik*. Neuübertragen und Erleutert von Werner Trillmich. Darmstadt 1970.
- ULRIKSEN, J.M. 1990: Teorier og virkelighed i forbindelse med lokalisering af anløbspladser fra germanertid og vikingetid i Danmark. *Aarbøger for Nordisk Oldkyndighed og Historie*. København 1990, pp. 70–101.
- VANG PETERSEN, P. 1991: Nye fund af metalsager fra yngre germansk jernalder. Detektorfund og danefæ fra perioden 1966–88. In P. Mortensen & B.M. Rasmussen (eds.): *Høvdingesamfund og Kongemagt. Fra Stamme til Stat i Danmark* 2. Jysk Arkæologisk Selskabs Skrifter XXII. 2. Aarhus 1991, pp. 49–66.
- WILSON, D. 1960: Irsk-britisk import i Lejre. *Nationalmuseets Arbejdsmark* 1960, pp. 36–37.
- WORSAAE, J.J.A. 1843: *Danmarks Oldtid oplyst ved Oldsager og Gravhøje*. Kjøbenhavn (English ed.: *The Primeval Antiquities of Denmark*. London 1849).