

## Medieval farm houses in Eastern Denmark 1200-1600. Archaeological evidence for two different building techniques and reflections on function analysis

Ländlicher Hausbau in Ostdänemark 1200-1600.  
Archäologische Belege für zwei verschiedene Bautechniken und Überlegungen  
über eine Interpretation der Funktion

Propriétés rurales médiévales au Danemark de l'Est 1200-1600.  
Témoignage archéologique de deux techniques de construction  
et des réflexions sur une méthode de l'analyse de fonction

Henriette Rensbro

*In Denmark the tradition of timber-framed buildings combined with a wall infill of wattle-and-daub has survived from the Stone Age into the 19th century. Over time, however, building techniques have changed.*

*At the beginning of 13th century only two house types were in use in Eastern Denmark: Types I and II.*

*House Type I: Each long-wall consisted of a row of posts, connected by a wall-plate at the top. As the posts were not pairs, they were not necessarily opposite to each other, nor tied across the house. Tie-beams connecting the two wall-plates kept the house together.*

*House Type II: Is made up of cross-frames (bindinger), i.e. individual sections consisting of a pair of wall-posts, one at each side of the house, which are connected transversely by a tie-beam to the long-walls. The sections were held together by a wall-plate on top of each long-wall.*

*It is proposed that in future we should use three functional categories instead of the traditional two: dwelling and outhouse/economy. The new categories are primary economy, secondary economy and dwelling activities.*

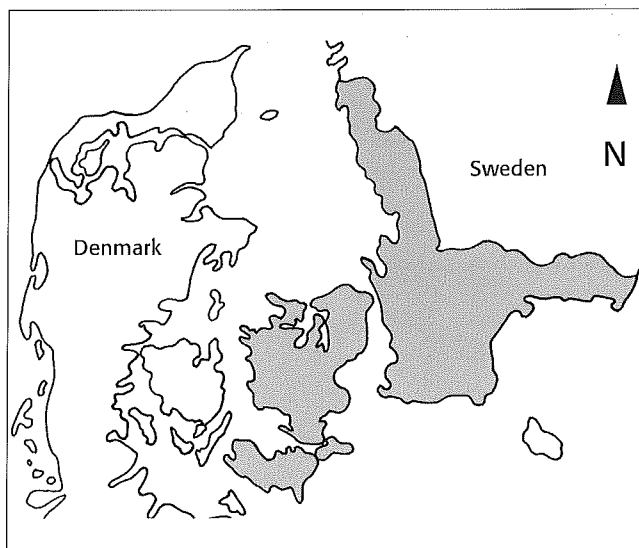
Medieval Eastern Denmark covers Sjælland with its islands and the south-western parts of modern Sweden: Skåne, Halland and Blekinge (*fig. 1*). This article presents the study of 163 buildings, which until 6 years ago was the total number of excavated farm-buildings dated to between 1200 and 1600<sup>1</sup>. The village excavations of Tårnby (Denmark) and Kyrk Heddinge (Sweden) also presented in this volume of *Ruralia* are included in the study.

In Denmark the Viking Age is dated 800-1050 AD and the Middle Ages 1050-1550 AD.

### Danish houses before 1200

In Denmark the tradition of timber-framed buildings combined with a wall infill of wattle-and-daub has survived from the Stone Age into the 19th century. Over time, however, building techniques have changed. In the Iron Age houses were three-aisled buildings with pairs of internal load-bearing earth-fast posts. The Viking Age and the Early Middle Ages was a time of innovation and experimentation with new building types in Denmark. Most of these types disappeared before the end of 12th century, as did

the above mentioned three-aisled house in Eastern Denmark<sup>2</sup>.



**Fig. 1.** Map of Medieval Denmark, showing the area under discussion.

<sup>1</sup>This article is based on a paper from 1998, which will be published as: *Rensbro 2002*.

<sup>2</sup>For more information on housetype before 1200 and in Western Denmark see *Skov 2002* and *Klemensen 2001*.

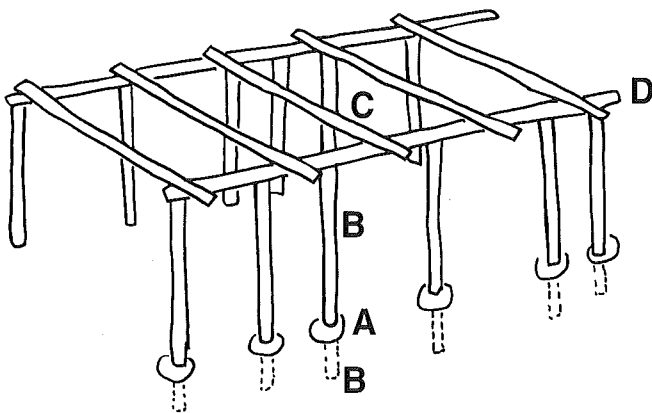
## Housetypes in Eastern Denmark from 1200

At the beginning of 13th century only two house types were in use in Eastern Denmark: Types I and II. Type I is called "One-aisled-wall-plate-construction" (1-skibet-tagremskonstruktion) and Type II is called "Medieval-post-and-beam-frame-construction" (proto-bindingsværk)<sup>3</sup>. Both terms have emerged as a result of this study. Earlier on archaeologists did not distinguish between the two house types, which were often simply looked upon as one-aisled timber-framed medieval houses<sup>4</sup>.

A very important technical aspect of a building is the load-bearing construction, i.e. how the roof is supported<sup>5</sup>. Both House Type I and House Type II were rectangular, one-aisled buildings with load-bearing wall-posts, about 5 m wide, and of varying lengths. But apart from this the two methods of construction were very different.

### House Type I

The One-aisled-wall-plate-construction (fig. 2), is one coherent method of construction. Each long-wall consisted of a row of posts, connected by a wall-plate at the top. As the posts were not pairs, they were not



**Fig. 2.** Reconstruction of House Type I (1-skibet-tagremskonstruktion) without a roof. A - posthole (stolpehul); B - load-bearing wall post (tagbærende vægstolpe); C - tie-beam (tværbjælke); D - wall-plate (tagrem).

<sup>3</sup>The translation of Danish terms into English is complicated and partly misleading.

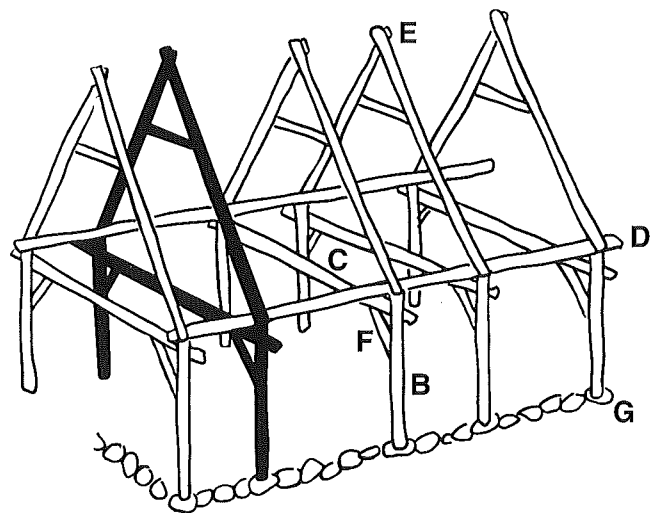
<sup>4</sup>In Norway however the two house types are known as: stavelinehus (House Type I) and grindhus/bukkehus (House Type II). Schjelderup (ed.) 1997 and 1999.

necessarily opposite to each other, nor tied across the house and bays did not exist. Tie-beams connecting the two wall-plates kept the house together. This building technique is not very stable, but it is simple, and it is known to have been used by the farmers themselves in the 19<sup>th</sup> century in one area where building techniques resembled some aspects of House Type I construction<sup>6</sup>.

The archaeological evidence of House Type I is two straight rows of load-bearing wall-posts. The posts were placed irregularly, i.e. not as pairs (fig. 4). House Type I was an innovation of the Early Middle Ages and disappeared at the end of the 17th century.

### House Type II

The Medieval-post-and-beam-frame-construction (fig. 3), is made up of cross-frames (binder), i.e. individual sections consisting of a pair of wall-posts, one at each side of the house, which are connected transversely by a tie-beam to the long-walls. The space between the sections is a bay. The sections were held together by a wall-plate on top of each long-wall. This building technique is at the same time very stable and



**Fig. 3.** Reconstruction of House Type II (proto-bindingsværk) with proposed couple rafter roof (spærttag). B - load-bearing wall post; C - tie-beam; D - wall-plate; E - trussed rafter (sp r); F - up brace (skråbånd); G - padstones (stensyld).

<sup>5</sup>The bole-house: In the Danish house research tradition the bole-house (bulhus) is sometimes described as a building technique of its own. This is a misunderstanding as bole is just panel infill of the walls as is wattle-and-daub. And wall-filling must not be confused with the load-bearing construction of a house. Moreover, this study has revealed that bole walls are most uncommon in the countryside in Eastern Denmark from at least 1200.

<sup>6</sup>Lerche 1971.

easily allows for both shortening and extending the building. On the other hand it is likely that building a house in most cases required professional assistance by carpenters.

The archaeological evidence of House Type II is two straight rows of load-bearing wall-posts. The posts are placed as pairs, one in each long wall opposite each other (fig. 4). House Type II is a direct successor of the construction techniques of the Iron Age house, and survived in the one-aisled post-and-beam-framed buildings (bindingsværk) of the 18th and 19th century.

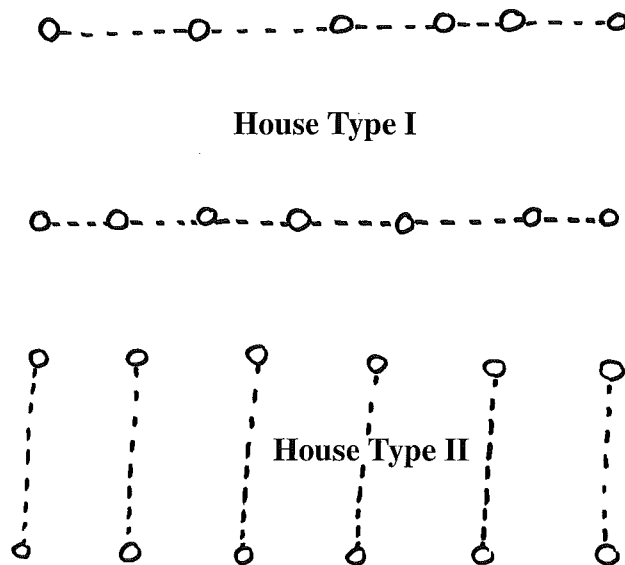


Fig. 4. Plan of House Types I and II, showing wall-posts.

## Roofs

The archaeological evidence to date does not provide much information on roof construction and roofing materials. On present evidence we only know that both house types are most likely to have had either a coupled, rafter roof (simpelt spærttag) consisting of trussed rafters (spær), or a common rafter construction (rafte-tag) i.e. rafters joined to a ridge purlin (taggås) at one end and resting on the long-walls at the other note: *Jensen 2001*.

## House Type II survival

Both house types existed in the period under discussion: 1200-1600. But although Type I was the most common in the 13th century, the balance gradually changed so that by the 17th century Type II was the most common.

<sup>7</sup> Earth-fast posts are known to survive into the 18th century, perhaps only as exceptions, or in specific areas. See *Vensild 1994*.

In the 18th century countryside houses were still timber-framed, based on padstones or stone foundations, with trussed frames, consisting of pairs of load-bearing wall-posts and trussed rafters, and a wall infill of wattle-and-daub, or bricks. This house type, which is very similar to the medieval House Type II, is in Danish called "bindingsværk" note: *Stoklund 1969*.

## Foundation as the key factor

Both house types were built either with earth-fast posts or on padstones or sills. House Type I though, most often has earth-fast posts which suits its less stable building construction better, while House Type II, on the contrary, is generally found with padstones.

The change from use of earth-fast posts to use of padstones or sills happened mainly in the Middle Ages<sup>7</sup>. The speed with which earth-fast posts were replaced by padstones or sills varied, possibly due to the strength of regional traditions and economy in the use of materials. In Skåne the change in general happened later than in Sjælland. This may be because of easier access to building materials. In Skåne the change from House Type I to House Type II also happened later than in Sjælland.

It is tempting to interpret the builders preference for one house type over another as mainly being related to the accessibility of suitable building materials, which also governed the choice of foundation. Perhaps earth-fast posts were retained in preference to sills for as long as possible.

Other factors, however, had a considerable influence on the choice of house type.

## Change of the carpenters tools

During the Middle Ages carpenters changed from mainly using an all-round axe to the more widespread use of different kinds of axes and other tools, such as a saw. This had a great impact on building techniques, such as joining two pieces of timber together. An axe is well designed for cutting half-lap joints (blade), while a saw is better for making tenons in a mortise and tenon joint (tappe).

In an area where building techniques in 19th century resembled House Type I, only half-lap joints were in use in farmhouses built by the farmers themselves. While mortise and tenon joints were used in post-and-beam frame buildings owned by the rich farmers<sup>8</sup>.

This leads to the conclusion that in the Middle Ages most farmers had to build their own houses and axes were the main house-building tool. This gradually changed during the Middle Ages so that by the 17th century it was most normal to hire carpenters to build houses, or at least to buy prepared, i.e. sawed timber.

<sup>8</sup> *Lerche 1971 and Rensbro 1998/99*.

## Building technique and house function

There are undoubtedly connections between the constructional elements, such as the method of load-bearing, the foundations and the wall-infill on the one hand and the function of a building on the other, but it has not been possible to discuss them in this study. The main reason for this is the difficulty archaeologists have in determining the activities carried out in a medieval building<sup>9</sup>.

More than 90 of the 163 excavated buildings in this study were only preserved as post-holes. At these excavations only few artifacts were found. Most of the 163 buildings were single buildings excavated under conditions which did not permit a search for the rest of the presumed farmyard or buildings. This of course makes functional analysis very difficult. Hopefully, in the future, whole farmsteads will be investigated.

Often the function of an excavated building is either unknown, or is at best a guess based on inadequate evidence, such as the presence or not of a fireplace, a clay or earth floor, or internal walls, etc.

## What function?

Too many medieval archaeologists unfortunately look backwards to prehistory when analysing the function of a building. Therefore, buildings are most often described as either a dwelling-house or an outhouse, but this simple division is unsatisfactory and meaningless. Instead interpretation should come from what we know about farmlife in the 17th and 18th centuries.

The modern distinction between working hours and home life<sup>10</sup> misleads the archaeologist's perception of medieval farmlife. Furthermore modern facilities such as ready-made food and laundry machines tend to make modern people forget about the amount of work which was carried out in a household or on a farm until only a few years ago. Most of the "forgotten" activities are those formerly carried out by women.

## New functional categories

To decide what we would like to know and what we are likely to get, I propose that in future we should use three functional categories instead of the traditional two: dwelling and outhouse/economy. The new categories are primary economy, secondary economy and dwelling activities.

## Primary economy

Primary production, the means of production and the storage of agricultural produce, i.e. working with domestic animals or in the fields, the storage of agricultural tools, carpentry, working in the vegetable garden, etc.

<sup>9</sup> See *Kristiansens 2002*.

<sup>10</sup> This "modern lifestyle" is in Denmark even in the countryside the only way of living today.

## Secondary economy

The manufacture and maintenance of produce, i.e. brewing, baking, weaving, the preservation of food, bringing produce to market etc.

## Dwelling activities

Eating, sleeping, the care of children and old people, hobbies and cooking.

In the Middle Ages it is likely that no building or room would be reserved only for domestic activities, and the main activity of a room probably changed with the seasons. Therefore it makes no sense to try to determine whether a building is either a dwelling or an outhouse. The most appropriate method is to present a list of all the known activities for a given house, or room, and not to use the words: dwelling and outhouse.

In Denmark rural archaeologists are waiting for more excavations of complete farmyards, and are dreaming of an excavation of a complete medieval village.

## Bibliography

- Jensen, N. E. 2001:*  
"Byggeskik på landet" in *Landskab, bygning, menneske. Guide Frilandsmuseet. The Danish National Museum.*
- Klemensen, M. F. 2001:*  
Huskonstruktioner i tidlig middelalderlig landbebyggelse. En kritisk vurdering af udviklingsteorier og terminologi samt en analyse af udgravede hustomter i Jylland ca. 1100-1300. *Middelalder-arkæologisk Nyhedsbrev, Moesgård, DK-8270.*
- Kristiansen, M. S. 2002:*  
The reconstruction of the layout and functions of a Danish farmstead. The case of Farmstead no. II in Taarnby 1100-1180. *Ruralia IV, 34-40.*
- Lerche, G. 1971:*  
"Seitenbandkonstruktionen" in *Nordelbingen. Bd. 40. Germany.*
- Rensbro, H. 1998/99:*  
Byggeskik i Odsherred i middelalder og renæssance. In: *Fra Holbæk Amt, DK.*
- Rensbro, H. 2002:*  
Bygninger på landet. *Middelalderhuse i Østdanmark 1200 - 1650. Indsamling og analyse af arkæologisk udgravede bygninger. Middelalder-arkæologisk Nyhedsbrev, Moesgård, DK-8270.*
- Schjelderup, H. (ed.) 1997:*  
Hus på vestkysten gjennom 4000 år. *Bergen/Stavanger, Norway.*
- Schjelderup, H. (ed.) 1999:*  
Grindbygde hus i Vest-Norge. *NIKU Temahefte 30. Oslo, Norway.*
- Skov, H. 2002:*  
The development of rural house types in the old Danish region 800-1500 A.D. *Ruralia IV, 30-33.*
- Stoklund, B. 1969:*  
Bondegård og byggeskik før 1850. *Copenhagen, DK.*
- Vensild, H. 1994:*  
Jordgravede stolper, fodtømmer og andre "jordnære" bygningsforhold i Skast Herred 1636-1800. In: *Hikuin Bd. 21, Moesgård, DK-8270.*