

English Summaries

The Salt Production in Denmark, on the Island of Læsø, and in Europe

By Jens Vellev

Salt has been produced in Denmark from the Middle Ages to far into the 19th century. Technology, extent of production, marketing conditions, proprietary rights, and especially localities have changed through the ages.

The article gives a brief survey of the production along the eastern coast of Jutland – particularly in Vendsyssel – where for centuries so-called seaweed salt, or black salt, was produced.

The production of salt on the island of Læsø in the Kattegat east of Vendsyssel was of quite another nature. Until 1652 the saline water (up to about 13 per cent) was evaporated; during the summer water was drawn from low wells dug in the flat salt meadow on the southern part of the island.

In the Middle Ages the island was owned by the chapter of Viborg Cathedral. By means of preserved account books essential parts of the administration of the salt production can be described; archaeological investigations, however, allow one to penetrate deeper into the technology of the production.

Archaeological investigations in 1943, 1957, and 1973 gave a first basic insight into the construction of the salt seething huts. The culture-historical museums on Læsø and in Hjørring and Viborg jointly established a “Salt Project” which in 1990 and 1991 carried out new excavations. In 1991 a reconstruction of a seething hut was erected.

The last chapter gives an outline of the European salt production. The many German salines exploiting saline wells are given special attention. The salt production along the French Atlantic coast is mentioned. From the 14th century and onwards Denmark imported large quantities of salt from these salines.

Roads and Bridges in the Renaissance

By Kirsten-Elizabeth Høgsbro

The history of roads, especially roads and bridges from medieval and postmedieval periods, is a topic most stepmotherly dealt with in Denmark. Neither historians nor archaeologists have paid much attention to the subject. A prominent work is the doctoral thesis from 1973 by *Alex Wittendorff, Alvej og Kongevej, Studier i samfærdselsforhold og vejenes topografi i det 16. og 17. århundrede* (Public Highways and the King's private roads, Studies in the traffic and topography of the roads in the 16th and 17th centuries).

Although our knowledge about the road system in Denmark in the Renaissance is scarce it is a fact that no remarkable changes from the previous centuries took place, except the roads, the so-called *kongeveje*, the King's private roads, laid out by Frederik II and Christian IV. The King's private roads were few and connected the royal castles and manors on Zealand. Technically, these roads did not differ much from the public highways, and as their use was limited to a very small exclusive group of people around the king their importance for the ordinary traffic was insignificant.

Neither the roads nor the bridges in the 16th and 17th centuries have left visible traces in the landscape but the written sources give much information about the road system. The various systems of roads are difficult to locate but there is a slight hope that future archaeologists will pay more attention to the humble evidence of roads, fords and bridges from the previous centuries. However, the use of large machines and advanced methods e.g. geophysical prospecting increases the possibilities of locating and excavating such structures.

Generally speaking one may conclude that the Middle Ages as far as roads and bridges are concerned continued to the end of the 18th century when great reforms at last changed the infrastructure and modernized the Danish road system radically.

The Stinesminde Wreck. A Wreck from the Renaissance

By Morten Gøthche

In 1989 the National Museum's Institute of Maritime Archaeology carried out an investigation of a very well-preserved wreck of a 17th century ship. The wreck was lying 12 metres below sealevel on the north side of Mariager Fjord, just opposite the town of Mariager.

The wreck is in a uniquely good state of preservation in comparison with anything previously found in Danish waters. The ship is a trading vessel about 20 metres long, 5.9 metres wide and 2.7 metres deep. It was carvel built with strong wales and relatively pointed at the fore- and aft-ends. On the main deck there were 3 loading-hatches and at the port side of the stern post, a loading port was found for taking in long pieces of timber.

The captain's cabin was situated in the stern of the ship, and from here many interesting items were salvaged e.g. fragments of the skipper's alcove, 4 wood-turned stanchions. A large pine box and pieces of glass interpreted to be the binnacle for the ships compass. On top of it all the tiller was found very well preserved. Just in front of the cabin stood the ship's pump, from which both the hand-lever and the rod were found. In the fore-end of the wreck a large windlass was situated, and below deck a brick-built galley was found. Here the ship's crew was accommodated.

The ship had 2 masts. The fore-mast, well forward in the ship, was found outside the wreck. The main mast still in its original position is preserved up to a height of 2 metres above deck. Many loose parts of the ship's rigging – a parrel, blocks, ropes – have been salvaged. The ship originally carried square sails on both masts.

The ship's nationality has not yet been determined with certainty, but the distance of 29 cm between the draught marks found on the stern post indicates that the ship came from North Germany.

So far it has been impossible to date the ship dendrochronologically. A carbon 14-analyse date the wreck to the just half of the 17th century.

As a result of the measurements made by the divers it is possible to make a reconstruction of the ship. In order to complement the reconstruction many different sources, written sources as well as contemporary prints and paintings have been taken into use. Here the account from "Løvenholm" manor of the building of a ship in 1657, which is presented by N.J. Israelsen in this book, has been of great importance to the reconstruction of the Stinesminde ship.

A ship from Djursland, Denmark

By N.J. Israelsen

Interaction between documentary facts and archaeological research may now and then lead to a remarkable connection in the history of civilization. Count Christian Rantzau to the castle Breitenburg in Holstein, and several other manor houses in Jutland, and in particular Løvenholm in Djursland between Randers and Grenå is a good example.

The count's rigid demands to the management of his estates have down to our time delivered some very good accounts from the years between 1630 to 1663.

Some particular accounts from the years 1656-1661 deal, among other things, with the building of a cargoship on the beach at Mogenstrup on the northern coast of Djursland (observe the naval chart) and goes on to describe the navigation between Mogenstrup and Copenhagen. Transport of firewood was the main task of this threemasted vessel of about 60 tons. The two fore-masts had square sails and the misse-mast carried a lateen-sail. The great Swedish War (1657-60) was the cause of several breaks in navigation, and the vessel was laid up in Copenhagen. Early in 1660 after the peace outside Copenhagen, the vessel was made ready for sailing, and came in the service of King Frederik III. The vessel was one of 76 ships that were chartered for the transport of the Swedish occupation army from Denmark, in this case to Swedish Pomerania. Count Chr. Rantzau's appointment as prime minister in the new government in 1660 did in fact lead to less involvement in the management of his estates, and in 1661 the vessel was sold at a price of 1.000 rdr. The money was shared between the count and his business partner, the master Niels Jensen.

Navigation from this coast was to continue in the following centuries because the anchorage at Mogenstrup was very good. The great woods in Djursland was an ample source of firewood, and in 1750 a timber merchant in Copenhagen purchased 10,000 oak boles from the county of Løvenholm. Later in the nineteenth century shipping of bricks from a brickworks at Mogenstrup was in operation. Fishing from the coast has ever since been in practice, and in 1936-37 a fishing harbour was founded at Bønnerup.

Count Rantzau's vessel has some relation to the in Denmark very rare but smaller ship that has been partly excavated in the Firth of Mariager at Stinesminde by the National Museum's Institut of Maritime Archaeology.

The Village seen in the Light of Renaissance Archaeology

By Erland Porsmose

Denmark has seen but the very beginning of village archaeology relating to the period from AD 1000-1650. Since the 1930s a growing number of buildings, especially farmhouses, from that period has been examined. However, the development in village structure cannot yet be confirmed archaeologically.

By means of written sources and maps historians and ethnogeographers have indicated a number of development trends in the settlement pattern of the Middle Ages and the Renaissance, but the results have not been followed up by archaeological investigations.

The paper argues for a much-needed test of archaeological methods by way of excavations of already well-documented 17th-18th century settlements. After that a number of important research objects to be excavated in the future will be designated:

- 1) Thorp-scatterings and gatherings.
- 2) The appearance and disappearance of village manors.
- 3) The discontinuance of the "brydegårdssædesystem" and the transition to the "fæstegårdssystem".
- 4) The revision of village sites.
- 5) From the Viking Age croft farm to the Renaissance quadrangle farm.

It is pointed out that deserted villages from the Middle Ages and the Renaissance are found by the hundred, but that so far these important research objects have not been registered and protected. Many of the villages were lost in the 16th to 18th century as the result of the expansion of the manorial fields. In most cases the number of farmsteads are well known and it is fairly easy to locate the site of the abandoned village by way of fieldreconnaissance. Usually the lost villages of this type are located on the vast fields of Renaissance manors. It will therefore be possible to excavate on a great scale. Finally, attention is drawn to the possibilities of Renaissance archaeology to follow the development of the cultural landscape and especially the development of the arable land.

Skumstrup – Vilhelmsborg Remains of a Renaissance Manor House

By H. J. Madsen

During the Renaissance a larger number of manor houses was built in Denmark. In the centre of Jutland just south of Aarhus lies the manor of Vilhelmsborg which until 1673 was called Skumstrup.

Originally, Skumstrup was a village. In 1483 a nobleman had his estate there, but later on the village disappeared. In the beginning of the 16th century Jost Ulfeldt gradually acquired a large estate at Skumstrup, and the nobleman Jørgen Friis is known to have lived here in 1625. No pictures of the Renaissance manor exists, but a building survey from 1673 describes the buildings (Fig. 1). Around 1780 the owner, Baron Gyldenkrone, moved to the newly built main building of the neighbouring manor of Mosegård, of which he was also the owner. It is assumed that the old main building at Vilhelmsborg was pulled down on that occasion. Anyhow, it is not indicated on the oldest plan of the manor buildings from 1817 (Fig. 2).

In 1977-78 the site of the Renaissance main building was located and excavated (Figs. 3-11). To the south the main building (35×9 metres) had a basement built of granite boulders, to the west a stair turret and to the east a bay building. Eight metres from each of the gables foundations for chimneys were found. The main building is known to have had a northern and a southern wing, but practically no traces of these wings were found. The weak foundations of the main building must indicate that it was built as a half-timbered construction.

The daily life of the house is reflected in the small finds (Figs. 12-29), most of which are from the 18th century. However, one pit contained ceramics from the beginning of the 17th century (Figs. 14-15) and clay pipes of an early type (Fig. 23 right). Also some fragments of stove tiles can be dated to the period around 1600 (Fig. 21).

According to its style the ground plan of the house belongs to the end of the 16th century or the period around 1600. The lack of small finds from the 16th century might indicate that it was built quite close to the year 1600.

Even for that time the Renaissance manor was a modest building. The timber frame construction is a definite indication of its modesty, and it was never surrounded by a moat. Today only a few half-timbered Renaissance manor houses are preserved, but we have reason to believe that there have been several more. Some have been

pulled down and others extensively rebuilt. The present appearance of the manor of Høgholt in Northern Jutland does not indicate that it is a half-timbered construction, however, an illustration from 1858 (Fig. 30) shows that originally it resembled the old main building of Skumstrup/Vilhelmsborg.

The Guns of Malmøhus The Defense of Malmøhus Castle and the Distribution of Danish Ordnance in 1597

By Michael H. Mortensen

Unlike early medieval warfare, research on late medieval and Renaissance military history is scarce. The development of guns, their types and the way they were used is a subject of which little is known. Also, the impact of guns on contemporary fortifications is known only in broad outlines. Defensive architecture has hitherto been studied mainly as architecture and by architects; stressing the architectural aspects of a castle, the defensive elements are often ignored. Thus, little work has been done on the military value of castles of that period, the practical function of guns as used in combination with the architectural frame was often reduced to brief descriptions of gun ports. This is also due to the problem of relating cryptical names of guns from written sources with functions not known today and to architectural monuments being either lost or left in a much restored or otherwise altered state. This article deals with the armament of a well preserved royal castle, Malmøhus, in the year 1597, at which time an inventory was made of the ordnance present in most Danish castles.

A major problem of the study of Renaissance fortification is the terminology of guns used in this period. Rather than describing the actual type of the gun mentioned, Renaissance terminology describes the length and strength (calibre) of a gun. Basically, this terminology served to separate guns into heavy or small guns, and long or short guns; the distinction being due to different characteristics attributed to each type (Fig. 2, types illustrated in Fig. 3).

The inventory of Malmøhus in 1597 (Fig. 1) shows a total of 58 guns (31 heavy, 27 small) and 67 hand guns, the contents of the inventory shown in Fig. 7. The ratio of guns to hand guns, respectively heavy to small guns, is rather high but corresponds well to the

overall distribution of ordnance in the 1597 inventory as a whole (Figs. 10, 11), which shows more than 40 % of the guns positioned on castles outside present-day Denmark. More than half the total number are deposited in the arsenals in Copenhagen (Tøjhuset) and Kronborg Castle (Fig. 11), while only very few guns (4.5 %) are present on castles in present day Denmark. This also explains the absence of Renaissance bronze guns in Danish museums. Another interesting feature is the high proportion of wrought iron guns (47.2 %) in the inventory as a whole, and the large number of heavy guns present in the strategically important castles in the provinces, such as Malmøhus.

The castle of Malmøhus was rebuilt 1537 – 42 as a main building surrounded by ditches, earthen walls and flanking towers; further strengthened on all four sides by firing galleries. The castle is connected to the mainland by a drawbridge (Figs. 4, 5, 6). Defense is based on passive elements; the heavy guns in the flanking towers being used only to defend the walls against attack by enemy personnel should they succeed in crossing the ditches. These guns were probably wrought iron breech loaders well suited to firing shrapnell, supported by the smaller, mobile guns positioned on top of the earthen walls (Fig. 8). Infantry, armed with hand guns and positioned behind the firing gallery surrounding the castle, constituted the major part of the defense.

Thus, the inventory of 1597, as well as the castle of Malmøhus itself, reflects a system of defense based upon traditional elements such as ditches and earthen walls, serving to keep the enemy at a distance, supported by the cooperation of three types of weapons to repel an infantry attack. This type of defense and the defensive way of using guns seems to have been in use in Danish castles since the beginning of the 16th century and was not to be replaced until the introduction of the angle bastioned defense in the following century.

A Glazier's Workshop from the 16th Century found in the Grounds of the Silkeborg Museum

By Christian Fischer

The town of Silkeborg was founded in January 1846 – until then there had been some scattered buildings from the small Silkeborg

Castle (demolished 1767). The successor of the castle, the Silkeborg home farm (to-day housing the Silkeborg Museum) was built of demolition material from the castle. During the excavations for a new museum wing a large quantity of bricks, roof tiles, ceramic sherds, broken glass etc. turned up. Fragments of Renaissance drinking glass vessels also appeared.

The sewer trench was enlarged to comprise a section of approx 4×4.5 m and here remains of a furnace running N-S was found (Fig. 1). The floor of the furnace was approx 1 m under the surface. It was divided in three longitudinal sections. To each side of the furnace the floor was paved with five rows of closely laid bricks. The surface of the bricks was vitrified. Between these two sections the floor was made of red clay. The two brick-laid sections were 70 cm wide, the middle section measured 160 cm (Fig. 2).

The rubble over the furnace contained large quantities of broken glass from the production of window panes (Fig. 3). Whole or broken panes and a lot of refuse were found. Furthermore, lead in the shape of moulding waste and small lengths of lead ribbons were found. No doubt they are refuse from a glazier's workshop. Among other things a splitting iron was found (Fig. 4). This tool is the predecessor of the glazier's diamond.

Splitting irons are used as follows: the iron is heated in a crucible (Fig. 5) while the glass panes are made wet. Then the point of the iron is drawn across the pane and makes the glass break more or less along the line drawn.

Around the 16th century the splitting iron was replaced by the glazier's diamond. Triangular and rhombic shapes were the most popular shapes of pane. A Danish glazier's manual from the 16th century in the Danish National Museum illustrates patterns for 21 different windows. The furnace is interpreted as a furnace used for fixing paintings on glass. However, we have not yet found parallels to this special furnace.

Whether the furnace was connected to the glazier's house or whether it was a detached construction could not be verified due to the small size of the excavation. However, the large quantity of household refuse mixed with glazier's waste indicates that they were not far apart.

The accounts of Silkeborg Castle mention a certain Anders the Glazier who lived in a house near the castle. A final date for the workshop is not yet set. But no material with a certain 17th century date was found and as the manorhouse was built in 1767 right beside the workshop we must assume that no trace of it was left at that time.

Pitfalls

By Jesper Laursen

Pitfalls for trapping beasts of prey are known from Antiquity and medieval Europe. In Danish folklore and historical literature wolfpits have been known for centuries. For the first time in Denmark they were archaeologically documented in 1990 by two excavations on Djursland, the eastern part of Jutland.

They appear as quadrangular pits with vertical walls and level bottom. The walls were covered with vertical poles originally 2.5-3.0 m long and the inner dimension was about 4.0×3.5. A post hole in the middle of the floor of one of these pits is evidence of a post used as support for the cover of the pit and for the bait. One of the pitfalls is dated to the end of the 17th century. Similar wolfpits are known from Sweden and Norway.

In Scandinavia wolfpits have been used from the Middle Ages until the 19th century.

17th Century Whaling at Svalbard and Jan Mayen – archaeological investigations

By Svend E. Albrethsen

Despite their isolated position Svalbard and Jan Mayen have since their discovery in 1596 in many ways mirrored the economic and military history of Europe. In the 17th century, during the decades after the discovery of Svalbard and Jan Mayen, intensive whaling took place in keen competition among the economic and maritime powers of the day, The Netherlands, England, Denmark/Norway and France.

Whaling resulted in the foundation of a number of permanent whaling stations, especially on the west coast of Svalbard, which were operating from 1614 to ca. 1660.

Since 1958 the archaeological as well as the historical source material elucidating the history of the Svalbard and Jan Mayen whaling has been the subject of an intensive scientific research. Especially, the investigation of a good deal of well preserved whalers' graves has given a remarkable insight in the burial customs,

dress and conditions of life of the men taking part in this – the first oil boom of Europe.

Animal bones from the Renaissance

By Tove Hatting

The bone material from ten settlements, dated to the Renaissance period, has been determined. The main part of the bones derives from domestic animals of which the cattle bones are the most numerous, but also bones from game, such as deer, marten and hare as well as whales are present. Fish and birds are represented by a long list of species but the most remarkable find is made among the domestic birds, i.e. the turkey, bones of which are found at three different sites.

Food and Kitchens in Renaissance Denmark

By Bi Skaarup

In all of man's existence the most common occupation has been the procurement, the cooking and the consumption of food. The subject of food involves basic topics as the production of the primary products, their distribution, processing, storing and as mentioned the consumption of the food, but although it has been the most common craft of humanity it is the least studied in history as well as in anthropology and archaeology.

Archaeological investigations of the topic has generally been limited to the identification of the kitchen in a building. Here the fireplace has normally been the deciding factor, as this was con-

sidered the place, where food was cooked. But actually a number of attributes are characteristic for the specialized room called a kitchen in the late Middle Ages and the Renaissance:

1) Easy access from the outside, 2) A fire-place, 3) Easy access to water, 4) Possibility for disposal of waste water.

These characteristics all apply to kitchens in monasteries, castles and great houses in towns. In simple buildings one or more are missing, and houses without a fire-place may have had a kitchen-function, yet. The braziers of that period were not just a means of keeping warm but were – according to contemporary illustrations – also used as movable fire-places.

In Danish medieval and Renaissance archaeology few investigations of animal-bones and plant remains have been made in spite of the fact that this materiale is the only way to gain knowledge in that field. Another area that needs to be worked on is the kitchen utensils. It is necessary to identify the different types of cooking vessels and other implements belonging to the kitchen and find out their use.

Other sources such as pictures and written material can of course yield an abundance of information about kitchens and the work that was done here. As the open fire-place was in use in Denmark until ca. 1850, at which time the iron kitchen range became common, a lot of information about the period can be collected from later pictures about the processes that have been taking place in the kitchen and how the kitchen was arranged.

Apart from cookery books that obviously give much information about how cooking took place, account books, wills and related documents are important. New types of written sources appear during the period. It is the written orders for offices connected to the royal kitchen and table. The work connected with these offices are described in detail for the first time.

In connection with the symposium »Arkæologi og Renæssance« a Renaissance banquet was given. The recipes for the various dishes were found in the oldest printed Danish cookery book from 1616. A new version of the recipes used, adapted for a modern kitchen, is given in the article.