HORSE AND RIDER IN THE LATE VIKING AGE

Equestrian burial in perspective

Viking conference
27-28th of June 2019

ABSTRACTS

The bottom of the grave has been reached. Photo: Museum Skanderborg

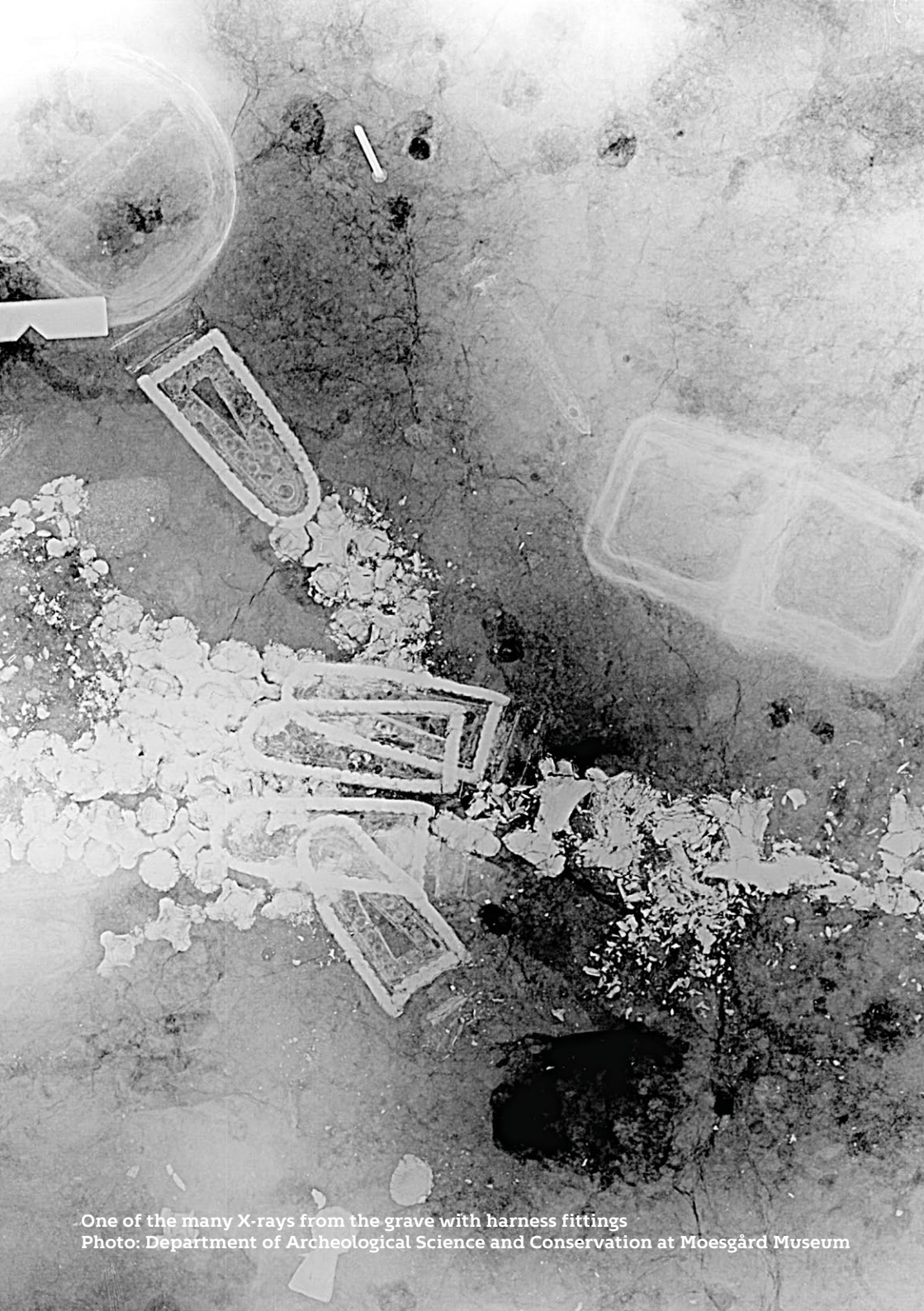
Excavation of the equestrian grave at Fregerslev. Photo: businessfilm.dk

Welcome to the conference

HORSE AND RIDER IN THE LATE VIKING AGE

Equestrian burial in perspective

The Fregerslev Project was initiated in 2017 after the discovery of an exceptionally well-equipped equestrian burial from the 10th century at Fregerslev near Skanderborg, Denmark. This conference presents the preliminary results of the research project and seeks to place the burial in a wider context. On the first day of the conference, the research team will present the burial and the analyses of its contents. On the second day, we aim to explore the social, political, cultural and religious background of equestrian burial in southern Scandinavia. Was the burial from Fregerslev and others like it, an expression of a new powerful elite? New religious symbolism? New funerary rituals? New cultural impulses and changing values? The conference invites an open debate on the equestrian burials and their significance in Viking-Age society.



One of the many X-rays from the grave with harness fittings
Photo: Department of Archeological Science and Conservation at Moesgård Museum

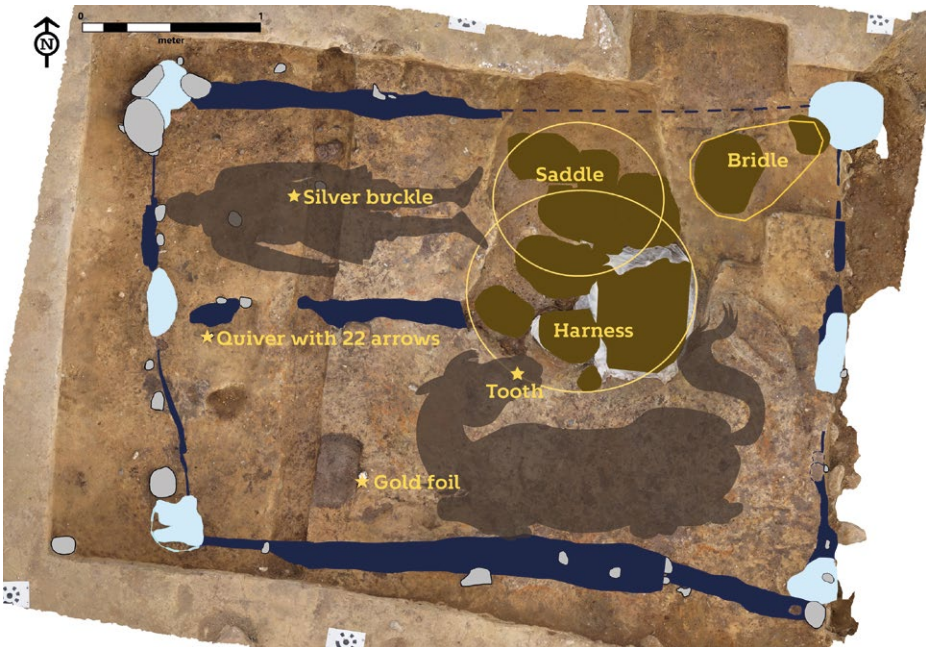


Illustration of the grave bottom and its assumed content.
Graphic: Museum Skanderborg

The five different fittings from the bridle.Photo: FOTO & CO

TABLE OF CONTENTS

ABSTRACTS

The phenomena of equestrian burial, political context and regional significance

Anne Pedersen, Senior researcher, National Museum of Denmark

Equestrian burial as defined by the presence of stirrups and spurs was one of the earliest forms of Viking-Age burial to be recognized and described in the nineteenth century. Since then, the burials have been the object of great interest, both from scholars and the public. The first finds corresponded well with an expected Viking-Age funerary practice based on studies of written sources, thus offering tangible evidence of the assumed customs and beliefs of the Vikings. Unfortunately, many of the known Danish examples were disturbed (in the past or by the excavators) and the recorded information is lacking in detail. One of the challenges has therefore been to establish a more detailed chronology and an improved understanding of the practice in time and space. Rather than typical of Viking-Age male burial, equestrian burials are a rare exception, in Denmark occurring primarily in the tenth century in the western parts of the country, west of the Storebælt. Common features suggest that the deceased and their families had contacts with related social milieus beyond their immediate local surroundings and that they played a significant role in political developments of the time.

Equestrian burial in southern Norway and western Sweden

Anne Pedersen, Senior researcher, National Museum of Denmark

Horses and horse harness are known from burials across Scandinavia. In contrast, stirrups, spurs and bar bridles, the defining elements of the Danish equestrian burials, are far less common, and deposition of these artefacts appears to have been practiced mainly in certain areas, among them southeast Norway and parts of western Sweden. These regions had close ties to Denmark in the Viking Age, in part an effect of the natural topography, and the Skagerrak and Kattegat have been described as the Mare Nostrum of the Danes. Burial customs around the Skagerrak and Kattegat show great local variation in type of burial, the furnishings in the grave and the treatment of the

deceased. However, there is also evidence of influence from abroad, leading to the question, whether equestrian burial in these regions was an independent practice, the deceased and their families rooted in and oriented towards their local milieu, or a common practice with features that suggest that these families belonged to a more extensive social and perhaps economic network across the Skagerrak and Kattegat, sharing ideas, values and way of life.

The harness from Fregerslev

Anne Pedersen, Senior researcher, National Museum of Denmark,
Merethe Schifter Bagge, Curator, Museum Skanderborg, Denmark

Around 800 buckles, mounts and rivets belong to the decoration of the harness. However, a reconstruction of the complete harness is difficult as very few organic parts, leather straps etc. have survived. A 3D-documentation of the micro-excavation at the conservation should hopefully bring us a little closer to what it may have looked like. More than 20 different types of fittings have been identified in the Fregerslev burial. Many of them seem to have a unique design, while others are well known from grave finds in Denmark and Schleswig, such as Grimstrup, Stengade I, Langballigau Mound 1 and Thumby Bienebek grave 37A. Some of the fittings have such strong parallels that production at the same workshop would be a plausible explanation.

"All that glitters is not gold" (or silver) -the production of impressive fittings for the horse harness

Arne Jouttijärvi, Heimdal-archaeometry, Denmark

The approximately 800 fittings from the horse's harness seem to span a large variation in quality. Some are of a relatively well-known type of silver-decorated iron fittings, which are known from, among other places, the equestrian grave from Grimstrup. These fittings are supposed to be made by a kind of mass production, where the decorations that are most often made up of braid patterns have been prepared in advance, for later to be soldered to the iron plates. The purpose of the studies was partly to get new knowledge about the manufacturing technique and partly to compare technique

and materials in the individual finds, in order to clarify if possible whether they may have been manufactured by the same workshop. Other fittings appear to represent a significantly higher quality of craftsmanship, including a number of gold-plated copper alloy fittings. In these cases, it is both the manufacture of the fittings themselves and the decoration on them that has been examined. Finally, analyzes of iron objects such as the bridle and arrows have been made to the extent that this was possible despite the strong corrosion. Here, one aspect has been the quality and origin of the iron itself, and another the manufacturing technique of the silver decorations that was found on the bridle.

The Application of Image-Based Modelling and Photogrammetry for Documentation of the soil blocks

Casper Skaaning Andersen, Archaeologist, Unit of Archeaological IT, Aarhus University and Moesgaard Museum, Denmark

Since 2017, Unit of Archaeological IT and Department of Conservation and Environmental Science, Moesgaard Museum, have been responsible for documenting several types of excavation data derived from the Fregerslev excavation. This presentation will focus on the workflow related to the digital documentation process concerning the micro excavation of 13 soil blocks. The blocks of soil were initially documented in-situ and brought back to Moesgaard Museum for detailed excavation, 3D documentation and conservation. Traditional documentation of soil blocks is usually associated with several methodological limitations and inadequate accuracy when it comes to the broader spatial distribution of individual finds within a context. The novel approach of applying image-based modelling and photogrammetry for 3D documentation of the content of the soil blocks is presented, and evaluated against the limitations of more traditional recording. Not only does the new approach aid archaeological interpretation post-excavation, but will eventually offer the opportunity to virtually re-assemble the excavation and re-position the individual artefacts and features in 3D space. This will benefit not only the archaeological interpretation but also provide unprecedented dissemination potential of a Viking Age burial in 3D.

Horses and warriors in Birka: or why, how and where do you keep horses on a very small island?

Charlotte Hedenstierna-Jonson, PhD, Viking Phenomenon Project, Uppsala University, Sweden

Unlike contemporary Viking towns, Birka was situated on a small island and all contact with the hinterland included transport over water. Despite this, horses are a recurring feature in most of Birka's contexts. Horse bones in the settlement area indicate that horse meat was included in the diet, but there is also evidence of horses in at least 65 of the burials. Over 20 of the elite status chamber burials included one or even two horses, placed on a platform by the foot end of the burial chamber. The horse burials often include sets of weapons, suggesting a martial framework. Remains of horses were even found in the limited area of the garrison. While these horse bones may be evidence of rituals, steppe nomadic archery equipment admits for at least some of the warriors to have been mounted. However, the existence of mounted warfare during the Viking Age has been questioned, and must be further discussed. This paper aims at introducing the archaeological material linked to horses and warriors in Birka, to reflect upon the distinction between mounted warriors and mounted warfare, and finally, to pose the question of how and where the horses in Birka were kept?

Topography, infrastructure and significant finds in the Lakelands of East Jutland in Iron- and Viking Age

Ejvind Hertz, Curator, Museum Skanderborg, Denmark

The Lake District of East Jutland is rich in lakes and streams that in prehistoric times have been used for traffic and transport. Some of the places where land transport has crossed streams have been key points for traffic, and they were placed in the landscape where it has been optimal to pass streams and wetlands. These fords and bridges has for an example been found at Alken Enge, Faldgårde and Fuldbro Mølle. From known archaeological sites and topography, traffic on land and waterways in the Lakelands of East Jutland during Iron- and Viking age is mapped and presented. Two equestrian graves in Ravnholt and Hemstok are located nearby Fregerslev, both non-

professionally excavated in the 19th century and in the beginning of the 20th century. Especially the find from Ravnholt is interesting in relation to Fregerslev, as it was placed just on the other side of Aarhus stream, maybe illustrating two different powerful families. Also a rune stone was found in 1849 north of Hørning and reflects early Christianity.
In the efforts to locate the Viking from Fregerslev's residence, metal detection has been carried out on the fields around the site with a poor result.

Religious meanings. And history of interpretations

Else Roesdahl, Professor emerita, Aarhus University, Denmark

Since the Danish Viking-Age equestrian burials were recognized as expressions of a distinctive burial practice, the group has been interpreted in several ways - partly according to the changing prevalent research questions and the interests of the scholars in question. The first part of my lecture will deal with an interpretation related to the aristocratic cult of Odin, which I first proposed in 1983 ('Fra vikingegrav til Valhal') and which is based on the social and late pagan context of the burials. The lecture's second part will discuss other main interpretations and trace their history. It will also point to some problems and suggest further research questions and theories, and a more holistic view.

Huns, Avars, Hungarians. Mounted Warriors in Europe.

Prof. Dr. Falko Daim, Institut für Urgeschichte und historische Archäologie der Universität Wien (Austria) and Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt, Halle/Saale, Germany

Since the Bronze Age warrior tribes or confederations came to Europe from the steppes in the East, settling here and establishing contacts with the European entities. While the "empires" of the Bulgarians, Hungarians and Turks slowly became medieval and early modern states, the Sarmatians, Huns, Avars and Mongols disappeared from the map.
One can see these equestrian fighters as a subspecies of the Asian

nomads, who are masters at exploiting ecological niches. For this, they must possess an excellent understanding of geographic conditions and vegetation cycles. If need be, nomads secure their existence by breeding livestock, gardening and farming. The mounted herdsmen among the nomads had outstanding abilities that were not only applicable to the protection of livestock. Equestrian nomads - not all nomadic societies had horses - were skilled with arrow and bow, lance, sword or sabre, and were accustomed to communicating over great distances. They were happy to be contracted to fight other tribes or peoples, but they also acted on their own initiative. The Huns and Hungarians moved as far as Italy and Western Europe, the Avars looted cities and castles in the Balkans, and most demanded high monetary payments "for peace". For the most part, however, the exchange with the steppe peoples coming from the East to Europe took place amicably.
The paper will focus on the mounted warrior societies that came from the East to the environs of Europe between the 4th and 10th century and will focus on typical constellations and processes, but also significant differences among the various tribes.

Mapping the microscopic traces - soil micromorphology at the Fregerslev II horseman grave

Federica Sulas, assistant professor, Centre for Urban Network Analysis (UrbNet), Aarhus University.
Vana Orfanou, post doc., Centre for Urban Network Analysis (UrbNet), Aarhus University.
Thomas Ljungberg, research assistant, Centre for Urban Network Analysis (UrbNet), Aarhus University.
Søren M. Kristiansen, Associate professor, Centre for Urban Network Analysis (UrbNet), Aarhus University, and Department of Geoscience, Aarhus University, Denmark

Fregerslev II is the grave of an elite horseman buried together with precious goods and likely his horse. Whilst spectacular in its findings, the highly deteriorated conditions of the grave poses a major challenge to understanding of the burial context and preservation environment of the archaeological materials. By enabling the study

of microstratigraphic traces, soil micromorphology has the unique potential to detect contextual indicators of conditions before, during and after burial. Analysis of samples from the grave contexts provides the first records of a pre-burial environment characterised by fine, loamy matrix local, bedded plant micro-remains and post-burial changing soil redox conditions. The latter have speeded up bone decomposition and the deterioration of artefacts. Indicators of these processes are recorded in the fill with traces of organic input resulting from the degradation of bone and other organic materials buried in the grave. These observations are discussed in a broader perspective in relation to both presence and absence of artefacs and biofacts in this grave.

Military organization in the 'long tenth century': a view from Anglo-Saxon England

Gareth Williams, Senior Researcher, British Museum, UK

Historical evidence from Anglo-Saxon England in the late 9th-11th centuries suggests the development of royally controlled systems of military organization as part of the development of an increasingly powerful state, which may be compared with the situation in Denmark under the Jelling dynasty. However, it does not necessarily point to complete standardization of equipment. Furthermore, while horses can undoubtedly be linked both with the personal status of the warrior elite and with practical use for transportation in warfare, this does not mean that they were widely used in battle, and the evidence available suggests the contrary.

Challenges and methods in field conservation

Helle Strehle, M.Sc. in Conservation and Mari Gravgaard, M.Sc. in Conservation, Department of Archaeological Science and Conservation, Moesgaard Museum, Denmark

The state of preservation and the intricacy of object combinations out-ruled traditional in situ excavation by the archaeologist. The solution to this situation was extensive block lifting performed by the project conservators.
In defining the size, shape and positions of the blocks the conservators

were guided by minute changes of color in the soil. Due to mineralization of the metals, the response from magnets and metal detectors, (pin pointer) didn´t prove helpful. A stereo microscope set up in the barracks was useful for identifying degraded materials and thereby deciding where to cut the blocks.
In constructing the blocks, we used materials compatible for x-raying. Blocks were x-rayed at the laboratory, and images returned to the excavation at a "running basis". Archaeological interpretations of these images offered guidance for defining the outlay of neighboring blocks. Fix points were chosen to allow for 3D-documentation in the field, to present themselves at the x-rays and in the later excavation process at the laboratory. Block lifting and material identification drew substantial attention from the medias, thus demanding a collaborative effort by the conservators.

Equestrian burial in Viking-Age Scotland

James Graham-Campbell, Emeritus Professor of Medieval Archaeology, University College London, UK

The Viking-Age boat-grave at Kiloran Bay, Colonsay, in the Western Isles, was excavated in the 1880s, but much can be recovered from antiquarian records concerning this high-status male equestrian burial, although several key questions remain unanswered. The extant finds include the horse skeleton and a fine set of harness mounts of Insular manufacture. It is not the only equestrian boat-grave on this small island, but further reports of horses in burials elsewhere in the Hebrides are vague, as also for the Northern Isles, although the burial-place at Pierowall, Westray, includes at least four, making their absence from the other Orkney islands somewhat surprising. On mainland Scotland, there are a couple of probable equestrian burials (one female) at Reay, Caithness. The total of 10(+) horse burials from Scotland represents a much smaller proportion of the pagan Norse graves on record than for Iceland. The final equestrian burial for discussion is Auldhame, East Lothian, containing the only pair of Viking-age spurs known from Scotland; it has been speculated that it could be that of King Olaf Guthfrithson, of Dublin and Northumbria (d. 941).

Horses and horse equipment in boat burials of Middle Sweden

John Ljungkvist, PhD, Viking Phenomenon Project, Uppsala University, Sweden

Among warrior burials in late 1st millennia Scandinavian is the horse equipment among the most prominent objects besides the sets of weapons. These finds are the primary indicators for high status warriors, buried in boats, chambers or various kinds of cremation burials. Many of the equestrian burials are among the most spectacular of their periods and they are central in studies of power, warrior culture, burials and rituals etc. However, there have been surprisingly few studies of the identity and role of the horses in these burials and which relations the buried horses had to the deposited horse equipment in the graves.
This article is a product of the Viking phenomenon project where studies of the boat burials as combined data sets, provide us with opportunities to observe broader patterns in the burial practice, between the late 6th to 11/12th centuries. During the recent work with boat grave 14 in Valsgärde it was observed that the buried horse was surrounded by multiple objects related to pulling, i.e. that it was buried with a full harness. Further, numerous iron details, in an otherwise empty part of the boat, seems to represent a cart, or at least the undercarriage of a cart that was placed in fore end of the boat. After this discovery, a survey of other boat burials revealed that the pulling equipment is far more related to the buried horses than the riding gear. It opens up for discussions on not only the identity and function of buried horses but also particular events during the boat burial ritual as a whole.

Impact, outreach and eSCAPE

Lene Høst-Madsen, Director, Museum Skanderborg, Denmark

The Viking from Fregerslev is unique in an archaeological context, but the discovery also has significance in other ways. It has significance locally for the citizens of Vestergårds Allé, which has the Viking grave as a neighbor. It has significance for the municipality and the self-understanding of the inhabitants of the region Skanderborg. It has national significance and shed new light on the Viking Age community. Moreover, when Queen Margrethe II of Denmark visits the excavation even the tabloid press gets interested.
The presentation describes some of the considerations and initiatives the museum has made to share the history of the Viking and make it relevant to as many as possible.

Functionality of horse harness.

Maria Nørgaard, Equine Veterinarian, Horseteam, Denmark

Throughout history horse harness has been designed and developed to provide for special functions and impact on the horse in order to control the animal in its intended use. Saddles has been developed to provide the necessary combination of stability and freedom of movement for the rider according to its use especially in battle and combat, and horse bits and bridles has been designed to control the horse according to its specific type and use. Furthermore, horse harness design and value has also been used as indicator of the riders status and cultural heritage. Is it possible to conclude if the harness from Viking age high status rider burials were only intended as a display of wealth, or was the valuable harness also designed for practical use and combat?
Combining knowledge on equine osteoarcheology, genetic studies of the Viking age horse types, archeological finds of harness types with practical knowledge on horse anatomy, harness impact on the horse and the demands on the horse types and harness design in transport and battle, provide a practical perspective on Viking age horse harness functionality.

The excavation and conservation of the block lifted equestrian burial from Fregerslev.

Marianne Schwartz, Conservator, and Cecilie Odderskov Saugbjerg, B.Sc in Conservation, Department of Archaeological Science and Conservation, Moesgaard Museum, Denmark

After receiving the blocks in the Conservation Dep., they were prepared for x-raying. The x-ray images and CT-scans worked as the fundamental support for excavating the blocks. There were some challenges in the interpretation of the x-ray images due to layer of oxides and the amount of lead in the metal objects.
Due to the poor state of preservation of the main part of the objects they are preserved in situ in the blocks. This decision lead to new challenges in the work of excavation and new combinations of known methods were taken into use.
The excavation of the blocks was carried out in thin layers, and each layer was documented by a photo in full scale with an overlay foil drawing and a 3D-photo. Details were documented by photos through the microscope. The procedures for excavating the blocks were agreed in a close collaboration with the archaeologists and their expectations for the result.
During conservation several manufacturing methods, mounts, tool marks and relations between objects were observed and documented. There has been a close collaboration between the conservators and the Department of Nat. Science in relation to analysis of organic materials during excavating the blocks.

The extraordinary chamber grave from Fregerslev - background, burial site and content

Merethe Schifter Bagge, Curator, Museum Skanderborg, Denmark

The excavation of the Viking Age burial site at Fregerslev took place in 2012-2017. The equestrian grave was in a very poor state due to the low depth and the sandy soil. Nonetheless, the finds from the grave are impressive. A silver- and gold covered harness, a horse and a quiver with 22 arrows were among the grave goods. A small silver buckle was the only thing left from the rider's clothing, and no bones were preserved. The very last fragment of a large animal tooth was the only thing left from the horse. The lack of weapon

suggest that the grave was exposed to later disturbance, maybe all ready in the Viking Age. With two roof bearing posts and four corner posts, the chamber grave looked like a small house with saddle roof. The burial floor measured 378 x 254cm, which makes it one of the largest known chamber graves in Viking-age Denmark. A natural hilltop made a perfect location for the grave and there were no visible traces of a mound. The impressive horse harness suggest that the rider was a man acquainted with the royal sphere.

The Viking from Gammel Mands Fald. Fregerslev in a place-name context

Michael Lerche Nielsen, Associate Professor, Department of Nordic Studies and Lingustics, University of Copenhagen, Denmark

Field names and settlement names form an important contribution to our immaterial cultural heritage. To be more specific, the field names from Fregerslev with surrounding villages are recorded in written sources from 1683 until the mid-19th century. The vast majority of these field names inform us about the contemporary, agrarian use of the fields. They tell about crops, location of fields, soil quality as well as grasslands and pasture for the domestic animals. Only in rare cases, field names record archeologic finds of precious metal, stone-age cairns, old road systems, fords etc. Fregerslev is no exception to this - from an archaeological point of view - meagre pattern. Thus, the field name where the chamber grave is situated Gammel Mands Fald (Old Man's Field), refers to a troublesome and not very fertile field. Indirectly, however, it also indicates that there never was prominent grave mound on the field which could otherwise have served as an obvious naming factor. Settlement names on the contrary reflect settlement development from the Iron Age and to the present day. This is also the case with Fregerslev and its hinterland. My talk will present an overview of the full place-name context of Fregerslev.

Ritual Killing and Burial of Horses in Viking Age Iceland

Rúnar Leifsson, Researcher, University of Iceland

Zooarchaeological analysis of horse remains from Icelandic Viking Age burials reveals new aspects of the burial rituals. Killing methods and arrangement of carcasses followed set protocols, there was a preference for killing males and it was customary to bury horses harnessed and bridled. Horses were always buried whole, sometimes more than one in a grave and occasionally without human remains. The structure of the entire horse assemblage indicates that the animals were essentially symbolic representatives of their species and sex. Theatrical elements, bloody and dramatic, likely helped to increase popularity of the rituals which may have had cathartic connotations. Horse killing was part of a structured burial tradition reserved for certain groups of people, including both men and women. A portion of the second and third generations of settlers along with new immigrants of higher social status appropriated and re-interpreted these burial traditions, which were at the height of popularity at the time in Norway, to claim status and structure identity based on traditional values. This was in a time of shifting power relations when Icelandic society was taking shape following the end of the settlement phase and before Christianization. The burial rituals indicate socio-political fault lines and competing identities.

Cultural connection of the Fregerslev burial to the area of Schleswig

Dr. Silke Eisenschmidt, Museum Sønderjylland, Denmark

When looking at the remains of horse harness from the Fregerslev burial, three graves from the hinterland of Hedeby come to mind: a cremation grave from Langballigau and two chamber graves from Thumby-Bienebek and Quern, which contain identical strap-mounts to the finds from Fregerslev. The cemeteries from Langballigau and Thumby-Bienebek were professionally excavated in the 1970s and published soon after. Of special interest are two graves from Thumby-Bienebek - one male, one female - with three well preserved horse harnesses.
The burials are situated within the southern concentration of Danish

equestrian and weapons burials in the areas of Als, Sundeved, Angeln and Schwansen. With reference to the above mentioned graves and other equestrian burials from the region a short overview of the material culture of the 10th century in southern Jutland - the area between the rivers Kongeå to the north and the Eider to the south - will be presented.

Burials with wagon bodies - the female perspective

Dr. Silke Eisenschmidt, Museum Sønderjylland, Denmark

Only when the cemeteries of Fyrkat and Thumby-Bienebek were excavated in the 1970s, was the use of wagon bodies as coffins recognized. Today approximately 60 Viking age graves from 43 sites are known where the deceased was buried lying in a wagon body. The majority has been identified as female graves. In a few instances, horses were buried, often in pairs, in close proximity of the grave.
Wagon body graves are almost exclusively found in the Old Danish area and are dated to the 10th century, as are most of the Danish equestrian and weapon burials. The wagon body graves have for this reason been compared with these burials and interpreted as the burials of upper-class women. The wagon body can be interpreted as a substitute for a whole wagon, as a means of transportation to the other world. "Ladies did not ride, they travelled by wagon", as Else Roesdahl wrote in 1992.
The presentation will give an overview of this burial-type, discuss the geographical distribution compared to the equestrian burials and finally suggest various interpretations of these special burials.

Horse equipment in the Early Middle Ages: evidence from Slovenia

Dr. Špela Karo, conservator, Institute for the Protection of Cultural Heritage, Centre for Preventive Archaeology, National Museum of Slovenia, Slovenia

Archaeological sites in Slovenia have yielded several pieces of horse equipment that date to the Early Middle Ages, and include bridle bits, stirrups, cross-shaped strap dividers and saddle parts. Most of these items were products of high quality, ornately decorated and

frequently protected with tinning. Unfortunately, the archaeological contexts of these finds are poorly known. This is largely due to the fact that most were dug up by non-archaeologists, but also due to a lack of archaeological investigations at the findspots. However, the wider contexts are fairly uniform, with most items found on hilltop sites with the exception of one hoard unearthed in the lowland. The horse equipment is mainly dated to the 9th and the early 10th century and has parallels from both burial and habitation contexts across early medieval Europe. Some of the items show typological similarities with those at the Viking Age sites.
Of all the early medieval sites in Slovenia, Gradišče above Bašelj yielded the greatest number of horse equipment. Apart from these functional and widely used objects, rare luxury items were discovered, such as gilded strap fittings, a richly decorated cross-shaped strap divider, a rectangular mount and a belt buckle. These items show Carolingian influence and undoubtedly belonged to a member of the upper class in the early medieval Carniola.

The Saxon warrior elite of Carolingian and Ottonian times

Dr. Thorsten Lemm, Researcher, Centre for Baltic and Scandinavian Archaeology, Schloss Gottorf, Germany

Since the beginning of Charlemagne´s so-called Saxon Wars in AD 772, the Royal Frankish Annals have accounted several armed conflicts. Skirmishes, open battles and sieges of fortresses - mostly with a positive outcome for the Frankish side - eventually led to the ultimate defeat of the Saxon tribes in AD 804 and the incorporation of their territories into Charlemagne´s realm. Graves furnished with weapons, riding equipment and horses provide a quite good impression of what the Saxon warriors and their military leaders of that time might have looked like. After the integration into the Frankish Empire - and the enforced Christianization of the Saxon people that went along with it - the graves were no longer equipped with goods. A reconstruction of Saxon warriors of the 9th and the 10th centuries must therefore mainly focus on pictorial representations known from textbooks, carvings, wall paintings etc. with the help of a few archaeological objects discovered as single finds or within settlement contexts.

The paper aims to outline the development of the Saxon warrior elite against Saxony´s historical background from the 8th to the late 10th centuries. The presentation will be rounded out by a short overview of selected fortresses as the seats of certain noble families.

Mapping the invisible traces - soil geochemistry of the burial floor of the horseman grave at Fregerslev

Vana Orfanou, post doc., Centre for Urban Network Analysis (UrbNet), Aarhus University.
Federica Sulas, assistant professor, Centre for Urban Network Analysis (UrbNet), Aarhus University.
Thomas Ljungberg, research assistant, Centre for Urban Network Analysis (UrbNet), Aarhus University.
Søren M. Kristiansen, Associate professor, Centre for Urban Network Analysis (UrbNet), Aarhus University, and Department of Geoscience, Aarhus University, Denmark

Excavations at the grave at Fregerslev revealed no preserved human skeletal remains. The identification of the site as a burial of a noble horseman and his horse was thus largely based on contextual evidence such as the horse's equipment. In order to trace invisible traces of decomposed bones and deteriorated grave goods in the burial's floor soil chemical analyses was hence performed. This was performed by portable handheld x-ray fluorescence (hhXRF) analyses in situ at the time of the excavation in a controlled grid that covered the whole of the exposed burial floor. Additional multi-elements analyses (by ICP-MS) of a sub-sample (10% of the in situ analysed points) aimed at defining the grave's soil chemistry at lower detection limits. The combined hhXRF and ICP-MS analyses showed areas of the burial significantly enriched in phosphorus, copper, iron and lead. For those four elements absolute concentrations from ICPMS and hhXRF correlated significantly while for a number of other elements as nickel, manganese, a.o. we could map the relative distribution only. The high phosphorus concentrations noted on the burial floor relate to the decomposed bone material, while high metal concentrations traces to the electrochemical interaction of the metal artefacts with their burial environment. Finally, soil geochemistry mapping at the Fregerslev burial was able to suggest

areas for the original position of the body and horse, concentrations of organic grave goods and illustrate the impact of degraded metal artefacts on an archaeological context.

The plant microfossils from the Viking Age equestrian burial at Fregerslev

Welmoed Out, PhD, & Renée Enevold, PhD, Department of Archaeological Science and Conservation, Moesgaard Museum, Denmark

Analysis of unknown material from a block lifted from the northern side of the equestrian burial at Fregerslev in 2015 showed the presence of phytoliths, i.e. microscopic, mineralized plant remains of opaline silica formed within and between cells. Preliminary analysis allowed to identify which plant part the remains represented and also to make a taxonomic identification at plant subfamily level. As a first hypothesis, this material has been interpreted as grass representing potential horse fodder.
To further investigate the character of the plant material and its function, eight soil samples from different locations within the grave have been subjected to phytolith and pollen analysis. These methods have been selected because of the absence of carbonized macroremains, the proven presence of phytoliths and since the selected methods can complement each other well concerning plant identification. This contribution will present the analyses' first results.

Organic remains from the Viking Age equestrian burial at Fregerslev, with focus on wood

Welmoed Out, PhD, Marianne Schwartz, Conservator, Cecilie Odderskov, Conservator, Peter Mose Jensen, Curator, Casper Skaaning Andersen, Archaeologist, Department of Archaeological Science and Conservation, Moesgaard Museum, Denmark

Already the initial analyses of the equestrian burial from Fregerslev generated indications for the preservation of organic material in the grave. Ongoing analyses at Moesgaard Museum have shown the presence of leather, wood and plant material other than wood. This

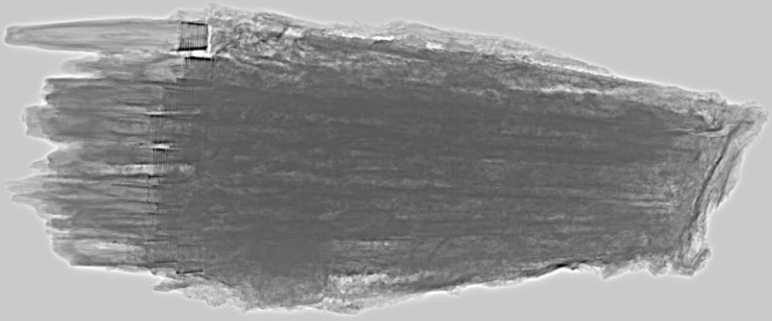
presentation will focus on the macrobotanical remains. Although the preservation of the wood is not optimal because of the sandy character of the sediment and the grave's position above the ground water table, identifiable fragments are regularly detected and allow to study and identify wood remains from various locations in the grave. Questions concern the function and spatial distribution of the finds.

Panel debaters:

Søren Sindbæk, Professor MSO, Aarhus University, Denmark
Gareth Williams, Senior Researcher, British Museum, UK
Mads Dengsø Jessen, PhD, Senior Researcher, National Museum of Denmark

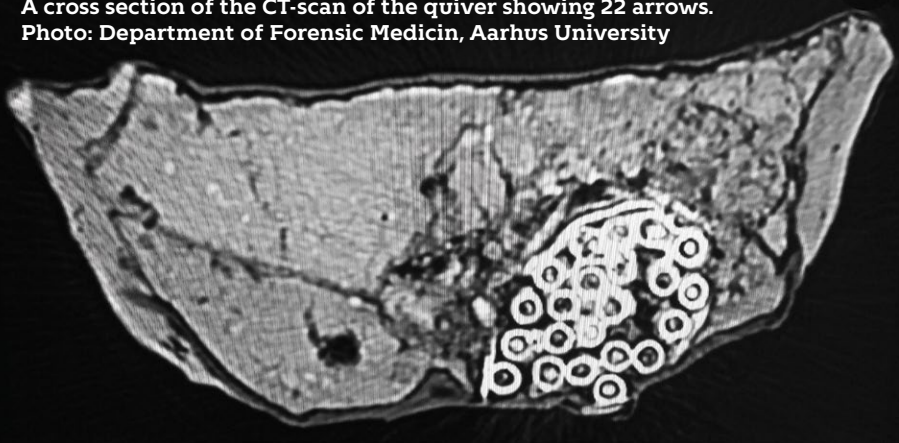
In this debate we encourage the participants to gather the threads of the seminar and to comment on the most important issues relating to the grave: the symbolism of equestrian burial, the status of the Fregerslev grave, and the social significance of late Viking-age elite burials, as well as other perspectives raised by the proceedings. The panel will open the debate with short contributions, followed by general debate.

The X-ray of the quiver.
Photo: Department of Archeological Science and Conservation at Moesgård Museum



The quiver with a preserved wooden holster protecting the arrowheads.
Remnants of the shafts can be seen to the left.
Photo: Foto/Medie, Moesgaard. Michael Johansen.

A cross section of the CT-scan of the quiver showing 22 arrows.
Photo: Department of Forensic Medicin, Aarhus University



SPONSORS & PARTNERS

DEN A.P. MØLLERSKE STØTTEFOND

AUGUSTINUS FONDEN
STIFTET 25. MARTS 1942

AARHUS UNIVERSITET

Skanderborg Kommune

Nationalmuseet
National Museum of Denmark

KULTUR MINISTERIET
SLOTS- OG KULTURSTYRELSEN

The project group:
Anne Pedersen, Silke Eisenschmidt, Søren Sindbæk, Hoda El-Sharnouby, Henrik Rosenlund Knudsen, Ejvind Hertz, Merethe Schifter Bagge and Lene Høst-Madsen.

MUSEUM SKANDERBORG


MUSEUM
SKANDERBORG