The Sösdala Horsemen

and the equestrian elite of fifth century Europe

Edited by Charlotte Fabech & Ulf Näsman

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Jutland Archaeological Society

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Edited by Charlotte Fabech & Ulf Näsman

English revision by Alan Crozier
Russian summaries by Nikita Khrapunov (except chapter 13 and 15)

Cover, layout and prepress by Depot 1
Cover photo: detail of the pendant Sösdala I no. 1. Photo Lovisa Dal/Christoffer Fägerström
Printed in Denmark by Narayana Press, Gylling
Type: Arno Pro, FF Mark and Avenir Next
Paper: Galerie Art Volume 135 gram

ISBN 978-87-93423-15-2
ISSN 0107-2854
Jutland Archaeological Publications Vol. 99
Published by Jutland Archaeological Society
Moesgård
DK-8270 Højbjerg
Denmark

Distributed by
Aarhus University Press
Finlandsgade 29
DK-8200 Aarhus NV
Denmark
www.au.dk/unipress

Published with the financial support of
Anders Althins Stiftelse
Beckett-Fonden
Berit Wallenbergs Stiftelse
Dronning Margrethe II's Arkæologiske Fond
Ebbe Kocks stiftelse
Stiftelsen Konung Gustaf VI Adolfs fond för svensk kultur
Lennart J Hägglunds Stiftelse
Letterstedtska föreningen
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Stiftelsen Oscar Montelii fond
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Preface

Some objects in our museums attain with time a status as national treasures, and we find them often depicted in standard handbooks about our prehistory. In spite of frequent exposure, the underlying context and the find circumstances as well as the significance of this information may be almost unknown and unpublished. The find of spectacular equestrian equipment at Sösdala is an example of this. The Sösdala finds – in reality two separate depositions – remained mainly known in the 20th century as eponym of one of the decorative styles during the Iron Age, while questions about context and significance received little scholarly attention. Now Charlotte Fabech and Ulf Näsman have set this omission right with an impressive monograph that is the outcome of six years of work. The source-critical review of the find recovery and the rather confusing archaeological investigations that followed is exemplary and exciting. The finds from Sösdala also became pawns in a political struggle between the museums in Lund and Stockholm. The question was whether the finds should be incorporated in the national collections of the Swedish History Museum in Stockholm or be a valuable supplement to the regional collections at the Historical Museum at Lund University? After much debate and both private and official correspondence the Museum in Lund prevailed and the finds, together with the Fulltofta finds, were permanently placed in a table display case in the Iron Age exhibition hall. Here generations of archaeology students learned about the Sösdala style. In 2007 the finds became part of a new exhibition "Barbaricum – Uppåkra and the Iron Age of Scania".

With fresh eyes and knowledge and curiosity in ample measure, Charlotte and Ulf have studied the unique artefacts and had them analysed with new methods and approaches. Analyses of metal alloys and niello as well as microscopic study of the punched decoration have given new clues to the technology and origin of the equestrian equipment. Scholars first interpreted the finds as religious offerings but today much speaks in favour of considering the depositions as part of a funerary ritual for a dead mounted warrior. Probably South Scandinavian horsemen, who served in Germanic hosts in the wide realm of the Huns, are behind the Sösdala and Fulltofta depositions. During their journeys on the Continent they met mounted nomads and became acquainted with their strange funerary rituals. The rituals were performed some distance from the burial place and included the destruction of the dead warriors' horse tack. The ideas of such rituals were brought home by returning Scandinavians and eventually transferred to Scanian soil, plausibly in an attempt to assert new power positions. Perhaps Charlotte and Ulf have identified a once owner of horse tack from Sösdala in a male burial at the nearby Vätteryd cemetery. Obvious similarities in

horse tack and context of the Fulltofta find, 15 km south of Sösdala, also indicate that the respective owners ought to have known one another.

The closest parallel to the parade bridle of Sösdala was found at Kačin in Ukraine. In the same way as Sösdala speaks about far-reaching cultural contacts in the 5th century, Charlotte and Ulf have established an international research team of scholars from Sweden in the north, Germany and France in the west and Poland and Russia in the east. All have contributed valuably to an understanding of the equestrian elite during the Migration Period. The book The Sösdala horsemen – and the equestrian elite of fifth century Europe gives Sösdala and Fulltofta their justified place in European history. In connection with the publication, the finds from Sösdala and Fulltofta will be displayed temporarily but then they will be given their proper place in the permanent exhibition of the Iron Age in Scania.

Lund, 20 May 2017
Per Karsten
Museum Director
Head of the Historical Museum at Lund University

Резюме

Предисловие

В Предисловии директор музея говорит о значении находок в Сёсдале и Фультофте, *ныне* являющихся частью собрания Исторического музея Лундского университета. Он дает высокую оценку колоссальной работе, проделанной при подготовке этой публикации группой исследователей и редакторами проекта – Шарлоттой Фабек и Ульфом Несманом. Благодаря книге «Всадники Сёсдалы и всадническая элита Европы V в.» Сёсдала и Фультофта займут заслуженное место в истории Европы. После этой публикации находки из Сёсдалы и Фультофты займут надлежащее место в постоянной экспозиции, посвященной Железному веку на территории Скании.

Лунд, 20 мая 2017 г.
Пер Карстен
Директор Исторического музея
Лундского университета

Introduction

Charlotte Fabech & Ulf Näsman

In 1929 the history of the Sösdala find began when workers discovered a large number of mounts of horse tack in a gravel pit. The lucky story of how the Sösdala find was saved reminds us of how much of our knowledge about early history is based on accidental circumstances. Most archaeological objects are in fact lost before they are noticed, recorded, stored in a museum and perhaps exhibited. And many arrive at museums with little if any information about find circumstances. So it is important that there are people outside universities and cities, who have an interest in history and who are actively involved in their community. Without the efforts of Carl Mellton, the elementary school-teacher in Sösdala, the find would have been lost.

The Sösdala find rapidly became internationally famous after a paper in German written by John-Elof Forssander appeared in 1937. He coined the term "Sösdala style" that soon became established in the art history of the Migration Period. But most of the objects remained unpublished and the fame of the name threw them in deep shade.

In 1986 Charlotte saw the Sösdala find for the first time in the exhibition at the Historical Museum at Lund University. She was there to prepare her MA thesis. Realising that the find spot is situated near the large Vätteryd cemetery with stone ships, she also went to Sösdala to experience the local setting of the find. Both the artefacts and the ritual deposition point from Sösdala towards south-eastern Europe. Since that year she hoped once to be able both to publish the find and to discuss the find context internationally.

Significantly, Sösdala artefacts were absent when a large exhibition "Germanen, Hunnen und Awaren. Schätze der Völkerwanderungszeit" opened in 1988 at the museums in Nuremberg and Frankfurt am Main. The only existence of "Sösdala" was as a style concept. The peripheral position of Scandinavia was also obvious in the research programme "The Transformation of the Roman World". But the archaeological record of Migration Period Scandinavia can tell another story, one of Scandinavian involvement in European history, as attempted by Ulf at a workshop in 1996 in Strasbourg.

The bridle from Sösdala is a centrepiece of interaction between South Scandinavia and south-eastern Europe. The complete publication of the Sösdala find demonstrates that South Scandinavia in the Migration Period was an integral part of Europe. We hope it will contribute to changing the view that South Scandinavia is an uninteresting periphery outside the real Europe.

That a Sösdala publication should not be a monograph but a volume of studies became clear after Charlotte's visit in 2001 to Kunsthistorisches Museum in Vienna. There she bought a new book *Barbarenschmuck und Römergold. Der Schatz von Szilágysomlyó*. It was read on the train back to Denmark. It is a collection of interesting papers about a significant find and has excellent artefact photographs. It became our ideal for a publication of Sösdala. But other research projects, easier to finance, came first and years would pass before Sösdala came on the agenda.

In 2008 Charlotte received a grant to investigate whether a project to publish the Sösdala find could be realised. In the years 2009–2012 the possibilities of a Sösdala publication project was investigated but it was only when Charlotte and Ulf in 2012, independently of one another, received an invitation to contribute to a conference, *Inter Ambo Maria,*

Fig 1. Participants in the 2013 Sösdala workshop in front of the Historical Museum at Lund University.
From left to right: Svante Fischer, Jerry Rosengren, Anneli Sundkvist, Per Karsten, Lovisa Dal, Michel Kazanski, Anna Bitner-Wróblewska, Bengt Nordqvist, Charlotte Fabech and Ulf Näsman. Photo unknown passer-by.

Fig 2. Ulf Näsman, Charlotte Fabech and Lovisa Dal discuss the Sösdala objects in the library of the Historical Museum at Lund University. Photo Daniel Lindskog.

in the Crimea (Ukraine) that the Sösdala project began to materialise. We decided to cooperate and to give a joint paper about Sösdala, subsequently published in the conference proceedings in 2013. To present Sösdala seemed appropriate at a conference in south-eastern Europe. The reception after our presentation was overwhelming. For the first time archaeologists understood the exceptional qualities of both the content and the context of the Sösdala find. We concluded that many scholars in Central and Eastern Europe would also appreciate a full Sösdala publication. After the conference we stayed a couple of days in Istanbul and realised that our next step had to be a workshop in Lund where we could discuss a publication project with invited scholars of importance. To publish a find of such international significance we needed support of scholars with greater knowledge of the archaeological record of Western and Eastern Europe as well as domestic scholars with special expertise. We received economic support to arrange a workshop and a number of scholars were invited; all promised to participate.

In May 2013 we gathered at the Historical Museum at Lund University to study the Sösdala finds and to discuss the possibilities for future collaboration concerning a Sösdala publication (fig. 1). The museum generously opened its doors to us and arranged that the whole find complexes from Sösdala I and II as well as Fulltofta were available for close study. All invited were positive and we are grateful that they accepted our invitation to contribute of their time, engagement and knowledge. We promised to apply for money for the necessary preparatory work: scientific analyses, artefact cleaning and new colour photography, drawings of bridle and saddle reconstructions and artefact cross-sections, layout and printing as well as a second workshop (fig. 2). Fortunately, many foundations viewed our applications favourably, and after some time the economy of the project was consolidated. We are grateful to the foundations that granted our requests.

In November 2015 a second workshop was held in Lund for a final discussion of finds, interpretations and conclusions. The authors presented their contribution, and discussions were lively during fruitful days in Lund. To make the find places Sösdala and Fulltofta and their surrounding landscapes more present to the participants we went to visit the sites. It was a risky business at that time of the year; the weather forecast said cloudy, 6 degrees Celsius and maybe snow. We did get a little snow, but everything went fine (fig. 3)!

It is hard to understand how difficult it is to finance a project like Sösdala. The large research foundations do not

support this kind of research, so we had to find support in smaller private foundations. The foundations that generously contributed to the publication are:

Anders Althins Stiftelse
Beckett-Fonden
Berit Wallenbergs Stiftelse
Dronning Margrethe II's Arkæologiske Fond
Ebbe Kocks stiftelse
Stiftelsen Konung Gustaf VI Adolfs fond för svensk kultur
Lennart J Hägglunds Stiftelse
Letterstedtska föreningen
Magnus Bergvalls Stiftelse
Stiftelsen Oscar Montelii fond
Sven och Dagmar Saléns Stiftelse

Working with Sösdala has been like opening Pandora's Box. New unexpected questions appeared constantly. We have tried to catch them and find answers, but sometimes it felt overwhelming with more questions than answers. Finds such as Sösdala represent only the tip of an iceberg of unknown material. Other similar finds are other tips but we do not know whether they belong to the same iceberg or are separate. In fact we think this is a positive result – our main goal is to give Sösdala its just place in the discourse about the epoch-making centuries in the middle of the first millennium AD. Now the Sösdala and Fulltofta finds are put to work. Other scholars will have access to the complete material from Sösdala and Fulltofta and hopefully they will find new questions to ask and new interpretations to present. The lack of a full publication explains why the Sösdala finds have been largely overlooked; another explanation is linguistic difficulties. In the workshops discussions were polyglot with comments in Danish, English (dominating), French, German, Russian and Swedish. In an attempt to remedy this we publish in English with résumés and captions in Russian.

Another complication in our scholarly communication was that similar chronological concepts have different content in Scandinavia and on the Continent (fig. 4). On the Continent the Migration Period phase D1 is roughly contemporary with the later part of Scandinavian Late Roman Iron Age phase C3, Continental D2 corresponds to

Fig 3. The participants of the second workshop 2015 at the Sösdala gravel pit.
From left to right: Bengt Nordqvist, Svante Fischer, Olle Andersson, Anneli Sundkvist, Per Karsten, Dieter Quast, Ulf Näsman, Anna Bitner-Wróblewska, Bertil Helgesson, Anna Mastykova, Michel Kazanski, Charlotte Fabech and Lovisa Dal. Photo Stig Jensen, the coach driver.

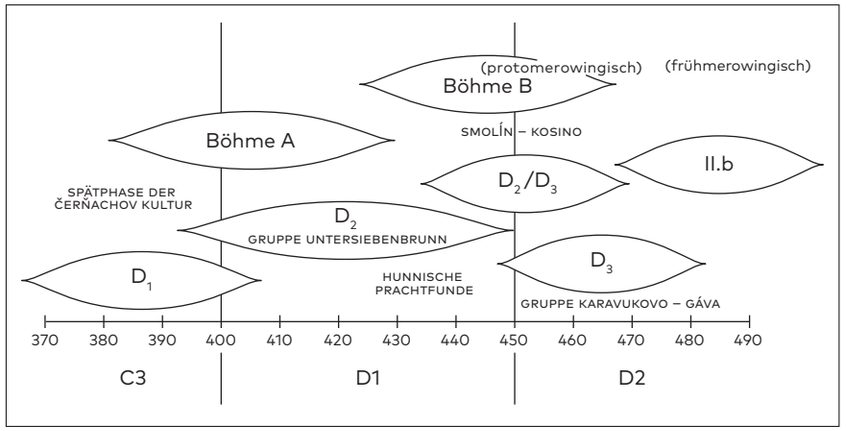

Fig 4. The relation between Scandinavian chronological phases C3, D1 and D2 (bottom) and Continental chronological concepts.
After fig. 20 in Kristoffersen, S. & Magnus, B. 2010. Spannformete kar. Udvikling og variasjon. *Stavanger. Summary. and Abb. 30 in Tejral, J. 1997. Neue Aspekte der frühvölkerwanderungszeitlichen Chronologie im Mitteldonauraum. In: Tejral, J. et al. (eds).* Neue Beiträge zur Erforschung der Spätantike im mittleren Donauraum. *Brno: 321-391. Cf. Abb. 41 in Rau, A. 2010.* Nydam mose 1. Die personengebundenen Gegenstände. Grabungen 1989–1999. *Aarhus/Højbjerg: Summary.*

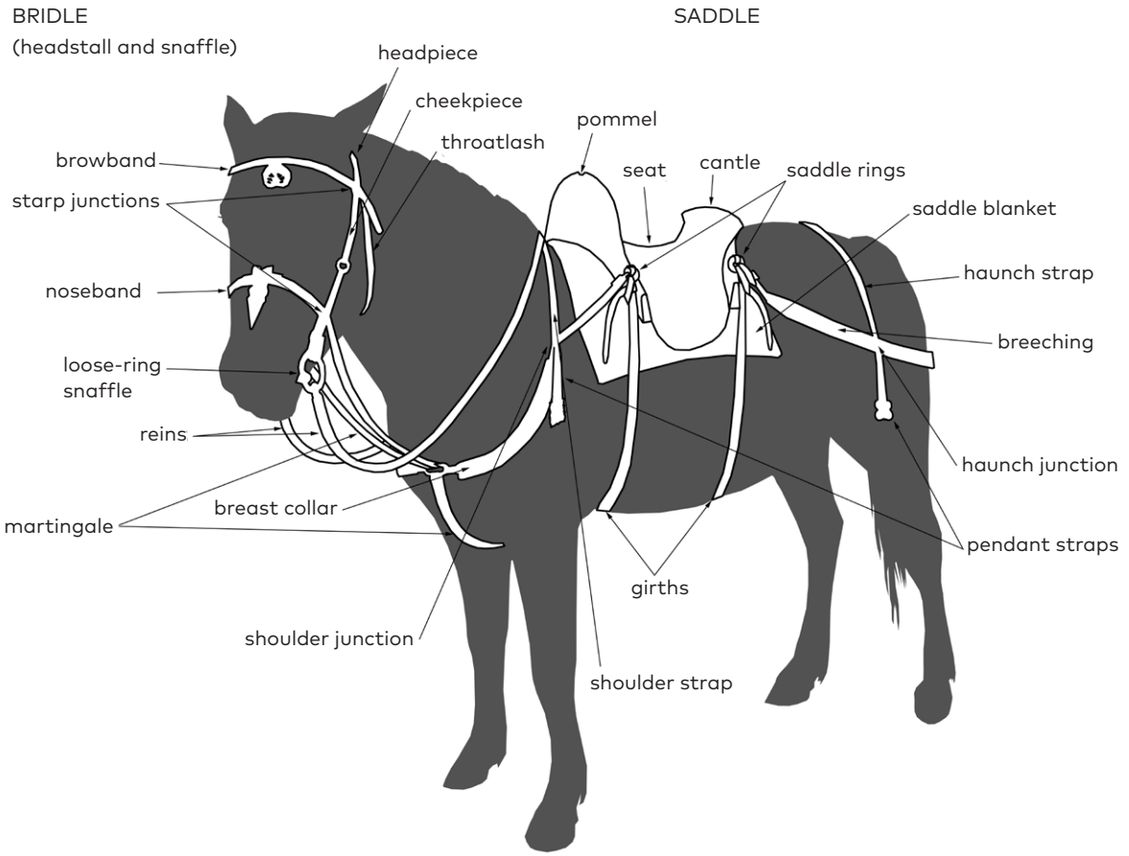

Fig 5. The terminology of horse tack used in the Sösdala publication is applied to a reconstruction of a "Sösdala horse". For corresponding term in Russian, see résumé. Drawing Erika Rosengren.

Scandinavian D1 and Scandinavian D2 to Continental D3 and Early Merovingian phases *Alte Merowingerzeit* I–II. To avoid misunderstandings we use the terms Scand-D1 and Cont-D1.

For scholars who never mounted a horse the terminology of the many mounts and straps necessary to bridle and saddle up a horse was a challenge. After good advice from Anneli Sundqvist and Alan Crozier as well as much surfing on the Internet we decided on a terminology of horse tack (fig. 5). The localisation of the main sites treated in the book is found on a map (fig. 6).

In this publication of the finds from Sösdala and Fulltofta the artefacts are reproduced on the scales of 1:1 or 3:4 (75%) in the catalogues. All other illustrations are reproduced on various scales when nothing else is stated.

Many individual persons and scholars have helped us in various ways. We owe them all many thanks: Hans Chr. Andersen, Kent Andersson, Olle Andersson, Anders Andrén, Maria Panum Baastrup, Jan Bemmann, Jenny Bergman, Ruth Blankenfeldt, Audronė Bliujienė, Hampus Cinthio, Sophia Cinthio, Lisbeth Eilersgaard Christensen, Lars Ersgård, Nicolo Dell'Unto, Lotta Fernstål, Marei Hacke, Jan Peder Lamm, Kristina Jansson, Kristina Jennbert, Stig Jensen, Igor' Khrapunov, Birgit Körge, Per Lagerås, Nina Lau, Maxim Levada, Ulla Mannering, Magnus Mårtensson, Mats Mogren, Björn Nilsson, Anders Ödman, Chatarina Ödman, Karl Erik Olsson, Ingvar Ottosson, Jonas Paulsson, Karen Stemann Petersen, Peter Vang Petersen, Andreas Rau, Judyta Rodzińska, Jerry Rosengren, Tom Sandström, Arne Sjöström, Frans-Arne Stylegar, Kaj Thuresson and Helena Victor.

And warm thanks to Per Karsten, head of the Historical Museum at Lund University, who accepted our sugges-

tions and gave us free hands in our work with the exceptional Sösdala find complex, indeed a great privilege.

Finally our many thanks to those who contributed as authors, drawer, editors, photographers or translators: Anna Bitner-Wróblewska, Enrico Cappellini, Alan Crozier, Lovisa Dal, Svante Fischer, Bertil Helgesson, Per Karsten, Michel Kazanski, Jesper Laursen, Nikita Khrapunov, Daniel Lindskog, Meaghan Mackie, Anna Mastykova, Bengt Nordqvist, Snorre Näsman, Dieter Quast, Per Ramqvist, Erika Rosengren, Konstantin Skvortsov, Anneli Sundkvist and Ola Svensson.

This publication never had the goal of covering all aspects of the Sösdala finds. Our focus is to present the artefacts of the three finds, Sösdala I–II and Fulltofta, and to expose the outstanding craftsmanship. Another purpose is an update of the information about classical questions such as chronology, provenance, style and interpretation of find context. We also make an attempt to write the biography of the parade bridle of Sösdala I. Now we hope other scholars will use the publication to put forward new questions and interpretations. A few scientific analyses were made with good results. Obviously other scholarly and scientific analyses will bring further discoveries, analyses we had neither the time nor the resources to carry out. It has been very rewarding to handle and study such rich and exciting archaeological find material. The Sösdala-Fulltofta complex offers new routes to an understanding of the societal changes in a tumultuous period when the classic world collapsed and a new Europe was formed.

Fig 6. The localisation of the main sites treated in this volume.

Резюме

Введение

Шарлотта Фабек, Ульф Несман

История находки в Сёсдале началась в 1929 г., в гравийном карьере. Находка погибла бы, если бы не усилия Карла Мельтона, учителя начальных классов из Сёсдалы. Международную известность Сёсдальской находке принесла статья Йона-Элофа Форссандера, опубликованная в 1937 г. на немецком языке. Он предложил выделить стиль «Сёсдала», но большая часть находок осталась неопубликованной. В 1986 г. Ш. Фабек впервые увидела находку из Сёсдалы в Историческом музее

Лундского университета. С тех самых пор она надеялась опубликовать находку и информацию о ее контексте в издании, которое привлекло бы внимание международной аудитории.

В 2008 г. Ш. Фабек получила грант для изучения вопроса о том, возможна ли реализация проекта по изданию находки из Сёсдалы. Когда в 2012 г. Ш. Фабек и У. Несман независимо друг от друга получили приглашение принять участие в конференции «Inter Ambo Maria» в Крыму, то решили сделать совместный доклад о Сёсдале (опубликован в сборнике материалов конференции в 2013 г.). Доклад был встречен с энтузиазмом. Стало ясно, что многие исследователи из Центральной и Восточной Европы оценят полную публикацию комплекса из Сёсдалы.

В мае 2013 г. небольшая группа исследователей собралась в Историческом музее Лундского университета для изучения находок из Сёсдалы и обсуждения соответствующей публикации (рис. 1). В ноябре 2015 г. в Лунде прошел второй семинар, на котором снова обсуждались эти находки, их интерпретации и результаты исследования. Чтобы познакомить участников проекта с местом, где были открыты находки из Сёсдалы и Фультофты, была предпринята экскурсия на эти памятники (рис. 3).

Задачу осложняло то обстоятельство, что близкие хронологические концепты в Скандинавии и на Европейском континенте имеют разное наполнение (рис. 4). Чтобы избежать непонимания, мы будем использовать такие термины, как, например, «период D1 по скандинавской хронологии» («Scand-D1») и «период D1 по европейской хронологии» («Cont-D1»). Терминология, описывающая различные накладки, зажимы и ремни, использовавшиеся в узде и седлах, представляла собой отдельную проблему, и потому пришлось определиться с терминами, описывающими конскую упряжь (рис. 5; см также русскую терминологию в нижеприведенном списке). Местоположение основных памятников, о которых пойдет речь в этой книге, отмечено на карте (рис. 6).

BRIDLE (headstall and snaffle)	УЗДА (оголовье и удила)
browband	налобный ремень
cheekpiece	нащёчный ремень
headpiece	затылочный ремень
loose-ring snaffle	трензель
cheek-bar snaffle	мундштук
noseband	носовой ремень
reins	поводья
strap junction	распределитель ремней
throatlash	шейный ремень
SADDLE	СЕДЛО
breast collar	нагрудный ремень
breeching	шлея
cantle	задняя лука
girth	подпруга
haunch junction	распределитель ремней (на крупе коня)
haunch strap	спинной ремень
martingale	мартингал
pendant strap	подвесочный ремень
pommel	передняя лука
saddle blanket	потник
saddle ring	подпружное кольцо
seat	сиденье
shoulder junction	распределитель ремней (на плече коня)
shoulder strap	плечевой ремень

Эта публикация не ставит целью дать всесторонний анализ находок в Сёсдале. Наша задача – опубликовать вещи из трех памятников: Сёсдалы I–II и Фультофты. Другая задача – уточнить информацию по таким «классическим» вопросам, как хронология, происхождение, стиль и интерпретация контекста находки. Будем надеяться, что другие исследователи используют эту публикацию, чтобы сформулировать новые вопросы и предложить новые интерпретации. Комплекс Сёсдалы-Фультофты предлагает новые возможности для понимания социальных изменений в бурное время гибели античного мира и формирования новой Европы.

Подписи к иллюстрациям

Рис. 1. Участники Сёсдальского семинара 2013 г. на фоне Исторического музея Лундского университета. Слева направо: Сванте Фишер, Джерри Росенгрен, Аннели Сундквист, Пер Карстен, Ловиса Даль, Михаил Казанский, Анна Битнер-Врублевская, Бенгт Нордквист, Шарлотта Фабек, Ульф Несман. Фото неизвестного прохожего.

Рис. 2. Ульф Несман, Шарлотта Фабек и Ловиса Даль обсуждают вещи из Сёсдалы в библиотеке Исторического музея Лундского университета (фото Даниэля Линдскога).

Рис. 3. Участники второго семинара 2015 г. у гравийного карьера в Сёсдале. Слева направо: Бенгт Нордквист, Сванте Фишер, Олле Андерссон, Аннели Сундквист, Пер Карстен, Дитер Кваст, Ульф Несман, Анна Битнер-Врублевская, Бертиль Хельгессон, Анна Мастыкова, Михаил Казанский, Шарлотта Фабек, Ловиса Даль. Фото Стига Йенсена, водителя автобуса.

Рис. 4. Соотношение между фазами C3, D1 и D2 по скандинавской (внизу) и европейской хронологии (по: Kristoffersen, Magnus 2010 fig. 20 (Spannformete kar. Udvikling og variasjon. Stavanger. Summary); Tejral 1997 Abb. 30 (Neue Aspekte der frühvölkerwanderungszeitlichen Chronologie im Mitteldonauraum // Neue Beiträge zur Erforschung der Spätantike im mittleren Donauraum / ed. J. Tejral et alii. Brno: 321–391); ср.: Rau 2010 Abb. 41 (Nydam mose 1. Die personengebundenen Gegenstände. Grabungen 1989–1999. Aarhus; Højbjerg: Summary).

Рис. 5. Термины, описывающие конскую сбрую, использованные в публикации комплекса Сёсдалы, на графической реконструкции «коня из Сёсдалы». Соответствующая русская терминология дана в тексте выше (рисунок Эрики Росенгрен).

Рис. 6. Местоположение основных памятников, упомянутых в этой книге.

Chapter 8

The Iron Age horse

Erika Rosengren

The Sösdala find with its exquisite horse equipment is spectacular and testifies to the prominent role of the horse in Iron Age society. Although the remains of the horses themselves are absent, information about the animal's physical characteristics can be found in related finds from elsewhere in Scandinavia. It is possible to infer that the horses do not seem to have expressed much phenotypic variation. The horses were around 120–140 cm over the withers and most were black, bay or chestnut in colour. Genetically, modern Nordic horses show abundant diversity both among and within horse breeds, possibly reflecting a bias toward the trading of females already in ancient times. In contrast, local stallions seem to have been highly valued and preferred over imported ones, based on the autochthonous paternal lineages exhibited by the same breeds. At some point in time, an influx of genes from eastern horse populations occurred, possibly mirroring the eastern influences seen in other categories of archaeological material, but this may also be of an earlier or later date.

Rosengren, E. 2017. The Iron Age horse. In: Fabech, C. & Näsman, U. (eds). *The Sösdala horsemen – and the equestrian elite of fifth century Europe.* Jutland Archaeological Society.

The horse is believed to have been domesticated in the Eurasian Steppe 5,000–6,000 years ago (Ludwig *et al.* 2009), and introduced in various parts of Europe in the Late Neolithic/Bronze Age (Bendrey 2012). In addition to having long-lasting impact on human societies by increasing mobility and trade, influencing human lifestyles and profoundly changing warfare (Levine 2000), it is apparent from both archaeological material and written accounts that the horse was a symbol of status and had a prominent role in the cult (Näsström 2002; Fabech & Ringtved 2009). Horses could serve as various offerings, for example as food, gifts, protection, and booty (Vretemark 2013). Consequently, remains of either whole carcasses of horses, selected body parts or food waste are found in a variety of contexts: wetlands, wells, graves, on settlements and within house structures (Stjernquist 1973; Møhl 1997; Carlie 2004; Vretemark 2013; Dobat *et al.* 2014).

The Sösdala find, dated to the Migration Period (*c.* AD 400), is one of the most interesting finds associated with horses. It consists of exclusive riding gear, saddles and tackle, and has been interpreted as making up a funeral sacrifice (Fabech chapter 2). In this context the Iron Age horse itself is absent, possibly slaughtered and eaten in connection with the burial of its leader (Fabech & Näsman chapter 17). That no physical remains of horses were found in close proximity to the sacrificed horse equipment

Fig. 1. Examples of horses displaying the most prevalent coat colours; chestnut, bay and black. Photo: Photocase/kb-photodesign.

in Sösdala is a major drawback and, although remains of horses were abundant in the graves at the nearby burial site of Vätteryd (Strömberg 1961), they come from cremations and were too fragmented to provide much information. An essential part of the equation is thereby missing, and in order to investigate the physical characteristics of the horse we need to look elsewhere.

Although written contemporary sources from Iron Age Scandinavia are almost non-existent there are a good number of descriptions from foreign writers, for example, Roman chroniclers. Primarily restricted to aristocratic settings, consequently, there are apparent discrepancies between these sources and the abundant archaeological finds (Vretemark 2013), and comparisons should therefore be treated with caution.

In the written narratives, for example, sacrifices most often involve male animals, but, with the exception of the four sacrificed stallions in Illerup Ådal (Dobat *et al.* 2014), no sex preference seems to have existed for horses in graves or in sacrificial contexts (Götherström 2002; Monikander 2010; Svensson *et al.* 2012). The apparent lack of a preference for stallions compared to mares, in turn, shows that the people conducting the rituals had stronger criteria for the evaluation of a horse than sex, perhaps selecting animals based on capability, breed or aesthetics (Götherström 2002).

Also, the Roman historian Tacitus describes white horses as particularly holy in his *Germania* (chapter 10) and the coat colour of horses is only occasionally mentioned in the written material describing the Viking Age (Sundkvist 2001). When Svensson *et al.* (2012) used genotyping

of coat colour SNPs on the horse remains from Skedemosse (AD 200–500), Valsgärde (AD 450–750) and Ultuna (AD 800–1050) they were able to show that the three basic coat colours, bay, black, and chestnut (fig. 1), seem to have been dominant and equally common at all sites. However, according to the authors, the genes determining various spotting patterns and dilutions believed to have existed are still unknown, or impossible to target in fragmented genetic material such as ancient DNA (Svensson *et al.* 2012). Also, the findings of horses with silver dilution, although only in heterozygote state, makes it likely that there were animals expressing the silver phenotype present in Sweden during at least the early Viking Age (Svensson *et al.* 2012).

According to written accounts there existed a large number of different horse breeds within the Roman Empire. Selective breeding was practiced and certain horse races were reserved for certain categories within society (Hyland 1990). Different phenotypes of horses based on body size and proportions, possibly constituting different breeds, have been proposed from the Swedish Iron Age (Sundkvist 1992).

The withers heights of the horses recovered from Skedemosse and Hassle-Bösarp ranged between 120 and 140 cm (Stjernquist 1973; Monikander 2010). The horses from Finnestorp were approx. 140 cm (Nordqvist 2006) and the horses from Röekillorna are described as larger than a modern-day Icelandic pony (145 cm: Møhl 1997). The withers heights of the four horses recovered at Illerup Ådal A ranged between 130 and 141 cm (Dobat *et al.* 2014). Overall, this gives an average height of about 130 cm in the Scandinavian Early Iron Age horses (fig. 2).

However, Azzaroli (1985) has previously discussed the problem of separating different horse types based on skeletal morphology in all but extreme cases. One should also keep in mind that only a small portion of the bone material, due to the challenges concerning DNA preservation and additional taphonomic processes, are suitable for genetic or biometric analyses. Bones found in cremation burials, in alkaline wetlands or as refuse material at settlements are often too fragmented or deteriorated. Therefore, the results previously cited represent only a limited number of horses originally used in Iron Age society and are thus not based on an unbiased sample.

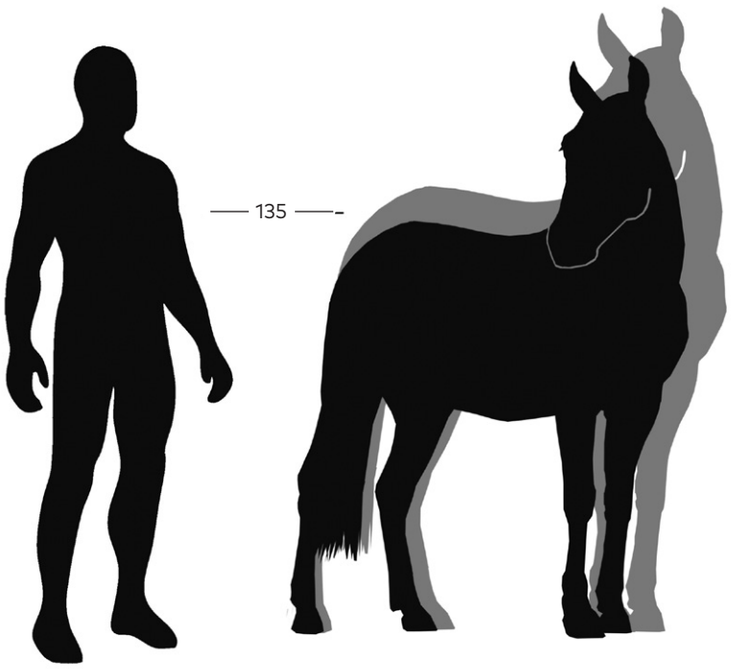

Fig. 2. Mean withers heights of the Iron Age horses (black) compared to the mean withers heights of modern Nordic horse breeds (grey). Drawing Erika Rosengren.

Interestingly, the estimated withers height agrees well when compared to the measurements of horses from the Continent and the British Isles. Remains of horses from Pre-Roman Iron Age/transitional period (1st century BC–1st century AD) Britain had a mean withers height of 126 cm (Albarella *et al.* 2008). Celtic horses are described as small (110–130 cm withers height), whereas Romans bred larger horses (>140 cm). Therefore, remains of small horses have been considered to come from local animals while larger ones have been proposed to be imported, endowed or looted (Elsner *et al.* 2016). It is speculated that the Romans introduced new female lineages to conquered regions (Bower *et al.* 2013) and according to Caesar horses were traded over long distances (*De Bello Gallico* 4,2,2). Also, in areas under Roman influence, like Britain, an increase in body size and change in body shape over time has been observed, suggesting that horse improvement was likely to have been brought about with new breeding stock (Albarella *et al.* 2008).

Although the body size of horses increased during the Iron Age (Fabech & Ringtved 2009), no significant change has been observed from sites in Northern Europe contemporary with the Roman Empire. Consequently, it has been speculated whether one of the four horses from Illerup Ådal A, interpreted as a surprisingly large animal, might indicate import from either Eastern Europe or the Roman Empire (Lau 2014, Table 1). This would be in accordance with the various elements of riding equipment found in southern Scandinavian weapon sacrifices showing close similarities to riding gear from the northern Danube area or the Roman Empire (Lau 2014). Strontium isotope analysis of enamel of two of the other horses showed a local origin within the region of Denmark, southern Sweden or northern Germany for these horses (Dobat *et al.* 2014), rendering the issue unresolved.

However, although studying only a small portion of the mtDNA, Elsner *et al.* (2016) found that smaller and larger individuals from sites in Switzerland (originally identified as local and imported, respectively) did not differ genetically. Persistent gene flow through the domestication process, high mobility of the horse, and its prevalent use for transportation has been evoked to explain the high genetic diversity (in both mitochondrial and autosomal DNA), as well as the absence of strong phylogeographic structuring that exists among horses (Vilà *et al.* 2001; Petersen *et al.* 2013).

Unlike the descendants of other domesticated species like cattle, sheep, and goats that are derived from a limited number of animals that were domesticated in just a few places 8,000–10,000 years ago, the horse mitochondrial genomes tell a very different story. The mtDNA of modern horses shows a high diversity in terms of haplogroups, most of which are shared among modern breeds and different geographic areas (Lippold *et al.* 2011b; Achilli *et al.* 2012). The genetic data appears to suggest that, in addition to the knowledge of horse breeding, the rapid spread of horse domestication out of western central Eurasia during the Neolithic involved actual population movement (Levine 2002; Achilli *et al.* 2012).

Within the autosomal DNA (i.e. microsatellites), the divergence between breeds is more marked than was observed with mtDNA sequences, further illustrating that maternal gene flow dominated the genetic exchange between breeds and may reflect a bias toward females in breeding and trade (Vilà *et al.* 2001).

In contrast, the Y-chromosome diversity found in modern domestic horses is exceedingly low. One hypothesis to explain this has been that the wild horse population from which they were domesticated also lacked diversity, possibly due to the polygynous breeding patterns in wild horses (Wallner *et al.* 2013). The absence of Y-chromosomal diversity in modern horses is, however, most probably a result of a limited number of stallions initially being domesticated and the breeding practices developed after domestication further reducing the effective number of males (Lippold *et al.* 2011a). Haplotype 1 is believed to be the only one that survived through domestication and later selective breeding, and it is distributed across almost all breeds and geographic regions. All other haplotypes arose directly or indirectly from haplotype 1. Wallner *et al.* (2013), studying the genetic variation of the Y-chromosome in extant horse breeds, found that northern European breeds, like the Icelandic Horse, Shetland Pony, and the Norwegian Fjord horse, retained autochthonous Y-chromosome variants (haplotypes 4–6) in high frequencies. Haplotype 4, for example, is found in half of all Icelandic horses, haplotype 6 in 74% of Shetland ponies and haplotype 5 is fixed in Norwegian Fjord horse (Wallner *et al.* 2013). The autochthonous haplotypes would imply that these horse breeds were either subjected not at al or very little to the introgression of genetic material of stallions from Central Europe and the Near East documented in other breeds. Presumably, if the adaptations of these breeds to local conditions made them valued more highly than imported animals, this could explain their comparatively isolated history. One example is the restriction of import of horses to Iceland established already in AD 930 (Wallner *et al.* 2013).

The free-roaming horses of the Iron Age were left by themselves in wood- or moorland for large parts of the year where only selected stallions were allowed to run with the mares. This traditional way of keeping horses is recorded for primitive breeds like the Gotland Russ well into historic times (Zimmermann 1999; Sundkvist 2004). Evidence from the written sources, where herds connect-

Fig. 3. A herd of 60 Exmoor ponies is roaming freely on Langeland, Denmark. Photo Turist- og Erhversforeningen Langeland, http://www.langeland.dk/ln-int/langeland/wild-horses-langeland.

ed to specific persons or farms are mentioned, tell us that pedigree was important already in ancient times. A method to influence the stock was to buy a suitable stallion and let him loose. By subsequently removing young colts, probably through castration, there were ways to raise the chances of having foals by the selected stallion (Sundkvist 2004). Aggressive behaviour causing problems to travellers most probably led to the number of loose-running stallions being restricted, as is exemplified by 19th century laws from Norway and Iceland (Sundqvist 2004). Also, this practice of keeping herds of breeding animals free-roaming might initially have been as much out of necessity as convenience(fig. 3). For example, conservationists initially encountered problems such as pacing, excessive aggression, impotence, and infanticide when they tried to breed the wild Przewalski's horse (Boyd & Houpt 1994, Warmuth *et al.* 2012). The area in connection with the Skedemosse bog has been interpreted by Hagberg as a site for annual round-ups of the free-ranging horse herds (1967).

A close genetic relationship between modern northern European breeds (Norwegian Fjord horse, Nordland/Lyngen horse, Døle horse, Coldblooded trotter, Shetland pony, Finnhorse, North Swedish horse and Icelandic horse) and the Mongolian native horse has been revealed using microsatellite data as well as genome-wide SNP data, indicating a contribution of eastern genes to northern European horse populations (Bjørnstad *et al.* 2003; Petersen *et al.* 2013). This would possibly suggest that these breeds have an ancient and isolated history or were subjected to a more recent influx of eastern genes. Great expansions of the Nomadic Empires, conducted on horseback, under Scythians (8th century BC – 2nd century AD), Sarmatians (2nd century – 4th century AD), Huns under Attila (5th century AD) and Genghis Khan (13th century AD), are known examples of such possible eastern influences. The question of when this occurred could potentially be answered by future analysis of the genomes of ancient remains of Scandinavian horses.

To sum up, the Swedish horses do not seem to have expressed a lot of phenotypic variation. The horses were around 120–140 cm over the withers and most were black, bay or chestnut in colour. Maternally inherited mitochondrial genomes show abundant diversity both among and within horse breeds, possibly reflecting a bias toward the trading of females. In contrast, local stallions seem to have been highly valued, based on the autochthonous paternal lineages exhibited by modern northern European breeds. At some point in time, an influx of genes from eastern horse populations occurred, possibly mirroring the eastern influences seen in other categories of archaeological material (e.g. that described by Fabech 1991), but may be earlier or later.

Glossary

Mitochondrial DNA (mtDNA) is the DNA located in mitochondria, exclusively inherited from the mother.

Y chromosomal DNA is the DNA in the non-recombining part of the male sex chromosome, exclusively inherited from the father.

Autosomal DNA is the DNA in the chromosomes (with the exception of the sex chromosomes) within the cell nucleus.

Single nucleotide polymorphisms (SNPs) are variations at single positions (base pairs) in the DNA sequence among individuals.

An *allele* is one of a number of alternative forms of the same gene occupying a given position, or locus, on a chromosome.

A *haplotype* is a group of alleles that are transmitted together.

A *haplogroup* is a group of closely related haplotypes.

Phylogeography is the study of the processes controlling the geographic distributions of lineages by constructing the genealogies of populations and genes.

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Резюме

Лошадь Железного века

Эрика Росенгрен

Находка в Сёсдале, датирующаяся Эпохой переселения народов (рубеж IV–V вв.), является одним из наиболее интересных археологических открытий, связанных с лошадьми. Однако в непосредственной близости от места жертвоприношения конской упряжи не были найдены останки лошадей. В результате утрачена важнейшая часть уравнения, и для изучения физических особенностей лошади приходится обращаться к другим регионам.

Существует ряд одновременных находке письменных источников, оставленных чужеземными авторами, в том числе римскими хронистами. Согласно им, в жертву приносили чаще всего самцов животных, однако если использовать определение пола на молекулярном уровне, то создается впечатление, что и в погребениях, и в контексте жертвоприношений ни одному из полов животных предпочтений не отдавали. К тому же, в противоположность словам письменных источников о лошадях светлой масти, генетическое исследование останков скандинавских лошадей на мононуклеотидный полиморфизм указало на доминирование вороной, гнедой и рыжей пород, которые, как представляется, были одинаково распространены на всех памятниках. Возможное присутствие доминантного гена-ослабителя, осветляющего окраску серебристыми тонами, отмечено лишь для останков начала Эпохи викингов.

По данным ряда останков, обнаруженных на скандинавских памятниках, более или менее синхронных находке в Сёсдале, высота лошадей в холке определяется как приблизительно 120–140 см. Любопытно, что предполагаемая высота в холке хорошо соответствует данным, полученным для лошадей, живших на Европейском континенте и на Британских островах. Предполагают, что в этих регионах римляне завели новые женские линии лошадей; помимо этого, с течением времени наблюдается увеличение размеров и изменение формы тела животных, что заставляет предположить вероятное улучшение породы в результате использования нового племенного скота. Однако на синхронных скандинавских памятниках подобных изменений не наблюдается.

Генетические исследования наследуемых по материнской линии митохондриальных ДНК лошадей Железного века показали их большое разнообразие, которое исследователи интерпретируют как отражение тенденции к торговле самками животных. В аутосомных ДНК (т. е. микросателлитах) дивергенция современных пород более выражена, чем наблюдается по последовательностям митохондриальных ДНК, что еще раз подтверждает доминирование потока материнских генов в генном обмене между породами. Наоборот, выявленное у современных домашних пород разнообразие Y-хромосомы весьма ограничено, что, вероятно, является результатом использования очень немногочисленных жеребцов-производителей, одомашненных изначально, причем развивавшиеся после доместикации способы разведения породы в дальнейшем сократили используемое количество самцов. Доказано, что современные североевропейские породы, например, исландская лошадь, шетландский пони и норвежская фьордовая лошадь, очень часто сохраняют автохтонные варианты Y-хромосомы, тесно связанные с гаплотипом предков. По-видимому, если адаптация этих пород к местным условиям повысила их ценность по сравнению с привозными животными, то это обстоятельство могло быть объяснением их сравнительно изолированной истории.

Наконец, исследования микросателлитов и общегеномного мононуклеотидного полиморфизма открыли тесные генетические связи между современными североевропейскими породами и аборигенными монгольскими лошадьми, указав на участие восточных генов в формировании североевропейских популяций лошадей. Это может означать, что данные породы лошадей имеют древнюю, изолированную историю, или же что они недавно испытали приток восточных генов. Известными примерами восточного влияния является экспансия великих кочевых империй, осущест-

влявшаяся всадниками – скифами (VIII в. до н. э. – II в. н. э.), сарматами (II–IV в. н. э.), гуннами Аттилы (V в. н. э.) и Чингисханом (XIII в. н. э.). Однако этот восточный генетический материал мог быть привнесен одновременно и в более раннее, и в более позднее время, причем ответ на этот вопрос, возможно, позволят отыскать дальнейшие исследования геномов из останков древних лошадей, найденных на территории нынешней Скандинавии.

Подписи к иллюстрациям

Рис. 1. Лошади самых распространенных мастей – рыжей, гнедой и вороной (фото Photocase/kb-photodesign).

Рис. 2. Средняя высота холки лошадей Железного века в сравнении со средней высотой холки современных лошадей скандинавских пород (рисунок Эрики Росенгрен).

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Sösdala is a famous name in European archaeology of the Migration Period. But the fame of the name has thrown the find itself in deep shade. This is surprising since it contains mounts from an exquisitely decorated parade bridle, the closest parallels to which are found in Austria, Poland, Romania and Ukraine. The craftsmanship equals the best Late Roman metalwork.

The content of the Sösdala finds reveal that individuals from South Scandinavia were involved in the turmoil in eastern and central Europe when the Late Roman Empire disintegrated. The context, depositions of dismantled horse tack in gravel ridges, is explainable with reference to Nomadic funerary rituals following the burial of prominent horsemen.

This book, based on new scholarly studies and scientific analyses, contains full catalogues of three finds of horse tack, three bridles and fourteen saddles. In seventeen papers a European team of scholars place Sösdala in its European setting. The papers in English have resumés and captions in Russian.

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