Delphi
House of questions

EU CULTUUR 2000 Project DELPHY house of questions..
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The EU Cultuur 2000 project Delphy House of questions is a European project of three partners:

The Archeologisch Pfahlbaumuseum in Unteruhldingen (Germany)

Araisi Lake Fortress - Letland

Archeon Alphen aan den Rijn Netherlands

Friends of Archeon Association

The object of the Friends of Archeon Association is to support and propagate the history of the Netherlands as portrayed in Archeon. All members are ambassadors of Archeon and many of them are actively involved in Archeon.

For information: www.archeon.nl or E-mail: vvva@archeon.nl

Archeon is a member of EXARC
European Exchange on Archaeological Research and Communication

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EU Delphi 'House of questions' project

Introduction

EU Project Culture 2000 Delphi 'House of Question'

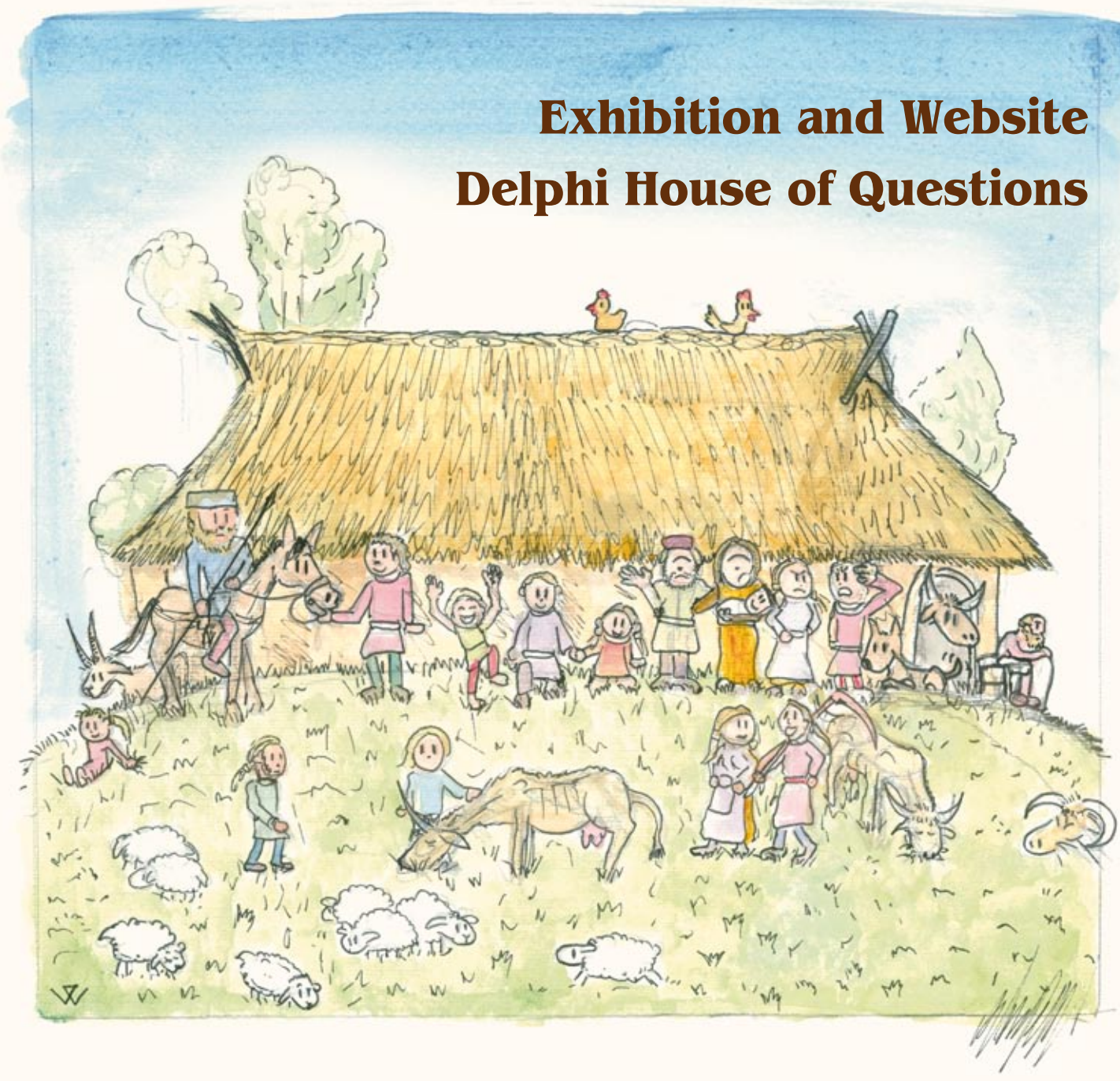
The Delphi "House of Question" project is devided into three items

A. Delphi "House of Questions" Website & Exhibition
In total, more than 750.000 visitors come to the Open Air Musea of the three partners of this project every year.
These visitors have questions, many, many questions.
Investigation has been made into these questions and over 250 of the most often asked questions can be found in 13 languages, now on the exarc.delphi.net website.
The site also states the questions of the visitors of 13 of the other members of EXARC (European Exchange of Archaeological Research and Communication)
Out of the 50 most often asked questions from the visitors of Archeon, 10 questions are exhibited in the Carolingian settlement in Archeon.

B. Historical references in the city centre of Alphen aan den Rijn
1 - Roman coins in the city square "Rijnplein"
2 - Website www.aplhenaandenrijn/romeinsalphen.nl

C. Reconstruction of two "Carolingian houses"

Exhibition and Website
Delphi House of Questions



Exhibition Delphi "House of Questions"

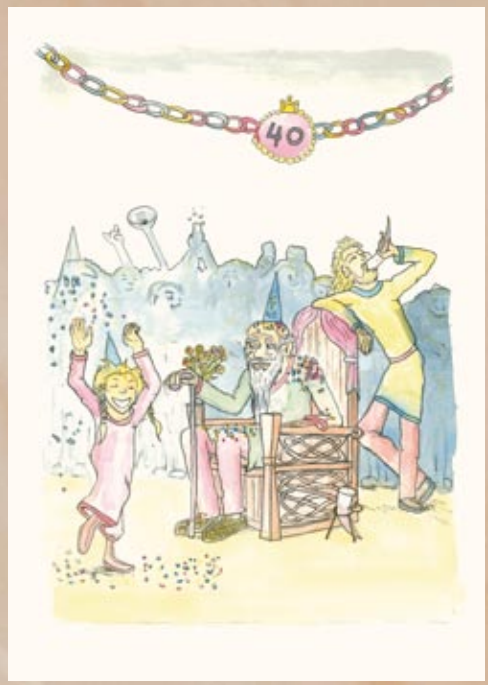
Of the 50 most asked questions asked by the more than 230.000 anual visitors of Archeon. There has been made a selection of 10 questions which are presented in an exhibition in the early mediaval house of "de Woerd".

Website Delphi "House of Questions"

The questions and the answers of more than 250 questions asked bij the visitors of 13 members of EXARC are to be seen on the website exarc.delphi.net.

What was the general life expectancy of people in the early middle ages?

Research on 66 skeletons from a burial site in the town of Susteren, dating from approx. AD 800 to 1100, has shown that women lived approx. to the age of 44 and men to the age of about 38. Child mortality is thought to have been very high. About one third of the children died before they were 5 years old.



Did people in the early middle ages use soap?

Soap is said to be a Gallic or Germanic invention.
The Romans did not use soap: they cleaned themselves with olive oil and a little bit of sand, to remove dead skin.
The soap was made of animal fat or olive oil and a caustic solution of soda or potash.
In Europe, the use of soap became more extensive in the 8th and 9th century.

What about bathing in the early middle ages?

At some places, at the beginning of the early middle ages, people continued to use the Roman bath houses for a while. Monasteries sometimes had baths as well. In 816, however, it was decided that healthy monks were not allowed to bathe. Baths have been used only by sick people. Charlemagne is reputed to have had a bath and put on clean clothes, every Saturday.

What kind of language did people in the early middle ages speak?

The language people spoke in the Netherlands in the early middle ages is now called "Old Dutch".
It is in fact a collection of dialects spoken in the Low Countries between AD 600 and 1200.
If you were a Frisian tradesman you could easily make yourself understood in the countries around the North Sea, as the dialects that were spoken there were all very much alike.
We do not know very much about the language as it was usually not written down. From the 5th century though, short texts were written down on objects. They were written in Runes. This is a kind of alphabet that was used in the whole north-western part of Europe.

Was there already some sort of traditional division of roles between men and women in the early middle ages?

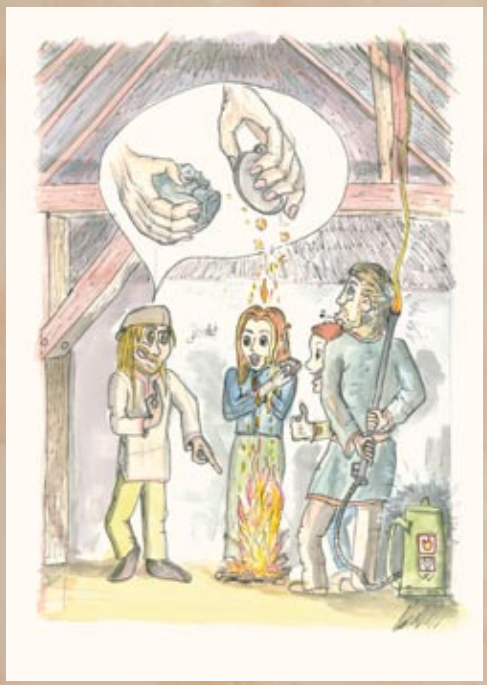
There was a traditional division of roles. Women were in charge of the upbringing of the children. They herded and milked the cattle and fed the chickens. Women did the sheep shearing, the carding of the wool, the spinning and weaving and they made the clothes. Grinding grain, preparing and conserving food and especially brewing beer were also important tasks. Men trained the oxen that were used for ploughing the land. Men were allowed to hunt game, for pleasure, but could also be called on to fight.
If a man was not a farmer, knight, soldier, poet, lord or clergyman he could practise a trade. For example, as a smith or a turner.

What did they eat in the early middle ages?

The staple diet of the early medieval people was corn, cooked with the whole grains or ground and made into porridge or bread. From meat, fish, vegetables, peas and beans they made soups and stews, seasoned with salt and herbs. Dairy products, such as milk, butter and cheese were also regular on the menu. With the meals they drank water, beer, milk or buttermilk and, at special occasions wine and mead (honey wine).
They also ate things that nowadays, we find rather strange. For instance, "shepherd's purse (plant!) and dandelion as vegetables or herons and swans as game birds. Many of the food we now find quite normal were unknown in those days. Potatoes, coffee, chocolate, tomatoes, Brussels sprouts and sugar are things the early medieval people had never heard about.

Did they have beds?

We do not know if they had beds in the early middle ages. At least not in the Netherlands. But people must have slept somewhere. At excavations in Oseberg and Gokstad (Norway) two beds have been found. They look surprisingly modern: they even have slatted boards! There are descriptions from Iceland about wooden boxes being used as beds, filled with loose straw. Because in farmhouses cows and people lived under the same roof, it was always rather damp in the house.
In spring the straw was changed. The old straw was then so mouldered that it could be shovelled out of the bed boxes and used as compost.



How were the houses heated in the early middle ages?

With wood or peat. Nearly all excavated houses show some sort of fireplace.
Often this it a round space with many pieces of charcoal and clay that is coloured orange by the heat. Sometimes the hearths have been raised. An ordinary hearth fire can reach a temperature of over 900° C. They have found houses with floor-coverings of crosswise layers of reeds.
Parts of timber floors have also been found. From later periods, we know that walls were sometimes covered with cloth (a kind of carpets). Thick clay walls are also good for keeping the heat indoors. A hide or piece of cloth in the doorway also works very well.

How tall were people in the early middle ages?

A study of a burial site from the Merovingian Period has provided us with an average height of 174 cm for men. Research on skeletons from a burial site in the town of Susteren came up with an average height of 172.5 cm.
According to the Central Statistical Office, Dutch men in 2003, had an average height of 180.4 cm and women 167.6 cm. On an average, we all (i.e. the adults) were 174 cm tall.

Now, about fire, how did they make that in the early middle ages?

There were two methods for making fire. The first was by striking a special piece of iron on flint and the second by rubbing wood on wood. The iron-on-flint was the most widely used method, sometimes people used the back of a knife to produce sparks. Friction of wood on wood was used at religious occasions.

Historical references in the city centre of Alphen aan den Rijn

Historical references in the city centre of Alphen aan den Rijn

The City of Alphen aan den Rijn is situated in the hart of the Netherlands and is a middle large city with 75.000 inhabitants.
In the first century on exactly the same spot of the present-day City Centre there was the most northern Roman army camp Castellum of Albaniana.

To make this place into a lasting mark for future generations, the following projects have been realized. All this in cooperation with the Municipality of Alphen aan den Rijn. In 2004 and 2005, after years of extensive archaeological research, the entire city centre was completely modernised. Together with the city of Alphen aan den Rijn plans have been made and realized to give the historical references a lasting place in the City Centre.

A - Roman coins in the city square "Rijnplein"
Time Island in the city center of Alphen a/d Rijn by founded coins of four periods of the Roman Empyre. 30m cm bronze coins are placed in the new city square of Alphen a/d Rijn. The coins have been realised under the supervision of Professor Polak from the Catholic University of Nijmegen.

B - Website www.alphenaandenrijn/ romeinsalphen.nl
A website with all kinds of information about the Roman historic past of Alphen aan den Rijn with numerous links and side information.

Especially, to the contents of the website Archeon has been able to contribute as part of the EU Culture 2000 project Delphi "House of Questions"

Reconstruction of two "Carolingian houses"

As part of the EU Culture 2000 project the 'Delphi – House of Questions' two reconstructions been realized in theme park Archeon . The first is a half-open work-shed based on the excavation at Valkenburg- "de Woerd" (800)(province of Zuid-Holland). The second is a dug-out hut, which will provide a location for one craftsman, and which is based on the excavation at Rijnsburg (province of Zuid-Holland).

In accordance with the objective, the buildings have been constructed, as far as possible, in the authentic 'early medieval way'. This means that the tools that were used are based on early medieval tools and that materials were used which were current in that particular period of time.

Besides, for that was the second part of the objective, the construction of the two buildings has been realized with access for the Archeon visitors. Next to their building activities, the construction team also acted as so-called Archeo-interpreters. Dressed in early-medieval costumes they answered questions of the visitors and demonstrated the various building methods.

This report gives an account of the progress of the building project. In the first three paragraphs we shall explain some more about the building plans, the method and the tools and materials used. In the fourth paragraph the various stages of construction will be explained. The whole report is supported by many photographs, which often give a clearer picture than words.

1. The plan

1.1 The manor

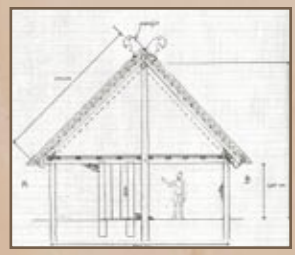
The early middle ages are a rather neglected period in the history of the Netherlands. It is a period in which few people were able to read and write and from which consequently, we do not have many written sources and unfortunately, there are also relatively few archaeological sources. And that, while a number of very important things were happening in 7th to 10th century Holland. To name a few: the rise of the first (trading) towns, Christianisation and the spreading of writing that went with it. That is why Archeon is very pleased with the development of its 'Carolingian period'. The construction of the work-shed and the dug-in hut.

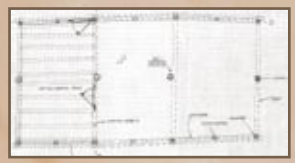
1.2 Building plans

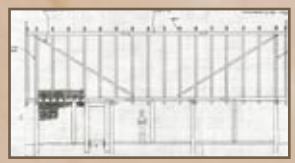
The half-open work-shed, based on the Valkenburg-"de Woerd" excavation, is a two-nave building, of which the truss consists of four 6-meter wide rafters. The rafters are interconnected by inferior purlins and the ridge purlin. Together they form a 12.30 meter long, 6 meter wide and 5.70 meter high building.

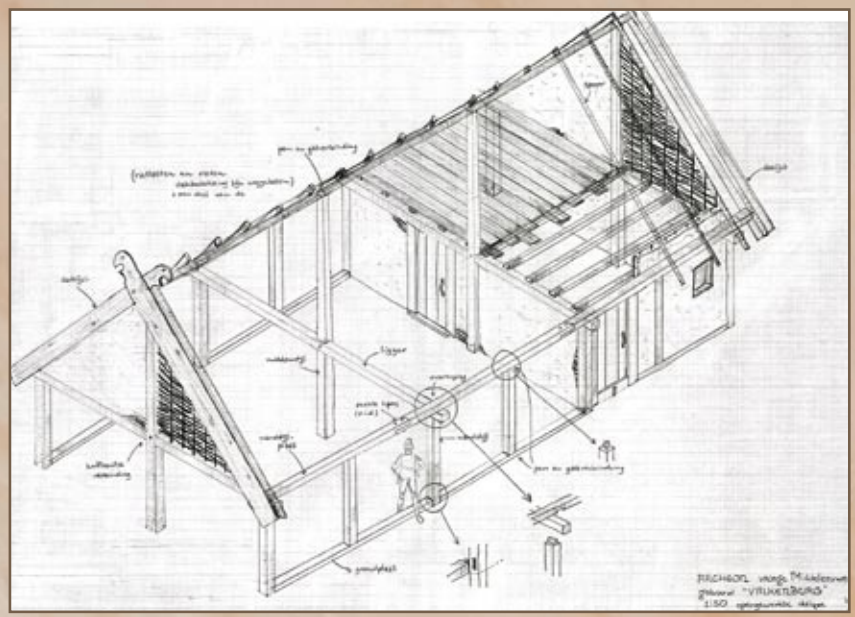
The building plan shows that the front of the shed will be closed. By means of loam walls, a window and two doors the space between the two rafters is made into a separate room. The rest of the building will remain open. The roof will be made of wooden tiles (shingles).

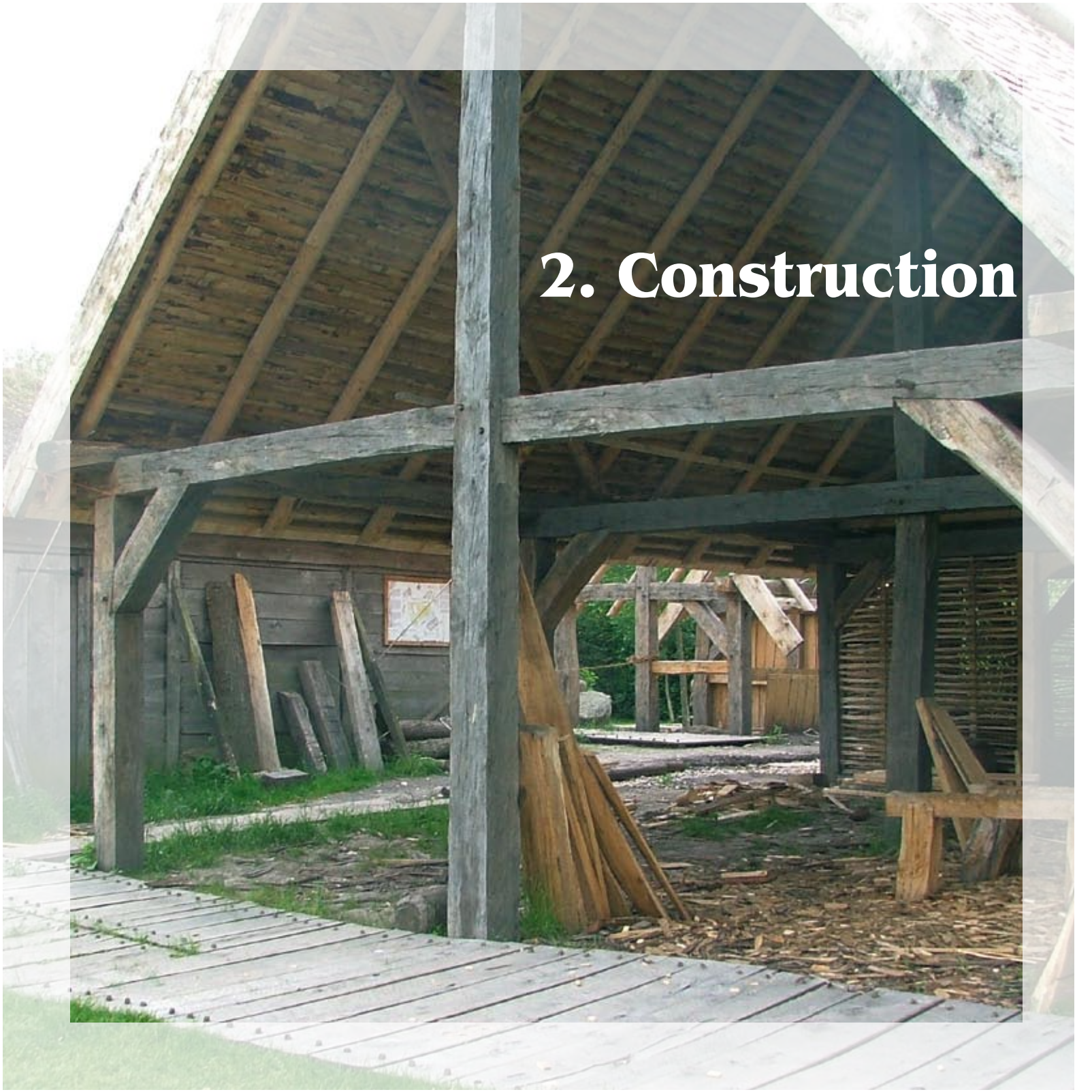
The dug-in hut from Rijnsburg consists of two 3 m. wide rafters, consisting of a joist with two short posts and a long standard carrying the ridge beam. The building is 3 x 3.5 m., with a height of 3.70 m. The walls are made of planks and, like the work-shed, the roof consists of shingles.











2. Construction

2.1 The construction team

A team of four carpenters has been working on the construction of the work-shed and dug-in hut. During the opening months of Archeon (May – October 2004; April – May 2005) they worked in medieval costume. At this period their work did not only consist of construction work, but also of giving information to visitors and school groups and answering their questions about the construction and life in the early middle ages.

Marc Lievestro, Jaap Hogendoorn, Bill Deering,

2.2 Authentic building

Reconstructions of historical buildings are always interpretations. The sources left to us from the various periods of time are too much effected by the ravages of time to know exactly how people built. Excavations often do give us some sort of plan, but in general they do not tell us, for instance, what the roof was made of. Nor is it always possible to find out what kind of wood was used for the construction. Tools are found, but not a complete set to build a house with. In other words, it will always be a matter of interpretation.

Two examples relevant to this project are the choice of oak as a raw material and the measuring instruments used. The 'Valkenburg-de Woerd' excavation did not give us any clue about the kind of wood that was used for the construction. However, in the early middle ages oak was the only really durable kind of wood in the Netherlands, which, although perhaps not the only choice, certainly makes it the most logical choice of timber.

We know very little about the measuring instruments that were used in the early middle ages. To turn the oak trunks into straight beams, the plumb line was used. There is no source whatsoever for the historical use of this method, but Man has never been able to chop wood or lay bricks dead straight without some sort of aid. So no doubt, people in the early middle ages used a similar method.

What we have tried to point out in this paragraph is that it is simply impossible to build in a 100% historical way. The small compromises have to be mentioned, but it should be clear that these are only details. On the whole, we can look back on a great building project, which has resulted in the largely authentic reconstruction of two early medieval buildings.

3. Materials

3.1 Building materials

For the half-open work-shed the following materials have been used:

- Parts of the Truss	Oak
- Walls	Willow wattle/ loam
- Rafters & Roof battens	Fir
- Roof	Pinewood shingles
- Loft	Oak planks

For the dug-in hut the following materials have been used:

- Parts of the Truss	Oak
- Walls	Oak planks
- Rafters & Roof battens	Fir
- Roof	Pinewood shingles

3.2 Tools

The following early medieval tools have been used for the construction:

- large axe
- small axe
- edging axe
- chisels
- spoon bit
- edging hooks
- mallet
- iron hammer
- iron hand saw
- plane
- rope
- iron wedges
- wooden wedges
- wooden sledge hammer
- skiving knife

4. Construction phases

4.1 The truss

Making beams

The first big task was cutting the oak trunks into beams for the parts of the truss. Cutting beams is done entirely with the axe. The round trunk is put down in the most favourable position and fastened with edging hooks, thus preventing it from rolling about. After that, the required width is measured out and traced out on the trunk with a tightened piece of string. This string forms the straight line along which the beam is cut out.

Then, at restricted intervals, notches are cut with an axe, up to the rope. The blocks between the notches can then be chopped away with the same axe. What we have left, is a rough, straight surface, the first side of the beam.

This side is made smoother and straighter with the edging axe. With this axe with its long blade, sharpened only on one side – enabling the axe to cut into the wood on the outer side only- the beam is then finished. There is no need for any further planing.

Beams are made surface by surface. When the first two sides have been completed, the edging hooks are removed and the beam in the making, is put on a flat side. The process is then repeated for the remaining two sides of the beam.

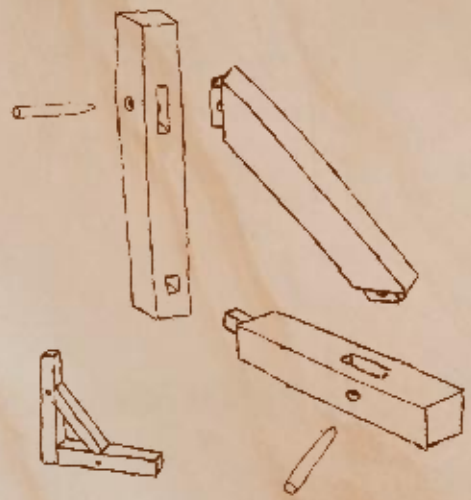
Joints

The joints used in the construction are all timber joints, i.e. that no metal nails, bolts etc. have been used. Tools used for making the joints are the small axe, the edging axe, chisels and the spoon bit.

To make a mortise-and-tenon joint, a tenon is chiselled on one connecting piece, fitting exactly into a slot cut into the other connecting piece. There are mortise-and-tenon joints in various shapes and sizes.

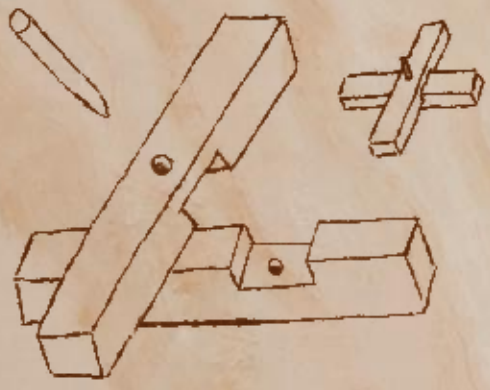
Often, an additional hole is drilled through the joint, through which a wooden nail is hammered. This wooden nail is inserted in such a way that it makes the joint more solid, secures it more tightly and sometimes even locks it completely by driving in two wooden nails into different directions.

Another kind of joint used for the interconnection of the inferior purlins and the ridge purlins, is the halved joint. With this joint the horizontal beams are fitted together by providing both beams with a lip, the one fitting exactly on the other, and then to cotter them with a pin.



Yet another kind of halving joint that was used a lot, is one that is particularly useful for intersecting beams. From the crossing parts a piece of wood, with the same width of the crossing beam, is chiselled out up to halfway the thickness of the beam. The beams then fit perfectly into each other. This kind of joint has been used, among others, to connect the long posts of the rafters to the girders.

For joints connected to the sides of the construction, it is often necessary to give both pressure and traction. For instance, in the large shed the girder between the stile and the inferior purlin has been provided with a dovetail halving.



4.2 The roof

Rafters and diagonal ties

The roofs of both constructions were made in the same way and with the same materials. The first step is to make the rafters, for which, in this case, debarked and de-branched trunks are used.

Each pair of rafters is put on the ground under the right angle and connected with a locked half timber joint. The complete pair of rafters is then pulled across the ridge purlin. The rafters are fixed to the purlins with a wooden pin. The rafters are placed at regular intervals of approx. one meter. The rafters are interconnected by means of diagonal ties.

Battens

The second stop is applying the battens. These are horizontal strips of wood, made of split fir tree trunks, on which the timber roof tiles are placed. They are fixed to the rafters at an in-between distance of 12.5 cm.

Roof tiles

Finally, the timber roof tiles are nailed to the battens. The pinewood shingles, 60 cm in length and of varying width, are placed in 5 layers. The lower 12.5 cm always sticks out, the remaining part is overlapped by the next layer.

It should be said that a small compromise was made here, as the shingles have been fastened with iron nails. The use of wooden pins wood have been more authentic. We decided to use nails because the spoon bit was not working very well, and in the end, the difference would not be visible anyway. After all, the nails are (completely) hidden by the shingles.
The ridge is formed simply by the shingles coming up from both roof sides overlapping each other a number of times, which makes it unnecessary to add extra ridge tiles.

Bargeboards

At the front and the back of the house the verges have been fitted out with bargeboards, which form the boundary of the roof and protect the tiles against wear and tear by wind and rain. The bargeboards are made of 6 meter long planks, crossing each other at the ridge. There they are connected by a half-timber joint and secured with wooden nails.

4.3 Walls

Wattle-and-daub walls

A section of the large work-shed can be shut. The walls of this part of the building are made of loam. Loam (daub) walls always require a wattle frame – an internal skeleton to which the loam can be applied and which supports the wall. In this case, the frame was made with split willow sticks.
First, the oak bars were placed. Placed in a vertical position, these bars are sunk into drilled-out holes in the floor purlin and the inferior purlin. The space between the bars is approx. 40 cm.

Next, the split willow sticks were woven horizontally through the bars. The entire wall space, from top to bottom, is completely woven up to give a good all-over support to the loam.
The final coating with loam requires a lot of care. The first thing is to make the right mixture of grey loam, straw and water. When the loam has the right structure it can be applied to the wattle.
When the loam wall has been placed, the work is not done yet. Inevitably, during the drying process cracks will form in the loam wall and for several weeks the drying loam must be tended to daily, filling up the cracks and smoothing the surface again and again.

Plank walls

The walls of the dug-in hut are made of planks. As in the early middle ages they did not have saws that could saw a plank lengthwise, the planks have been made from split trunks.

The splitting of the oak trunks was done with a skiving knife and wedges. The splitting line is set out on the end-grained side of a trunk. The skiving knife enables us to make a nice and straight splitting line, creating a crack in the wood. With wooden wedges that are then placed into the crack we continue to cut the trunk until it is completely split up.

The two halves are then split up into 4 quarters, the quarters into eights and the eights into sixteenths. What remains are parts that look like a wedge-shaped piece of cake. These planks are fixed onto a work block and finished to the size required, with the edging axe.

The wedge shape is kept in the planks for a purpose: for in the wider side of each plank a groove is chiselled out. The narrower side of the next plank fits perfectly into the wooden nails groove.

The planks are cut to size against the building and then fixed to the beams of the truss with.

4.4 Water

Planking and drainage ditch

The separate constructions from the early middle ages in Archeon are based on various archaeological excavation sites. To the visitor, however, the manor will eventually be presented as one community. Part of the inspiration for the manor comes from the early medieval trading town of Dorestad.

Dorestad, like the greater part of Holland was a very wet and boggy place. That is why many of the streets of the town were covered with planking. This planking was sometimes as wide as eight meters.

The 'Delphi-House of Questions' project too, has been provided with this typical kind of planking, forming small streets between the existing Dorestad barn and the new half-open work-shed and the dug-in hut. The planking consists of horizontal beams on which oak planks have been fixed with wooden nails.

Around the large work-shed is an 80 cm deep and 50 cm wide ditch for drainage, which can drain the water to a lower-lying pool.

4.5 Conclusion

The EU Culture 2000 project Delphi House of Questions is a great success. The cooperation between the three European partners has produced valuable contacts. Knowledge, skills and ideas have been exchanged. Matters that have given an enormous impetus to the continuation of our work for the preservation of cultural heritage. The age-old craft of carpentry has been preserved for future generations. The public enjoyed the building activities and there are now two great buildings from the Carolingian period.

The towns of our three museums are closely associated with the EU Culture 2000 project. Stimulated by this project and Archeon – and its partners in the town where it is located- a permanent information point has been created in the town centre, referring to the past. The illuminated text in the town centre will show all passers-by that the past is so very nearby. The Latin texts sculptured in the steps of the town square will intrigue people and form an enduring memory of the history of the town of Alpen aan den Rijn.